Subject: CARE Lab Fall 2020 Newsletter
Date: Thursday, October 29, 2020 at 3:26:28 PM Eastern Daylight Time
From: Center for Autism Research Excellence on behalf of Center for Autism Research Excellence
To: Autism Research Excellence, Center for

Welcome to the CARE Fall Newsletter!

We are delighted to share news about our research programs with you! You will see, we are making every effort to continue despite the pandemic! Even though we are not able to see families in person right now, we are taking advantage of remote technologies to collect new data, continue with our ongoing studies, and publishing papers that result from our work.

We are deeply grateful to all of our participating families who make our research possible. We miss seeing you in person but encourage you to sign up for our remote studies and, especially, to pass this newsletter along to other families who will be interested in our work. Thank you; we could not do this work without you!

Updates from our Exciting Research Projects!

Attention Training for Listening in Autism Study (ATLAS) has gone **REMOTE**! We are **interviewing caregivers of young adults with ASD to learn how their child's sensory sensitivities impact their child's transition to adulthood**. We are looking for caregivers who have a child with ASD, who is between 16 and 26, and who lives at home. Participation takes about 3 hours and involves a consent video call, six surveys, and an interview on Zoom with a staff member. If you are interested in participating, or know another family who might be eligible, please fill out our screener, call/text 617-992-6475, or email atlas@bu.edu.

The Infant Screening Project (ISP) is a collaborative longitudinal study carried out by us at Boston University and our colleagues at Boston Children's Hospital. We aim to **identify risk markers for ASD and/or communication difficulties across**

early development. We collect clinical, behavioral, and electrophysiological data as well as information from parent interviews and questionnaires to identify early biological and behavioral markers of development. Although study recruitment is closed, the research team is following up with children both virtually and in-lab at 12, 18, 24, and 36 months and with parents at 48 and 60 months. If you have questions about ISP, please contact isp@childrens.harvard.edu.


The Predicting and Optimizing Language Outcomes (POLO) collaborative research program has gone **REMOTE** and is **recruiting NATIONWIDE**! In partnership with Massachusetts General Hospital's Speech and Feeding Disorders Lab and Boston University's Motor Development Laboratory, we are investigating **how motor and language systems work, hand-in-hand, in minimally and nonverbal children with ASD**. Participation is open for families with children ages 3-8, with an effort to enroll families who live OUTSIDE the Greater Boston area. Participation takes about 3 hours over the course of several virtual visits and involves the completion of online questionnaires and activities over video chat. If you have any questions about POLO, please contact polo@bu.edu!

Social Play Research On Understanding Treatment expectations (SPROUT) is another new collaborative project that is **investigating changes in expressive language and social communication** in children with ASD over the course of a play-based intervention, JASPER. In partnership with Weill Cornell Medical Center, UCLA and the University of Southern California we hope to contribute to improving language and social communication related interventions and measures of change for children with ASD. Our SPROUT study is not yet recruiting, due to Covid-19. We are eager to return to CARE and to continue working with our wonderful families. In the meantime, we are meeting our research aims by analyzing data we have already collected from other projects. If you have any questions about Sprout, please contact ebjohnst@bu.edu!
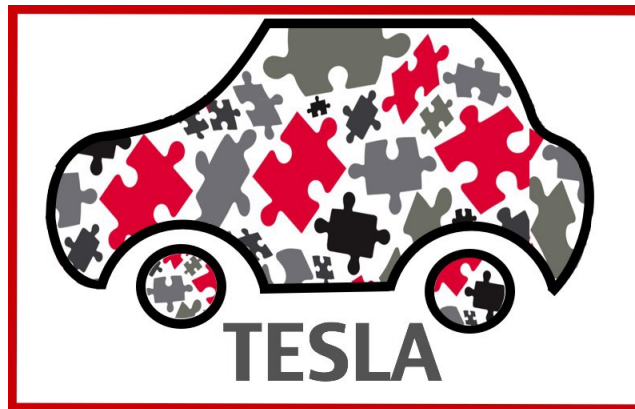
Our Training Early Social Language in Autism (TESLA) study explores the early development of the brain's 'mirror neuron system', which is the foundation on which communication, social cognition, and language are built. Our project addresses this through **investigating changes over time in brain and behavior in the context of targeted interventions**. Because of Covid-19 we have stopped enrollment; we miss our families but are working on creative ways to continue our work! We will be inviting families who enrolled in TESLA to participate in a follow-up study to evaluate how the children have grown since we last saw you via questionnaires, Zoom visit interviews, and parent-child play activities. If you have any questions about TESLA, please contact jenleano@bu.edu!

