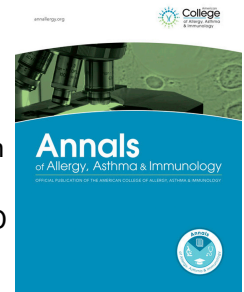


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Reimbursement Patterns and User Experiences in Pediatric Allergy Home Telehealth

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Abbreviations:

WHO: World Health Organization

COVID-19: Coronavirus Disease of 2019

CMS: Centers for Medicare and Medicaid Services

HTH: Home Telehealth

A&I: Allergy and Immunology

KidsDOC: Kids Doctors On Call

EHR: Electronic Health Record

PPO: Preferred Provider Organization

HMO: Health Maintenance Organization

IPA: Independent Physician Organization

CVID: Common Variable Immune Deficiency

CGD: Chronic Granulomatous Disease

EGID: Eosinophilic Gastrointestinal Disease

RPM : Remote Patient Monitoring

HTH: Home Telehealth

IMLC: Interstate Medical Licensure Compact

NLC: Nurses Licensure Compact

PTC: Physical Therapy Compact

PSYPACT: Psychology Interjurisdictional Compact

Word Count: 3,093 words

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Tables: 6

<div class="abstract"> <p> <div><div class="abstract"> <div><p>

Background: Telehealth use has been increasing over the last decade. Studies have shown that patients have a positive attitude towards incorporating telehealth into their healthcare. Significant uncertainty remains over reimbursement policies that vary widely between states and by payer.</p> <p>

Objective: Explore the clinical, operational, and financial feasibility of a home telehealth (HTH) program in a pediatric Allergy & Immunology (A&I) clinic.</p> <p>

Methods: A&I Physicians defined use cases they deemed appropriate for HTH appointments. Established patients in the A&I clinic were approached to complete an attitudes and perception survey. Patients meeting the use case definitions were asked to participate in the pilot program. After their HTH appointment took place, they completed a validated satisfaction survey. Our institution's revenue cycle management team provided reimbursement data.</p> <p>

Results: Patient attitudes toward HTH were generally favorable. 51 HTH appointments were offered and 46 appointments were made. 37 appointments were completed successfully among 32 unique patients. Patients were very satisfied with the HTH experience. 36 out of 37 encounters were reimbursed by 19 different public and private payers. Payers on average reimbursed ±6% of the expected allowable for an equivalent in-person visit.</p> <p>

Conclusion: Patients showed reservations about HTH initially but were very satisfied with their experience. Both private and public payers reimbursed HTH the same as in-person appointments. HTH is both well accepted by patients and financially viable.</p> </div> </div></div> </p> </div>

1 **Introduction:**

2 Telehealth is broadly defined as the exchange of medical information from one site to
3 another through electronic communication.¹ There are a variety of modalities encompassed by
4 the term telehealth, including store and forward, remote patient monitoring, and virtual check-
5 ins.² The subset of telehealth that refers to real-time communication between a medical provider
6 and patient using audiovisual technology is sometimes referred to as telemedicine.³ All forms of
7 telehealth have been expanding in the US over the past decade, including in pediatrics, albeit
8 slower than in adults.^{4,5} This trend reflects a variety of factors, including technology
9 improvements, a healthcare system more embracing of innovation, and an increasing awareness
10 of and attention to patient preference and convenience.⁶ For subspecialties like Allergy and
11 Immunology, there are additional drivers to rapidly adopt telehealth, such as addressing access
12 issues for rural and other underserved communities, and supplementing workforce shortages.⁷
13 On March 11th, the WHO declared novel coronavirus 2019 (COVID-19) a global pandemic, and
14 the need for telemedicine has never been greater.⁸ As part of its response, the US Department of
15 Health and Human Services issued a notification of enforcement discretion for several
16 regulations relating to telehealth to enable providers to deliver care using technology while
17 observing social distancing.⁹

