

A Telemedicine-based ASD Evaluation Tool for Toddlers and Young Children



TELE-ASD-PEDS (TAP) USER'S MANUAL

TELE-ASD-PEDS (TAP): A Telemedicine-based ASD
Evaluation Tool for Toddlers and Young Children

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User's Manual

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Learn more at:
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Chapter 1:

Introduction

⦿ Background

WHAT IS THE TELE-ASD-PEDS?

The TELE-ASD-PEDS (TAP) is a tool developed for the remote observation of autism-related behaviors in toddlers. The TAP consists of several play-based activities designed to elicit social communication and interaction behaviors—including interactive play, imitation, joint attention, and requesting—and to assess for the presence of restricted interests and repetitive behaviors. It is designed to be used remotely—a clinician guides a caregiver through a series of interactive activities with the child. The child and caregiver may be in a medical office/clinic setting or in a home setting. The TAP takes 15-30 minutes to administer, depending on child, clinician, and caregiver behaviors.

⦿ Development

The TAP was developed using a multi-step process. First, machine learning techniques were applied to a large clinical research database of behavioral assessment variables from children who had received comprehensive evaluations for ASD. Specifically, feature selection techniques were used to identify the clinical features that best differentiate ASD from non-ASD cases, resulting in the identification of seven key variables.¹⁻⁴ Next, a team of Vanderbilt clinicians (i.e., ADOS-2 trainers and research-reliable psychologists) reviewed these variables and created behavioral descriptors based on the underlying constructs they represented. These descriptors were reviewed by a larger group of behavioral providers (i.e., licensed clinical psychological providers, developmental behavioral pediatricians, postdoctoral fellows) to clarify and simplify language. The design team operationalized these behaviors using a Likert-style scale, establishing the items and scoring guidelines appearing on the TAP rating form. Finally, the design team generated a set of administration activities intended to elicit observations tied to these key behaviors.

1-4 Corona, L. L., Wagner, L., Wade, J., Weitlauf, A. S., Hine, J., Nicholson, A., Stone, C., Vehorn, A., & Warren, Z. (2020). Toward novel tools for autism identification: Fusing computational and clinical expertise. *Journal of Autism and Developmental Disorders*. Online first, DOI: /10.1007/s10803-020-04857-x

Wagner, L., Corona, L. L., Weitlauf, A. S., Marsh, K. L., Berman, A. F., Broderick, N. A., Francis, S., Hine, J., Nicholson, A., Stone, C., & Warren, Z. (2020, 2020/10/30). Use of the TELE-ASD-PEDS for Autism Evaluations in Response to COVID-19: Preliminary Outcomes and Clinician Acceptability. *Journal of Autism and Developmental Disorders*. <https://doi.org/10.1007/s10803-020-04767-y>

Corona, L. L., Weitlauf, A. S., Hine, J., Berman, A., Miceli, A., Nicholson, A., Stone, C., Broderick, N., Francis, S., Juárez, A. P., Vehorn, A., Wagner, L., & Warren, Z. (2020). Parent Perceptions of Caregiver-Mediated Telemedicine Tools for Assessing Autism Risk in Toddlers. *Journal of Autism and Developmental Disorders*, 51, 476-486. <https://doi.org/10.1007/s10803-020-04554-9>

Corona, L., Hine, J., Nicholson, A., Stone, C., Swanson, A., Wade, J., Wagner, L., Weitlauf, A., & Warren, Z. (2020). TELE-ASD-PEDS: A Telemedicine-based ASD Evaluation Tool for Toddlers and Young Children. Vanderbilt University Medical Center. <https://vkc.vumc.org/vkc/triad/tele-asd-peds>

WHO SHOULD USE THE TAP?

The TAP is designed for use by providers with specific training and expertise in recognizing autism symptoms and diagnosing ASD in toddlers. These providers may include psychologists and licensed senior psychological examiners, speech-language pathologists, developmental pediatricians, nurse practitioners, and other allied health professionals with ASD assessment experience.

HOW DOES THE TAP FIT INTO A DIAGNOSTIC EVALUATION?

The TAP is designed to be a tool used flexibly to guide observations of toddlers referred for concerns related to ASD. It is appropriate for use as part of a diagnostic evaluation, or as an evaluation of risk for ASD. When used as a diagnostic tool, the TAP should be combined with a thorough developmental and medical history, as well as a comprehensive interview regarding the presence of ASD-related behaviors. Evaluation outcomes, including any diagnostic decisions, should be based on the provider's clinical judgment and the totality of information available about the child. An ASD diagnosis should not be solely based on the TAP score.

WHAT ARE THE AGE RANGE AND LIMITATIONS OF THE TAP?

