AMERICAN TELEMEDICINE ASSOCIATION

PRACTICE GUIDELINES FOR TELEMENTAL HEALTH WITH CHILDREN AND ADOLESCENTS

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PREAMBLE

Background. The American Telemedicine Association (ATA), with members from throughout the United States and the world, is the principal organization bringing together telemedicine providers, healthcare institutions, vendors and others involved in providing remote healthcare using telecommunications. ATA is a nonprofit organization that seeks to bring together diverse groups from traditional medicine and healthcare, academia, technology and telecommunications companies, e-health, allied professional and nursing associations, medical societies, government and others to overcome barriers to the advancement of telemedicine through the professional, ethical and equitable improvement in healthcare delivery. ATA has embarked on an effort to establish practice guidelines and technical requirements for telemedicine to help advance the science and to assure the uniform quality of service to patients. These guidelines, based on clinical and empirical experience, are developed by work groups that include experts from the field and other strategic stakeholders and designed to serve as both an operational reference and an educational tool to aid in providing appropriate care for patients. The practice guidelines and requirements generated by ATA undergo a thorough consensus and rigorous review, with final approval by the ATA Board of Directors. Existing products are reviewed and updated periodically as time and resources permit. Board-approved practice guidelines will be considered for affirmation, update, or sunset at least every 4 years. Practice guidelines that have been sunset may continue to have educational value but may not represent the most current knowledge and information about the subject matter.

Disclaimer. The practice of healthcare is an integration of both the science and art of preventing, diagnosing, and treating diseases. Accordingly, it should be recognized that compliance with these guidelines will not guarantee accurate diagnoses or successful outcomes with respect to the treatment of individual patients, and ATA disclaims any responsibility for such outcomes. These guidelines are provided for informational and educational purposes only and do not set a legal standard of medical or other health care. They are intended to assist providers in delivering effective and safe medical care that is founded on current information, available resources, and patient needs. The practice guidelines and technical requirements recognize that safe and effective practices require specific training, skills, and techniques, as described in each document, and are not a substitute for the independent professional judgment, training, and skill of treating or consulting providers. If circumstances warrant, a provider may responsibly pursue a course of action different from the guidelines when, in the reasonable judgment of the provider, such action is indicated by the condition of the patient, restrictions or limits on available resources, or advances in information or technology subsequent to publication of the guidelines. Likewise, the practice guidelines and technical requirements in this document do not purport to establish binding legal standards for carrying out telemedicine interactions. Rather, they are the result of the accumulated knowledge and expertise of the ATA work groups and their review of the current literature in the field and are intended to improve the technical quality and reliability of telemedicine encounters. The administrative procedures and technical aspects of specific telemedicine arrangements **may** vary depending on the individual circumstances, including location of the parties, resources,

nature of the interaction, and in the case of children and adolescents, the adults responsible for their welfare until the age of majority.

SCOPE

This document provides a clinical guideline for the delivery of child and adolescent mental health and behavioral services by a licensed health care provider through real time videoconferencing. Please refer to the Glossary in Appendix A for definitions utilized in the guideline, with particular attention to the equivalency of the terminology "telemental health" and "telebehavioral health." However, to maintain consistency with prior telemental health guidelines, [1-2] this guideline uses the term child and adolescent telemental health (CATMH) throughout the document.

General guidelines for the practice of telemental health using popular internet-based (aka "consumer-grade") videoconferencing,[1] as well as more traditional telephone-based, high definition, point-to-point (aka "standards grade") videoconferencing have been published.[2,3] Providers are strongly encouraged to refer to the general telemental health guidelines for overall recommendations, particularly in areas that encompass both adult and pediatric practice. In some instances, the general recommendations or supporting evidence from these guidelines may be repeated here if there is a specific relevance to CATMH practice or to provide updated information. Additionally, based on a growing evidence-base and expert consensus, this guideline includes four new sections relevant to telemental healthcare across the age spectrum: *Ethical Considerations; Telemental Health Competencies; Clinical Supervision and Telemental Health;* and *Future Directions.*

Consistent with the general practice guidelines, the CATMH guideline focuses on interactive videoconferencing between two or more sites with emphasis on providing the same level of service that is delivered in-person including consultation, collaboration, and direct service delivery. Direct services span the range of mental and behavioral health interventions, including prevention, early intervention and coping strategies, treatment, and maintenance/support. These guidelines apply to videoconferencing using both standards-based and consumer-grade connectivity.[4,5] Emerging products blur the lines between standards-based and consumer-grade approaches, offering the distributed hosting and internet-based connectivity of consumer-oriented systems with the interoperability of standards-based platforms.[6]

Mobile health or mHealth uses wireless devices and cell phone technologies that may be applied to CATMH. mHealth allows the delivery of CATMH through consumer-grade hardware and cloud-based videoconferencing solutions, allowing greater patient and provider mobility. Although a telemental health service may incorporate various technology approaches, it should be noted that telehealth, asynchronous store-and-forward telemedicine,[7] eHealth, and non-video components of mHealth are beyond the scope of this guideline. Other areas beyond this guideline's scope include online interactive instruction, in-home monitoring, mobile applications (apps), wearable technologies, e-mail correspondence, text reminders, and social

media.

The current document maintains the approach and terminology of the general guidelines. It contains requirements, recommendations, or actions that are identified by text containing the key words "**shall**," "**should**," and "**may**." "**Shall**" indicates a required action whenever feasible and practical under local conditions. "**Should**" indicates an optimal recommended action that is particularly suitable, without mentioning or excluding others. "**May**" indicates additional points that **may** be considered to further optimize the telemental healthcare process.

INTRODUCTION

The guidelines address three aspects of service delivery: administration/management, clinical practice, and technical design and architecture. Under each aspect, the guidelines are presented in the form of three levels of expected adherence: "**Shall**" indicates required action whenever feasible and/or practical. **"Shall not"** indicates a proscription or action that is strongly advised against. "**Should**" indicates recommended action without excluding others. "**May**" indicates appropriate actions that are deemed appropriate but not mandatory to optimize the telemedicine encounter and the patient experience. These indications are presented in bold letters throughout the document to facilitate their visibility.

ATA urges health professionals using telemedicine in caring for burn patients in their practices to familiarize themselves with these guidelines, as well as other clinical guidelines or best practice standards issued by their professional organizations or societies and to incorporate both sets into their telemedicine practice. These guidelines pertain to healthcare services delivered via telemedicine when both patient and provider are within the United States (US). Other jurisdictions may use these guidelines at their discretion.

A. Need for Clinical Practice Guidelines for Telemental Health with Young People

Clinical practice guidelines, rather than more prescriptive practice parameters or standards, are particularly relevant to CATMH practice as the implementation of programs are outpacing the evidence-base supporting their effectiveness. Therefore, guidelines for CATMH draw from the general telemental health evidence base,[8-10] child-specific research,[11-16] the practice parameters for child and adolescent psychiatry disorders[17] guidelines for the practice of telepsychology,[18-19] and the expertise of child and adolescent telemental health providers.[20-27]

The guideline (please see Glossary, Appendix A) utilizes a broad definition of youth, including up to 21 years old. This age range spans the continuum of development and includes the transition from pediatric to adult care. Child and adolescent practice poses important differences from adult practice in terms of scope of practice, young people's systems of care,[28] and the diversity of settings providing specialized services.[25, 29-41] Child and adolescent mental health providers contend with disorders, developmental considerations, and environmental factors not commonly addressed in adult practice, such as the treatment of attention-deficit hyperactivity disorder (ADHD), evaluation for autism and developmental disabilities, or determination of abuse and trauma. These assessments depend on input both from the youth and relevant adults, often multiple adults, in the family and in the child's systems of

care (e.g., case managers, teachers, and other informants). Interventions generally include a caregiver, sometimes the entire family and members of the youth' systems of care, such as teachers or daycare providers, even peers. Evaluation and treatment modalities, such as assessment of play or parent-child interactions, require site- and technology-based adaptations that **may** differ from work with adults.[26, 42] For example, a larger room is often needed to observe a child's motor activity, exploratory skills, and interactions. A camera with pan-tilt-zoom feature helps to assess dysmorphia and monitor a child's affect.[42, 43] Behavioral providers of care to young people vary widely by training, discipline, expertise, and practice. They include child and adolescent psychiatrists and psychologists, master's trained therapists, pediatricians and family physicians, nurse specialists, behavior analysts, social workers, speech and language therapists, special education teachers and other school-based personnel, occupational therapists, and other professionals within the youth's system of care.

B. Increasing Need for Mental Health Services for Young People

In 2014, the Health Resources and Services Administration's (HRSA's) Data Warehouse[44] identified 2,000 mental health professional shortage areas designated in non-metropolitan counties, affecting more than 66 million residents. County-Level Estimates of Mental Health Professional Shortage in the United States reports that higher levels of unmet need for mental health professionals exist for counties that were more rural and had lower income levels.[45] The most disadvantaged and under-resourced communities are often those with the greatest need for mental healthcare providers, particularly child and adolescent specialists.

Approximately 20% of young people in the United States (U.S.) ages 9 to 17, have diagnosable psychiatric disorders.[46] Many others suffer from sub-threshold symptoms and from stress and grief reactions that benefit from intervention. Younger children are at risk for developmental and behavioral disorders. In addition, approximately 31% of children are affected by chronic medical conditions[47] who **may** benefit from behavioral health strategies. A growing number of evidence-based psychological and behavioral interventions offer support to young people and their families in coping with the range of mental health conditions.[48] There are also pediatric psychology approaches to help children with acute and chronic medical conditions and their families in coping with behavioral health concerns.[49]

However, the supply of youth-trained providers to deliver these clinical advances is small, with demand far outpacing supply.[50] General-trained providers attempt to fill this void, but may not have access to the training needed to update their skills due to multiple factors, such as distance from training centers, scarcity of appropriate clinical supervisors, or lack of agency funding to pay for training.[51-53] General-trained providers are particularly under-equipped to address child conditions showing relatively low base rates and/or conditions requiring more complex treatment regimens.[51] Similarly, an increasing number of evidence-based pharmacological interventions offer treatment of the neuropsychiatric symptoms of early onset psychiatric conditions,[54] but there is a dearth of child and adolescent psychiatrists to deliver these treatments. Primary care providers increasingly fill this gap, but need support, particularly in treating complex psychiatric disorders with comorbid conditions.

