

Starting Early to Prevent Obesity Using Telehealth (StEP OUT) in Latino WIC Families

HER NOPREN WIC Learning Collaborative Seminar

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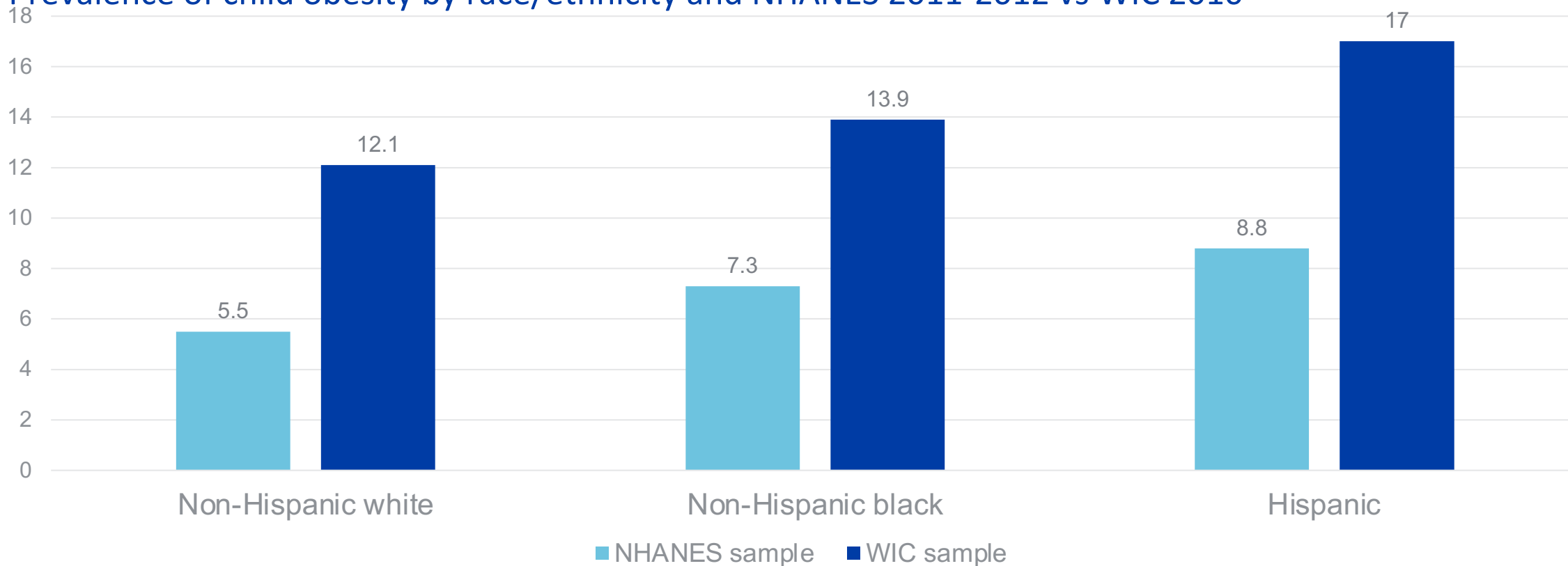
Physician Partners

Child obesity is a public health crisis with far reaching population health consequences.



