

North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition Position Statement for Telehealth

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ABSTRACT

Telehealth (TH) broadly encompasses remote activities of clinical care (telemedicine), provider and patient education, and general health services. The use of synchronous video for TH first occurred in 1964 and then catapulted to the forefront in 2020 during the coronavirus disease 2019 public health emergency. Due to the sudden need for increased TH utilization by nearly all health care providers at that time, TH became essential to clinical practice. However, its sustainable future is unclear in part given that best practices for TH in pediatric gastroenterology (GI), hepatology, and nutrition remain undefined and non-standardized. Key areas for review include historical perspective, general and subspecialty usage, health care disparities, quality of care and the provider-patient interaction, logistics and operations, licensure and liability, reimbursement and insurance coverage, research and quality improvement (QI) priorities, and future use of TH in pediatric GI with a call for advocacy. This position paper from the Telehealth Special Interest Group of North American Society of Gastroenterology, Hepatology and Nutrition provides recommendations for pediatric GI-focused TH best practices, reviews areas for research and QI growth, and presents advocacy opportunities.

Key Words: best practice, position statement, telehealth, telemedicine

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INTRODUCTION

Lessons Learned During COVID-19 Public Health Emergency

In 2020, telehealth (TH) in pediatric gastroenterology (GI) practice experienced unprecedented, meteoric growth,

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What Is Known

- The coronavirus disease 2019 (COVID-19) public health emergency (PHE) led to rapid adoption of telehealth (TH) in the clinical practice of pediatric gastroenterology (GI). Implementation of TH during the PHE was widely accepted by both patients and providers, due to necessity, convenience, and improved access.
- The future of TH post-PHE in pediatric GI remains uncertain.

What Is New

- This present position statement summarizes the current state of TH in pediatric GI and recommends areas for clinical care, research, quality improvement, and advocacy.

yet best practices have not been defined. The future of TH in clinical practice after the coronavirus disease 2019 (COVID-19) public health emergency (PHE) remains unclear. The terms telehealth (TH) and telemedicine (TM) are often used interchangeably to characterize remote activities of clinical care, but TH encompasses a broader umbrella of remote clinical care, provider and patient education, and general health services. Common TH definitions and types of TH are outlined in Table 1 and Figure 1 (1–3).

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The use of synchronous video TH first occurred in 1964. The Institute of Medicine published the first guide for TH in 1996, yet payor, provider, regulatory, technology, and health care system barriers limited large-scale implementation of TH (4). Responding to the COVID-19 PHE beginning in 2020, governmental support facilitated the provision of TH care. In the United States (US), US Public Law 116-123, Section 1135 led to a waiver of certain Medicare requirements by the US Secretary of Health and Human Services. The Section 1135 waiver significantly increased acceptance by health insurance providers, reimbursement parity, and relaxed state and federal regulations (5). Canada's response during the COVID-19 crisis also included reduced restrictions related to the compensation for virtual care services at the provincial level and a federal government pledge of \$240 million to expand online health care (6).

The rapid adoption of TH in 2020–2022, in response to the COVID-19 PHE, demonstrated the necessity, feasibility, and utility of TH in clinical pediatric GI, hepatology, and nutrition practice (7–10). However, because most pediatric GI providers had no prior experience with TH, this unprecedented event created an urgent need for provider-focused education (7,11). Despite a myriad of technological advances, the future of TH remains unclear. Policy decisions on long-term strategies for insurance reimbursement, state licensure, and individual and institutional support will dictate TH sustainability and growth (12). Recommendations for optimal TH care delivery have recently been provided by The American Academy of Pediatrics (AAP), the American Gastroenterology Association, and the US Department of Health and Human Services (13–15). For the North American Society of Gastroenterology, Hepatology and Nutrition (NASPGHAN), this Telehealth Position Statement aims to describe best practices, review areas for research and quality improvement (QI), characterize advocacy opportunities, and suggest future directions for the trajectory of TH.

TABLE 1. Telehealth definitions

Common terms	Definitions
Telehealth	Overarching umbrella term for remote activities of clinical care, provider-patient education, and general health services
Telemedicine	Health care delivered at a distance by electronic means for diagnosis, treatment, and prevention of disease and injuries; may also include research, evaluation, and provider education
Televisits	Remote patient-provider visits
Teleconsultation	Provider presents to remote consultant
Teleinterpretation	Remote interpretation of X-rays, endoscopy, and pathology findings
Telesupervision	Remote supervision of fellow, physician extender, etc
Telemonitoring	Vital signs, symptoms, labs, imaging sent in real time
On-Demand vs. Scheduled	Videoconference (synchronous) Store and forward (asynchronous)* Second opinions E-consults (provider-to-provider) Remote patient monitoring

*Patient to be evaluated without being physically present (eg, secure mobile phone application or patient portal).

