CHAPTER 6.3.5 ■ TELEPSYCHIATRY WITH CHILDREN AND ADOLESCENTS

[AQ1]

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OVERVIEW

Telemedicine services are increasingly used to meet the treatment needs of children and adolescents who live in underserved communities (1). The Centers for Medicare and Medicaid Services (CMS) define *telehealth* as the use of telecommunications and information technology (IT) to provide access to health assessment, diagnosis, intervention, consultation, supervision, and information across distance (2). CMS notes that "for purposes of Medicaid, *telemedicine* seeks to improve a patient's health by permitting two-way, real-time interactive communication between the patient, and the physician or the practitioner at the distant site. This electronic communication means the use of interactive telecommunications equipment that includes, at a minimum, audio and video equipment" (3). When telemedicine is used to provide psychiatric— or more generally mental health—services, the terms "telepsychiatry" and "telemental health" (TMH), respectively are used (4–6). As telepsychiatry is not a specialty area but a mode of service delivery, and as the trend nationally is to consider telepsychiatry services equivalent to in-person services, we use the term "provider" to refer to psychiatrists using either mode of service delivery.

DEVELOPMENT OF CHILD AND ADOLESCENT TELEPSYCHIATRY

The Case for Telepsychiatry

The past two decades have brought considerable insights into the early onset of psychopathology, new approaches to pharmacologic treatment, and the development of effective psychotherapies for youth. Yet, most young people with psychiatric disorders do not receive these evidence-based treatments (EBTs), particularly youth living outside of major metropolitan areas (7,8). Furthermore, this discrepancy in access to care is anticipated to grow due to the "aging out effect" of the current psychiatric workforce while fewer medical students choose careers in psychiatry (9,10) and federal mandates have broadened children's eligibility for mental health services (11). According to the United States Bureau of Health Professions, the United States will have only two-thirds of the child and adolescent psychiatrists required to meet needs in 2020 (12).

Federal mandates for mental health care reform have converged with technologic innovations to make telepsychiatry a viable service delivery model for youth who are underserved by traditional models of care. The *Federal Health IT Strategic Plan: 2015–2020* (13) has prioritized the adoption of meaningful health IT with focus on delivery of behavioral health services and reforming payment systems.

The Expansion of Telepsychiatry

As for many other technology-facilitated domains, the practice of telepsychiatry has quickly expanded beyond the intended goal of rectifying disparities for distant communities (14–16). Telepsychiatry services are increasingly offered in diverse settings, including urban and inner city communities (17), mental health centers and other child-serving facilities (15,18,19), correctional settings (20,21), schools (22,23), and the home (24). Telepsychiatry may be a career choice for child and adolescent psychiatrists. For example, those with expertise in treating selected disorders (e.g., obsessive-compulsive disorder [OCD]), cultural/language populations (e.g., Hispanics, Alaska Natives), or relocated groups (e.g., military, refugees, disaster survivors) may seek to export their practices beyond usual constraints of office practice. Other enterprising child and adolescent psychiatrists may enjoy the alternative professional lifestyle that telepsychiatry offers.

THE EVIDENCE-BASED SUPPORTING TELEPSYCHIATRY

The evidence-based supporting telepsychiatry as an effective service-delivery model is well developed with adults and emerging gradually with children and adolescents. Support may be gleaned from reports on the feasibility and acceptability of telepsychiatry with youth, and several outcomes studies, summarized in Table 6.3.5.1, and briefly summarized.

Some providers suggest that telepsychiatry may be especially suited for adolescents who are accustomed to the technology and may respond to the personal space and feeling of control allowed by videoconferencing (22,46) and have decreased concerns about confidentiality as the provider is outside of the local community (27,54).

Multiple studies have demonstrated the feasibility of implementing telepsychiatry services with young people across diverse settings (14–16,19,50,55–59). Youth 2 to 21 years old with a broad range of behavioral health diagnoses and developmental disorders have been evaluated through videoconferencing (15,19,47,49,55). School-aged children comprise the modal age group, and attention-deficit/hyperactivity disorder (ADHD) and depression are the most commonly treated disorders, consistent with in-person care (15,19,25). Children who are uncooperative pose challenges but can be treated with assistance by staff at the patient site. Providers determine the appropriateness of youth for care via telepsychiatry based on developmental considerations, parents' preferences, supports at the patient site, and the provider's resourcefulness.

Diagnostic assessments have been reliably conducted through videoconferencing (15,42,44,47), including disruptive behavior disorders (28), autism and other developmental disorders (49,52), and psychotic disorders (48). Multiple studies

TABLE 6.3.5.1

EVIDENCE-BASED SUPPORTING SERVICES TO CHILDREN AND ADOLESCENTS THROUGH VIDEOTELECONFERENCING (VTC)

