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An Evaluation of Explicit Ethical Statements in Telehealth Research With Individuals With Autism Spectrum Disorder

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Principles and procedures derived from the science of behavior analysis have been utilized to improve the quality of life for individuals across many domains (e.g., health and education) and within many settings (e.g., business and home). Recently, greater attention has been paid to behavior analytic treatments for individuals with autism spectrum disorder, where it is considered to be the most effective treatment (e.g., Reichow, 2012). Similar to other health professions, the supply of competent practitioners is less than the demand in many geographical locations. A potential solution to this dilemma is the delivery of behavior analytic services via telehealth. A previous review of telehealth services for individuals with autism spectrum disorder indicated that research for this type of service delivery model is limited (Boisvert, Lang, Andrianopoulos, & Boscardin, 2010). An additional limitation of the research to date is an absence of behavior-analytic specific ethical considerations when practitioners utilize a telehealth service delivery model. The purpose of this paper is to review whether special risk reduction strategies related to the use of telehealth with autism spectrum disorder have been documented or reported in the literature. Results suggest that explicit step-by-step documentation of practices is sparse.

Keywords: telehealth, ethics, applied behavior analysis, autism spectrum

The science of behavior analysis attempts to derive lawful relations between behavior and the environment (e.g., Cooper, Heron, & Heward, 2007; Fisher, Groff, & Roane, 2011). One domain of the science of behavior is applied behavior analysis (ABA), which applies

behavioral principles to solve socially meaningful problems (Baer, Wolf, & Risley, 1968). Although the application of behavioral principles extends beyond developmental disabilities (e.g., Dallery, Meredith, & Glenn, 2008; Kurti & Dallery, 2013), ABA is widely recognized as the most efficacious treatment for developmental disabilities, especially autism spectrum disorder (ASD; e.g., Larsson, 2012; National Autism Center, 2015; Reichow, 2012; Wong et al., 2013).

Partly in response to the increasing number of individuals with ASD, there has been a general increase of ABA services and professionals in the United States (Deochand & Fuqua, 2016). For example, the Behavior Analyst Certification Board (BACB; an accredited credentialing body that helps set minimum standards for ABA practitioners) reports yearly increases in Board

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Certified Behavior Analysts (BCBA; Carr, Howard, & Martin, 2015). A recent report commissioned by the BACB reports a steady increase in demand for BCBA's within the United States (Burning Glass Technologies, 2015). Despite the increasing number of credentialed behavior analysts there continues to be a shortage of available practitioners to deliver services relative to the increasing number of individuals with ASD.

The World Health Organization (2007) stated a barrier to services for individuals with intellectual disabilities was the lack of trained practitioners. There is a similar barrier for access to ABA services for individuals with ASD. For example, in New Mexico there are approximately 3,000 children between birth and 21 years with a diagnosis of ASD (New Mexico Autism Oversight Team, 2012), yet there are only 50 BCBA's in the state (information retrieved from bacb.com, February 2017). Furthermore, 42 of the BCBA's live in counties where approximately 55% of the total population resides. The relatively small number of BCBA's and lack of geographical distribution further complicates the service delivery dilemma.

A potential solution to the lack of credentialed behavior analysts and geographical distribution of behavior analysts is the use of telehealth services. The American Telemedicine Association (2013) defined telehealth as the exchange of medical information from one site to another via electronic communication (e.g., video, e-mail, or smart phone). Additionally, telehealth is a service delivery system, not a type of care. That is, telehealth is a medium for delivering different types of treatment as opposed to a specific form of treatment. Guidelines for telehealth service delivery exist in the United States and Canada (e.g., Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013; American Telemedicine Association, 2013; Consortium of Telehealth Resource Centers, 2015). However, it is not clear to what degree behavior analysts explicitly state and discuss these guidelines when publishing research.

