Integrating Early Childhood Nutrition within the Healthy Steps Model

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Intro
- The Family Early Eating and Developmental Skills (FEEDS) program was created as a 4-session nutrition and behavior education model to address feeding and behavior-related issues in children under the age of 5 years old.
- As a part of the Healthy Steps program, the Healthy Steps Specialist (HSS) meets with children aged 0-5 years during well visits. During these encounters, the HSS discusses the child's eating and the family's feeding practices. If the child is an appropriate candidate for the FEEDS program and the family is interested, the child is enrolled.
- The program involves joint visits with a Registered Dietitian and the Healthy Steps Specialist.

Objectives
- To improve parental attitudes regarding appropriate boundaries, limit setting, communication between parent and child, and the impact current feeding practices have on future outcomes.
- Teach families skills to develop age appropriate behaviors related to feeding schedule, consumption of fruits and vegetables, and to improve a child's readiness to try new foods.

Methods
- At the initial visit, families receive informed consent with program expectations, and fill out a pre-program survey. Program staff ask families for a detailed history of feeding difficulties and behavior challenges. Parents also report on what they would like to address in the program. Parents describe the family's style of communication about food.
- The nutritionist discusses issues that include: taste and texture preferences, sensory sensitivity, mealtime structure at home, family member habits around food, and a history of the child's food intake and meal structure over the past 24 hours.
- The Healthy Steps Specialist addresses what kind of boundaries and limits are placed on children in the home, and which adults are responsible for enforcing rules. They also talk about how to enforce rules, and how to encourage good behavior.
- Both providers and families agree on two SMART goals each in the domains of nutrition and behavior and review goals at subsequent visits.
- Once the intensive session of the program has been completed, families are asked to return for 3-month and 6-month follow-ups. The post-program survey is filled out at the final intensive session and at the 3- and 6-month follow-up.

Results
- Children enrolled in the FEEDS program have a higher rate of developmental delay or disability (30%) than the general population (11.5%) in early childhood.
- Verbal praise is used regularly to reinforce healthy eating by 70% of families, whereas all other types of reinforcement are reported to be used by less than half of families.
- At the initial FEEDS visit, 74% of children skip at least one meal during the day.
- FEEDS participants start exhibiting delayed feeding milestones after the introduction of complementary foods, which is observed with select parental behaviors such as: force feeding, preference of bottle feeding over closed cup, not offering spoon for self-feeding, and using distractions during feeding.

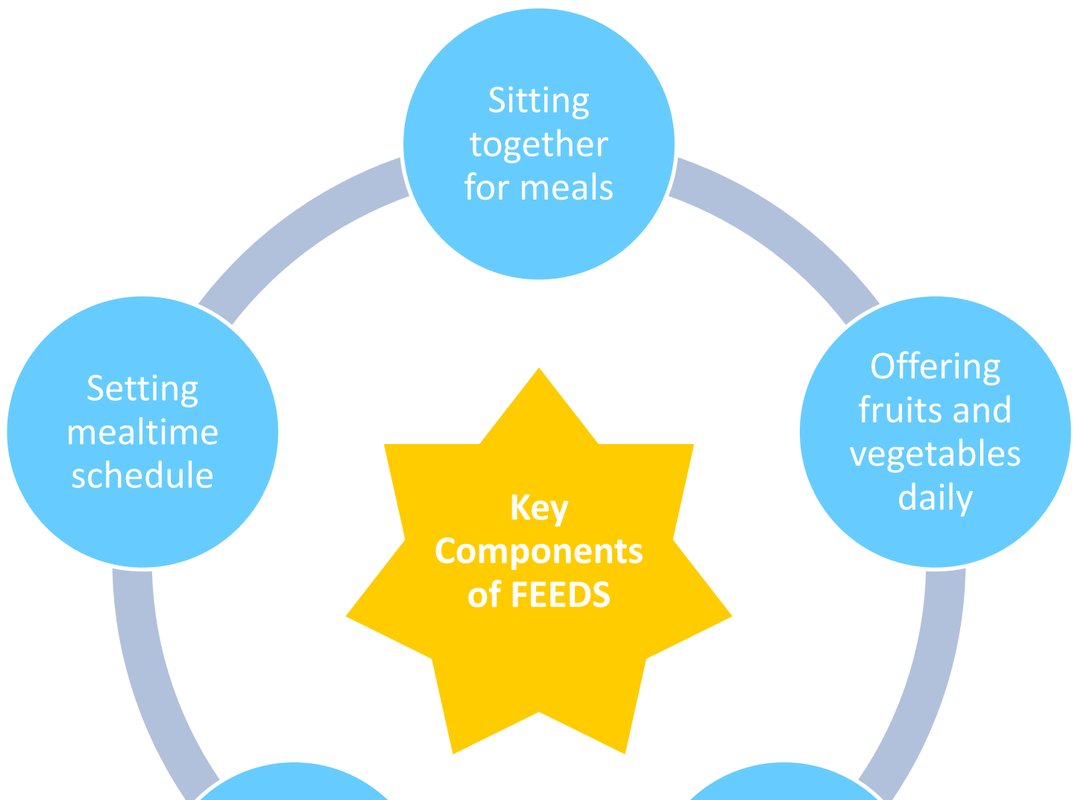
Conclusion
- Joint visits support a better understanding of how behavior and parenting style impact nutrition
- FEEDS model reduces duplicated services between nutritionist and HSS, and saves time
- Developmental delays/disabilities are more common among FEEDS children, leading to miscommunications about wants and needs during feeding
- Parental fears about child's wellbeing can interfere with children learning about their body's natural cues for hunger and satiety
- Force feeding to avoid messes and promote faster meal completion can result in delayed feeding milestones
- Parents offer different foods to children and adults, and often have separate meal times
- Children are given processed packaged foods as snacks more frequently throughout the day and they are sometimes used as a substitute for a meal
- Parents give into to tantrums and focus excessive attention on undesired behaviors, counteracting their goal to improve behavior
- Families report limited to no boundaries at home, and an inconsistent use of reinforcement techniques
- Based on preliminary findings from a limited sample of children who have completed the FEEDS program, we expect the completion of the program will be associated with improvements in: setting a mealtime schedule, sitting together for meals, offering fruits and vegetables daily, setting limits, and reinforcing healthy choices
- Limitations: High attrition, small sample size, response bias, interviewer bias, language barrier