METHODS

Initial content was developed by the Telehealth Special Interest Group (SIG) with a NASPGHAN webinar. A writing group was formed for the Position Statement and approved by NASPGHAN. Relevant literature was reviewed using PubMed/MEDLINE databases applying the following terms: telehealth, telemedicine, pediatrics, gastroenterology, hepatology, position statement, and best practice. Non-English literature was excluded. The 481 retrieved references were screened for relevance, subcategorized into 14 subtopics [ie, COVID impact, inflammatory bowel disease (IBD), health disparities] and the final 215 references rated from 1 to 3 for potential relevance. A grading method was not used for the recommendations secondary to the limited quantity and quality of the pediatric TH data available. Each recommendation was voted on by the 8 authors as approve, disapprove, or abstain.

The available literature and expert opinion were used by the authors to formulate recommendations for each section. Sections were completed by individual authors with review and editing of the drafts by the coauthors. There was agreement of the final manuscript version by all authors with voting for recommendations. These recommendations were reviewed by the NASPGHAN TH SIG members via electronic communication and by the NASPGHAN Executive Council.

TELEHEALTH IMPLEMENTATION AND MANAGEMENT

Components of a Telehealth Visit: Operations and Logistics

Operational considerations for TH include pre-planning, process and workflow development, tools and training. Ideal workflows should mirror in-person visits with virtual check-in procedures, a virtual waiting room, and triage data collection (ie, vitals, anthropometrics) (Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/MPG/D91>) (7). Hardware and software requirements depend on the type of telemedicine practiced (Table 1). For synchronous telemedicine, video software is often required. The choice of virtual platform must ensure compliance with the Health Information Portability and Accountability Act (HIPAA). Features should optimize accessibility (eg, language interpretation services), technological support, and connectivity (16). A “bring your own device” requirement (17) limits the accessibility of TH to only patients-families with appropriate devices. When choosing software for asynchronous telemedicine, an important consideration is the ability to transfer color and interactive files such as endoscopy, radiology, or pathology images and reports.

Pediatric GI care teams may perform remote patient telemonitoring through use of patient-reported outcomes (18) or more continuous data-reporting using the internet of things (IoT) (19). IoT is a system of connected devices that can collect, send, and store data without requiring human interaction (19). Examples of IoT in pediatric GI include wireless capsule endoscopy, continuous glucose monitoring devices, smart watches, smart scales for weight management, smart cameras for nutrition assessment of meals, and gastrostomy tube pumps for monitoring formula volume given (20).

1. Recommendations for Telehealth Visit Components

- The virtual platform selected must be HIPAA compliant
 - Workflows should include pre-planning, virtual check-in procedures, a virtual waiting room, and triage data collection
- 8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

