

## Annotated Bibliography

# Clinician-Patient Communication Telehealth Visits



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American Medical Association. (2018). 50-state survey: Establishment of a patient-physician relationship via telemedicine.

The compilation of state laws may be useful to state and national specialty medical societies in advocacy related to efforts to telemedicine laws or regulations that define establishment of a patient-physician relationship for purposes of treatment telemedicine.

Bagchi A, Melamed B, Yenyurt S, Holzemer W & Reyes D. (July, 2018). Telemedicine delivery for urban seniors with low computer literacy: A pilot study. *Online Journal of Nursing Informatics (OJNI)*, 22 (2), Available at <http://www.himss.org/ojni>

The rapid development of health information technologies has been touted for its potential to address health disparities and create a more equitable healthcare system. However, most system designers do not understand the needs and preferences of members of underserved communities and fail to take these factors into consideration when developing applications. Although an increasing number of studies examine consumers' attitudes towards telehealth, there remains a dearth of information from consumers residing in underserved, urban areas. This pilot study used a mixed methods approach to assess the perspectives of consumers and nurses toward a specific telemedicine application. Consistent with prior studies, the findings suggest a general receptivity toward telehealth but with reservations related to discomfort with computers and the equivalency with face-to-face care. The study suggests the need for larger-scale studies that can help to identify the needs and preferences of members of underserved communities in the design of telehealth applications.

Barr NG, Randall Glen E, Archer NP & Musson DM. (2017). Physician communication via Internet-enabled technology: A systematic review. *Health Informatics Journal*, 25(3) 919-934.

The use of Internet-enabled technology (information and communication technology such as smartphone applications) may enrich information exchange among providers and, consequently, improve health care delivery. The purpose of this systematic review was to gain a greater understanding of the role that Internet-enabled technology plays in enhancing communication among physicians. Studies were identified through a search in three electronic platforms: the Association for Computing Machinery Digital Library, ProQuest, and Web of Science. The search identified 5140 articles; of these, 21 met all inclusion criteria. In general, physicians were satisfied with Internet-enabled technology, but consensus was lacking regarding whether Internet-enabled technology improved efficiency or made a difference to clinical decision-making. Internet-enabled technology can play an important role in enhancing communication among physicians, but the extent of that benefit is influenced by (1) the impact of Internet-enabled technology on existing work practices, (2) the availability of adequate resources, and (3) the nature of institutional elements, such as privacy legislation.

Bashshur RL, Howell JD, Krupinski EA, Harms KM, Bashshur N, Doarn CR (2016). The Empirical Foundations of Telemedicine Interventions in Primary Care. *Telemed J E Health*.1; 22(5):342–375.

**INTRODUCTION:** This article presents the scientific evidence for the merits of telemedicine interventions in primary care. Although there is no uniform and consistent definition of primary care, most agree that it occupies a central role in the healthcare system as first contact for patients seeking care, as well as gatekeeper and coordinator of care. It enables and supports patient-centered care, the medical home, managed care, accountable care, and population health. Increasing concerns about sustainability and the anticipated shortages of primary care physicians have sparked interest in exploring the potential of telemedicine in addressing many of the challenges facing primary care in the United States and the world.

**MATERIALS AND METHODS:** The findings are based on a systematic review of scientific studies published from 2005 through 2015. The initial search yielded 2,308 articles, with 86 meeting the inclusion criteria. Evidence is organized and evaluated according to feasibility/acceptance, intermediate outcomes, health outcomes, and cost.

**RESULTS:** The majority of studies support the feasibility/acceptance of telemedicine for use in primary care, although it varies significantly by demographic variables, such as gender, age, and

socioeconomic status, and telemedicine has often been found more acceptable by patients than healthcare providers. Outcomes data are limited but overall suggest that telemedicine interventions are generally at least as effective as traditional care. Cost analyses vary, but telemedicine in primary care is increasingly demonstrated to be cost-effective.

CONCLUSIONS: Telemedicine has significant potential to address many of the challenges facing primary care in today's healthcare environment. Challenges still remain in validating its impact on clinical outcomes with scientific rigor, as well as in standardizing methods to assess cost, but patient and provider acceptance is increasingly making telemedicine a viable and integral component of primary care around the world.

Beebe S. (2018). Practice note: Confessions of an online therapist. *Journal of Technology in Human Services*, 36(2-3) 163-171.

Virtual therapy in the online space.

Benson SS, Dimian AF, Elmquist M, Simacek J, McComas JJ & Symons FJ. (2018). Coaching parents to assess and treat self-injurious behavior via telehealth. *Journal of Intellectual Disability Research*, 62(12) 1114-1123.

The application of telehealth technology to conduct functional analysis (FA) and functional communication training (FCT) is emerging for children with developmental disabilities and behaviour support needs. The current study was designed to extend FA + FCT for self-injurious behavior by using telehealth in home with parents as interventionists receiving real-time remote coaching. Two families with school-aged boys with developmental disabilities associated with intellectual disability participated, one with cerebral palsy and the other with autism spectrum disorder. Results indicated that parent-implemented FA + FCT via telehealth was effective for reducing self-injurious behaviour and increasing mands (communication requests) for both children. Both families successfully implemented the FA + FCT protocol with 95% overall fidelity via telehealth-supported coaching. Results are discussed in terms of their relationship to previous research, limitations and future directions.

Butler Carroll T. (2018). Four keys to telemedicine etiquette.

