


Telehealth Competencies in Medical Education: New Frontiers in Faculty Development and Learner Assessments



Craig Noronha¹, Margaret C. Lo², Tanya Nikiforova³, Danielle Jones⁴,
Deepa Rani Nandiwada⁵, Tiffany I. Leung, MD, MPH⁶, Janeen E. Smith^{7,8}, and
Wei Wei Lee, MD MPH⁹  for the Society of General Internal Medicine (SGIM) Education
Committee

¹Section of General Internal Medicine, Boston University School of Medicine/Boston Medical Center, Boston, MA, USA; ²Division of General Internal Medicine, Department of Medicine, University of Florida College of Medicine, Gainesville, FL, USA; ³Division of General Internal Medicine, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, USA; ⁴Division of General Internal Medicine, Department of Medicine, Emory University School of Medicine, Atlanta, GA, USA; ⁵Division of General Internal Medicine, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA; ⁶Faculty of Health, Medicine, and Life Sciences, Maastricht University, Maastricht, The Netherlands; ⁷San Francisco VA Health Care System, San Francisco, CA, USA; ⁸Department of Medicine, University of California, San Francisco, CA, USA; ⁹Section of General Internal Medicine, University of Chicago Medical Center, Chicago, IL, USA.

Telehealth visits have become an integral model of healthcare delivery since the COVID-19 pandemic. This rapid expansion of telehealthcare delivery has forced faculty development and trainee education in telehealth to occur simultaneously. In response, academic medical institutions have quickly implemented clinical training to teach digital health skills to providers across the medical education continuum. Yet, learners of all levels must still receive continual assessment and feedback on their skills to align with the telehealth competencies and milestones set forth by the Association of American Medical Colleges (AAMC) and the Accreditation Council for Graduate Medical Education (ACGME). This paper discusses key educational needs and emerging areas for faculty development in telehealth teaching and assessment of telehealth competencies. It proposes strategies for the successful integration of the AAMC telehealth competencies and ACGME milestones into medical education, including skills in communication, data gathering, and patient safety with appropriate telehealth use. Direct observation tools in the paper offer educators novel instruments to assess telehealth competencies in medical students, residents, and peer faculty. The integration of AAMC and ACGME telehealth competencies and the new assessment tools in this paper provide a unique perspective to advance clinical practice and teaching skills in telehealthcare delivery.

KEY WORDS: telehealth; telemedicine; virtual visits; medical education; competencies; milestones; electronic health records.

J Gen Intern Med 37(12):3168–73

DOI: 10.1007/s11606-022-07564-8

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Prior Presentations None

Received January 5, 2022

Accepted March 30, 2022

Published online April 26, 2022

INTRODUCTION

The COVID-19 pandemic pushed telehealth into the forefront of healthcare delivery. Telehealth will likely remain an important model of care delivery given the persistence of social distancing and benefits of telehealthcare, including improved access to care and patient satisfaction.^{1–5} Four categories of telehealth currently exist: synchronous (e.g., use of telephone or video technology to conduct real-time clinical care), remote patient monitoring (e.g., use of technology to track patients' data outside the healthcare setting such as blood sugar, blood pressure), asynchronous (e.g., use of secure messaging between patient and providers), and mobile health (e.g., use of apps to send messages to patients, promote healthy behaviors such as health coaching and reminders to take medicine).⁶ Our paper focuses on synchronous telehealth visits, the most common type of telehealthcare delivery for physicians.⁷

TELEHEALTH TRAINING IN MEDICAL EDUCATION

During the COVID-19 pandemic, primary care virtual visits billed to Medicare increased rapidly from 1% to nearly 50% between January 2020 and April 2020.^{8,9} The training model of “see one, do one, teach one” had to occur simultaneously given the rapid reliance on telehealthcare delivery.⁹ No shared mental model existed on the “gold standard” telehealth visit or the optimal virtual learning environment for trainees. Lacking clear guidelines, best practices, or standard platforms, clinicians across all stages learned to use telehealth ad hoc.

Telehealth utilization impacts physicians and trainees across the entire spectrum of learner levels and disciplines. Since each learning community has its own unique goals and barriers, it is important to individualize and integrate formal telehealth curricula into undergraduate medical education (UME), graduate medical education (GME), and continuing medical education (CME). In 2021, the Association of

American Medical Colleges (AAMC) developed six comprehensive telehealth competencies for medical school graduates, residency graduates, and experienced physicians (Table 1).¹⁰ The updated 2021 Accreditation Council for Graduate Medical Education (ACGME) Milestones 2.0 included only one competency specific to digital health (Table 2), but others are adaptable to telehealth-based assessments.¹¹ This perspective paper describes unique strategies for the successful integration of the AAMC telehealth competencies and ACGME milestones into medical education, identifies areas for faculty

development in telehealth teaching, and offers new direct observation tools to assess telehealth competencies among medical students, residents, and faculty.