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Citation	Sample	Assessment	Findings
Randomized Controlled Trials			
Nelson et al., 2003 (25)	28 youth (8–14 yrs) with depression	Diagnostic interview and rating scale	VTC and in-person treatment with comparable improvement of depressive symptoms
Storch et al., 2011 (26)	31 youth (age 7–16 yrs) with OCD	ADIS-IV-C/P, CY-BOCS, COIS, MASC, CDI, Satisfaction with services	VTC superior to in-person on all primary outcome measures
Himle et al., 2012 (27)	20 children (8–17 yrs) with Tic Disorders	YGTS, PTQ, CGI-S, CGI-I	VTC and in-person groups show comparable tic reduction
Myers et al., 2015 (28)	223 youth (5.5–12.9 yrs) with ADHD	DISC-IV, CBCL, VADPRS, VADTRS, CIS	Children in the VTC group with greater parent-rated improvement in ADHD-related behaviors than those in augmented PCP group. Teachers reported improvement in ODD and role performance, but not ADHD
Vander Stoep et al., 2017(29)	223 caregivers of youth (5.5–12.9 yrs) with ADHD	Caregiver distress measures: PHQ-9, PSI, CSQ, FES	Caregivers of children in the VTC group reported greater improvements in distress measures than caregivers in the augmented PCP treatment group.
Rockhill et al., 2016 (30)	223 youth (5.5–12.9 yrs) and providers	DISC-IV, CBCL, VADPRS, telepsychiatrists', and PCP's prescribing patterns	Telepsychiatrists with high fidelity to protocols and more assertive in achieving 50% reduction in ADHD than PCPs
Tse et al., 2015 (31)	37 youth (5.5–12.9 yrs) of the larger 223 participant sample	VADPRS, PHQ-9, CSQ, PSI, FES, Satisfaction	VTC delivery of caregiver training was comparable to in-person delivery in improving children's ADHD symptoms but not caregivers' distress
Xie et al., 2013 (32)	22 children (6–14 yrs) with behavioral disorders	PCQ-CA, VADPRS, CGAS	Parent training through VTC was as effective as in-person
Pre-Post or Comparison Studies			
Glueckauf et al., 2002 (33)	22 adolescents (M = 15.4 yrs) 36 parents	SSRS, WAI, issue-specific measures of family problems, adherence to treatment	Comparable improvement for intervention through VTC vs. in-person vs. speakerphone; therapeutic alliance high but teens rated alliance lower in VTC
Fox et al., 2008 (34)	190 youth (12–19 yrs) in detention	GAS	Improvement in the rate of attainment of goals associated with family relations and personality/behavior
Yellowlees et al., 2008 (35)	41 children in an e-mental health program	CBCL	A retrospective assessment of 3-mo outcomes found improvements in selected Domains of the CBCL
Reese et al., 2012 (36)	8 children (M = 7.6 yrs)	ADHD	Group Triple P Positive Parenting Program via VTC associated with improved child behavior and decreased parent distress
Satisfaction Studies			
Blackmon et al., 1997 (37)	43 children (2–15 yrs)	12-item Telemedicine Consultation Evaluation	All children and 98% of parents report satisfaction equal to in-person care
Elford et al., 2001 (38)	30 children (4–16 yrs)	Satisfaction Questionnaire	Psychiatrists, children, teens, parents, endorsed high satisfaction with VTC
Kopel et al., 2001 (39)	136 participants (age not specified—refers to "young person")	Satisfaction Questionnaire	High satisfaction by families and rural health workers in New South Wales, Australia
Greenberg et al., 2006 (40)	35 PCPs, 12 caregivers (mean age of children: 9.3 yrs)	Focus groups with PCPs, interviews with caregivers	PCP and caregiver satisfaction with VTC, limitations of local supports
Hilty et al., 2006 (41)	15 PCPs (400 children and adults)	PCP Satisfaction Survey	PCP satisfaction was high and increased over time
Myers et al., 2007 (19)	172 patients (2–21 yrs) and 387 visits	11-item Psychiatrist Satisfaction Survey	High satisfaction of PCPs, pediatricians more satisfied than family physicians
Myers et al., 2008 (16)	172 patients (2–21 yrs) and 387 visits	12-item Parent Satisfaction Survey	High satisfaction and increasing with return visits; lower satisfaction with care for teens than for children

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TABLE 6.3.5.1

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Citation	Sample	Assessment	Findings
Myers et al., 2010 (42)	701 patients (7–19 yrs) and 190 PCPs	Collection of patient demographics and diagnoses	VTC with youth is feasible and acceptable; services vary with telepsychiatrists' practices
Pakyurek et al., 2010 (43)	5 case studies of youth in primary care	Effectiveness of VTC in treating a range of problems	VTC might be superior to in-person for selected groups
Lau et al., 2011 (44)	45 youth (3–17 yrs)	Description of patients referred for consultation, reason for consultation, treatment recommendations	VTC consultation provides diagnostic and treatment clarifications to a variety of children
Descriptive and Service Utilization			
Myers et al., 2004 (15)	159 youth (3–18 yrs)	Comparison VTC vs. in-person care on demographic and process variables	VTC patients were representative of in-person outpatients demographically, clinically, and by reimbursement
Myers et al., 2006 (21)	115 incarcerated youth (14–18 yrs)	11-item Teen Satisfaction Survey, medication management	Describes large series of incarcerated youth, including medication management
Jacob et al., 2012 (45)	15 children (4–18 yrs)	12-item Parent Satisfaction Survey	Patient satisfaction high and PCPs found recommendations helpful.
Nelson and Bui 2012 (46)	22 youth (M = 9.3 yrs)	Chart review	No factor inherent to the VC delivery mechanism impeded adherence to national ADHD guidelines
Diagnostic Validity			
Elford et al., 2000 (47)	25 children (4–16 yrs) with various diagnoses	Diagnostic interviews	96% concordance between VTC and in-person evaluations; comparable satisfaction
Stain et al., 2011 (48)	11 patients (14–30 yrs)	Diagnostic Interview for Psychosis, DIP-DM	Strong correlation of assessments done VTC vs in-person
Reese et al., 2013 (49)	21 children (3–5 yrs)	ADOS—Module 1, ADI-R, Parent Satisfaction	VTC comparable to in-person for diagnostic accuracy, observations, parents' report of symptoms, and satisfaction
Other Relevant Studies			
Boydell et al., 2007 (50)	100 youth (2–17 yrs)	Chart review and interviews with case managers	Pros and cons of adherence
Shaikh et al., 2008 (51)	99 youth (1–17 yrs)	Review of patient medical records	VTC consultations associated with changes to diagnoses; repeated VTC consultations associated with improved weight-related status
Szeftel et al., 2012 (52)	45 patients (31 under 18 yrs) with developmental disabilities	Chart review—medication changes, frequency of appointments, diagnostic changes, symptom severity and improvement	VTC led to change of psychiatric diagnoses for 70% of patients, changed medication for 82% of patients, helped PCPs with treatment
Davis et al., 2013 (53)	58 youth (5–11 yrs)	Body mass index, 24-hr dietary recall, ActiGraph, CBCL, BPFAS	Two groups included and showed comparable improvements in BMI, nutrition, physical activity, and primary outcomes