18 Nonetheless, several barriers still remain in the adoption of telehealth, including
19 operational or logistical issues, patient trust, technology integration, and a varied and confusing
20 patchwork of telehealth regulation and reimbursement across the country.¹⁰ Prior to COVID-19,
21 the Centers for Medicare and Medicaid Services (CMS) had already issued guidance for
22 Medicare services delivered via telehealth, but pediatric patients are most often subject to
23 Medicaid rules, which vary by state.⁵ Additional concerns relating to consent, privacy, and

participation of the parent-child dyad have also made telehealth adoption slower in pediatrics than in adult care.¹¹

Concerns regarding reimbursement remain a major barrier for telehealth adoption, with some states and payers either reimbursing less for telehealth than in-person visits, or not at all.¹² The location of the patient also impacts whether or not the visit is reimbursed. Traditionally, a patient was expected to be in a healthcare facility, such as an outpatient clinic (the originating site) and use telecommunications equipment there to connect to a provider located somewhere else, e.g. an academic medical center (the distant site). However, the telehealth reimbursement landscape has seen improvement over the last few years. As of December 2019, 40 states have laws that require parity in reimbursed services and an increasing number of states have passed payment parity laws.^{13,14} California passed legislation in October 2019 requiring payment parity for telehealth starting January 2021.¹⁵ Home telehealth (HTH), where the originating site is the patient's home, is also becoming more and more common; 19 states have Medicaid plans that allow coverage for telehealth when the originating site is the patient's home.¹³ Individual state telehealth policies can be found in **eTable 1**. HTH may be more convenient for patients and may place less burden on the healthcare system to equip originating sites. During the COVID-19 pandemic, several states and payers have allowed the home to be an originating site and have offered payment parity for a variety of forms of telehealth.¹⁶ It is unclear at this time which, if any, of these changes will be rescinded after the current emergency.

To address some of these concerns, we present the results of our pilot home telehealth program, conducted before the COVID-19 pandemic, in the Allergy and Immunology clinic at our academic medical center. Here we report on the attitudes and perceptions of home telehealth

(HTH) by both clinicians and patients receiving care via telehealth, the clinical care delivered, and the reimbursement rates and patterns by federal, public and private payers in California.

Methods:

A prospective evaluation of home telehealth was piloted from April 2017 to June 2018 in the outpatient Allergy & Immunology (A&I) clinic of a pediatric academic medical center. This study was approved by our institutional review board, and all participants gave oral consent to participate in the study.

Attitudes and Perceptions

During the study period, families in the A&I clinic waiting room were approached to participate in an anonymous survey to assess telehealth attitudes and perceptions. Minimal modifications (e.g. “you” was changed to “your child”) were made to a validated instrument utilized by Gurupur et al. in 2016 in order to more appropriately address a pediatric population.¹⁷ The survey was available in Spanish and English, and included nine 5-point Likert items about telehealth, followed by 13 demographic questions, including income, education, and health insurance. A survey was considered incomplete if the participant left any question blank, except for family income (which was optional to report). An instrument was used to assess physicians’ knowledge of telehealth, their comfort with the technology, and their perception of patient experience improvement (developed by Gurupur et al, unpublished).

Home Telehealth Visits

A&I providers defined three clinical use cases for HTH. The first was follow up visits after diagnostics (labs or imaging) to discuss results and the plan moving forward. The second use case was for selected patients who lived far from our medical center to ease their travel burden. The third use case was a clinical assessment for ongoing high-risk food desensitization

therapy. Patients are normally scheduled every 2 weeks during desensitization; if a patient felt ill in between sensitization visits, a traditional in-person sick visit could be replaced by a telehealth visit.

Using these criteria, providers offered HTH visits to established patients at their discretion that they believed would be good candidates. Patients who agreed were consented for this study. The visits were completed using KidsDOC (Kids Doctors On Call, Los Angeles, CA), a commercially available HIPAA-compliant telehealth platform. After the visit, participants completed a telehealth satisfaction survey modified (e.g. “you” was changed to “your child”) from Morgan et al.¹⁸ Data regarding the visit diagnosis and patient demographics were abstracted from the electronic health record (EHR). Physicians provided brief narratives describing their experience delivering HTH.

