

## ABSTRACT

CDC reports that 1 in 6 children has developmental delays. Studies have shown that early screening can improve health outcomes and reduce cost (Glascoe et al, 1997). Qidza developed the BabyNoggin app to empower parents to screen their own children's development at home. BabyNoggin has been available on Apple App Store for two month. With a 95% engagement rate, we demonstrated that parents will actively participate in their children's developmental screening with a proper mobile tool.

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## INTRODUCTION

CDC reports that 1 in 6 children has developmental and behavioral problems (Boyle et al., 2011). Extensive research proves that early detection can improve outcomes and reduce costly interventions (\$23,000 savings per child- Glascoe et al., 1997). To test if parents can effectively screen their own children's development at home, Qidza developed a new model of early childhood developmental and behavioral screening, a mobile app named BabyNoggin.

The app guides parents on simple behavioral milestone-based assessments through step-by-step video and simple, bite-sized written questions. BabyNoggin provides 3 screening tools for developmental milestones, autism and post-partum depression, all of which are recommended by the American Academy of Pediatrics.

## METHODS AND MATERIALS

Qidza's BabyNoggin app digitized 3 screening tools:

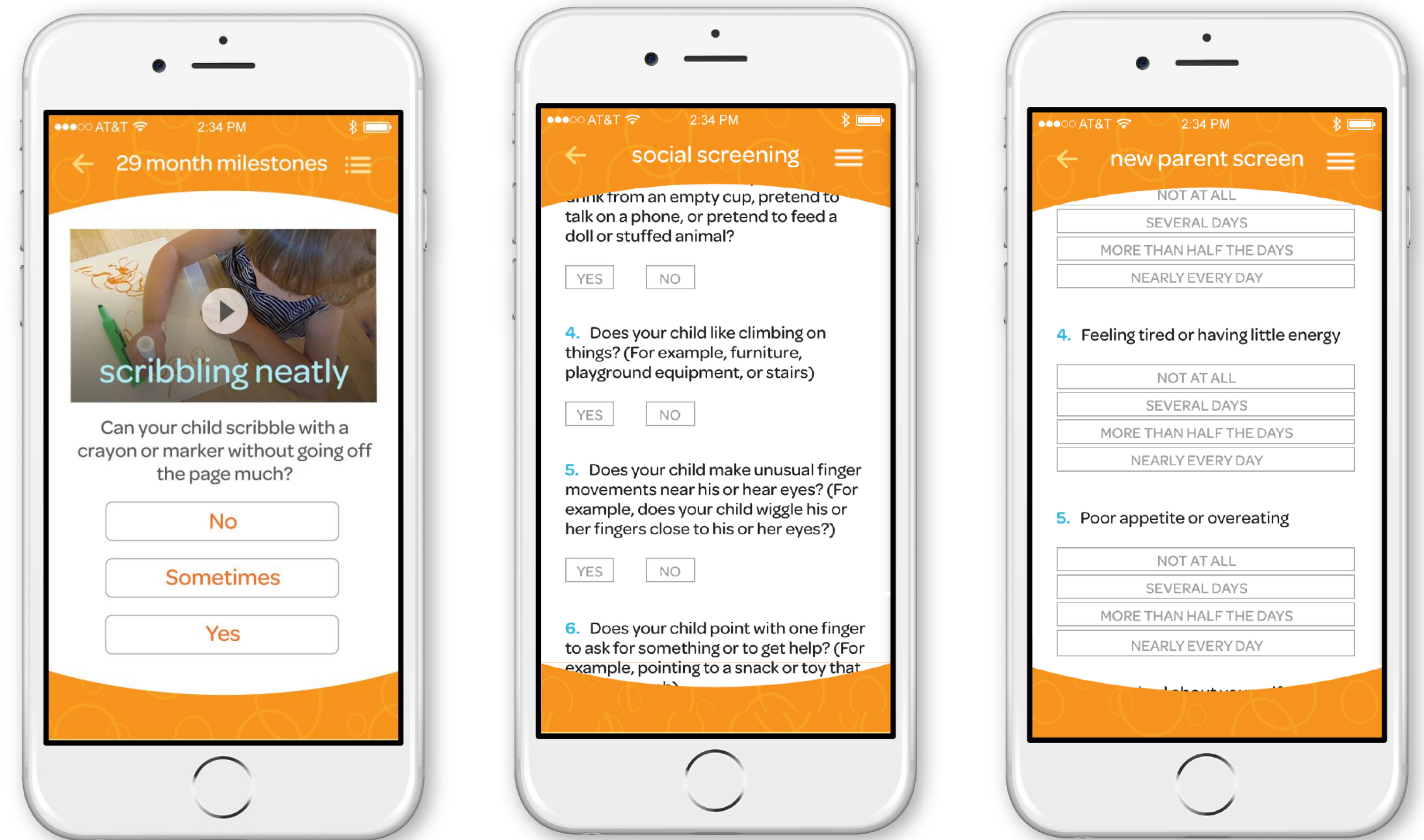
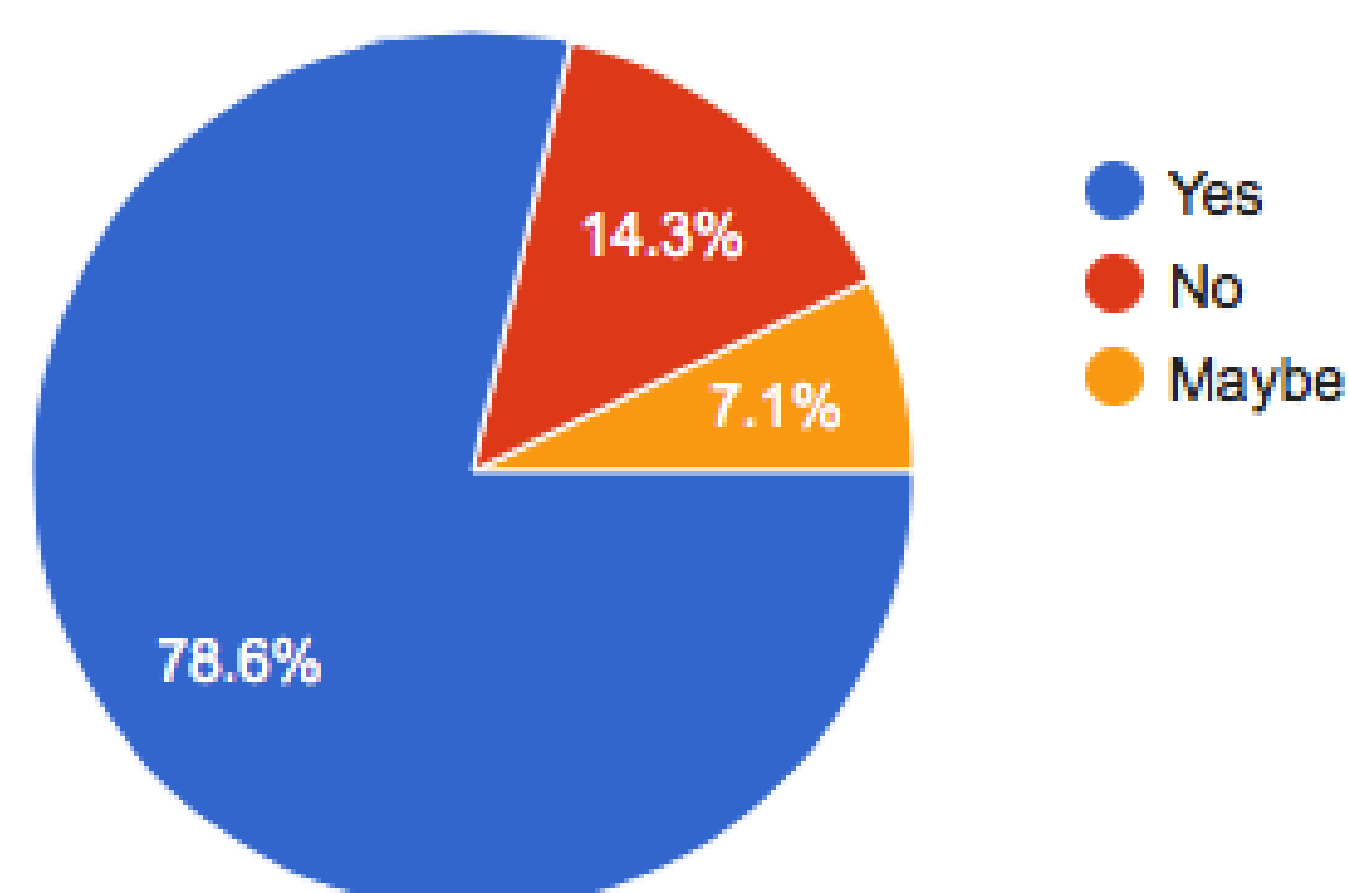
1. PEDS:DM (fine motor, gross motor, social-emotional, self-help, expressive language, and receptive language),
2. M-CHAT-R (autism),
3. PHQ-9 (post-partum depression).