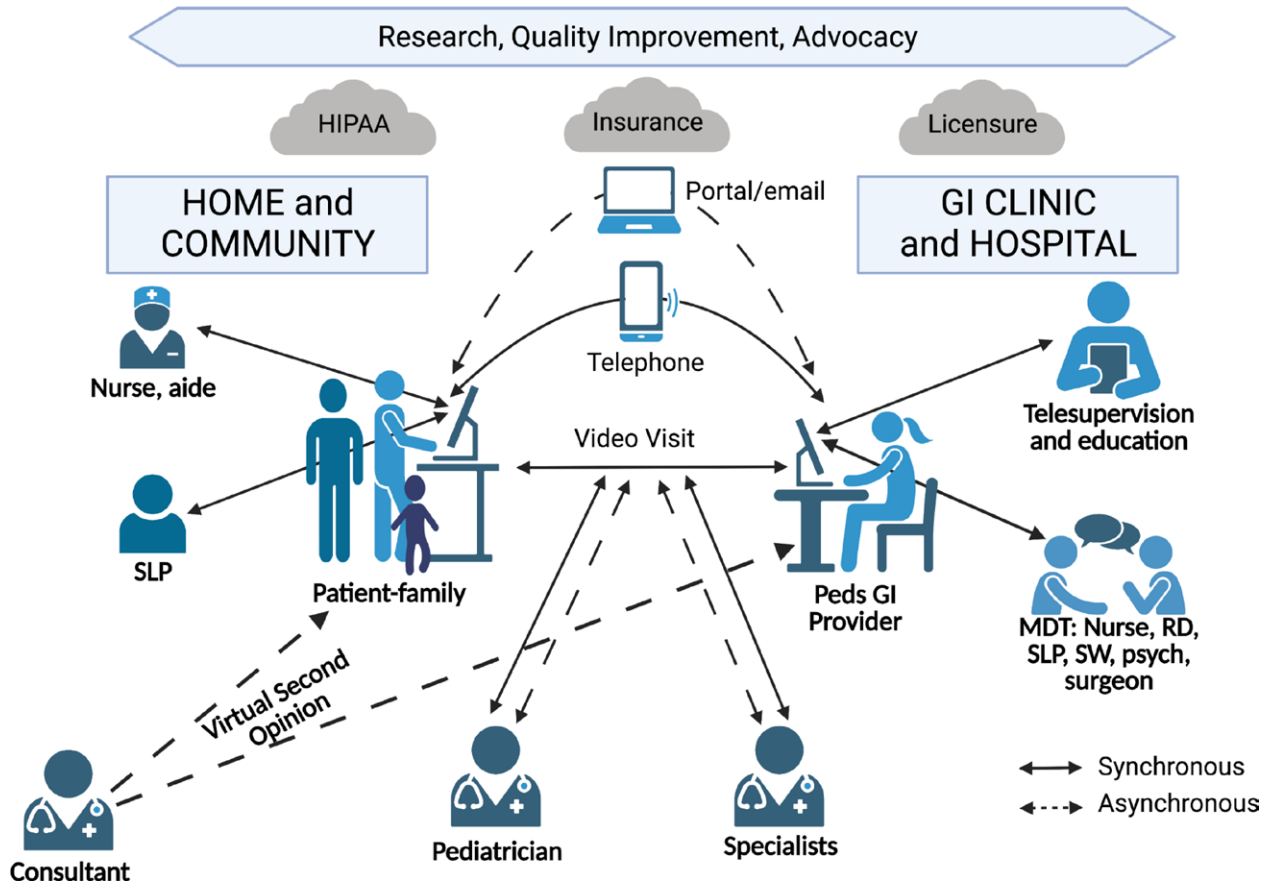


FIGURE 1. Telehealth accessibility model: telehealth supports increased accessibility to care and collaboration among patients-families, providers, and multidisciplinary teams across time and space. Clouds of uncertainty about regulations and reimbursement hold potential to alter this model. Initiatives to advance research, quality improvement, and advocacy will also shape the future of telehealth. Created with Biorender.com. Abbreviations: GI = gastroenterologist; HIPAA = Health Insurance Portability and Accountability Act; MDT = multidisciplinary team; peds = pediatric; psych = psychologist or psychiatrist; RD = dietitian; SLP = feeding therapist; SW = social worker.

- TH accessibility and technological support should be important considerations
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

Components of a Telehealth Visit: Patient Selection and Exam

TH provides a unique opportunity for convenient health care delivery. As with in-person visits, the context of the patient-family visit can affect the quality of the interaction. An initial question to be raised is whether the patient/caregiver and provider dyad represent a good fit for a TH encounter. Telemedicine has been viewed with high patient-family and provider satisfaction, but in-person visits may be preferred bidirectionally in certain situations and should remain available (8). TH is an option that should not be mandated by regulatory agencies, payors, or institutions. Instead, shared decision-making should occur between patients-families and providers. Multidisciplinary TH care delivery is also an important consideration and opportunity including but not limited to nurses, dietitians, social workers, psychologists, and speech/feeding therapists (21). Pathways for the inter-person interactions that can be utilized with TH are shown in Figure 1.

TH can offer additional insights into a patient’s home environment and family interactions that may inform the clinician

decision-making. Provider expectations can be set at the outset of TH encounters to improve the quality of virtual interaction and may be framed around the type of visit (eg, accessing an episodic opinion vs expecting longitudinal care). Descriptions of the limitations of TH (technology, language, physical examination) should be stated, and the clinician should provide anticipatory guidance for in-person visit indications (Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/MPG/D91>). Not all TH experiences have been positive. Recommendations for improving the quality of TH doctor-patient communication have been published (22–24). These include optimizing technology, building rapport, and optimizing verbal and nonverbal communication in TH encounters. Understanding informational and emotional barriers can also improve virtual interaction (25).

An additional concern for TH is the quality and limitations of the visual examination. For pediatric GI, a template for a TH abdominal examination has been developed. However, limitations need to be acknowledged and providers need to be aware of when TH is not an appropriate substitute for an in-person physical examination (Appendix 2, Supplemental Digital Content 2, <http://links.lww.com/MPG/D92>) (7).

Once TH is determined to be a suitable modality by the provider and the patient-family, the use of support staff, real-time information technology troubleshooting resources and follow-up resources can help achieve the same standard of care provided

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during in-person visits (7). Telemedicine training for providers, support staff, learners, and patients-families can help ensure quality interactions. TH represents a dramatic shift in care delivery, and health care systems need to be responsive to the unique needs of digital health care (26–28).