As a result of these discrepancies, most young people with mental health conditions do not receive any interventions; and of those who do receive clinical care, the majority do not receive evidence-based treatments largely due to the insufficient numbers of child and adolescent trained mental health specialists and their concentration in urban/suburban areas and academic hubs.[55] These disparities in access to and quality of care have been noted most prominently for child and adolescent psychiatrists,[56-58] but are relevant to all child and adolescent mental health specialists[59-62] and are anticipated to persist

or worsen into the foreseeable future.[56,59, 60, 63, 64]

These disparities and the projected decreasing supply of child and adolescent mental health specialists are occurring at the same time as the broadening implementation of federal and state mental health parity laws that will likely further increase the demand for specialty mental health care for young people.[65-67] New approaches to meeting this demand are needed, as well as to meeting expectations for enhanced care coordination among primary care and behavioral health providers as part of medical home initiatives. The Patient Protection and Affordable Care Act (ACA) has called for the meaningful use of telehealth technologies to improve health care and population health for all citizens.[65-67]

C. Factors Determining Access to Telemental Health for Youth

Increasing access to mental health services for young people is often the rationale for the implementation of telemental health programs. The technology **may** be used to bridge the gap between specialist supply and demand, particularly in rural and other underserved communities that face declining economies, poor access to mental health insurance, and limited transportation options.[51, 68, 69] In addition to addressing availability and accessibility, child-friendly telemental health settings such as schools and primary care offices may reduce perceived stigma associated with mental health services and increase the ecological validity of providing these services. Telemental health is an especially good fit with youth due to their frequent use and proficiency with technology. Technological literacy is dramatically improving across patients, families, and providers, and adolescents' literacy increases families' overall literacy.[70, 71]

However, according to the Federal Communications Committee's 2015 Broadband Progress Report, the United States is failing to keep pace with advanced, high-quality voice, data, graphics and video offerings, particularly in rural areas.[72] This impacts the ability to provide high quality telemental health, particularly to some of the very populations in greatest need of more accessible services. A significant digital divide remains between urban and rural America and the divide is still greater on Tribal lands and in U.S. territories. The United States Department of Commerce's National Telecommunications & Information Administration[73] plans to increase connectivity in rural and other under-served communities to close the urban-rural divide. A digital divide also persists along economic lines.

Mobile devices provide an emerging way to deliver telemental health, both in supervised and unsupervised settings. According to the Pew Research Center Internet, Science & Tech Report, in 2015, approximately 68% of the American population overall has smartphones and 45% have tablet computers.[74] More specifically, 88% of American teens ages 13 to 17 have or have access to a mobile phone of some kind, and a majority of teens (73%) have smartphones.[75] Given adolescents' technology literacy and their increasing access to mobile devices, new models can be anticipated for delivering mental health care to young people. Anecdotally, many families are using videoconferencing for social purposes, including Skype® or Face Time™ with relatives and friends across the country and the world.[20] This familiarity is anticipated to enhance overall comfort using videoconferencing for clinical applications, including telemental health. Guidelines are needed to ensure the quality of such innovative care.[76]

REVIEW OF TELEMENTAL HEALTH SERVICES WITH YOUTH

The evidence base supporting the feasibility, acceptability and effectiveness of telemental health with children and adolescents is emerging incrementally.

A. Clinical Interventions and the Supporting Evidence-Base

Telemental health may be especially suited for youth who are accustomed to the technology, especially adolescents who may respond to the personal space and feeling of control allowed by videoconferencing. There is some preliminary evidence that videoconferencing offers advantages, including less self-consciousness, increased personal space, and decreased confidentiality concerns as the provider is outside of the local community.[77]

Due to the small but emerging child literature, lessons are often drawn as a downward extension from adult literature. A recent extensive review of the empirical literature for telemental heath across the lifespan following rigorous inclusion criteria concluded that there is strong and consistent evidence of the feasibility of telemental health, as well as high acceptability across teleproviders and patients.[78] There was indication of improvement in symptomology and quality of life among patients across a broad range of demographic and diagnostic groups.

Multiple studies have demonstrated the feasibility of implementing telemental health services with young people across diverse settings. [14, 23, 79-86] Diagnostic assessments have been reliably conducted through videoconferencing for youth with various disorders evaluated in outpatient settings,[31, 33, 87, 88] including: disruptive behavior disorders,[12] autism and other developmental disorders,[41, 89] and psychotic disorders.[90] Multiple studies have demonstrated the acceptability to referring primary care providers (PCPs), parents, and youth of delivering child mental health services through videoconferencing.[41, 79-80, 83-85, 88, 91-97] Satisfaction studies demonstrate the ability to develop a therapeutic alliance with youth and families through telemental health[42] and suggest effectiveness.

The delivery of pharmacotherapy through telemental health has been described with youth in schools,[98] mental health centers and daycare,[39] outpatient settings[31, 83-85] and juvenile justice facilities.[30, 99, 100] One recent large community-based randomized trial provides solid evidence of the effectiveness of short-term pharmacotherapy for ADHD delivered by child and adolescent telepsychiatrists compared to treatment in primary care complemented by a single telepsychiatry consultation.[12] Telepsychiatrists demonstrated good adherence to guideline-based pharmacotherapy and greater assertiveness in pharmacologic management than the PCPs.[101]

There is an emerging literature supporting the feasibility and effectiveness of psychotherapy with children and adolescents delivered through videoconferencing. The evidence-base is predominantly drawn from a downward extension from the adult literature.[8, 9, 102, 103] Backhaus and colleagues[8] completed a review of 65 studies across psychotherapy modalities delivered over videoconferencing. They concluded that videoconferencing-delivered psychotherapy is feasible, applicable to diverse populations, in a variety of therapeutic formats and is generally associated with high user satisfaction. Most importantly, clinical outcomes for psychotherapy delivered through videoconferencing appear comparable to care delivered in traditional psychotherapy. Gros and colleagues[9] conducted a review of 26 studies from 2000 to 2012 based specifically on the delivery of cognitive-behavioral therapy (CBT)-related strategies over videoconferencing with varying technologies. They concluded that the majority

of the studies supported the effectiveness of using videoconferencing to deliver psychotherapy.

Most published studies of psychotherapy conducted specifically with young people have been descriptive, with only a handful of outcome studies.[14, 23] Nelson and Patton[27] identified ten psychotherapy studies with the general population of children and adolescents experiencing a mental health concern. Most of these studies were interventions for ADHD, but also included a variety of single study examples. Emerging case reports support the feasibility of teletherapy in high need areas with adolescents, including family-based interventions for eating disorders[104] and telemental health on college campuses.[34] Additional research with adolescents and substance abuse treatment has been encouraging.[102] Intervention approaches varied in focus on the youth or the parent and ranged from feasibility trials to pre-post designs, and a handful of randomized controlled trials.[11, 13, 15, 16] Consistent with the more robust adult individual therapy literature,[8-10] findings were overall positive related to feasibility, satisfaction, and outcomes. This review also identified a dozen pediatric psychology studies, addressing mental health approaches with children and adolescents with acute and chronic conditions.

In relation to pediatric psychology approaches using telemedicine with children with chronic medical conditions, most information is from case report and small pilots,[27] reflecting successful implementation with a range of conditions (pediatric cancer, pediatric feeding conditions, diabetes, irritable bowel disorder, pediatric epilepsy, congenital heart defect, among others). There are also case reports reflecting pediatric psychology services over telemedicine for sleep disorders and toileting disorders. Several trials have found positive results treating pediatric obesity over videoconferencing, both to rural schools and to rural primary care practices.[105-106]

There is also very limited information about group therapy approaches using telemedicine with youth, with reports describing the approach successfully utilized with pediatric obesity[107] and adolescents on home parenteral nutrition and their caregivers.[108]

Several randomized trials of psychotherapy are noteworthy. Nelson and colleagues found comparable reductions for childhood depressive symptoms treated with eight sessions of cognitive-behavioral therapy (CBT) delivered through videoconferencing versus in-person.[13, 109] Two small randomized trials[15, 110] tested the effectiveness of treatment for obsessive-compulsive disorder (OCD) and found that compared to youth treated in-person those treated through telemental health had comparable or superior outcomes. The behavioral treatment of tics through telemental health has also been found to be comparable to in-person treatment.[11] Four small trials have demonstrated the effectiveness of providing family interventions and parent-management training through videoconferencing [16, 111, 112, 113]

B. Telemental Health Service Delivery to Clinical Settings

Child and adolescent telemental health services are being delivered to multiple clinical settings to meet diverse clinical needs of children and adolescents.[11-16, 23,26, 29-35, 38-42] Currently, the point of delivery for telemental health services is as varied as the type of services that are being provided. Most described in the literature are primary care clinics, community mental health centers, physician offices, outpatient clinics, schools, and correctional settings. Individual reports describe delivery to other settings such as residential treatment facilities, critical access hospitals, group homes, Area Health Education Centers, colleges, sites serving foster care, military bases, and daycares. Most reports focus on rural and other non-metropolitan communities,[33] but telemental health care to children in urban settings[39] has been reported. Unsupervised settings including patient homes are emerging points of service delivery which bring both new benefits and risks.[35, 71, 110, 114] Recent presentations described telepsychiatry services to

an inpatient psychiatry unit.[115] and to an emergency room.[116] Commercial vendors and private practice providers are delivering services to multiple sites. Each of these sites has its own needs and resources to implement a telemental health service. Training **should** be tailored to each point of service delivery, including coordination of care with on-site staff and community providers.

