

Cultivating “Webside Manner” at the UME-GME Transition Point During the COVID-19 Pandemic: A Novel Virtual Telemedicine Curriculum

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ABSTRACT

BACKGROUND: Telemedicine use in the US has continued to grow over the past few years with the development of new technology and in response to the COVID-19 pandemic. This has led to a growing need for formal training in telemedicine for clinicians in order to improve communication skills and provide better patient outcomes.

METHODS: A self-directed, five-unit online curriculum focused on telemedicine essentials was developed through discussions among Pediatric clinical educators and adapted from literature in telemedicine education. Improvement of communication skills was determined through evaluations of interns randomly assigned to either the telemedicine curriculum or the control group, which was then compared to their baseline encounters.

RESULTS: Interns who completed the telemedicine curriculum showed significant improvement in communication scores compared to those who did not complete the curriculum.

CONCLUSION: Results from the study show the effectiveness of a formal telemedicine curriculum in improving critical communication skills for application in telemedicine.

KEYWORDS: telemedicine, curriculum, communication skills, residency, medical education

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Introduction

While telemedicine applications have grown exponentially in the US during the past few decades, the current COVID-19 pandemic has triggered a rapid surge in this burgeoning health care field.¹ It is imperative to train the modern clinician in the effective utilization of the spectrum of telemedicine technology, with a critical window of instructional opportunity existing at the UME level.²

Although today's medical trainees may be technologically savvy, the practice of synchronous telemedicine between clinician and patient is not necessarily instinctual.³ Telemedicine is fundamentally similar to traditional medicine in terms of importance of patient-centered relationship building⁴; yet, intrinsic differences exist between the two modalities of health care delivery. “Webside manner”, the counterpart to “bedside manner”, is a distinct communication skillset⁵ requiring particular instruction beyond traditional medical education.

The Liaison Committee on Medical Education (LCME) reports that nearly half of the nation's allopathic degree-granting medical schools have implemented telemedicine training components into the clerkship phase of their curricula,⁶

with a wide array of diverse approaches undertaken at the UME level.⁷ Formalized curricula in telemedicine training during the UME-GME continuum, with specific emphasis on cultivating good “webside manner”, will prove to be essential in harnessing telemedicine's absolute potential. Recently the Association of American Medical Colleges have developed a list of competencies and an Entrustable Professional Activity to address this need.^{8,9} In response to the COVID-19 pandemic, we developed a comprehensive curriculum for trainees to master telemedicine communication and technical skills. The curriculum was delivered to the incoming interns during their orientation to highlight the importance early introduction of this curriculum in their training. A randomized study was then conducted to demonstrate the improvement of communication skills in UME/GME learners during mock ambulatory telemedicine video visits.

Methods

A ‘Telemedicine Education Workgroup’ of Pediatric clinical educators at Cohen Children's Medical Center (CCMC)/ Zucker School of Medicine at Hofstra-Northwell was formed



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in response to an increasing demand of telehealth in New York, the early epicenter of the COVID-19 pandemic, and due to the identification of an educational gap in telemedicine training. The group's goal was to develop, implement, and evaluate a comprehensive telemedicine curriculum training for incoming Pediatric interns, with an ultimate goal of formalizing a UME/GME telemedicine training program.

Telemedicine education literature was explored and adapted to create a self-directed, five unit online curriculum focused on telemedicine essentials: (1) Introduction to telemedicine (2) Legal and ethical considerations (3) Communication (4) Physical exam and (5) Technical skills. Each unit outlines specific objectives addressed through readings, PowerPoint slides, commercially available videos garnered from multiple sites (you tube etc) and critical thinking, self-directed activities.

Implementation included integration of a telemedicine experience into the orientation week for all incoming Pediatric interns ($n = 33$). As a baseline, each intern participated in a mock video ambulatory encounter on Zoom to 'practice' telemedicine skills. The intern served in the role of primary care provider while one of three experienced faculty members, played the role of a patient's parent. The faculty members rehearsed a single standardized script which was designed to offer the intern ample opportunity to demonstrate empathy and develop rapport during the seven-minute role-play encounter. The focus of the role-playing was on communication, so the cases were not designed to assess knowledge. The first case involved an 18-month-old with a persistent cough and the second case a toddler with vomiting. Three pediatric chief residents practiced scoring on faculty members at first, standardizing their evaluations in a discussion with the workgroup. They then observed and independently scored each intern in conducting a telemedicine interview. Both the faculty and chief residents had experience with the use of telemedicine secondary to the COVID 19 pandemic. The "Communication Checklist", a measurement tool created based on the communication skills reviewed in module 3 of our curriculum, was used to evaluate each intern on eight crucial communication skills. These skills included ensuring security and privacy as well as exhibiting congeniality and empathy. No feedback was given at this time.

The Institutional Review Board approved the protocol and formal exemption for our study was granted. Evaluation of the curriculum was conducted through a randomized control study with interns randomly assigned to either the intervention (ie telemedicine curriculum) or control group (ie no curriculum) after their baseline encounters. The intervention group received an email from the program director with a link to the telemedicine materials for their review within one week. Utilizing the same format as the baseline, each intern was again observed and scored during a second different virtual mock encounter on Zoom the following week. The original three chief residents were blinded as to the recipients of the telemedicine curriculum.

The three scores in each category were averaged and totaled for the participants in each of their mock encounters.

Results

While the 'control' group ($n = 18$) did not receive our telemedicine curriculum, the 'intervention' group ($n = 17$) did receive the curriculum between mock encounters. There were no significant differences among the demographics for the two groups in terms of gender, age, prior parenthood or advanced degrees. None of the trainees had previous experience with telemedicine. Pre-curriculum distribution, the mean score achieved on the 'Communication Checklist Tool' was 14.1 and 14.5 out of a maximum total technical score of 24 for control and intervention groups, respectively. Post-curriculum distribution, control and intervention groups demonstrated mean scores of 15 and 18.1, respectively.