2. Recommendations for Telehealth Patient Selection

- The decision of when and how to use TH should be shared between patients-families and providers with the goal to achieve quality medical care and an excellent patient experience
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain
- A TH visual exam may be performed, but its limitations should be acknowledged, and an in-person physical exam should be recommended when needed
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

Telehealth Licensure and Liability

Patient, family, and provider needs and preferences are prime factors driving TH usage; however, regulatory requirements must be followed (www.telehealthresourcecenter.org). In the US, state medical licensing and regulations where the patient is physically located at the time of the encounter (originating site) determine whether and how telemedicine can be practiced. In contrast, the patient's geographic location does not restrict scope of practice in Mexico or Canada. There are no state-specific regulations in Mexico and no province-specific regulations related to reimbursement in Canada (29,30), and regulations of other countries should be considered individually. For example, although TH may enable improved access and continuity of care while patients are traveling or studying out of state (or country), lack of licensure in the patient's location could limit this practice. The location of the telemedicine provider is irrelevant with respect to licensure, though currently impacts reimbursement and liability (31,32). No national US license to practice medicine exists, although ongoing efforts aim to make multi-state licensing more efficient (33). Individual states may allow the practice of medicine based upon a practitioner's active licensure from another state (34). Importantly, other provider types (advanced practice registered nurse [APRN], psychologist, registered nurse, dietician, social worker, etc) have separate regulations, and the health care team must ensure each member's appropriate licensure. Although beyond the scope of this position statement, arguments regarding national medical licensure in the US span from constitutional (state's rights) to practical (administration and review). A recent US Congressional Bill, H.R. 1397, entitled, "Telehealth Improvement for Kids' Essential Services Act or TIKES Act" proposed Medicaid TH licensing across states, but was not enacted into law (12). We recommend a call to action for national TH licensure, which could in turn, support its expansion (35).

Individual providers carry the responsibility and liability of determining whether they are practicing according to state laws and regulations, although the administrative burden should be primarily undertaken by the organization through which they are employed. Keeping up to date with this information is increasingly difficult when utilizing TH to reach subspecialty patients in multiple states that may each set their own time-limited exemptions to usual licensing rules. Aspects of state regulation include establishing versus continuing a doctor-patient relationship, providing TH through audio-visual interaction or other formats, and pharmacy considerations including adherence with state opioid program rules. Fortunately, guidance can be provided by state medical boards and other organizations such as the Center for Connected Health Policy

(CCHP; www.cchpca.org) which is a nonprofit, nonpartisan organization that serves as the National Telehealth Policy Resource Center. At the CCHP site, state-specific TH regulations can be reviewed, and a tool provides comparisons of policies across states.

Liability for TH involves similar considerations as in-person practice, with some differences. A review of current liability insurance policies should include a determination of (1) whether TH services are covered, and (2) which geographic locations or patient populations are included within the policy. Regulations may dictate state-specific coverage minimums or require consent for TH treatment. Considerations for TH consent to provide care are generally in accordance with in-person consent terms but may include statements regarding risks related to physical examination or privacy/confidentiality that may differ within a TH encounter. Institutional rules including obtaining hospital privileges (ie, for in-patient consultation via TH) must also be followed. Telemedicine encounter documentation is similar to in-person, but should note any perceived or actual limitations, including difficulties with audio-visual communication or remote devices. Institutions may also provide formal training and credentialing (with or without observed visits) for medical staff, to verify a basic ability to provide telemedicine services.

3. Recommendations for TH Licensure and Liability

- Although individual providers ultimately are responsible for licensed, secure, and HIPAA compliant TH delivery in accordance with governmental regulations, practice and hospital administration should provide strong regulatory support for initial and ongoing TH patient care.
8/8 = 100% Agreement
Voting results: 8 agree, 0 disagree, 0 abstain

TH Reimbursement and Insurance Coverage

Historically, health care payor coverage of TH with in-person encounters and accompanying reimbursement has been a key barrier in TH. Prior to the COVID-19 PHE, insurance coverage and reimbursement for TH and in-person visits were unequal and resulted in only scattered TH utilization nationally (4,36). During the COVID-19 PHE the Section 1135 waiver resulted in significantly increased acceptance by health insurance providers, higher reimbursement, and relaxed state and federal regulations (5). However, the COVID-19 PHE waivers were temporary, putting TH regulatory mandates at significant risk of change or discontinuation. As a potential solution for post-COVID-19 PHE TH, US Congressional Federal legislation proposed in the TIKES Act could allow sustainable TH Medicare coverage and reimbursement. (12) Advocacy is urgently needed to secure permanent parity for TH and in-person visits.

In the US, state-specific parity laws may also direct reimbursement by insurers. Service parity requires that medical services provided in-person be covered equally when provided via TH (but no guarantee of reimbursement rate) and payment parity requires providing the same payment rate for the same service regardless of delivery method. To secure appropriate reimbursement, documentation for TH visit notes should include a list of all people present along with location of the provider and patient since facility fee reimbursement may differ based on location of the patient or provider (ie, at home or in a medical office building). Time-based and medical decision-making billing requirements are identical for TH and in-person visits according to Centers for Medicare and Medicaid Services 2021.(37) In addition to the 3 major categories of outpatient billable encounters (TH, e-visit, virtual check-in), there are nearly 275 different reimbursable Medicare TH Current Procedural Terminology codes as of January 2022 (Appendix 3, Supplemental Digital Content 3, <http://links.lww.com/MPG/D93>) (5,7). Additionally, specific contracts may be required to facilitate interprofessional consultation and in-patient consultation at other hospitals.