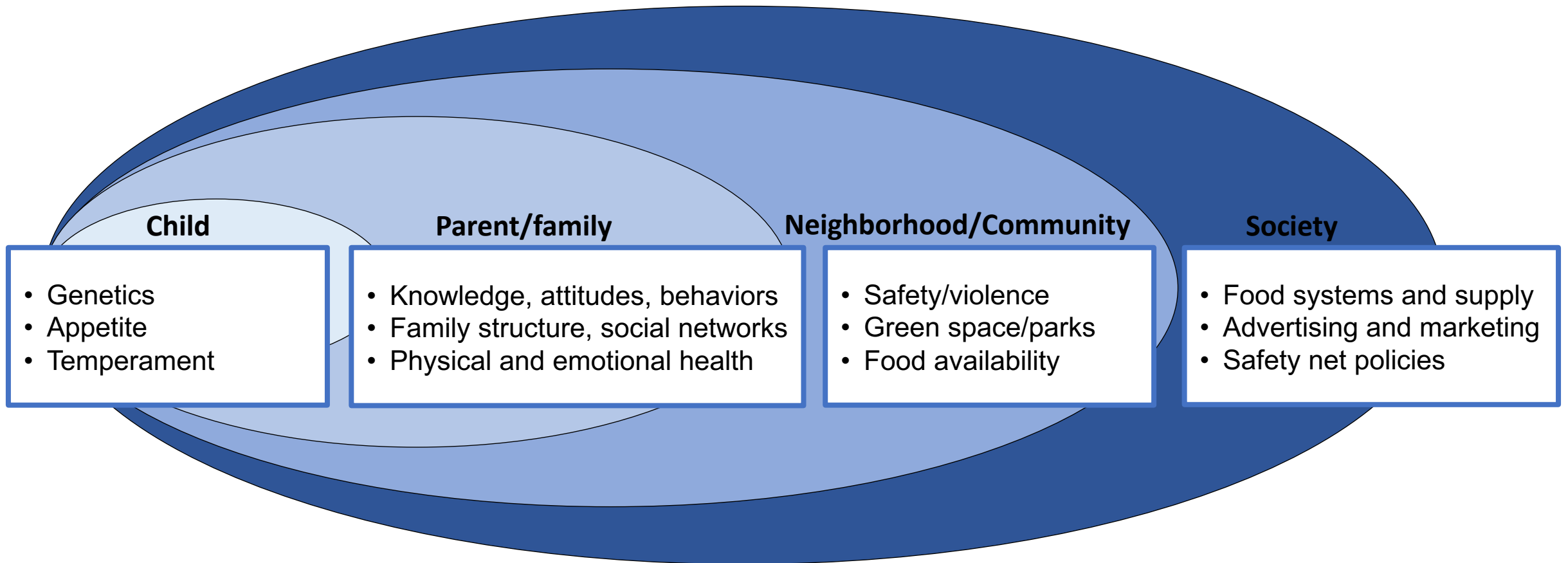
Disparities in rates of child obesity begin early.

Prevalence of child obesity by race/ethnicity and NHANES 2011-2012 vs WIC 2010



(Ogden 2014; Freedman 2017)

Intervention targets should be considered within a socioecological framework



Cultural values and norms:

- Preferences, traditions
- Racism, discrimination, historical disadvantage

- SES
- Race
- Ethnicity
- Birth country

Child

- Genetics
- Appetite
- Temperament

Parent/family

- Knowledge, attitudes, behaviors
- Family structure, social networks
- Physical and emotional health

Neighborhood/Community

- Safety/violence
- Green space/parks
- Food availability

Society

- Food systems and supply
- Advertising and marketing
- Safety net policies

Specific knowledge, attitudes, behaviors related to obesity risk

Feeding styles

Responsive vs non-responsive

Feeding practices

- Breast/bottle
- Complementary foods
- Cereal in the bottle

Sleep

- Duration
- Quality

Physical activity

- Unrestrained floor time
- Tummy time

Interventions that target these modifiable factors have limitations.

- Begin too late in the life course → not effective
- Rely on home visiting models → not scalable
- Are not designed for high risk demographic groups → will not address health disparities

The Starting Early Program (StEP)

- Designed for low-income Latinx families
- 15 sessions beginning in pregnancy, continuity through early childhood
- Individual nutrition and lactation counseling
- Nutrition and parenting support groups structured around “family meal”
- In-person sessions coordinated with prenatal and pediatric primary care



How You Know Your Baby is Hungry

Even though babies can't talk, they can show us when they are hungry.

Look for your baby to:

- Lick the top of her mouth or lips
- Suck on her lips or tongue
- Suck on her fingers or hands
- Fidget and start to fuss
- Move her head in search of your breast or bottle



Crying is the last thing your baby will do to show you she's hungry!