[http://ruralhealthquarterly.com/home/wp-content/uploads/2018/09/AdobeStock\\_178248918.jpeg](http://ruralhealthquarterly.com/home/wp-content/uploads/2018/09/AdobeStock_178248918.jpeg)

Although a good “bedside manner” comes as second nature for most clinicians, conveying concern and competency over the “wire” of telemedicine can be challenging. These are four simple tips to deliver outstanding care through a videoconferencing connection.

Colucci M, Baldo V, Baldovin T & Bertonecello C. (2019). A “matter of communication”: A new classification to compare and evaluate telehealth and telemedicine interventions and understand their effectiveness as a communication process. *Health Informatics Journal*, 25(2) 446-460.

This article attempts to define functions and applications of telemedicine and telehealth in order to achieve a simplified and comprehensive taxonomy. This may be used as a tool to evaluate their efficacy and to address health policies from the perspective of the centrality of information in the healthcare. Starting from a lexical frame, telemedicine or telehealth is conceived as a communication means and their action as a communication process. As a performance, the communication is related to the health outcome. Three functions (*telemetry*, *telephysis*, and *telepraxis*) and nine applications are identified. Understanding the mechanisms of telemedicine and telehealth effectiveness is crucial for a value-driven healthcare system. This new classification—focusing on the end effect of telemedicine and telehealth and on the type of interactions between involved actors—moves toward a new and simplified methodology to compare different studies and practices, design future researches, classify new technologies and guide their development, and finally address health policies and the healthcare provision.

eVisit. (2017). Definitive guide to purchasing a telemedicine platform. (2017). A step-by-step guide to selecting the right telemedicine solution for your organization.

Donelan K, Barreto EA, Sossong S, Michael C, Estrada JJ, Cohen AB, Wozniak J & Schwamm LH. (2019). Patient and clinician experiences with telehealth for patient follow-up care, <https://www.ajmc.com/journals/issue/2019/2019-vol25-n1/patient-and-clinician-experiences-with-telehealth-forpatient-followup-care>

We initiated the Massachusetts General Hospital (MGH) TeleHealth program in 2012, offering a range of telemedicine services in 15 clinical departments. This paper describes experiences with virtual video visits (VVs): 2-way audiovisual synchronous videoconferencing between the MGH clinician and patient. The research reported here focuses on the patient and clinician experience of a VV in a full year of operation to understand its value and comparative experience with VVs and office visits.

Gustin TS, Kott K, Rutledge C. (2020). Telehealth etiquette training: A Guideline for Preparing Interprofessional Teams for Successful Encounters. *Nurse Educ.* 45(2):88-92. doi: 10.1097/NNE.0000000000000680

**BACKGROUND:** Telehealth technologies have increased in many health care settings. However, much of the training that occurs regarding telehealth is vendor driven. Training that is typically offered focuses on technical aspects of using telehealth equipment, legal issues, and reimbursement. Rarely does industry training involve soft skills or “screen side etiquette” unique to telehealth encounters.

**PURPOSE:** The purpose of this article is to present a training program that prepares students with the unique skill set necessary to conduct telehealth visits.

**METHODS:** A training program was developed to teach health care students (n = 103) proper telehealth etiquette. Preprogram and post program data were collected on students' understanding of telehealth etiquette.

**RESULTS:** Results demonstrate significant improvement in knowledge in all areas of telehealth etiquette following the program.

**CONCLUSION:** Students recognized some improper telehealth etiquette prior to the program but improved significantly following the program.

Henry BW, Block DE, Ciesla JR, McGowan BA & Vozenilek JA. (2017). Clinician behaviors in telehealth care delivery: a systemic review. *Adv in Health Sci Educ*, 22:869-888.

Literature on telehealth care delivery often addresses clinical, cost, technological, system, and organizational impacts. Less is known about interpersonal behaviors such as communication patterns and therapeutic relationship-building, which may have workforce development considerations. The purpose of this study was to conduct a systematic literature review to identify interpersonal health care provider (HCP) behaviors and attributes related to provider-patient interaction during care in telehealth delivery. Electronic searches were conducted using five indexes/databases: CINAHL, ERIC, PsychInfo, ProQuest Dissertations, PubMed; with hand-searching of the immediate past 10 years of five journals. Search concepts included: communication, telehealth, education, and health care delivery. Of 5261 unique article abstracts initially identified, 338 full-text articles remained after exclusion criteria were applied and these were reviewed for eligibility. Finally, data were extracted from 45 articles. Through qualitative synthesis of the 45 articles, we noted that papers encompassed many disciplines and targeted care to people in many settings including: home care, primary and specialist care, mental health/counseling, and multi-site teams. Interpersonal behaviors were observed though not manipulated through study designs. Six themes were identified: HCP-based support for telehealth delivery; provider-patient interactions during the telehealth event; environmental attributes; and guidelines for education interventions or evaluation of HCP behaviors. Although unable to identify current best practices, important considerations for practice and education did emerge. These include: perceptions of the utility of telehealth; differences in communication patterns such as pace and type of discourse, reliance on visual cues by both provider and patient especially in communicating empathy and building rapport; and confidentiality and privacy in telehealth care delivery.

Henry BW, Ames LJ, Block DE & Vozenilek JA. (2018). Experienced practitioners' views on interpersonal skills in telehealth delivery. *Internet Journal of Allied Health Sciences and Practices*, 16(2) 2.