Utilization and Reimbursement Patterns

To measure the impact on healthcare utilization, the number of appointments 24 months before and after the telehealth appointment as recorded in the EHR were counted. A no-show rate was also calculated. A no-show appointment was defined as a scheduled appointment that was not cancelled or rescheduled by either the patient or the clinic. The institution’s revenue cycle management team provided billing and claims data for all telehealth encounters. A new telehealth encounter type was developed for this pilot so that they could be easily identified. Encounters were verified by reviewing the billing provider and encounter date. Payors were grouped into three categories: public, private, and federal. Public payers included California Children’s Services and Medicaid, both fee for service and managed care. Private payers included 10 different preferred provider organizations (PPO) and commercial health maintenance organizations (HMO). Federal payers included Tricare, Medicare, and Federal Employee Blue

Shield. Actual reimbursements were compared to the expected reimbursement rate, a value that is calculated by the revenue cycle team based on the negotiated rate with the payor and previous reimbursements for an in-person visit of the same complexity.

Analysis

Quantitative survey and claims data were summarized using descriptive statistics. Qualitative data from the provider narratives were analyzed using thematic content analysis. No formal codebook was developed given the overall brief nature of the narratives.

Results:

Attitudes and Perceptions of Telehealth

Among all patients approached in the Allergy and Immunology waiting room for the attitudes and perceptions survey, 130 families initiated the survey; 20 surveys were incomplete and excluded from the analysis. Demographics are presented in **Table 1**. A majority of respondents were female biological parents of the patients. The mean age of the respondents was 36 years. More than 40% (n=46) of our patient population was Hispanic, 30% (n=33) White, 15% (n=16) Asian, and 4% (n=5) Black; more than half of respondents identified as bilingual, with 76% being Spanish speakers. Almost 60% of patients received insurance through Medicaid. The average distance traveled by families from their home to our institution was 25.4 miles

Overall, 62% of patients felt that telehealth would reduce physician response time. Only 11% of patients believed that the idea of telehealth sounded too complicated. Patients were split on whether telemedicine would provide specialized care to their child, with 33% agreeing and 34% disagreeing. Perceptions are summarized in **Table 2**.

All 4 providers completed a validated assessment of attitudes and perceptions. All the providers believed that telehealth would improve care delivery to otherwise isolated rural areas.

Providers indicated that they believed telehealth would be an additional burden for their practice. Most providers felt that a patient's personal health information would be respected with telehealth platforms. Other provider responses can be found in **Table 3**.

Home Telehealth visits

Fifty-one patients were approached for the feasibility pilot and 46 agreed to make an appointment. These 51 patients were a separate cohort from the waiting room cohort of 110 patients and were selected because they fit one of the clinical use cases. To the best of our knowledge, there was no overlap between the waiting room cohort and the pilot cohort. Three patients cancelled and 6 patients did not show up to their appointment. Thirty-seven appointments were completed successfully among 32 unique patients (**Figure 1**). Out of those 37 appointments, 30 were for continuity of care, 6 were for food challenge follow ups including 3 sick visits that were deemed appropriate to conduct via telehealth, and 1 was for lab results review. Some common visit diagnosis for the HTH visits included food allergies (10), asthma (8), and urticaria (3). The full list of visit diagnoses is described in **Table 4**. Among families that had HTH visits, the mean age of patients was 11.9 years, and 35% were female. Data on race and ethnicity was taken from the electronic health system. 35% (n=13) of our patient population was White, 22% (n=8) was Hispanic, 5% (n=2) was Asian, 8% (n=3) was Other, and 30% (n=11) was unknown. Patient satisfaction with HTH visits is summarized in **Table 5**. Almost 80% had never used telehealth before, but all respondents had used video communication (e.g. Skype, FaceTime, etc.) in their personal life. Despite being telehealth naïve, patient experiences were overall positive (>90%), with 100% indicating they would use telehealth again and would recommend it to others. 100% of our patients felt that their privacy was respected and 96% were satisfied with the amount of time with their provider.