Our projects are funded by grants from the National Institutes of Health (ISP, POLO, TESLA), the Department of Defense Autism Research Program (ATLAS), and the Simons Foundation (SPROUT).

We've been doing some writing...

2020 has been a very productive year for the lab! Although we haven't been able to be in our CARE Center, we have been able to make a good deal of progress analyzing our data and writing them up for publication.

Here are summaries of just a few of our publications from 2020!

Dr. Lindsay Butler-Trump, one of our post-doctoral fellows, wrote a review for the American Journal of Speech and Language Pathology:
Functional near-infrared spectroscopy (fNIRS) is a new brain imaging technology. It uses light to look at brain activity by examining oxygen levels in the blood. It is safe and non-invasive and can be used with infants, children, and, most importantly, individuals with ASD of all ages and ability levels. We reviewed how fNIRS has been used to study the brain basis of speech and language impairment.

Read it here.

Our doctoral student Chelsea La Valle published a study the Journal of Autism and Developmental Disorders: This study investigated how minimally-verbal children and adolescents with ASD use their speech as a tool for communication in a social-interactive context. Utilizing a strengths-based approach, we identified the communication strategies they are employing and ways to further build upon their speech repertoire.

Read it here.

Dr. April Boin-Choi, a post-doctoral fellow (and former doctoral student) working with our collaborators in Professor Charles Nelson's lab at Boston Children's Hospital, published a study in Autism Research, the flagship journal for the International Society for Autism Research (INSAR):
In this study, we examined language use by parents and their infants at high and low risk for autism in the first two years of life. Parents' average length of utterances predicted their infants' later verbal scores and vice versa. Our findings suggest that parents and infants may shape each other's language early in life.

Read it here.

Dr. Karen Chenausky, a former doctoral student and post-doctoral fellow at CARE, now at the MGH Institute of Health Professions, published a paper in the Journal of Communication Disorders: Childhood apraxia of speech (CAS) is a

speech disorder that makes it hard for children to know how to move their mouths to make the right sounds. In earlier work we found that about half of all minimally verbal children with ASD have CAS or other speech-motor problems. CAS is diagnosed using various signs – such as "vowel error" or "slow speech rate" or "consonant distortion". Using a statistical approach called factor analysis, we found that there were three groups of signs: (1) speech pace and rhythm, (2) movement from one sound to another, and (3) inconsistency. These three groups closely matched the three diagnostic criteria for CAS from the American Speech-Language-Hearing Association, giving us confidence that the signs we use to diagnose CAS are the right ones.

Read it here.

Mia Barokova, a doctoral student, published a paper summarizing three studies in the journal Autism Research: In this paper, we introduce a new protocol, ELSA, for collecting expressive language samples from toddlers (ELSA-T) to adolescents (ELSA-A) with ASD, who have minimal to low-verbal abilities. Expressive language samples are recordings of the child's speech that are later processed and coded to derive measures of the child's language and communication. Our ELSA protocol allows us to derive measures, specifically, about how often the child vocalizes per minute and about how many turns they take in a verbal interaction. These measures can be used to describe their language ability and to chart change as a result of intervention. We are continuing our research on ELSA in our

newly funded SPROUT study.

Read it here.

