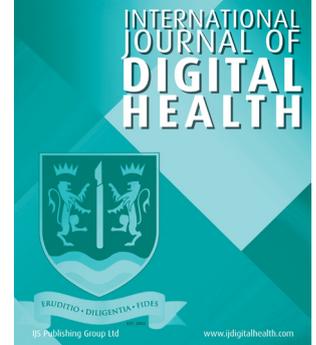# How Should Medical Education Support Increasing Telemedicine Use Following COVID-19? An Asian Perspective Focused on Teleconsultation

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ABSTRACT

The COVID-19 pandemic and associated social distancing measures have led to rapid and substantial increases in telemedicine use. This pattern is likely to continue, given the current trajectory of COVID-19, with telemedicine potentially becoming routine for the management of some conditions. Successful implementation of telemedicine in clinical practice requires resources and support to ensure appropriate use, including efficient digital setup and infrastructure, and training. Published evidence suggests that current telemedicine training is not sufficient. Specifically, there are unmet educational needs on the use of telemedicine across the training and development continuum of healthcare practitioners. In view of this, and given the constant advancement in technologies, there is an increased need for telemedicine-related continuing medical education (CME) to ensure that patients receive optimal care while protecting their privacy and safety. Across the Asia-Pacific region, unmet healthcare practitioner educational needs may be addressed through on-the-job training and development through CME and other initiatives. Here we propose targeted educational programmes for healthcare practitioners, focussing on the effective use of teleconsultation, as we look to the future and realise the full benefits of telemedicine. The regional findings and the approaches suggested may also be applicable beyond Asia-Pacific.

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The World health Organization (WHO) describes telemedicine as healthcare services provided remotely, through communication between healthcare providers and healthcare users, or where healthcare providers attain support and clinical guidance from other professionals [1]. Teleconsultation focuses on the communication component of healthcare service, defined as "synchronous or asynchronous consultation using information and communication technology to omit geographical and functional distance" [2]. Since the beginning of the COVID-19 pandemic, the need for social distancing to reduce transmission has led to a rapid and substantial increase in telemedicine use worldwide. In the USA, Medicare fee-for-service beneficiary telehealth visits (two-way audio and video interactive healthcare) increased 63-fold from 2019 to 2020 [3]. A similar trend was also seen across Asia [4]. In China, an online mental health service was initiated when the pandemic started [5]; by 2020, 12.8% of top-tier hospitals in China had adopted telemedicine [6]. Similarly, in Malaysia, daily consultation numbers on commercial telemedicine platforms increased by approximately 80%. Free COVID-19 consultation hotlines were also offered by governments in Japan and the Philippines [1]. Given the ongoing challenges of COVID-19, this pattern of elevated telemedicine use is likely to continue, potentially becoming routine for the management of some conditions.

Proper implementation of telemedicine requires public-private collaborations, strong governance, appropriate training and a multidisciplinary- and patient-centric approach; with these in place, telemedicine can provide high quality, efficient and effective health services [1]. To successfully implement and ensure appropriate use of telemedicine in clinical practice, resources, support and training for efficient digital infrastructure and setup are required [7]. At a country level, it is important that teleconsultation systems can be well integrated into and aligned with the principles of local health infrastructure (e.g. universal access to a secure, innovative service) [8].

Published evidence suggests that current telemedicine education and training for healthcare practitioners is not sufficient [9]. An analysis of changes in physicians' telemedicine use during the pandemic also indicated that prior training was not a predictor of telemedicine uptake [10]. Digital communication and patient empowerment are essential competencies for healthcare practitioners in this digital era, highlighting the importance of tailored educational solutions to ensure that these requirements are met [11]. As such, delivery of effective care via remote health technologies requires competency in online communication and use of digital platforms. Telemedicine in this context encompasses the use of different digital platforms in performing virtual physical examinations, diagnostic assessments and patient

monitoring, as well as essential digital communication skills that facilitate teleconsultation appointments [12, 13].

Despite increasing evidence that telemedicine saves time, reduces treatment costs and expands access to health services in Asia [14], there are clear barriers to increased adoption of telemedicine. Based on a 2018 systematic review, the most commonly identified barrier to the adoption of telemedicine was lack of technological literacy among key personnel [7]. A published review of literature (2013–2019; from US, UK, Spain, Denmark, Australia, Portugal, The Netherlands, Canada, Japan, and Brazil) noted that some physicians identified the importance of resisting pressure to use teleconsultation until the wider proof of benefits and resource saving are established [8]. Resistance to telemedicine may also be driven by healthcare providers' concerns about compromised quality of care, reduced patient privacy and safety, and lack of personal connection with patients. These concerns can be addressed by incorporating training in medical school curricula and integrating with existing healthcare infrastructures to deliver high-quality, secure, and personable healthcare through telemedicine [12]. Telemedicine education for medical trainees has proven effective in developing core competencies in medical knowledge, patient care, practice-based learning, and systems-based practices [15].