**BACKGROUND:** As telehealth becomes a larger part of the health care landscape, clinicians are becoming prepared to operate technology-based systems for conducting routine care and exchanging information. Less defined are interpersonal skills for telehealth care delivery such as communication and therapeutic relationships that can influence clinical outcomes. Examples include clinician adaptability to the communication process via telehealth, clinician congeniality in communications, and striving to achieve telepresence. The purpose of this study was to describe interpersonal skills for telehealth delivery to assist in the preparation of health professionals.

**METHODS:** A qualitative methods approach was used to build on results from our previously published systematic review. Semi-structured, in-depth interviews were conducted with experienced practitioners or educators (n=6) at multiple regional telehealth centers. Video/audio-recorded sessions were transcribed verbatim and researchers conducted thematic analysis of data until achieving saturation of data.

**RESULTS:** Participants provided their perspectives about interpersonal skills important for quality telehealth delivery based on professional experiences. Analysis of responses across interviews showed strong alignment with the six themes identified previously as non-technical clinician attributes: Preinteractional, Verbal Communication, Non-Verbal Communication, Relational, and Environmental. Also, an additional theme of Management/Operations emerged. Suggested training topics crossed clinical disciplines and ranged from telemedicine etiquette and verbal skills to equipment operation and billing and coding. Each study participant commented on benefits from preparation of telehealth clinicians related to the clinician-patient interaction such as: patient engagement, patient-centered care, patient satisfaction, patient implementation of care plans, effective communication with patients, and quality assessment of telehealth sessions.

**CONCLUSIONS:** This study identified interpersonal skills that may be applied in professional education for telehealth delivery from the perspective of experienced practitioners. Further research could explore outcomes from professional preparation for interpersonal skills and patient perspectives.

Herold R, van den Berg N, Dörr M & Hoffman W. (2018). Telemedical care and monitoring for patients with chronic heart failure has a positive effect on survival. *Health Services Research*, 10.1111/1475-6773.12661.

**BACKGROUND:** Telemedical care and monitoring programs for patients with chronic heart failure have shown beneficial effects on survival in several small studies. The utility in routine care remains unclear.

**METHODS:** We evaluated a large-sized telemedicine program in a routine care setting, enrolling in total 2,622 patients (54.7 percent male, mean age: 73.7 years) with chronic heart failure. We used reimbursement data from a large statutory health insurance and approached a matched control analysis. In a complex propensity score matching procedure, 3,719 suitable controls (54.2 percent male, mean age: 74.5 years) were matched to 1,943 intervention patients (54.1 percent male, mean age: 74.4 years). The primary endpoint of our analysis was survival after 1 year.

**RESULTS:** Analyses revealed a higher survival probability among subjects of the intervention group compared to controls group after 1 year (adjusted OR: 1.47, CI 95 percent: 1.21–1.80,  $p < .001$ ) and 2 years (adjusted OR: 1.51, CI 95 percent: 1.28–1.77,  $p < .001$ ), respectively.

**CONCLUSIONS:** The probabilities to survive after 1 and 2 years were significantly increased in the intervention group. Our findings confirm previous results of controlled trials and importantly indicate that patients with chronic heart failure may benefit from telemonitoring programs in routine care.

LeRouge C, Garfield MJ & Hevner AR. (2002). Quality attributes in telemedicine video conferencing. *Proceedings of the 35<sup>th</sup> Hawaii International Conference on System Sciences*.

Video conferencing is used increasingly in many telemedicine applications, including medical personnel education, peer consultation, patient education, and direct patient care. Advances in technology and changes in medical care delivery have enhanced the ability to develop effective

telemedicine video conferencing systems. Measures of effectiveness for technology systems rely on identified requirements for system quality. In this research, we propose a comprehensive model of quality attributes for telemedicine video conferencing systems. The quality attribute model is developed from an extensive literature review, direct observations of telemedicine encounters, and structured interviews with telemedicine experts. The model contains four quality attribute groups: Technical, Usability, Physical Environment, and Human Element. Interview citations are used to justify the importance of these individual quality attributes. Both researchers and practitioners can make use of the model to understand, design, and evaluate telemedicine video conferencing systems.

LeRouge C, Garfield MJ & Hevner AR. (2015). Patient perspectives of telemedicine quality. *Patient Preference and Adherence*, 9 25-40.

**BACKGROUND:** The purpose of this study was to explore the quality attributes required for effective telemedicine encounters from the perspective of the patient.

**METHODS:** We used a multi-method (direct observation, focus groups, survey) field study to collect data from patients who had experienced telemedicine encounters. Multi-perspectives (researcher and provider) were used to interpret a rich set of data from both a research and practice perspective.

**RESULTS:** The result of this field study is a taxonomy of quality attributes for telemedicine service encounters that prioritizes the attributes from the patient perspective. We identify opportunities to control the level of quality for each attribute (i.e., who is responsible for control of each attribute and when control can be exerted in relation to the encounter process). This analysis reveals that many quality attributes are in the hands of various stakeholders, and all attributes can be addressed proactively to some degree before the encounter begins.

**CONCLUSION:** Identification of the quality attributes important to a telemedicine encounter from a patient perspective enables one to better design telemedicine encounters. This preliminary work not only identifies such attributes, but also ascertains who is best able to address quality issues prior to an encounter. For practitioners, explicit representation of the quality attributes of technology-based systems and processes and insight on controlling key attributes are essential to implementation, utilization, management, and common understanding.

