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Implementing virtual care in the emergency department: building on the pediatric experience during COVID-19

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Implementing virtual care in the emergency department: building on the pediatric experience during COVID-19

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Background

Virtual care has been defined as any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies with the aim of facilitating or maximizing the quality and effectiveness of patient care [1]. The World Health Organization has advocated for virtual care to solve issues of increased demand for timely healthcare access and shortage of health care professionals [2]

Canadian emergency departments (EDs) suffer from systemic issues and significant resource constraints [3]. Barriers to adoption of virtual care in Emergency Medicine (EM) prior to COVID-19 include governance of compensation, licensure restrictions, and lack of connectivity to resources required to build the system [4]. Already faced with significant challenges to in-person care in the ED, virtual solutions were not prioritized despite 44% of health care consumers indicate a willingness to access virtual options [5].

Since the start of the pandemic, virtual care in Canada has exploded in its usage, scope and ubiquity. Clinicians have adopted video technology in primary care, hospital wards and community mental health units while patients/families

accepted a new interface. In Ontario, some ED groups use virtual care to assess patients in long-term care, decreasing transfers. Other EDs adopted virtual follow-up on discharged patients or virtual psychiatry consults for mental health assessments. The pediatric emergency department (PED) is no exception, with variable virtual offerings. The Children's Hospital of Eastern Ontario (CHEO) began booking ED virtual same/next day appointments for families at home seeking medical care for their children [7]. London Health Sciences Center (LHSC) opened an after-hours virtual "ED waiting room" nested in their departmental electronic medical platform. SickKids in Toronto rolled out virtual subspecialty consults for children physically located in the ED.

Many hospitals across Canada are now working to establish and improve virtual offerings, creating a unique opportunity to standardize, harmonize and optimize virtual care. Based on our experience to date, we offer insights into developing ED virtual care; and while our patient population is pediatrics, the many of the lessons learned can be applied to general EDs and outpatient urgent care/primary care settings.

Principles

Virtual emergency medicine care is uniquely patient driven, and must coordinate the right patient to be seen at the right time by the right provider using the right technology (Table 1). Effective EM care must understand the needs of the community it serves and apply a virtual strategy that can be optimized to that environment.

Several regulatory resources have been published setting out guidelines for medical professionals to implement virtual care [9]. These guidelines establish clear protocols for identifying the physician and patient, disclose the legal and regulatory responsibilities of the physician, and identify

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Table 1 Summary table

Determinant of success	Example
Right patient	Delay seeking care due to fear of infectious disease (eg COVID) or doctor's office No requirement for labwork or other investigations
Right time	After-hours care for low acuity complaints Fills gaps in service for your community
Right provider	Knowledge or expertise from emergency specialist Integrated with existing care by other medical providers
Right technology	Videoconference—Compliant to regulations, ensures privacy, barriers removed to ensure equity

recourse for the patient to follow-up if further instructions are required or if their health worsens [9, 10].

Right patient

In a climate of fear for COVID exposure and concern for delay in seeking medical attention [8], CHEO and LHSC adopted virtual care to provide families and children an alternate route to direct timely access from an established trusted source. Diverting low acuity problems to a virtual model maintains social distancing and decreases potential exposures in the ED.

Consideration for the target population is crucial to best inform strategy, operations, logistics and communication. In pediatrics, there are many subpopulations that will almost always require in-person assessments (Appendix Table 1), and thus any virtual care strategy should direct them appropriately. For this, communication strategies are key to ensure successful implementation and minimize community disappointment or physician concern.

The legal implications are important to discuss and plan for within a practice group. Limitations of virtual care must be clearly communicated and pathways for patients to receive in-person care, where appropriate and available, are necessary [11]. Practically, this means that if a patient seen virtually provides a history that necessitates a physical examination that cannot be executed remotely, the patient should be redirected [12].

Barriers exist for families with limited English or French to access virtual care. Equally evident is the socioeconomic or age barriers that may exist. Strategies to have translation available, options for access to technology and care supports are key to ensuring equity.