The position statement authors acknowledge that the future uncertainty of reimbursement for TH will influence individual and institutional practice models. Relative reimbursement rates should be balanced against potential advantages of patient and provider location choice (ie, work-from-home). In the future, alternative payment models (ie, capitated managed care, bundled payments) may further affect how TH encounters are valued by patients, providers, and health care systems. TH fiscal infrastructure within a medical group needs to navigate public and private TH payor systems that remain in flux. Health care organizations need to develop a TH focused policy and strategy that is regularly reviewed/updated to account for changing state/national regulation and health care system needs.

The entire health care team is critical for the success and sustainability of TH and all team members need organizational and governmental support (Fig. 1). Given the complexity of licensure and reimbursement, organizations should consider an operational team dedicated to successful implementation and continued use of telemedicine. Some centers may have an organization-wide initiative for telemedicine, while others may take a specialty-by-specialty approach. Other options include creating a strategic plan specific to telemedicine or designating a director of telemedicine.

4. Recommendations for Telehealth Reimbursement and Insurance

- Insurance reimbursement for TH is subject to change depending on variable state regulations and insurance carrier policies. The changing reimbursement landscape must be monitored continuously. NASPGHAN agrees with the American Gastroenterology Association that advocacy for permanent insurance coverage and reimbursement parity for TH and in-person visits should be prioritized 8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

GENERAL AND SUBSPECIALTY TELEHEALTH

Outcomes

TH has enhanced health care delivery, with initial outcome studies in pediatric GI describing surprising benefits (11,38–40). TH allows the provision of clinical care through virtual patient consultations and patient education, remote monitoring, wireless health applications, and electronic transmission of imaging and medical reports (41,42). The literature demonstrates equivalent to superior health outcomes with virtual care (43–47). The advantages of TH include consistently improved access, adherence, and education (self-efficacy) in adolescents at reduced costs through fewer in-person visits (43). While acute care and triage via tele-visits can be useful to determine acuity (48), TH also has potential shortcomings including limited physical exams unless utilizing remote digital specialty devices (ie, stethoscopes). There are also reimbursement challenges unique to TH. For example, while e-consults (ie, documented curbside consult) have helped with documentation of previously unaccounted clinical activity, these consults have been inconsistently reimbursed by outside agencies (49).

Impacts

Polled pediatric GI physicians in the US were more comfortable with telemedicine follow-up visits than with new patient visits due to the lack of a physical exam. Some practitioners preferred a 2-pronged option, comprising an initial

in-person consultation and a follow-up TH visit for continuity (50). Intrinsic benefits valued by patients and providers include: improving patient access, cost-effectiveness, time savings, and increased scheduling flexibility (28). Traditional in-person care has significant costs associated with “brick-and-mortar” health care delivery. TH has the potential to reduce fixed costs in clinical care delivery without the need for in-person registration, clinical examination rooms, and potentially support staffing. TH can also facilitate improved work-life balance for physicians (51).

For pediatric GI, hepatology, and nutrition subspecialty care, chronic disease management often requires supportive multidisciplinary team care incorporating pediatric/health psychology, occupational/feeding therapy, nutrition, and social work. When these scarce resources are made available remotely (eg, apps for cognitive behavioral therapy and behavior-modification, TH groups for celiac nutritional counseling), they show potential to affect feeding behavior, reduce abdominal pain, treat anxiety, and improve adherence (52–54). TH offers unique advantages for feeding therapy, as it permits observing and coaching the patient and family in their home environment (55). Virtual platforms have enhanced both interdisciplinary and multidisciplinary care as they facilitate virtual meetings incorporating all team members through synchronous (same call) or asynchronous (consecutive calls) visits (36,52). The most robust literature in pediatric GI touts TH for adolescent patients with IBD to optimize infliximab infusion intervals through multidisciplinary care, proactive symptom monitoring, and web-assisted calprotectin-based treatment algorithms to detect early relapse (IBD-Live) (44,46,56–59). Pilot studies used TH to educate patient-families with intestinal failure to prevent central line associated bloodstream infections (60). TH has been critically important during the COVID-19 PHE for follow-up of immunocompromised patients undergoing hepatic and intestinal transplant, as well as for those with chronic infectious or autoimmune hepatitis (61,62). When determined to be appropriate by the provider and patient, TH may be applied to any chronic, relapsing conditions that involve high-cost, frequent, and intensive intervention. A potential TH disadvantage includes an uptick in indirect time required to monitor incoming data, which may eventually be addressed through artificial intelligence (AI) (63,64).

