




# Qualitative analysis of values and motivation reported by families utilizing a paediatric virtual care emergency clinic launched during the SARS-CoV-2 pandemic

Victoria Sanderson<sup>1</sup> · Branka Vujcic<sup>2</sup> · Sherry Coulson<sup>1,3</sup> · Rodrick Lim<sup>1,2,3</sup> 

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## Abstract

**Purpose** This is the first study to take an in-depth qualitative approach to identify motivating factors for caregivers who chose the paediatric emergency virtual care option in Canada during the SARS-CoV-2 pandemic. The role that virtual care may play moving forward is also considered.

**Methods** Between May 2020 and May 2021, 773 respondents attending the virtual clinic completed a follow-up survey with open-ended questions. For qualitative content analysis, comments were coded and analysed until thematic saturation was reached. Sub-codes were subsumed into major coding categories to identify themes.

**Results** Three major themes, including *safety*, *reassurance* and *convenience*, and an overarching theme of *satisfaction* emerged from this analysis. Paediatric virtual clinic use was motivated in part by a desire to *avoid the hospital environment*. In-person Emergency Department visits were reported to be challenging and stressful, particularly due to perceived infection risk. Respondents appreciated that the clinic provided *reassurance* by assisting in navigating the healthcare system during a time of uncertainty and felt the virtual option allowed them to use healthcare resources responsibly. The *convenience and ease of access* to virtual care allowed for improved family-centred care in vulnerable populations. The overarching theme of *satisfaction* was emphasized by numerous comments for this service to be offered post-pandemic.

**Conclusion** Our study indicates that virtual care was an attractive option for caregivers due to the safety, reassurance, and convenience provided. The strong patient desire for continued availability post-pandemic will be important considerations in this rapidly developing area of care.

**Keywords** Paediatrics · Virtual care · Emergency medicine · Content analysis

## Résumé

**Objectif** Il s'agit de la première étude à adopter une approche qualitative approfondie pour identifier les facteurs de motivation des aidants qui ont choisi l'option des soins virtuels d'urgence pédiatrique au Canada pendant la pandémie de SRAS-CoV-2. Le rôle que les soins virtuels pourraient jouer à l'avenir est également envisagé.

**Méthodes** Entre mai 2020 et mai 2021, 773 personnes ayant participé à la clinique virtuelle ont répondu à une enquête de suivi comportant des questions ouvertes. Pour l'analyse qualitative du contenu, les commentaires ont été codés et analysés jusqu'à ce que la saturation thématique soit atteinte. Les sous-codes ont été subsumés en grandes catégories de codage afin d'identifier les thèmes.

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✉ Rodrick Lim  
rod.lim@lhsc.on.ca

<sup>1</sup> Department of Paediatrics, Schulich School of Medicine and Dentistry, Western University, London, ON, Canada

<sup>2</sup> Division of Emergency Medicine, London Health Sciences Centre, London, ON, Canada

<sup>3</sup> Children's Health Research Institute, London, ON, Canada

**Résultats** Trois thèmes principaux, à savoir la *sécurité*, le *réconfort* et la *commodité*, ainsi qu'un thème général de satisfaction ont émergé de cette analyse. L'utilisation de la clinique virtuelle pédiatrique a été motivée en partie par le désir *d'éviter l'environnement hospitalier*. Les visites en personne dans les services d'urgence ont été jugées difficiles et stressantes, notamment en raison du risque d'infection perçu. Les personnes interrogées ont apprécié que la clinique les rassure en les aidant à s'orienter dans le système de santé pendant une période d'incertitude et ont estimé que l'option virtuelle leur permettait d'utiliser les ressources de santé de manière responsable. La *commodité et la facilité d'accès* aux soins virtuels ont permis d'améliorer les soins centrés sur la famille dans les populations vulnérables. Le thème général de la *satisfaction* a été souligné par de nombreux commentaires pour que ce service soit offert après la pandémie.

**Conclusion** Notre étude indique que les soins virtuels sont une option attrayante pour les aidants en raison de la sécurité, du réconfort et de la commodité qu'ils procurent. Le désir profond des patients de continuer à bénéficier de ces services après la pandémie sera un élément important à prendre en compte dans ce domaine de soins qui se développe rapidement.

**Mots-clés** Pédiatrie · Soins virtuels · Médecine d'urgence · Analyse de contenu

### Clinician's capsule

#### *What is known about the topic?*

Satisfaction with virtual care in Canada is high but the reasons for this satisfaction have yet to be elucidated.

#### *What did this study ask?*

Why are families choosing a virtual paediatric urgent care option in Canada and what impact is this service having?

