

## Background

- RCT evidence demonstrates efficacy of the Social ABCs<sup>1</sup>, a manualized parent-mediated naturalistic developmental behavioural intervention (NDBI)<sup>2</sup> for toddlers with autism spectrum disorder (autism/ASD) or related social communication challenges
- A briefer group-based version also appears effective, with few differences between in-person and virtual delivery<sup>3</sup>
- No demographic predictors of treatment response have been identified (toddler age, sex; parent gender, education, ethnicity)
- Predictive role of specific treatment components (i.e., ‘active ingredients’) has not been examined, despite calls to do so<sup>4</sup>

## Objective

To examine program components that predict treatment response (‘active ingredients’) in Group-Based Social ABCs

## Method

### The Intervention

- 6 weeks of live 1:1 parent coaching (9 x 60-min sessions)
- 6, 90-minute weekly group learning sessions for parents
- In-person (45 families) or virtual (37 families) delivery
- Video-coding (blinded to time-point)
  - Parents’ implementation fidelity (% correct use of 10 antecedent and consequence strategies, adapted from PRT<sup>5</sup>)
  - Toddlers’ responsivity (% of parent language opportunities that received a directed vocal response from the toddler)

### Participants

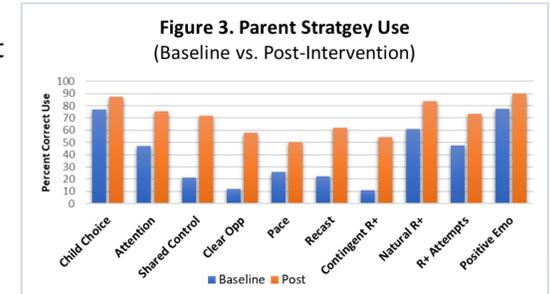
- 82 parent-toddler dyads (21 groups x 3-5 families each)
- Parents and their ≤ 3-yr-olds with autism/ASD or social communication challenges (67% confirmed ASD; 4% other diagnosis; 27% assessment in progress)
- Recruited through Holland Bloorview clinics (Toronto)
- Toddler mean age: 30.5 months (18-36 mos); 79% boys
- Caregivers (83% mothers); diverse ethnic and educational backgrounds (see figures 1& 2)
- 51% of families spoke >1 language in the home

## Highlights

- Parents’ use of all strategies increased significantly over 6 weeks
- 4 active ingredients emerged:
  - ✓ Shared control
  - ✓ Clear language opportunities
  - ✓ Contingent reinforcement\* [greatest impact]
  - ✓ Reinforcing all attempts
- Parents’ positive emotion sharing and self-efficacy were associated with following their child’s lead in play, fostering child attention, and providing natural reinforcement for all vocal attempts

## Parents’ Strategy Use

- At baseline, parents were already using some strategies at a high rate (following child’s choice in play, sharing positive emotions)
- Clear language opportunities, shared control, and contingent reinforcement (R+) were used infrequently at baseline
- Parents’ strategy use increased significantly over 6-week training period for each of 10 strategies ( $p$ ’s < .001; see figure 3)
- Greatest *increases* were: parents’ use of shared control, clear language opportunities (here, 1-word model prompts), and contingent reinforcement



## Active Ingredients

- Four **key strategies** were significantly positively associated with toddlers’ responsivity to parents’ language opportunities following intervention, across antecedent and consequence strategies ( $p$ ’s < .02)

### Antecedent strategies

- Shared control ( $r^2 = .30$ )
- Clear language opportunities ( $r^2 = .32$ )

### Consequence strategies

- Contingent reinforcement ( $r^2 = .60$ )
- Reinforcing all attempts ( $r^2 = .30$ )

- Parents’ gains in **positive emotion sharing** were associated with:
  - Following child’s lead/ child motivation ( $r^2 = .30$ ), gaining child attention ( $r^2 = .31$ ), and providing natural reinforcers ( $r^2 = .38$ ) based on all attempts ( $r^2 = .31$ ),  $p$ ’s < .009
  - Parents’ self-reported sense of efficacy following intervention was also associated with increased positive emotion sharing ( $r^2 = .26$ ,  $p = .05$ )

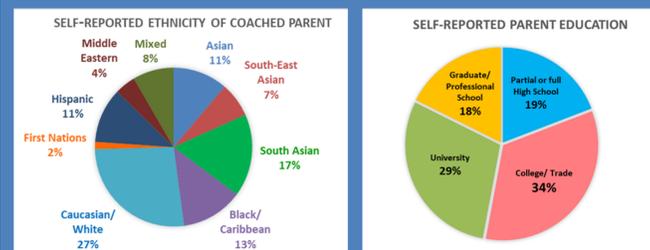
## Implications

- **Natural:** Parents were already using some of the strategies at baseline, highlighting the model’s natural fit as a parent-mediated program
- **Active ingredients:** Providing unambiguous language opportunities with shared control + contingent reinforcement based on directed vocal attempts<sup>5</sup> allows toddlers to experience success with minimal frustration
- **Keep it fun:** Capitalizing on child motivation and attention and providing natural reinforcement fosters a positive learning context. *But these strategies alone were not enough to increase child responsivity – they may be necessary but not sufficient*
- **Strategies work in concert:** Contingent reinforcement had the greatest impact on child responsivity, *within the positive learning context*
- **Impact:** Identification of active ingredients allows coaches to focus on training priorities that are likely to have the greatest impact

### REFERENCES

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### Figures 1 & 2. Family Demographics



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