Results from independent t-tests demonstrated a statistically significant improvement ($P < .001$) in total scores of interns who completed our telemedicine curriculum (Delta + 3.6; $R = .627$, $P = .007$). In comparison, scores of those who did not complete the curriculum (Delta + 0.9; $P = .074$) did not show significant improvement ($P = .074$). Post-curriculum participants' scores increased with statistical significance in categories of privacy assurance ($R = .362$, $P = .153$ $P = .001$), rapport establishment ($R = .785$, $P = .000$ $P = .001$), demonstration of empathy ($R = .615$, $P = .009$ $P = .000$) and partnership-building ($R = .240$, $P = .352$ $P = .000$). There was an improvement trend in the areas of provider identity, initiation of the interview and impact of the chief complaint which did not reach statistical significance. (Table 1).

Discussion

Many other programs in a variety of disciplines have piloted telemedicine training curricula for incoming residents as the need for this formalized education surged during the COVID-19 pandemic.¹⁰⁻¹² Our curriculum has given unique regard to training in privacy issues and virtual communication etiquette and is the only study to our knowledge which utilizes a control group to demonstrate the curriculum's efficacy. The results of this study demonstrate the effective role our formalized training played in the improvement of critical communication skills for telemedicine application on entry into residency.

Our online training modules are easily transferable to other specialties and programs and given its self-directed nature, the curriculum uses limited resources and can be easily implemented as a residency orientation requirement. Limitations of our study included our small sample size of 33 interns, the single-site nature of our study and the lack of interrater reliability among our chief residents as telemedicine encounter evaluators. In addition, we did not monitor access to the curriculum by the intervention group nor did we capture how much time these interns spent studying our curriculum. Next steps include investigating how to best implement a longitudinal learning platform for learners to master the

Table 1. Communication checklist results in intervention group.

| REVIEWER | RECEIVED COURSE (N = 17) | | | | | | | | | | | |
|--|--------------------------|-----|-----|-----|---------------------------|-----|-----|-----|--|-----------------------------------|-----------------------------------|-----------------------------------|
| | PRE-INTERVENTION (MEANS) | | | | POST-INTERVENTION (MEANS) | | | | REVIEWERS | | | |
| | 1 | 2 | 3 | AVG | 1 | 2 | 3 | AVG | 1 | 2 | 3 | AVG |
| Did the provider identify the patient? | 1.1 | 1.1 | 1.1 | 1.1 | 1.5 | 1.5 | 1.5 | 1.5 | R = -.16, P = .550 P = .056 | R = -.14, P = .596 P = .090 | R = -.14, P = .596 P = .090 | R = -.15, P = .577 P = .075 |
| Did the provider discuss and assure privacy of televisit with the patient? | 1.1 | 1.2 | 1.1 | 1.1 | 2.1 | 2.1 | 2.1 | 2.1 | R = .367, P = .148 P = .001 | R = .345, P = .174 P = .001 | R = .367, P = .148 P = .001 | R = .362, P = .153 P = .001 |
| Did the provider establish a facile and congenial rapport? | 1.9 | 2.1 | 1.9 | 1.9 | 2.4 | 2.3 | 2.2 | 2.3 | R = .293, P = .254 P = .016 | R = .772, P = .000 P = .041 | R = .696, P = .002 P = .020 | R = .785, P = .000 P = .001 |
| Did the provider initiate the interview appropriately? | 2.8 | 2.9 | 2.7 | 2.8 | 2.9 | 2.9 | 2.9 | 2.9 | R = -.14, P = .596 P = .188 | R = -.09, P = .728 P = .579 | R = -.16, P = .536 P = .104 | R = -.15, P = .545 P = .177 |
| Did the provider elicit the 'impact' of the chief complaint on the patient's life, or the patient's 'explanatory model' for his concerns? | 1.3 | 1.5 | 1.8 | 1.5 | 1.8 | 1.7 | 1.9 | 1.8 | R = .035, P = .893 P = .027 | R = .403, P = .109 P = .332 | R = .696, P = .002 P = .668 | R = .458, P = .065 P = .138 |
| Did the provider use the skills of empathy in relation to an expressed or potential feeling/emotion (reflection, legitimation, exploration)? | 1.9 | 1.7 | 2.0 | 1.9 | 2.4 | 2.3 | 2.6 | 2.4 | R = .525, P = .031 P = .014 | R = .309, P = .227 P = .002 | R = .572, P = .016 P = .001 | R = .615, P = .009 P = .000 |
| Did the provider establish a successful partnership with the patient? | 1.5 | 1.8 | 1.7 | 1.7 | 2.5 | 2.7 | 2.5 | 2.5 | R = .123, P = .639 P = .000 | R = .275, P = .285 P = .001 | R = .194, P = .455 P = .000 | R = .240, P = .352 P = .000 |
| Did the provider summarize patient concerns and construct a plan based on gathering information? | 2.5 | 2.4 | 2.6 | 2.5 | 2.7 | 2.6 | 2.5 | 2.6 | R = .450, P = .070 P = .188 | R = .118, P = .653 P = .163 | R = .408, P = .104 P = .668 | R = .414, P = .099 P = .346 |
| Total Score | 14.5 | | | | 18.1 | | | | Overall score was positively correlated pre/post and on average statically significant | | | |
| | | | | | | | | | R = .627, P = .007 P < .001 | | | |

skills necessary for successful synchronous telemedicine encounters from the pre-clinical UME through GME training years.

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