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The coronavirus disease 2019 (COVID-19) pandemic greatly accelerated the provision and application of telehealth services that have been in practice since the late 1950s. At the onset of the pandemic, the provision of health care using telecommunication technology was promised to expand access to care, reduce patient and staff exposure to contagions, and reduce patient demand on health care facilities. On March 6, 2020, Congress passed the Coronavirus Preparedness and Response Supplemental Appropriations Act. In response, exponential increases in the use of telehealth were observed and telehealth restrictions were waived by the U.S. Department of Health and Human Services (DHHS). Yet, at the time, telehealth services were still limited to established patients. The day before the World Health Organization declared the COVID-19 pandemic on March 11, 2020, the Centers for Medicare and Medicaid Services (CMS) waived copays for telehealth services for Medicare Advantage enrollees, while expanding Medicare Part B telehealth services to any area. Amid this shift in care delivery, health care organizations, personnel, and students were forced to adopt a new method of patient care without adequate assessment for readiness, curricular training, or implementation of telehealth services.

In March 2020, Congress, the DHHS, and CMS continued to take quick action to address health care delivery needs within the United States during an unprecedented pandemic. The CMS waivers, provided under Section 1135 of the Social Security Act, incentivized the use of telehealth and allowed qualified providers to use telephones with audio-visual, real-time interactive communication capability, as smartphones, tablets, and computers were deemed permissible with the Health Insurance Portability and Accountability Act enforcement waiver. The rapid switch to telehealth services contributed to positive and negative impacts regarding access for older adults, individuals with disabilities, and people living in underserved and rural areas. The pandemic further highlighted health disparities to health care access and suddenly required practitioners to develop strategies to overcome barriers, including technology and broadband Internet access.

By the last week of March 2020, the Centers for Disease Prevention and Control (CDC) reported a substantial increase in the use of telehealth modalities for that week compared with the previous year. As a result, the Telehealth Resource Centers announced their support of evidence-based projects as the nation shifted to telehealth and increased flexibilities in telehealth requirements continued to occur. Whereas telehealth readiness tools have been shown to identify areas for improvement and deficiencies for organizations before telehealth implementation, the urgency of the pandemic did not allow for advanced planning and resulted in a lack of
Background:
- The coronavirus disease 2019 (COVID-19) pandemic accelerated a digital health transformation and forced health care organizations, personnel, and students to adopt virtual care without adequate assessment for readiness.
- Although telehealth has previously been practiced and some telehealth readiness tools exist, none account for the knowledge gained after the pandemic in the current health care ecosystem.

Findings:
- Telehealth exposure during undergraduate medical clerkships and graduate education across health care specialties is essential as the demand for virtual care increases in the foreseeable future.
- This article provides a telehealth readiness tool to address challenges experienced during the COVID-19 pandemic.
- As a digital health strategy, this telehealth readiness assessment tool will support medical, pharmacy, and health care educational programs aiming to develop and integrate digital and telehealth into curricula for both didactic and experiential/clinical education.

Lack of preparedness for the virtual provision of care

Before the pandemic, interprofessional care teams have demonstrated that telehealth has the potential to improve patient quality outcomes, medication-related problems, and hospital readmissions. Telehealth during the pandemic, as a modality of care, was reviewed in detail by the National Committee for Quality Assurance’s Taskforce on Telehealth Policy. Patient safety improved during the pandemic through telehealth. Waseh and Dicker showed that only 40% of 17 sampled medical schools across the United States have incorporated telehealth competencies with some form of interprofessional training. Moreover, just over half of the sampled schools combined nonstandardized telehealth competencies incorporating rural medicine in some form. A dearth of training was also observed in pharmacy curricula, and didactic education on verbal and nonverbal communication modalities via telehealth is not an accreditation requirement.

Telehealth exposure during undergraduate medical clerkships and graduate education across specialties is essential for practitioners. Experiential training provides opportunities to incorporate pertinent virtual clinical examination skills, mobile health devices, and remote patient monitoring (e.g., blood pressure cuffs, stethoscopes, blood glucose meters). Given the deficit in graduate medical education on telehealth training, a longitudinal curriculum has been proposed to address this need. In addition, more programs must adopt preclinical curricula to include virtual health integration as there is a critical need for digital and telehealth in professional health care training.

