Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
By Faculty for Faculty

Five Steps to Integrating Telehealth Into APRN Curricula

Joanna Guenther, Steven Branham, Susan Calloway, Wanda Hilliard, Rosalinda Jimenez, Emily Merrill

Abstract

The COVID-19 pandemic suddenly changed the scene of primary care visits. As clinics abruptly transitioned to telehealth visits, health care providers and students were required to use digital technologies to deliver health care from a distance. This article highlights 5 steps used by faculty to integrate telehealth concepts into the graduate curriculum for all advanced practice registered nurse programs. As patients and providers recognize its widespread acceptance, telehealth will likely have a permanent place in traditional health care delivery long after the COVID-19 pandemic.

Keywords:
COVID-19 pandemic
graduate curriculum
health care delivery
telehealth

In the current global health crisis of COVID-19, health care delivery services have been required to quickly adapt to meet patient needs. Telehealth has emerged as a powerful and essential tool for increasing access to and transforming health care, as well as creating a lifeline for patients. To meet the current and future demands of health care systems in almost every setting, graduate nursing and advanced practice registered nurse (APRN) programs must prepare graduates to deliver quality care through telehealth. Rather than simply include telehealth as a component of an informatics course, telehealth must be systematically integrated into the graduate curriculum for all APRN tracks.

Although telehealth garnered interest due to the COVID-19 pandemic, the concept of telehealth is not new. It was first introduced in the 1950s in Canada with teleradiology. In the 1960s and 1970s, NASA pioneered the development of remote telemedicine. In 1967, Massachusetts General Hospital provided the first video-based clinic for health care at Boston Logan International Airport. During the 1980s and 1990s, several federally funded demonstration projects successfully documented the benefits of telehealth. Despite these successes, the potential of telehealth was not realized, primarily due to regulatory issues as well as rural reimbursement issues.2

When first introduced, telehealth was considered to be face-to-face video-conferencing. However, the growth of health care technology has led to an expanded definition, which includes both synchronous, or real-time care delivery, through videoconferencing or telephone, and asynchronous, which uses store-and-forward technologies to transmit images and patient information securely, remote patient monitoring, and mHealth (mobile health). The use of mHealth, defined as health care and public health information provided through mobile devices, is an area of rapid expansion.3

These technological advances afford innovative ways to improve health care delivery, including remote patient management (RPM) technology, which involves the use of programs or web-based applications downloaded to a computer, tablet, or smartphone. RPM technology is currently available to track and monitor a patient’s vital signs, glucose level, blood oxygen level, electrocardiogram, and even do vision screening. Additionally, the data retrieved from wearable devices and patient monitoring tools result in the development of artificial intelligence solutions that will have a significant impact on health care delivery.4

According to a J.D. Power Telehealth Satisfaction Survey, conducted over a 12-month period through May 2020, less than 10% of providers had used telehealth services and nearly 75% lacked awareness of telehealth’s role before COVID-19.5 Although the use of telehealth has been promoted and facilitated through the establishment of the National Telehealth Resources Centers, the vision of telehealth as another method of health care delivery had not been embraced by the majority of practitioners.6

During the pandemic, telehealth became a preferred method of delivering patient care due to the need to reduce the risk of community exposure to COVID-19. The ability for health care providers to rapidly convert to remote health care delivery was enabled through public health emergency waivers that relaxed HIPAA privacy standards related to video technology, enabled patients to remain in their home for visits, reimbursed visits at the same rate as in office visits and addressed controlled substance prescribing issues.7 Before COVID only patients with mental health disorders could be seen via telehealth in their homes, so even if telehealth were available to patients, the majority of patients had to travel to a designated clinic site for care. Additionally, CMS only reimbursed for telehealth services in rural areas as opposed to underserved areas, which limited
Telehealth now allows patients to receive immediate care while minimizing risks to providers, office staff, and other patients, thus limiting cross-contamination.

In examining patient perceptions and experiences with telehealth, the acceptability of virtual health care is associated with the patient’s age and comfort level with technology. Adults over 55 years of age reported that they were not interested in telehealth visits, while younger adults in the 25 to 34 year age group embraced telehealth. A survey of patients who used telehealth services during the pandemic revealed that for the majority of users this was their first telehealth experience, and 75% of patients were extremely satisfied with the care they received. This satisfaction with telehealth resulted in 50% of patients 24–55 years of age stating they would change providers if they could receive regular telehealth visits.

While telehealth has demonstrated efficacy in managing acute and chronic conditions, it has become essential for decreasing exposure to COVID-19. A study by Mann and associates evaluated the effects of COVID-19 on telehealth utilization in one of the earliest impacted areas in the United States, New York City. In the New York University Langone Health System, between March 2 and April 14, 2020, telehealth visits increased from 102.4 to 801.6 visits daily, a 683% increase. In addition to rising numbers of patients being seen by telehealth it was also noted that this modality of health care delivery resulted in a decrease in the no-show rates in several clinical practice sites throughout the country.