Reported work in telemental health with children and adolescents has focused on direct care[12-16, 25-27, 31, 39, 42, 43, 84, 102, 104] and patient-centered consultation with recommendations to the referring primary care provider for treatment.[12, 88, 93, 97, 98, 117] Consultation conferences with a group of primary care providers has been described to improve their own skills and build a support network for ongoing clinical care of young people's mental health problems.[98, 118-119] Telementoring models such as the Extension of Community Healthcare Outcomes (ECHO) are also being evaluated in ADHD, autism, and other child behavioral topic areas [119] in order to support primary care practices. Two under-reported areas for child and adolescent telemental health care include specialist consultation to therapists in distant communities and to youth in state custody.[12]

C. Telemental Health Practice in Community Settings

There is a long history of moving mental health care for youth from the mental health clinic to the community to improve access to care, increase adherence to treatment planning, and to provide services in naturalistic settings. Consistent with this pattern, telemental health services are being moved outside of traditional mental healthcare settings. When telemental health services are implemented in community settings, they offer the opportunity to ascertain contextual factors involved in youths' behavior and mental health needs, as well as to involve stakeholders in youths' care and outcomes. In particular, telemental health offers a powerful opportunity for collaboration with pediatricians to help them address the increasing expectations to improve their skills in diagnosing and managing common mental health conditions of young people.[25, 26, 29, 37, 39, 88, 93, 98, 117, 120-123] Collaborative care models in which a psychiatrist and primary care provider jointly manage a population of patients with a care manager have been described with adults,[124, 125] and have potential for incorporation into the pediatric medical home.[126] Providing mental health care to stressed families of children with chronic medical illnesses faces challenges in both the medical and mental health service sectors. Pediatric telepsychology has shown feasibility in overcoming some of these challenges when providing services during medical visits or at home.[127-132] Further, families have shown satisfaction with services and increased knowledge of health-related behaviors.[105-106, 131-132] There is some support for cost effectiveness of health psychology services provided through videoconferencing to these settings.[128, 131] These studies support the need for further work integrating telemental health into the pediatric medical home.[126]

School-based telemental health services engage youth during the school day thereby reducing distances youth must travel to a clinic-based CATMH service, decreasing missed school days, disruption in the child's classroom time and parent's workday, allowing parents to be involved in a setting that is familiar and convenient, and incorporating school personnel into treatment planning.[40, 133-134] Utilization of telemental health allows the youth's provider to be efficiently involved in multidisciplinary planning, student evaluation, Individualized Education Plan (IEP)/504 plan meetings, and collaboration with teachers, school specialists (e.g., school psychologists, social workers, and allied health specialists), nurses, and administrators.[40] Examples of services that may be delivered by the provider to the school system include, but are not limited to, mental health evaluations, behavioral interventions, medication treatment, ongoing sessions with students and families, evaluation for support services, continuing education for staff and consultation on both classroom specific and general school issues and

consultation in the event or threat of an event that may adversely impact the school community (e.g, untimely death of a student or teacher, natural disaster, threat of violent act). Another area of school-based telemental health is the delivery of educational support services, such as counseling, occupational therapy, or speech therapy, to youth who are home-bound or as a means to continue services when school is out of session.

The emerging evidence-base indicates that school-based CATMH is feasible and acceptable.[40, 133] Nelson and colleagues have shown good adherence to the American Academy of Pediatrics' (AAP) guideline-based evaluation for ADHD when conducted in school settings.[135] Reese and colleagues[89] have described an innovative, cost-effective, Integrated Systems Using Telemedicine (ISUT) Model for autism. This telemedicine model links students and families, trained early intervention providers and educators at the child's school, and a team of university-based medical professionals at the academic health center.

Residential treatment centers and correctional settings often require prolonged separations of families from a youth who is confined in a facility far distant from family and provider. Telemental health allows families to participate in a youth's treatment while remaining in their home communities or telecommute a mental health specialist to the youth's facility. For example, the multipoint capabilities of telemental health can deliver multi-systemic therapy, which includes a network of caregivers, school officials, peers, and neighbors to promote positive behavioral changes. Delivering telemental health services to such facilities provides challenges to privacy and confidentiality.[30, 99-100]
Home-based telemental health offers potential advantages to observe the youth in a naturalistic setting and to practice skills in the lived environment. Comer and colleagues are testing the effectiveness of telemental health in delivering behavioral interventions for early onset behavior disorders.[70-71, 110, 136] They use videoconferencing to observe the youth's behavior and then to guide parents in facilitating behavioral interventions. Successful outcomes are described for a case series of children with obsessive-compulsive disorder (OCD).[70] Further work in delivering parent-child interaction therapy (PCIT) through videoconferencing is in progress. Case reports of telemental health services to the home have also addressed support group services for homebound individuals and their caregivers[108] and home-based services for children who have experienced trauma.[32]

GUIDELINE FOR THE PRACTICE OF TELEMENTAL HEALTH WITH YOUTH

The ATA Core and other Telemental Health Guidelines **should** be consulted for administrative and technical aspects that are common to most telemedicine application areas. Detailed here are aspects specific to child and adolescent telemental health.

A. Administration Guideline: Needs Assessment and Standard Operating Procedures

If implementing a new CATMH program, or adding services to an existing program, a needs assessment **may** be conducted,[24, 25,] including assessment of site readiness and scalability.[137-138] The needs assessment assists providers to identify communities that are most likely to adopt videoconferencing services to fill the access gap by communicating with community organizations, consumer groups, and other key stakeholders, particularly as some underserved communities must allocate their mental

healthcare funding to the adult chronically mentally ill, leaving limited resources for youth. A needs assessment allows the provider to identify the age groups, behavioral presentations, and interventions that will support active clinics. Providers **may** visit potential sites to develop relationships with staff and the broader community as well as gaining a better understanding of the local culture of potential patients and their families. This is particularly important with youth populations because staff at the distant site need to feel comfortable assisting with children and adolescents. Needs assessment is an ongoing process in order to evaluate and improve services offered through new and established telemental health practices and in response to healthcare reforms.

The needs assessment goes hand-in-hand with careful business planning for telepractice with youth, both for the provider[25, 137] and for the distant site.[139] This includes determining which disorders meet medical necessity criteria by third party payers in the jurisdiction in order to ensure sustainability of the telemental health program.[140-142] Providers **should** check to determine coverage for the different types of child, adolescent and family sessions that are generally covered by Current Procedural Terminology (CPT) codes.[143] Detailed programmatic data concerning the implementation of evidence-supported treatment by youth-trained specialists, as well as process and outcome data, **may** also be utilized to make a case for child and adolescent telemental health services among local insurers.

Telemental health organizations and providers **shall** ensure that appropriate staff is trained and available to meet the youth's, the family's, and provider's needs before, during, and after telemental health sessions. These needs may differ from those encountered in clinical work with individual adults, as children may unexpectedly become disruptive, a teen may threaten suicide, or a parent may decompensate. Protocols **should** also describe the telepractice workflow and associated staff responsibilities. For example, families often bring siblings to telemental health sessions for whom a management protocol **may** be helpful. The presenter **may** also assist with managing the flow of participants (e.g., patient, caregivers, school personnel, case manager, etc.) in and out of the videoconferencing room and with ensuring privacy of the sessions. Parents and youth may differ in their literacy and primary language. The provider **shall** determine whether an interpreter is needed rather than relying on the youth or family members and/or how to address the family's verbal and written communication needs.[144] The provider **shall** assess his/her competence with evaluating and treating children and adolescents across telemental health areas, and seek additional training/mentoring if gaps are noted.

B. Legal and Regulatory Issues

During the needs assessment, the provider **should** include a policy and practice standards review.[145] This includes a comprehensive review of regulatory guidelines regarding the mental health treatment of youth in both the jurisdiction and setting of the practice with particular attention to issues such as the age of majority and reporting of suspected maltreatment. Sites and jurisdictions may vary in their mandates for additional responsibilities in the care of vulnerable populations, such as youth in foster care and in correctional settings. As with onsite patients, providers **should** follow professional practice guidelines in relation to the chronological age of the youth as well as consideration of the developmental age.

As in onsite settings, the provider **should** establish the legal guardianship of the youth as well as custody arrangements, when applicable. Clarification **should** be obtained regarding parental rights in deciding treatment for a youth who is in state custody. Providers are mandated

reporters and **shall** be aware of their jurisdiction's requirements, as well as train staff in procedures and protocols to support the youth in potentially harmful situations. They **should** also be aware of considerations associated with disclosure of behaviors (e.g., sexual activity, substance use/abuse, etc.) to parents of adolescent clients.

Providers **shall** follow the requirements and restrictions of licensure, including consideration of the provider's scope of practice and expertise with youth.[1,2, 145] Just as in adult care, cautious review **should** include consideration of the legal and regulatory requirements in effect at both the patient and provider locations, with particular consideration regarding age of majority in the provider's own and in the youth's jurisdiction, duty to warn and protect requirements, and civil commitment.[146] Providers **may** verify that their professional liability insurance covers activities in all of their sites of telepractice and seek legal consultation for any jurisdictional concerns regarding telepractice.
States vary in their requirement for specific written consent for care delivered through videoconferencing. According to the state's guideline, the provider **should** complete informed consent with legal guardians for children and with patients over the age of majority or for "mature minors" in states with such designation. The consent process **should** ensure a basic understanding of, and agreement to, the specific use of telemental health. Providers **should** check local, regional and national laws regarding the requirement for verbal or written consent for delivering care through videoconferencing,[1,145] with consideration to the age, development level, literacy, and language preferences. Youth **may** need to provide written consent to release their records to their parents. Some programs **may** require written consent with the youth's, parent's, and provider's signatures on the same forms. The presenter **may** help to complete any required medication consent forms. Some sites **may** allow the presenter to sign the consent form attesting that the risks and benefits were reviewed with the telepsychiatrist. Other sites **may** require that the form be sent to the telepsychiatrist for a signature. Providers **should** establish procedures for sharing information with pediatricians or other primary care providers. Both adolescents and parents must consent to sharing the information.

Providers **shall** abide by confidentiality requirements related to both the clinical setting[147] and the school setting[148, 149] and follow the ethical guidelines of their professional organization. If any telehealth encounter is to be recorded, providers **shall** be aware of state-specific laws regarding the recording of private conversations, and **shall** disclose to the patient and parent/guardian that the encounter will be recorded and receive written consent for the recording.

C. General Telemental Health Practices with Youth

Specific considerations as needed in working with young people are described below.

