Evaluating patient and provider satisfaction with the use of telemedicine for pediatric pre-anesthetic assessment during the COVID-19 pandemic.

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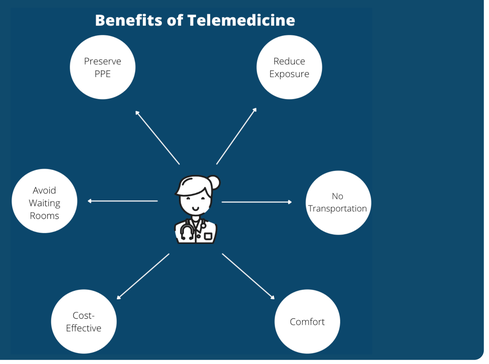
Introduction

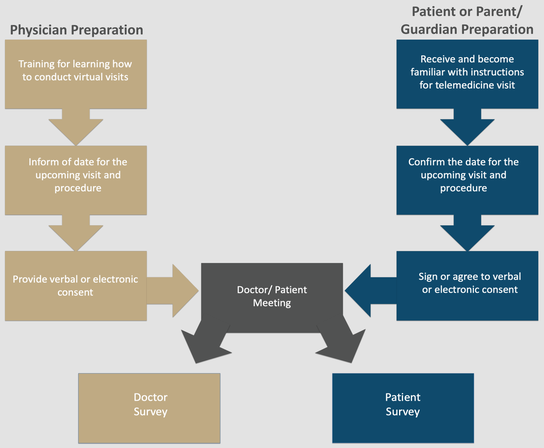
- The COVID-19 pandemic presented unprecedented challenges in delivering healthcare to patients around the world. Therefore, Telemedicine was rapidly adopted to deliver healthcare during the pandemic.
- As telemedicine evolves and becomes potentially permanent, it is important to include it in measures to preserve and improve patient satisfaction across all healthcare modalities.
- This study explores patient and provider satisfaction with video-based telemedicine visits during the COVID-19 pandemic, utilizing a telemedicine satisfaction survey of both pediatric patients and their parents or guardians who presented to an Anesthesiology Preoperative Evaluation Clinic, and of physician and advanced practice providers who conducted the visits.



Methods

Intervention: Telemedicine Protocol

The Preoperative Anesthesia Clinic video-based telemedicine visits at Children's National Hospital were conducted via Zoom for Healthcare, a Health Insurance Portability and Accountability Act-compliant.



Survey Design

A structured survey was created to assess patient and care-giver satisfaction with video-based telemedicine visits. The survey included questions regarding interaction quality, ease of use, privacy concerns[8], comparison to in-person visits, and overall satisfaction. A similar survey was created to assess provider satisfaction with telemedicine consultation.

Data Collection and Analysis

Eligibility

- Patients 18+ that were able to make medical decisions, participated in the survey themselves.
- For patients ages 0-17, the parent or guardian present participated in the survey on behalf of the patient.
- Non-English-speaking patients were contacted with an interpreter.

Collection

- Phone calls were made using the hospital line or via the hospital operator, to allow the hospital name to display on the recipient's caller ID.
- Three attempts were made on consecutive days to contact the participant. After the third attempt, patient was deemed unable to be contacted.
- Demographic data and survey responses were collected anonymously.
- Study data were collected and managed using REDcap.
- Providers were given an email link to anonymously complete the survey regarding their overall views of telemedicine for pre-anesthesia evaluation.

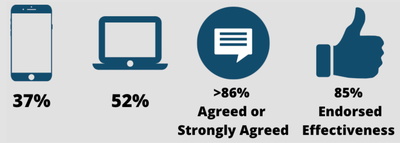
Table 1: Patient demographics (N= 101)

Patient demographics	N= 101
Age (years), mean (SD)	9.1 (6.4)
Sex, n (%)	
Male	55 (54.5)
Female	46 (45.5)
Race, n (%)	
White	30 (33.3)
Black	43 (47.8)
Asian	3 (3.3)
American Indian or Alaska Native	1 (1.1)
Other	13 (14.4)
Ethnicity, n (%)	
Hispanic or Latino	19 (19.6)
Not Hispanic or Latino	78 (80.4)
Insurance status, n (%)	
Uninsured	1 (1.0)
Private insurance	57 (57.0)
Medicaid	40 (40.0)
Medicare	2 (2.0)
Preferred language, n (%)	
English	88 (88.0)
Spanish	11 (11.0)
Pashto	1 (1.0)
Procedure, n (%)	
Orthopedic	37 (37.0)
General Surgery	9 (9.0)
Otolaryngology	27 (27.0)
Plastic Surgery	3 (3.0)
Ophthalmology	1 (1.0)
Dental	4 (4.0)
Radiology	1 (1.0)
Urology	9 (9.0)
Other, Multiple Surgeons	9 (9.0)
Device used, n (%)	
Smartphone	52 (51.5)
Tablet	8 (7.9)
Laptop	37 (36.6)
Desktop	4 (4.0)
Educational attainment of respondent, n (%)	
Did not complete high school	5 (5.3)
Completed high school	18 (18.9)
Some college	24 (25.3)
Bachelor's degree	33 (34.7)
Post-graduate degree	15 (15.8)

Results

Patients

Between September 1 and December 15, 2020, a total of 101 responses were recorded.



Providers

Eighteen providers consisting of physicians and nurse practitioners completed a satisfaction survey regarding their overall experience with the telemedicine anesthesia preoperative visits.