The TAP was developed using a database including toddlers between 14-36 months of age. Subsequent research has documented use with children as young as 17 months and as old as 60 months.^{1,2} The scores and processes described in this manual may be less relevant than clinical judgment when evaluating children who are older than 36 months of age, are not walking, have medical complexities that would complicate the diagnosis (e.g., visual or hearing impairments), have a complex trauma history, or are not living with a familiar caregiver. We encourage individual providers and groups to use their best clinical judgment in determining what seems appropriate and a good fit for their patients and practice.

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- 1 Wagner, L., Weitlauf, A.S., Hine, J., Corona, L.L., Berman, A.F., Nicholson, A., Allen, W., Black, M., & Warren, Z. (2022). Transitioning to telemedicine during COVID-19: Impact on perceptions and use of telemedicine procedures for the diagnosis of autism in toddlers. *Journal of Autism and Developmental Disorders*, 52(5), 2247-2257. doi: 10.1007/s10803-021-05112-7.
 - 2 Wagner, L., Corona, L.L., Weitlauf, A.S., et al. (2021). Use of the TELE-ASD-PEDS for autism evaluations in response to COVID-19: Preliminary outcomes and clinician acceptability. *Journal of Autism and Developmental Disorders*, (51), 3063-3072. doi.org/10.1007/s10803-020-04767-y

⊙ Components

TAP ADMINISTRATION GUIDELINES:

The administration guidelines include a list of behaviors for the examiner to observe throughout the administration, as well as guiding questions for individual items. Each activity is described, together with suggested verbal instructions for the provider to deliver. Space is provided for recording observations. Separate guidelines are provided for clinic and home-based administrations, as the materials and activities differ slightly.

TAP RATING FORM:

The TAP rating form is used to calculate the child's score on seven key behaviors. The total score can be used to assist in determining risk classification.

⊙ Materials

The materials in Table 1 are meant to be suggestions. The specific materials used will depend on the setting of administration and the resources available to the provider and caregivers.

TABLE 1.

PLAY MATERIALS	REQUESTING MATERIALS	READY, SET, GO MATERIALS
3 – 5 toys that could include: <ul style="list-style-type: none"> • Shape sorter • Cars, trains, trucks • Ball • Dishes/utensils/cups • Musical toys • Baby doll • Stuffed animals 	<ul style="list-style-type: none"> • Clear container with a lid that screws on tightly or closes tightly • Snack for container: goldfish, fruit snacks, animal crackers • Bubbles 	<ul style="list-style-type: none"> • Soft ball • Car/truck/train • Deflated balloon

Chapter 2:

Administration

⦿ General Administration Guidelines

Before administration, the provider should be familiar with the TAP items, materials, and rating form.

The TAP instructions and tasks can be modified and repeated as needed for the clinician to make meaningful observations.

For items with multiple trials, the full set of trials does not need to be administered at the same time. For example, if a child loses interest during a requesting activity, the clinician may advise the caregiver to delay presenting another trial until the child's motivation increases.

The clinician may need to ask the caregiver for their observations during the assessment (e.g., asking about eye contact, clarifying a child's speech or vocalizations).

General guidelines are provided regarding materials to be used during the TAP; however, clinicians and caregivers may substitute materials based on availability and the preferences of the child. There is likely clinical utility to observing when a child has trouble disengaging from certain activities; however, clinicians should be prepared to coach caregivers when a preferred item is preventing a comprehensive observation. Caregivers should be discouraged from providing technology-based activities (e.g., phones, tablets, computers) during the TAP.

After administering the TAP, the clinician should ask whether the child's behavior during the administration was representative of the child's behaviors generally, acknowledging that only a short sample of the child's behavior was observed. Recall that the TAP should be used as one part of an evaluation that includes a clinical interview with the child's caregiver. The TAP can be administered before or after the clinical interview, depending on clinician and family preference.

⦿ Clinic-Based Administration & Item Descriptions

1. Introduce the TAP to the caregiver and orient them to the location of the materials in the room. If you routinely conduct the TAP within a clinic setting, we recommend having a complete kit of materials roughly corresponding to Table 1.
2. Administer each item described in the *TAP Administration Guidelines*. Record observations of the child's behavior in the space designated on the administration guidelines form.
3. Assign a score using the Likert-scale (1, 2, 3) for each of the seven key behaviors defined on the *TAP Rating Form*.
4. Calculate a total score to assist in determining the child's risk classification.

CHILD DIRECTED PLAY:

The caregiver introduces toys for the child to play with. The goal is to observe the child's play behaviors, as well as interactions with the caregiver during play. The caregiver lets the child explore the toys independently, without labeling toys or giving specific instructions. The caregiver may respond to the child as he/she would typically if the child initiates an interaction.