The COVID-19 pandemic further demonstrates the need for telehealth readiness assessment tools and training as our health care ecosystem continues to evolve and the majority of pharmacist initiatives are now related to patient education, medication delivery, and virtual consultations. The International Pharmaceutical Federation has reported a deficit of formalized training within digital health. As telehealth is only one aspect within the larger digital health universe, education and preparedness will be key for students to successfully adopt and promote new technologies as they enter practice.

Telehealth readiness assessment tools: A solution for virtual care

Looking beyond the pandemic, practitioner telehealth readiness assessment and training can be applied in health professional curricula to better prepare students to succeed when in-person care is not possible. Expanding on the application of the telehealth readiness model, a self-assessment checklist that is reflective of the current health care ecosystem could be utilized by health professional
| Readiness Factors | Yes | Not Yet |
|-------------------|-----|---------|
| **I. Personnel Education and Qualifications** | | |
| 1. I have adequate didactic (classroom) education to provide telehealth. | ☐ | ☐ |
| 2. I have adequate experiential education to provide telehealth. | ☐ | ☐ |
| 3. I have adequate continuing professional education to provide telehealth. | ☐ | ☐ |
| 4. I have direct experience with providing telehealth. | ☐ | ☐ |
| 5. I have adequate coaching or mentoring support and continuing professional development opportunities to provide telehealth. | ☐ | ☐ |
| **II. Attitudes and Skills** | | |
| 6. I can identify resources and opportunities for continuing professional development to provide telehealth. | ☐ | ☐ |
| 7. I have stakeholder support to provide telehealth at my organization or site. | ☐ | ☐ |
| 8. I recognize the value of interprofessional telehealth services to provide patient-centered care. | ☐ | ☐ |
| 9. I believe that the patient is an important member of the telehealth care team. | ☐ | ☐ |
| **III. Technology Security and Compliance** | | |
| 10. I have access to appropriate telehealth platforms for the provision of patient care services. | ☐ | ☐ |
| 11. I have access to a Health Insurance Portability and Accountability Act (HIPAA) compliant platform to provide telehealth. | ☐ | ☐ |
| 12. I have information technology support to provide telehealth. | ☐ | ☐ |
| 13. I have access to a secure server to provide telehealth. | ☐ | ☐ |
| **IV. Workforce Operation/Implementation/Evaluation** | | |
| 14. I can document and measure the impact of the patient centered goals of telehealth services. | ☐ | ☐ |
| 15. I can fulfill my role as a contributing member of the telehealth interprofessional care team. | ☐ | ☐ |
| 16. I can execute my responsibilities to provide telehealth services. | ☐ | ☐ |
| 17. I realize the importance of measuring the benefits of telehealth. | ☐ | ☐ |
| 18. I can address the barriers and limitations of telehealth services. | ☐ | ☐ |
| **V. Regulatory and Scope of Practice** | | |
| 19. I recognize the regulations and scope of which services can be provided via telehealth. | ☐ | ☐ |
| 20. I have adequate resources (i.e., electronic health record) to document my telehealth encounters. | ☐ | ☐ |
| 21. I am recognized as a qualified healthcare provider for telehealth services. | ☐ | ☐ |
| 22. I can differentiate between telehealth, telemedicine, and telepharmacy, telemental health, etc. | ☐ | ☐ |
| **VI. Funding and Reimbursement** | | |
| 23. I have adequate funding resources (e.g., allocated budget, etc.) to provide telehealth. | ☐ | ☐ |
| 24. I am able to receive reimbursement for my telehealth services. | ☐ | ☐ |
| 25. I can overcome or navigate the barriers to billing for telehealth. | ☐ | ☐ |

**Score Interpretation for Percentage of Yes Responses**

0-25%: Practitioner has identified the need to be ready.