- A crying baby is harder to feed
- Don't wait until she's crying to try and feed her
- When your baby cries, it doesn't always mean that she's hungry
- Watch for what she's trying to tell you so you know when she's hungry



StEP content is delivered via discussion, interactive demonstrations, reflection, and observation.

Prenatal (3rd trimester)

1:1 session

Benefits of breast feeding
Feeding intentions
Perceived barriers

Child age 6 months

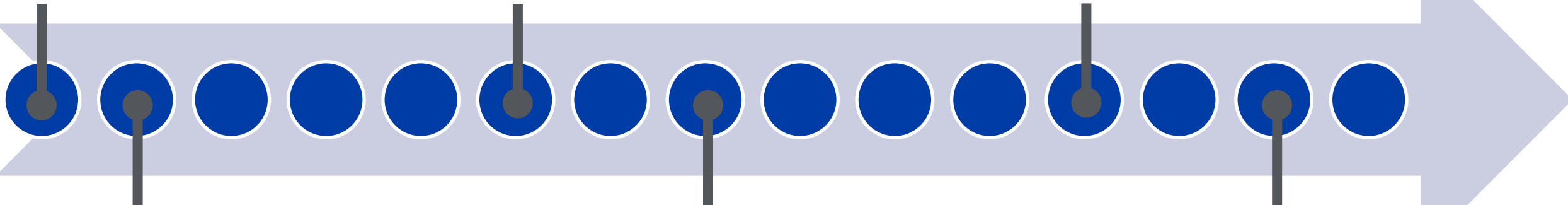
Group session

Discuss: Introducing comp. foods; age appropriate portions
Activity: Making baby food

Child age 24 months

Group session

Discuss: Healthy habits at meals; encouraging variety
Activity: Picky eater role play



Nursery

1:1 session

Discuss: Benefits of breast feeding
Activity: Lactation support

Child age 12 months

Group session

Discuss: Bottle weaning
Activity: Sometimes/always foods

Child age 30 months

Group session

Discuss: Food labels
Activity: Role play "saying no"

StEP has significant impacts on behavioral outcomes and child weight.

Feeding practices

- ↑ Exclusive breast feeding
- ↑ Family meals
- ↓ Early introduction of complementary foods
- ↓ Juice
- ↓ Cereal in the bottle

Feeding styles

- ↓ Pressuring
- ↓ Laissez-faire
- ↓ Indulgent



Child weight

- ↓ Standardized weight scores at 18 and 24 months
- ↓ Weight trajectory from 10 to 26 months

StEP Limitations

1. Family engagement and dose dependent effects
2. Scalability

StEP effects on weight are dose dependent.

Session “dose”
in first two years



Child weight
outcomes at age 2



Child weight
outcomes at age 3



	Low Attendance (0–4 Sessions)	Medium Attendance (5–9 sessions)	High Attendance (10–12 sessions)	<i>P</i>	Adjusted <i>P</i> ^a
Age 2 y					
Sample No.	58	84	61	—	—
Continuous, mean (SD)					
WFAz	0.92 (1.17)	0.59 (1.13)	0.37 (0.97)	.02	<.01
Categorical, <i>n</i> (%)					
WFA ≥85th percentile	26 (44.8)	28 (33.3)	14 (23.0)	.04	<.01
WFA ≥95th percentile	15 (25.9)	19 (22.6)	6 (9.8)	.06	.01
Age 3 y					
Sample No.	53	71	72	—	—
Continuous, mean (SD)					
WFAz	0.90 (1.27)	0.74 (1.32)	0.41 (1.06)	.07	.03
Categorical, <i>n</i> (%)					
WFA ≥85th percentile	21 (39.6)	28 (39.4)	21 (29.2)	.35	.66
WFA ≥95th percentile	14 (26.4)	16 (22.5)	6 (8.0)	.02	.02

—, not applicable.

