

# Using Synchronous Videoconferencing to Deliver Family-Based Mental Healthcare

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## Abstract

**Objectives:** Leading telemental healthcare programs are increasingly harnessing new technologies in innovative ways to broaden the reach of supported care for children and adolescents. Technology-based delivery methods drawing on synchronous videoteleconferencing can transcend geographic barriers to quality care and remotely provide real-time services to affected families, regardless of their proximity to an expert mental health facility.

**Methods:** The present review considers critical issues specific to *family*-based telemental healthcare, including: 1) Navigating varying levels of technological literacy across generations of participants; 2) deciding which family members to include in family-based telemental healthcare; 3) ensuring the safety of participants in family-based telemental healthcare; 4) optimizing therapeutic alliance and engagement in family-based telemental healthcare; 5) navigating logistical concerns in the conducting of sessions; and 6) ensuring privacy in family-based telemental healthcare.

**Results:** We discuss illustrations of recent child telemental healthcare advances that have focused explicitly on *family*-based treatment approaches, including Internet-delivered Parent–Child Interaction Therapy and Internet-delivered family-based cognitive-behavioral therapy for early-onset OCD.

**Conclusions:** We conclude with a consideration of future directions for the field of family-based telemental healthcare.

## Introduction

CHILD AND ADOLESCENT MENTAL ILLNESS IMPOSES a staggering public health burden. Despite considerable progress in research settings in the development and rigorous evaluation of evidence-based psychological and pharmacological interventions for affected youth, several factors systematically interfere with the broad accessibility, availability, and acceptability of supported care in routine practice settings. Mental health workforce shortages, particularly in rural and other remote regions, limit treatment availability for large numbers of children and adolescents in need of care (see Kazdin and Blasé 2011; Flaum 2013). When providers are regionally available, insufficient dissemination and inadequate implementation of supported programs (see Sandler et al. 2005; Comer and Barlow 2013) impinge of the quality of available care. Workforce turnover, poor infrastructure, and inadequate agency support at community mental health clinics interfere with the sustainability of broad dissemination efforts (Atkins et al. 2003; Glisson et al. 2008; Stirman et al. 2012), and long waiting lists at overburdened clinics interrupt the timeliness of provided care. When quality mental healthcare is available, transportation issues and child care barriers further interfere with the accessibility of services for families in need (Owens et al. 2002).

Technological advances hold enormous promise for redressing these daunting problems in the broad availability and accessibility

of quality mental healthcare, and a number of leading telemental healthcare programs across the country are already harnessing new technologies in innovative ways to broaden the reach of supported care (e.g., Myers et al. 2007, 2010). With Internet availability rapidly expanding across the United States, and rural and low-income Americans among the fastest-growing populations acquiring Internet access (Horrigan 2009), delivery methods drawing on new technologies can transcend geographic barriers to quality care and remotely provide real-time services to affected families, regardless of their proximity to an expert mental health facility.

The use of electronic media to facilitate the provision of children's mental healthcare has grown considerably in popularity over the past decade (American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues 2008; Comer and Barlow 2013; Myers and Turvey 2013), particularly given: 1) The portability of such care; 2) expanded Internet access and improved technological literacy across the general population; 3) the ability for technology-mediated formats to overcome key issues of transportation, convenience, and regional expertise; 4) the advantage of teleconferencing formats for overcoming issues of stigma about attending a mental health clinic; and 5) the ability for technology-mediated formats to work with families in their natural settings, which can improve the ecological validity of care and may enhance generalizations of gains (Khanna et al. 2007; Comer and Barlow 2013).

### Considering Families in the Context of Children's Telemental Healthcare

In recent years, there have been tremendous advances in the development of consensus guidelines for telemental healthcare (e.g., American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues 2008; Grady et al. 2011; Turvey et al. 2013), as well as guiding frameworks on legal, ethical, regulatory, and risk management issues to be considered in the practice of telemental healthcare (e.g., Kramer et al. 2015; Nelson and Duncan 2015). However, although parents and families have always been an integral—albeit somewhat implicit—part of children's participation in telemental healthcare, specific articulation of the role of families in children's telemental healthcare and/or specific issues inherent in the involvement of families in children's telemental healthcare—particularly when delivered in home settings—have not been prominently covered in this emerging literature.