ADI-R, Autism Diagnostic Interview—Revised; ADIS-IV-C/P, Anxiety Disorders Interview Schedule—Child/Parent Version; ADHD, attention-deficit/hyperactivity disorder; ADIS-IV-C/P, Anxiety Disorders Interview Scale—DSM-IV-Parent and Child Versions; ADOS, Autism Diagnostic Observation Scale; BPFAS, Behavioral Pediatrics Feeding Assessment Scale; CBCL, Child Behavior Checklist; CDI, Children's Depression Inventory; CGAS, Clinical Global Assessment Scale; CGI-I, Clinical Global Impressions of Improvement Scale; CGI-S, Clinical Global Impressions of Severity Scale; CIS, Columbia Impairment Scale; COIS, Child Obsessive Compulsive Impact Scale; CSQ, Caregiver Strain Questionnaire; CY-BOCS, Child Yale-Brown Obsessive Compulsive Scale; DIP-DM, XXX; DISC-IV, Diagnostic Interview Scale for Children for DSM-IV; BMI, body mass index; FES, Family Empowerment Scale; GAS, Goal Attainment Scale; MASC, Multi-dimensional Anxiety Scale for Children; PCQ-CA, Parent Child Relationship Questionnaire; PTQ, Parent Tic Questionnaire; PCP, primary care provider; PHQ-9: Patient Health Questionnaire-9 Items; PSI: Parenting Stress Index; OCD: obsessive compulsive disorder; ODD: oppositional defiant disorder; SSRS, Social Skills Rating System (teen functioning); VADPRS, Vanderbilt ADHD Parent Rating Scale; VADTRS, Vanderbilt ADHD Teacher Rating Scale; VTC, videoteleconferencing; WAI, Working Alliance Inventory; YGTS, Yale Global Tic Severity Scale.

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have demonstrated the acceptability to referring primary care providers (PCPs), parents, and youth of delivering services through videoconferencing (15,16,19,37–41,43–45,52). Satisfaction studies demonstrate the ability to develop a therapeutic alliance with youth and families during a virtual visit (60).

The delivery of pharmacotherapy through telepsychiatry has been described with youth in schools (61), mental health centers and daycare (17), outpatient settings (15,16,19,42), and juvenile justice facilities (20,21). One recent large community-based randomized trial provides solid evidence of the effectiveness of short- term pharmacotherapy for ADHD delivered by child and adolescent providers compared to treatment in primary care (28). Further, providers demonstrated good adherence to guideline-based pharmacotherapy (30).

There is a strong literature supporting the feasibility of conducting psychotherapy with adults through videoconferencing (62–66) and a developing literature supporting outcomes that are comparable to care delivered in-person (63). Most studies of psychotherapy conducted with young people have been descriptive (14,58,65). Nelson and Patton identified 10 psychotherapy studies (65). Intervention approaches varied in focus on the youth or the parent and ranged from feasibility trials to pre-post designs, and a few controlled trials. Findings were overall positive related to feasibility, satisfaction, and outcomes. This review also identified several case reports and small pilot studies on psychosomatic medicine, addressing mental health approaches for youth with acute and chronic medical conditions, including obesity (51,53).

Several randomized trials of psychotherapy are noteworthy. Nelson et al. found comparable reductions for childhood depressive symptoms treated with eight sessions of cognitive-behavioral therapy (CBT) delivered through videoconferencing versus in-person (25). Storch et al. tested the effectiveness of treatment for OCD and found superior outcomes to children treated in-person (26). The behavioral treatment of tics through telepsychiatry has been found to be comparable to in-person treatment (27). Four small randomized controlled trials have demonstrated the effectiveness of providing family interventions (31–33,36). A recent case report describes family-based interventions for eating disorders (67).

LEGAL, REGULATORY, AND ETHICAL ISSUES

Licensure is a complex issue. The 10th Amendment of the United States Constitution grants the individual States control over establishing and enforcing licensure requirements for health care professionals (68). The potential of telepsychiatry to deliver care across boundaries has challenged the limits of the state-based licensure system and stimulated discussion of alternative approaches such as national licensure, specific telemedicine licensure, and reciprocity of licensure (69). However, movement on this issue is slow.

National organizations differ in their policies and guidelines. While the Federation of State Medical Boards requires physicians to be licensed in the state where the patient is located, it supports the creation of an "interstate compact" licensure system (70), while the American Medical Association supports the existing state-based licensure system. The American Telemedicine Association (ATA) guidelines recommend that health professionals comply with all laws and regulations in both the patient's and provider's sites (71). Some states allow reciprocity of license to neighboring states (72). Providers should check with the requirements of the state medical boards where they plan to deliver services.

Location of Telepsychiatry Services vary by state with respect to the physical location of both the patient and the provider. Generally approved sites include medical and mental health facilities. More variably approved are assisted living facilities, schools, other community sites, and the home. Special approvals may be negotiated with payers. There is a trend toward broadening state and federal guidelines for reimbursement for services delivered to schools and removing the requirement of a defined distance from available on-site services (73). Several states require a "presenter," or "telepresenter," to accompany the patient (73,74).