A discussion of ethics and practice guidelines of telehealth behavior analytic services may be important for at least a few reasons. First, given the relatively young nature of telehealth services for individuals with ASD, attention to

ethical considerations may help to inform practitioners about strategies to reduce risk (e.g., loss of client confidentiality). Second, the legal implications for conducting telehealth services within the United States are unclear. Given that licensure and practice laws vary from state to state, the extent to which these laws have been attended to in research, in order to inform clinical practice, are uncertain. Third, if behavior analytic services for ASD differ from other services utilizing telehealth (e.g., duration, intensity, goals of treatment), further discussion regarding applicability of telehealth guidelines and research to behavior analysis is warranted. The purpose of this paper is to provide a starting point for a discussion of the ethics of telehealth for individuals with ASD receiving behavior-analytic treatment.

Method

Search Procedures and Inclusion Criteria

The following steps were completed to identify articles for this review. First, eight studies identified by Boisvert et al. (2010) were reviewed, which covered the published literature on telehealth and ASD up to 2010. Then, studies subsequent to 2010 were identified using methods from Boisvert et al. Though the purpose of this paper was not to extend Boisvert et al.'s work, their reported methodology was replicated in order to maintain continuity in how articles on telehealth and ASD were identified in the behavior-analytic literature.

In accordance with Boisvert et al. (2010), studies were identified via a search of five databases: Education Resources Information Center (ERIC), Academic Search Premier, Google Scholar, MEDLINE, and PsycINFO. The publication year was restricted from 2010 to 2015 as Boisvert et al. reviewed articles that were published before 2010. We searched each database using the following keywords: "Asperger," "Autism," "PDD-NOS," "Developmental Disability," "Syndrome," "Telediagnostic," "Telemedicine," "Telepractice," "Teleconference," "Skype," "iChat," "videoconferencing," "distance education," "telehealth," and "Teletherapy." This process identified 73 articles.

The three inclusion criteria described by Boisvert et al. (2010) were then applied to the 73 articles. First, the study contained at least one

participant with ASD (due to changes of diagnostic terms, autism, Asperger's, and PDD-NOS were terms included as ASD). Second, at least one dependent variable involved a participant with autism and directly measured the outcomes of an assessment, change in behavior, and/or fidelity of implementation of a behavioral program. Third, at least some form of telehealth was used to deliver an independent variable to an individual with autism. Of the 73 identified articles, only 25 met the inclusionary criteria.

Article Coding

In order to identify the extent to which each article mentioned topics related to ethics, we searched each article to identify the following keywords: "benefit," "confident*," "conflict of interest," "consent," "damage," "debrief," "ethic*," "FERPA," "HIPAA," "IRB," "law," "least restrictive," "legal," "privacy," "professional*," "protection," "respect," "rights," "risk," "safety," "security," "surrogate consent," and "welfare." The keywords were selected based upon keywords from practice guidelines (e.g., American Telemedicine Association, 2013), previously published studies (i.e., those reviewed by Boisvert et al., 2010), ethical codes (e.g., Behavior Analyst Certification Board, 2014b), and author experiences with telehealth and ethics. Ethical guidelines for Behavior Analysts and the Association of Clinical Researchers were also reviewed in order to inform which keywords were chosen. The purpose of choosing these keywords was to cast a broad net in order to minimize the probability of errors of omission when searching articles for topics on ethical considerations.

We scored an occurrence of a keyword if it was written in the context of ethics. For example, the word *protection* was not scored if it occurred in the sentence "headwear was worn for personal protection." However, *protection* was scored if it occurred in the sentence "codenames were used to protect client confidentiality." Finally, we also transcribed, word for word, the sentence in which each keyword occurred.

Reliability of Coding

To evaluate the reliability of our inclusion procedures, two researchers independently applied inclusion criteria. An agreement was scored if the same article was identified as meet-

ing the inclusion criteria by both researchers. A disagreement was scored if only one researcher identified an article as meeting inclusion criteria. We calculated interobserver agreement (IOA) using a point-by-point agreement method (Kazdin, 1982). IOA for articles that met inclusion criteria was 100%.

