

“Talking Is Teaching: Talk, Read, Sing”

Early Math Intervention at UCSF Benioff Children’s Hospital Oakland

SO SMALL TO FAIL



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OPPORTUNITY
INSTITUTE

ABOUT TOO SMALL TO FAIL

Too Small to Fail is leading a public awareness and action campaign to promote the importance of early brain and language development and to support parents with tools to talk, read, and sing with their young children from birth. Today, almost 60 percent of children in the United States start kindergarten unprepared, lagging behind their peers in critical language, math, and social-emotional skills. Through partnerships with pediatricians, hospitals, faith-based leaders, community based organizations, businesses, entertainment industry leaders, and others, *Too*

Small to Fail is meeting parents where they are to help them prepare their children for success in school and beyond. Whether at the pediatrician's office or the playground, *Too Small to Fail* aims to make small moments big by creating opportunities for meaningful interactions anytime, anywhere. Learn more at toosmall.org. Find resources for parents and caregivers at talkingisteaching.org or on Facebook (facebook.com/2smalltofail), Twitter (@2SmalltoFail), and Instagram (instagram.com/2smalltofail).

Too Small to Fail is a joint initiative of the Clinton Foundation and The Opportunity Institute.



"Talking is Teaching: Talk, Read, Sing" is a public awareness and action campaign led by *Too Small To Fail*. This report summarizes the findings of an intervention intended to boost early math awareness and behaviors among parents of young children in Oakland, California. The evaluation was conducted by UCSF Philip R. Lee Institute for Health Policy Studies, based on a partnership with UCSF Benioff Children's Hospital.

UCSF Philip R. Lee Institute for
Health Policy Studies


**UCSF Benioff Children's
Hospitals**

INTRODUCTION

Since the 1970s, American schoolchildren have been falling behind in math achievement compared to their peers in other countries. Although there have been gains in children's math comprehension levels since that time, there are large disparities between states and between socio-economic groups. Starting children early with a foundation of familiarity and comfort with math concepts will better prepare them for success in school and in life.¹

This report summarizes the findings of an intervention intended to boost early math awareness and behaviors among parents of young children in Oakland, California. "Talking is Teaching: Talk, Read, Sing" is a public awareness and action campaign intended to equip parents and caregivers with the tools they need to increase early brain and language development among children ages 0 to 5. One strategy of the campaign is to enlist the help of trusted messengers to spread information about early literacy and brain development, and to motivate parents and caregivers to engage in language- and math-rich interactions with their young children starting at birth. Over several months in 2016, parents and caregivers of children ages 2 to 5 who visited the pediatric primary care clinic at UCSF Benioff Children's Hospital Oakland (BCHO) were invited to participate in a study of early math awareness and behavior. The clinic is a federally qualified health center; nearly all patients receive Medicaid, federally-subsidized health care for very low-income families.

Consenting individuals were interviewed before their child's doctor visit about their awareness of the importance of early math activities and their regular activities with their child. During the medical appointment, their child's pediatrician relayed messages and gave them tote bags with a range of materials focused on parent-child interaction around early math activities. A second interview was conducted with these parents at the conclusion of the visit. Finally, parents and caregivers were contacted 8 to 12 weeks later to complete a third interview. In all, 251 parents and caregivers participated in the study. See the appendix for more information about the survey sample and the methodology of this research.

This report is a complement to an earlier evaluation report about families' talking, reading, and singing attitudes and behaviors, which was completed in 2015. The evaluation, which was also conducted by the UCSF Philip R. Lee Institute for Health Policy Studies, suggests that pediatric clinics are promising settings in which to influence parent and caregiver behavior and provide critical information related to the early brain development of young children.



EXPOSURE TO EARLY MATH AND PREPARATION FOR SCHOOL

Parents and caregivers enrolled in this study were asked in an open-ended question to identify the kinds of activities they engage in to prepare their young children for preschool or kindergarten. Their answers were coded and categorized. Of the 480 recorded responses, the largest proportion involved reading to young children.