Research on standard in-office care suggests that for many youth populations, a family-based treatment approach is associated with greater gains and maintenance than a solely child-focused approach (e.g., Fauber and Long 1991; Comer et al. 2013; Thompson-Hollands et al. 2014), and, accordingly, involvement of families in children's telemental healthcare is critical for several reasons. First, caregivers play an essential role in children's daily lives and functioning, and children rarely self-refer for mental healthcare. Caregivers are typically instrumental in all stages of a child's mental healthcare including treatment initiation, treatment participation, and ongoing engagement, and providing feedback on clinical response. Second, younger children, in particular, lack the developmental competencies required to adequately participate independently in psychotherapies developed for older populations. Restricted cognitive functions and attentional capacities characteristic of early childhood (see Flavell et al. 2001) can limit a child's ability to grasp material covered in session, making solely child-focused interventions misguided for many youth. Limited organizational skills characteristic of early and delayed development can interfere with a child's out-of-office treatment compliance, and family involvement is crucial to ensure treatment adherence and out-of-session practice as appropriate. Common child reluctance to participate in treatment further underscores the need to involve family members in the care of many affected youth. Third, parenting practices are commonly associated with the development and/or maintenance of child problems, and failure to address such maintaining factors can substantially limit expected treatment gains.

Fourth, and specific to telemental healthcare, many children—particularly younger children—are inadequately equipped to interface independently with technology, and require adult assistance to participate in telemental healthcare. Fifth, technology can afford unprecedented windows into children's natural functioning in ways that were previously unimaginable. By providing care directly to families in non-mental health settings, telemental health treatments can now directly intervene with children in their natural settings, and can directly target naturalistic parent-child relationships, which provide the primary context of child development.

### Recent Illustrations of Family-Based Telemental Healthcare

Not surprisingly, in recent years, several child telemental health advances have focused explicitly on *family*-based treatment approaches for internalizing and externalizing problems in youth. In one example, Comer and colleagues (2015; Elkins and Comer

2014) developed an Internet-based format for the delivery of Parent-Child Interaction Therapy (I-PCIT), drawing on video-conferencing (VTC) methods to deliver PCIT to families in their own homes regardless of their geographic proximity to an expert PCIT provider. Traditional, office-based PCIT (McNeil and Hembree-Kigin 2010; Eyberg and Funderburk 2011) draws on social learning and attachment theories, and incorporates components of play therapy into behavioral parent training, in order to treat early disruptive behavior problems. What distinguishes PCIT from other behavioral parent training programs is the systematic use of real-time, in-session parent coaching. For the majority of PCIT treatment, the therapist monitors family interactions from an observation room (typically from behind a one-way mirror) and provides live, individualized coaching via a parent-worn bug-in-the-ear device.

In I-PCIT, the components of treatment are identical to office-based PCIT, but rather than coming into a clinic for live coaching from behind a one-way mirror, families broadcast home-based parent-child interactions to the I-PCIT therapist using a webcam, and the therapist provides real-time feedback via a parent-worn Bluetooth earpiece. PCIT appears to be particularly amenable to a web-based delivery format, given that for the majority of sessions the therapist is not supposed to be physically present, but rather discreetly monitoring family functioning from a separate room and providing live in-ear feedback. The I-PCIT format allows therapists to discreetly guide parental behavior and family interactions occurring in the family's own home, rather than in a contrived office setting that may or may not be relevant to the child's presenting problems. Parents receive in-the-moment coaching in their home, facilitating optimal learning and skill generalization. Such *in situ* observation and coaching provides therapists with invaluable information on the child's physical home environment. Further, providing care directly in the actual environments in which disruptive behaviors occur allows parents key opportunities to practice skills in their typical environments, while receiving live evidence-based coaching.

In another recent example of pediatric telemental healthcare advances explicitly focusing on a family-based model of care, Comer and colleagues (2014) developed a VTC format for the remote delivery of real-time cognitive-behavioral therapy (CBT) for early-onset obsessive-compulsive disorder (OCD) centering on exposure and response prevention (E/RP). Unlike in I-PCIT in which only the parents directly interact with the remote therapist, in this OCD protocol, children and parents both directly interact with the remote therapist. This live, interactive, and web-based approach to family-based CBT extends the accessibility and ecological validity of supported care for early-onset OCD by offering a comparable quantity of therapist contact to office-based, family-based CBT. Expertise in the treatment of pediatric OCD is regionally limited, and tends to cluster in academic and metropolitan hubs. Using VTC, therapists deliver evidence-based treatment with the same speed and facility afforded in standard office-based care, regardless of a family's geographic proximity to an expert OCD facility. Treating children with OCD in their natural settings is particularly useful given how context-specific many OCD symptoms are; remote therapists provide real-time observation and feedback in many of the very settings in which child OCD symptoms are most problematic (e.g., conducting E/RP in the child's own bathroom for a child who compulsively engages in hand washing and taps the toothbrush and soap dish at the home sink until it feels "just right," but who does not engage in similar compulsive behavior in other bathrooms). VTC methods providing

family-based intervention in the home setting maximize skill generalization, and afford clinicians privileged information on treatment-relevant details (e.g., context-specific family accommodation patterns and avoidance strategies).

