

The Healthy Start/Comienzos Sanos cluster randomized trial in family child care homes: Baseline data and preliminary results

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Presentation for NOPREN Early Care and Education workgroup

February 17, 2020





Background

- Nearly 1/3 of preschool aged children (2-5 years) in the U.S. are overweight or obese, with low-income and minority children disproportionately affected.
- Dietary and physical activity (PA) behaviors of preschoolers, especially low-income and ethnic minorities, often do not meet guidelines.
- Childcare settings play an important role in influencing children's dietary and PA behaviors.
- Most childcare research to date has been conducted in childcare centers and not family childcare homes (FCCHs).
- Children enrolled in FCCHs may be at increased risk for obesity compared to those in center-based care.
- Need to improve the nutrition and PA environments of FCCH and the behaviors of children cared for in the homes.



Healthy Start/Comienzos Sanos

- Cluster-randomized trial in 120 FCCHs
- Phase 1 included 7 focus groups and community advisory board meetings to inform intervention development.
- Phase 2 is cluster-RCT evaluating the efficacy of a multicomponent intervention to improve the:
 - Food and activity environments of FCCHs,
 - Diet, physical activity behaviors of the 2-to-5-year-old children in their care.
- Funded by National Institutes of Health - R01HL123016

Focus Groups



- 7 focus groups (n=51)
- All participants were female, 90% Hispanic
- Mean age was 50 years
- 45% had high school degree or less
- On average, providers care for 6 children and have cared for children in their home for 10 years.
- Tovar A, Mena NZ, Risica P, Gorham G, Gans KM. Nutrition and Physical Activity Environments of Home-Based Child Care: What Hispanic Providers Have to Say. *Child Obesity*. 2015 Oct;11(5):521-9.



Focus Group Results

- Providers understood importance of providing healthy foods and PA for the children they cared for
- Perceived responsibility vs. program regulations
- Cultural influences on food served.
- Provider training and feeding practices (aware of guidelines – don't always follow).
- Concerns about children getting enough food. Spoon-feeding.
- Most providers had time limits on screentime and rules that prohibited bringing technology to childcare. But believe watching educational programs, didn't count as ST and sometimes needed ST
- Providers expressed value of continued training but lack of resources is an issue
- Provider perceived barriers to improving PA (different age children, weather, time, safety, parents)
- Parents were a barrier to promoting a healthy eating and physical activity environment in the FCCH
- It's a business
- Providers spoke about the need and responsibility to communicate with, and educate parents on healthful behaviors



Recruitment and Eligibility criteria

- Recruitment:

- Worked with community organizations providing training and support for FCCPs (Recruitment flyers, brochures, Information sessions, emails).
- Recruitment sessions at conferences organized for FCCPs
- Direct mailings followed by staff phone calls to licensed FCCPs from databases in RI and MA
- Word of mouth referrals from FCCPs already participating in the study.

- Eligibility:

- FCCH within 60 miles of Providence RI, be in operation for at least 6 months with plans to remain in operation for at least 1 year, and not close for more than 4 weeks during the year.
- Provider must read and speak Spanish or English, have a working phone, and care for at least one child between the ages of 2-5 years old (who is not their own, who attends FCCH for at least 10 hours per week and eats at least one meal and snack a day prepared at the FCCH)



Evaluation Methods

- FCCP complete telephone survey then in-person survey at the FCCH
- At least one parent of an eligible child needs to consent for their child to participate in measurement
- 2 days of FCCH observation:
 - Environment and Policy Assessment and Observation (EPAO) to measure nutrition, PA, and screen-time environment, policies, practices in FCCH
 - Children's dietary intake (DOCC)
 - Physical Activity (using accelerometers)
 - BMI and waist circumference
- Baseline measures repeated at 8 months (after the intervention is completed)
- Final n at baseline = 120 (91% of recruitment target)



The Environment and Policy Assessment and Observation (EPAO)

- Was developed and validated to evaluate observed practices, environments, and policies within childcare centers and FCCHs that influence children's nutrition, physical activity, and sedentary behavior.
- We adapted to reflect cultural differences for the participant population based on formative research.
- Observations begin before children are served breakfast until children leave for the day.

Vaughn AE, et al. Assessment of nutrition and physical activity environments in family child care homes: Modification and psychometric testing of the Environment and Policy Assessment and Observation. BMC Public Health 2017;17:680.



Measurement of Children's Food Intake

- Dietary Observation in Child Care (DOCC)*
- Foods served, discarded, consumed recorded
- Foods consumed entered into the Minnesota Nutrition Data System for Research (NDSR)
- Healthy Eating Index-2015 (HEI-15) scores and 13 subscores calculated (Scores range from 0-100, minimum score of 80 associated with good health)
- Averaged over two days and adjusted per 1000 kcal at FCCH level

*Ball SC, et al. Development and reliability of an observation method to assess food intake of young children in child care. *J Am Diet Assoc.* 2007;107(4):656–61.