We also evaluated the reliability of the identification of an occurrence of each keyword in each article. Two researchers independently reviewed each article for the above keywords. An agreement was scored if the same keyword was identified by both researchers. A disagreement was scored if a keyword was identified by only one researcher. We calculated IOA by adding the number of agreements, and dividing it by the number of agreements plus disagreements, and multiplying it by 100. IOA for keyword identification was 100%.

Results

We identified 25 studies that met all three inclusion criteria (see Table 1). Columns are ordered left-to-right by the overall number of articles that mentioned the term that heads the respective column.

Benefit

Sixteen studies (64%) included the term "benefit." Of note, Gibbs and Toth-Cohen (2011) noted that telehealth may provide "further benefit by revealing a more complete picture of the child's sensory processing and response to intervention" (p. 312). Machalicek et al. (2010) noted that the benefits of video teleconferencing must be weighed against the potential limitations of the technology when considering implementation. Finally, Rule, Salzberg, Higbee, Menlove, and Smith (2006) noted that the "anticipated benefits of technology-mediated consultation were never fully realized" (p. 4) following the intervention.

Consent

We identified 12 articles (48%) that included the term "consent." All of the studies that included this term described that informed consent was obtained to participate in the study from relevant research participants or their legal guardians. Savin et al. (2006) noted that a

Table 1
Themes Related to Ethics and Telehealth

Year	Authors	Benefit	Consent	Confidentiality	IRB	Ethics	Security	Privacy	Safety
2006	Barretto, Wacker, Harding, Lee, & Berg	Y	Y	Y	N	N	Y	N	N
2006	Savin, Garry, Zuccar, & Novins	Y	N	N	N	N	N	N	N
2006	Rule, Salzberg, Higbee, Menlove, & Smith	Y	N	N	N	N	N	N	N
2009	Vismara, Young, Stahmer, Griffith, & Rogers	N	Y	N	N	Y	N	N	N
2009	Machalicek et al.	N	N	Y	N	N	N	N	N
2009	Machalicek et al.	N	N	Y	N	N	N	Y	N
2010	Gibson, Pennington, Stenhoff, & Hopper	Y	Y	Y	N	N	N	N	N
2010	Baharav & Reiser	Y	Y	N	Y	N	N	N	N
2010	Machalicek et al.	Y	N	Y	N	N	N	N	N
2011	Gibbs & Toth-Cohen	Y	N	Y	Y	Y	N	Y	N
2011	Szeftel et al.	Y	Y	N	Y	N	Y	N	N
2013	Vismara, McCormick, Young, Nadhan, & Monlux	Y	Y	Y	Y	Y	Y	Y	N
2013	Xie et al.	Y	Y	N	Y	N	N	N	N
2013	McDuffie et al.	Y	N	Y	N	N	N	N	N
2013	Wacker et al.	Y	N	N	N	N	N	N	Y
2013	Wacker et al.,	N	N	N	N	N	Y	N	Y
2013	Wainer & Ingersoll	Y	N	N	Y	N	N	N	N
2013	Hay-Hansson & Eldevik	N	Y	N	N	N	N	N	N
2013	Ruble, McGrew, Toland, Dalrymple, & Jung	N	N	Y	N	N	Y	N	N
2014	Fisher, Luczynski, Hood, Lesser, Machado, & Piazza	N	Y	N	Y	Y	N	N	N
2014	Schutte et al.	N	Y	N	Y	Y	Y	Y	N
2014	Stichter, Laffey, Galyen, & Herzog	Y	Y	N	N	N	N	N	Y
2014	Suess et al.	Y	N	N	N	N	N	N	N
2015	Alnemary, Wallace, Symon, & Barry	Y	Y	N	N	N	N	N	Y
2015	Reese et al.	N	Y	N	N	N	N	N	N