Initial evaluations of these family-based telemental healthcare programs have been highly promising (see Comer et al. 2015; Comer et al. 2014), and a number of controlled evaluations assessing these family-based VTC programs are currently underway. We now discuss critical issues highlighted by this work that are specific to family-based approaches to telemental healthcare. Considerations of issues relevant to *all* forms of telemental healthcare that are not specific to family-based care can be found elsewhere (Myers and Turvey 2013; Kramer et al. 2015; Nelson and Duncan 2015).

### **Critical Issues in Telemental Healthcare Specific to Family-Based Services**

#### *Varying technological literacy across generations of participants*

Technological literacy varies greatly across individuals and developmental stages. Although children today are growing up with technology, younger children require parental assistance to log on, or even to orient themselves toward a computer screen. Treatment for very young children will require parents to control the keyboard and the mouse or touch pad throughout the entirety of sessions. Youth in middle childhood will have an easier time orienting themselves toward a computer screen, and will take a more active interest in controlling the mouse or touch pad. It can be important for the therapeutic alliance to allow such youth to have some degree of control over the technological aspects of sessions. At the same time, their skill with touch pads and keyboards, and their understanding of opening and closing programs and establishing VTC connections, is generally limited; therefore, parents are typically required to assert ultimate control over the technological aspects of sessions. For such youth, temporary control of the touch pad or keyboard can be used as a reward for good participation throughout the sessions, as a way to keep them engaged.

Importantly, older parents who learned computer and Internet technologies after completing their schooling may have more difficulty with technology-facilitated communications. For such families, it is not uncommon for their adolescent child to take on the primary role in establishing VTC connections with their therapist. It can be tempting to let a capable child take over all of the technological aspects of treatment on the family's end, but this can leave parents feeling alienated from treatment and can interfere with their engagement in and out of session. When parents are struggling with technology-related aspects of telemental healthcare, we find it useful to hold several technology-specific sessions with only the parents, to try to bring them up to speed. Moreover, parents who learned computer and Internet technologies after completing their schooling may show a preference for in-person meetings, and may be more skeptical of the value (and/or security) of Internet-delivered care or the authenticity of VTC-based relationships. If geography and transportation allow, the provider might do well to offer such families a session or two in person before transitioning to VTC sessions. For more geographically remote families who are skeptical of VTC-based care, even holding a telephone session or two prior to conducting any VTC sessions can be useful, as telephone contact may be a more familiar and, in turn, trusted, format for communication.

#### *Who participates in treatment?*

As in office-based treatment, deciding whether children, parents, or both children and parents should participate in treatment is a critical decision, and there are benefits to each of these treatment structures for different clinical presentations. In office-based care, treatments in which only the child attends still commonly provide key opportunities for communication between parents and providers. Most children participating in office-based care will require parents for transportation, and even brief exchanges of pleasantries between parents and a provider at the beginning or end of a child's office-based session can provide key opportunities for important parent-therapist communication (e.g., a parent mentioning a particular stressor approaching for the child in the upcoming week, or complimenting the child in front of the therapist for something that happened in the past week that could be useful for the therapist to know). For telemental health therapists working with older children who are capable of establishing VTC connections on their own, it is important (as clinically appropriate) to find other ways to periodically communicate with parents and provide opportunities for the brief "check ins" that may occur more naturally in office-based care.

As noted in our discussion of I-PCIT, when treating younger children it can be useful to target child problems indirectly by working entirely with parents to reshape the context of a child's behavior, rather than working with the child directly. Behavioral parent training models using live coaching are indicated for younger child populations because they do not require children to have met particular cognitive-developmental milestones for participation, and such treatments intervene with parents in a relatively discreet manner (e.g., from behind a one-way mirror in PCIT) to afford as naturalistic an experience as possible for the child. In standard office-based behavioral parent training, however, the child must visit a mental health clinic for services, limiting the degree to which such services are truly able to be naturalistic. In contrast, VTC-facilitated home-based care can provide more ecologically valid parent training opportunities, and the youngest of treated children may not even be aware that their parent is receiving any in-ear consultation at all.