Three out of four physicians provided narrative descriptions of their experiences with telehealth and were also generally positive. Common themes that emerged included patients being timely and comfortable in their own house. Specifically, one special needs patient benefited greatly from not undergoing the stress of coming to the hospital for his checkup and remaining in the comfort of his own home. Physicians did report that issues with internet connectivity and unfamiliarity with a new workflow occasionally hindered the appointment.

Utilization and Reimbursement Patterns

Patients had an average of 5 in-person appointments with a no-show rate of 25% before the telehealth appointment. After their appointment, patients scheduled 4 in-person appointments with a no-show rate of 24%. The no-show rate for HTH visits was 14%.

Private, public and federal payers generally covered HTH visits, with 36 out of 37 visits being reimbursed (**Table 6**). Only one visit (E&M code 99214) was not reimbursed by a local commercial independent physician association (IPA). Average reimbursement ranged from 94% to 107% of the expected rate, suggesting no difference between in person and HTH visit reimbursement.

Discussion:

Our pilot study demonstrated that HTH is both technically and economically feasible, as well as well-received by patients and providers in an outpatient pediatric A&I clinic, as evidenced by patient and provider satisfaction measures and billing outcomes. The socioeconomically diverse patient population that participated suggests broad acceptability.

Historically, telemedicine has been considered a viable alternative for patients in medically underserved areas, such as rural communities.¹⁹ Ray et al showed that children from rural areas or >90 miles from a subspecialist were more likely to schedule a telemedicine visit.²⁰

6% of our participants surveyed lived >90 miles away from our clinic. However, disadvantaged populations in urban settings also experience difficulties accessing specialty care.²⁰ Our data showed that 28% of our patients surveyed earned less than \$50,000 and almost 60% received insurance through Medi-Cal (California's Medicaid program). Barnett et al found that the wait time to see certain specialists in Los Angeles County could be up to nine months. The authors describe the development of an eConsult system in which requests for specialist appointments were reviewed electronically within one day by a separate screener to determine whether the case could be electronically resolved or required a specialist appointment. The median wait time to see a specialist decreased by 17.4%.²¹ For comparison, the average wait time at our clinic can be up to 16 weeks. In states like South Carolina with both significant rural and economically disadvantaged communities, telehealth has become the critical technical infrastructure on which hub-and-spoke models are built for subspecialty care delivery.²² Our institution's catchment area is predominantly urban, but does include large rural areas with some patients traveling more than 100 miles for their appointments. Implementing telehealth could help improve appointment availability and care delivery to a diverse population by adding health care capacity without an increase in physical space and overhead.

A recent systematic review and narrative analysis found that telemedicine decreases missed appointments and readmissions, while also improving communication with providers and decreasing travel time to the hospital.²³ This is supported by our study as our providers felt that patients using HTH were more timely and relaxed during their appointments. Lin et al. conducted a telemedicine intervention program for children with asthma which improved medication adherence and hospitalization outcomes. Their study found that parents were satisfied with the telehealth visits and believed it to be as helpful as in-person visits.²⁴ Many of our

patients did not have strong opinions on telehealth in the intake survey with only 65% agreeing that the doctor would understand them through telemedicine and 33% believing that telemedicine would provide access to specialized care. After the appointment, 100% of our patients expressed that they would use telehealth again and over 90% were satisfied or completely satisfied with the visit. For institutions concerned about patient adoption, our study demonstrated that patients felt comfortable with the new technology and model of care.

Only one private IPA did not reimburse the HTH visit, but both public and federal plans reimbursed at 100% of expected rate. Interestingly, this pattern occurred before California passed a private insurance payment parity law which requires that providers should be reimbursed at the same rate for in person and telehealth visits. This law will be effective January 1, 2021.¹⁵ As of March 6, 2020, Medicare has also relaxed its guidelines, allowing the home to qualify as an originating site as well as paying physicians under the same fee schedule for in person appointments under Medicare Part B.¹⁶ Our results, with similar reimbursement for in person and HTH care before the implementation of parity laws, suggest that the industry may be receptive to this new care delivery modality. This finding should alleviate the concerns that some providers may have about starting telehealth programs.