Year	Authors	HIPAA	Law	Debrief	Least Restrictive	Respect	Rights	Risk	Conflict of Interest
2006	Barretto et al.	N	N	N	N	N	N	N	N
2006	Savin, Garry, Zuccar, & Novins	N	N	N	N	N	N	N	N
2006	Rule, Salzberg, Higbee, Menlove, & Smith	N	N	N	N	N	N	N	N
2009	Vismara, Young, Stahmer, Griffith, & Rogers	N	N	N	N	N	N	N	N
2009	Machalicek et al.	N	N	N	N	N	N	N	N
2009	Machalicek et al.	N	N	N	N	N	N	N	N
2010	Gibson, Pennington, Stenhoff, & Hopper	N	N	N	N	N	N	N	N

(table continues)

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Table 1 (continued)

Year	Authors	HIPAA	Law	Debrief	Least Restrictive			Rights	Risk	Conflict of Interest
					Respect	Respect	Respect			
2010	Baharav & Reiser	N	N	N	N	N	N	N	N	N
2010	Machalicek et al.	N	N	N	N	N	N	N	N	N
2011	Gibbs & Toth-Cohen	N	Y	N	N	Y	N	N	N	N
2011	Szefitel et al.	N	N	N	N	N	N	N	N	N
2013	Vismara, McCormick, Young, Nadhan, & Monlux	Y	N	N	N	N	Y	N	N	N
2013	Xie et al.	N	N	N	N	N	N	N	N	N
2013	McDuffie et al.	N	N	N	N	N	N	N	N	N
2013	Wacker et al.	N	N	N	N	N	N	N	N	N
2013	Wacker et al.	N	N	N	N	N	N	N	N	N
2013	Wainer & Ingersoll	N	N	N	N	N	N	N	N	N
2013	Hay-Hansson & Eldevik	N	N	Y	N	N	N	N	N	N
2013	Ruble, McGrew, Toland, Dalrymple, & Jung	N	N	N	N	N	N	N	N	N
2014	Fisher, Luczynski, Hood, Lesser, Machado, & Piazza	N	N	N	Y	N	N	N	N	N
2014	Schutte et al.	Y	N	N	N	N	N	N	N	N
2014	Stichter, Laffey, Galyen, & Herzog	N	N	N	N	N	N	Y	N	N
2014	Suess et al.	N	N	N	N	N	N	N	N	N
2015	Alnemary, Wallace, Symon, & Barry	N	Y	N	N	N	N	N	N	N
2015	Reese et al.	N	N	N	N	N	N	N	N	N

Year	Authors	Damage	Legal	Protection	FERPA	Harm	Professionalism	Surrogate Consent	Welfare	Article %
2006	Savin, Garry, Zuccar, & Novins	N	N	N	N	N	N	N	N	16.7%
2006	Rule, Salzberg, Higbee, Menlove, & Smith	N	N	N	N	N	N	N	N	4.2%
2009	Vismara, Young, Stahmer, Griffith, & Rogers	N	N	N	N	N	N	N	N	8.3%
2009	Machalicek et al.	N	N	N	N	N	N	N	N	4.2%
2009	Machalicek et al.	N	N	N	N	N	N	N	N	4.2%
2010	Gibson, Pennington, Stenhoff, & Hopper	N	N	N	N	N	N	N	N	12.5%
2010	Baharav & Reiser	N	N	N	N	N	N	N	N	12.5%
2010	Machalicek et al.	N	N	N	N	N	N	N	N	8.3%
2011	Gibbs & Toth-Cohen	N	N	N	N	N	N	N	N	29.2%
2011	Szefitel et al.	N	N	N	N	N	N	N	N	12.5%
2013	Vismara, McCormick, Young, Nadhan, & Monlux	N	N	N	N	N	N	N	N	37.5%
2013	Xie et al.	N	N	N	N	N	N	N	N	12.5%
2013	McDuffie et al.	N	N	N	N	N	N	N	N	8.3%

(table continues)

Table 1 (continued)