Authentication of the parties involved in a telepsychiatry encounter ensures accuracy of service delivery and protects against fraud. During the initial encounter with a patient, the provider should collect identifying information about the patient, including location (75). If the patient site is a health care facility, the staff may verify the patient's identity. Typically, providers begin the initial session by stating their name, credentials, and location (city and state). Such information is included in the documentation.

Privacy and Security must comply with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (76). Compliance is not achieved by following a simple checklist of technical requirements. Software vendors enter into a Business Associate Agreement with HIPAA attesting their due diligence to protect patient privacy and data and agree to an audit of patient health information if a security breach occurs. Potential providers should determine whether a technology vendor is compliant with HIPAA requirements and check relevant state privacy laws that may have more stringent requirements.

Informed Consent also involves a process that varies by state regarding the need for specific consent to receive services through videoconferencing (5). Some elements for consent include: confidentiality and the limits to confidentiality when using electronic communications; potential for technical failure, emergency plans; documentation, recording, and storage of information; protocols for coordination of care with other professionals and contact between sessions; and conditions under which services are terminated and a referral for in-person care made (77).

Emergency Care is a highly desired service for underserved communities. Local civil commitment laws, duty to warn/protect requirements, and mandated reporting of child endangerment vary by jurisdiction. Providers and staff prepare a crisis plan with the family and staff share the plan with other members of the patient's system of care. These crisis procedures are discussed at the initial encounter or as part of informed consent (78). The role of the parent in emergency service planning must consider age of consent.

Ethical Issues in telepsychiatry parallel issues encountered in traditional in-person services. The core ethical goal to protect the patient remains paramount (75,79–81).

TECHNICAL ASPECTS OF TELEPSYCHIATRY

Telecommunications technology refers to the technical methods, or protocols, used to establish a synchronous connection (82,83). The visual and auditory quality of the data must be good enough for the provider and patient to feel it has been an authentic medical experience. Selecting the best technology can be a daunting process because the technology is rapidly changing and many vendors offer a wide range of commercial plans.

Start the selection process by prioritizing the features and functions needed to deliver the clinical services. Second, consider the budget, staffing resources, and startup timetable. Third, decide if the program needs to connect to an existing videoconferencing network. The clinical goals of the program should influence the selection of technology, as specific clinical services and populations may require different technologies. For example, diagnosing genetic and neurodevelopmental disorders may require higher-resolution video to see cutaneous abnormalities while group therapy may require multiple

microphones, breakout group, and chat functions. Financial factors related to software subscriptions, hardware purchases, Internet service provider (ISP) contracts, space, and staffing play an important role in the selection of telecommunication technology. The provider and remote site staff must realistically consider their technical and financial ability to operate, and maintain the technology. Finally, deciding to extend an existing videoconferencing system or replace it with a cloud-based system will restrict the decision to a smaller number of vendors and technology options. Providers can learn more about buying technology from these commercial vendors and software companies at the ATA's Resource Center & Buyer's Guide website (84).

If the program will build upon an older system, it is likely a standards-based applications/platform, sometimes referred to as "legacy hardware." These proprietary systems offer the highest quality of audio and video, as well as the most stable data connection, giving participants the most life-like or "telepresence" experience. They transmit data over digital subscriber lines (DSL). This telephone company-based end-user connection transmits secure, point-to-point, high-bandwidth (≥1.5 mbps), high-definition video and audio signals over satellite or fiber-optic systems. Typical DSL broadband capacities are 1.5, 3, 5, 10, 12 mbps, which seem small compared to residential ISP plans that offer 300 mbps, but because these systems use a static Internet protocol (IP), they are guaranteed this speed at all times and the connection is more stable than the dynamic IPs used in residential connections. These systems also offer many sophisticated features including the ability to zoom and pan/tilt cameras at both sites, connect to medical devices like stethoscopes, and connect to multiple microphones, and large (and multiple) monitor systems. These features enable the provider to closely examine the patient and control how they view the participants in multipoint conferencing. These systems require technical support to operate with other legacy systems. Despite their superior functioning, standards-based systems are predominantly used in medical centers or other large organizations because they require a considerable initial investment and high costs for maintenance, technical staff, and related IT infrastructure.

Consumer-based software platforms transmit data over the Internet and the consumer interface software run on personal computers, tablets, and smartphones. Subscriptions to these cloud-based services are sold based on the number of users or accounts, ranging from free single account packages to enterprise-level subscriptions with hundreds of accounts. Enterprise-level contracts often include an option to purchase the software that would allow the consumer to host the service on its own server. Local hosting can greatly improve the telepresence quality of the videoconference. Software vendors who advertise telehealth solutions must provide appropriate software encryption and sign Business Associate Agreements to comply with HIPAA regulations.

Recent advances in both hardware and software signal compression has enabled these Internet-based systems to deliver the high-quality video and audio signals necessary for clinical work. They are highly flexible, adaptable, and consumer friendly, enabling rapid deployment to a variety of settings with minimal training, startup costs, and fixed costs. Interested purchasers should review their options on unbiased websites, such as the ATA website (http://www.americantelemed.org).

There are disadvantages to conducting telepsychiatry sessions over cloud-based applications that utilize the Internet. The foremost is the highly variable quality and speed of the connection, which impacts the quality of streaming audio and video. The connection quality and speed can be affected by many factors including nearby Internet traffic (for cable–modem connections), inclement weather, network failures, local electrical device interference to WiFi signals, and *Intranet* network traffic at the origination and destination sites. Other

FIGURE 6.3.5.1. External USB cameras improve picture and sound.

disadvantages to these cloud-based platforms include variable customer support from the vendor, a greater chance that end users will inadvertently alter the hardware or software, limited ability to connect peripheral devices such as a stethoscope, and usually no ability to control the camera at the patient's site. They usually do not connect to legacy videoconferencing devices installed in many health care centers, schools, and other organizations. While many systems provide adequate video and audio quality, the purchase of an external camera and microphone (Figure 6.3.5.1) can considerably improve quality of the interaction.