#### *Child care logistics*

In office-based care, parents often allow siblings to play with clinic staff in the waiting room, but such options are not available in VTC-facilitated home-based care. Families participating in telemental health care may need to make special arrangements with neighbors, babysitters, or other family members for siblings during sessions.

#### *Ensuring safety in family-based care*

Telemental healthcare providers have less control over the family's treatment environment, and, accordingly, it can be more difficult than in traditional care to ensure safety. Providing care to families in relatively unsupervised settings—such as the home—carries risks not seen in office-based care. Certain high-risk families, such as families with abuse histories, may consequently be inappropriate for remote telemental healthcare. On a related note, many interventions for child behavior problems entail training families in effective discipline and time out procedures. For such treatments, it is important for families to know that they must remain on camera for the duration of each session, so that therapists can monitor the appropriateness of discipline practices implemented in

session. When providing remote care—especially in the home, a relatively unsupervised setting compared with a doctor’s office or school—it is important to have emergency contact information for families, including for their pediatrician and local emergency dispatch. Further, prior to obtaining informed consent for telemental healthcare, it should be made clear to families that if there is reasonable suspicion that the child or anybody else could be in serious danger, confidentiality will be broken. Crisis planning and management strategies are discussed in detail by Luxton and colleagues (2010, 2012), whose work provides comprehensive information on avoiding and addressing safety concerns specific to telemental healthcare delivery to home settings.

Even when parents remain on camera, it can be difficult to keep children on camera throughout the entirety of a VTC session, and, accordingly, some families may be required to make creative accommodations for room setup. Youth can escape from the treatment area, particularly in large open spaces such as living and family rooms. For younger children, portable childproof gates or furniture rearranged across entryways provide alternatives when it is not feasible to conduct treatment in a self-contained space. Treatment efforts with older youth who can open doors and move furniture may require additional troubleshooting with patients and family members.

#### *Therapeutic alliance and matters of treatment process*

VTC-based formats can also present unique obstacles to the successful management of therapeutic alliance in family-based treatments. It is critical to minimize technical difficulties that can lead to frustration, and in turn diminish alliance. Holding an initial session just to focus on technological aspects of care can help smooth the conducting of sessions, and enhance family engagement in treatment. Further, as in all family-based care, it can be difficult to simultaneously address all family members’ priorities, and to ensure that each participant feels comparably heard and supported. Subtleties of frustration, such as sighs or quick eye rolls, cannot always be captured by webcams. Accordingly, therapists—even when feeling confident in their alliances with patients and their families—are encouraged to check in verbally with each participant about their perspectives more frequently than they might in standard office-based care. Therapists might also do well to routinely administer evidence-based measures of therapeutic alliance—such as the Working Alliance Inventory (Horvath and Greenberg 1989) or the Therapeutic Alliance Scale for Children, Revised (Shirk and Saiz 1992; Shirk et al. 2011)—across treatment.

Moreover, given how interactive evidence-based treatments for child problems are, special considerations are required for Internet-delivered care. VTC formats can be somewhat off-putting for some younger children, particularly for those with limited VTC experience. It can be helpful to create a series of interactive computer games that children can play in session with their parents and therapist to enhance the child’s understanding of various treatment concepts. Many videoconferencing platforms offer “share desktop” functions that allow families to view whatever is on the therapist’s screen. Therapists can easily use the Google Drawing function of Google Documents, which is available at no cost, to create working documents for interactive games. Such programs allow both the therapist and the patient to simultaneously access and manipulate a working document in real-time during session, and also enable families to access the documents outside of session to reinforce treatment skills and practice between sessions.

For example, Comer and colleagues (2014) used Google Documents to adapt the *Draw an OCD Worry Monster* activity from standard office-based treatment for early OCD (Freeman et al. 2008) for use in VTC-assisted early OCD treatment. In standard office-based care, the therapist and the family collaborate in the clinic to draw a picture of OCD using paper and markers. Given that a collaborative paper and marker project is not possible over VTC, Comer and colleagues (2014) used the Google Drawing function of Google Documents to supply children with an image bank of varying monster body parts that they can then click and drag, with parental assistance as necessary, to create an image of their OCD. Therapists are also able to simultaneously click and drag body parts from the image bank to the OCD monster, and throughout this task families are able to continue verbal communication with their therapist.