JOINT PLAY:

The caregiver joins the child's play in whatever way feels natural to him/her. Encourage the caregiver to make initiations towards their child, rather than simply playing near him/her.

CALLING NAME (TWO TRIALS):

The caregiver calls the child's name once when the child is not looking toward the caregiver. Play materials may be kept out for this item.

DIRECTING CHILD'S ATTENTION (TWO TRIALS):

The caregiver finds an object in the room, gets the child's attention, and shifts their gaze while pointing at the object and saying, "**NAME, look!**"

FAMILIAR PLAY ROUTINE:

The caregiver initiates a familiar routine with their child (e.g., peek-a-boo, tickling).

READY, SET, GO! (THREE TRIALS):

The caregiver blows up a balloon and holds it in the air. The caregiver says, "**Ready, set, go!**" enthusiastically while releasing the balloon. Once the caregiver has the child's attention, he/she pauses to give the child an opportunity to respond/interact/initiate the routine.

REQUESTING:

- Snack (three trials): The caregiver gives the child a snack container that he/she cannot open independently. The caregiver says, "**You can have some**" and pauses to give the child an opportunity to ask for help. After the child requests, or if the child does not request when given the opportunity, the caregiver can give the child a piece of the snack, and then close the container. This process is repeated two additional times.
- Bubbles (three trials): The caregiver blows bubbles for the child and then pauses while holding the bubble wand out of reach to give the child an opportunity to request more. This process is repeated two additional times.

INDEPENDENT PLAY + IGNORING:

The caregiver re-presents the toys and ignores the child while he/she is playing. If the child makes an initiation towards the caregiver, the caregiver can respond to the child.

⦿ Home-Based Administration & Item Descriptions

1. Before administration in a home setting, clinicians are advised to send information to families about what to expect and how to prepare for the visit, including instructions for using the telehealth system. An example of this document, titled "*Preparing for Your Child's Telehealth Visit*," is included in the appendix (see p. 30). Ideas for play materials to have available are included in the document sent to families before the appointment. We encourage clinicians to rely as much as possible on what a family already has available in their home. A sample introductory video designed for families is also available at: triad.vumc.org/tap.
2. Introduce the TAP to the caregiver and make sure they have the necessary materials available. Of note, the *TAP Administration Guidelines* for home-based administration includes a place to record the child and caregiver(s)' physical address and phone number, in the event that the video connection fails or there is an emergency.
3. Administer each item described in the *TAP Administration Guidelines*. Record observations of the child's behavior in the space designated on the administration guidelines form.
4. Using the *TAP Rating Form*, assign a score using the Likert- scale (1, 2, 3) for each of the seven key behaviors defined on the form.
5. Calculate a total score to assist in determining the child's risk classification.

CHILD DIRECTED PLAY:

The caregiver provides a set of age-appropriate toys for the child to play with. The goal is to observe the child's play behaviors, as well as interactions with the caregiver during play. The caregiver is instructed to let the child explore the toys independently, without labeling toys or giving specific instructions. The caregiver may respond to the child as he/she would typically if the child initiates an interaction.

JOINT PLAY:

The caregiver joins the child's play in whatever way feels natural to them. The goal is to observe the quality of their interactions and see how the child responds to their caregiver's initiations.

CALLING NAME (TWO TRIALS):

The caregiver calls the child's name once when the child is not looking toward the caregiver. Play materials may be kept out for this item

DIRECTING CHILD'S ATTENTION (TWO TRIALS):

The caregiver finds an object in the room, gets the child's attention, and shifts their gaze while pointing at the object and saying, "**NAME, look!**"

FAMILIAR PLAY ROUTINE:

The caregiver initiates a familiar routine with their child (e.g., peek-a-boo, tickling).

READY, SET, GO! (THREE TRIALS):

The caregiver initiates a "**Ready, set, go!**" routine with one of the toys they have available. Possible routines include, rolling a car or ball, tossing a soft object into the air, or blowing up a balloon and releasing it. The caregiver says, "Ready, set, go!" enthusiastically as they complete the routine. Once the caregiver has the child's attention, the caregiver pauses to give the child an opportunity to respond/interact/initiate the routine.

REQUESTING (THREE TRIALS):

The caregiver presents a highly preferred item (toy or snack) enclosed in a clear container the child cannot open independently. The caregiver tells the child, "**You can have some**" and then hands the closed container to the child. After the child requests, or if the child does not request when given the opportunity, the caregiver can give the child a piece of the snack/brief access to the toy, and then close the container. This process is repeated an additional two times.

INDEPENDENT PLAY + IGNORING:

The caregiver provides a set of age-appropriate toys for the child to play with and is instructed to ignore the child while he/she is playing.