Year	Authors	Damage	Legal	Protection	FERPA	Harm	Professionalism	Surrogate Consent	Welfare	Article %
2013	Wacker et al.	N	N	N	N	N	N	N	N	8.3%
2013	Wacker et al.	N	N	N	N	N	N	N	N	8.3%
2013	Wainer & Ingersoll	N	N	N	N	N	N	N	N	8.3%
2013	Hay-Hansson & Eldevik	N	N	N	N	N	N	N	N	8.3%
2013	Ruble, McGrew, Toland, Dalrymple, & Jung	N	N	N	N	N	N	N	N	16.7%
2014	Fisher, Luczynski, Hood, Lesser, Machado, & Piazza	N	N	N	N	N	N	N	N	25.0%
2014	Schutte et al.	N	N	N	N	N	N	N	N	16.7%
2014	Stichter, Laffey, Galyen, & Herzog	N	N	N	N	N	N	N	N	4.2%
2014	Suess et al.	N	N	N	N	N	N	N	N	16.7%
2015	Ainemary, Wallace, Symon, & Barry	N	N	N	N	N	N	N	N	16.7%
2015	Reese et al.	0	0	0	0	0	0	0	0	4.2%

grandmother of the research participant was initially hesitant to sign informed consent, because the consultation would be provided by an individual she was not able to meet in person. Following some discussion, informed consent was obtained for this participant.

Confidentiality

Nine studies (36%) included the term “confidentiality.” Gibbs and Toth-Cohen (2011) noted that therapists should be aware of ethical issues of telehealth, including confidentiality. Gibson, Pennington, Stenhoff, and Hopper (2010) reported they closed and locked the door to the research room during research sessions to protect confidentiality. Machalicek et al. (2009a); Machalicek et al. (2009b); Machalicek et al. (2010); and McDuffie et al. (2013) reported that the confidentiality of transmitted data was secured through a virtual private network (or VPN) at 128-bit encryption. Ruble, McGrew, Toland, Dalrymple, and Jung (2013) chose a specific software program for their teleconsultation services because it allowed for confidential transmission of data and communication between teachers and consultants. Savin et al. (2006) described that they conducted their research through a secure network because traditional Internet services did not meet standards for protecting confidentiality. Vismara, McCormick, Young, Nadhan, and Monlux (2013) noted that therapists were explicitly trained to implement the intervention in order to ensure confidentiality of interactions with participants.

IRB

Eight studies (32%) included the term “IRB” or made some mention of an institutional review board. For every study, this term was used to describe that the research project was approved by an institutional review board. In addition, Vismara et al. (2013) noted that their institutional review board did not require researchers to obtain licenses to practice services out of state because telehealth was being conducted in the context of research and not clinical practice.

Ethics

Five articles (20%) used the term “ethic.” Fisher et al. (2014) included information about ethics in the training program for technicians

they evaluated. Gibbs and Toth-Cohen (2011) included components of ethics training in their telehealth service training module. They also discussed that “therapists must be aware of ethical issues in telerehabilitation” (p. 312) and that users of telerehabilitation (telehealth) “must . . . uphold state guidelines and ethical standards” (p. 313). Schutte et al. (2015) reported they always had an on-site technician in a room with a child receiving an assessment, because “it is unethical to leave a child in a room in case of emergency” (p. 183). Both Vismara et al. (2013) and Vismara, Young, Stahmer, Griffith, and Rogers (2009) reported content in ethics as a component of their therapist training.

Security

Five articles (20%) included the term “security.” Ruble et al. (2013); Schutte et al. (2015); Vismara et al. (2013); and Wacker et al. (2013b) all noted that measures were taken to protect security of data transmissions. Savin, Garry, Zuccaro, and Novins (2006) included a discussion point that hypothesized the security of data transmission will improve and become cost-effective for individuals receiving services, along with their families.