In summary, choosing the best videoconferencing platform is a complicated decision. Providers must consider their budget for initial and ongoing costs, the available bandwidth at all sites, the technical sophistication of users, access to technical support, and the need to control the remote equipment. Other helpful resources are available from the National Telehealth Technology Assessment Resource Center (http://www.telehealthtechnology.org) and the ATA (http://www.americantelemed.org).

ESTABLISHING A TELEPSYCHIATRY PRACTICE

The following is a brief overview of issues for potential providers to address in determining whether telepsychiatry is relevant to their clinical practice. More information can be found through the ATA (http://www.americantelemed.org) and the National Telehealth Technology Assessment Resource Center (http://www.telehealthtechnology.org).

Feasibility and Sustainability of a Telepsychiatry Practice

Telepsychiatry is poised to play an increasingly important role within pediatric health care systems. Services to primary care settings are anticipated to increase with national and state initiatives around the patient-centered medical home (85). Telepsychiatry is one strategy for incorporating mental health treatment into primary care settings and has the added potential for increasing the PCPs' skills in caring for mental health problems.

Determining the feasibility of a telepsychiatry service is based on an accurate needs assessment that identifies the mental health needs of the patient site and determines whether the proposed service is likely to meet those needs and to complement existing services. It is helpful to visit the patient site and meet with local stakeholders for services collaborative problem solving.

Sustainability of a telepsychiatry service is determined within the context of the community's needs. For example, a medical center may not benefit directly from a telepsychiatry service, but there could be financial benefit to the institution if emergency room services decrease. The community as a whole may also benefit from lower expenses related to correctional or educational services for youth. With technology costs lowering and an increasing number of insurers reimbursing telepsychiatry services, sustaining such a service without outside funding is becoming more possible. Telepsychiatry providers are encouraged to review information at the Center for Medicare and Medicaid Services website (www.cms.gov) and the ATA website (http://www.americantelemed.org) prior to any billing to determine any jurisdiction-specific guidelines.

Patient Population and Models of Care

The patients to be served should be identified by the patient site. Patient inclusion and exclusion criteria are based upon judgment of the provider, and resources at the patient site, including the site's ability to attend to acutely suicidal or agitated patients. Exclusion criteria may include factors such as youth without accompanying guardians, patients without a PCP, or patients with a PCP who is uncomfortable resuming care for psychiatric patients. Several models of care have been used to provide telepsychiatry services, including consultation, direct care, or collaboration with another provider (1,86,87). Some programs have developed specific models for consultation to primary care (19,35), including one that moves flexibly between consultation and direct care (42). When ongoing direct care is offered via telepsychiatry, a PCP should be identified to provide care when the provider is unavailable and to resume care when the patient becomes stable.

Private Practice Options

Telepsychiatry programs are no longer solely the purview of major medical centers. Private practice providers have several options (88,89). Those preferring more practice support may choose to work for a company offering a virtual group practice with a spectrum of services ranging from models that provide a high level of structure, including management of the videoconferencing technology and patient referrals, while contracting with providers for the clinical service (83). Providers who are confident with technology and referral sources may contract with a company that simply provides a secure web-based connection (88,89). The independent provider is then responsible for performing the needs assessment to determine whether the telepsychiatry service is needed, feasible, and sustainable, as well as to establish protocols addressing clinical, business, and regulatory issues (88,89).

THROUGH THE LOOKING GLASS: OVERCOMING THE CHALLENGES INHERENT IN CREATING AUTHENTIC PROVIDER–PATIENT RELATIONSHIPS DURING TELEPSYCHIATRY

Like an actor stepping onto the stage, providers must immediately engage patients' attention and convince them that they are trustworthy, competent, empathic, and will be responsive to their needs (90). Providers who naturally create good rapport are instinctually communicating verbally as well as nonverbally. The importance of sending and observing nonverbal communication cannot be overstated; because over two-thirds of communicated meaning can be attributed to nonverbal messages

(91). Clear communication is an integral part of good bedside manner and is the key to building and maintaining therapeutic relationships. It is often not what is said, but how it is said, that matters most to patients (92,93). For the purpose of this chapter, nonverbal communication is defined as everything except for the contextual meaning of the spoken words, including: the nature, location, and decoration of the room, the provider's physical appearance, distance between participants, body movements, posture, gestures, facial expressions, eye contact, touch, and the tone, pacing, and volume of the provider's voice.

The nonverbal communication to consider during telepsychiatry includes:

- The nature, location, and decoration of the room
- Physical appearance
- Individuals' distance from one another
- Body movements, posture, and gestures
- Facial expressions
- Touching the other person
- The tone, rate, and volume of the provider's voice

Communicating during telepsychiatry differs from communicating in person. Cameras, microphones, and speakers alter voice and appearance and flatten emotional expressions. Most providers experienced in telepsychiatry slightly enhance their communication style to establish a therapeutic relationship. Many of these enhancements are techniques used by newscasters and actors to communicate authenticity to their audiences.

Providers must command a working knowledge of these nonverbal communication restrictions. The first nonverbal communication is patients' view of the provider as the camera frame limits patients' ability to see the provider and ~~their~~ nonverbal communications. They have less access to environmental information to shape their perception of the provider as trustworthy, competent, and empathic. The provider's physical appearance, grooming, uniform/dress, and interactions become a more significant part of how patients' make a first impression (60). If providers' nonverbal communication ~~doesn't~~ support their verbal communication, the provider seems odd or insincere (94). This weakens the provider–patient relationship (95).