Chapter 3:

Scoring and Interpretation

⦿ Scoring Guidelines

After administration is complete, the clinician uses the *TAP Rating Form* to record a score for seven key behaviors based on observations of the child. No score is linked to any specific item.

Each child is scored on seven key behaviors using Likert-ratings (1, 2, 3):

1. Socially directed speech and sounds,
2. Frequent and flexible eye contact,
3. Unusual vocalizations,
4. Unusual or repetitive play,
5. Unusual or repetitive body movements,
6. Use of gestures and integration with eye contact and speech/vocalization, and
7. Unusual sensory exploration or reaction.

A score of (1) is provided if the symptom is not present. A score of (2) is provided if the symptom is present, but at subclinical levels. A score of (3) is provided if the symptom is present and obviously consistent with autism spectrum disorder. Specific scoring guidelines for each key behavior, across each of the seven items, are provided on the rating form. A total score is calculated and recorded by summing the child's Likert-style scores for each key behavior.

Note: This tool is designed to help a clinician observe and quantify the presence of autism symptoms during a tele-evaluation. TAP scores can be based on the totality of the clinician's observations during the evaluation. This means that behaviors observed by the clinician outside of the TAP administration can be taken into consideration when scoring. For example, if a child does not engage in repetitive play during the TAP administration but does engage in clear repetitive play as the clinician is completing a clinical interview, this behavior may be considered in scoring.

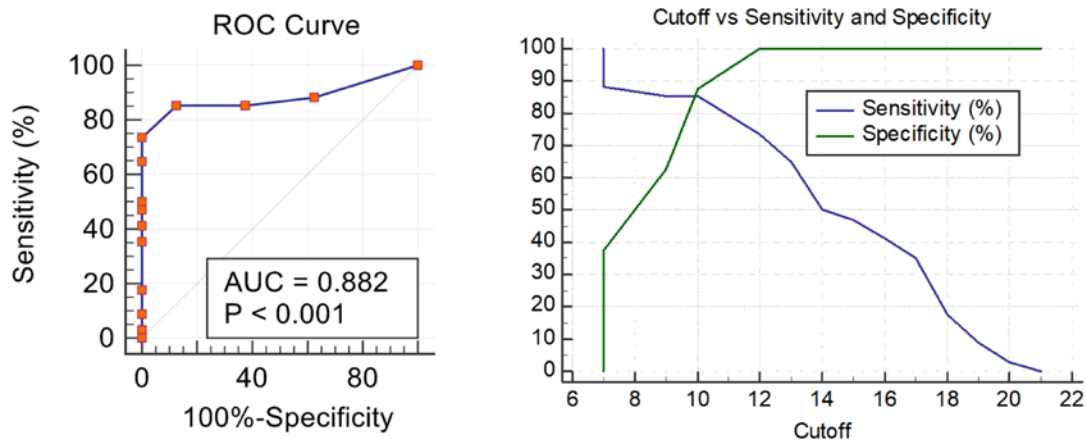
⦿ Determining Risk Status

The *TELE-ASD-PEDS (TAP) Rating Form* is intended to help providers organize their observations based on seven key behaviors. These observations, together with the total score, can inform clinical decision-making. The total score can also be used in determining an ASD risk classification based on psychometric functioning.

Current use and research suggest that children who score 12 or higher on the TAP have an increased likelihood of ASD. This score was increased from 11 to 12 based on recent data. For additional information regarding the development of the risk score for the TAP, please see p. 19 in the Appendix.

Appendix

The administration guidelines and rating form that comprise the TAP have also been built into an interactive app intended to guide in-person administration of brief autism assessment¹. Initial data collected using this modality informed the initial recommended risk scores described in this manual ([see p. 17](#)). This sample included 42 children (28 male, 14 female) between the ages of 16 and 39 months of age ($M = 29.4$, $SD = 5.3$) who received both a brief assessment using TAP procedures, as well as traditional, comprehensive ASD evaluations. A Receiver Operating Characteristic (ROC) curve analysis was conducted to determine the optimal cutoff score for the TAP to discriminate between children at low and high risk of ASD based upon results of comprehensive in-person evaluation. The instrument's output score ranges from 7-21 given the coding structure that includes 7 items, each with a 3-point response scale. Using comprehensive evaluation diagnosis as the binary target variable (i.e., 1 for ASD and 0 otherwise) and the TAP total score as the predictor variable, we carried out a ROC curve analysis using MedCalc statistical analysis software (version 19.5.3) with default parameters². The Area Under the Curve (AUC) measure was used to evaluate the overall performance of the instrument with respect to best estimate clinical diagnosis and the optimal cutoff was selected based on the Unweighted Average Recall (UAR) measures³.