1. Physical Location/Telemental Health Space

There are no specific guidelines for the space in which child and adolescent telemental health sessions are conducted, but there are some considerations. Providers **should** communicate the

specific room requirements to patient sites before clinical services commence. Some remote sites propose using a small room that accommodates adult telehealth services, or a convenient conference room, or a medical examination room. All of these may have disadvantages for telemental health with children and adolescents.[20, 24, 42, 43] The room **should** be large enough for at least one to two adults to attend and be included on screen. If more individuals will typically interact with the youth and provider at one time, such as team-based assessments or group therapy, a larger room **should** be considered. Both the distant site and originating site **should** announce all parties who are present in their respective rooms, regardless of who is on camera.

The room **should** allow the child to move around, both for the child's comfort and to allow an appropriate examination of his/her skill, particularly for younger children whose motor skills and exploratory abilities may be compromised. Too large a room, such as a conference room, may allow the child to wander, making it difficult to maintain a presence on screen especially if the camera at the patient site does not have pan/tilt capabilities. A medical examination room may overstimulate the child and risk damage to equipment. The choice of room **should** also be accessible to youth with mobility challenges. One approach to determine adequate room size and configuration is to provide room dimensions to the site, ask a staff to sit about eight feet from the proposed camera placement, and send a digital photograph to the provider to determine whether there is adequate full body view of both the youth and parent.
The space at the patient site **should** be conservatively equipped according to the clinical intervention. For example, psychotherapy sessions **may** warrant a comfortable but sparsely decorated room to minimize distractions. Parental training for children's behavioral disorders **may** be facilitated by specific room arrangements to assist the parent in giving "clear instructions" to the child. Diagnostic sessions are helped by including developmentally appropriate implements such as a desk and crayons that allow assessment of the child's fine motor skills, creativity, and attention span. The child's eagerness to share and describe his/her work conveys interpersonal and communication skills. A small selection of toys **may** be provided to determine the child's interests and abilities, but noisy, multiple component, and messy toys **should** be avoided as the sensitive microphones will pick up the noise and compromise conversation. Clean-up after the session makes additional work for staff at the patient site.

Lighting is crucial so that the whole room **should** be easily visualized and interactions of the youth and parent appreciated. Natural lighting can change during the day flooding the image on the screen. Ceiling lighting often casts shadows. Room choice **should** consider the presence and placement of windows, generally giving preference to rooms without windows and with horizontal lighting. Lighting **should** allow full appreciation of the youth's facial features or expressions.

When telemental health sessions are conducted outside of traditional clinic settings, such as school or home, finding the optimally sized, lighted, and private space may be challenging. In school settings, the provider **should** assess whether the school has adequate infrastructure to support a telemental health program as finding a private space in crowded, under-resourced schools may be difficult.[40,133] Many individuals **may** participate in the school-based encounter, including the child, parent, school nurse, teacher(s), administrative personnel, case manager, social worker, school psychologists, and others.[40, 150] The provider **should** ensure that the room can accommodate all participating individuals on-screen without obscuring observation of the youth. When providing group therapy over videoconferencing, the room size **should** also be

reviewed.

When using mobile devices for home-based work with active youth, cases with stands are often recommended to protect the device as well as deliver a stable video image. Because mobile devices make it feasible to move throughout the home to observe the child's behavior, families **may** need reminders to set the device on a table in order to maximize the transmission quality as well as minimize distractions.

2. **Presenter Assistance in Telemental Health Sessions**

Most community-based settings utilize a presenter (often also the telemedicine coordinator) in the telemental health encounters[151] for both quality care and for reimbursement requirements. A presenter may be more important for work with young people than with adults due to the multiple individuals and procedures involved in the youth's system of care. The provider **should** determine the scope of the presenter's assistance before the session (with scheduling, paperwork, and socialization to the behavioral health system); during the session (with technical and clinical support, including taking vital signs and assisting in emergency situations); and after the session (with implementing recommendations, facilitating referrals, and coordinating with the youth's system of care). The provider **may** decide when to include the presenter in the session; for example, if the presenter is outside of the room, the provider **should** determine how he/she will be contacted to join the sessions **should** there be a need for assistance. Across community settings, the provider **should** consider the training needs of the presenter, including the ability to work with youth with behavioral health concerns and expectations associated with the mental health setting (e.g., high level of confidentiality). Ahead of initiating telepractice, the provider **should** collaborate with the patient site and the presenter to establish a safety protocol in the event that the youth expresses imminent dangerousness that requires an intervention or discloses harm to him/herself that requires mandated reporting to authorities.

3. **Patient Appropriateness for Telemental Health Services**

There are no established indications or contraindications for telemental health services with young people, other than the youth or parent refusing services.

If care is delivered in a traditional clinic setting, the provider **shall** alert staff to any risks to the youth's safety so that they can be aware of need to assist or notify security or other resources. If care is delivered outside of a traditional clinic setting, such as school, the provider **shall** determine whether the school will be able to assist with the sessions and ongoing engagement of student and family.[40,133] Prior to initiating telemental health services, the provider **should** obtain knowledge of school culture, resources, and capabilities and define expectations within the school system. The provider **should** determine if he/she is going to provide direct patient care or serve as a consultant to school staff, as well as outline the role of school personnel in the youth's care. In the school setting, particular attention **should** be paid to privacy. If care is delivered at home,[32, 35, 70, 71,136] the youth may be at increased risk to elope or to act out. A responsible, trusted, and capable adult **should** be onsite and accessible to the provider to assist in assessing potential harm or to intervene in the situation, if necessary. Families with maltreatment histories may not be appropriate for remote treatment delivered to unsupervised settings, such as the home.

In some cases, a youth may act out even in the presence of an adult, for example a very hyperactive preschooler, oppositional child, or uncooperative teen may attack the equipment, aggress the caregiver, hide, or try to leave. Often, parents of children seeking mental health care are themselves suffering psychiatric disorders and may be compromised in their ability to supervise the youth during the videoconferencing sessions. Thus, the provider **should** conduct a similar assessment of the ability of the accompanying adult to contain the youth and/or for the adult him/herself to safely participate in sessions and follow treatment recommendations.

Relative contraindications for child and adolescent telemental health services to consider include assessment in settings that are not considered neutral, such as the youth's home or other care site.[71] Examples include child custody assessments, forensic evaluations, and investigation of allegations of abuse or neglect, family therapy with a history of interpersonal violence in the family and/or a volatile caregiver/parent. The child may not feel free to be candid about his/her environment or circumstance with a potentially offending caregiver nearby. In addition, in the home environment, the provider has less ability to redirect the situation should the caregiver become angry/lose control. The environment itself may be intimidating to the youth. Some children with developmental or psychotic disorders may not tolerate the videoconferencing platform.

Therefore, the provider **shall** determine appropriateness for the site's telemental health services considering the youth's and parent's preferences, referral question, developmental and diagnostic considerations, personnel and other resources available at the patient site. The provider **shall** ascertain whether the youth can safely engage in the session either alone or with the parent in the room and **shall** ensure that resources at the patient site are able to deal with any potential risks to the patient, others, or the equipment. The provider **shall** assess the child's willingness and capability to follow the provider's instructions without local adult involvement.

4. Working with Diverse Youth and Families

Telepractice often involves a racial, ethnic, and cultural gap between providers and patients.[152] With CATMH's expanded reach, comes providers' obligation to assess their competence with diverse child and adolescent populations. However, there is limited research regarding the delivery of telemental health services to children and families across cultures. Therefore, cultural humility[153] is recommended, recognizing the life-long, process-oriented approach to striving toward competency with the vulnerable groups served in telepractice. Following their discipline's ethical best practices, providers **should** consider their patients' unique needs based on age, sex, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, and socioeconomic status[154,155] with adaptation to telepractice.[3,24,144,156] Providers **should** carefully attend to both verbal and nonverbal communication clues and communication styles that may vary across cultures. For instance, storytelling approaches may be common in some American Indian cultures and additional time **should** be utilized to accommodate this preferred style.[144] The provider **may** formulate the patient/client's needs within a cultural framework, including consideration of the youth's cultural identity; cultural conceptualization of distress; psychosocial stressors and resilience; and cultural features of the client-provider relationship.[114] The impact of technology on the cultural formulation **should** be considered. Culturally sensitive protocols **should** be considered drawing on broad community input and families' preferences for bilingual providers from the same cultural background.[157, 158]

A related concern in non-metropolitan communities is the difference from values held by urban providers, as well as overgeneralizing about rural communities.[68, 69] To develop rapport and a therapeutic alliance, providers **may** learn about the family's community, their values, and resources. The local telemedicine coordinator and/or telepresenter, as well as community health workers (when available), can provide valuable information about the community to assist the provider. For example, an urban-based provider may be concerned about guns in the home of a youth who is depressed, but families in rural communities may not readily remove guns from the home. A Caucasian provider practicing in a major suburb may not understand that an Inupiat family living a subsistence lifestyle may not attend appointments during fishing or hunting season. First generation children in immigrant families may differ in their acculturation and language from their parents providing complex cultural issues for evaluation. Respectful questions about cultural and a means of assessing cultural differences **should** be established so that the provider can optimize cultural competence in their telepractice with the youth and parent. A visit to the patient site **may** help to appreciate cultural differences.

5. **Consult Request Data**

Information **should** be available that meets legal and regulatory requirements for referral and that prepares the provider for the telemental health evaluation and treatment. The assessment of children and adolescents often requires information beyond that obtained for adults. Multiple informants are common. Youth often have had prior assessments, such as developmental evaluations, psychological or educational testing, and implementation of an IEP. Procedures **shall** be established between organizations and providers for sharing patient information relevant to the telemental health evaluation.

6. **Clinical Findings and Reports**

The sharing of clinical history and results **shall** comply with established legal and regulatory requirements. Providers and organizations **shall** have agreements in place that outline the procedure for maintaining clinical history and results. For CATMH encounters in community settings such as schools or correctional settings or in unsupervised settings such as the home, providers **shall** establish procedures for information sharing that comply with guidelines outlined by their professional organizations for care provided outside of traditional clinical settings.[134, 159]Care coordination needs across systems of care **should** be considered in relation to clinical findings and reports. Best practices in secure data exchange **should** be followed.

D. Technology Considerations

There is no clear evidence that the specific technology affects the quality of clinical care or outcomes. The provider **should** choose videoconferencing technology that is appropriate to and adequate for the clinical services to be delivered to children and adolescents. Determination of the optimal technology **should** consider clinical factors such as assessment of the developmental mental status examination and monitoring of treatment response, as well as systems factors such as resources at the patient site, other services available, and timeliness of services.