Live Online Learning Activities. (2020). Advantages and disadvantages of virtual classrooms. The Thiagi Group.

McIver L & Karnes M. (2019). Role-play as an effective way to teach relationship building with telehealth. *The Open Journal of Occupational Therapy*, Vol. 7: Iss. 2, Article 10.

Telehealth has been described in the literature as an emerging niche for occupational therapists. The profession needs to move toward cost-effective and efficient ways to provide services while not adding to the increasing cost of health care, and one way of doing this is through telehealth. The research supports the importance of the therapeutic relationship, and that telehealth changes how we develop this bond; however, the literature does not provide educators with information on how to teach this to students. The purpose of this article is to highlight the potential of using role-play to educate students on how to develop a therapeutic relationship while using telehealth. This project included a course that was presented over three modules to teach the skills needed for developing relationships while using telehealth. A pre and post-survey design was used to measure if there were changes in the students' perceptions of their abilities to establish relationships while using telehealth. Sixteen students participated. After completing the three modules, the students improved their confidence in their abilities to develop a therapeutic relationship and felt that role-play was effective for teaching these skills. It is important to provide students with opportunities to role-play while using telehealth as a part of their coursework.

McLean Hoyson P. (2019). Telehealth and the advanced practice nurse. Case Western Reserve University, Frances Payne Bolton School of Nursing. Submitted in partial fulfillment of the requirements of the degree of doctor of nursing practice.

**STATEMENT OF PROBLEM:** There is evidence demonstrating a relationship between the evolution and accessibility of technology and the use of this technology in the provision of care for improvement of health outcomes. There are established benefits to educating APNs in the use and

application of telehealth in order to provide safe quality care for patients. The question that remains is what current competencies (knowledge and skills) are used by APNs in the workplace and how were they prepared for telehealth practice.

**STUDY PURPOSE:** This study describes the APNs' use and preparation of telehealth competencies in practice. The study will (1) identify telehealth competencies (knowledge and skills) used, (2) state the frequency of use, and (3) describe how and where APNs are prepared for the competencies.

**METHODS:** The study design is a descriptive study using a survey method.

**PERTINENT FINDINGS:** The telehealth competencies identified in the study were reported as currently used in practice. The frequency of used varied with a majority of APNs reporting daily use in practice. There is little workplace orientation or competency testing reported. Educational preparation for the competencies was identified by less than half of the APNs and was accomplished evenly between graduate level education and continuing education.

**CONCLUSIONS:** There is a defined need to incorporate more didactic and clinical telehealth education and competency testing in nursing programs in order to better prepare advance practice nurses to use telehealth in providing optimum care for patients. The competencies (knowledge and skills) identified in this study of a national population of APNs provides information needed to take the next steps to incorporate telehealth competencies (knowledge and skill) into both didactic and clinical education in nursing.

Miller EA. (2002). Telemedicine and doctor-patient communication: a theoretical framework for evaluation. Correspondence: Department of Health Management and Policy, School of Public Health, University of Michigan.

The literature on doctor patient communication demonstrates that patient, provider and contextual characteristics influence behaviour within medical encounters, which in turn is an important determinant of health outcomes. This paper introduces a conceptual model which posits that telemedicine affects health outcomes through changes in the way doctors and patients communicate with one another. It also proposes that this process depends on the medium through which the consultation takes place, whether in person, over the telephone, via fax or email, or through two-way interactive video. Since participants in two-way interactive video-consultations rarely meet in person, it is particularly important that the effect of substituting video for face-to-face consultations be delineated.

Miller EA. (2003). The technical and interpersonal aspects of telemedicine: effects on doctor-patient communication. Correspondence: Department of Health Management and Policy, School of Public Health, University of Michigan.

The influence of telemedicine on the nature and content of doctor-patient communication stems from both its technical and its interpersonal aspects. While the technical aspects are concerned with the communication technologies used and the clinical processes enabled by those technologies, the interpersonal aspects are concerned with relationships between system personnel, providers and patients, and the way in which those relationships are organized. On the one hand, this paper posits that the influence of the technical environment stems from depersonalization of the doctor-patient relationship, participatory enhancements and impediments, and sensory and non-verbal limitations. On the other hand, it posits that the influence of the interpersonal environment stems from third-party participation, social and professional distancing, and underdeveloped norms and standards. A combined positivist and interpretivist evaluation strategy would enable researchers to make better-informed connections between telemedicine, medical encounter behaviour and health outcomes.

Morony S, Weir K, Duncan G, Biggs J, Nutbeam D & Mccaffery J. (2018). Enhancing communication skills for telehealth: development and implementation of a Teach-Back intervention for a national maternal and child health helpline in Australia. *BMC Health Services Research*, 18:162.

**BACKGROUND:** Telehealth professionals require advanced communication skills, in part to compensate for lack of visual cues. Teach-Back is a best practice communication technique that has been recommended but not previously evaluated for consumer telehealth. We aimed to implement Teach-Back at a national maternal and child health telephone helpline. We describe the intervention and report telenurse experiences learning to use Teach-Back.