^a Adjusted *P* value obtained using multiple linear and logistic regression controlling for maternal education (did not complete high school versus completed high school), country of origin (not born in the United States versus born in the United States), parity (first child versus not first child), and prepregnancy obesity (BMI <30 vs BMI ≥30).

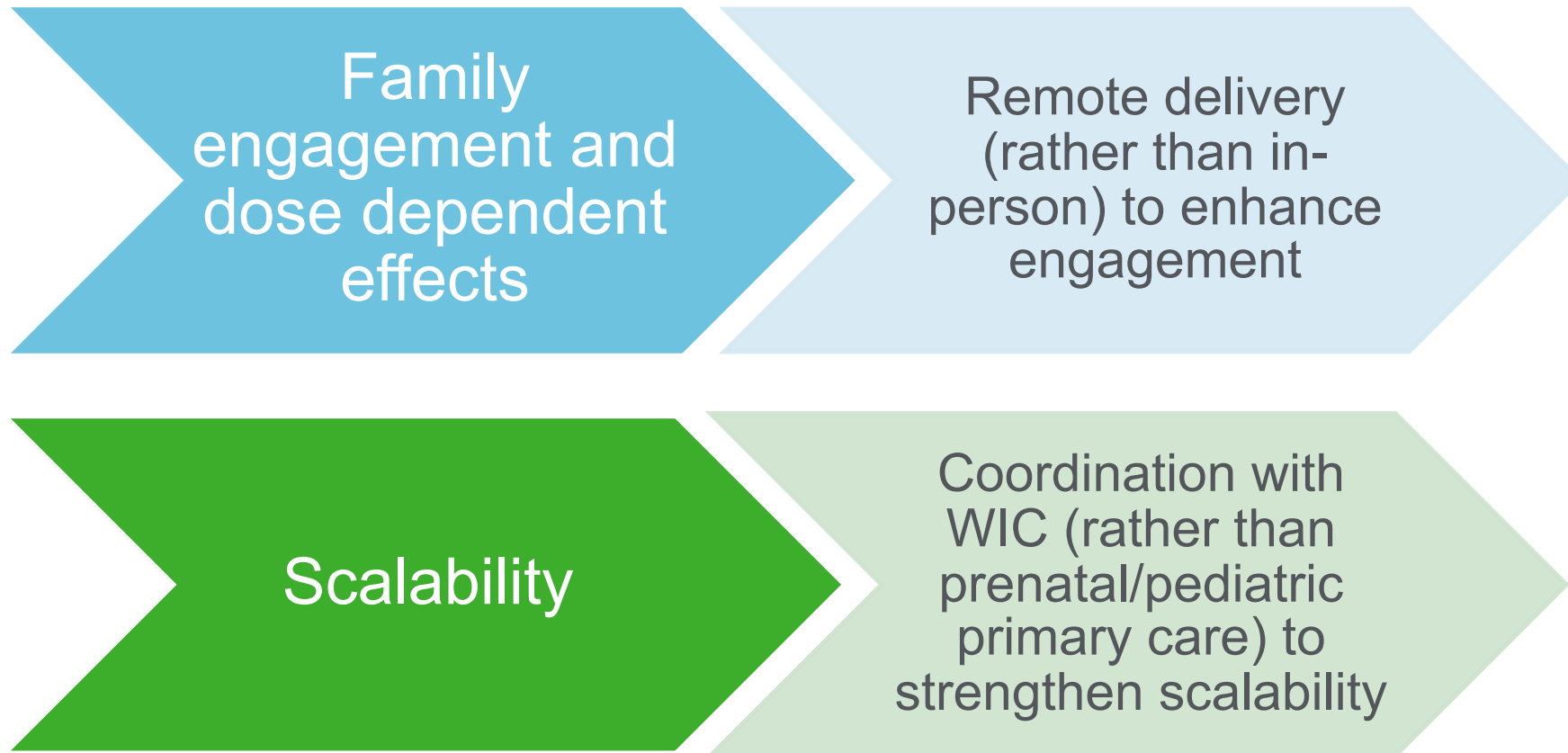
Three delivery models for programs targeting families w/ young children