Finally, while outside of the scope of the current study, the actual planning and implementation of a telehealth program is critical to its success. Several professional organizations have published manuals, including the American Medical Association²⁵, the American Telemedicine Association²⁶, the American Academy of Pediatrics²⁷, and the Telehealth Resource Centers²⁸. A few authors have specifically addressed critical telehealth issues for pediatric subspecialists, including referral barriers, patient scheduling and supporting culture change.^{20,29}

There are several limitations to this study. The small sample size and lack of randomization means that statistical significance and potential for bias cannot be excluded. We conducted our study in only one geographic region and insurance marketplace, which limits the generalizability of our findings to other states or regions that may have a different insurance and/or regulatory environment as telehealth regulations are fractured across the US.¹³ The demographics of the sample of patients who completed the waiting room attitudes and perceptions survey are similar, but not identical, to the demographics of patients who participated in the HTH pilot (e.g., 40% vs. 22% Hispanic, 30% vs. 35% White, 15% vs. 5% Asian). This could be due to genuine difference between the two populations, bias in the convenience sample of patients selected for the pilot by treating physicians, or the different methodologies used to collect the data. For the survey, patients self reported demographic data, and no demographic fields were left blank. For the pilot participants, demographic data was taken from the EHR, which can be both accurate and missing (for example, 30% of pilot participants had no race/ethnicity indicated in the EHR). With that, African Americans were not well represented in either patient population compared to regional demographics.

The timing of this pilot is also a limitation. All the HTH visits were conducted in 2017, and billing data was completed in 2018 so our outcomes may not be representative of the current regulatory environment, which is rapidly evolving in California and across the US.¹¹ However, given the trend towards more coverage of HTH, and the lasting effects of the COVID-19 pandemic, the impact of this limitation may not be significant. There were no Medicare patients in our study, so it would be difficult to extrapolate our results to that patient population. The study population was comprised of young urban families who may be more comfortable with technology than the average patient. These study limitations are in addition to the inherent

limitations of telehealth, such as the inability to perform a complete physical exam. Telehealth visits may also be complicated by unexpected patient complaints or concerns that are not amenable to being addressed virtually and require an additional in-person visit. Specific to the A&I clinic, telehealth visits cannot replicate in-office procedures such as skin prick testing or pulmonary function tests (i.e. spirometry). Moreover, high-risk procedures such as food or drug challenges are difficult to replicate safely in a virtual environment.

In conclusion, patients showed some reservations about HTH initially but were very satisfied with their experience afterwards. Both private and public payers reimbursed for HTH the same as in person appointments. HTH is both well accepted by patients and financially viable. The ongoing COVID-19 pandemic has accelerated the timeline to incorporate telehealth into the national guidelines and define national regulations and funding for telehealth. Further studies are needed to understand the effects of HTH on clinical outcomes, workflows and productivity, and overall financial impact.

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eTable1: Summary of State Telehealth Policies