Intervention Logic Model



Figure 1: Intervention Logic Model

Potential Moderators

Provider age, race/ethnicity, education, SES, years as FCCP, participation in CACFP

Family Child Care Homes (FCCH) Intervention

- Peer counselors providing home visits, monthly support calls and monthly team meetings
- Educational print and videos tailored to the FCCPs needs/interests
- Group gatherings of FCCPs
- Active play toys

FCCP Mediators

- ↑ Knowledge, skills, motivation, self-efficacy, and readiness to make changes to improve FCCH food and PA environments
- ↑ Perceived social support
- ↑ Perceived social norms
- ↓ Perceived barriers

FCCH Food Environment

- ↑ Nutritional quality of food/beverages served to children in FCCHs
- ↑ Policies supporting healthful food/beverages in FCCHs

FCCH PA Environment

- ↑ Opportunities for PA
- ↓ Opportunities for SB
- ↑ Policies supporting PA and discouraging SB

Children's Behaviors at FCCH

- Healthier diet
- ↑ PA
- ↓ ST

NAP SACC



- Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) was created in 2002 by child obesity researchers at UNC Chapel Hill in association with colleagues at the NC Division of Public Health, as well as early care and education providers, families, and experts in child health and education.
- NAP SACC is a set of evidence-based best practices—the most important actions child care programs could take to shape children’s healthy eating and physical activity habits.
- The NAP SACC team developed self-assessment, action planning, and educational tools to help early care and education programs set goals and make improvements to their nutrition and physical activity practices.

<https://gonapsacc.org/>

Intervention (Intervention Group)



The 8-month intervention provided FCCPs with:

- Peer support coaches to encourage improvement in food and PA practices and environments through an initial home visit, and then 7 monthly phone calls using brief motivational interviewing
- Tailored feedback form based on baseline data at initial visit, then tailored newsletters and videos mailed once a month based on FCCP's chosen topic
- A set of active play toys and activity cards for use at FCCHs
- Group social/support meetings every 6 weeks where FCCPs can interact with and support one another

All FCCPs receive a core intervention with the same dose of content, however, information they receive is tailored based on their needs and interests

Tailored feedback report

About your child care home...

[Provider's first name], when you answered our survey, you gave us information about how things run in your home. We also gathered information during the days we spent with you in your home.



With this report, you can see where you are already doing well: ✓

And where you could make a change: **no check mark.**

HEALTHY DRINKS

BEST PRACTICE:	IN YOUR HOME:	✓
WATER Make drinking water available for children at all times.	We observed you [had OR did not have] drinking water available at all times.	
Prompt children to drink water during each indoor and outdoor play time.	We observed you [always / did not always] encourage children to drink water during active playtimes.	
JUICE Limit 100% fruit juice to no more than two, 4-6 ounce servings per week.	You said you offer 100% juice to children ___ times a [day/week/month] and the serving size you usually offer is ___ ounces. We observed you served more than the recommended amount of juice.	
Only serve 100% fruit juice that has no sugar added.	We observed you [did / did not] serve juice that had added sugar.	



Toy set for FCCPS

- Hula hoops
- Hula hoop holders
- Colored Spots
- Bean bags
- Featherlight Balls
- Fluff bags
- Tunnel
- Pool Noodles



Intervention Toy Activities

Toy Activities

Colored Spots

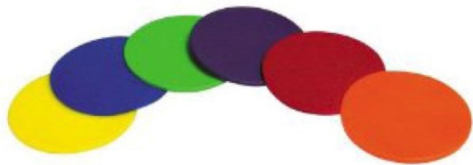
Colored spots are great for organizing activities!

Getting Started:

1. Place the colored spots on the floor and ask the children to choose one to stand on. Children can avoid bumping into each other during activities by pretending that they have a giant bubble around them. Use your hands to show what that might look like and ask children to do the same.

Ask the children: "What happens when bubbles bump into each other?" (they pop!) Let them know to "Always keep your bubble around you and do your best not to bump one another."
Remind children to stay in "their bubbles" during all the toy activities.

2. Next, explain that the spot is called their "home". Ask the children: "What color is your home?" (point to each child individually.) Explain that when they hear the words "Go Home", they should return to their colored spot.



Begin the Activity:

Switcheroo

Ask the children to practice walking around the room while staying inside their bubble.

When you say "and return home," the kids should return to their colored spot.

Once they have done this, you can ask them to practice other movements such as hopping on one foot, jumping, or skipping.

When you say the words, the children should stop what they are doing and return home.