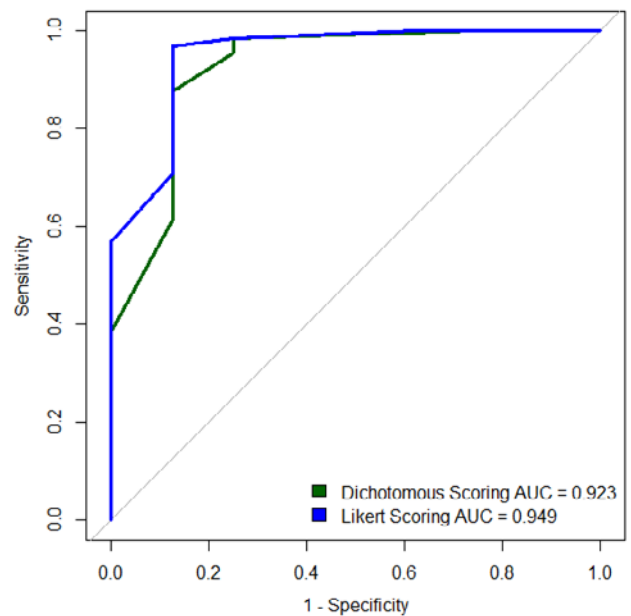


- 1 Adiani, D., Schmidt, M., Wade, J., Swanson, A. R., Weitlauf, A., Warren, Z., & Sarkar, N. (2019, July). Usability enhancement and functional extension of a digital tool for rapid assessment of risk for autism spectrum disorders in toddlers based on pilot test and interview data. In *International Conference on Human-Computer Interaction* (pp. 13-22). Springer, Cham. DOI:10.1007/978-3-030-23563-5_2
- 2 Schoonjans, F., Zalata, A., Depuydt, C. E., & Comhaire, F. H. (1995). MedCalc: a new computer program for medical statistics. *Computer methods and programs in biomedicine*, 48(3), 257-262.
- 3 Bone, D., Goodwin, M. S., Black, M. P., Lee, C. C., Audhkhasi, K., & Narayanan, S. (2015). Applying machine learning to facilitate autism diagnostics: pitfalls and promises. *Journal of autism and developmental disorders*, 45(5), 1121-1136.

A clinical trial (NCT03847337) completed in 2021 examined the accuracy and psychometric properties of the TAP. A total of 73 toddlers between 20-36 months of age completed the TAP in a clinical research setting, with remote clinicians guiding caregivers to complete clinic-based administration activities. Participants then immediately completed traditional, in-person assessment using the Autism Diagnostic Observation Schedule (ADOS-2) as well as measures of developmental functioning (Mullen Scales of Early Learning and Vineland Adaptive Behavior Scales, 3rd Edition). Clinicians' diagnostic impressions following tele-assessment were compared with diagnoses assigned following in-person assessment, resulting in diagnostic agreement in 93% of cases.

Optimal cut-scores for the TAP were calculated using both dichotomous and Likert scoring procedures. The following indices were calculated at all possible cutoff points: sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), Cohen's kappa, and Youden's Index. Cohen's kappa is a measure of interrater agreement and in this context, represents the agreement between the TAP and the clinical diagnosis based on in-person assessments. Youden's index represents the likelihood of a positive test result among individuals with the condition versus individuals without the condition of interest (Zhou et al., 2011).¹ Youden's index is calculated as the sum of the sensitivity and specificity minus one. Once optimal cutoff scores were identified, the sensitivity, specificity, positive predictive value, and negative predictive values were calculated and compared. Specifically, differences in sensitivity and specificity between the two scoring procedures for the TAP were analyzed using McNemar's test, while differences in PPV and NPV were analyzed using the method proposed by Moskowitz and Pepe (2006).²

Receiver operating characteristic (ROC) curves were used to examine the diagnostic accuracy of the TAP using dichotomous and Likert scoring procedures. Analyses indicated an AUC of 0.923 (95% CI: 0.801-1.000) for the dichotomous scoring and an AUC of 0.949 (95% CI: 0.860-1.000) for the Likert scoring. Both were significantly different from chance level ($p < 0.001$). The AUCs were not significantly different ($p = 0.175$). Using Youden's Index, the optimal cutoff point was found to be 15 for the dichotomous scoring method and 12 for the Likert scoring method. The sensitivity of the Likert scoring method was significantly different from the sensitivity of the dichotomous rating method ($p = 0.014$). The negative predictive value (NPV) of the Likert scoring procedure was also significantly different from the NPV of the dichotomous scoring ($p = 0.015$). Using the optimal Likert scoring cutoff score of ≥ 12 resulted in sensitivity of 0.97, specificity of 0.88, PPV of 0.98, and NPV of 0.78.