Medicaid Reimbursement					Private Payer Law		Professional Requirements	
State	Live Video	Store and Forward	RPM	HTH	Law Exists	Payment Parity	Licensing Compact	Consent Requirement
Alabama	✓		✓				IMLC, NLC	✓
Alaska	✓	✓	✓		✓			✓
Arizona	✓	✓	✓	✓	✓		NLC, PSYPACT, PTC	✓
Arkansas	✓		✓	✓	✓		NLC, PTC	✓
California	✓	✓		✓	✓			✓
Colorado	✓		✓	✓	✓		IMLC, NLC, PTC, PSYPACT	✓
Connecticut	✓				✓			✓
District of Columbia	✓			✓	✓		IMLC	✓
Delaware	✓			✓	✓	✓	NLC, PTC, PSYPACT	✓
Florida	✓				✓		NLC	✓
Georgia	✓	✓			✓	✓	IMLC, NLC, PTC, PSYPACT	✓
Hawaii	✓			✓	✓	✓		
Idaho	✓						IMLC, NLC	✓
Illinois	✓		✓		✓		IMLC, PSYPACT	
Indiana	✓		✓		✓		NLC	✓
Iowa	✓				✓		IMLC, NLC, PTC	
Kansas	✓		✓	✓	✓		IMLC, NLC	✓
Kentucky	✓	✓		✓	✓		IMLC, NLC, PTC	✓
Louisiana	✓		✓		✓		NLC, PTC	✓
Maine	✓		✓		✓		IMLC, NLC	✓
Maryland	✓	✓	✓		✓		IMLC, NLC, PTC	✓
Massachusetts	✓				✓			
Michigan	✓			✓	✓		IMLC	✓
Minnesota	✓	✓	✓	✓	✓	✓	IMLC	✓
Mississippi	✓		✓		✓		IMLC, NLC, PTC	✓
Missouri	✓	✓	✓		✓		NLC, PTC, PSYPACT	✓
Montana	✓				✓		IMLC, NLC, PTC	
Nebraska	✓		✓	✓	✓		IMLC, NLC, PTC, PSYPACT	✓
Nevada	✓	✓		✓	✓		IMLC, PSYPACT	
New Hampshire	✓			✓	✓		IMLC, NLC, PTC, PSYPACT	
New Jersey	✓				✓		NLC, PTC	✓
New Mexico	✓	✓			✓	✓	NLC	✓
New York	✓	✓	✓	✓	✓			✓
North Carolina	✓						PTC, NLC	
North Dakota	✓				✓		IMLC, NLC, PTC	✓
Ohio	✓			✓	✓			✓

Oklahoma	✓			✓	IMLC, NLC, PTC, PSYPACT	✓
Oregon	✓	✓	✓	✓	PTC	✓
Pennsylvania	✓				IMLC	✓
Rhode Island	✓			✓		✓
South Carolina	✓		✓		NLC, PTC	✓
South Dakota	✓			✓	IMLC, NLC, PTC	
Tennessee	✓	✓		✓	IMLC, NLC, PTC	✓
Texas	✓	✓	✓	✓	NLC, PTC, PSYCPACT	✓
Utah	✓		✓	✓	IMLC, NLC, PTC, PSYPACT	
Vermont	✓		✓	✓	IMLC	✓
Virginia	✓	✓	✓	✓	NLC, PTC	✓
Washington	✓	✓	✓	✓	IMLC, PTC	✓
West Virginia	✓				IMLC, NLC, PTC	✓
Wisconsin	✓				NLC, PTC	✓
Wyoming	✓		✓		IMLC, NLC	✓

Adapted from CCHP State Telehealth Laws and Reimbursement Policies

[https://www.cchpca.org/sites/default/files/2020-](https://www.cchpca.org/sites/default/files/2020-05/CCHP%2050%20STATE%20REPORT%20SPRING%202020%20FINAL.pdf)

[05/CCHP %2050 STATE REPORT SPRING 2020 FINAL.pdf](https://www.cchpca.org/sites/default/files/2020-05/CCHP%2050%20STATE%20REPORT%20SPRING%202020%20FINAL.pdf)

RPM : Remote Patient Monitoring

HTH: Home Telehealth

IMLC: Interstate Medical Licensure Compact

NLC: Nurses Licensure Compact

PTC: Physical Therapy Compact

PSYPACT: Psychology Interjurisdictional Compact

Figure Legend:

Figure 1: CONSORT-style flow diagram of patients participating in home telehealth pilot