Right time

Virtual care allows families to access care from home, eliminating travel time and ED wait times. Previous surveys of families presenting with low acuity problems suggests

that many have primary care providers but did not access them first or could not get a timely appointment [6]. Open 24/7, PEDs have faced long wait times due to this influx of patients. The idea to utilize virtual care to keep low acuity visits away from ED waiting rooms has potential to prevent overcrowding and cut down on PPE use. Additionally, EDs could use virtual care to minimize return assessments. To optimize implementation, EDs need to understand their daily case load, times of peak volume, how best to schedule medical staff, and create a virtual model that both supports the existing structure and fills the gaps.

Right provider

It is essential that virtual ED work collaboratively with primary care providers, to offer services that are complementary and results in better coordinated and timely service delivery.

Emergency physicians are a scarce commodity and must be used effectively. During a pandemic, virtual care shifts are ideal for 'at risk' staff. After the pandemic, there may be residual benefits, including allowing staff with health or age limitations to contribute to ED work in a more flexible model of care.

Clinicians working in the ED are funded in various ways; from fee-for-service to salaried to alternative funding plans. Equitable arrangements must be sought to balance working ED and virtual shifts, and payments should neither penalize nor reward any new model of care implemented on a virtual platform. Seeking clarity around funding opportunities from provincial authorities is necessary to ensure longevity of any virtual service.

Right technology

Hardware, software and information technology resources are significant considerations when implementing a virtual platform. At its most basic, a simple telephone call regarding outstanding laboratory or imaging results or

following-up for a brief assessment to find out how a child is doing after discharge qualifies. More commonly, virtual care brings to mind a video-conferencing system. Hardware required for the clinician includes a computer with a high-resolution webcam, microphone, along with a private space to conduct assessments. On the patient's side, a smartphone, tablet or laptop with built-in webcam can be utilized. Internet capacity should be optimized (high speed) for best connectivity.

The software must be compliant with provincial privacy and security legislation (eg. PHIPA in Ontario). Ease of use, for both the clinician and family is important. Some examples of current software include Ontario Telehealth Network (OTN), WebEx (Cisco)TM and Zoom for HealthcareTM. Optimally, an integrated electronic medical record (EMR) would allow for timely documentation of the virtual assessment and for patient chart visibility across multiple providers to ensure appropriate (and nonrepetitive) continuity of care.

Logistics for easy web-access, registration processes, and development of standardized information for the patients to self-download is important. Training materials for physicians should be developed and a process for iterative change/improvement in place to ensure smooth operation. Follow-up surveys or other mechanisms for feedback from users and providers are useful to ensure that fixable issues are addressed.

Consideration to barriers to access should be studied carefully as some technology requirements may prohibit those with disabilities or lower socio-economic situations from successful access.

Future considerations

Virtual care can be utilized to improve health equity for numerous populations within Canada who have poor access to care due to geographic considerations, marginalization, or other factors. While there are significant barriers to attaining this goal (i.e. improving infrastructure to provide high-speed internet across rural settings), with proof of concept already achieved and more widespread acceptance gained, hospitals and EDs can help advocate for these projects to improve patient care in these communities.

Many EDs and PEDs act as referral centers and resources to their communities. Virtual care can help improve existing partnerships and help forge new ones. Leveraging virtual care platforms from within the ED to help facilitate care for high acuity cases, or potentially defer travel requirements for those who do not need to be transferred, may have significant benefits for patients and cost savings to the healthcare system.

Conclusion

Virtual care in the pediatric emergency department is still in its infancy but is growing and innovating at a significant speed. As virtual offerings become a new standard, guiding principles will help to build the most robust and appropriate care model required for each community. The principle of “the right patient to be seen at the right time by the right provider and using the right technology” communicates the idea of maintaining close links with patient populations, advocates to build systems and remove barriers, and connecting with community health providers. These are unprecedented times during COVID-19, allowing us to shape care models for years to come. The opportunity should not be squandered.

Compliance with ethical standards

Conflict of interest The authors declare no conflict of interest.

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