**Next steps:**

(1) Incorporate telehealth readiness into strategic and business plan
(2) Identify key stakeholders, including local and state organizations
(3) Determine baseline healthcare disparities for the community
(4) Evaluate baseline relevance and urgency of the practitioner’s competence and contributions via telehealth

26-50%: Practitioner has developed telehealth readiness plans and completed steps (1) to (4) above

**Next steps:**

(5) Evaluate strategic and business plan for telehealth implementation
(6) Collaborate with key stakeholders, including local and state organizations
(7) Assess supply and access to telehealth platforms and equipment
(8) Participate and complete continuing professional development specific to telehealth
(9) Identify workflow protocols and policies for telehealth implementation

51-75%: Practitioner has partially achieved readiness and completed steps (5) to (9) above

**Next steps:**

(10) Implement telehealth workflow and protocols
(11) Conduct business impact and continuity analyses for reimbursement sustainability
(12) Develop appropriate contractual agreements between key partners and stakeholders, including organizations.
(13) Conduct telehealth implementation pilot to test strategic and business plan
(14) Develop Continuous Quality Improvement (CQI) and sustainability plans

76-100%: Practitioner has nearly achieved readiness, addressed sustainability, and completed steps (10) to (14) above

**Next steps:**

(15) Demonstrate proficiency in telehealth readiness
(16) Modify strategic and business plans based on results of business impact and continuity analyses
(17) Execute contracts with key partners and stakeholders, including organizations.
(18) Evaluate effectiveness and efficiency of telehealth readiness plans
(19) Update telehealth readiness plan
(20) Provide Continuing Professional Development (CPD) for staff
(21) Conduct Continuous Quality Improvement (CQI) and routinely update sustainability plans

Note: This assessment checklist is currently in pilot testing phase and may be amended based on results of the pilot test.

Telehealth readiness assessment tools exist for organizations aiming to implement services; yet, few have been developed with the knowledge gained after the pandemic to

students, clinicians, and organizations to complement telehealth competency and development protocols provided by others.20,22
ensure preparedness for the provision of patient care via telehealth. In alignment with other competency tools created for medical education, we have included domains in Table 1 that could further enable students, clinicians, and organizations to self-assess for the following considerations: (1) professional education and qualifications; (2) attitudes and skills; (3) technology, security, and compliance; (4) workflow operation, implementation, and evaluation; (5) regulatory and scope of practice; and (6) funding and reimbursement considerations. The tool includes assigned point-values for 25 items in several focus areas on a variety of levels of telehealth readiness for implementation and sustainability.

Conclusion and call to action

While there is some educational programming available for physicians, pharmacists, students, and APPs, standardization is lacking; there is a readiness assessment gap in professional instruction and a clear national need for cross-professional digital and telehealth competencies and training to address this opportunity, overcome barriers set forth by the pandemic, and enhance virtual patient care. Furthermore, as federal, state, and local legislators are incrementally addressing licensure requirements, liability challenges, and reimbursement strategies, it is imperative that medical, pharmacy, and health care educational programs develop and integrate digital and telehealth into the curricula for both didactic, experiential, and clinical education.

While it may be a challenge to add new curricular content, digital and telehealth should be incorporated as a standard of patient care. These programs can accelerate deployment of evolving telehealth practices and technologies by equipping future pharmacists, physicians, and APP with the sophistication necessary to practice and deliver health care for all populations in this rapidly changing health care landscape. Equally important, there should be continuing professional development opportunities, including continuing pharmacy education programs and training for pharmacists, physicians, and APPs to be fully equipped for patients during future disasters and emergencies. A telehealth readiness assessment tool can provide an identified baseline need for individuals and organizations to develop and implement appropriate and relevant telehealth training programs.

In summary, COVID-19 accelerated a digital transformation. This global crisis underscored the importance of overcoming the unequitable digital divide to ensure timely access to health care. Thus, health care curricula and continuing professional development across all specialties must be developed and propagated, as the demand for virtual care will only increase in the foreseeable future beyond the pandemic.

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