Privacy

We found four (16%) instances of the use of the term “privacy.” Gibbs and Toth-Cohen (2011); Gibson et al. (2010); and Schutte et al. (2015) discussed that they chose a particular software program in order to ensure privacy of information and interactions. Vismara et al. (2013) described that their procedures adhered to HIPAA in order to ensure privacy of electronic transactions. They also noted that parents were required to follow privacy guidelines (e.g., not listing identifying information) during electronic transactions.

Safety

Four studies (16%) included the term “safety.” Alnema, Wallace, Symon, and Barry (2015) and Stichter, Laffey, Galyen, and Herzog (2014) described safety concerns as a rationale for telehealth. In particular, Alnema noted that there are many countries that are currently experiencing difficult political cli-

mates (e.g., Iraq and Pakistan). Telehealth services may, then, be a useful tool for providing services to needed areas without having to travel there. Wacker et al. (2013b) and Wacker et al. (2013a) described that an individual was charged with conducting a safety check of the assessment room prior to the beginning of the telehealth consultation session.

Law

Two studies (8%) included the term “law.” Alnema et al. (2015) noted that conducting functional behavior assessment prior to designing a behavior intervention plan is mandated by federal law (Individuals with Disabilities Act [IDEA], 2004). This was used as justification for conducting a functional behavior assessment during telehealth sessions. Gibbs and Toth-Cohen (2011) described the importance of familiarity of laws when conducting consultation; however, they did not describe specific laws pertaining to telehealth. Health care laws are generally governed by individual states and a growing concern from telehealth providers is portability and the need to be licensed in all states in which clients reside (Kramer, Kinn, & Mishkind, 2015).

Health Insurance Portability and Accountability Act

Two studies (8%) mentioned the term “HIPAA,” or the Health Insurance Portability and Accountability Act. Both Schutte et al. (2015) and Vismara et al. (2013) noted that all activities were in compliance with HIPAA. Schutte et al. (2015) utilized the Versatile and Integrated System for Telerehabilitation (VISYTER) to deliver telehealth services. VISYTER is specifically designed to facilitate service delivery and maintain client security and privacy in compliance with the HIPAA rules. VISYTER utilizes an internal server that controls access and encryption of client data as well as data storage (Parmanto et al., 2010). Vismara et al. (2013) included a separate Notice of Privacy Practices to participants specifying protocols for the technology they utilized to deliver interventions.

Risk

Stichter et al. (2014) was the only study (4%) to include the term “risk.” This term was used in

the context of conducting a risk assessment when determining whether or not to deny an individual real-world experiences due to their challenging behavior. Risk assessments specifically related to telehealth services including privacy and security were not identified.

Debrief

Hay-Hansson and Eldevik (2013) described that “all participants were offered a short debriefing and feedback after the post-test and the follow-up test” (p. 1306) of their intervention. It is unclear if the debriefing and feedback was related to the use of telehealth or as a general practice associated with debriefing following research. This was the only time we identified this keyword.

Least Restrictive

Fisher et al. (2014) was the only study to use the term “least restrictive.” The concept of least restrictive environment was included as content in a training module for therapists. The term was not included in reference to telehealth services facilitating access to services in remote areas or to individuals with limited mobility.

Respect

Gibbs and Toth-Cohen (2011) used the term “respect” to describe rationale for conducting telehealth sessions in the home setting. That is, by working around a family’s schedule, health care professionals may be demonstrating respect for the family’s needs and constraints. We did not identify any additional studies that used this term.

Rights

Vismara et al. (2013) stated that “parents received verbal and written information pertaining to their rights as study participants” (p. 2955). No other studies included this term.

Remaining Terms

We did not identify any studies that included the terms “conflict of interest,” “damage,” “legal,” “profession,” “protection,” “FERPA,” “harm,” “surrogate consent,” and “welfare”.

Article Percentage

The final column in Table 1 indicates the percentage of the total keywords present in each article. Vismara and colleagues (2013) mentioned the greatest number of ethics related terms (37.5%) with the average article mentioning 12.0% of the identified keywords (i.e., three terms) and all articles mentioned at least one (4.2%).