Telehealth technology affects the provider's ability to:

- See the patient
- Be seen by the patient
- Be heard and understood
- Make gestures
- Maintain eye contact
- Touch
- Smell
- Demonstrate usual good bedside manner

Erect and open body posture communicates to patients that the provider is a confident, nonjudgmental, and trustworthy authority figure (96) who is paying attention to their needs (97). Moving toward or away from the camera approximates the effect of interpersonal space during in-person sessions. For example, moving slightly closer to the camera communicates more interest or attention. If the patient seems defensive, moving slightly away from the camera conveys the perception of giving the patient more distance. The picture-in-picture function on the monitor helps providers to monitor how their image is projected and to stay within the frame (Figure 6.3.5.2).

As patients can only see facial expressions, gestures, movements, and activities that fall within the camera frame, providers must replace large gestures with smaller ones that are more easily seen (98). Common gestures like outstretched arms can be replaced with hand gestures or emotionally

FIGURE 6.3.5.2. Picture-in-picture function monitors screen image.

congruent facial expressions (99). Hand gestures like waving and the thumbs up sign can also replace culturally relevant handshakes and fist-bumps that are lost in telehealth.

The provider's tone of voice affects the relationship (100). Without sounding robotic, the provider must sound honest, compassionate and intelligent while speaking slowly, loudly, and clearly enough to be easily heard and understood through the microphone. Many novice providers speak robotically due to performance anxiety or distractions by the electronics (e.g., a medical record that is simultaneously projected onto a monitor during the session). Providers may modulate the pitch of their voice slightly to avoid sounding anxious or robotic, but the challenge then is to avoid seeming theatric. Smiling while speaking makes the provider sound warm and approachable. Placing a smiley face sticker next to the camera is a good reminder for those who often look or sound too serious.

Encouraging patients to speak more is associated with feeling that their needs are fulfilled (101). There is a very brief transmission delay during videoconferencing that affects communication. Therefore, pauses and turn-taking are important for the provider to manage. Giving the patient an extra moment to reply in conversation may seem like a long pause but will replicate a normal pause during in-person conversation. During multi-center sessions, the provider may need to allow for even longer pauses.

Due to the slight audio transmission delay, verbal encouragers (e.g., yes, tell me more, go on) are more difficult to use during telepsychiatry. If the participant has already resumed speaking, he or she stops speaking to listen to the encourager, thereby interfering with communication. Therefore, experienced providers frequently use gestures, such as the thumbs up gesture, to facilitate the reciprocal exchange of information while maintaining engagement and without interrupting the speaker. The other approach is to nod and smile. After thousands of telepsychiatry sessions, the authors suggest the most important nonverbal rapport-building strategy is to periodically nod and smile while the patient is talking, thereby indicating that the provider is listening and encouraging the patient to continue. Consider placing a sticky note that says, "Nod and smile!" on the monitor until this becomes natural.

OPTIMIZING THE TELEPSYCHIATRY EXPERIENCE

Room Selection

Optimizing the telepsychiatry experience begins with appropriate room selection. In telepsychiatry, the camera is turned on and—boom! The provider is suddenly meeting with the patient. There is no grand hospital architecture, professional décor, or staff interactions to mentally prepare the patient for the clinical encounter. To further complicate matters, the patient site may be a home, school, or another provider's office—all settings the provider cannot control. It is up to the provider to make it an authentic clinical experience. To start, attention is given to selecting, arranging, and appointing the rooms at both the patient and provider sites. Telepsychiatry providers often work with a wide range of rooms, but with the right setup, sessions can be successfully conducted in classrooms, conference rooms, treatment rooms, offices, living rooms, and bedrooms. After the room at the patient's site is selected, it should be appointed to support videoconferences, accommodate the routine number of participants, and maximize participants' focus during the session.

Room selection should ensure that:
- Everyone feels comfortable
- Distractions are minimized
- Everyone is able to see each other
- Everyone is able to hear each other
- The room maintains visual and auditory privacy
- Room size accommodates the clinical encounter
- Décor minimizes camera distortion

Power and Network

One of the most important considerations in room selection for sites using cloud videoconferencing is proximity to the WiFi router to maintain a strong Internet connection. If connecting through a computer, it should be plugged into the router with an Ethernet cable to provide the strongest video and auditory signal. Most software automatically downgrades the picture and sound to match the worst connection, so one slow site compromises the experience for everyone involved. Plugging the router, modem, computer, and monitor(s) into a combination surge protector and battery backup will ensure that the connection will not drop if there is a momentary electrical surge or loss of power.

Room Set-Up

Selecting a room with a camera-friendly color scheme makes it easier for the camera to focus on the participant instead of the background. The camera should be focused on a wall that is painted a soft neutral shade to help the participant's image stand out from the wall. Decorations and patterns that are small, intricate, highly detailed, or cluttered may distort video images and trick the camera into focusing on the background (Figure 6.3.5.3). There should be nothing directly behind the participant's head because the camera's poor depth projection makes them appear to grow out of the participant's head. The decorations in the provider's room should be minimal and professional, reflecting the services delivered.

Cameras

Camera placement will determine framing of the video image. Framing determines who and what is visible on the screen, as well as accurate observation of participants' presentation. Poor placement may detract from the interaction and ultimately whether the clinical experience seems authentic, as shown in Figure 6.3.5.4. Cameras should be positioned at a sufficient distance from the patient to allow visualization of the child's motor abilities and activities but also to allow assessment of facial features and affect.

