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TITLE A Multidisciplinary Intervention for Encopresis in Children with ASD

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CONTRACTING ORGANIZATION: Emory University

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<b>14. ABSTRACT</b>  Incontinence is a common concern among individuals with autism spectrum disorder. Existing treatments have generally utilized lengthy and invasive procedures and/or lacked methodological rigor. Furthermore, no treatment approach has incorporated medical approaches to address constipation, which is a significant contributor to encopresis in this population. In response to the absence of treatments for this problem, we designed a 2-week multidisciplinary intervention for encopresis (MIE) that combines medical and behavioral approaches. In MIE, gastroenterologist assesses for and treats constipation. Patients also receive outpatient behavioral treatments that include structured sitting on a toilet to promote independent bowel movements. If one does not occur, the behavioral clinician administers a suppository and prompts the child to remain on the toilet. In doing so, continent bowel movements are predictably evoked, allowing for reinforcement. Eventually, the suppositories are gradually faded out to promote independence. The purpose of this study is to demonstrate the efficacy of MIE in a randomized controlled trial with 150 children with ASD.					
<b>15. SUBJECT TERMS</b> Autism Spectrum Disorder, Encopresis, Toileting, Clinical Trial					
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## 1. INTRODUCTION:

Incontinence is a common concern among individuals with autism spectrum disorder. Existing treatments have generally utilized lengthy and invasive procedures and/or lacked methodological rigor. Furthermore, no treatment approach has incorporated medical approaches to address constipation, which is a significant contributor to encopresis in this population. In response to the absence of treatments for this problem, we designed a 2-week multidisciplinary intervention for encopresis (MIE) that combines medical and behavioral approaches. In MIE, gastroenterologist assesses for and treats constipation. Patients also receive outpatient behavioral treatments that include structured sitting on a toilet to promote independent bowel movements. If one does not occur, the behavioral clinician administers a suppository and prompts the child to remain on the toilet. In doing so, continent bowel movements are predictably evoked, allowing for reinforcement. Eventually, the suppositories are gradually faded out to promote independence. The purpose of this study is to demonstrate the efficacy of MIE in a randomized controlled trial with 150 children with ASD.

## 2. KEYWORDS:

Autism Spectrum Disorder, Encopresis, Toileting, Clinical Trial

## 3. OVERALL PROJECT SUMMARY:

The following Major Tasks were completed in this year of the grant:

- Randomization of the 77<sup>th</sup> subject (as of 9/15/2020)
- Completed DSMP meeting and report as scheduled (April, 2020)

Cumulative progress towards recruitment targets to date:

- a. Phone Screens completed – 179
- b. Participants Consented – 88
- c. Participants who failed screening - 6
- d. Participants Randomized – 77
- e. Presumed eligible participants who declined to enter – 1
- f. Participants withdrawn/dropped out AFTER randomization – 19
- g. Participants still in screening phase – 0

Table 1. Timeline and Milestones	Timeline
Major Task 2: Active Enrollment	Months
Continue Enrollment	6-45
Milestone: Randomize at least 58 subjects	24
Unblinded statistician & PI evaluate adverse events	24
Continue Enrollment	24-45
Data Safety & Monitoring Plan Review	28
Continue Enrollment	28-45
Milestone: Randomize at least 75 subjects	34

## **Changes**

The execution of this project has been substantially affected by COVID-19, with Emory University requiring all “non-essential” research activities be discontinued on March 18<sup>th</sup>, 2020. To be able to continue the project in a limited capacity during this period, we introduced to revisions to the protocol.

### Version 4.2 - 6/15/2020

- Added the ADI-R and CARS 2 as additional ASD diagnostic tools (which can be completed via telehealth). This revision was necessary in response to the COVID-19 pandemic.
- Added the option to do the medical assessment via telehealth.

### Version 4.1 - 3/18/2020

- Added language stating that some procedures may be completed via telehealth, which is a necessary adaptation in response to the COVID-19 pandemic.

As described in our previous annual report, a review of the first 52 participants revealed positive response rates ranging from 33% to 42% across the three groups originally included in our design, indicating that our three-group design is unlikely to detect differences between groups. For example, these results suggest that the positive response rate in the Parent Education control group was greater than the 10% positive response rate in wait list control group in our pilot study. Because the Two-week versus One-week comparison was originally included in our grant application as an exploratory aim we proposed to Dr. Niu that we drop the One-week group and proceed with a two-group study (Two-week versus Parent Education) with balanced randomization going forward. This change increases the power of the two-group study.

To this end, we revised the protocol (version 4.0) and consent forms, received approval from the Emory IRB, and submitted the revised protocol to HRPO. We also revised the scope of work and submitted it to the contract specialist assigned to this study. After receiving all of the required approvals, we began the revised randomization strategy in February of this year.

### Version 4.0 – 10/25/2020

- Revised the original three-group experimental design by eliminating the Two Week MIE group.