Youth are dependent upon their parents to access care. Therefore, providers **should** establish a therapeutic alliance with the parent as well as the youth. The technology **may** pose a challenge to alliance-building. Providers **may** include an introduction to and explanation of the technology in user-friendly terms and ensure that both youth and parents feel that their perspectives are understood. As distortion of the video and audio signals can interfere with alliance-building, the provider **should** use bandwidth sufficient to detect accurate visual, auditory, and interactional cues that represent the youth's and parent's affective states and interpersonal relatedness. Sufficient bandwidth is also needed for diagnostic determination and treatment monitoring. For example, tics may be idiopathic and present prior to any telemental health appointment or may develop in response to pharmacotherapy. Affective blunting may be present at initial evaluation due to an autism spectrum disorder, a mood disorder, or internal stimuli—or may develop as a response to neuroleptic treatment. Sufficient bandwidth is needed to minimize the time delay in verbal transmission so that the provider can readily assess any anomalies of the child's language use, speech and prosody. Younger children's voices may not carry as well as adolescents' or parents' voices. Therefore, providers **should** ensure that microphones are sensitive to the auditory range of adults', adolescents, and children's voices and that they are placed close enough to detect children's vocal range but not irrelevant noise due to children's play or environmental sounds.

Cameras with pan-tilt-zoom capabilities at both the provider's and patient's sites have particular relevance for work with children and adolescents. The provider **may** establish rapport with youth by giving them a tour around their office, showing them that no one else is in the office, as well as scanning the patient's room to understand who is present. Control of the camera at the patient site assists in evaluating dysmorphology and developmental anomalies by zooming in on facial features, and assessing motor and activity skills by following the patient around the room.

Even with adequate bandwidth and a pan-tilt-zoom camera, it may not be possible to fully assess eye contact due to the placement of the camera. Assessing eye contact is an essential component of the developmental evaluation of young people, particularly during a telemental health encounter when there is decreased access to other non-verbal means of communication as occurs during a in-person encounter. The provider **shall** determine whether apparent decreased eye contact represents a technical limitation or clinical impairment. Providers **may** query the youth and parent about the youth's ability to sustain eye contact and the related context.

Overall, until further research clarifies the relationship of bandwidth and technology to clinical outcomes, providers **should** consider their planned clinical work in the context of the relevant technology. For example, diagnostic assessments **may** require higher bandwidth and screen resolution than ongoing treatment when the provider and client have an established working alliance. More work is particularly needed to determine whether the delivery of services through mobile devices affects the quality or outcomes of care.

E. Telemental Health Interventions with Youth

1. General Assessment, Outcome Evaluation and Psychological Testing

Initial assessment through telemental health **should** be consistent with professional best practices such as the AACAP Practice Parameter "Assessment of Children and Adolescents".[160] The provider **shall** oversee alignment with standards of care and modify accordingly to add necessary elements (e.g., interpreter) and advocate for additional specialized assessment, as indicated, even if not available through videoconferencing The provider **shall** consider all information necessary to inform decision-making during the time with the patient and family. As for in-person care, standard clinical assessment **shall** attend to interview logistics, settings, and the variety of parties involved. This includes collecting pre-session information, history, mental status examination, physical examination, laboratory or imaging studies, and other pre-session information necessary for the service delivery in question. The same attention **should** be given to patient engagement strategies and to the patient's cultural context as in the in-person setting.[81, 144]

As documentation of measurement-based care is becoming the standard for usual practice, providers **should** document the efficacy of all mental health interventions, any complications of treatment, and the decision-making taken to improve treatment response and minimize adverse effects. Providers **may** use a variety of approaches to documentation, particularly quantitative measures that can be readily reviewed across providers.

There is little information concerning cognitive and neurocognitive testing of youth using videoconferencing, either with self-administered or staff-assisted instruments at the patient sites. Information regarding psychological assessment over videoconferencing is largely a downward extension from adult findings which reflect that such testing is feasible and accurate across a variety of adult populations and disorders.[2, 161] Reliability and validity of the testing instrument in the telemental health context **should** be considered. One study with children and young adults, compared in-person and videoconferencing modalities to assess neuropsychological status in rural youth experiencing early onset psychosis and found that videoconferencing produced higher ratings than the in-person assessments, and that participants were satisfied with the videoconferencing modality.[90] An ongoing pediatric trial assessing the utility and validity of an autism spectrum disorder (ASD) assessment protocol conducted via videoconferencing is using well-validated assessment measures (e.g., the Autism Diagnostic Observation Schedule-Module 1 and the Autism Diagnostic Interview-Revised). Preliminary results are promising.[89]

In school-based telemental health, the provider can readily obtain input from the current teacher in relation to other students in his/her class as well as input from the prior teacher, and coordinate information from multiple documents as well as rating scales competed online. Such systems-based assessment lays the foundation for a multi-pronged treatment approach, consistent with best practices.[135]

2. Pharmacotherapy

As with adult telemental health practice,[2] expert pharmacotherapy is one of the most frequently requested services for young people. The pharmacotherapy services delivered and the infrastructure needed at the patient's and telepsychiatrist's sites **may** be determined in part by

the model of care, i.e., provider-focused consultation, patient-focused consultation, collaborative care, or direct service. While telepsychiatrists are the most frequent providers of pharmacotherapy using videoconferencing, the guidance is applicable across providers serving youth, including developmental pediatricians, general pediatricians, family practice physicians, nurse practitioners, and physician assistants. Providers delivering pharmacotherapy services **shall** be aware of their professional organizations' positions on telepsychiatry. Procedures **should** ensure effective communication between the sites, guide medical record documentation, and maintain compliance with regulatory guidelines. For direct services, the telepsychiatrists **shall** follow the ATA's general guidelines to establish and communicate to all parties methods for obtaining initial prescriptions, medication refills, and for reporting and documenting adverse effects.[1,2,3]

The delivery of pharmacotherapy via telepsychiatry to children and adolescents is guided by evidence-based and consensus-based treatments established for traditional in-person treatment,[54] extrapolation from general videoconferencing reports,[1, 2, 3, 162] descriptive telemental health reports with children and adolescents[21,22] and the limited outcome studies conducted with youth.[12, 83, 85, 101] The prescribing telepsychiatrist **shall** comply with the practice parameters established by the American Academy of Child and Adolescent Psychiatry[54,163-164] for pharmacotherapy in general and for specific disorders. Child and adolescent telepsychiatry may entail a few considerations beyond in-person care. A high quality audio-video connection helps to discern details relevant to developmental and clinical examination during both the initial evaluation and follow-up medication assessments. As parents must consent to pharmacotherapy for their children under the age of majority, telepsychiatrists **shall** ensure that parents understand the risks and benefits of pharmacotherapy and provide educational information as indicated. Initial medications and refills for non-controlled drugs are provided through usual procedures established for in-person care.

Federal regulations[165] now allow e-prescribing of controlled substances during in-person care. However, federal legislation regarding the prescription of controlled substances through videoconferencing[165-166] has implications for telemedicine, especially for the treatment of children with ADHD. The Ryan Haight Online Pharmacy Consumer Protection Act of 2008[166] was designed to expunge illegitimate online pharmacies that dispensed controlled substances without contact with the individual and without physician oversight. The Act placed certain restrictions around the practice of "prescribing by means of the internet." While the Act specifically designates that telemedicine is an exception to the Act, it technically requires that providers conduct at least one in-person evaluation of the patient prior to prescribing a controlled substance via telemedicine. Alternatively, patients being treated by and physically located in a hospital or clinic registered with the DEA in the presence of a DEA-registered practitioner **may** be prescribed controlled substances via telemedicine. The letter of this legislation is difficult to follow and severely dilutes the value of telemedicine practice. However, the DEA recently noted that it does not intend to interfere with the legitimate prescribing of controlled substances during telemedicine practice.[167] It has further promised to promulgate future rules around telemedicine prescribing and to establish a special telemedicine registration. Unfortunately, these provisions have been left incomplete since 2008. Several states have enacted legislation to allow the prescription of controlled substances through telemedicine practice, particularly for telepsychiatry. Providers **should** carefully review both federal and state guidelines in establishing their telepractice regarding the prescription of controlled substances and act in the best interests of their patients.

Assessing the effects of pharmacotherapy requires timely follow-up, history from the youth and parent, input from other relevant adults, assessment of side-effects, and monitoring of selected physiologic parameters. Adherence to these guidelines will require assistance at the patient site, for example to monitor vital signs, height and weight.[21,22] Telepsychiatrists **should** ensure that such assessments are made in accordance with treatment guidelines and that staff obtains appropriate training in conducting the assessments. They **may** also consider training staff to assist with other assessments such as screening for abnormal movements with the Abnormal Involuntary Movement Scale.[168-169] The staff **may** be instructed in the appropriate dissemination and completion of rating scales for routine outcomes monitoring or other aids to monitoring treatment response.[12,101, 170-171] If the optimal frequency of follow-up visits is not feasible due to agency limitations, telepsychiatrists **may** arrange with a staff at the patient site or the PCP to check in with the family and communicate findings with the telepsychiatrist. Finally, the telepsychiatrist **may** train staff at the patient site to assist in coordinating care with the youth's system of care including obtaining any laboratory or imaging studies.

3. Psychotherapy Approaches

There is an increasing request for psychotherapy services for children and adolescents delivered through videoconferencing to diverse settings including clinics, schools, corrections, and home.[102] As outlined in the general ATA telemental health guidelines, standard practice guidelines for therapy **shall** direct psychotherapy services within the telemedicine setting.[1,2,3] Evidence-based practice and empirically supported treatments **shall** be followed and adapted by the telemental health provider as appropriate for videoconferencing with the child and adolescent group and their parents. Persons engaged in providing psychotherapy services **shall** be aware of their professional organizations positions on telemental health and incorporate the professional association standards whenever possible.

The provider **shall** approximate all introductory approaches as in onsite settings, including introducing the rationale for psychotherapy and building rapport with the youth and parent. The patient and parent **should** be encouraged to provide input about strengths and challenges of delivering services over videoconferencing throughout the course of therapy. Providers **shall** provide all key elements of the individual and family approaches. This includes attention to both session content and process. Psychotherapy outcome **should** be monitored in ways consistent with the onsite setting, including monitoring process measures (e.g., relationship, satisfaction) and clinical outcome measures, as part of continuous improvement processes.