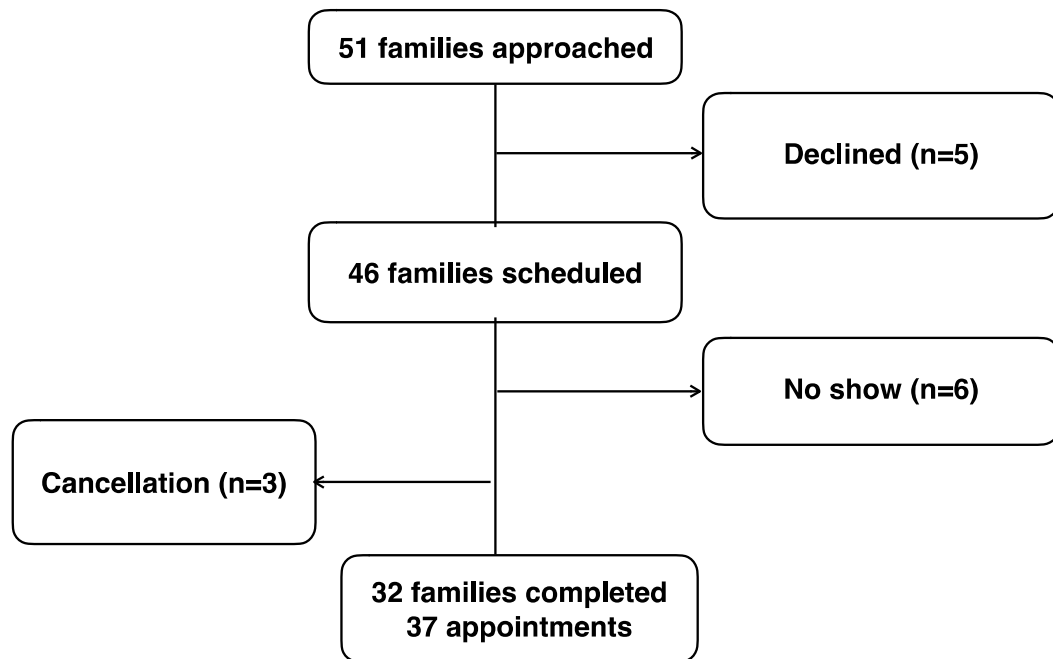
Figure 1:

Table 1. Demographics of Study Participants surveyed regarding parent perceptions of Home Telehealth.

Respondent Demographics	n=110, (%)
Gender	92 (84) Female
Age	36 years old
Race/Ethnicity:	
<i>Latino</i>	46 (42)
<i>Asian</i>	16 (15)
<i>White</i>	33 (30)
<i>Black</i>	5 (4)
<i>Other</i>	4 (4)
<i>Mixed</i>	6 (5)
Bilingual Households	57 (52)
Limited English Proficiency	12 (11)
Insurance type	63 (58) Medicaid

Table 2. Attitudes and Perceptions of Parents regarding Telehealth before Home Telehealth encounter

Attitudes and Perceptions	Agree or Completely Agree n=110, (%)	Disagree or Completely Disagree n=110, (%)
The money saved in time away from work and gasoline cost would affect my decision to use telemedicine rather than travelling for a face-to-face visit with a specialist.	58 (53)	28(25)
I am concerned about being able to understand what the doctor says through telemedicine video.	29 (26)	51(46)
I think that the doctor will be able to understand me and my child through telemedicine video.	71 (65)	15(14)
I would prefer to see a physician sooner through telemedicine than wait to see a physician in-person.	64 (58)	18(16)
I feel telemedicine can improve patient feedback regarding the side effects of treatment.	62 (56)	14(13)
I feel telemedicine can reduce physician response time.	68 (62)	19(17)
The idea of telemedicine sounds too complicated.	12 (11)	76(69)
If a specialist were not available in my local area, I would prefer to see a specialist via telemedicine rather than travel a long distance.	80 (73)	18(16)
The use of telemedicine would provide my child specialized care that I would not otherwise have access to.	36 (33)	37(34)

Table 3. Provider attitudes and perceptions toward the use of Telehealth.