Delivery Model	Advantages	Disadvantages
Healthcare-based (prenatal and pediatric primary care)	<ul style="list-style-type: none"> - Scalable - High frequency of scheduled visits (~7-8 prenatal visits and ~15 peds visits in first 3 years of life) 	<ul style="list-style-type: none"> - Requires time and transportation - Heterogenous population, not all high-risk
Home-visiting	<ul style="list-style-type: none"> - High engagement/attendance - High comfort/convenience 	<ul style="list-style-type: none"> - Not scalable
Community-based (WIC)	<ul style="list-style-type: none"> - Scalable, proven impacts on child obesity at population level (e.g., change in WIC food package 2009 → decreasing child obesity prevalence) - Targets appropriate population (high prevalence of early child obesity in WIC) 	<ul style="list-style-type: none"> - Low frequency of scheduled visits (every 3-6 months) - [Required time and transportation pre-COVID] - Frequent cultural mismatch

Starting Early to Prevent Obesity Using Telehealth (StEP OUT)

Aim: To develop and test a remote, early child obesity prevention program for Latino families in coordination with WIC.

StEP OUT will address some StEP Limitations



StEP OUT Aims

Aim 1

- Assess the attitudes and beliefs of key stakeholders that are likely to impact engagement and outcomes of StEP OUT

Aim 2

- Iteratively adapt and test StEP OUT to be optimized for remote, virtual delivery in WIC

Aim 3

- Conduct a pilot RCT to evaluate the acceptability, feasibility, and preliminary effectiveness of StEP OUT

Aim 1 Methods – Qualitative data collected from 4 stakeholder groups

	Past	Future
Participants	StEP participants (n=40 interviews)	WIC participants (n=40 interviews)
Implementors	StEP staff (n=6; 1 focus group)	WIC staff (n=13; 5 focus groups)

Modified health beliefs model guiding data collection

Modifying factors (quantitative)

Family-level factors:
Social determinants
of health

System-level factors:
WIC program
structure

Individual attitudes and beliefs (qualitative)

Perceived
susceptibility

Perceived benefits
and barriers

Perceived
usefulness

Program engagement & outcomes (mixed methods)

Healthy infant
feeding/ program
participation

Program promotion/
implementation

Constructs to be measured in Aim 1

Constructs to be
measured in Aims 2
and 3

Aim 1 Results – Interview sample characteristics

Demographic characteristic	StEP participants (n=40)	WIC participants (n=40)
Married or living as married	34 (85%)	21 (52.5%)
Born outside the United States	34 (85%)	27 (67.5%)
Finished high school/GED	27 (68%)	31 (77%)
Preferred language Spanish	33 (83%)	24 (60%)
Pregnant	--	16 (40%)
Has child(ren) under 3	40 (100%)	25 (62.5%)
Food insecure	19 (48%)	23 (57.5%)
Financial difficulty	16 (40%)	17 (42.5%)
Enrolled in WIC	36 (90%)	40 (100%)

Aim 1 Results – Focus group sample characteristics

Demographic characteristic	StEP Staff (n=6; 1 focus group)	WIC Staff (n=13; 5 focus groups)
Age, years	35.3 (5.8)	47.8 (9.8)
Female	6 (100%)	12 (92%)
Race		
Caucasian	0	8 (62%)
African-American	0	2 (15%)
Asian	0	1 (8%)
Other	6 (100%)	2 (15%)
Hispanic ethnicity	6 (100%)	3 (23%)
Length of time in current role		
1-5 years	6	5 (39%)
6-10 years	0	3 (23%)
11-15 years	0	4 (31%)
>15 years	0	1 (8%)
Language fluency		
Spanish	6 (100%)	3 (23%)
Chinese	0	1 (8%)
Greek	0	1 (8%)