Although it is uncertain how long and the extent to which the waiver of telehealth regulations will remain in effect, it is almost certain that expansion of telehealth will remain permanent, largely based on patient and provider satisfaction. This rapid escalation of telehealth and digital technologies makes it essential that graduate nursing programs incorporate telehealth content into the curricula.

The American Nurses Association identified core principles for telehealth delivery and both the American Association of Nurse Practitioners and the National Organization of Nurse Practitioner Faculties strongly support telehealth as a method of care delivery and the need for knowledgeable practitioners. The challenge for programs is to identify key domains and foundational APRN competencies within each domain along with delineating essential track-specific competencies.

Relatively few studies have been conducted on the APRN’s use of telehealth. However, it is clear that to maximize the potential for telehealth in improving outcomes of care and serve vulnerable populations, telehealth education is essential in APRN programs. Our goal was not only to incorporate essential domains and competencies into the curricula but to emphasize the need for lifelong learning in the application of digital technologies for providing health care due to the rapid growth in devices and software.

Preparing APRNs to incorporate telehealth into practice requires a multimodal approach through the use of telehealth projects, as well as practice opportunities and simulations. APRNs must develop competencies in technology-driven health care to provide optimal cost-effective care. Information technology has become an integral part of health care practice. The need to reevaluate and integrate new core competencies into the education of APRNs is essential for developing a qualified, competent workforce. Although telehealth has emerged as a disruptive process in health care and has rapidly become a routine part of the health care system, its integration into academia has lagged behind even though it is critical for health care delivery of the future.

Telehealth Curriculum Integration

A task force comprising faculty representing each specialty track who were practicing in telehealth delivery or had an interest in this area was formed to coordinate the curricular integration process. Additionally, faculty experts in informatics and simulation were recruited to serve in an advisory role. The 5-step integration process used in this project is presented in Figure 1.

The first step was to identify essential curricular components in meeting telehealth competencies for APRN students (Figure 2). A review of the American Association of Colleges of Nursing (AACN) DNP Essentials,22 National Organization of Nurse Practitioner Faculties (NONPF)23 and American College of Nurse-Midwives (ACNM)24 Core Competencies, along with a review of nursing standards from the American Academy of Ambulatory Care Nursing25 and core telehealth principles from the American Nurses Association (ANA)26 was conducted to identify essential competencies. Additionally, selected publications on telehealth education for healthcare professionals and telehealth
implementation toolkits were analyzed for critical components for inclusion in graduate nursing education.

The second step in this process was to reach a consensus on the domains and content areas within each domain for telehealth education. The use of domains as a framework for competency development is consistent with recommendations for a common interprofessional lexicon. Content areas within each domain were reviewed by faculty from each track for applicability to their specific population focus

The third step in the integration process was to survey program directors of each APRN track to determine current telehealth content within their curriculum based on the domains and content areas developed in Step 2. Each program director met with faculty to (1) identify specific courses and content areas where telehealth was addressed, (2) rate the importance of the different content areas to their particular track, and (3) identify current gaps in content and clinical experiences.

The fourth step was to identify telehealth content considered essential for all graduate nursing students, including education, administration, and informatics, along with delineating common core content for all APRN students. The baseline content for all graduate nursing students, was provided in the informatics course, which covered the historical context of telehealth, telehealth law, nursing standards, facilitators, and barriers to telehealth services. Essential content for all APRNs was determined by APRN faculty consensus and was added to the Advanced Practice Nursing Roles course. A module on physical exams via telehealth was added to the Advanced Health Assessment course.

For the fifth step, faculty members in each APRN track examined the survey data for gaps in telehealth content within their track, reviewed the foundational content provided in the core courses in Step 4, and identified additional track-specific content to be added to their courses. Each track developed scenarios for telehealth Objectives Structured Clinical Evaluations (OSCes) using standardized patients in the simulation lab, evaluated the need for telehealth clinical experiences by students in their track, and established guidelines for students engaged in telehealth clinicals. All APRN tracks incorporated at least 1 telehealth OSCe into their curriculum and established guidelines for engaging in telehealth clinical hours. The number of hours and whether these were optional or mandatory varied by track.

When the COVID-19 pandemic impacted clinical site access, a pilot program to implement remote teleprecepting was approved. Students were permitted to remain at home and connect via a portal to the patient and the preceptor, enabling the continuation of clinical learning opportunities. This required the development of a policy for all APRN tracks related to telehealth experiences and verification of a privacy statement related to the student’s home environment, while engaging in remote teleprecepting encounters.