Participants naturally look at the monitor to relate to one another during videoconferencing. However, the camera is

FIGURE 6.3.5.3. Cluttered background and suboptimal lighting interfere with camera's functioning.

typically placed on top of the screen so that participants appear to be gazing downward. Provider eye contact is significantly related to patients' perceptions of the provider's connectedness and empathy (102). Therefore, providers' cameras should be directly in front of them, positioned at eye level, as shown in Figure 6.3.5.5. This positioning makes the provider gaze toward the camera when looking at the screen. Assessing eye contact is an essential component of the developmental evaluation of children and establishing a therapeutic alliance, particularly during a videoconferencing encounter when there is decreased access to other nonverbal means of communication. The provider should determine whether apparent decreased eye contact represents a technical limitation or a clinical impairment.

If a single participant is using a phone or a tablet, it should be positioned in vertical/portrait orientation. This improves the eye contact between participants because the other participant's eyes are closer to the camera. If the device needs to capture two or more people in the frame, turning the device horizontal/landscape will often create a larger frame that encompasses more of the room.

Medical providers spend 30% of a clinical visit gazing at the electronic medical record (EMR) (103). If the EMR is used

FIGURE 6.3.5.4. Poor framing of video image impedes authentic patient–provider relationship.

FIGURE 6.3.5.5. Approximate eye contact with proper camera placement.

during the session and can be projected onto the screen, it should be placed in a vertical window above or below the participants' images. This causes the provider to constantly nod up and down in a positive and affirmative manner when glancing at the participant's EMR. By contrast, if the EMR window were placed lateral to the participant images, the provider would be constantly making negative, head-shaking gestures during the session. Telepsychiatry providers should minimize the time spent looking at the EMR in order to maintain eye contact and rapport with the patient, even if this means charting very little during the session.

Lighting

Lighting affects quality of the videoconferencing session (98). Cameras need more light than human eyes to produce a clear image. An insufficiently illuminated room prevents participants from seeing each other clearly, detecting nonverbal communication, identifying physical signs and symptoms, and detracts from the authenticity of the experience. Backlighting should be avoided. This occurs when a bright light comes from behind the person, such as when seated in front of a window or bright light. The person becomes silhouetted. This issue should be considered early in room selection when the position of the camera is determined. Copious indirect lighting, such as floor lamps that bounce light off the ceiling, is the key to a good lighting plan. It looks natural, softer, and avoids glare or shadows. Removing or covering reflective surfaces that cause glare also helps to optimize the video image.

Privacy

Common sense cures most privacy problems. This is handled at two levels. At the software level, most commercial telehealth vendors advertise whether they meet HIPAA standards. The second aspect of privacy is participation. Sites must ensure that they can restrict access to the videoconferencing room, as well as others' ability to view the session. This may be challenging in very small communities with limited room availability or when providing consultation to a small emergency room. Home-based services provide particular challenges as

a space must be large enough to include all participants but not accessible to non-participating family members. Family sessions may be best accommodated in the kitchen or family room, but these are high-traffic areas. Individual sessions, and some parent–child sessions, may be conducted away from other family in a bedroom, office, or porch.

Audio privacy may be the largest obstacle to privacy. If the patient site is a clinical examination room it will already have been soundproofed. However, many times the videoconferencing equipment is set up in a conference room or private office with inadequate soundproofing. Sound privacy may be determined by asking a staff to stand outside the doors and windows during a sham session and report on audibility.

PE: Should 1st line in box be in box head? Please check and confirm.

> Ways to improve audio privacy
>
> ■ Close windows
> ■ Block gaps below doors
> ■ Place a white noise machine outside and beside the door to the telehealth room.
> ■ Put carpet or an area rug on the floor
> ■ Add pillows to couches, curtains on windows, and/or tapestries on walls to absorb sound
> ■ When remodeling, use decoupling soundproofing construction techniques
> ■ Consider using a headset microphone

Audio Quality: Distractions and Audio Signal

Audio privacy and comfort also relate to ambient noise that varies across rooms. The microphones are sensitive and amplify sound affecting the volume of participants' speech and quality of the sessions. Common disturbing background sounds are printers, air conditioners, fans, intercoms, animals, lawn equipment, and outside traffic. Rooms should be selected to minimize these common interfering sounds. However, most rooms are not perfectly quiet and the provider should work with staff at the patient site to implement strategies to decrease background noise. If services are provided in the home uninvolved individuals should be forewarned to stay out of the room during the session.

Audio communication depends on the microphone and speakers. Computers, tablets, and phones often have built in microphones and speakers that are adequate for clinical service. However, if providers can add a peripheral device to their system, a quality microphone can filter out background noise and improve communication. If the provider is the only person in the room, he or she could use a headset microphone that eliminates most background sounds, and ensures that participants' voices are not overheard.

Finally, it is important to have a backup plan in case the audio connection fails. Usually, a conference speakerphone can be used to provide an adequate connection while not seriously compromising synchrony with the video signal. The audio device in the videoconference software must be muted to avoid echoes and feedback due to running two microphones simultaneously.

> Approaches to minimizing background noise include:
>
> ■ Close windows and doors
> ■ Turn down/off window and portable air conditioners, fans
> ■ Do not to run other equipment (e.g., printers, fax machines, dishwashers)
> ■ Turn off electronics
> ■ Keep pets out of the room
> ■ Encourage the patient site to only allow quiet toys without multiple parts, such as foam blocks, books, markers, action figures, and dolls[1]

[AQ2]

SUMMARY

Effective telepsychiatry providers are able to create authentic provider–patient relationships by augmenting the provider's good bedside manner with a few acting, news casting, and venue staging skills. When these skills, strategies, and techniques are put together well, they make telepsychiatry look easy and the interactions feel authentic to both patients and providers. With sufficient practice, providers can be as effective and comfortable treating patients via telehealth technology as they are in other clinical venues. Additional resources on optimizing the telepsychiatry session are available through the Telemental Health Guide (www.telepsychiatryguide.org), the Telehealth Resource Centers (www.telehealthresourcecenter.org), and ATA (www.americantelemed.org).