Work Your Body

While standing on their "home" color, ask the children if they can:

- Make yourself small? Tall? Wide? Twisted?
- Stretch your arms out wide and twist from side to side like a helicopter?
- Step forward off your spot? Step back onto your spot? Stand behind your spot?
- Can you jump forward onto your spot and bend your knees? Backward? Jump sideways off your spot? Back on? Jump to the other side? Step back onto your spot?
- Walk around your spot? Walk around on your heels? Tiptoe around your spot? Hop around your spot on one foot?
- Stretch and reach for the sky?
Bend and reach to touch your toes?

Remind the children to stay in their bubbles!

Dance Freeze

When you say "Go!" ask the children to dance around their spot until you say "Freeze!" Repeat as many times as you wish.

Switcheroo

When you say "switcheroo," ask the children to find a different colored spot to stand on.

Repeat using different movements traveling to the spots such as jumping, marching, galloping, skipping, and walking tiptoe.

Shake Your Sillies Out

Children can dance around, shake their arms and legs, stomp their feet and move around to "shake their sillies out" until you direct them to "return home."



Intervention Newsletters

Whole Grains

What is the best practice for home child care providers?

Serve children high fiber, whole grain foods two or more times per day.



Granos Integrales

¿Cuál es la mejor práctica para los proveedores de cuidado infantil en el hogar?

Sirva a los niños alimentos integrales con alto contenido de fibra, dos o más veces al día.



Whole Grains Newsletter

Whole Grains

What is the best practice for home child care providers?

Serve children high fiber, whole grain foods two or more times per day.



Whole Grains

Whole grains are an important part of a healthy diet.

Did you know?

There are two groups of grains: **whole grains** and **refined grains**.

Refined grains are processed to improve texture and make products last longer.

BUT, this process also takes away important nutrients from the grains and removes fiber.

Examples of refined grains include **white rice**, **white bread**, and **white flour**.

Whole grain products have important vitamins and minerals, such as B vitamins, folate, iron and fiber.

Why are these nutrients important?

- Fiber helps proper digestion and helps you feel fuller, longer.
Makes potty time easier for children.
- Iron keeps our blood and muscles strong.
- B vitamins help with your metabolism.



Whole Grains

How can you introduce more whole grains to kids?



- Mix whole grain with non-whole grain foods. Slowly increase the amount of whole grains.
- Have a whole grain taste test. Let children try different kinds of whole grains and talk about the taste and texture.
- Serve whole wheat toast instead of breakfast cereal.
- Serve whole grain crackers as a healthy snack.

What have others done?

"I found that by mixing whole grains slowly with non-whole grains, I was able to increase the amount of whole grains served without the kids noticing a big taste difference!"

- SARA

Intervention Newsletters

Be Active!

What is the best practice for home child care providers?

Provide children with at least 90 minutes of physical activity each day.

At least 60 minutes of this time should be spent outside.



Fruit

What is the best practice for home child care providers?

Offer children fruit two or more times a day!



Be a Role Model

Role modeling is important to create a healthy environment in your child care because it shows kids how they can eat healthy and be active.

When kids learn these habits at a young age, they will be healthier as they grow older.

What is the best practice for home child care providers?

Enthusiastically role model eating healthy foods and drinks with children at meal and snack times.

Regularly participate in indoor and outdoor physical activity with children.



Mealttime Environment Video (2:37)



<https://brownhealthystart.vids.io/videos/d49bddb91016efc35c/mealttime-environment-eng-mp4>

Intervention Recipes

Grilled Fish Tacos with Peach Salsa

Ingredients:

For the salsa:

- 2 peaches halved and rinsed (about 1 cup)
- ½ red bell pepper, finely chopped (about ½ cup)
- ¼ red onion, finely chopped (about ¼ cup)
- 1 tbsp finely chopped fresh cilantro
- 2 tsp lemon juice

For the fish:

- 4 tilapia fillets (about 1 lb.)
- 1 tbsp. chili powder
- ¼ tsp. All-Purpose Seasoning with Pepper
- 1 packet Sazón Natural
- 8, 6" flour tortillas, warmed



Directions:

For the salsa:

1. In medium bowl, stir together sliced peaches, bell pepper, onions, jalapeños, cilantro and lemon juice; cover and refrigerate until ready to use.

For the fish:

1. Heat pan over medium-high heat. Using paper towels, pat fish dry; transfer to plate. In small bowl, stir together chili powder, all purpose seasoning and Sazón Natural. Rub fish with spice mixture to coat completely.
2. Place fish on hot, greased pan. Cook, flipping once, until fish is opaque and flakes easily with fork, about 8 minutes. Thinly slice fish.
3. To serve, fill each tortilla with ½ fish fillet and about 1/3 cup salsa. Serves 4.