1 Zhou, X. H., Obuchowski, N. A., & McClish, D. K. (2011). Measures of diagnostic accuracy. In *Statistical Methods in Diagnostic Medicine* (pp. 13-55). Wiley. <https://doi.org/10.1002/9780470906514>

2 Moskowitz, C. S., & Pepe, M. S. (2006). Comparing the predictive values of diagnostic tests: sample size and analysis for paired study designs. *Clinical Trials*, 3(3), 272-279. <https://doi.org/10.1191/1740774506cn147oa>

Place a check in the first column after the procedure has been completed

✓	PROCEDURES	BEHAVIORAL OBSERVATIONS
	<p>Let child play with cause-and-effect toys (2 minutes)</p> <p><i>**I'd like for you to put the first box of toys on the floor or table and turn the music box on.</i></p> <p><i>We're going to let him/her play with these toys for a couple of minutes. We're going to just watch how he plays. Just sit back, but respond to him/her as you normally would if he/she tries to get your attention. Try not to give him any instructions during this time, okay?</i></p>	
	<p>Calling child's name and getting attention (1st trial set)</p> <p><i>** (Keeping the toys on the floor) - While <u>NAME</u> is not looking at you, please call his/her name one time.</i></p>	
	<p>Directing the child's attention (1st trial set)</p> <p><i>** (Keeping the toys on the floor) - I'd like to see if <u>NAME</u> will look at the picture on the wall. Point to the picture and say, "<u>NAME</u>, look!" one time.</i></p>	
	<p>Parent and child joint play with toys (2 minutes)</p> <p><i>** Now I want you to play in whatever way you choose with <u>NAME</u> for the next couple minutes. I'll tell you when to stop. You can grab the second box of toys and put them on the floor or table as well. Just play like you would at home.</i></p>	
	<p>Calling child's name and getting attention (2nd trial set)</p> <p><i>** (Keeping the toys on the floor) - While <u>NAME</u> is not looking at you, please call his/her name one time.</i></p>	
	<p>Directing the child's attention (2nd trial set)</p> <p><i>** Try to get <u>NAME</u> to look at the picture on the wall again. Point to the picture and say, "<u>NAME</u>, look!"</i></p>	

✓	PROCEDURES	BEHAVIORAL OBSERVATIONS
	<p>Familiar play routine (up to 2 minutes)</p> <p>**(After asking the parent what types of game routines they play at home with <u>NAME</u>, such as peek-a-boo or tickling) - <i>I'd like you to go ahead and play that game with <u>NAME</u>. I'll tell you when to stop.</i></p>	
	<p>Please put all of the toys back on the shelf and take the bubbles down.</p>	
	<p>Blow bubbles and stop (3x)</p> <ol style="list-style-type: none"> 1. <i>Blow the bubbles once for <u>NAME</u>. After you blow them, pause so that we can see how <u>NAME</u> reacts. Please don't give <u>NAME</u> the bubbles or prompt him/her. We just want to see what he/she does on his own.</i> 2. <i>You may now blow them for him/her again. Again, pause after blowing them so we can see how he/her reacts.</i> 3. <i>Please blow them one more time and pause so that we can see he/she reacts.</i> <p>(Whether or not the child requests, have the parent repeat this process for a total of 3 times)</p>	
	<p>Please put the bubbles back on the shelf and get a balloon.</p>	
	<p>Blow and release balloon (3x)</p> <ol style="list-style-type: none"> 1. <i>Blow the balloon up and hold it in your hand. Don't let go! After you blow it up, say "Ready, set, go" and then release it. Then pause so that we can see how <u>NAME</u> reacts. Be sure he/she doesn't put it in his/her mouth!</i> 2. <i>You may blow up the balloon again, say "Ready, set, go" and then release it. Again, pause so that we can see how he/she reactions.</i> 3. <i>Please repeat the routine with the balloon one more time so that we can see how he/she reacts.</i> <p>(Whether or not the child requests, have the parent repeat this process for a total of 3 times)</p>	

✓	PROCEDURES	BEHAVIORAL OBSERVATIONS
Does your child have any food allergies or trouble swallowing? (IF YES SKIP)		
	<p>Give child snack in jar they can't open (3x)</p> <ol style="list-style-type: none"> 1. <i>Now I want you to take the snack jar, hand it to <u>NAME</u> and say "You can have some." Then pause, and we'll wait to see how he/she reacts.</i> (Whether or not the child requests) - <i>Go ahead and give <u>NAME</u> one piece of snack and put the lid back on the jar.</i> 2. <i>I'd like for you to repeat that again. Give him/her the snack jar, hand it to <u>NAME</u> and say "You can have some". Remember to pause to see how he reacts.</i> (Whether or not the child requests) - <i>Go ahead and give <u>NAME</u> one piece of snack and put the lid back on the jar.</i> 3. Please repeat that same routine with the snack one more time. (Whether or not the child requests) - <i>Go ahead and give <u>NAME</u> one piece of snack and put the lid back on the jar.</i> 	
	<p>Free play with toys and ignoring child (2 minutes)</p> <p><i>**Now I'd like you to put all of the toys on the floor. We're going to allow <u>NAME</u> play for a couple of minutes. During this time, I want you to ignore him/her to see if he/she will try to get your attention. I'll tell you when to stop.</i></p>	

General Behavioral Observations to keep in mind

Speech & Sounds

- Use of words or word approximations
- Directed or undirected?
- Requests, sharing enjoyment, directing attention, chatting?
- Atypical non-word noises?
- Intonation?