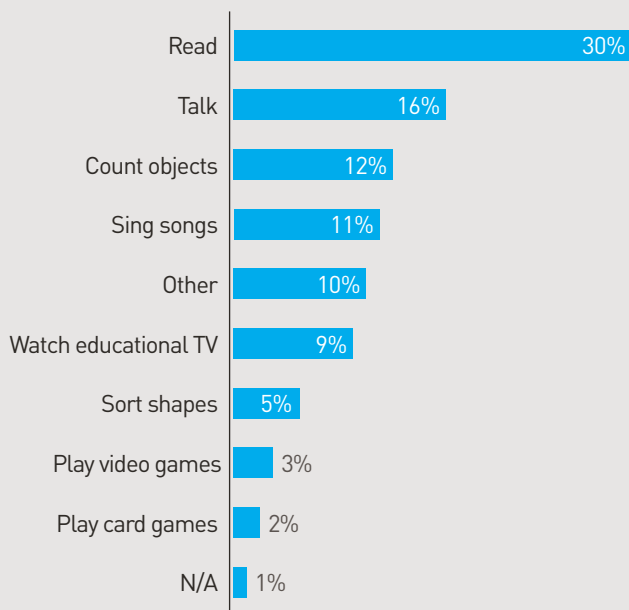
Before meeting with the pediatrician, about half of those interviewed (49 percent) said they had heard about the importance of doing math activities with young children which were defined for them

as “like using shapes, sorting and counting.”

Parents and caregivers who had heard about the importance of early math activities were most likely to say they had received that message from their preschool or childcare provider.

Parents and caregivers were asked whether they engage in math activities. Eighty-two percent of those interviewed said that they do these activities in general. Of those, 90, or 44 percent, said they engaged in these math activities daily. However, only 25 percent respectively said they engaged in these activities most days or some days.

Fig 1. What do you do to prepare your child for preschool or kindergarten?



Source: Interview with parents/caregivers before receiving Talking is Teaching toolkit; n=251

Fig 2. Where did you hear about the importance of early math activities?

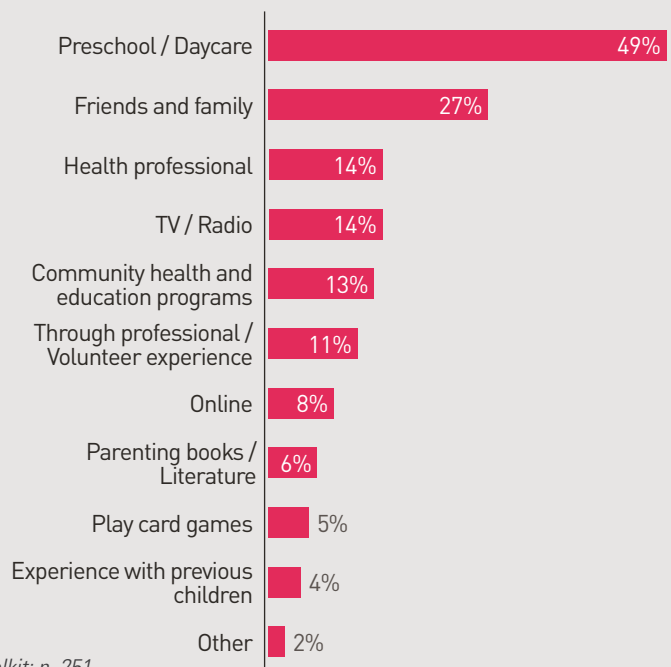
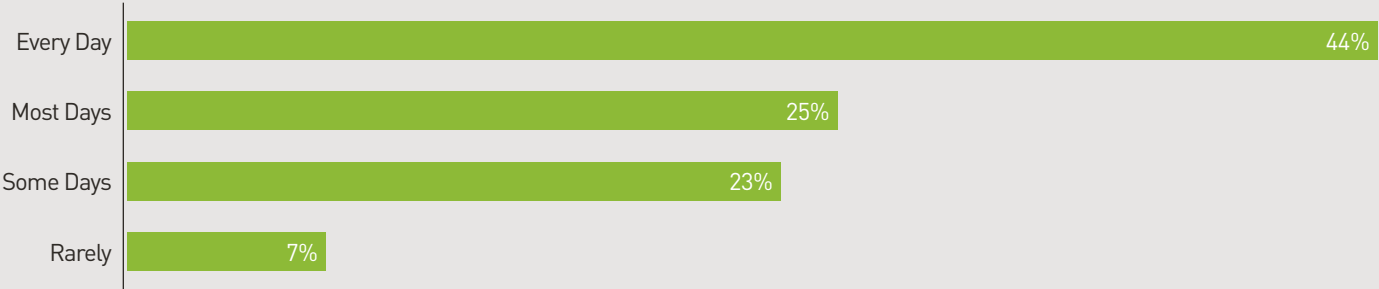


Fig 3. How often do you do math activities?



Source: Interview with parents/caregivers before receiving Talking is Teaching toolkit; n=251

Respondents did not find activities like using shapes, sorting and counting with their young children challenging: 69 percent of respondents said it is not hard to do these activities and 28 percent said it is, which suggests that the majority of parents and caregivers either do not struggle with this kind of activity or are not willing to say they do.