There is very limited information about individual and family therapy with youth using videoconferencing. Providers **should** consider adapting best practices and evidence-supported approaches from the in-person setting,[171] following professional guidance around dissemination and implementation.[60] Similarly, providers **should** follow all best practices in delivering pediatric psychology interventions.[172]

To date, no specific theoretical orientation or approach has been contraindicated specific to telemedicine. Cognitive behavioral approaches are among the most common approaches reported in the adult and youth literature and **may** lend themselves to the telemedicine format due to structure and skills building focus.[102] As in in-person settings, best practices with children and adolescents often include working both together and alone with the child and with his/her parent. Providers **should** work with presenters to assist with managing attendees' entry to the

room and participation in the session and to ensure privacy (e.g., no eavesdropping). In home-based settings, providers **should** acknowledge their decreased ability to manage attendees and their reliance on the patient/parent to assist the provider. Some therapy modalities that require direct one-on-one interaction (e.g., play therapy) **may** require additional consideration when implemented through videoconferencing.

Some approaches **may** require additional coaching of parents rather than direct implementation by the therapist (e.g., time-out strategies). The expectations concerning parent participation **should** be established before service initiation. For example, if telemental health services are provided at the school setting, the level and means of parent participation **should** be discussed.

When providing group therapy and support groups over videoconferencing, the provider **shall** follow the same best practices utilized in traditional settings. In one model, there is a group at a distant site and the group leader(s) connects by videoconferencing. In another model, the group members and the group leader(s) are all at different locations and all connect using multi-point functions of the technology. The group therapy leader(s) **should** consider the telepresenting needs at the distant site. For example, if the presenter is assisting in managing an anger management group, the presenter **may** need training ahead of time to defuse possible outbursts.

4. **Case Management**

Videoconferencing allows collaboration among multiple participants and input into treatment plans from various experts regardless of geographic location [.2, 3, 173] Coordination of care is especially important for high risk youth who have multiple agencies involved in their lives.[28] These youth **may** need more frequent clinical contact than can be provided by the CATMH provider. Therefore, CATMH providers **should** work with PCPs, clinicians, case managers, and stakeholders to individualize clinical contacts within the youth's system of care. [28, 154] These interim contacts **may** benefit from indirect collaboration with the CATMH provider, such as through telephone or email. In order to facilitate care coordination, providers **shall** share information with other stakeholders as indicated in the youth's treatment plan and with appropriate consent, as well as receive information from such stakeholders to inform the treatment plan and assess outcome. These care coordination efforts **shall** follow all best practices for the secure exchange of clinical information. Finally, those providers employing case management **should** follow best practices from onsite case management.

F. Mental Health Emergencies with Youth

Providing mental healthcare to children and adolescents via videoconferencing involves particular considerations regarding patient safety in both supervised and unsupervised settings.[114, 174-176] This is particularly true as telemental health extends access to underserved populations (e.g., rural populations, diverse populations) that have increased risk for suicide. In addition to mental health emergencies, the provider **should** consider whether there are risks of general health emergencies, such as services to homebound patients or young people receiving hospice care, and **should** plan accordingly with the caregivers. The provider **shall** abide by the aforementioned legal and regulatory guidelines (Section 5b) in the jurisdiction where the patient(s) is receiving services. Providers **should** reference the ATA Practice Guidelines for Pediatric Telehealth for broader guidance about management of pediatric emergency contingencies.

When telemental health services are provided to youth in community settings such as a local clinic, community-based outpatient clinic, school site, or other facility where dedicated staff may be present, providers **shall** become familiar with the facility's emergency procedures (if already established). If the facility does not have procedures in place, the provider **should** coordinate with the patient site to establish basic procedures, including: 1) identifying local emergency resources and phone numbers; 2) becoming familiar with location of the nearest hospital emergency department capable of managing psychiatric emergencies; and 3) having patient's family / support contact information. 4) collection of contact information for other local professional associations, such as the city, county or state, provincial or other regional professional association(s) in case a local referral is needed to follow-up with a local professional.

If the patient is in a setting without clinical staff (e.g., the home), the provider **should** discuss emergency procedures with the patient and caregiver as part of the informed consent process and document the plan. The plan **should** include a release of information to contact a family or community member who could provide support in an emergency, including assisting in evaluating the nature of the emergency and/or initiating 9-1-1 from the patient's home telephone. Providers **should** consider risks to safety in the patient's physical environment, such as access to weapons in the home environment, proximity to windows, or other household hazards. Suffocation is becoming an increasing risk for youth that **should** be monitored.[177] Providers **should** also be aware of other youth in the home as this may impact safety management planning.
Whether an emergency occurs in a clinically supervised or unsupervised setting, the provider **shall** consider the potential delay for emergency response due to geographical location. Further, the team may not have extensive experience in mental health emergencies with youth. The provider **should** remain available to the emergency responders to facilitate evaluation and disposition planning.

It is possible that a patient or parent(s) will not cooperate in the youth's emergency management, which underlies the practice of involuntary civil commitment. Therefore, any emergency plan **shall** include knowledge of local civil commitment law, procedures for commitment, and resources to assist in the process. Strategies for transportation or other logistical issues in case of an emergency **shall** be developed prior to initiating an intervention treatment for patients in clinically unsupervised settings.

ADDITIONAL TELEMENTAL HEALTH CONSIDERATIONS WITH YOUNG PEOPPLE

A. Ethical Considerations

Ethical considerations may be magnified in the telemental health setting due to its focus on reaching underserved and vulnerable populations.[178] Leading telemedicine and mental health associations emphasize the importance of translating established ethical best practice to the telemental health setting, including work with children and families. Practice guidelines from professional organizations assist in informing best ethical practice. Such organizations include the American Telemedicine Association,[179] the American Academy of Child and Adolescent Psychiatry,[180-181] the American Psychological Association,[18] American Psychiatric Association, Ethics Committee,[182] National Association of Social Workers,[183] the National Board for Certified Counselors,[184] and the Ohio Psychological

Association,[185] among others.

Practicing at a distance creates a unique relationship with the patient that requires attention to and adherence to professional ethical principles, including special considerations with children and families. An organization or health professional that adheres to ethical telemental health principles **shall**:

- **a.** Incorporate organizational values and ethics statements into the administrative policies and procedures for telemental health;
- **b.** Be aware of medical and other professional discipline codes of ethics when using telemental health;
- **c.** Inform the patient and parent of their rights and responsibilities when receiving care at a distance (through telemental health) including the right to refuse to use telemental health;
- **d.** Provide patients, parents, and providers with a formal process for resolving ethical questions and issues that might arise as a result of a telemental health encounter; and
- e. Eliminate any conflict of interest to influence decisions made about, for, or with patients who receive care via telemental health. Best ethical research practices **shall** also be followed in telemental health, as in all telemedicine setting.

B. Telemental Health Competencies

The growth of telemental health practice has led to growing focus on establishing and maintaining competencies for delivering clinical care. Thus, providers are encouraged to seek training, educational opportunities and peer mentorship in order to maintain high quality care, facilitate therapeutic engagement and produce positive outcomes; in the latter regard, extant studies have shown comparable outcomes to in-person care. The provider **should** maintain competence in integrity of both the process (e.g., building rapport and establishing a trusted environment) and the content (i.e., treatment components) of the intervention in relation to the technology and site's resources. Guided by research and available guidelines, the provider **should** carefully consider any adaptations to interventions based on the technology setting (e.g., the contextual setting for play, space for family).

Competency is best considered on a continuum of lifelong learning, as providers in practice and trainees need to stay current with rapidly evolving technologies, telemental health research findings, and policies. Foremost, providers **should** assess their clinical competence in providing care for child and adolescent populations, in the face of pressure to increase access to services for this underserved population. One map to telemental health competencies has been contextualized using the training milestones set forth by the Accreditation Council of Graduate Medical Education (ACGME).[186] ACGME uses a template with patient care, systems-based practice (SBP), interpersonal communication, professionalism, practice-based learning and knowledge domains; a technology competency and SBP components on administration, culture, and community engagement were added recently. When working with primary care sites, providers **may** consider competencies for medical-psychiatric illness, inter-professional practice, and integrated care. There is a growing consensus across allied mental health disciplines for such competencies.[187]

Several strategies help providers to build and maintain competencies. Providers and trainees **may** complete self-study.[114, 188] There is a range of online resources that provide dynamic information on the changing telemedicine landscape, including: professional organizations;[189] telehealth resource centers;[190] federal resources;[191] grant-supported resources;[192] and private companies. Potential telemental health providers **may** shadow an established provider to help consolidate interest and skills,

or opt not to use telemental health if it is not a good professional fit. Participating in telemental health committees or professional work groups and ongoing peer-to-peer support build knowledge and skills. Increasingly, training programs are incorporating telemental health rotations and seminars to teach technological approaches to health care, as well as to provide experience with improving access to care for diverse patient populations (e.g., rural families, American Indians).

C. Clinical Supervision and Telemental Health

Given the workforce shortages (see Section 3.c) with youth behavioral health, it is appealing to work with healthcare trainees in order to expose them early in their training to both telemental health best practices and opportunities to work with underserved populations. These experiences **may** range from shadowing a telemental health provider to formal telemental health training rotations. The supervisor **may** consider the range of telemental health training resources (e.g., online resources, readings, guidelines, etc.) to support the learning experience. In addition, videoconferencing-based supervision, or "telesupervision," offers innovative ways to extend supervision opportunities.[114] Videoconferencing offers an efficient means to provide consultation in evidence-based interventions to the staff at local mental health centers, primary care offices, or other distant sites serving youth.[12]

D. Future Directions in Telemental Health with Youth

Interventions that have been successfully utilized over telehealth for adult populations (e.g., exposure therapies) **should** be evaluated with youth populations. Documentation of successful interventions will help to expand the evidence base for CATMH as requests for services accelerate due to the increasing disparity between the demand for mental healthcare services and the supply of child and adolescent-trained providers. This increasing disparity also calls for the inclusion of CATMH in evolving models of collaborative and integrated care.[191] Many emerging evidence-based interventions support community-engaged approaches that are available to collaborate with child-serving systems to address the complex problems faced by youth and their families. Telemental health may efficiently link child-serving systems and teams together to enhance care. Establishing initial and ongoing competencies is encouraged to ensure that the same level of safe and effective care is delivered using telemental health as during in-person care, particularly as the regulatory and technological landscape changes.