Recipe from: My Plate Cookbook
by Goya

Baked Tilapia with Tomatoes

Ingredients:

- Olive or vegetable oil
- 4 tilapia fillets
- 4 medium tomatoes, peeled and chopped
- 2 tablespoons olive oil
- 1½ tsps thyme
- ¼ cup pitted black olives, chopped (optional)
- ¼ cup red pepper flakes
- 2 cloves garlic, chopped
- ½ cup red onion, chopped
- 1 tablespoon lime juice
- Parsley and lemon wedges for garnish



Directions:

1. Preheat oven to 400 °F.
2. Add small amount of oil to baking dish.
3. Arrange fillets in the baking dish. The dish should be large enough so that the fillets do not overlap.
4. Mix remaining ingredients in a bowl.
5. Spoon the tomato mixture evenly over the fillets.
6. Bake uncovered for 15 to 20 minutes or until the fish flakes easily with a fork.
7. Garnish with parsley and a lemon wedge.

Recipe from: Delicious Heart Healthy Latino Recipes

Parent Newsletters

Milk



Children 2 years and older should only drink skim (fat free) or 1% milk.

Kids need milk because it helps build strong bones and teeth!

Did you know?

- Children ages 2-5 need 2 glasses of milk a day. Serving size should be 4-6 ounces.
- Once kids are 2 years old, they don't need whole milk any more. It has too much fat.
- Flavored milks (such as chocolate and strawberry) or milkshakes contain a lot of added sugar and fat. They are not healthy choices.
- Other dairy products, such as yogurt and cheese also provide calcium and vitamins.



How can you make the switch to skim or low-fat milk?

- Make the switch slowly. Try mixing 2% milk with skim milk. Then gradually increase the amount of skim milk.
- Use skim milk in recipes instead of whole milk.
- Add skim or low fat milk to cereal. Kids might not notice a difference in taste!



Screen Time



Young children should not spend more than 1 hour per day watching TV or in front of screens.

This includes computers, tablets, cell phones, and video games.

Programs children do watch should be commercial free and educational.

Did you know?

- Children under 2 years old should NOT watch TV
- Children need to interact in person to develop language and comprehension skills. TV will delay this.
- Too much screen time is connected to:
 - Lower success in school.
 - Poor diet
 - Obesity
 - Increased risk of attention and anxiety problems.
 - Difficulty sleeping.



The more time children spend in front of screens, the less active they are. These bad habits will continue as they grow.

Control Group Intervention

- Receive an attention contact control intervention related to reading readiness and preparation for kindergarten.
- Control group support coaches trained in the Reading Readiness intervention; but do not receive the nutrition and PA training.
- 8-month intervention with same components as intervention group
- 10 children's books (Spanish or English)



Selection of books for Control FCCHs



Control Newsletter: Why Reading is Important

Why is reading important?

Introduce reading from an early age and make reading a part of each day.

From the moment they are born, babies benefit from listening to reading and hearing words and sounds.

Reading introduces new words and sounds to children.

Reading helps children expand their vocabulary once they start talking.

As children grow older, reading introduces them to words. It helps them recognize new words and sets the foundations to learn how to write.

It doesn't matter what language you use to help children learn. Reading, talking, and singing every day helps children use language.



Why is reading important?

You can prepare children learn to read very early in life. Books can be read to children before they even understand what a book is.

Children who see print often can become good readers and be successful in school.

Reading helps children learn about printed words and how they are organized on a page.

For children, they have fun with their teacher. For you, you help them understand language.



DID YOU KNOW?

An important study showed that babies who were read to regularly starting at 6 months understood 40% more words by the time they were 18 months old. Babies who were not read to only understood 16% more words at 18 months.

Children who experience a "language rich environment," (this means they have been spoken to and read to a lot) hear 32 million more words by the time they are 4, than children who do not experience a language rich environment.

Too much TV viewing can delay reading skills of preschoolers. Children from households that watch more hours of TV are less likely to read.



Why is reading important?

What ideas do you already use to encourage reading?

Check off which tips you want to try!

- Read to children every day.
- Re-read favorite books.
- Visit your local library to discover new books.
- Point out words and writing in everyday life.





Incentives

- FCCP receive a \$25 gift card at every in-person survey meeting
- Receive \$50 on the second day of each two-day observation
- At the conclusion of the study, FCCP are given \$365 as an overall “Thank you,” for participation and for any possible disruption to their business
- Up to 16 hours of Continuing Education credits



Provider Demographics (n=120)



- 100% Female
- Mean age: 48.4 years
- 72% Hispanic
- Race:
 - 16% Black
 - 41% White
- Education:
 - 11% no HS diploma
 - 32% HS
 - 38% Associate's degree
 - 19% Bachelor's degree or higher
- Household Income:
 - 14% < \$25K
 - 49% \$25-50K
 - 37% \$50K+
- 70% born outside the US
- Mean # of children in FCCH: 7.8
- Mean years working in early childcare profession: 13.6 years
- 82% accept CACFP



Child Demographics (n=370)

- 51% Female
- Mean Age: 42 months
- 58% Hispanic
- Race:
 - 16% Black
 - 54% White
 - 32% Other
- Hours per day at FCCH:
 - 8% < 6 hours
 - 19% 7 hours
 - 73% 8+ Hours
- Meals eaten at childcare
 - 84% breakfast
 - 97% lunch
 - 8% dinner

33% were overweight/obese

Do family child care providers meet NAP SACC best practices?