Early math activities do seem to pose a larger struggle than early literacy activities, however. In a similar study done in 2015 for early literacy, 82 percent of parents or caregivers said it was not difficult to read with children, while 18 percent said it was difficult.²

RESPONSE TO THE EARLY MATH INTERVENTION

After the meeting with the pediatrician, 55 percent of participants said they had learned something new. Similar to our research of families learning about early literacy skills from their pediatrician (n=396), Hispanic or Latino families were more likely than other groups to say that they had learned something new from their doctor. Please note, however, that because the sample sizes aggregated by ethnicity in this study are small, this finding may not be generalizable to the Latino community as a whole.

Three-quarters of respondents said they would do something different based on what they had heard from the doctor. Almost all of the participants said they planned to use at least one of the tote bag items with children when they got home.

According to their responses during the follow-up interview 8 to 12 weeks after their initial visit, respondents indicated that the intervention had been memorable, and the tote bag materials were valuable. Eighty-eight percent of participants said they remembered the doctor talking to them about the importance of early math, and 98 percent remembered receiving the tote bag. Ninety-three percent of participants said they had used at least one of the tote bag items with a child since they received it.

Respondents found the matching card game and books particularly useful. Half of families said they used the games, and 84 percent of families used the books. Twenty-two percent of families said they use some of the tote bag items daily, a third use them “most days,” and another third use them “some days.” Forty-four percent of families said they use some of the tote bag materials with other children living in the house.

REPORTED DIFFERENCES IN BEHAVIOR

When parents were contacted 8 to 12 weeks after meeting with the pediatrician and receiving the tote bag materials, they described engaging in more math activities than they had previously. The number of parents who said they do math activities with their young children increased by 40 participants, or from 82 percent of participants to 98 percent.

Similarly, the number of parents who said they engaged in these activities daily jumped from 36 percent of all participants to 55 percent, a statistically significant change. The proportion of parents and caregivers who never engaged in math activities declined from 18 percent to 2 percent of respondents. See graphs below.

Fig 4. Do you do math activities, like using shapes, sorting and counting, with your child?

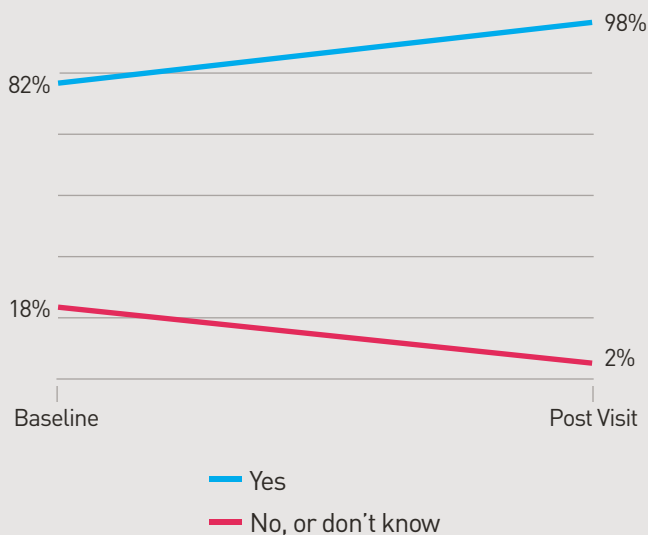
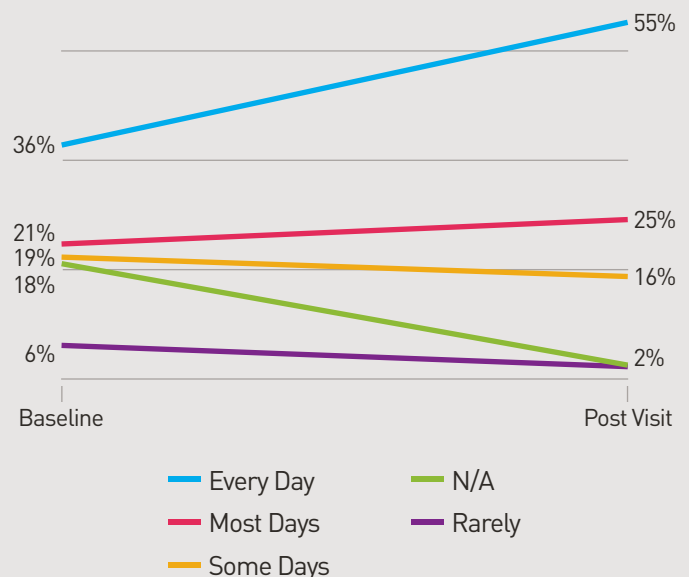


Fig 5. If yes, how often do you do math activities?