Dr. Sophie Schwartz, a former doctoral student, now post-doctoral fellow in the lab, published two papers in Autism Research: The studies showed that minimally verbal people with ASD have difficulties identifying which sounds around them are important to focus on, based on electroencephalography (EEG) recordings. One paper focused on this problem in the context of differentiating one's own name from a stranger's name and the second paper in the context of hearing occasional loud sounds amongst a series of softer sounds. Participants with weaker EEG responses to detecting the different sound had more atypical auditory behaviors, such as humming or covering their ears in loud environments. Together, these findings suggest that some people with autism show signs of ineffective selective auditory attention. They also show that it is possible to collect brain data from minimally verbal individuals and our efforts to include them in our research are so worthwhile!
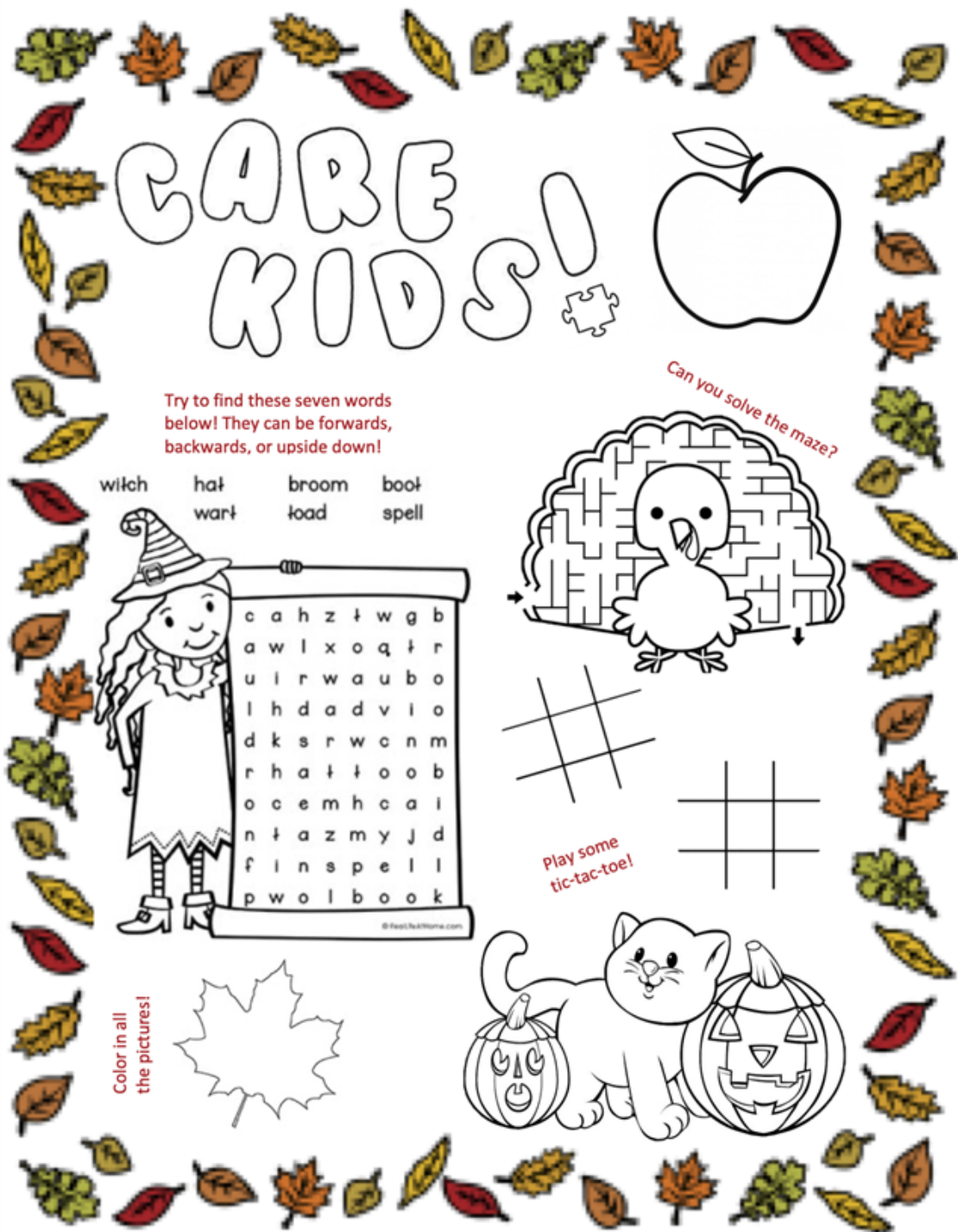
Read the papers here and here.

Fall Activities for your Family!