#### *Privacy concerns*

In addition to the security and privacy concerns relevant to all telemental healthcare (see Kramer et al. in press), the conducting of child telemental healthcare requires special considerations regarding privacy of clinical information within the family. Family-based treatment often entails individual session segments with just the child or just the parent. In office-based care, during a child-only conversation privacy can be maintained by temporarily excusing the parents to a waiting room, while the therapist and child remain in the office behind a closed door with a white-noise maker turned on. For parent-only conversations, children can be temporarily excused to the waiting room while parents remain in the office behind a closed door. Such privacy cannot be assured if the family’s computer is in a public common space in the house, particularly if siblings are at home as well. Families are encouraged to hold sessions in private locations in the house, preferably in rooms in which the door can close. This can be challenging for families with limited space or with open floor plans. Conducting sessions on laptops rather than desktop computers affords increased flexibility and mobility. For example, if a sibling is working on a project on a given day in the office where the computer typically sits, the family with a laptop can easily adjust and hold their session from another room. Families rarely have white-noise makers, but there are a number of mobile phone apps that create white noise; alternatively, families can turn on the radio in rooms adjacent to the location in which a telemental health session is occurring.

In addition to increasing mobility among families presenting for telemental health treatment, advances in laptop and mobile technologies also provide therapists with increased location options. Clinicians may choose to conduct sessions while away from the office. However, important privacy considerations accompany these options, and clinicians must ensure that out-of-office locations are secure in order to avoid confidentiality risks.

#### *Equipment*

Although technological and equipment options for VTC in telemental health are described in detail elsewhere in this issue (Chou et al. in press), special considerations are warranted for delivery of family-based telemental healthcare. Telemental health packages consist of 1) Hardware, 2) software, and 3) a network connection, and must be tailored to the type of services provided as well as to the resources available to families receiving services. Although the built-in webcam and microphone included in many modern computers and mobile devices are often sufficient for therapeutic models in which families remain in close proximity to

the computer, external cameras and microphones may be required for therapeutic models in which children and families are not stationary, and in which multiple individuals may speak simultaneously (e.g., I-PCIT, which involves play-based parent-child interactions that must be closely monitored, as well as real-time parent coaching; see Comer et al. in press). Importantly, the VTC platform software and network connection quality are critical factors in selecting the most appropriate audio/video equipment, as these three components interact to influence overall performance. Therefore, striking an optimal balance necessitates extensive testing prior to choosing a telemental healthcare package and launching services. Families in low-income or rural areas may have less modern equipment available, as well as more limited Internet connectivity, than families with greater resources and/or living in urban areas. Therefore, service providers may need to supply cameras and microphones to families, and must consider whether older computers are capable of both connecting to the VTC platform and managing external devices while streaming video. To maintain high-quality VTC calls, families with lower bandwidth connections may need to temporarily suspend other Internet-based household processes while engaging in TMH services. Finally, readily available technological support is vital to maintaining treatment integrity as well as the therapeutic alliance and client engagement, all of which are subject to degradation should technical issues become overly intrusive.

## Conclusions

Sizable gaps persist between supported treatments in academic settings and services broadly available in the community. Given the enormous burdens and costs associated with child behavioral and emotional problems, transformative efforts are needed to overcome traditional barriers to care and broaden the accessibility of supported interventions. Over the past decade, exciting developments in telemental healthcare have offered innovative and increasingly promising solutions supported by an emerging empirical literature (see Myers and Turvey 2013). As telemental health innovations have extended downward to clinical child populations, a number of issues specific to family-focused interventions have surfaced, and herein we have provided an outline of key considerations for the successful conducting of family-based telemental healthcare. As family-based telemental healthcare options continue to develop and garner empirical support, there will be a pressing need for continued dialogue as to: 1) How to optimally identify families who could benefit from such services (see Goldstein and Myers 2014 for a discussion on proposed technology-based collaborations between pediatric care and telemental healthcare); and 2) how to ensure coverage for such services by third party payers, particularly when delivered to relatively unsupervised settings such as the home. More than three quarters of United States citizens already have regular Internet access (United States Census Bureau 2011), and large recent federal investments in the expansion of broadband Internet suggest that it is conceivable that Internet access will soon show the same household ubiquity currently shown for telephones. As we approach Internet access for all United States households, regardless of geography, it is becoming increasingly apparent that family-based telemental healthcare may be central to innovating children's mental health and transcending traditional barriers to care.

## Disclosures

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