INTEGRATION OF AAMC TELEHEALTH COMPETENCIES AND ACGME MILESTONES 2.0

The pandemic drove the development of multiple resources to teach and evaluate telehealth communication skills for

Table 1 Association of American Medical College (AAMC) Telehealth Competencies*

Competency domain	Competency definition	Entering residency (recent medical school graduate)	Entering practice (recent residency graduate)	Experienced faculty physician (3–5 years post-residency)
1. Patient safety and appropriate use of telehealth [^]	Clinicians will understand when and why to use telehealth; how to assess patient readiness, patient safety, practice readiness, and end-user readiness	Explains to patients and caregivers the uses, limitations, and benefits of telehealth	Explains and adapts practice in context of limitations and benefits of telehealth	Role models and teaches how to practice telehealth, mitigate risks of providing care at a distance, and assess methods for improvement
2. Access and equity in telehealth	Clinicians will understand telehealth delivery that addresses and mitigates cultural biases as well as physician bias for or against telehealth and that accounts for physical and mental disabilities, non-health-related individual and community needs, and limitations	Defines how telehealth can affect health equity and mitigate or amplify gaps in access to care	Leverages technology to promote health equity and mitigate gaps in access to care	Promotes and advocates use of telehealth to promote health equity and access to care; advocate for policy change in telehealth to reduce inequities
3. Communication via telehealth	Clinicians will effectively communicate with patients, families, caregivers, and healthcare team members using telehealth modalities; integrate both transmission and receipt of information with the goal of effective knowledge transfer, professionalism, and understanding within a therapeutic relationship	Develops effective rapport with patients via real or simulated video visits, attending to eye contact, tone, body language, and nonverbal cues	Develops effective rapport with patients via video visits, attending to eye contact, tone, body language, and nonverbal cues	Role models and teaches effective rapport-building with patients via video visits, attending to eye contact, tone, body language, and nonverbal cues
4. Data collection and assessment via telehealth [^]	Conducts appropriate physical examination or collects relevant data on clinical status during a real or simulated telehealth encounter, including guiding patient and/or tele-presenter	Conducts appropriate physical examination and collects relevant data on clinical status during a telehealth encounter, including guiding patient and/or tele-presenter	Obtains history (from patient, family, and/or caregiver) during a telehealth encounter and incorporates the information into differential diagnosis and the management plan	Role models and teaches the skills required to perform a physical examination during a telehealth encounter, including guiding the patient and/or tele-presenter
5. Technology for telehealth	Clinicians will have basic knowledge of technology needed for the delivery of high-quality telehealth services	Explains the risk of technology failures and the need to respond to them	Demonstrates how to troubleshoot basic technology failures and optimize settings with the technology being used	Teaches others how to troubleshoot basic technology failures and optimize settings with the technology being used
6. Ethical practices and legal requirements for telehealth	Clinicians will understand federal, state, and local facility practice requirements to meet minimal standards to deliver healthcare via telehealth; maintain patient privacy while minimizing risk to clinician and patient during telehealth encounters, putting patient's interest first, and preserving/enhancing the doctor-patient relationship	Defines components of informed consent for the telehealth encounter	Obtains informed consent for telehealth encounter, including defining how privacy will be maintained	Role models and teaches how to obtain informed consent for telehealth encounter, including defining how privacy will be maintained

[^]Identifies three competencies discussed in our perspective piece and used for our direct observation tool

*Each competency includes multiple skills. This table defines each competency and highlights one skill in each domain across the three developmental stages in physician development (e.g., entering residency, entering practice, and experienced faculty physician). To view the full set of skills within each competency, refer to the AAMC's "Telehealth Competencies Across the Learning Continuum" document.¹⁰ Permission granted 11/9/21 from AAMC to adapt this table from "AAMC telehealth competencies across the learning continuum."

Table 2 Accreditation Council for Graduate Medical Education (ACGME) 2021 Internal Medicine Milestone on Digital Health*¹¹

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the required components for a telehealth visit	Performs assigned telehealth visits using approved technology	Identifies clinical situations that can be managed through a telehealth visit	Integrates telehealth effectively into clinical practice for the management of acute and chronic illness	Develops and innovates new ways to use emerging technologies to augment telehealth visits

*Only telehealth related components of Patient Care 6 milestone are included in the table. Permission to use this table granted from ACGME on 11/12/2021

learners. These included, but are not limited to, objective structured clinical examinations (OSCEs), simulation exercises, and virtual visit skills checklists.^{12–17} Many of these tools were developed before the new AAMC telehealth competencies and ACGME Milestones 2.0 so may not explicitly align with these emerging competencies. Telehealth-specific direct observations of learners are prime opportunities, yet under-utilized, in the virtual setting to effectively assess telehealth competencies.¹⁸ The discussion below focuses on three particular competency areas for integration between AAMC and ACGME: communication, data collection and assessment, and patient safety with appropriate use of telehealth. These three competency areas are high-impact, easily assessed through direct observation, and represent foundational skills in telehealth delivery for learners.¹⁸