Discussion

This review sought to expand the telehealth and ASD literature base by reviewing the documentation of risk-reducing strategies related to telehealth in research studies. Our results suggest that topics related to ethics are infrequently mentioned in research on telehealth. Ethical terms consistent with the Professional and Ethical Compliance Code for Behavior Analyst Certification Board. (2014b) including “consent,” “confidentiality,” “safety,” “privacy,” “risk,” “safety,” and “respect” were included in less than half of the reviewed studies. Furthermore, when the terms were included, they were rarely related to the use of a telehealth service delivery model. Below, the potential implications of the inclusion of topics related to ethics, along with the omission of ethics related terms specific to telehealth, are explored.

First, the standard research procedures associated with specific terms (e.g., obtaining IRB approval; obtaining informed consent) are implied, and there is no need for explicit description. Many journals do not require a statement regarding IRB approval with the publication. Or, if the study does state such, further discussion is not typically provided regarding specific aspects of ethical compliance (e.g., why consent was obtained in a particular way to avoid coercion). A potential issue with these omissions is that researchers and practitioners might assume there are no special ethical considerations because none were discussed. Analyzing and discussing trends of ethical terms and discussions specific to behavior analytic based ASD services via telehealth might help identify unique areas of ethical consideration that should be considered. For example, behavior analytic services for ASD vary across intensity (e.g., 1–40 hours per week), goals (e.g., skill acquisition, reduction of severe and challenging behavior,

feeding), location (i.e., home, school, and community), and service provider qualifications (e.g., paraprofessional through doctoral professional; see Behavior Analyst Certification Board, 2014a, for further information). It is unclear if these differences in service delivery create a need for different telehealth guidelines. We encourage researchers to include relevant terms and discussions of ethical considerations during telehealth research, and for reviewers and editors to support the inclusion of these terms and discussions in published manuscripts. Furthermore, we encourage clinicians utilizing telehealth services to openly discuss measures they have taken to ensure ethical practices via telehealth services.

The terms “benefit,” “consent,” “confidential*,” and “IRB” were the most common terms to appear during our review. These results are not surprising, in that our inclusion criteria focused on articles that directly measured behavior change aimed to benefit at least one individual with ASD. Obtaining consent, maintaining confidentiality, and obtaining clearance for conducting research from an IRB are standard research practices, but omission of discussion might limit important information related to telehealth research and practice. For example, current consent and surrogate consent laws vary by state, largely focus on end of life issues, and may or may not include provisions pertaining to mental health services (American Bar Association Commission on Law and Aging, 2014). These laws, as well as IRB guidelines, ethical codes (BACB codes 3.01, 3.03, 3.05, 4.02, and 9.03), and practice guidelines (e.g., Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013) present unique challenges for telehealth research and service delivery. As noted in Savin et al. (2006), a potential benefit of telehealth services is the ability to obtain consent from an agent, guardian, or legal surrogate living in a rural setting. But, the temporal and technological restrictions of telehealth services may inherently contribute unforeseen and undesired pressures on attaining informed consent. More detailed discussion of these processes might provide additional insight into potential refinements for IRB guidelines, ethical codes, and practice guidelines.

One potential benefit of telehealth behavioral services is to facilitate meaningful interventions to underserved and/or remote locations. A re-

sulting question is what comprises informed consent that is considered ethical? If delivering service via telehealth, does the consent process need to be altered to allow for consent to treatment first (i.e., consent for what will be provided), and then require consent for treatment via telehealth (i.e., consent for how treatment will be provided). For example, an individual might consent for behavior analytic treatment of symptoms related to ASD, but might have opposition to delivery of that treatment via telehealth models. Yet, there are no face-to-face options available for the individual. Does this constitute a measure of coercion because of a lack of treatment modality options?