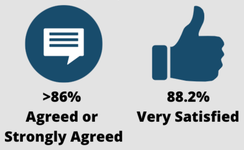


Table 2: Telemedicine patient satisfaction Likert scale score data (N=101)

Likert Scale Score	n (%)					Mean score (SD)	Median score (Range)
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)		
My concerns were addressed during this visit	0 (0%)	0 (0%)	1 (1.0)	34 (33.7)	66 (65.3)	4.6 (0.5)	5.0 [3.0, 5.0]
Preoperative anesthesia instructions were given during this visit	1 (1.0)	3 (3.0)	3 (3.0)	35 (35.0)	58 (58.0)	4.5 (0.8)	5.0 [1.0, 5.0]
I feel this preoperative consultation was beneficial to my child's care	0 (0%)	0 (0%)	0 (0%)	37 (37.0)	63 (63.0)	4.6 (0.5)	5.0 [4.0, 5.0]
The technology to set up the telemedicine visit was easy to use	1 (1.0)	5 (5.0)	10 (9.9)	36 (35.6)	49 (48.5)	4.3 (0.9)	4.0 [1.0, 5.0]
I was able to talk comfortably with the providers on the video screen	0 (0%)	2 (2.0)	2 (2.0)	32 (31.7)	65 (64.4)	4.6 (0.6)	5.0 [2.0, 5.0]
I was able to understand the provider's recommendations for my child	0 (0%)	1 (1.0)	1 (1.0)	30 (29.7)	69 (68.3)	4.7 (0.6)	5.0 [2.0, 5.0]
I was able to see the providers easily during the telemedicine visit	0 (0%)	1 (1.0)	2 (2.0)	31 (30.7)	67 (66.3)	4.6 (0.6)	5.0 [2.0, 5.0]
I feel confident my child's privacy was respected during the telemedicine visit	0 (0%)	0 (0%)	2 (2.0)	34 (33.7)	65 (64.4)	4.6 (0.5)	5.0 [3.0, 5.0]
Overall, I am very satisfied with this preoperative anesthesia visit	0 (0%)	0 (0%)	0 (0%)	38 (37.6)	63 (62.4)	4.6 (0.5)	5.0 [4.0, 5.0]
The pre-operative anesthesia telemedicine visit was as good as a regular in-person visit	3 (3.0)	5 (5.0)	8 (7.9)	39 (38.6)	46 (45.5)	4.2 (1.0)	4.0 [1.0, 5.0]
Telemedicine saved me time traveling to a hospital or clinic	1 (1.0)	1 (1.0)	2 (2.0)	27 (26.7)	70 (69.3)	4.6 (0.7)	5.0 [1.0, 5.0]
The visit provided over the telemedicine system is as effective as in-person visits	2 (2.0)	7 (6.9)	7 (6.9)	30 (29.7)	55 (54.5)	4.3 (1.0)	5.0 [1.0, 5.0]
I would use telemedicine services again	2 (2.0)	1 (1.0)	2 (2.0)	33 (33.0)	62 (62.0)	4.5 (0.8)	5.0 [1.0, 5.0]
Overall, I am satisfied with this telemedicine system	0 (0%)	1 (1.0)	1 (1.0)	39 (38.6)	60 (59.4)	4.6 (0.6)	5.0 [2.0, 5.0]

Table 3: Likert scale score data for providers (N=18)

Likert Scale Score	n (%)					Mean score (SD)	Median score (Range)
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)		
I could easily talk to the patient/parent on the video screen	0 (0)	0 (0)	0 (0)	10 (55.6)	8 (44.4)	4.4 (0.5)	4.0 [4.0, 5.0]
I was able to hear the patient/parent clearly	0 (0)	0 (0)	0 (0)	12 (66.7)	6 (33.3)	4.3 (0.5)	4.0 [4.0, 5.0]
I was able to see the patient/parent during the telemedicine visit	0 (0)	0 (0)	1 (5.6)	11 (61.1)	6 (33.3)	4.3 (0.6)	4.0 [3.0, 5.0]
I feel confident the patient's privacy was respected during the telemedicine visit care	0 (0)	0 (0)	3 (16.7)	7 (38.9)	8 (44.4)	4.3 (0.8)	4.0 [3.0, 5.0]
I was able to obtain all the necessary information during this telemedicine visit	0 (0)	0 (0)	2 (11.1)	11 (61.1)	5 (27.8)	4.2 (0.6)	4.0 [3.0, 5.0]
The preoperative anesthesia visit provided over the telemedicine system is as good as an in-person visit	0 (0)	3 (16.7)	4 (22.2)	7 (38.9)	4 (22.2)	3.7 (1.0)	4.0 [2.0, 5.0]
The technology to set up the telemedicine visit was easy to use	0 (0)	0 (0)	2 (11.1)	11 (61.1)	5 (27.8)	4.2 (0.6)	4.0 [3.0, 5.0]
I am very satisfied with the telemedicine preoperative anesthesia visit	0 (0)	0 (0)	2 (11.8)	10 (58.8)	5 (29.4)	4.2 (0.6)	4.0 [3.0, 5.0]

Conclusion

- Patient satisfaction metrics are an important component of health care quality and can play a significant role in long-term acceptance, insurance coverage, and success of a telemedicine program.
- Previous studies of patient satisfaction with telemedicine across various medical specialties before and during the COVID-19 pandemic have shown that patients are generally satisfied with these visits.
- To our knowledge, this is the first study addressing patient satisfaction with telemedicine in an anesthesiology pediatric preoperative clinic during the COVID-19 pandemic and is a foundation for future studies involving the safety and efficacy of telemedicine in children.

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