Communication via Telehealth

This AAMC competency outlines standards for effective and professional virtual communication between clinicians, patients, families, caregivers, and other healthcare team members.¹⁰ It is important trainees understand the unique strengths and challenges of telehealth-based interactions. Trainees must demonstrate the ability to develop effective rapport, assess the patient's environment, and know how to incorporate the patient's social supports. While not explicit to telehealth, two ACGME Milestones 2.0, the Patient and Family-Centered Communication and the Professional Behavior, do overlap with the AAMC telehealth competencies by addressing the therapeutic relationship and communication barriers in unique, complex situations.¹¹ Both AAMC and ACGME recommendations encompass “web-side manner” and focus on creating a professional virtual environment (e.g., lighting, sound, background), ensuring privacy, introducing technology, setting collaborative agendas, and eliciting understanding from patients (e.g., teach-back techniques).^{10, 11}

Standard UME communication courses teach core interpersonal skills important to digital health; so they are easily modifiable to teach telehealth-specific communication skills and incorporate evidence-based guidelines focused on humanism, professionalism, and web-side manner.¹⁹ Brief didactics can teach these basic communication skills in telehealth encounters; more complex scenarios, such as the management of privacy concerns, patient education, or incorporation of patient social supports, may be best taught through standardized patient (SP) encounters.^{20–22}

Data Gathering and Assessment via Telehealth

This AAMC competency expects learners to adapt history-taking to the digital format, conduct appropriate virtual physical exams, and gather patient-generated data during virtual encounters.¹⁰ While the ACGME milestones do not include telehealth-specific data gathering competencies, elements of the history and physical exam milestones correlate with these AAMC competencies.¹¹ Virtual encounters offer learners unique opportunities to gather data that are not possible during in-person visits. Each visit draws learners into patients' homes and supplies real-life data about their living situation. For example, learners can view the types of foods in their patients' pantry or reconcile medication bottles alongside family members. Published curricula, checklists, and tools can help educators tailor their own teaching to hone learners' data collection, clinical reasoning, and virtual physical exam skills over telehealth.^{23–29} Written resources and videos from AAMC and American College of Physicians (ACP) offer training to learners on comprehensive head-to-toe or organ-specific virtual exam maneuvers with a focus on how to instruct and position the patient.^{26, 27} These resources provide learners additional instructions on focused exams for common concerns (e.g., upper respiratory tract infections, low back pain).^{26, 27}

Patient Safety and Appropriate Use of Telehealth

This AAMC competency focuses on learners' understanding on when and how to use telehealth.¹⁰ Learners should be able to identify the appropriate uses and limitations of telehealth, identify roles of team members, and assess patient safety risks during virtual visits. Digital health access and literacy are increasingly recognized as social determinants of health; thus, trainees need to gauge patients' access to technology and ability to engage in digital platforms.³⁰ These AAMC expectations align well with ACGME Milestone 2.0 on digital health to safely integrate telehealth into clinical practice.¹¹ Higher-level concepts and skills related to patient safety and appropriate integration of team members require learners to have some foundational knowledge and prior clinical experience with recognizing high-risk clinical situations and unstable patients. Therefore, these skills may be best reserved for senior students and residents and are most appropriate for

evaluation in longitudinal telehealth experiences (e.g., resident continuity clinic or ambulatory clerkship experiences).

Case-based discussions and pre-clinic team huddles can help to highlight high-risk patient safety concerns and teach ways to triage patients for in-person or emergency care.^{14, 28, 31, 32} Faculty should direct learners to survey the patient environment for safety, identify cases for interdisciplinary collaborative care, and contextualize patient characteristics and disease presentations during virtual care encounters.³² Similarly, learners may encounter patients with sensitive issues or limited ability to engage in virtual visits. Faculty should encourage learner self-reflection on patient or practice barriers and coach them through potential solutions. For example, faculty can prompt learners to use closed-captioning for the hearing-impaired, teach-back techniques for patients with low health literacy, or interpreter service for those with limited English proficiency.^{33–36}