- Developed an algorithm to define whether providers met best practice guidelines based on NAP SACC, by comparing each nutrition and activity behavior to the best practice
- Algorithm compared actual, observed behaviors from the EPAO to the best practice whenever possible.
- For some best practices that refer to a timeframe beyond the two days, both observation and self-report data from the survey questions was used in the algorithm (i.e. juice, snack foods, high fat meats, fried foods)
- Self-report data only was used for weekly nutrition/PA education and parent communication

Definitions for meeting nutrition best practices

Domain	Best Practice	Requirement to meet Best Practice
Sugary Drinks	Never serve sugary drinks.	Observer does NOT indicate that provider serves sugary drinks (e.g. fruit flavored drink, lemonade, sports drink, soda, sweetened tea, or homemade drink with added sugar) at any meal or snack time.
Vegetables	Offer children vegetables two or more times a day.	Observer indicates that provider offers vegetables at more than one meal or snack time on each observation day.
Vegetables	Don't prepare vegetables with added fat.	Observer does NOT indicate that vegetables are fried or prepared with added fat at any meal or snack time.
Fruit	Offer children fruit two or more times a day.	Observer indicates that provider offers fruit at more than one meal or snack time on each observation day.
Fruit	Never serve fruit in syrup or with added sugar.	Observer does NOT indicate that fruit served at any meal or snack time was canned in syrup or sweetened with added sugar.
Whole Grains	Offer children high fiber, whole grain foods two or more times a day.	Observer indicates that FCCP offered a whole grain food 2 or more times daily on both observation days

Definitions for meeting nutrition best practices

Domain	Best Practice	Requirement to meet Best Practice
Mealtime Environment	Always sit at the table and eat with the children.	Observer indicates that FCCP sat with the children at every observed meal on both days (morning meal, morning snack, lunch, and afternoon snack)
Mealtime Environment	Teach children how to serve themselves or, in the case of older children, allow them to serve themselves.	Observer indicates that children serve themselves most or all foods at every observed meal and snack time.
Encouragement	Always prompt and praise children for trying new or less preferred foods.	Observer indicates that provider prompts and praises children for trying new, less preferred, or healthy foods at 50% or more of observed meal and snack times.
Parent Communication	Provide families with information on child nutrition to help them continue healthy practices at home.	Provider self-reports sharing information with families about child nutrition topics, including 1) types of foods and drinks children should eat, 2) recommended serving sizes, 3) the importance of serving a variety of foods, and 4) a healthy mealtime environment.

Definitions for meeting best PA practices

Domain	Best Practice	Requirement to meet Best Practice
Sedentary Time	Limit time children are asked to remain seated to < 15 mins a day.	Staff observer indicates that children were not asked to remain seated for more than 15 minutes at a time (excluding indoor play time, circle time, nap times, and TV time). ^a
Screen Time	Limit screen time to < 30 mins per week.	Staff observer indicates that children spent less than 30 minutes in front of a screen during the two observation days; AND provider reports children being allowed to spend less than 30 minutes per week in front of screens. ^{ab}
Screens During Meals	TV should never be on during meal or snack time.	Staff observer indicates that a TV or other screen device was not on and visible from eating area during any observed meal or snack time. ^a
Participate in Indoor PA with Kids	Always participate in indoor PA with children.	Staff observer indicates that provider plays actively with the children a lot during indoor time on the two observation days. ^a
Participate in Outdoor PA with Kids	Always participate in outdoor PA with children.	Staff observer indicates that provider joins the children's game outside, plays with children outside, and participates in a chasing game with children a lot during outside time on the two observation days. ^a

Percent of FCCP Meeting Nutrition Best Practices

Best Practice	% Meeting Best Practice
Only serve 100% fruit juice that has no sugar added	97.2%
Never serve sugary drinks	96.3
Never pressure children to eat more food than they want	88.9
Don't prepare vegetables w/added fat	87
Children ages 2 and older only served skim or 1% milk	78.7
Never serve flavored milk	77.8
Never serve fruit in syrup or w/added sugar	75
Offer children fruit 2 or more times/day	73.1
Always prompt and praise children for trying new or less preferred foods	64.8
Limit 100% fruit juice to no more than two, 4-6 oz servings/week	59.3