5. Recommendations Pertaining to General and Subspecialty Telehealth

- TH should be recognized as convenient for many patients and families with a high degree of patient-family satisfaction
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain
- TH should be considered appropriate for high-value subspecialty and multidisciplinary care in many circumstances
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

IMPROVING TELEHEALTH FOR PATIENTS AND PROVIDERS

TH Disparities

Social determinants of health (SDoH: economic stability, education, food, community/social context, neighborhood/physical environment, and health care system) have been associated with health care disparities (31). Lyles et al (65) recently termed access

to digital health care and digital literacy as a “super SDoH”; stating that “health care is on the cusp of a digital transformation that could harm health equity or improve it.” Digital health equity has been mapped to a socioecological framework at the levels of health care policy (broadband internet and accessibility), health care services (digital training and assistance), community (digital infrastructure, health care services), family and home (private and secure space), and individual levels (digital literacy) (65).

With respect to TH, the literature has shown conflicting results, with reports demonstrating accentuated racial, socioeconomic, and regional disparities and others indicating that TH may effectively reduce disparities through increased access (32,66–70). In one GI center’s experience comparing telephone versus video visits during the COVID-19 PHE, video visits were used less than telephone encounters among patients with Medicaid and those for whom English is a second language (39). Another pediatric GI study examining both individual and census data found that groups less likely to use TH versus in-person visits included Black and Hispanic patients, families with Medicaid insurance, English as a second language, lower educational levels, and single-parent households (40). In contrast, a study of a tele-dermatology practice showed significant decrease in the percentage of no-shows among minority patients, which the authors felt demonstrated that TH reduced barriers to care (71). Disparities in TH represent a critical area for further research and calls for advocacy.

6. Recommendations for Telehealth Disparities

- Individuals and professional organizations should support digital health equity: equal access to the resources needed for TH and adequate training to use those resources
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain
- TH language interpreter services should be available and utilized to the same standards as for in-person encounters
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

Priorities for Quality Improvement

Broad development of QI strategies that affect various areas of pediatric GI practice could align TH efforts by standardizing operations, reducing variation, and improving outcomes for patients. A framework of intervention strategies could guide small and large practices, both urban and rural (72,73). The feasibility of employing QI principles for using TH in pediatric chronic disease management has been established (74); however, longitudinally, many key outcomes have not yet been reported.

TH presents unique considerations when managing populations of GI patients in a model of high-value care. Attention is needed to ensure physical exams for selected patients, monitoring of immunosuppressant therapies, and management of total parenteral nutrition. More vulnerable patients (like those referenced in the Disparities section above) need to be risk-stratified and prioritized in an effective TH population management strategy. The growing phenomenon of virtual-first primary care could have unforeseen downstream consequences to the referred patient (75). While these considerations are not insurmountable, they should be addressed when using TH to care for these populations.

Pre-visit planning in TH can help anticipate patient needs prior to the visit by clarifying care priorities, addressing individual patient preferences and requirements (ie, the need for an interpreter), and intervening where health equity challenges exist to help ensure quality patient-centered care (7). Multidisciplinary planning also helps to assure all aspects of care are supported, and may

include the following professionals: nurse, dietitian, social worker, psychologist, speech/feeding therapist, surgeon, and radiologist (Fig. 1). TH tools, including video conferencing, checklists, and interactive forms, may make multidisciplinary pre-visit planning easier, but this has not been fully studied or reported (Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/MPG/D91>) (7).

Local operational and care coordination priorities can be served with established QI tools and methodologies. Needs vary based on the virtual practice environment. Care coordination tasks including check-in/check-out, placing consults, ordering procedures/labs/imaging, documentation, and follow-up of results could be optimized for TH visits using process mapping and simplified failure mode effects analyses (76), fishbone diagrams and key driver diagrams (77), and Plan-Do-Study-Act cycles (78). These tools may require adaptation to the virtual practice environment and a QI framework utilizing clinically meaningful metrics can help to evaluate their efficacy. Table 2 includes further details of QI opportunities as individuals and groups set local priorities.

7. Recommendations for Quality Improvement

- Individuals and health care organizations should invest time and resources supporting continuous improvement to address health equity and outcomes through the use of TH
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain
- Individual patient preferences and needs should be assessed as part of pre-visit planning, ensuring that appropriate modality of health care delivery and available services meet the needs of the population served
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain
- TH quality initiatives should be supported by individuals and professional organizations
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

Telehealth Education: Incorporating Learners at All Levels

TH training at all levels will increase awareness and help expand access to care (79). American Association of Medical Colleges’ data revealed TH education in medical school increased significantly from roughly 40% to 60% in 2013–2018, but then remained stagnant for the next 2 years (80). In pediatric GI, outpatient fellow participation in TH dramatically increased after the onset of the COVID-19 PHE (81). In a recent review of TH education (79), out of the 35 publications that reported fellowship TH curricula implementation, the most common topics were technology, clinical skills, communication, and specialty-specific medical expert topics. Most initiatives, including supervised rotations and didactics, were positively received (79). Pertinent to pediatric GI trainees, there are important aspects of the GI-specific TH exam that are limited in telemedicine (rectal exam, abdominal exam assessing for masses and/or organomegaly) (Appendix 2, Supplemental Digital Content 2, <http://links.lww.com/MPG/D92>) (7).