Aim 1 Results – Major Themes

HBM domain	Interview/focus group guide section	Broad themes
Perceived susceptibility	Beliefs about healthy infant growth	<ul style="list-style-type: none"> • Cultural influences • Differing sources of advice • Long term health outcomes • Judgement • Anxiety/confusion about growth
Perceived benefits, barriers, usefulness	Attitudes towards nutrition education in WIC	<ul style="list-style-type: none"> • In-person vs remote • Pre/post COVID • Perceived lack of nutrition education • Appreciation for WIC • Frustrations with WIC
	Attitudes towards StEP OUT	<ul style="list-style-type: none"> • In-person vs remote • Group vs individual • Nutrition and non-nutrition topics

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Aim 1 Results – Attitudes and beliefs related to program modality (in-person vs remote)

Theme 1:

- Remote programs are more feasible but in-person interactions are more valuable (though not always valuable enough to overcome barriers).

Theme 2:

- There are specific distraction-related barriers to remote program engagement that require specific resources to overcome.

Theme 3:

- Consistent content can be delivered across both modalities, but uncertainty remains about the effectiveness of remote programs.

Aim 1 Results – Attitudes and beliefs related to program modality (in-person vs remote)

Theme 1:

- “I think in person is pretty cool, especially if it’s, like, a group setting, but I think realistically, I would — I personally would be able to attend more so if it’s virtual.” (WIC Participant)

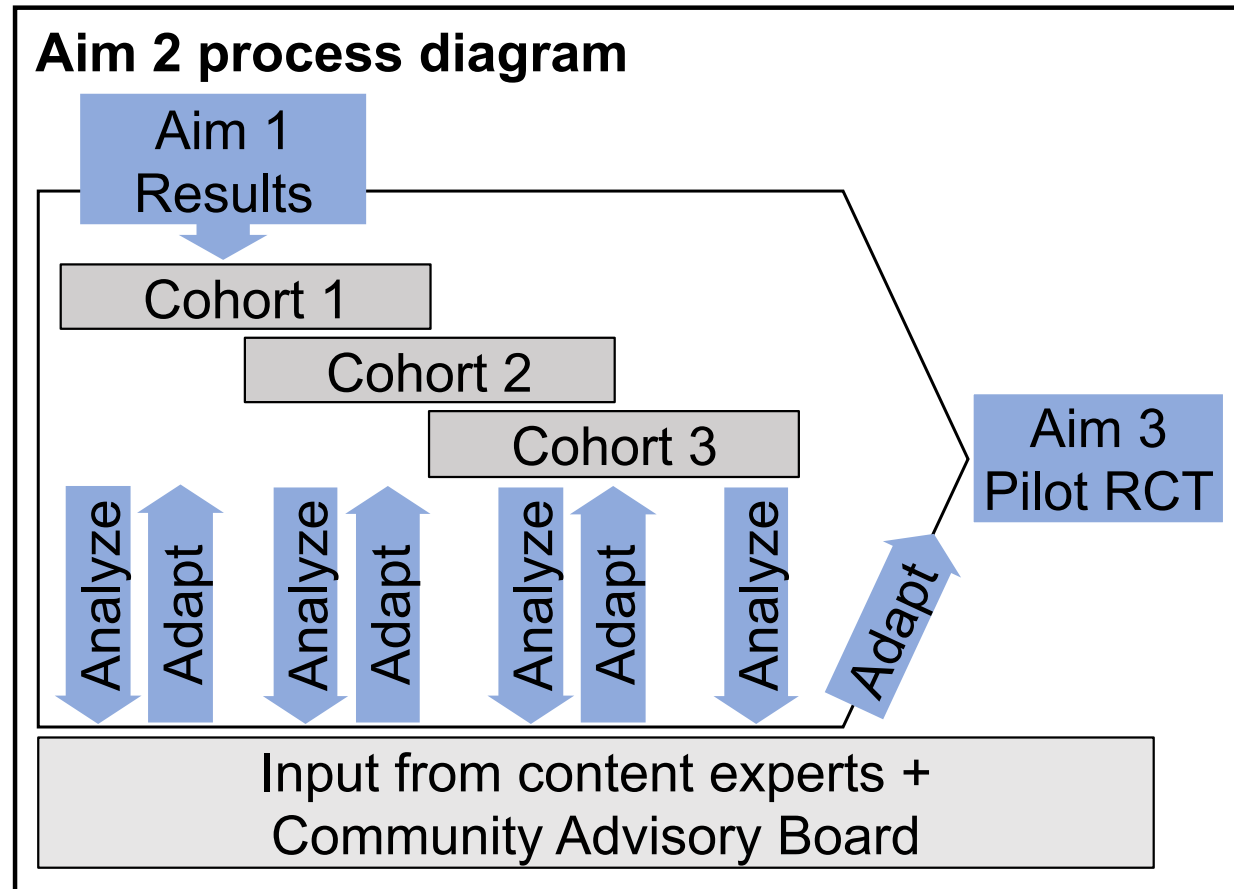
Theme 2:

- “Do you hear all the chaos in my background? I am here in my bedroom and still people coming in and out of my bedroom, which are my kids. So, it makes it very hard for me to hear everything. I have to keep asking you to repeat yourself.” (WIC participant)

Theme 3:

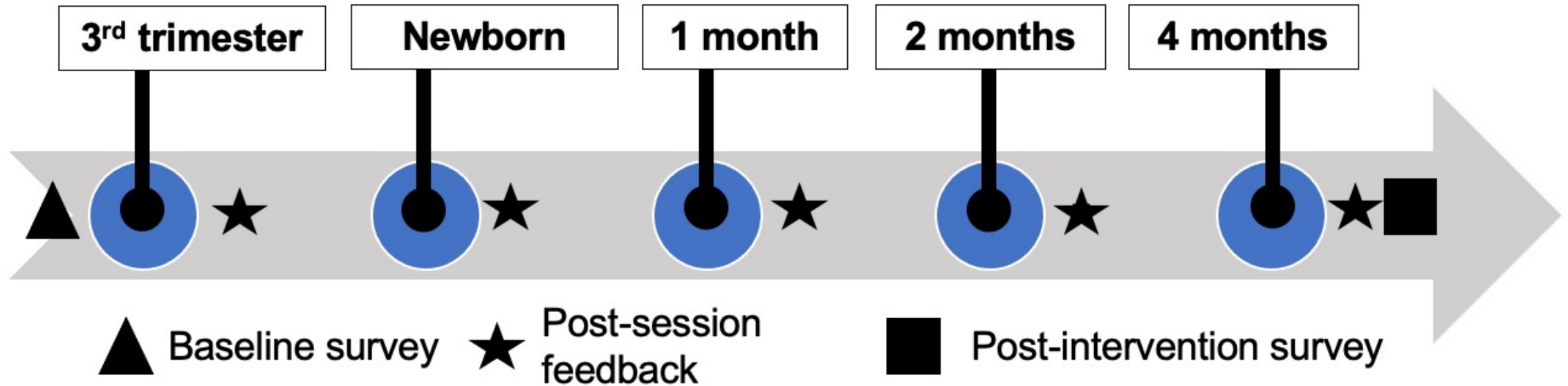
- "So, we do it in the remote setting, but it's not as interactive as, you know, if you have the child there or if you have the family there to do the exercises" (WIC Staff)

Aim 2: Iteratively adapt and test StEP OUT to be optimized for remote, virtual delivery in WIC



Aim 2 Process for each cohort

Intervention delivery and assessment process for each cohort in Aim 2.



Aim 2 Initial Adaptations

- Enhance social connection by adding asynchronous group texting
- Make expectations for participation clear from the start (camera on, quiet place, limit distractions)

Aim 2 Progress

- Planning to recruit first cohort in May

Questions/discussion