Percent of FCCP Meeting Nutrition Best Practices

Best Practice	% Meeting Best Practice
Limit serving high-fat meats to < than 1 time/week or never	48.1%
Provide families w/information on child nutrition to help them continue health practices at home	44.4
Do not use food or sweets as a reward or reward children for finishing their plate	38
Lead a planned nutrition education lesson one or more times per week	38
Always ask children if they are full before removing an unfinished meal/snack	35.2
Always ask children if they are hungry before serving more food	33.3
Limit serving children fried/pre-fried foods to <1 time/wk or never	31.5
Only serve 100% fruit juice that has no sugar added	16.7
Enthusiastically role model eating and drinking healthy foods	8.3
Always sit at the table and eat with children	7.4

Percent of FCCP Meeting Nutrition Best Practices

Best Practice	% Meeting Best Practice
Prompt children to drink water during each indoor/outdoor play time	7.4%
Offer children high fiber, whole grain foods 2 or more times/day	4.6
Limit offering children sugary, salty or fatty foods to <1 time/week or never	1.9
Offer children vegetables 2 or more times/day	1.9
Talk w/children informally about nutrition and healthy eating as often as possible	0.9
Teach children how to serve themselves or allow them to serve themselves	0.9

Percent of FCCP Meeting PA Best Practices

Best Practice	% Meeting Best Practice
Leading a planned PA class \geq once a week	86%
No TV during meal or snack	72%
Not modelling sedentary behavior	71%

Percent of FCCP Meeting PA Best Practices

Best Practice	% Meeting Best Practice
Providing children with \geq 90 min of indoor or outdoor PA daily	28%
Providing children with \geq 60 min outdoor play daily	29%
Talking with children informally about the importance of PA	15%
Participating in indoor PA w/ children	9%
Providing children with \geq 45 min of adult-led PA each day	4%
Participating in outdoor PA with children	2%
Prompting and praising children for being active	1%

Baseline Child HEI scores by ethnicity (n=120)

Variable (and total possible score)	All Mean (Std. Dev) N=120	Latino Mean (Std. Dev) N=86	Non-Latino Mean (Std. Dev) N=34	P-value (2 sided)
Total HEI (100)	61.8 (11.0)	64.4 (10.6)	56.6 (10.0)	0.002*
Total Fruit (5)	4.0 (1.0)	4.1 (1.1)	3.8 (1.2)	0.12
Whole Fruit (5)	4.2 (1.2)	4.2 (1.3)	4.2 (1.0)	0.9
Total Vegetables (5)	2.0 (1.4)	2.2 (1.4)	1.5 (1.3)	0.02*
Greens/Beans (5)	1.9 (2.0)	2.7 (2.0)	0.5 (1.1)	<0.0001*
Whole Grain (10)	4.5 (3.3)	4.4 (3.5)	4.9 (2.9)	0.44
Dairy (10)	8.8 (1.9)	8.8 (2.0)	8.8 (1.6)	0.9

Baseline Child HEI scores by FCCP ethnicity

HEI Component (total possible score)	All Mean (Std. Dev)	Latino Mean (Std. Dev)	Non-Latino Mean (Std. Dev)	P-value (2 sided)
Total Protein Foods (5)	3.4 (1.6)	3.7 (1.5)	2.8 (1.7)	0.005*
Seafood and Plant Proteins (5)	2.2 (2.1)	2.8 (2.0)	1.1 (1.7)	<0.0001*
Fatty Acids (10)	3.6 (2.9)	3.4 (2.8)	4.1 (3.0)	0.16
Refined Grains (10)	4.9 (3.3)	5.4 (3.3)	3.8 (3.0)	0.01*
Sodium (10)	5.6 (2.9)	5.7 (2.8)	5.3 (3.0)	0.56
Added Sugars (10)	8.9 (1.8)	8.9 (1.8)	8.5 (1.9)	0.30
Saturated Fat (10)	7.9 (2.4)	8.2 (2.5)	7.3 (2.2)	0.05*

Baseline Accelerometry Data for Children

- Children aged 2-to-5-years (n=295) wore hip-worn triaxial accelerometers for two days in FCCHs
- Median wear-time was 6.4 hours/day
- Majority of the wear time indicated sedentary behavior (61.5%±11.0%, 33.1±9.6 min/hr)
- Only 9.9%±4.7% (5.3±2.8 min/hr) was spent in moderate-to-vigorous PA.
- Hispanic children had significantly greater % sedentary time vs. Non-Hispanic (66.2% vs. 62.6%, p=.007), and lower moderate PA (5.5% vs. 6.4%, p=.018).