Going forward, expanded CATMH will be supported by the continued evolution of secure, high speed, mobile videoconferencing options across the range of current and future devices. This will further expand telemental health service delivery sites and to unsupervised settings such as the home and youth mobile devices. With this expansion comes the need for careful consideration and evaluation of services to maximize benefit for youth and families, minimize risk, and optimally support community stakeholders. Research will be needed to test models of care, to evaluate quality improvement efforts, and to examine the effectiveness of CATMH services, particularly with diverse populations. These efforts are facilitated by the ATA's lexicon[193] and by efforts toward a standard telemental health evaluation model.[194]

Emerging behavioral health models[195] look at matching the range of health technologies to the needs of youth and their families. CATMH providers can look to a future that integrates telemental health services with applications in social media, asynchronous mental health, mHealth, virtual technologies, virtual reality, augmented reality, intelligent wearable devices, and artificial intelligence—all to improve

the quality and effectiveness of youth-centered care for all young people in need of mental healthcare services.

SUMMARY

The evidence-base supporting the effectiveness of CATMH is developing incrementally. The existing research, published reports, and clinical expertise indicate that CATMH is feasible, acceptable to referring PCPs as well as to patients and their families, and increases access to care for youth who are not well served by traditional models of care. Multiple studies have found that the therapeutic relationship is preserved during sessions. Clinical outcomes appear comparable to the same interventions delivered in-person and superior to care that is routinely available in distant communities. Further work is now needed to investigate the range of applications appropriate for CATMH and to examine their effectiveness.

While awaiting further research to establish an evidence-base, best practices for CATMH indicate consideration of several modifications from general adult practice. A needs assessment will determine the feasibility and sustainability of a CATMH program, particularly as scarce resources are allocated to the adult chronically mentally ill. Legal guidelines may vary for services delivered to youth. Collaborative relationships are needed with community stakeholders, such as schools and PCPs. The teleprovider must work carefully with the site to determine the resources required for successful sessions, such as the size and configuration of the treatment room, its accoutrements, and accommodations for accompanying adults. The telepresenters' roles will usually be expanded beyond tasks outlined for adult sessions, including assistance with behavioral management during the session and coordination with the youths' system of care between sessions. As for adult telemental health practice, the choice of technologies should consider resources at both the provider and patient sites, but should additionally consider the bandwidth, monitor resolution, and camera functionality needed to assess children's clinical features and to practice interventions such as teaching parents behavioral management skills.

As the growing need for child- and adolescent-trained mental health providers will not be met in the foreseeable future, technology will be leveraged to increase access to and improve the quality of mental healthcare available for all youth. CATMH programs should, and must be, implemented as part of mainstream mental healthcare.

CONCLUSIONS

To conclude, the ten top, or most salient, modifications of telemental health practice for work with children and adolescents, includes the following:

- **T**echnology options **may** vary by site. Providers **shall** choose videoconferencing technology that is appropriate to the clinical application. Bandwidth, screen size, and camera functionality all affect the youth's developmental assessment including appreciation of motor skills, language abilities, interests and relatedness.

- **E**nvironment **should** facilitate the assessment, particularly of younger children, by providing an adequate room size, furniture arrangement, toys, and activities that allow the youth to engage with the accompanying parent, presenter, and provider and demonstrate age-appropriate skills.

- **L**egal and regulatory guidelines vary across states. The provider **shall** practice within the jurisdictional policies and regulations for the treatment of youth with particular attention to the age of majority, consent to care, and mandated reporting. Special attention **should** focus on regulatory issues in the treatment of vulnerable youth, such as those in state custody.

- **E**xtended participation of family members, or other relevant adults, is typical of mental health treatment of children and adolescents, including CATMH. Providers **should** adhere to usual in-person practice for including relevant adults, with appropriate modifications for delivering service through videoconferencing. Extended participation **may** include a "presenter." Providers **should** consider how the "presenter" **may** facilitate sessions (e.g., vital signs, assistance with rating scales, managing active children, assisting with any urgent interventions) and train the "presenter" accordingly. Providers **should** consider how the presenter's involvement **may** adversely affect service delivery (e.g., social familiarity with the family, perceived confidentiality, sharing information with other team members).

- **M**edication interventions, their therapeutic benefits and adverse effects **should** be monitored and documented. Providers **may** choose the approach to monitoring and documentation. Medications designated as "controlled substances" by the DEA need special considerations for CATMH, particularly for the treatment of youth with ADHD.

- **E**xtra-clinic settings are common treatment sites for youth due to their involvement in school-based health clinics, telemental health consultation to a youth's system of care, and to correctional settings. When CATMH services are delivered outside of traditional clinic settings, providers **should** work with staff to ensure safety, privacy, appropriate setting, and accommodations particularly if multiple staff participate in sessions, such as in school IEP meetings or forensic evaluations.

- **N**eeds assessment **may** help to determine the site's readiness and feasibility for implementing a telemental health treatment service for youth, as well as the potential for sustainability in the face of multiple competing funding demands.

- **T**eletherapy **should** adhere to evidence-based and best practice guidelines developed for in-person treatment with consideration of modifications needed to reliably implement interventions through videoconferencing. Providers **should** work with "presenters" to set up and facilitate the sessions, as needed. Therapeutic benefits and adverse effects **should** be documented.

- **A**ppropriateness for telemental care **shall** consider safety of the youth, the availability of supportive adults, the mental health status of those adults, and ability of the site to respond to any urgent or emergent situations. Safety protocols **should** be established

- **L**earn and update competencies with youth. The variety of sites in which mental healthcare services are delivered to youth (e.g., mental health clinics, primary care clinics, schools, community sites, home) and the variety of providers (master's trained therapists, primary care

providers, psychologists, psychiatrists, school counselors, behavioral therapists, others) indicate considerable differences across providers in training and skills for treating youth. Clinicians providing CATMH services **shall** ensure their competencies in treating youth and delivering treatment through videoconferencing.

APPENDIX

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GLOSSARY

This guideline uses the nomenclature set forth by the American Telemedicine Association,[196] and used in other guidelines as well as the California Telemedicine and eHealth Center Glossary.[197] Several terms specific to child and adolescent mental health follow:

- **Young people or youth**: the guideline is broadly inclusive of children and adolescents across the 0-21 year age range, as defined by the National Institutes of Health. If a section is specific to children or adolescents, the guideline uses that developmentally specific term. For youth being seen through telemental health, the terms "patient" and "client" are used interchangeably.

- **Parents:** the adults with responsibility for caring for the youth, including biological parents, adoptive parents, foster parents, relatives, and other adult guardians who are in the parenting role.
- **Mental health:** "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community."[198]

- **Mental illness:** "collectively all diagnosable mental disorders" or "health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning." In this guideline we also include youth with developmental disabilities who present for mental health care.[199]

- **Mental health services:** services that promote mental health and/or intervene in relation to mental illness, including prevention, assessment, treatment, consultation, and maintenance/support

- **Providers:** also called "teleproviders". Any licensed professional using videoconferencing to provide care synchronously regardless of discipline.

- **Telemedicine:** the use of medical information exchanged from one site to another via electronic communications to improve patients' health status.

- **Telehealth:** the term is often used to encompass a broader definition of remote healthcare that does not always involve clinical services. Videoconferencing, transmission of still images, eHealth including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth.

- **Telemental health:** also called telebehavioral health. An umbrella term to refer to all of the names and types of behavioral and mental health services that are provided via synchronous telecommunications technologies.

- **Telepractice:** The clinical practice of mental health care through videoconferencing.

- **Telepsychiatry:** the specific provision of psychiatric care through videoconferencing

- **Telepsychology:** the specific provision of psychological care through videoconferencing.

- **Presenter (Patient Presenter), also known as a telepresenter:** An individual with a clinical background trained in the use of telehealth equipment who must be available at the originating site to "present" the patient, manage the cameras and perform any "hands-on" activities to complete the tele-exam successfully

- **Facilitator, also known as a telefacilitator:** An individual who may or may not have a clinical background who is present with the patient during a telemedicine encounter. Responsibilities **may** vary with practice site, but **may** include scheduling, organizing, executing the connection and/or patient presenter functions. Examples **may** include a clinical provider, support staff or parent/guardian.

- **Telemedicine coordinator:** the telemedicine coordinator is often the presenter. This professional, at the patient site, serves as a liaison between the provider and the family and assists with scheduling, paperwork, and follow-up.
- **Provider Site:** the location of the clinician rendering the specialty or consultative services. This has been referred to as the "remote site" or "hub" for programs that coordinate services to multiple patient sites.

- **Patient Site:** The site where the patient is presented during a telemedicine encounter, or where the professional requesting consultation with a specialist is located. This has been referred to as the "originating site" or the "spoke site" for programs that deliver services to multiple different sites. For clarity we use the term patient site.

- **Videoconferencing:** Also called televideo or videoteleconferencing. Interactive teleconferencing with video capabilities.

- **Clinically supervised setting.** Telemental health settings with clinical staff on site with the youth, most often including a presenter.

- **Clinically unsupervised setting.** Telemental health settings without clinical staff on site with the youth, such as when care is provided directly to a patient who is located in his or her home at the time of the contact.