This privacy statement was an additional level of assurance for preceptors that the student would be located in a private room with no disruptions. If there was a possibility of hearing conversations in another room, a noise-altering device such as white noise or a fan would be placed outside the door of the room.

The telehealth task force provides regular updates on changes that impact telehealth curricula to faculty. The telehealth content and process for telehealth student clinical activities are regularly reviewed due to changes in rules and regulations due to COVID-19 as well as the rapid growth in technology.

Conclusion

The impact of the COVID-19 pandemic on telehealth has required rapid transformation in health care and educational settings. While telehealth has historically been used to improve health care in rural and underserved populations, the current pandemic has expanded its use to many additional patient care settings. Telehealth will likely remain a critical component to the evolving health care paradigm. The steps presented here can facilitate faculty integration of telehealth into the curriculum and carry out updates as the scope of telehealth, the technology used to provide it, and the regulatory and legal aspects of telehealth evolve.

References

1. Waldrop JB. Telehealth’s time has come. J Nurs Pract. 2020;16:A6–A7. https://doi.org/10.1016/j.nurpra.2020.04.019.
2. Nesbitt TS, Katz-Bell J. History of telehealth. In: Rheuban K, Krupinski EA, eds. Understanding Telehealth. McGraw-Hill; 2018. Accessed 7 July 2020. https://accessmedicine.mhmedical.com/content.aspx?bookid=2217&sectionid=187794434.
3. HealthIT. Telemedicine and telehealth, Office of the National Coordinator for Health Information. 2017. Accessed 27 July 2020. https://www.healthit.gov/topic/health-it-initiatives/telemedicine-and-telehealth.
4. Kent J. mHealth data to play big role in artificial intelligence, analytics. Health IT Analytics. 2019; Accessed July 13, 2020. https://healthitanalytics.com/news/mhealth-data-to-play-big-role-in-artificial-intelligence-analytics.
5. J.D. Power. U.S. Telehealth satisfaction study. 2020; Accessed July 27, 2020. https://www.jdpower.com/business/resource/us-telehealth-study.
6. Ahmed S, Sanghvi K, Yeo D. Telemedicine takes centre stage during COVID-19 pandemic. BMJ Innovations. Epub ahead of print. June 12, 2020. https://doi.org/10.1136/bmjinnov-2020-000440.
7. Centers for Medicare and Medicaid Services. CMS Medicare telemedicine health care provider fact sheet. May 17, 2020. Accessed June 24, 2020. https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet/2020.
8. Smith WR, Atala AJ, Terlecki RP, Kelly EE, Matthews CA. Implementation guide for rapid integration of an outpatient telemedicine program during the COVID-19 pandemic. J Am Coll Surg. 2020;231:216-222.e2.
9. Siwicki B. Survey report: Americans’ perception of telehealth in COVID-19 era. Healthcare IT News. 2020; Accessed 14 October 2020. https://www.healthcareitnews.com/news/survey-americans-perceptions-telehealth-COVID-19-era.
10. Kyruus. New survey reveals patients have been overwhelmingly satisfied with virtual care during the COVID-19 pandemic and want greater access to it in the
future. 2020; Accessed 14 October 2020, https://www.kyrus.com/2020-virtual-care-report.

11. Mann DM, Chen J, Chunara R, Testa PA, Nov O. COVID-19 transforms healthcare through telemedicine: evidence from the field. J Am Med Inform Assoc. 2020;27:1132-1135.

12. Wosik J, Fudim M, Cameron B, Gellad ZF, Cho A, Phinney D, et al. Telehealth transformation: COVID-19 and the rise of virtual care. J Am Med Inform Assoc. 2020;27:957-962. https://doi.org/10.1093/jama/ocaa067.

13. Aungst TD, Patel R. Integrating digital health into the curriculum—considerations on the current landscape and future developments. J Med Educ Curric Dev. 2020;7:2382120519901275. https://doi.org/10.1177/2382120519901275.

14. Theobald M, Brazelton T. SFM forms task force to develop a national telemedicine curriculum. Ann Fam Med. 2020;18:285-286. https://doi.org/10.1370/afm.2549.

15. American Nurses Association. ANA Core Principles on connected health. American Nurses Association. 2019; Accessed July 20, 2020, https://www.nursingworld.org/~4a9307/globalassets/docs/ana/practice/ana-core-principles-on-connected-health.pdf.

16. American Association of Nurse Practitioners. Position statement: telehealth. American Association of Nurse Practitioners. 2006; Accessed July 13, 2020, https://www.aanp.org/advocacy/advocacy-resource/position-statements/telehealth.

17. Rutledge CM, Kott K, Schweickert PA, Poston R, Fowler C, Haney TS. Telehealth and eHealth in nurse practitioner training: current perspectives. Adv Med Educ Pract. 2017;8:399-409. https://doi.org/10.2147/AMEP.S116071.