Observed Physical Activity in FCCH

- Outdoor play was more vigorous than indoor play (4.5>3.0, p=0.02), with a 0 to 7 scale (>4=MVPA).
- Outdoor free play had the highest activity level (4.9).
- In outdoor play, the longest periods of MVPA were obtained in chase/race games; the least amount of time spent in MVPA was during organized walks.
- Organized provider-led play was more vigorous than free play when children were indoors (4.1>2.6, p=0.01).
- In indoor play, provider-led dancing games were the most strongly positively correlated with average min/hr MVPA.



Process Evaluation and Retention

- Most intervention components were delivered with high fidelity and were well received
- 82% of FCCP completed all 7 support coach calls with 94% reporting that the coach helped them to make changes and 90% reporting that the coach was very helpful
- 83% read all 8 tailored newsletters, with 87% reporting that they were very helpful
- 58% watched all 8 tailored videos with 89% watching at least half of them; 82% said that the videos were very helpful.
- However 58% of FCCP reported attending no group meetings with only 12% attending at least half the groups.
- Completed follow-up two-day observations with 73% of FCCP. Only one provider refused follow-up; the rest did not have age-eligible children.

Results: Change in Child HEI Scores by Group at FCCH home level (n=87)

Variable	Intervention Mean (Std. Dev) (n=40)	Control Mean (Std. Dev) (n=47)	P-value (2 sided)
<i>Change in overall HEI score</i>	3.82 (9.04)	-3.34 (8.94)	0.0004*
Change in total vegetable	0.49 (1.68)	-0.37 (1.94)	0.03*
Change in greens and beans	0.53 (2.43)	-0.26 (2.45)	0.13
Change in total fruit	0.12 (1.21)	-0.23 (1.20)	0.18
Change in whole grains	0.87 (3.86)	-0.28 (3.40)	0.14
Change in total protein	0.41 (1.97)	-0.24 (1.81)	0.115
Change in sodium	0.02 (2.93)	-0.97 (4.03)	0.20

Results: Change in Child HEI Scores by Group (n=87)

Variable	Intervention Mean (Std. Dev) (n=40)	Control Mean (Std. Dev) (n=47)	P-value (2 sided)
Change in refined grains	1.26 (3.16)	-0.17 (3.83)	0.06
Change in added sugar	0.97 (1.91)	0.01 (2.12)	0.03*
Change in seafood and plant proteins	0.04 (2.04)	-0.26 (2.50)	0.53
Change in fatty acid	0.04 (3.57)	-0.21(3.16)	0.74
Change in saturated fats	-0.61 (3.30)	-0.51 (2.33)	0.87
Change in whole fruit	-0.05 (0.85)	-0.06 (1.01)	0.98
Change in total dairy	-0.26 (2.14)	0.20 (2.28)	0.32

Child Physical Activity change (FCCH level)

- Children in Intervention FCCH decreased percent sedentary time more than children in control FCCH (-1.67% vs. +3.60%, $p=0.042$)
- Children in Intervention FCCH increased percent time in MVPA more than children in control FCCH. (+1.46% vs. -0.40%, $p<0.08$)



Summary

- Baseline data shows that while some NAP SACC guidelines are already being met by FCCP, there is clearly a need for more training and interventions to improve the nutrition and PA environments of FCCH.
- Baseline HEI scores showed room for improvement in children's diets in FCCH. Children cared for by Hispanic providers had better diet quality than children cared for by non-Hispanic providers.
- Baseline children's PA levels showed that children were participating in little MVPA and much sedentary time during their time at the FCCH. Children cared for by Hispanic providers had lower PA.



Summary (cont.)

- Children cared for in intervention group FCCHs had greater improvements in total HEI score, total vegetable and added sugar HEI scores than those in the control group. There were trends in the right direction for most of the component scores.
- Children cared for in intervention group FCCHs had greater decreases in sedentary time. than those in the control group.
- Children cared for in intervention group FCCHs had greater improvements in MVPA than those in the control group (trend).



Implications for Policy and Future Research

- Baseline findings point to the need for more training and interventions with family child care providers to improve the nutrition and PA environment of their homes.
- Most nutrition practices that were met were related to CACFP guidelines and most of the providers in our study accepted CACFP.
- Preliminary results show that the Healthy Start intervention has promise for improving the dietary quality and PA of 2-5 year old children cared for in FCCHs.
- Future analyses will complete mixed models and look at predictors of change
- Future analyses will also examine changes in the diet and PA FCCH environment (using EPAO measure)

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Ready to Learn Providence, Children's Friend

Community Advisory Board

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Questions?

- What do you think underlies the differences in children's diet by provider ethnicity?
- Based on the Healthy Start study, what future research do you recommend in FCCH settings?



Questions?