The app encouraged parents to interact with their babies by performing age-appropriate screenings:

1. Every 2 months for PEDS:DM
2. At 18 & 24 months for M-CHAT-R
3. At 1, 2, 4 & 6 month for PHQ-9.

The app has been available on the US Apple app store for two months and we tracked the number of downloads, engagement rate, and the most commonly used app features.

Had using the app increased your understanding of developmental milestones?



Sample PEDS:DM test

Sample M-CHAT-R

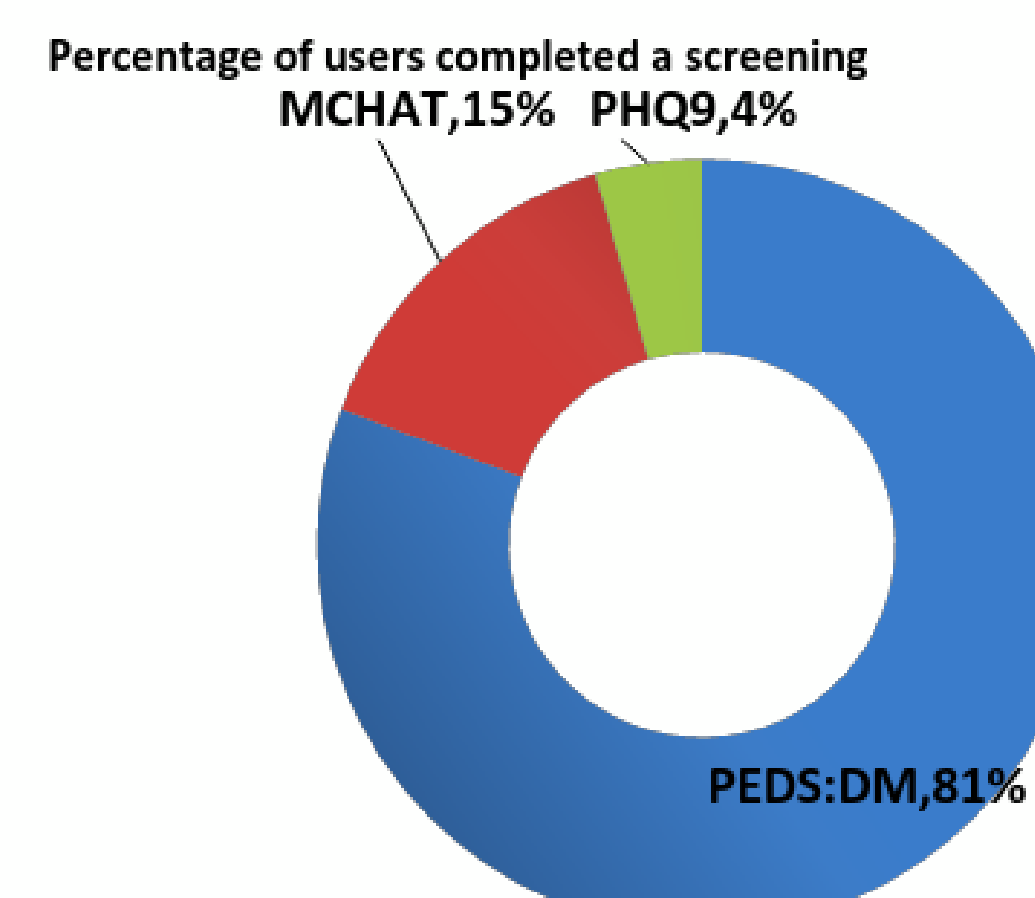
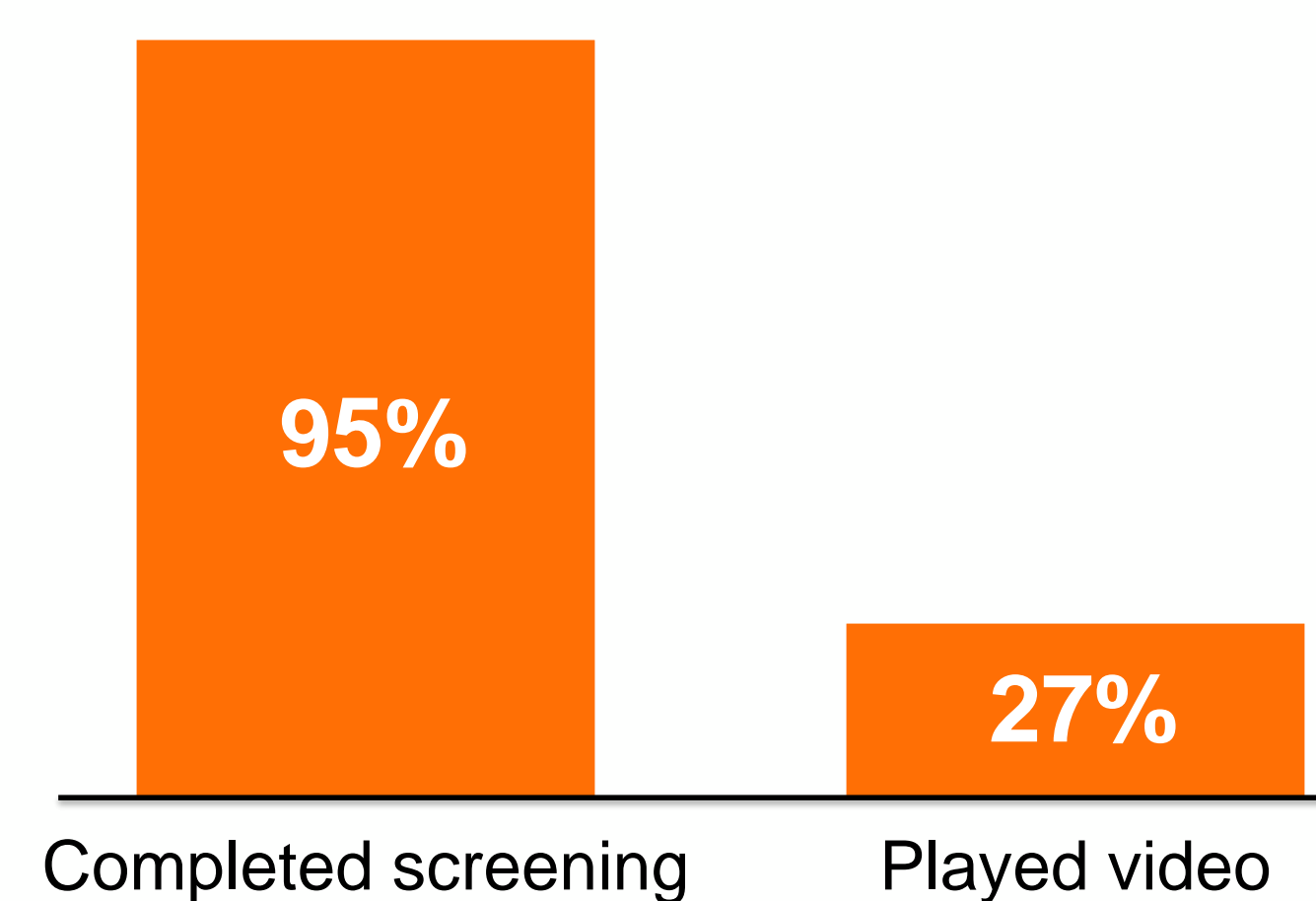
Sample PHQ-9

## RESULTS

With almost no marketing efforts, there are 750 downloads all across the United States, of which 95% of users completed at least one of the following screening:

- 81% PEDS:DM
- 15% M-CHAT-R
- 4% PHQ-9

Only 26.5% of users played the step-by step video instructions displaying the desired developmental outcome. More importantly, 78.6% users reported an increase in their understanding of developmental milestones.



## DISCUSSION

Parents are eager to download and complete a screening on their children's development. While PEDS:DM seemed to be the preferred screening tool in comparison to M-CHAT-R and PHQ-9, it maybe because the app is currently designed to present PEDS:DM more prominently than the other two screening tools. Nonetheless, the majority of parents agreed that mobile tool is effective in teaching them developmental milestones.

By empowering parents, we hope to help every child receiving early screening, early interventions, and better health outcomes.

## PARTNERSHIPS

TMC | TEXAS MEDICAL CENTER

unreasonable institute

## REFERENCES

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2. Boyle CA, Boulet S, Schieve L, Cohen RA, Blumberg SJ, Yeargin-Allsopp M, Visser S, Kogan MD. Trends in the Prevalence of Developmental Disabilities in US Children, 1997-2008. *Pediatrics*. 2011.