Source: Interview with parents/caregivers before receiving Talking is Teaching toolkit; n=251

SUGGESTIONS FOR IMPROVEMENT

Parents and caregivers were asked to describe the ways in which they would further improve the materials and messages they received from *Too Small to Fail*. Ninety-five respondents, about 38 percent of those contacted, had a suggested improvement.

Several parents and caregivers mentioned that the *Talking is Teaching* materials were too advanced for their children. Respondents with children three years and under were most likely to ask for materials better suited to their children's age. One parent said,

The ways things are presented could be different, creating more age specific one for a 2-year-old, one for a 3-year-old, one for a 4-year-old and kids could graduate from one level to another.

Many parents suggested that materials like blocks or puzzles would be helpful additions to the materials in the tote bag. Parents noted that keeping their children's attention with books and cards was sometimes a challenge, and that their children liked things they could touch.

CONCLUSION

This research project provides evidence that the *Talking is Teaching* campaign has benefitted those families in Oakland who received materials related to the importance of early math activities. Parents and caregivers describe differences in their behavior that rise to the level of statistical significance after receiving the messages and materials that the campaign designed. They were enthusiastic about the tote bag materials, including books and a matching card game. Finally, these surveys demonstrate families' willingness to engage with pediatricians about more than their children's physical health needs.

More research on early math awareness and behaviors is necessary to better understand how best to increase children's school readiness, but also how to talk about these concepts with parents and caregivers in ways that are meaningful and easy to remember. Math may seem to parents to be a more challenging subject to integrate into their everyday conversations and activities with children than other concepts. It is therefore critical that those organizations and entities that design supports for parents have a strong understanding of what prompts are most engaging and persuasive to bring early math activities to life.

Acknowledgments

Sincere thanks go to all those who supported the work involved in conducting the "Talking is Teaching: Talk, Read, Sing" campaign and evaluation at UCSF Benioff Children's Hospital Oakland (BCHO). This would not be possible without the dedicated leadership and residents at BCHO, researchers at Philip R. Lee Institute for Health Policy Studies (IHPS), and the participating families whose children received care at BCHO. We are especially grateful to the following people for their commitment and support: Dr. Bert Lubin, Dr. Dayna Long, Dr. Gena Lewis, Dr. Patricia Chase, Dr. Kelley Meade, Susan Greenwald, Mindy Benson, Christine Schudel, Maoya Alqassari, Rigo Del Toro and their team at BCHO; and Dr. Claire Brindis, Dr. Dana Hughes, and Jasmine Pettis Marquez at IHPS. We are extraordinarily grateful for the generous gift from Lynne and Marc Benioff. Without their support, none of this would be possible.

APPENDIX

This research is modeled on previous research at UCSF Benioff Children's Hospital Oakland, which tested the receptivity of Oakland parents and caregivers to messages related to early literacy. *Too Small to Fail* staff worked with the hospital's Reach Out and Read pediatric leadership to create and deliver a training based on existing Reach Out and Read materials. *Too Small to Fail* staff and a pediatrician then combined the training with foundational early math research, and delivered it to the hospital's residents, who were responsible for delivering the tools to families.

BCHO project assistants ensured that medical residents knew which patients qualified for the study, and had tote bags and talking points ready for each eligible well-child visit. Talking is Teaching toolkits included:

- A Talking is Teaching toddler t-shirt, with prompts such as "Let's Talk About Shapes" and "Let's Talk About Numbers." This artwork was designed by the San Francisco advertising firm Goodby, Silverstein and Partners, with expert review from the Heising-Simons Foundation.
- A "Let's Talk About Math" Guide and a matching card game with Talking is Teaching creative designs that match the t-shirts, created in partnership with Highlights Magazine, with input from early math experts.
- *Five Little Monkeys*, a narrative book with an early math theme, donated by Houghton Mifflin Harcourt.
- *Bedtime Math*, a book that includes a series of early math activities, created and donated by The Overdeck Foundation.

The sample for this research included 251 respondents in total, though not all of these respondents provided answers to every question. Two hundred twenty-two of the interviews were conducted in English; 29 in Spanish. Eighty-eight percent of respondents were female; 46 percent were Black or African American; 29 percent were Hispanic or Latino; 13 percent identified their race or ethnicity as "other or mixed race"; 8 percent were Asian; and 4 percent were White. The average age of the respondents was 32 years; the child who received the *Talking is Teaching* toolkit was 3.5 years on average.

NOTES

1. "Early childhood mathematics: Promoting good beginnings," available at <https://www.naeyc.org/files/naeyc/file/positions/psmath.pdf> (last accessed December 2016).
2. Too Small to Fail Evaluation Report. Talk, Read, Sing Intervention at UCSF Benioff Children's Hospital Oakland Evaluation Report. July 2016