Although some institutions have incorporated telemedicine in their medical school curricula, continued education and training on telemedicine is lacking for healthcare practitioners [16]. There is minimal published information on the availability of continued training for digital healthcare solutions; most publications focus on delivering topic-related content via digital means. With the fast evolution of digital technologies, it is critical that education on the use of telemedicine continues throughout the healthcare career [17, 18]. Focus is required on important teleconsultation components of: 1) digital platform competency; 2) consent, confidentiality and data security; 3) ethical, legal, and regulatory considerations; 4) patient selection, care escalation and de-escalation and 5) patient engagement when conducting a virtual consultation (Figure 1) [19].

Evidence supports that patient encounters (rather than traditional lectures) as an assessment strategy change practitioner behaviour [20]. As telemedicine education becomes mainstream, it is appropriate that effective training uses competency-based, outcomes-oriented frameworks such as those of the Canadian Medical Education Directives for Specialists (CanMEDS) or the Accreditation Council for Graduate Medical Education (ACGME). A recent review of education curricula identified only one of 43 curricula as outcomes-oriented or competency-based. The most commonly covered curricula topics were technology, teleconsultation –
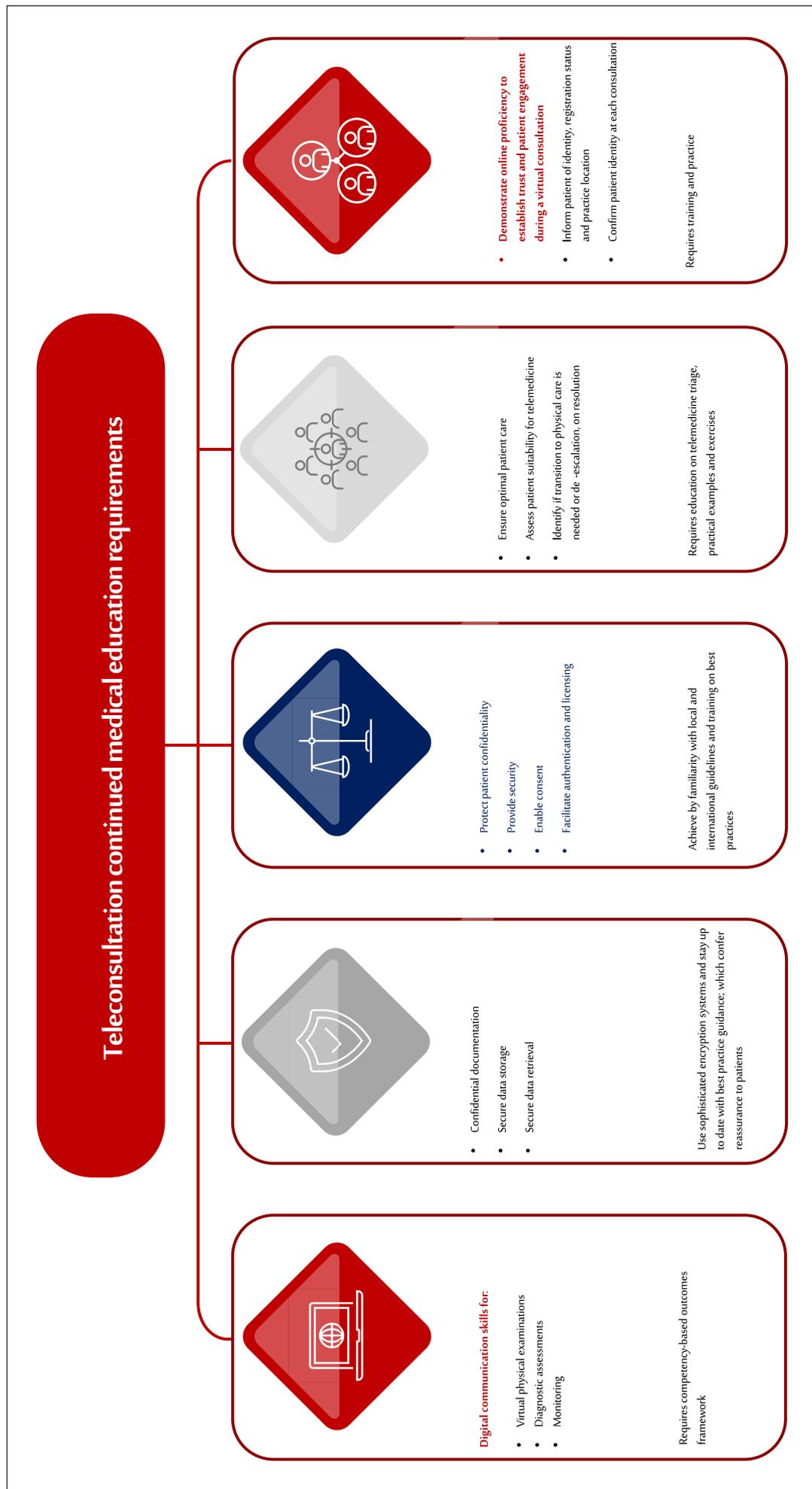
Teleconsultation continued medical education requirements