Extra data slides

Definitions for meeting nutrition best practices

Domain	Best Practice	Requirement to meet Best Practice
Water	Make drinking water available for children at all times.	Observer indicates that children have self-service access to water in the FCCH (including from filled cups that are always accessible)
Water	Prompt children to drink water during each indoor and outdoor play time.	Observer indicates that provider reminds children to drink water at least once during every outdoor play time and every active indoor play time.
Juice	Limit 100% fruit juice to no more than two, 4-6oz servings per week.	Observer indicates that the total amount of 100% fruit juice served to a single child across the 2 days of observation \leq 12 oz; AND the amount of 100% fruit juice that the provider self-reports serving children \leq 12 oz. per week.
Juice	Only serve 100% fruit juice that has no sugar added.	Observer indicates that provider does not serve juice that is less than 100% fruit juice at any meal or snack time.
Milk	Children ages 2 and older should only be served skim or 1% milk.	Observer does NOT indicate that provider serves 2% or whole milk at any meal or snack time.
Milk	Never serve flavored milk	Observer does NOT indicate that provider serves flavored milk at any meal or snack time.

Definitions for meeting nutrition best practices

Domain	Best Practice	Requirement to meet Best Practice
Snack Foods	Limit offering children sugary, salty, or fatty foods to less than 1 time per week or never.	Observer indicates that the provider does NOT serve sugary, salty, or fatty foods at any meal or snack time; AND the provider self-reports serving such items less than once per week.
High-fat meats	Limit serving high-fat meats to less than 1 time per week or never.	Observer indicates that the provider does NOT serve high-fat meats at any meal or snack time; AND the provider self-reports serving such items less than once per week.
Fried and Pre-Fried Foods	Limit offering children fried or pre-fried foods to less than 1 time per week or never.	Observer indicates that the provider does NOT serve fried meat, fried potatoes, or other fried foods at any meal or snack time; AND the provider self-reports serving such items less than once per week.
Self-Regulation	Always ask children if they are full before removing an unfinished meal or snack plate.	Observer indicates that provider always asks children if they are full before removing an unfinished plate at every observed meal and snack time.
Self-Regulation	Always ask children if they are hungry before serving more food.	Observer indicates that provider always asks children if they are hungry before serving more food at every observed meal and snack time.

Definitions for meeting nutrition best practices

Domain	Best Practice	Requirement to meet Best Practice
Self-Regulation	Never pressure children to eat more food than they want.	Observer indicates that provider never pressures children to eat more food than they want at any observed meal and snack time.
Self-Regulation	Do not use food or sweets as a reward or reward children for finishing their plate.	Observer indicates that provider never uses food or sweets as a reward or rewards children for finishing their plate at any meal or snack time.
Nutrition Education	Lead a planned nutrition education lesson one or more times per week.	Provider self-reports leading a planned nutrition education lesson at least once per week.
Nutrition Education	Talk with children informally about nutrition and healthy eating as often as possible.	Observer indicates that provider talks with children informally about nutrition at every observed meal and snack time.
Role Modeling	Enthusiastically role model eating and drinking healthy foods	Observer indicates that provider enthusiastically role models eating and drinking healthy foods at 75% or more of observed meal and snack times.

Definitions for meeting best PA practices

Domain	Best Practice	Requirement to meet Best Practice
Total PA	Provide children with ≥ 90 mins of PA each day.	Staff observer indicates that children engage in at least 90 minutes each day of PA at a level equal to or greater than easy walking. ^a
Outdoor Play	Provide children with ≥ 60 mins of outdoor play each day.	Staff observer indicates that children spend at least 60 minutes outside each day. ^a
Adult-led PA	Provide children with ≥ 45 mins of adult-led PA each day.	Staff observer indicates that children engage in at least 45 minutes each day of adult-led PA. ^a
PA Education	Lead ≥ 1 planned PA lesson each week.	Provider reports leading a planned PA education lesson at least once per week. ^b
PA Informal Talk	Talk with children informally about PA.	Staff observer indicates that provider talks with children informally about the importance of PA a little, sometimes, or a lot every day. ^a

Definitions for meeting best PA practices

Domain	Best Practice	Requirement to meet Best Practice
Do Not Model Sedentary Behavior	Do not model sedentary behavior.	Staff observer does NOT indicate that provider watches TV or uses other screen time during the two observation days. ^a
Encourage PA	Always prompt and praise children for being physically active.	Staff observer indicates that provider prompts and praises children for being physically active and prompts them to increase their PA a little, sometimes, or a lot during the two observation days. ^a
Parent Communication re. PA	Provide families with information on children's PA.	Provider reports giving families information on 1) the amount of time children should spend being physically active, 2) encouraging children to be physically active, 3) limiting long periods of seated time for children, 4) the amount of time children should spend playing outdoors, and 5) using the outdoors to encourage children's active play. ^b
Parent Communication Screen Time	Provide families with information on screen time for children.	Provider reports giving families information on 1) the amount of screen time children should have, 2) why it's important to limit screen time, and 3) other activities children can do instead of screen time. ^b