FACULTY TRAINING ON TELEHEALTH

Clinical Skills Training for Faculty

The pandemic forced faculty development and trainee education in telehealth to occur in parallel out of necessity. Thus, faculty themselves may lack comfort or competence with telemedicine. Various online telemedicine modules and didactics from ACP, American Medical Association (AMA), and Veterans Healthcare Administration (VHA) offer extensive training to faculty with limited telehealth experiences.^{37–41} Often faculty telehealth curricula come in bite-sized skills courses with introductory materials and short self-assessments. Adult learning principles are necessary to advance physician competency-based education in telehealth and harness not only physicians' existing skills level but also institutions' technical resources.⁴² Interactive educational environments (e.g., targeted workshops, case-based role plays, just-in-time workplace-based sessions) are essential for faculty to practice telehealth skills, increase confidence in appropriate telehealth use, enhance virtual communication skills, and improve data gathering and virtual exam skills. The Telehealth Mini-Residency for Providers by the VHA National Simulation Center is one such exemplar of an interactive telehealth program for faculty learners.³²

Peer observation and feedback are well-cited methods for educators to strengthen clinical skills and teaching techniques in the inpatient and outpatient setting.^{43–47} Little guidance exists in peer-reviewed literature on using direct observation for faculty skills development in telehealth settings. Most faculty, like trainees, are telehealth novices and may lack technology savviness.^{48, 49} Some faculty training uses video-recorded teaching encounters to facilitate peer feedback.⁵⁰ Peer-to-peer direct observation of real-time virtual clinical encounters is another potential strategy to accelerate telehealth skills development in faculty.

Faculty Telehealth Teaching and Evaluation Skills

Upon mastery of their telehealth clinical skills, educators need to develop their teaching, assessment, and feedback skills in telemedicine.^{51, 52} Early guidance published in the telehealth literature recommends teaching telemedicine principles in pre-clinical years, incorporating pre-visit or post-visit huddles, and scheduling protected time for feedback after visits.^{31, 33} Identifying shared goals prior to the virtual encounter may help faculty focus their teaching, observation, and assessment of learners. Real-time feedback and faculty role-modeling of telehealth etiquette or virtual exam maneuvers are important methods for learners to develop their own web-side manner, data gathering, and virtual exam skills. Post-visit huddles can provide dedicated space for learners to reflect on their performance, allow faculty to share targeted feedback related to learners' goals, and facilitate co-development of action plans for subsequent virtual visits. The flexible workflow of telehealth allows for these post-visit huddles to occur immediately after a virtual encounter or at the end of the clinic session.

Direct Observation Tools for Virtual Encounters

Telehealth encounters are conducive to direct observation assessments. The ability to have multiple simultaneous learners present and the "invisible" presence of the faculty allow for unobtrusive direct observation of learners.⁵³ This paper offers new direct observation tools to advance educators' feedback and assessment of telehealth competencies for medical students, residents and peer faculty (Appendix Tables 3, 4 and 5). These assessment tools are based on literature review of telehealth curricula and are anchored in the 2021 AAMC competencies and related ACGME milestones.^{10–16} The tools are applicable during standardized patient or real-time clinical encounters, and can be used for the entire encounter or specific portions of the virtual visit. Assessments should be brief, focused, in-the-moment, and frequent, in adherence to best practices in direct observation.^{54, 55}

FUTURE DIRECTIONS

The AAMC and ACGME have created a foundation for telehealth education through the development of telehealth competencies and milestones. Next steps should involve synergy around telehealth competencies among medical organizations including AAMC, AMA, ACGME, Society of General Internal Medicine, Alliance for Academic Internal Medicine, American Board of Internal Medicine, and the Federation of State Medical Boards. Further synergy will help the academic medical community create a shared educational model on the "gold standard" for telehealth training.

With increasing telehealth educational resources and training, faculty development remains a priority for academic

medical institutions. Limited guidelines exist on the skills that faculty need for effective observation and assessment of telehealth competencies across all learners. Academic medical organizations can work together to define and harmonize these foundational skill sets for telehealth assessments. Faculty training needs to include real-time assessments and feedback to faculty of their own telehealth skills, either through direct observation or near-peer mentoring. Faculty telehealth programs should be studied for efficacy and successful ones disseminated in a variety of publications and venues.

Certain teaching and evaluation methods used by faculty for in-person patient interactions can be directly employed to virtual encounters; others may require revamping to cater to the learners' needs, their level of telehealth skills, and the virtual learning environment. The new direct observation tools in this paper serve as a much-needed starting point for faculty and trainees to receive real-time feedback on their telehealth competencies. Future work can validate the efficacy and impact of these tools to advance telehealth skills and feedback.

Corresponding Author: Wei Wei Lee, MD MPH; Section of General Internal Medicine, University of Chicago Medical Center, Chicago, IL, USA (e-mail: wlee6@uchicago.edu).

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11606-022-07564-8>.

Declarations:

Conflict of Interest: Dr. Leung reports consulting fees from Plushcare, Inc., and JMIR Publications, Inc. Dr. Smith reports stock in Doherty, which were received as payment for software unrelated to telehealth. Drs. Jones, Lee, Lo, Noronha, Nandiwada, and Nikiforova have no conflicts of interest to disclose.

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