18. Bagot K, Moloczij N, Arthurson L, Hair C, Hancock S, Bladin CF, Cadilhac DA. Research priorities for the current and future. 2020; Accessed 14 October 2020, https://www.kyruus.com/2020-virtual-care-report.

19. Hilty DM, Unützer J, Ko D, Loo J, Worley LL, Yager J. Approaches for departments, schools, and health systems to better implement technologies used for clinical care and education. Acad Psychiatry. 2019;43:611-616.

20. Edirippulige S, Armfield NR. Education and training to support the use of clinical telehealth: a review of the literature. J Telemed Telecare. 2017;23:273-282.

21. Soleimenev IE, Shaltikyova DB, Egemberdyesva ZM. Digitalization of Higher Education: The Impact of the Epidemiological Crisis in the Spring of 2020. In: 2nd International Scientific and Practical Conference—“Modern Management Trends and the Digital Economy: From Regional Development to Global Economic Growth.”. Atlantis Press; 2020:794-801.

22. American Association of Colleges of Nursing. The Essentials of Doctoral Education for Advanced Nursing Practice. 2006; Accessed July 13, 2020, https://www.aacnnursing.org/Education-Resources/AACN-Essentials.

23. Thomas A, Crabtree MK, Delaney K, Dumas MA, Kleinpell R, Marfell J, et al. Core Competencies Content Work Group. Nurse Practitioner Core Competencies Content. 2017; Accessed July 14, 2020, https://cdn.ymaws.com/www.nonnf.org/resource/resmgr/competencies/20170516_NPCoreCompsContentF.pdf.

24. American College of Nurse-Midwives. Core Competencies for Basic Midwifery Practice. 6th ed. Midwifery Futures Project. 2016; https://www.midwife.org/acnm/files/acnmlibrarydata/uploadfilename/0000000000050/ACNMCoreCompetenciesMar2020_final.pdf.

25. American Academy of Ambulatory Care Nursing. Scope and standards of practice for professional telehealth nursing. 6th ed. Anthony J. Janett; 2018.

26. Rutledge CM, Kott K, Schweickert PA, Poston R, Fowler C, Haney TS. Telehealth and eHealth in nurse practitioner training: current perspectives. Adv Med Educ Pract. 2017;8:399-409. https://doi.org/10.2147/AMEP.S116071.

27. Van Houwelingen C, Moerman A, Uterna R, Kort H, Cale O. Competencies required for nursing telehealth activities: a Delphi-study. Nurse Educ Today. 2016;39:50-62.

28. Waseh S, Dicker A. Telemedicine training in undergraduate medical education: mixed-methods review. JIMR Med Educ. 2019;5(1):e12315. https://doi.org/10.1370/afm.2549.

29. American Telemedicine Association. Core operational guidelines for telehealth services involving provider-patient interactions. 2018; Accessed July 20, 2020, https://www.americantelemed.org/resources/core-operational-guidelines-for-telehealth-services-involving-provider-patient-interactions.

30. Center for Medicare Services. General provider telehealth and telemedicine tool kit. 2020; Accessed July 20, 2020, https://www.cms.gov/files/document/general-telemedicine-toolkit.pdf.

31. HealthIT. Telehealth start-up and resource guide, Version 1.1. Office of the National Coordinator for Health Information. 2014; Accessed July 27, 2020, https://www.healthit.gov/sites/default/files/telehealthguide_final_0.pdf.

32. National Consortium of Telehealth Resource Centers COVID-19 Telehealth. Building a telehealth program. 2020; Accessed July 21, 2020, https://www.telehealthresourcercenter.org/covid-19-resources.

33. Englander R, Cameron T, Ballard A, Dodge J, Bull J, Aschenbrener C. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. Acad Med. 2013;8:1088-1094.

Joanna Guenther, PhD, RN, FNP-BC, CNE, is an associate professor at Texas Tech University Health Sciences Center School of Nursing, Lubbock, Texas. She can be reached at joanna.guenther@ttuhsc.edu. Steven Branham, PhD, RN, ACNP-BC, FNP-BC, FAANP, is an associate professor, Susan Calloway, PhD, FNP-BC, PMHNP-BC, FAANP, is a professor, Wanda Hilliard, DNP, MBA, APRN, PMHNP-BC, is associate faculty, Rosalinda Jimenez, EdD, MSN, APRN, FNP-BC, PMHNP-BC, is an Associate Professor, and Emily Merritt, PhD, APRN, FNP-BC, CNE, FAANP, is a professor and associate dean/department chair for the APRN Program at Texas Tech University Health Sciences Center School of Nursing There are no funding sources or granting agencies reported.

In compliance with national ethical guidelines, the authors report no relationships with business or industry that would pose a conflict of interest.