INTERVENTIONS

Interventions provided via telepsychiatry to children and adolescents should be consistent with clinical practice guidelines established by the American Academy of Child and Adolescent Psychiatry (AACAP) for specific psychiatric disorders and treatments (104) and should follow guidelines established for TMH service delivery (75,79,105).

The psychiatric assessment of children and adolescents includes spending some time interviewing the youth alone. Older children with good impulse control, adequate verbal skills, and the ability to separate can be interviewed alone. Younger, developmentally impaired or impulsive youth need a modified approach. Traditional play sessions may be challenging. The child may be observed interacting with staff in a structured or free play session. Some limited play with the child may be possible over the telemonitor (e.g., drawing pictures and then discussing them or developing a play scenario with puppets).

Preschoolers should be observed in developmentally appropriate interactions with their parent(s) and, if indicated, with an unfamiliar adult, perhaps a staff member. Many young children will engage in direct interaction with the provider, such as distinguishing colors, pointing to body parts, singing the alphabet, or relating a story.

Pharmacotherapy is a highly desired service. Approaches to medication management depend on the model of care (17,19,106,107). Regardless of the model used, it is important to maintain communication with the PCP about the treatment. Medications that are not regulated by the Drug Enforcement Administration (DEA) can be prescribed consistent with methods used in traditional practice. Scheduled medications have additional regulations with clear relevance to child and adolescent telepsychiatry. Specifically, the Ryan Haight Online Pharmacy Consumer Protection Act (108) regulates Internet prescribing and the Drug Enforcement Administration Final Rule implements this statute and provides a temporary definition of telemedicine (109). This regulation has been open to interpretation, such as defining an existing patient–provider relationship prior to prescribing a controlled substance. The requirement for the presence of another licensed provider at the patient's site has raised questions about the identity of the staff and his or her location at the facility. Obviously, restrictions on prescribing dilute the value of telepsychiatry. While these issues are being resolved, providers should establish procedures to ensure compliance with current legislation at the federal and the state levels.

Tracking vital signs, height and weight, obtaining rating scales, monitoring physiologic status, and assessing adverse effects are accomplished with coordination from staff at the patient site. Abnormal movements due to antipsychotic medications can be assessed remotely by the provider using the

Abnormal Involuntary Movement Scale (110) or a nurse can be trained to complete the scale in person.

An important aspect of medication management is providing care or assisting staff between sessions. Protocols are needed to provide families clear directions for requesting refills, asking questions, and reporting adverse effects.

Psychotherapy is increasingly provided to families and youth through various devices in multiple settings. In addition to translating evidence-based psychotherapies to the video-conferencing venue, particular attention to cultural context is needed as providers in urban/suburban areas and families in rural areas often differ in their cultural heritage (111). Adolescents' increasing access to mobile device–based (m-health) applications, particularly smart phones, presents a promising opportunity to reach youth in need of services. As of 2014, 58% of the United States population owned a smartphone (112). In underserved populations, rates are 47% for low-income households, 43% for rural areas, and are *higher* for minorities than Caucasians. Moreover, the vast majority of the population will likely own smartphones in the near future as 90% currently own a cell phone and the percentage of smartphones versus traditional cell phones has been rising (112,113). These data suggest that smartphones will be increasingly a convenient medium for reaching individuals of all ethnicities, incomes, and geographic regions. Moreover, m-health applications have a number of capabilities associated with successful interventions utilizing communication technology, including: scheduled reminders to engage in therapeutic exercises (114); point of performance support (115); individually tailored information (116,117); real-time symptom assessment (118), and attractiveness to youth through increased sense of autonomy (119). Such technologic advances may change the face of psychotherapy for both distant and local communities.

EVALUATING A TELEPSYCHIATRY SERVICE

As the demand for telepsychiatry services has outpaced the evidence-based supporting its efficacy, ongoing evaluation of services will help the provider establish best practices. A "lexicon of assessment and outcome measures for telepsychiatry" is available at the ATA website (120). Evaluation may include process variables, such as description of the population served, appointments kept or cancelled, hospitalization, collaboration in the community, types of services provided. Routine measurement of outcomes helps to demonstrate patients' progress and effectiveness of services—particularly important for telepsychiatrists involved with Accountable Care Organizations. Assessment of clinical outcomes may include rating scales obtained from the patient and stakeholders, functional assessments, documentation of adverse events, and adherence to treatment plans. Providers should also consider evaluating caregivers' burden (29). Exploration of the virtual relationship between the patient and provider could help to understand salient mediating factors when delivering care remotely. Kramer et al. (121) have described a model to inform overall telepsychiatry research design and Slone et al. (58) describe additional guidance specific to pediatric research settings.

SUMMARY

The convergence of increasing clinical need, decreasing resources, and technologic advances have made telepsychiatry an attractive approach to deliver evidence-based treatment to youth and families who are not well served by traditional models of care. However, potential telepsychiatrists must keep abreast of technical, financial, and regulatory changes in this rapidly evolving field. Establishing an authentic patient–provider relationship, and a successful practice, requires providers to expand their repertoire of interpersonal relatedness and online presentation to optimize patients' experience. These efforts are increasingly rewarded. Barriers to telepsychiatry are falling as individual states enact parity with in person services, as CMS expands criteria for services, and as research demonstrates the feasibility, acceptability, and effectiveness of telepsychiatry services. Communities are increasingly requesting services. It's time to connect.

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[AQ6]

[AQ7]

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