Though TH education is usually first incorporated during medical student clerkships (40), various technology exposures (eg, video-conferencing) may also be helpful for preclinical training (82). Curricular domains may include access to care, cost, cost-effectiveness, and patient/clinician experience (82). Asynchronous TH history lectures, applications/ethics/safety/etiquette discussions, supervised standardized patient encounters, and hands-on

TABLE 2. Comparing telehealth and in-person care—priorities for further investigation and advocacy

Focus	Research questions (research gaps and initiatives)
Health outcomes	Missed/changed diagnosis Health care utilization (ER, hospitalizations, homecare) Medication errors Complications/morbidity/mortality
Technology access	Effect of public Wi-Fi access Effect of device distribution Development of new technology Disparities Impact of technology education program
Quality of life	Value added (patients, provider, staff) Provider satisfaction and burnout Patient satisfaction
Telehealth costs	Practice establishment costs Cost to payors Hidden costs (change in reliance on tests)
Health care delivery optimization	Patient cost savings (travel, childcare, workdays missed) Cost-effectiveness Care coordination Schedule utilization Documentation burden Patient no-show rates Patient education

ER = emergency room.

experiences (eg, procedures, remote patient monitoring) may be subtopics within curricula (82).

The lack of direct procedural exposure and inability to perform a detailed exam naturally raises concerns for medical student training in telemedicine. Yet, regarding procedures, aside from remote observation, there may be utility for remote video monitoring to assess the patient status while they are being supported during/after these procedures (eg, arterial lines, ventilators) (82). Further, students may feel challenged by the limitations of a visual examination alone. Although not yet extensively described in the literature, direct observation or even Objective Structured Clinical Examination-formatted simulation (83) may be utilized to evaluate trainees (eg, skills related to communication, remote management, and technology usage), provide real-time feedback, and gauge curricular effectiveness. Other means of assessing curricular efficacy not yet explored include patient outcomes and patient satisfaction surveys. All of these potential training tools remain key areas for future research.

Other areas that have yet to be explored include ideal timing of rotational TH training (ie, during rotations or as separate TH rotations), possibilities for off-site sub-specialized fellowship training, the potential opportunity to receive virtual training where there are more faculty, resources, and means to precept trainees. Although much of the literature has been geared toward educating the digital-savvy generation who are currently medical

TABLE 3. Telehealth advantages and disadvantages

Advantages	Disadvantages
High patient satisfaction based on convenience	Moderate physician resistance
Able to view home environment	Limited visual exam, lack of abdominal palpation, or rectal examination when appropriate
Enables multidisciplinary care	Increases indirect time (charts, lab monitoring, asynchronous patient messaging)
Greater physician flexibility and potential improved work-life balance	Challenges of insurance/Medicaid reimbursement, cross-state licensing, safety, and liability issues
Better access to scarce or distant care	Inequalities surrounding technology access (devices, high-speed internet)

students and residents (84), there is little data regarding TH educational needs of practicing physicians (85). TH education is important for all health care professionals including but not limited to nurses, dietitians, social workers, psychologists, and speech/feeding therapist (21). Health care providers and team members who are unfamiliar or uncomfortable with TH represent important targets for educational interventions, provided they can obtain outcomes that are the same or better with TH than in-person visits (11).

8. Recommendations for Improving Telehealth for Patients and Providers

- TH awareness and training for learners at all levels and health care team members should be supported
8/8 = 100% agreement
Voting results: 8 agree, 0 disagree, 0 abstain

THE FUTURE OF TELEHEALTH

Priorities for Telehealth Research

Health services research is the multidisciplinary field of investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being (ie, outcomes). Its research domains are individuals, families, organizations, institutions, communities, and populations (86). Multiple opportunities exist for health services research in pediatric GI TH, with examples drawn from other areas of health care. These include cost-effectiveness analyses (87), geographic or other variations in access to TH (88), use of TH to expand access to subspecialists (89), and workforce gaps that could be filled by TH (90). Opportunities for TH research, advocacy, QI, and education are summarized in Table 2. The priority of upcoming TH research should be to measure the impact of TH on quality of care, gauge its impact on outcomes (disease state and quality of life), and assess its costs to individuals and society.

Future Applications of Telehealth in Pediatric GI

In 2020, the NASPGHAN TH SIG was formed as a platform for GI-focused education, QI, and research (11). The NASPGHAN TH SIG also aligns with the AAP consortium, "Supporting

Pediatric Research on Outcomes and Utilization of Telehealth” (SPROUT) (91). The next steps for TH should be guided by our past experiences with lessons learned and our vision for the future. Table 3 summarizes current TH advantages and disadvantages (2).