Attitudes and Perceptions	Average Score 1 = disagree 4 = strongly agree (n=4)
The use of telemedicine technology can allow for a more timely diagnosis and treatment of my patients.	2.8
Telemedicine will be an added burden in my practice, creating more work and training for my staff and me.	3.3
Telemedicine provides access to specialized care that otherwise would be unavailable to rural patients in a timely fashion.	4.0
I am knowledgeable about the uses of telemedicine technology.	3.5
I have used telemedicine technology in my practice.	2.8
I feel that the personal health information of my patients is respected through the use of telemedicine.	3.8
I am able to communicate with my patients as effectively through telemedicine as in face-to-face visits in my office.	2.5
Telemedicine equipment is relatively easy to use and maintain.	3.5
Telemedicine technology offers a more cost-effective way for me to treat my patients.	2.5
I feel that patients receive the same level of care in a telemedicine setting.	2.8
I am concerned that learning how to setup and use the telemedicine equipment will be difficult.	2.3
The telemedicine technology is reliable.	3.0
The technological costs associated with telemedicine are prohibitive.	2.3

Patients are more likely to be compliant if they are cared for using both telemedicine and face-to-face interactions.	3.3
I am comfortable referring a patient for evaluation via telemedicine.	3.3
I am concerned that patients will not travel to see a physician in person.	3.0
The physician can effectively communicate with the patient through telemedicine.	2.8
Telemedicine is a needed service.	3.5
Adequate telemedicine training is available.	3.5
I am aware of telemedicine vendors in my area.	2.0
I am familiar with the rules and regulations concerning telemedicine.	2.8

Table 4. Visit diagnoses

Atopy		21
<i>Asthma</i>	8	
<i>Allergic Rhinitis</i>	8	
<i>Eczema/Atopic Dermatitis</i>	5	
Food Allergies		10
Immunodeficiencies		9
<i>DiGeorge Syndrome</i>	2	
<i>Common Variable Immune Deficiency (CVID)</i>	2	
<i>Chronic Granulomatous Disease (CGD)</i>	1	
<i>IgG2 subclass deficiency</i>	1	
<i>Hypogammaglobulinemia</i>	1	
<i>Immunodeficiency NOS</i>	1	
<i>Emmanuel Syndrome</i>	1	
Chronic Urticaria		3
Eosinophilic Gastrointestinal Disease (EGID)		1
Chronic Sinusitis		2
Addison's disease		1
Hemolytic Anemia		1
Total		48

Table 5. Participant satisfaction with Home Telehealth encounter.

How satisfied were you with...	Satisfied or completely satisfied n, (%)
The audio and video quality?	28 (87)
Personal comfort using the TH platform?	31 (96)
The length of time with the A/I provider?	31 (96)
The explanation of your treatment by the A/I provider?	29 (91)
The thoroughness, carefulness and skillfulness of the A/I provider?	31 (96)
The courtesy, respect, sensitivity, and friendliness of the A/I provider?	31 (96)
How well your privacy was respected?	32 (100)
Your overall treatment experience with Telehealth?	29 (91)
Questions	% Yes

	n, (%)
Would you use Telehealth again?	32 (100)
Would you recommend Telehealth to another person	32 (100)
Have you ever used Telehealth or Telemedicine before today?	7 (21.7)
Have you ever used video call technology before, like Skype or FaceTime?	32 (100)
How often do you use video call technology?	
<i>Everyday</i>	3 (8.7)
<i>A few times a week</i>	1 (4.3)
<i>A few times a month</i>	13 (39.1)
<i>A few times a year</i>	15 (47.8)

Table 6. Reimbursement of billed Home Telehealth encounters.

Category	# of encounters (n=37)	# encounters reimbursed (n=36)	% expected allowable	Range
<i>By E&M Code</i>				
99213	21	21	98%	72%-128%
99214	10	9	96%	89-118%
99215	6	6	98%	90-100%
<i>By Payor</i>				
Private	25	24	94%	72%-100%
Public	8	8	107%	97%-128%
Federal	4	4	100%	100%-100%