Joint visits support a better understanding of how behavior and parenting style impact nutrition

FEEDS kids are more likely to have **developmental delays** than the general population, and show significantly delayed eating skills

The majority of FEEDS families engage in some type of **verbal praise** but less than half use any other type of reinforcement consistently

74% of FEEDS kids **skip at least 1 meal** during the day at the start of the program



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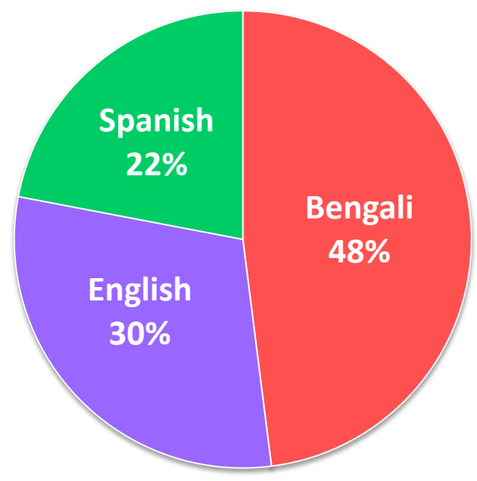
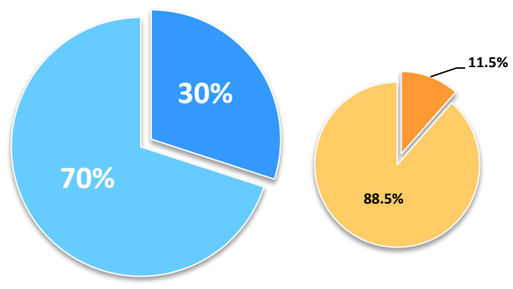
Preferred Language among FEEDS Families



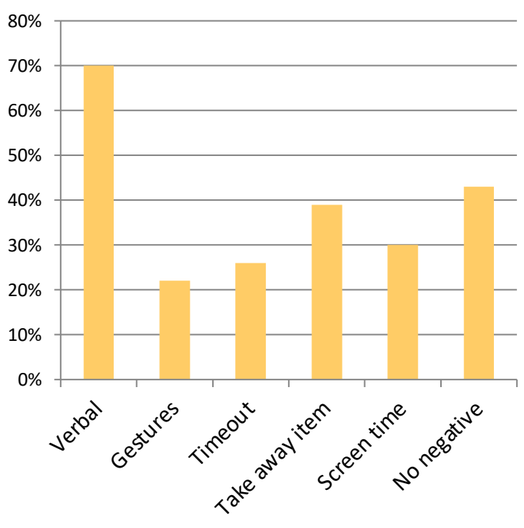
How many FEEDS children have a developmental delay or disability?

30% in FEEDS families vs. 11.5% in U.S.



Feeding Milestone	Age in Typically Developing Child	Age in FEEDS Enrolled Child
Turns head to and away from food to show hunger and fullness	4 months	4 mths
Start complementary foods	4-6 months	6 mths
Reduced gag response		4-6 mths
Start to advance textures and practice chewing	9-12 months	12-24 mths
Drinks from closed cup		12-24 mths
Practice self feeding during meals		24-36+ mths
Limited to no gag response to food	12 months	36+ mths
Rejection of food begins	14-16 months	9 mths
Feeds self with spoon		24-36+ mths
Neophobia begins	20 months	12 mths

Most Common Reinforcements



How many FEEDS children skip at least 1 meal prior to program?