It is also surprising that only 36% and 16% of the articles we reviewed included statements about maintaining confidentiality and privacy, respectively. Given the threat to breaches of confidentiality and privacy that may exist by the electronic transmission of data, this finding may be problematic as maintaining security of personal health information is of primary ethical and legal concern for practitioners using telehealth technology (e.g., APA Guideline 4; BACB code 2.06a-e). The Health Information Technology for Economic and Clinical Health (HITECH) Act was enacted on November 30, 2009 (Health and Human Services, 2015). This act promotes the use and adoption of health information technology and covers legal areas involving technology not directly covered by HIPAA rules. With regards to HIPAA, federal requirements include two rules that are especially pertinent to the discussion of ethics in telehealth service delivery to individuals with ASD. The Privacy Rule (Health and Human Services, 2002) defines who has access to protected health information (PHI), and the Security Rule establishes protocols to safeguard access to electronic protected health information. The Security Rule (Health and Human Services, 2003) does not pertain to any client information that is written on paper or communicated orally. Though it is likely the studies included in this review ensured appropriate security of personal health information for their participants through the IRB review process, we recommend future researchers describe the security of the platforms utilized. This might allow researchers and practitioners seeking to begin using telehealth technologies to take measures to secure the transmission of confidential data, and the poten-

tial refinements of IRB guidelines, ethical codes, and practice guidelines.

The Joint Task Force for the Development of Telepsychology Guidelines for Psychologists (2013) states informed consent that addresses the unique concerns of telehealth be sought (Guideline 3). Further guidance regarding specific areas to include in the consent process, which are also related to privacy and confidentiality, are provided by The Consortium of Telehealth Resource Centers (CTRC). The CTRC (2015) state that through the use of telehealth, access to client information may be gained unscrupulously in real-time and unbeknownst to either the client or the provider. In order to prevent data breaches, large agencies typically have entire departments dedicated to information technology. The CTRC further states, ethically speaking, clients need to be aware of anyone who might have a reason to access their information, even for simple technical maintenance of the electronic system. Additional questions to ask might be, ask who is responsible for securing the client's end of the infrastructure including the need to possibly train the client or surrogate in the use of technology? Will the complexities and cost of technically maintaining highly secured and private telehealth services that meet HIPAA rules impede access to these services? These are potentially important questions for researchers and practitioners to consider as telehealth services continue to expand. Research determining participation rates in telehealth research and clinical practice with and without more explicit consent processes detailing privacy and security, and the resources needed to maintain the privacy and security resources, might further guide this discussion.

Two studies used the term "law." Of these, only Gibbs and Toth-Cohen (2011) recommend becoming familiar with local laws when conducting telehealth services. This is surprising, given the variety of state laws and regulations that govern behavior analysts (see Association for Professional Behavior Analysts, 2015) and other health care professionals. Some state laws may not require licensure from a behavior analyst who is conducting telehealth services from another state. Other states may require a temporary license, while other states may require a license within that state, even if the provider is licensed in another state. This has important implications for practice. As demands for tele-

health services increase, both for supervision of behavior analysts and for autism treatment, practitioners must become familiar with all laws in the states they provide services within. Doing so may better align practices with state and federal law, as well as the Professional and Ethical Compliance Code for Behavior Analyst Certification Board. (2014b; Code 9.01).

This paper is limited in focus in that it addresses only behavior-analytic research on telehealth for individuals with ASD, but attempts to relate it to ethical considerations from a broader field (i.e., BACB Professional and Ethical Compliance Code, APA Guidelines for Telepsychology, federal guidelines and law). A broader focus of research inclusion might indicate there are sufficient data to answer questions posed here. Future researchers may wish to examine ethical practices in telehealth services for individuals with ASD in the broader scope of multiple disciplines of service delivery.

Given the need for increased behavior analytic services to support the growing population of individuals with autism spectrum disorders it is likely that the implementation of telehealth service delivery models will increase. It may benefit behavior analysts to continue the discussion of updates to the Professional and Ethical Compliance Code for Behavior Analyst Certification Board. (2014b), creating practice guidelines unique to behavior analysis, or adopting existing guidelines (e.g., Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013).

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