Additional opportunities for widespread, integrated TH include but are not limited to dietary counseling, psychology, social work, and post-procedure follow-up discussions. TH use in monitoring chronic functional GI disorders (eg, constipation, irritable bowel syndrome and cyclic vomiting syndrome) is another area that warrants further investigation (92). As shown in a randomized IBD clinical trial, a web-assisted calprotectin-based treatment algorithm (IBD-Live) was feasible, safe, and cost-effective for adolescents, both to develop skills of communication and to engage in self-care. As stated previously, implementation of AI algorithms may address TH-related delays in monitoring incoming patient data (57).

To address concerns regarding limited TH examinations, TH mobile vans and regional nurse-only clinics have been developed in certain centers to expand TH access and capability. The mobile van and regional clinics allow underserved and rural patients to gain access to a nurse facilitator connected to other health care professionals (MD/DO, APRN) through device-streamed data including, but not limited to, audio-visual interface, close-up camera, stethoscope, and vital signs. Newer technology in the form of haptic gloves that allow for real-time tactile feedback for physical examination have been developed, as well as mobile ultrasound (93,94).

Through electronic patient portals, patients-families can enter pre-visit data into standardized symptom and functional disability questionnaires, and the electronic medical record then can automatically calculate and display disease severity scores, patient-family visit agenda items and questions prior to the visit. The provider can then “flip” the visit from one in which the majority of time is required for symptom data entry, and reinvest that time for high quality, family-centered discussion of the disorder and various treatment options with joint decision-making. The current IBD-Live model also changes the paradigm from periodic scheduled visits to one of continuous real-time monitoring of symptoms and laboratory parameters that drive the timing for further evaluation and treatment, whether in-person or virtual, with potential early recognition of relapses and cost-savings of unneeded visits (57–59).

TH is but one component of the ongoing digital health evolution that includes collection and transfer of health information (electronic health records, patient portals, AI), mobile health (apps, software) to deliver messages and education, monitoring devices to provide real-time physiologic data, and novel treatment devices (eg, virtual reality). Together these digital health components are a segue to the future promise of increasingly personalized care.

Conclusions and Call for Advocacy

In conclusion, a summary of recommendations for this NASPGHAN Telehealth Position Statement are described in Table 4. While telehealth is here to stay in clinical practice, the degree of acceptance by all stakeholders and a durable global integration into our healthcare system remains to be determined largely by insurance and regulatory factors. The key to overcoming barriers to telehealth stability and endurance is urgent advocacy at the local, regional, and national levels. Advocacy efforts are needed for governmental policy changes, parity reimbursement, national-level regulations, and research funding that enhances feasibility and provides equitable and accessible telehealth care for everyone.

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TABLE 4. Summary of recommendations

1. Recommendations for Telehealth Visit Components

- The virtual platform selected for must be HIPAA compliant
- Workflows should include pre-planning, virtual check-in procedures, a virtual waiting room, and triage data collection
- Telehealth accessibility and technological support should be important considerations

2. Recommendations for Telehealth Patient Selection

- The decision of when and how to use telehealth should be shared between patients-families and providers with the goal to achieve quality medical care and an excellent patient experience
- A telehealth visual exam may be performed, but its limitations should be acknowledged, and an in-person physical exam should be recommended when needed

3. Recommendations for Telehealth Licensure and Liability

- Although individual providers ultimately are responsible for licensed, secure, and HIPAA compliant telehealth delivery in accordance with governmental regulations, practice and hospital administration should provide strong regulatory support for initial and ongoing TH patient care

4. Recommendations for Telehealth Reimbursement and Insurance

- Insurance reimbursement for telehealth is subject to change depending on variable state regulations and insurance carrier policies. The changing reimbursement landscape must be monitored continuously. NASPGHAN agrees with the American Gastroenterology Association that advocacy for permanent insurance coverage and reimbursement parity for telehealth and in-person visits should be prioritized

5. Recommendations Pertaining to General and Subspecialty Telehealth

- Telehealth should be recognized as convenient for patients and families with a high degree of patient-family satisfaction
- Telehealth should be considered appropriate for high-value subspecialty and multidisciplinary care in many circumstances

6. Recommendations for Telehealth Disparities

- Individuals and professional organizations should support digital health equity: equal access to the resources needed for telehealth and adequate training to use those resources
- Telehealth language interpreter services should be available and utilized to the same standards as for in-person encounters

7. Recommendations for Quality Improvement

- Individuals and health care organizations should invest time and resources supporting continuous improvement to address health equity and outcomes through the use of TH
- Individual patient preferences and needs should be assessed as part of pre-visit planning, ensuring that appropriate modality of health care delivery and available services meet the needs of the population served
- Telehealth quality initiatives should be supported by individuals and professional organizations

8. Recommendations for Improving Telehealth for Patients and Providers

- Telehealth awareness and training for learners at all levels and health care team members should be supported

HIPAA = Health Information Portability and Accountability Act; NASPGHAN = North American Society of Gastroenterology, Hepatology and Nutrition; TH = Telehealth.

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