Coordinating eye contact/gestures/speech or vocalizations

- Gestures: pointing, reaching, clapping, beckoning, etc.
- Can child look at caregiver, make a sound, and gesture all together?
- Does child use caregiver's hand as a tool?

Play

- Functional play?
- Pretend play?
- Imitation?
- Repetitive or unusual play: lining up, scrambling/dropping/throwing toys
- Becomes preoccupied with a certain toy/activity

Body Movements

- Hand flapping
- Posturing
- Tensing
- Toe-walking
- Facial grimacing
- Hand/finger mannerisms
- Repetitive running/walking/spinning/bouncing/jumping

Sensory Differences

- Visual inspection
- Seeking out textures
- Mouthing/licking objects
- Sound/light/texture sensitivity
- Self-injury (e.g., scratching or biting self, head-banging)

Procedures

Introduction

“Hi, I’m _____. Before we get started, can I get your full name, your child’s full name & DOB, your current location (address), and a phone number to reach you if we get disconnected or if there is an emergency?”

Name:	Phone:
Child Name:	DOB:
Address:	

“I am going to ask you to play with your child with toys and objects that you have in your home.

The materials we will need are:

- 3-5 toys for free-play
- Clear container with lid that has a snack or other desired object in it (e.g., stickers)

I may ask you if NAME is looking at you during some of the tasks. Please let me know if you have any questions along the way.”

Child-Directed Play (2 minutes)

“Find 3-5 toys and put them on the floor/table near NAME.”

[Toys could include: pop-up toy with buttons, musical toys, shape sorter, puzzle, blocks]

“We are going to let him/her play with these toys for a couple minutes. You can just sit back and let him/her play and respond normally if he/she tries to get your attention. We will do our best to not tell him/her directly what to do.”

Notes:

Calling Name #1

“While NAME is not looking at you, please call his/her name one time.”

[Does child look to caregiver with eye contact?]

Notes:

Directing Child's Attention #1

"Find something on the wall or an object across the room that you could point to. Point to that object and say, 'NAME, look!' one time."

[Does child follow caregiver's point and gaze to look at object?]

Notes:

Joint Play (2 minutes)

"Now you can join NAME and play in whatever way feels natural. You can include new toys if you'd like."

Notes:

Calling Name #2

"While NAME is not looking at you, please call his/her name one time."

[Does child look to caregiver with eye contact?]

Notes:

Directing Child's Attention #2

"Find something on the wall or an object across the room that you could point to. Point to that object and say, 'NAME, look!' one time."

[Does child follow caregiver's point and gaze to look at object?]

Notes:

Familiar Play Routine

"Is there a game that you like to play with NAME like peek-a-boo OR 'I'm gonna get you? Go ahead and play that game with NAME for a couple of minutes."

[Does child respond to caregiver's bid to play? Shared enjoyment? Requesting? Initiating routine?]

Notes:

Ready, Set, Go

"Find a ball, a toy car/truck, or something else that you could roll or throw. Hold the toy and say, 'Ready, Set, Go!' and then roll/throw the object. Pause to see how NAME reacts."

[Please administer a total of three times]

[Did the child request? Did the child coordinate eye contact with gestures/vocalizations? Giving, showing shared enjoyment behaviors?]

Notes:

Requesting/Snack

"Find a Tupperware or other similar container, fill it with a snack, and give it to NAME." OR

Alternatives:

"Fill a container with small objects (e.g., stickers, blocks, etc.) and give to NAME."

"Hand container to NAME and say, 'You can have some.' Wait and see how NAME reacts."

"Give NAME one piece of snack/one sticker, etc. Close container."

[Please administer a total of three times]

*[Did the child request? Did the child coordinate eye contact with gestures/vocalizations?
Hand as tool?]*

Notes:

Independent Play + Ignoring (2 minutes)

"Get out some toys and let NAME play for a couple minutes on his/her own. I want you to ignore NAME for a couple minutes, but if he/she approaches you just respond as you normally would. I will let you know when we are done."

[Initiates an interaction?]

