

## Preliminary Results of a Telemedicine Questionnaire in Pediatrics as an Innovative New Tool to Diagnose and Treat Children Virtually in an Ambulatory Setting: Analysis of 400 Pediatric Consultations

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### Abstract

Virtual online consultation enables real-time exchange between two or more participants at different locations via audio and video communication [1-9]. In the visualization of the discussion partners, telemedicine thus differs from a classic telephone conference and expands it to include the visual component [1-6].

**Keywords:** Telemedicine; Children; Pediatric; Ambulatory; Treatment; Therapy; Questionnaire.

### Introduction

Virtual online consultation enables real-time exchange between two or more participants at different locations via audio and video communication [1-9]. In the visualization of the discussion partners, telemedicine thus differs from a classic telephone conference and expands it to include the visual component [1-6]. The term telemedicine

refers to the technical setup or infrastructure of such a telemedicine meeting, the telemedicine technology [1-7]. This refers to the hardware and software components that are required for the technical implementation of telemedicine [2]. The good news is that Corona-conditioned video and telephone conferences no longer involve all these conference men [6-10]. There simply isn't time for them anymore. Those who practice

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telemedicine needs the utmost discipline. Telemedicine conferences need to be better prepared mentally; they run in a more facilitated, concentrated, and focused manner. In 1400 pediatric patients, we

performed 400 telemedicine consultations in the last 3 months (29%). We present a new diagnostic questionnaire tool (TQT) for telemedicine in Pediatrics.

Telemedicine Questionnaire Tool (TQT)	
Questionnaire	
1.	Age of the child?
2.	Problem the child attends the doctor?
3.	Anamnesis includes fever, condition of the child, rash?
4.	Time the problem started?
5.	Exact fever analysis, two-time fever measurement?
6.	Clinical pediatric examination: starting from head to feets:
a.	head: colour face; lymph nodes, eyes, thyroid, ears, mouth, neck.
b.	thorax: excursions, breathing, jugular withdrawals, distance belt, support of the auxiliary respiratory muscles?
c.	Heart auscultation not possible but ECG and analysis of ECG with telemedicine by the pediatrician?
d.	Abdomen: assistant examines the abdominal 4 quadrants by control of pain degree of the child in telemedicine
e.	Examination of umbilicus to diagnose umbilical hernia or inguinal hernia
f.	Check genitals: testicles inside the scrotum, redding of the scrotum, blue dot sign, hydrocele, inguinal hernia.
7.	Therapy: prescribed medications by telemedicine
a.	Nurse (MFA) provides prescription in the ambulatory center
b.	Parents/Patients go to pharmacy, treatment begins.

**Table 1:** A new diagnostic questionnaire tool (TQT) for telemedicine in Pediatrics.

## Discussion

Telemedicine in pediatrics has played a more important role since the Corona pandemic [5-10]. Virtual telemedicine allows you to respond quickly to any pediatric problem, and telemedicine saves time, especially in pediatric accidents. Compared to adults, parents are very happy to have urgent information about what to do, where to go, and how to deal with their child. So far, we use telemedicine to see, diagnose and treat

the child on an outpatient basis. In 1400 pediatric patients, we performed 400 telemedicine consultations in the last 3 months (29%). In 400 consultations, there were only 3 misdiagnosis and in 8 cases, the prescriptions had to be changed. In general, it is necessary that the pediatrician is well trained and has a lot of experience in pediatric medicine. Because of this routine, the pediatrician can assess the child's condition, fever, rash, and other characteristics and make recommendations to the parents calmly

and without haste. The only difficult examination is the auscultation of the heart. An ECG can be performed and presented by telemedicine and analyzed, systolic or diastolic murmurs are not possible to evaluate by telemedicine. Innovation by telemedicine in pediatrics is based on the clinical experience of the pediatrician. Not every pediatrician can work effectively by virtual telemedicine.

In conclusion, virtual telemedicine is an innovative new tool to diagnose and treat children in an ambulatory setting. The new telemedicine questionnaire tool (TQT) helps pediatricians to develop a strategy, how to get higher effectivity and smaller probability of errors in pediatric telemedicine. Further intensive research in this interesting new field is necessary.

## References

1. Sheikhtaheri A, Kermani F. Telemedicine in Diagnosis, Treatment and Management of Diseases in Children. *eHealth*. 2018;148-55. [PubMed](#) | [CrossRef](#)
2. Paruthi S. Telemedicine in pediatric sleep. *Sleep Med Clin*. 2020;15(3):e1. [PubMed](#) | [CrossRef](#)
3. Chowdhury D, Hope KD, Arthur LC, Weinberger SM, Ronai C, Johnson JN, et al. Telehealth for pediatric cardiology practitioners in the time of COVID-19. *Pediatr Cardio*. 2020;12:1-1. CC. [PubMed](#) | [CrossRef](#)
4. Lakshin G, Banek S, Keese D, Rolle U, Schmedding A. Telemedicine in the pediatric surgery in Germany during the COVID-19 pandemic. *Semin Pediatr Surg*. 2021;37(3):389-95. [PubMed](#) | [CrossRef](#)
5. O'Hara VM, Johnston SV, Browne NT. The paediatric weight management office visit via telemedicine: pre-to post-COVID-19 pandemic. *Pediatr Obes*. 2020;15(8):e12694. [PubMed](#) | [CrossRef](#)
6. Papadopoulos NG, Custovic A, Deschildre A, Mathioudakis AG, Phipatanakul W, Wong G, et al. Impact of COVID-19 on pediatric asthma: practice adjustments and disease burden. *J Allergy Clin Immunol Pract: In Practice*. 2020;8(8):2592-9. [PubMed](#) | [CrossRef](#)
7. Schweiberger K, Hoberman A, Iagnemma J, Schoemer P, Squire J, Taormina J, et al. Practice-level variation in telemedicine use in a pediatric primary care network during the COVID-19 pandemic: retrospective analysis and survey study. *J Med Internet Res*. 2020;22(12):e24345. [PubMed](#) | [CrossRef](#)
8. Myers K, Nelson EL, Rabinowitz T, Hilty D, Baker D, Barnwell SS, et al. American telemedicine association practice guidelines for telemental health with children and adolescents. *Telemed J E Health*. 2017;23(10):779-804. [PubMed](#) | [CrossRef](#)
9. Nogueira M, Vale-Lima R, Silva C, Gonçalves D, Guardiano M. Telemedicina en pediatría del neurodesarrollo durante la pandemia de COVID-19: experiencia en un hospital terciario. *Rev Neurol*. 2020;467-8. [PubMed](#) | [CrossRef](#)
10. García-Pérez A. Telemedicine in pediatric neurology. *Rev Neurol*. 2020;71(5):191-6. [PubMed](#) | [CrossRef](#)