**METHODS:** We identified barriers (time, knowledge, skills, beliefs) and enablers (self-reflection) to using Teach-Back, and developed a novel training program to address these, guided by the Theoretical Domains Framework. We engaged maternal and child health telenurses to participate in a “communication skills” study. The intervention had two key components: guided self-reflection and a Teach-Back skills workshop. For the duration of the 7-week study nurses completed brief online surveys following each call, reflecting on both the effectiveness of their communication and perceived caller understanding. At the end of each shift they reflected on what worked well. Teach-Back knowledge, skills, and beliefs were addressed in a 2-h workshop using videos, discussion, and role play. We explored nurses’ experiences of the intervention in focus groups and interviews; and analysed transcripts and comments from the self-reflection surveys using the Framework method. This study forms part of a larger evaluation conducted in 2016.

**RESULTS:** In total 16 nurses participated: 15 were trained in Teach-Back, and 13 participated in focus groups or interviews. All engaged with both self-reflection and Teach-Back, although to differing extents. Those who reported acquiring Teach-Back skills easily limited themselves to one or two Teach-Back phrases. Nurses reported that actively self-reflecting (including on what they did well) was useful both for developing Teach-Back skills and analysing effectiveness of the techniques. Most wanted more opportunity to learn how their colleagues manage Teach-Back in different situations, and more visual reminders to use Teach-Back.

**CONCLUSIONS:** Our theory-informed intervention successfully enabled nurses to use Teach-Back. Guided self-reflection is a low-resource method aligned with nurse professional identity that can facilitate Teach-Back skills learning, and could also be applied to other advanced communication skills for telehealth. Listening to multiple workplace-specific examples of Teach-Back is recommended for future training.

Mousa AY, Broce M, Monnett S, Davis E, McKee B & Lucas BD. (2017). Telehealth electronic monitoring to reduce post-discharge complications and surgical site infections after arterial revascularization with groin incision *Journal of Vascular Surgery*, 66(6):1902-1908.

It is intuitive that post discharge surgical complications are associated with increased patient dissatisfaction, and are directly associated with an increase in medical expenditures. It is also easy to make the connection that many post hospital discharge surgical complications, including surgical site infections (SSIs), could be influenced or exacerbated by patient comorbidities. The authors of a recent study reported that female gender, obesity, diabetes, smoking, hypertension, coronary artery disease, critical limb ischemia, chronic obstructive pulmonary disease, dyspnea, and neurologic disease were significant predictors of SSIs after vascular reconstruction was performed. The main concern for optimal patient care, especially in geographically isolated areas of West Virginia, is to have early, expeditious, and prompt diagnosis of complications and SSI. This adjunct to existing approaches could lead to improved outcomes and patient satisfaction, minimizing third-party interventions and decreasing the total cost of care. It seems reasonable to believe that monitoring using telehealth technology and managing the general health care of patients after a hospital vascular intervention will improve overall health and reduce 30-day readmissions and SSIs.

Nerlich M, Herbst T, Erntsberger A & Blaetzinger M. (2019). Opportunities of Telemedicine for Orthopedics and Trauma Surgery. *Int J Travel Med Glob Health*, 7(3):72-78.

Today telemedicine, or eHealth, is an important tool in everyday medical life. In all areas, from the preclinical to aftercare, significant improvements in communication structures have been seen in various eHealth options, which have had significant, positive effects on the quality of patient care in orthopedics and trauma surgery. Initially, there were several isolated solutions and many small individual projects; however, there was a lack of interdisciplinary and comprehensive systems in all healthcare fields. The German Trauma Society (DGU) together with the AUC GmbH took the lead and paved the way for a modulated, comprehensive, interface-compatible teleradiology system. Nevertheless, there are still deficits across all sectors which, in the future, will need to be optimized by eHealth methods and systems. Overall, there is an effort towards patient-centered solutions (patient empowerment). In Germany, telemedicine has gradually gained acceptance in various sectors and is being used nationwide. Telemedicine has proven itself, especially in trauma networks.



Orlando JF, Beard M & Kumar S. (2019). Systematic review of patient and caregivers' satisfaction with telehealth videoconferencing as a mode of service delivery in managing patients' health. *PLoS ONE* 14(8): e0221848. <https://doi.org/10.1371/journal.pone.0221848>

Telehealth is an alternative method of delivering health care to people required to travel long distances for routine health care. The aim of this systematic review was to examine whether patients and their caregivers living in rural and remote areas are satisfied with telehealth videoconferencing as a mode of service delivery in managing their health. A protocol was registered with PROSPERO international prospective register of systematic reviews (#CRD42017083597) and conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. A systematic search of Ovid Medline, Embase, CINAHL, ProQuest Health Research Premium Collection, Joanna Briggs Institute and the Cochrane Library was conducted. Studies of people living in rural and remote areas who attended outpatient appointments for a health condition via videoconference were included if the studies measured patient and/or caregivers' satisfaction with telehealth. Data on satisfaction was extracted and descriptively synthesised. Methodological quality of the included studies was assessed using a modified version of the McMaster Critical Review Forms for Quantitative or Qualitative Studies. Thirty-six studies of varying study design and quality met the inclusion criteria. The outcomes of satisfaction with telehealth were categorised into system experience, information sharing, consumer focus and overall satisfaction. There were high levels of satisfaction across all these dimensions. Despite these positive findings, the current evidence base lacks clarity in terms of how satisfaction is defined and measured. People living in rural and remote areas are generally satisfied with telehealth as a mode of service delivery as it may improve access to health care and avoid the inconvenience of travel.