Digital communication skills for:

- Virtual physical examinations
- Diagnostic assessments
- Monitoring

Requires competency-based outcomes framework

- Confidential documentation
- Secure data storage
- Secure data retrieval

Use sophisticated encryption systems and stay up to date with best practice guidance; which confer reassurance to patients

- Protect patient confidentiality
- Provide security
- Enable consent
- Facilitate authentication and licensing

Achieve by familiarity with local and international guidelines and training on best practices

- Ensure optimal patient care
- Assess patient suitability for telemedicine
- Identify if transition to physical care is needed or de -escalation, on resolution

Requires education on telemedicine triage, practical examples and exercises

- **Demonstrate online proficiency to establish trust and patient engagement during a virtual consultation**
- Inform patient of identity, registration status and practice location
- Confirm patient identity at each consultation

Requires training and practice

Figure 1 Components of teleconsultation continued medical education.

which includes medical history evaluation, physical examinations and patient communication – and medical specialty-specific content [21]. These findings demonstrate that knowing how to effectively use communication platforms is essential for effective patient examination and diagnosis.

While a key component of teleconsultation is diagnosis and examination via digital platform, it is important for healthcare practitioners to recognise the associated limitations. These include platform technological limitations, patient willingness to engage with remote communication, and a potential reduction in the continuity of care for patients. If telemedicine is implemented too extensively, driven by economic needs, this may compromise outcomes if quality of care evidence is not sufficiently considered. Healthcare practitioner training alone cannot fully address these concerns [12].

Patient interactions during teleconsultation are more susceptible to security risks than face-to-face interactions. While the most widely utilised digital platforms use sophisticated encryption systems, no platform is completely safe. Guidelines on security best practice, such as patient confidentiality, data handling and record keeping, vary across Asian countries [19]. However, there is a universal need for secure practices for confidential data storage and retrieval. Healthcare practitioners using teleconsultation need a fundamental understanding of the latest guidance on documentation, data storage and security, to ensure best practice whilst reassuring patients.

Clear and defined direction on ethical and safe practices can help strengthen the overall digital health system, and facilitate authentication and licensing [19]. Across Asia, local guidelines shape medical education curricula on ethical, legal, and regulatory topics. These are extended by broader international initiatives that necessitate ongoing education to ensure healthcare practitioners are up to date with the latest guidance. Evidence on how ethical principles are incorporated into clinical practice is currently limited [22], but considering the impact of the pandemic, this is likely to continue to evolve rapidly. Training can support best practice and can enable healthcare practitioners to access and work within regulatory and legal frameworks of local law and medical council guidance.

Teleconsultation may not be a good fit for all patients or all situations. It is therefore necessary to have a clear triage pathway, to ensure care is optimised. Healthcare practitioners providing teleconsultation are required to demonstrate ability to triage and assess patients' suitability for teleconsultation or physical care [16]. It is equally important to appropriately identify emergencies, or when transition to physical care is needed. Education on the teleconsultation triage pathway, guidance on decision-making with practical examples and exercises

are useful for healthcare practitioners to practice managing real-life scenarios.

During teleconsultations, it is critical that the patient's identity is confirmed and that patients are informed of the roles and identities of participants, their registration status and the location of practice [19]. Patient willingness to engage is a critical aspect of effective delivery of telemedicine [19]. Therefore, it is important for healthcare practitioners to demonstrate onscreen professionalism and teleconferencing skills to help build patient trust and subsequent engagement [16, 23]. Non-physical presences in teleconsultation means that empathy, active listening, and nonverbal communication skills have increased importance in ensuring patient-centric care [23]. Simulation training on video consultation skills has proven useful for medical students and may be valuable in the context of continued medical education for healthcare practitioners [24].

The COVID-19 pandemic has changed family and work lives, and similarly, the impacts on digital application in healthcare are evident. Continuing medical education has a vital role to play in reaching established healthcare practitioners who have not yet adopted telemedicine. Training needs will be ongoing and will require continued investment, to ensure that telemedicine use remains aligned with the current best practice guidance and technological evolution. The perspective presented is largely based on experience in Asia, however, it is anticipated that the findings and suggestions may have broader applicability.

SUBMISSION DECLARATION

This present work has not been published previously, is not under consideration for publication elsewhere, and will not be published elsewhere in the same form. All authors approved publication of this article.

DATA ACCESSIBILITY STATEMENT

All data included in this article are freely available via PubMed.

COMPETING INTERESTS

All authors are employees of MIMS Pte Ltd.

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