TABLE: EFFECTIVENESS OF CHILD AND ADOLESCENT TELEMENTAL HEALTH

EFFECTIVENESS OF CHILD AND ADOLESCENT TELEMENTAL HEALTH			
CITATION	**SAMPLE & TOPIC**	**ASSESSMENT METHODS**	**COMMENTS ON FINDINGS**
Outcome of Randomized Controlled Trials by Disorder			
Nelson et al.,[13] 2003	28 youth (age 8-14 years; M=10.3 years) Depression	Diagnostic interview and rating scale for depression	CBT intervention for depression; TMH and in-person intervention showed comparable reduction in depressive symptoms
Storch et al.,[15] 2011	31 youth (age 7-16 y/o; M=11.1 y/o) OCD	Diagnostic interview and rating scales for OCD, anxiety and depression	TMH superior to in-person intervention on all measures
Himle et al.,[11] 2012	20 children (age 8-17y/o) Tourette's Disorder or Chronic Motor Tic Disorder	Diagnostic interview and rating scales for tic disorders and functional impairment	TMH and in-person interventions showed comparable symptom reduction and functional improvements
Xie, et al.,[16] 2013	22 children (age 6-14y/o) ADHD and Behavioral disorders	Symptom rating scales, parenting skills, functional impairment	TMH-service delivery as effective as in-person delivery for parent skills and children's improved behaviors
Myers et al.,[12] 2015	223 youth (age 5 – 12 y/o) ADHD and ODD	Diagnostic interview, symptom rating scales, functional impairment	TMH short term intervention was more effective than single PCP teleconsultation in improving ADHD, ODD, role performance and impairment

Tse et al.,[113] 2015	38 youth (ages 5 to 12 y/o) ADHD and ODD	Diagnostic interview, symptom rating scales, functional improvement	TMH delivery of parent training as effective as in-person delivery
Comer et al.,[110] 2016	22 children (4-8 y/o; M=6.5 y/o) OCD	Family-based CBT for OCD; utilization, engagement, satisfaction rating scales, functional impairment.	TMH was feasible for the delivery of FB-CBT; Symptom and functioning utcomes were comparable for TMH and in-person treatment at post-treatment and follow-up
Pre-Post or Comparison Studies			
Glueckauf et al.,[111] 2002	22 adolescents (age: M=15.4y/o) 36 parents Family conflict and children with epilepsy	Symptom rating scales, alliance, issue-specific measures of family problems, adherence to treatment	TMH, telephone, and in-person equally effective in reduction of symptoms and problem severity. Therapeutic alliance high.
Fox, et al.,[29] 2008	190 youth in juvenile detention (age 12-19 y/o; M=17 y/o) Goal Attainment	Attainment of goals formulated during incarceration	TMH services were associated with teens' attaining goals formulated during incarceration to improve family relations and problematic behaviors.
Yellowlees, et al.,[122] 2008	41 children in an e-mental health program Oppositional behaviors in boys; Affective symptoms in girls	Broad band rating scale assessing spectrum of behavior and symptoms (Child Behavior Checklist)	Videoconsultation to PCPs associated with 3-month improvements in the Affect and Oppositional Domains of the Child Behavior Checklist.
Reese et al.,[112] 2012	8 children (age: M=7.6 y/o ADHD	Parenting intervention' rating scales	TMH associated with improved child behaviors and decreased parent distress
Satisfaction, Feasibility and Utilization Studies			
Blackmon et al.,[91] 1997	43 children (age 2-15 y/o; M=9 y/o)	Consultation evaluation scale	TMH comparable to in-person intervention
Elford et al.,[92] 2001	30 children (age: 4-16 y/o; M=13 y/o) Various disorders	Questionnaire	TMH evaluation associated with high satisfaction of children, teens, parents, and psychiatrists
Kopel et al.,[96] 2001	136 "young persons" Various disorders	Questionnaire	TMH consultation associated with high satisfaction by families and rural health workers in Australia.
Myers et al.,[83] 2004	159 youth (age 3-18 y/o) Various disorders	Demographic, diagnostic, utilization, payer status	TMH patients in distant communities were demographically and clinically representative of patients in in-person clinic. More "adverse case mix" for TMH sample. Parents endorsed high satisfaction with care.
Greenberg et al.,[93] 2006	35 PCP's, 12 caregivers (Mean age: 9.3 y/o) Various disorders	Focus groups with PCP's, interviews with caregivers	PCPs and caregivers in rural Canada endorsed high satisfaction with TMH consultations but frustration with

			ability to implement telepsychiatrists' recommendations
Myers et al.,[100] 2006	115 incarcerated youth (age 14-18 y/o) Various disorders	Satisfaction survey	Incarcerated youth endorsed high satisfaction with TMH care. Describes diagnostic assessment and medication management of incarcerated youth; consultation with staff
Hilty, et al.,[94] 2006	15 PCP's for children and adults --- 400 patients (number of children not specified) Various disorders	PCP satisfaction survey	PCP satisfaction was high and increased over time
Boydell et al.,[79] 2007	100 consultations and 54 case managers Various disorders	Interviews with case managers telepsychiatrists' recommendations	Multiple system-level and patient-level factors and local availability of resources affected implementation of recommendations. Technology was not identified as an issue
Myers et al.,[84] 2007	172 patients (age 2-21 years old) 387 visits Various disorders	Satisfaction survey	PCPs endorsed high satisfaction with TMH services Pediatricians more satisfied than family physicians
Myers et al.,[85] 2008	172 patients (age 2-21 y/o) 387 visits Various disorders	Parent satisfaction survey	Parents endorsed high satisfaction with TMH services; greater satisfaction for TMH with children than with teens.
Boydell et al.,[80] 2010	30 "young people" Various disorders	Qualitative study of youths' perspective	Participants expressed the importance of their relationship with the psychiatrist and noted how they actively took responsibility and exerted control within the session
Myers et al,[31] 2010	190 PCP's 701 patients (7 to 18 y/o) Various disorders	Patient demographics, diagnoses, utilization.	TMH with young people was feasible and acceptable; variable implementation across telepsychiatrists
Pakyurek et al.,[97] 2010	5 Children/adolescent in primary care Case studies	Descriptive effectiveness	General satisfaction; opinion that TMH **may** be superior to in-person for consultation for selected patients
Lau et al.,[88] 2011	45 children and adolescents (age: 3-17 y/o; M=9.7 y/o) Various disorders	Description of patients referred for consultation, reason for consultation, treatment recommendations	TMH reaches a variety of children, with consultants providing diagnostic clarification and modifying treatment plans
Jacob et al.,[95] 2012	15 children (age 4-18 y/o; M=9.73 y/o) Various disorders	Parent Satisfaction Survey	Patient satisfaction high and PCPs found recommendations helpful.

Nelson et al.,[135] 2012	22 youth (M=9.3 y/o) ADHD	Chart review	TMH delivery of ADHD treatment feasible.
Szeftel et al.,[41] 2012	45 patients – 31 of them under 18 y/o Developmental disorders	Description of utilization, diagnostic evaluation, symptom severity, medication changes, symptom improvement	TMH consultation altered diagnosis and changed medication regimen. TMH helped PCPs with recommendations for developmental disabilities.
Diagnostic Validity			
Elford et al.,[87] 2000	25 children (age 4-16 y/o) Various disorders	Diagnostic interviews	TMH evaluation showed 96% concordance with in-person evaluation.
Stain et al.,[90] 2011	11 adolescents and young adults (age 14-30 y/o) Psychotic disorders	Diagnostic interview	TMH-assessed diagnoses were strongly correlated with assessments conducted in-person
Reese et al.,[89] 2013	21 children (age: 3-5 y/o) Autism	Diagnostic interviews, symptom rating scales, parent satisfaction	TMH and in-person structured diagnostic evaluations comparable in reliability, accuracy, observer-report and parent-report of symptoms, and parent satisfaction
Psychosomatic Pediatrics Interventions			
Clawson et al.,[128] 2008	15 youth (age 8 months – 10 y/o) Pediatric feeding disorders	Rating scales for family satisfaction, psychiatrists' satisfaction, outcomes	TMH was feasible with the pediatric feeding disorder population and resulted in cost-savings. Psychiatrists satisfied with modality
Shaikh et al.,[106] 2008	99 youth (age 1-17 y/o) Obesity and weight management	Retrospective review of patient medical records	TMH consultation associated with changes to diagnoses. A subtest of patients with repeated sessions showed improved health behaviors, weight maintenance, and/or weight loss
Witmans et al.,[130] 2008	89 children (age 1-18 y/o; M=7.5 y/o) Sleep disorders	Sleep diary; Childhood Sleep Habits; rating scales; satisfaction survey	TMH consultation on sleep management was feasible. Patients were satisfied with the delivery of multidisciplinary pediatric sleep medicine services through TMH
Mulgrew et al.,[129] 2011	25 youth (age 4-11 y/o) Obesity/weight management	Consulting psychiatrists' listening skills and patients' ease of understanding instructions, quality of care, satisfaction	TMH consultation for weight management was rated by parents as less effective than in-person consultations in explaining children's health condition. Parents endorsed comparable satisfaction with the two service delivery models.
Davis et al.,[105] 2013	58 youth (age 5-11 y/o; M=8.6 y/o)	Family-based multi-disciplinary behavioral group intervention. Body Mass Index (BMI),	TMH multi-disciplinary intervention and a structured PCP visit showed comparable

	Obesity/weight management	24-hr dietary recall ActiGraph, rating scales Feeding assessment scale	improvements regarding BMI, nutrition, physical activity. TMH appears a feasible approach to interventions for weight management
Freeman et al.,[127] 2013	71 youth (Mean age=15 y/o) Teens with poorly controlled diabetes	Family-based behavioral intervention, rating scale for therapeutic alliance, service utilization	TMH and in-person service delivery showed comparable therapeutic alliance for youth with poorly controlled diabetes and their parents. TMH treatment of youth with diabetes is feasible
Hommel et al.,[131] 2013	9 youth (M=13.7 y/o) Inflammatory bowel disease	Brief intervention for multi-component non-adherence treatment protocol Pill count, disease severity, feasibility, acceptability,	TMH intervention for inflammatory bowel disease is feasible and well accepted by families with cost savings due to decreased travel. Adherence to treatment regimen varied for the medications involved.
Lipana et al.,[132] 2013	243 youth (M=11 y/o) Obesity/weight management	Review of medical records comparing patients in different service models regarding demographics, utilization, diagnostic change, nutrition, activity level, screen time, weight management	TMH service delivery was feasible. Outcomes were comparable to the non-randomized in-person comparison group regarding enhanced nutrition, increasing activity, and decreasing screen time
ADHD: attention-deficit hyperactivity disorder; CBCL: Child Behavior Checklist; CBT: cognitive-behavioral therapy; PCP: primary care provider; OCD: obsessive compulsive disorder; ODD: oppositional defiant disorder; PCP: primary care provider; TMH: telemental health			