Pappas Y, Vseteckova J, Mastellos N, Greenfield G & Randhawa G. (2019). Diagnosis and Decision-Making in Telemedicine. *Journal of Patient Experience*, 6(4) 296-304.

This article provides an analysis of the skills that health professionals and patients employ in reaching diagnosis and decision-making in telemedicine consultations. As governmental priorities continue to emphasize patient involvement in the management of their disease, there is an increasing need to accurately capture the provider-patient interactions in clinical encounters. Drawing on conversation analysis of 10 video-mediated consultations in 3 National Health Service settings in England, this study examines the interaction between patients, General Practitioner (GPs), nurses, and consultants during diagnosis and decision-making, with the aim to identify the range of skills that participants use in the process and capture the inter-professional communication and patient involvement in the diagnosis and decision-making phases of telemedicine consultations. The analysis shows that teleconsultations enhance collaborative working among professionals and enable GPs and nurses to develop their skills and actively participate in diagnosis and decision-making by contributing primary care-specific knowledge to the consultation. However, inter-professional interaction may result in limited patient involvement in decision-making. The findings of this study can be used to inform training programs in telemedicine that focus on the development of effective skills for professionals and the provision of information to patients.

Potok B. (2019). Telemedicine: how to make it work for your prosthetic care. inMotion March-April.

Rietdijk R, Power E, Attard M, Heard R, & Togher L. (2020). Improved conversation outcomes after social communication skills training for people with traumatic brain injury and their communication partners: a clinical trial investigating in-person and telehealth delivery. *Journal of Speech, Language, and Hearing Research*, 63 615-632.

**PURPOSE:** The aim of the study was to investigate the effectiveness of social communication skills training (TBIconneCT) for people with traumatic brain injury (TBI) and their communication partners, delivered in-person or via telehealth, on quality of conversations.

**METHOD:** This study is a clinical trial, including an in-person intervention group (n = 17), a telehealth intervention group (n = 19), and a historical control group (n = 15). Participants were adults at least 6 months post moderate-to-severe TBI with social communication skills deficits and their usual communication partners. Participants completed a casual and purposeful conversation task at pre-intervention, post-intervention, and a follow-up assessment. A blinded assessor evaluated

conversations using the Adapted Measure of Participation in Conversation and the Adapted Measure of Support in Conversation. Treatment effects were examined by comparing groups on change in ratings between pre- and post-training. Maintenance of effects was examined using change between post-training and follow-up assessment. The trial protocol was registered with the Australian New Zealand Clinical Trials Registry (ACTRN12615001024538).

**RESULTS:** Trained participants with TBI had significant improvements in participation in casual conversation compared to controls. Trained communication partners also had significant improvements compared to controls on ratings of support in casual conversations. However, treatment effects were not maintained at follow-up for two of eight measures. Comparisons between outcomes of in-person and telehealth groups found negligible to small effect sizes for six of eight measures.

**CONCLUSIONS:** The findings reinforce previous studies demonstrating the efficacy of communication partner training after TBI. Telehealth delivery produced similar outcomes to in-person delivery.

Rush KL, Hatt L, Janke R, Burton L, et al. (2018) The Efficacy of Telehealth Delivered Educational Approaches for Patients with Chronic Diseases: A Systematic Review. *Patient Educ Couns*.

**OBJECTIVE:** The virtual delivery of patient education and other forms of telehealth have been proposed as alternatives to providing needed care for patients with chronic diseases. The purpose of this systematic review was to compare the efficacy of virtual education delivery on patient outcomes compared with usual care.

**METHODS:** The review examined citations from 3 databases, MEDLINE, CINAHL, and EMBASE using the search words telehealth, chronic disease, patient education, and related concepts. From 2447 records published between 2006 and 2017, 16 high to moderate quality studies were selected for review. Eligible papers compared virtual education to usual care using designs allowing for assessment of causality.

**RESULTS:** Telehealth modalities included the web, telephone, videoconference, and television delivered to patients with diabetes, chronic obstructive pulmonary disease, irritable bowel syndrome and heart failure. In 11 of 16 studies, virtually delivered interventions significantly improved outcomes compared to control conditions. In the remaining 5 studies, virtual education showed comparable outcomes to the control conditions.

**CONCLUSIONS:** Findings demonstrated that virtual education delivered to patients with chronic diseases was comparable, or more effective, than usual care.

**RESEARCH IMPLICATIONS:** Despite its benefits, there is potential for further research into the individual components which improve effectiveness of virtually delivered interventions.

Rutledge C, Kott K, Schweickert PA, Poston R, Fowler C & Haney TS. (2017). Telehealth and eHealth in nurse practitioner training: current perspectives. *Advances in Medical Education and Practice*, 8 399-409.

Telehealth is becoming a vital process for providing access to cost-effective quality care to patients at a distance. As such, it is important for nurse practitioners, often the primary providers for rural and disadvantaged populations, to develop the knowledge, skills, and attitudes needed to utilize telehealth technologies in practice. In reviewing the literature, very little information was found on programs that addressed nurse practitioner training in telehealth. This article provides an overview of both the topics and the techniques that have been utilized for training nurse practitioners and nurse practitioner students in the delivery of care utilizing telehealth. Specifically, this article focuses on topics including 1) defining telehealth, 2) telehealth etiquette, 3) inter-professional collaboration, 4) regulations, 5) reimbursement, 6) security/Health Insurance Portability and Accountability Act (HIPAA), 7) ethical practice in telehealth, and 8) satisfaction of patients and providers. A multimodal approach based on a review of the literature is presented for providing the training: 1) didactics, 2) simulations including standardized patient encounters, 3) practice immersions, and 4) telehealth projects. Studies found that training using the multimodal approach allowed the students to develop comfort, knowledge, and skills needed to embrace the utilization of telehealth in health care.