#### *What did this study find?*

Families identified convenience, reassurance, and safety as the primary drivers of their satisfaction with the virtual option.

#### *Why does this study matter to clinicians?*

This study identifies patient values and opportunities for improvement to paediatric emergency care on an individual and policy level.

place, studies of why families decide to utilize virtual emergency care are needed to understand the value to specific populations, and ultimately determine the role of virtual emergency paediatric care in Canada moving forward. The primary objective of this work was to identify the motivations for use and value of the paediatric emergency virtual clinic by analysing common themes identified within the responses of patients and families who have used the service.

## Methods

### Study design

This qualitative content analysis was designed based on the technology acceptance model [3]. Data was collected from patients and their families who attended the virtual clinic through Children's Hospital, LHSC. This was organized as a joint initiative of administration, physicians, information technology and risk management [4]. Continuous feedback of technological and patient/provider experience challenges were incorporated. With the initiation of the provincial programme, standards set out by the province were instituted, as were data reporting requirements.

To attend the virtual clinic, parents or guardians initiate contact through the urgent care Ontario website and request an appointment to see a paediatrician. Appointments are slotted into empty time slots on a first come first served basis. Time slots are assigned at 15 min increments. The appointment included a "self-view" video feed to the physician for visual assessments as well as audio communication via WebEx, a secure virtual conferencing platform.

At the time of registration, participants consented to a follow-up survey by the triage nurse. All patients registered were sent an exit survey link regardless of completion of visit. This allowed the broadest strategy to welcome criticism or support of the visit. This study was a quality improvement

## Introduction

Virtual care is 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]. Virtual care has had a limited role in Canadian paediatric emergency care to-date and primarily consisted of provider-to-provider interactions via phone prior to its more widespread implementation.

In response to a 58% decrease in paediatric ED visits during the early COVID-19 pandemic [2], a virtual paediatric emergency care option was implemented at London Health Sciences Centre (LHSC). With virtual care systems now in

initiative as determined by the Western Research QI checklist and therefore this project was exempted from ethics approval in accordance with Article 2.5 of the TCPS.

**Study setting, time period and sample size**

Data was collected from a prospective cohort of all patients that were offered the exit survey following their virtual care visit. The cohort attended the virtual emergency clinic at LHSC Children’s Hospital between May 2020 and May 2021. Of 2194 total visits 773 virtual clinic patients responded to the survey (Supplemental 1). A brief anonymous survey was distributed to consenting families directly following their virtual ED visit. Two open-ended questions were asked in the survey: *Please tell us, in your own words, the impact this virtual visit had for you today;* and *Is there anything else that you would like to share about how Children’s Hospital at LHSC can support patients and their loved ones during this time?* Anonymized data was extracted into excel format for subsequent software uploading.

The demographic data presented in Supplemental 2 was collected for 2194 VC patients from May 2020 to May 2021. The registration clerk consented each patient and asked for reason for choosing virtual care and contact with primary care provider prior to the appointment. Reason for visit, outcome, postal codes and age were obtained from the electronic health record.

**Data analysis**

Participant responses were analysed using conventional content analysis and the step model of inductive category development [5]. Survey responses were uploaded into Dedoose (Version 7.0.23) [6]. Respondent comments were independently coded by two reviewers (VS, BV) and analysed until thematic saturation was reached. The coding categories were then collaboratively assessed by reviewers (VS, BV, SC, RL) to ensure codes reliably and accurately captured the

themes present within the patient responses. Any discrepancies or disagreements in coding were resolved through consensus. The codes were then applied to the remainder of the responses. Upon coding completion, related codes were combined and subcodes were subsumed within major coding categories to distinguish overarching, major and minor themes.