## **Personnel**

The only substantive change in personnel during this year of the study was the departure of Courtney McCracken, lead biostatistician for this project, from Emory University. Dr. McCracken has transitioned to her new role at Kaiser Permanente but remained in Atlanta GA, where she is still able to complete her work on this project. An initial plan to retain her effort as a consultant could not be implemented due to expectations from her new employer that her effort be secured through a subcontract. Thus, we expect that we will have to rebudget to add that subcontract. We will work with Dr. Stanley Niu to complete this process.

## **Problems**

The outbreak of the novel Coronavirus resulted in Emory University mandating discontinuation of all “non-essential” research activities on March 18<sup>th</sup>, 2020. To meet this requirement, we initially suspended enrollment of new participants. However, to ethically manage participants already enrolled we took the following steps:

1. One participant was actively receiving treatment at the time the guidance was delivered to enact social distancing and suspend non-essential research activity. The participant was in the crossover phase (originally randomized to the control group) and elected to discontinue treatment given concerns about COVID-19. For this participant we still collected endpoint measures within the already established visit windows even though they did not receive a full “dose” of the treatment.
2. Two participants were randomized shortly before discontinuation of study activities; one to the “Treatment as Usual” (TAU) control group and one to receive active (MIE) treatment. Our study team has experience delivering behavioral interventions via clinic-to-home telehealth, and so we submitted an amendment for the Emory University IRB to allow delivery of both MIE TAU treatment via telehealth for these participants.
3. We contacted the families of participants who were scheduled to attend a screening and consent visit to reschedule those appointments. We will closely monitor our institution’s guidance regarding when non-essential research activities can recommence, canceling schedule consents and treatment appointments 1 week at a time.
4. Study staff remained actively engaged in efforts to wind down and then ramp back up recruitment while our center was closed to clinical or research activities. However, once the suspension of activities extended beyond that initial phase we will begin efforts to decrease staff effort and accompanying expenditures to match the decreased workload.

On July 20<sup>th</sup>, 2020, we received approval from Emory University to recommence study activities. Prior to that, all study personnel had to undergo training on social distancing policies, and we obtained adequate personal protection equipment (PPE). As a result, we enrolled the first participant since the cessation of research activities due to COVID on the same day (7/20/20).

Given the difficulties our study has previously experienced with various delays we have raised the possibility of seeking an extension of our performance period with our assigned scientific officer, who has expressed receptivity to this conversation. Thus, we will make a formal request for a no-cost extension in the coming months.

## **Participants**

Over the previous year, 27 additional parents have consented to enroll their child into the study, for a cumulative total of 88. Of these, 2 (a total of 6 to date) failed the in-person screen

**4. KEY RESEARCH ACCOMPLISHMENTS:**

Nothing to report

**5. CONCLUSION:**

After working through recruitment challenges to achieve the necessary pace to meet deadlines and identifying a solution to the unanticipated higher efficacy of the Parent Training/Control intervention and its impact on statistical power, the global COVID-19 pandemic caused an additional delay to our study. Although we are back underway recruiting, we cannot predict whether the pandemic will have an impact on our ability to recruit at the necessary pace to meet our original targets. Thus, although our top priority for the next project period will be to recruit as many participants as possible, we anticipate needing a no-cost extension phase to complete the project and will take the necessary steps to make that formal request soon.

**6. PUBLICATIONS, ABSTRACTS, AND PRESENTATIONS:**

- (1) Lay Press: None
- (2) Peer-Reviewed Scientific Journals: None
- (3) Invited Articles: None
- (4) Abstracts: None

- a. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (\*) if presentation produced a manuscript.

Lomas Mevers, J., Lectureship: Toilet Training for Children with Developmental Dishabilles, Naked Heart Foundation and Moscow State University, Moscow, Russia, 2019

Lomas Mevers, J., Lectureship: Toilet Training for Children with Developmental Dishabilles, Tuberos Sclerosis Alliance, Sliver Springs, MD 2020

Lomas Mevers, J. Toilet training Individuals with Developmental Disabilities, Marcus Autism Center, Atlanta, GA, 2019

**7. INVENTIONS, PATENTS AND LICENSES:**

Nothing to report

**8. REPORTABLE OUTCOMES:**

Nothing to report

**9. OTHER ACHIEVEMENTS:**

Nothing to report

**10. REFERENCES:**

Nothing to report

**11. APPENDICES:**

Nothing to Report

**TRAINING OR FELLOWSHIP AWARDS:**

- Jamila Pitts – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).
- Melanie Parks – Conducted BM protocol, data collection, made recruitment calls, and administrative work (prepping for clients, filing, building folders).
- Jazmin Simms – Assisted in BM protocol, data collection, and administrative work (prepping for clients, filing, building folders).
- Jordyn Saxton - Assisted in BM protocol, data collection, and administrative work (prepping for clients, filing, building folders).
- Mary Elmore Demott - Assisted in BM protocol, data collection, and administrative work (prepping for clients, filing, building folders).
- Mikayla Ries – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).
- Carolyn Maynard – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).
- Sharon Daniel – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).
- Daniel Hoban – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).
- Ashlynn Thompson – Conducted BM protocol, data collection, graphed data, and administrative work (prepping for clients, filing, building folders).

**COLLABORATIVE AWARDS:**

Nothing to Report

**MARKING OF PROPRIETARY INFORMATION:**

Nothing to Report