Rutledge C, Pitts C, Poston R & Schweickert PA. (2018). National Organization of Nurse Practitioner Faculties Telehealth Paper.

New strategies are needed to effectively address the national healthcare provider shortage, complexity of disease, aging of our population, and limited access to care. One potentially unifying solution to current challenges in healthcare that also actualizes the Institute of Medicine (IOM) nursing goals related to innovative solutions to care using technology is telehealth. Telehealth refers to use of technology to provide healthcare services at a distance including direct patient care, remote monitoring, and education. As leaders in healthcare, nurse practitioners (NPs) should possess the knowledge and skills required to advocate for and utilize such technologies in practice.

Sedlander E, Barboza KC, Jensen A, Skursky N, Bennett K, Sherman S & Schwartz M. (2018). Veterans' preferences for remote management of chronic conditions. *Telemedicine and e-Health*, 24(3) 229-235.

**BACKGROUND:** The Veterans Health Administration (VA) is investing considerable resources into providing remote management care to patients for disease prevention and management. Remote management includes online patient portals, e-mails between patients and providers, follow-up phone calls, and home health devices to monitor health status. However, little is known about patients' attitudes and preferences for this type of care. This qualitative study was conducted to better understand patient preferences for receiving remote care.

**METHODS:** Ten focus groups were held comprising 77 patients with hypertension or tobacco use history at two VA medical centers. Discussion questions focused on experience with current VA remote management efforts and preferences for receiving additional care between outpatient visits.

**RESULTS:** Most participants were receptive to remote management for referrals, appointment reminders, resource information, and motivational and emotional and privacy of healthcare information. Female Veterans expressed a desire for gender-sensitive care and an interest in complementary and alternative medicine.

**CONCLUSIONS:** The findings and specific recommendations from this study can improve existing remote management programs and inform the design of future efforts. support between visits, but described challenges with some technological tools. Participants reported that remote management should be personalized and tailored to individual needs. They expressed preferences for frequency, scope, continuity of provider, and mode of communication between visits. Most participants were open to non-clinicians contacting them as long as they had direct connection to their medical team. Some participants expressed a preference for a licensed medical professional. All groups raised concerns around confidentiality and privacy of healthcare information. Female Veterans expressed a desire for gender-sensitive care and an interest in complementary and alternative medicine.

Simacek J, Dimian AF & McComas JJ. (2017). Communication Intervention for Young Children with Severe Neurodevelopmental Disabilities Via Telehealth. *J Autism Dev Disord*, 47:744-767.

Young children with neurodevelopmental disorders such as autism spectrum disorders (ASD) and Rett syndrome often experience severe communication impairments. This study examined the efficacy of parent-implemented communication assessment and intervention with remote coaching via telehealth on the acquisition of early communication skills of three young children with ASD (2) and Rett syndrome (1). Efficacy of the intervention was evaluated using single-case experimental designs. First, functional assessment was used to identify idiosyncratic/potentially communicative responses and contexts for each child. Next, parents implemented functional communication training (FCT). All of the children acquired the targeted communication responses. The findings support the efficacy of telehealth as a service delivery model to coach parents on intervention strategies for their children's early communication skills.

Telehealth Start-Up and Resource Guide. (2014). Version 1.1. Telligen Health Information Technology Regional Extension Center, Great Plains Telehealth Resource & Assistance Center.

Terry C & Cain J. (2016). The Emerging Issue of Digital Empathy. *American Journal of Pharmaceutical Education*, 80 (4) Article 58.

Empathy can have strong positive effects on patient outcomes, increase patient satisfaction, and reduce malpractice litigation. With modern advances in technology, however, the appropriate expression of empathy in today's age is being threatened, largely as a result of psychological processes that form online disinhibition. The digitization of health care and the corresponding decrease in the expression of empathy may be cause for concern. Because empathy is strongly correlated to positive health outcomes and is an important part of health professions in general, the construct of digital empathy should be considered for integration into health professions curricula.

Totten AM, Womack DM, Eden KB, McDonagh MS, Griffin JC, Grusing S & Hersh WR. (2016). Telehealth: Mapping the Evidence for Patient Outcomes From Systematic Reviews. Technical Brief No. 26. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) AHRQ Publication No.16-EHC034-EF. Rockville, MD: Agency for Healthcare Research and Quality; June 2016. [www.effectivehealthcare.ahrq.gov/reports/final.cfm](http://www.effectivehealthcare.ahrq.gov/reports/final.cfm).

**BACKGROUND:** Telehealth includes a wide range of technologies used to fulfill many functions in health care for patients with a variety of clinical conditions. For this evidence map, telehealth is defined as the use of information and telecommunications technology in health care delivery for a specific patient involving a provider across distance or time. Various types of telehealth interventions have been evaluated in thousands of research studies and hundreds of systematic reviews. The vast size of the literature and the variations in how the literature has been collected, evaluated, and synthesized make it challenging to determine what is known about the effectiveness of telehealth for specific purposes and what questions remain unanswered.