Notes:

Closing

"Was this a good snapshot of your child's behavior?"

Notes:

Please complete TAP rating form.

Child age: ____ mos
Gender: M F

TAP (TELE-ASD-PEDS) Rating Form

Dichotomous score: Is the symptom present or not (1 vs. 3)

Likert score: 1 = symptom not present; 2 = symptom present but at subclinical levels; 3 = symptom obviously consistent with ASD

Item	1	2	3	Dichotomous 1/3	Likert 1/2/3
Socially directed speech and sounds	Child often uses words or other vocalizations for a variety of social purposes (e.g. requesting, protesting, directing attention, sharing enjoyment).	Inconsistent socially directed speech.	Child does not direct vocalizations (i.e., words, non-word sounds) to others. Most sounds are self-directed or undirected.		
Frequent and flexible eye contact	Child frequently makes eye contact with others across a variety of activities.	Child's eye contact seems inconsistent. Gaze seems less flexible and harder to catch than expected.	Child infrequently makes eye contact. Might only make eye contact during one activity (e.g., asking for help).		
Unusual vocalizations	No unusual qualities of speech/language observed. Most of child's vocalizations (i.e., words, non-word sounds) are appropriate for the child's developmental level.	Speech is not clearly unusual, but there are some differences (e.g., volume, slight repetitive quality of speech/language, unclear echoing, some occasional sounds that are unusual).	Child produces unusual jargon, sounds, or speech/language (e.g., undirected jargon, speech of peculiar intonation, unusual sounds, repetitive vocalizations, echoing or repetitive speech/language).		
Unusual or repetitive play	Child plays with toys in appropriate ways (uses toys as expected for developmental level).	Child's play is not clearly unusual, but child is strongly focused on some toys, routines, or activities. May sometimes be hard to shift child's attention to something new.	Child shows clearly repetitive or unusual play, such as repeatedly pushing buttons, lining things up, or scrambling/dropping toys.		
Unusual or repetitive body movements	No unusual or repetitive body movements seen.	Unclear unusual/repetitive body movements. Some repetitive jumping or very brief posturing of fingers, hands, or arms that is not clearly atypical.	Child clearly shows unusual or repetitive body movements (e.g., hand-flapping, posturing or tensing upper body, toe-walking, facial grimacing, hand/finger mannerisms, repetitive spinning/jumping).		
Use of gestures and integration with eye contact and speech/vocalization	Child's gestures are usually combined with vocalizations and eye contact. Child frequently points and uses other gestures to communicate.	Child does not always look at others or make a sound when gesturing. Child may sometimes point or use other gestures, but less than expected.	Child does not usually gesture to communicate. May sometimes reach or point, but does not usually combine these with eye gaze or sounds. May move your hand or push on your body to get help.		
Unusual sensory exploration or reaction	No unusual sensory behavior observed.	Unclear sensory exploration or reaction. May have a brief response to a sound, smell, or how something feels or moves.	Child shows sensory differences. May closely inspect objects, overreact to sounds, show intense interest or dislike to textures (e.g., touching, licking, biting, refusing to touch specific toys), or clear self-injurious behavior.		
ASD if forced to choose? Absent Unsure Present	Did you recommend in person evaluation for diagnostic clarification? Yes No	How certain are you of your diagnostic impression?			Total Score
		1 Completely uncertain	2 Somewhat uncertain	3 Somewhat certain	
Diagnosis issued:					

Before your appointment:

- Familiarize yourself with the Zoom instructions (attached to this email). Think about which device you will use (phone, tablet, etc.) and where you can place it in the room so that you can be hands-free to play. Please reach out to us with any questions.
- Think about a room you can use to play with your child and chat with us that is as free from distractions as possible (e.g., TV, tablets, siblings). We realize that not all distractions can be avoided all the time!
- Find 5 or 6 toys and set them aside in the room you intend to use (on a table or in a container). Examples of toys include shape sorters, musical toys, puzzles, vehicles, pretend play toys, balls, or anything else that your child loves to play with. Please avoid the use of phones or tablets. We will also need a clear Tupperware with a lid (or similar container with a lid) with a snack in it that your child likes.

What to expect during the appointment:

- The clinician will talk with you about your concerns, ask questions about your child's development and medical history, and ask you to observe, interact, and play with your child.
- The activities are designed so that we can observe how your child communicates and interacts with you and plays.
- Some of these activities will probably feel different from the way you normally interact with your child at home—or even a little silly.
- The clinician will ask you to use specific words or movements so that we can observe specific behaviors and interactions.
- If we have trouble seeing or hearing you or your child clearly, we may ask you to tell us what your child said or where he/she was looking.
- The clinician will give you feedback regarding the evaluation before the end of the meeting.

We look forward to “seeing” you soon!