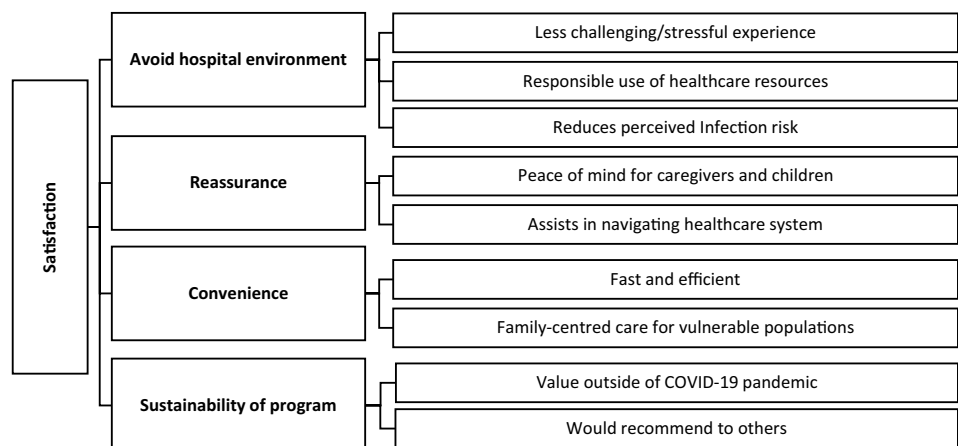
**Results**

The exit survey reached a 35.2% response rate (Supplemental 1), encompassing the full range of paediatric ages with a skew toward younger patients, a variety of clinical presentations, and both urban and rural patients from across the entire Southwestern Ontario catchment area and beyond. Demographic details, as well as reason for visit, presenting complaint and visit outcome are outlined in Supplemental 2. Qualitative content analysis and coding successfully identified commonalities among patient experiences. As demonstrated schematically in Fig. 1, the predominant theme was satisfaction. Major themes included reassurance, convenience, avoiding hospital environment and sustainability of programme further details outlined in Fig. 1 and Supplemental 3.

The primary overarching theme of *satisfaction* with the virtual clinic dominated the patient narrative in this analysis with over 400 comments. Sub-themes of satisfaction included: usefulness of virtual care as a concept, thankful for this service during the pandemic included alleviating the stress of having an ill or susceptible family member, hesitations of attending the hospital and obtaining guidance on pandemic related rules and restrictions from the virtual care team, as well as satisfaction with the physicians and staff. Over 200 responses were coded with comments relating to their desire to have this service as an option in the future post-pandemic.

There were 80 comments coded with a negative experience or recommendations: 28 complaints (12 technology

**Fig. 1** Schematic representation of breakdown of overarching, major and minor themes of satisfaction identified through qualitative analysis of responses from patients and families attending paediatric emergency virtual clinic



related, 8 associated with in-person care after virtual visit) and 64 recommendations (17 for expanded hours/expand to adults, 12 recommendations for the in-person ED/LHSC). Further details on sub-themes are described in Supplemental 3. Importantly, there were 4 comments regarding inclusivity, including: ensuring the use of inclusive language, providing an interpreter for deaf individuals, and improving access for blind parents.

## Discussion

### Interpretation of findings

This study builds upon literature of virtual care in Canada by conducting a qualitative thematic analysis of the value and impact of paediatric virtual emergency services in the Canadian context. It provides new insight into the attractive features of a virtual care option for paediatric emergency patients. Those families who responded to the exit survey were satisfied by the convenience, reassurance, and ability to avoid the hospital environment.

### Comparison to previous studies

The high level of satisfaction expressed by families represented in this study is mirrored in previous research, with 91% satisfaction rates in Canadian virtual care settings [7, 8]. On the other hand, drawbacks of virtual care have been well established in the literature including privacy concerns, lack of tactile physical examination, technical challenges, lack of access and treatment outcomes [9, 10; of which, only technical challenges were represented in the present study.

### Strengths and limitations

The strengths of this research lie in the emphasis on family-centred care, as well as the qualitative methodological approach to analysis. This study is limited geographically to the LHSC Children's virtual clinic and did not investigate impacts on in-person ED care. Additionally, these findings are specific to the COVID-19 time period. There was a low response rate of 35% which limits the generalizability of these findings. Due to the self-selection for survey completion, there are likely important distinctions between respondents and non-respondents and it is possible non-respondents did not value the virtual care pathway. This study may have failed to capture individuals who were unable to access the virtual clinic. The survey was only available in English and thus language is a potential barrier to completion. This study did not aim to assess patient visit outcomes, quality of care or cost efficacy; however, these will be addressed in future studies.

## Clinical implications

Virtual urgent care for paediatric populations is available in other geographic regions and based on patient satisfaction seems to be a logical next step in optimizing family-centred healthcare for this population, particularly in a geographically dispersed region like Canada.

## Research implications

This study concludes that those who attended the virtual clinic and responded to the exit survey value the service and outlines why they chose it. There remain key gaps in knowledge relating to digital healthcare access, performance characteristics, health outcomes and economic evaluation in this setting. This study emphasizes the value of patient engagement and input to guide improvements to virtual care offerings.

## Conclusion

Using qualitative content analysis of patient and caregiver experiences written in their own words, this study provides a picture of why families chose the virtual urgent care option. The primary finding of this paper is that virtual care in the paediatric setting helped many caregivers to navigate the healthcare system and avoid the hospital environment with a convenient option for care that left them feeling reassured and satisfied.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s43678-023-00505-2>.

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## Declarations

**Conflict of interest** All authors declare that they have no conflict of interest.

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