**PURPOSE:** The purpose of this brief is to provide an overview of the large and disparate body of evidence about telehealth for use by decision makers. The approach used was to create an evidence map of systematic reviews published to date that assess the impact of telehealth on clinical outcomes. This evidence map describes a limited number of key characteristics of the systematic reviews currently available in order to evaluate the bodies of evidence available to inform practice, policy, and research decisions about telehealth.

**METHODS:** An evidence map is a specific type of rapid or abbreviated review. While the creation of the evidence map is based on systematic review methodology, its goal is to describe rather than synthesize available research and to use graphics when possible to represent selected characteristics of the evidence. We included systematic reviews that synthesized the impact of telehealth interventions on clinical outcomes, utilization, or cost. We created bubble plots to separately examine the distribution of the evidence from systematic reviews in terms of volume (number of reviews, number of patients in the included studies), conclusions about benefit by clinical focus area, and telehealth function. We also determined how much evidence is available about combinations of clinical areas and telehealth functions reported in existing systematic reviews. We supplemented this by summarizing the topics covered in excluded reviews and the results of exploratory searches for primary studies on selected topics in order to assess the need for future systematic reviews or primary studies in key telehealth domains.

**FINDINGS:** We identified 1,494 citations about telehealth, from which 58 systematic reviews met our inclusion criteria. A large volume of research reported that telehealth interventions produce positive outcomes when used for remote patient monitoring, broadly defined, for several chronic conditions and for psychotherapy as part of behavioral health. The most consistent benefit has been reported when telehealth is used for communication and counseling or remote monitoring in chronic conditions such as cardiovascular and respiratory disease, with improvements in outcomes such as mortality, quality of life, and reductions in hospital admissions. Given sufficient evidence of effectiveness for these topics, the focus of future research should shift to implementation and practice-based research. Topics with an evidence base that could be the focus of future systematic reviews include telehealth for consultation, uses in intensive care units, and applications in maternal and child health. We also identified topics with a limited evidence base such as telehealth for triage in

urgent/primary care, management of serious pediatric conditions, patient outcomes for tele dermatology, and the integration of behavioral and physical health that may be best addressed by additional primary research. Finally, telehealth research should be integrated into evaluation of new models of care and payment so that the potential of telehealth can be assessed across the continuum of care in organizations that are implementing these reforms.

Vanderpool D. Top 10 myths about telepsychiatry. (2017). *Innov Clin Neurosci*. 14(9-10):13-15.

The technology for remote treatment is advancing rapidly. The regulatory environment in which psychiatrists practice telepsychiatry is also evolving but at a much slower pace than the technology. As introduced in this journal years ago by my colleague Charles D. Cash in his article, "Telepsychiatry and Risk Management," there is still a lack of uniformity in how—and even whether—states address telemedicine requirements. This discrepancy has resulted in many myths around this topic. Fortunately, we are starting to see some concepts evolving that are generally consistent, regardless of the state, allowing us to clear up some prevalent misunderstandings about telepsychiatry.

Wicklund E. (2014). Do doctors have the right 'bedside manner' for telehealth? *MobiHealthNews*. Available at <https://www.mobihealthnews.com/news/do-doctors-have-right-bedside-manner-telehealth>. Published November 3, 2014.

Doctors and nurses are often praised (or admonished) for their bedside manner. But in today's mHealth-flavored world, do they have to have a different skillset for delivering care via telehealth? In a word? Yes. Your actions and reactions are much different if you're in a room with a patient, as opposed to communicating with one over a video feed or via e-mail or text. And yet, if you're delivering healthcare, each of these situations has to be treated with the utmost care. You can't be any less attentive or diligent just because you're in another location.

Willette R. (2018). The portable office: the initial phone screen. *Midwifery Today*, (128) 30-31.

Xu T, Pujara S, Sutton S & Rhee M. (2018). Telemedicine in the Management of Type 1 Diabetes. *Prev Chronic Dis*;15:170168. DOI: <https://doi.org/10.5888/pcd15.170168>

**BACKGROUND:** Veterans with type 1 diabetes who live in rural Alabama and Georgia face barriers to receiving specialty diabetes care because of a lack of endocrinologists in the Central Alabama Veterans Health Care System. Telemedicine is a promising solution to help increase access to needed health care. We evaluated telemedicine's effectiveness in delivering endocrinology care from Atlanta-based endocrinologists.

**METHODS:** We conducted a retrospective chart review of patients who were enrolled in the Atlanta VAMC Endocrinology Telehealth Clinic from June 2014 to October 2016. Outcomes of interest were hemoglobin A1c levels, changes in glycemic control, time savings for patients, cost savings for the US Veterans Health Administration, appointment adherence rates, and patient satisfaction with telehealth.

**RESULTS:** Thirty-two patients with type 1 diabetes received telehealth care and in general received the recommended processes of diabetes care. Patients trended toward a decrease in mean hemoglobin A1c and glucose variability and a non significant increase in hypoglycemic episodes. Patients saved 78 minutes of travel time (one way), and the VA saved \$72.94 in travel reimbursements per patient visit. Patients adhered to 88% of scheduled telehealth appointments on average, and 100% of surveyed patients stated they would recommend telehealth to other veterans. **CONCLUSIONS:** Specialty diabetes care delivered via telemedicine was safe and was associated with time savings, cost savings, high appointment adherence rates, and high patient satisfaction. Our findings support growing evidence that telemedicine is an effective alternative method of health care delivery.