

Overweight in Chicago Preschool Children



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Overall Goal of this Seed Grant:

To obtain background information necessary to secure further grant funding to develop and evaluate a preschool-based obesity prevention intervention.

Key Questions

1. How many preschool children in Chicago are already overweight?
2. What do parents of preschool-aged children think and know about obesity prevention (healthy eating, physical activity)?
3. What are preschool centers doing now, and what are the opportunities/barriers to reducing obesity risks?

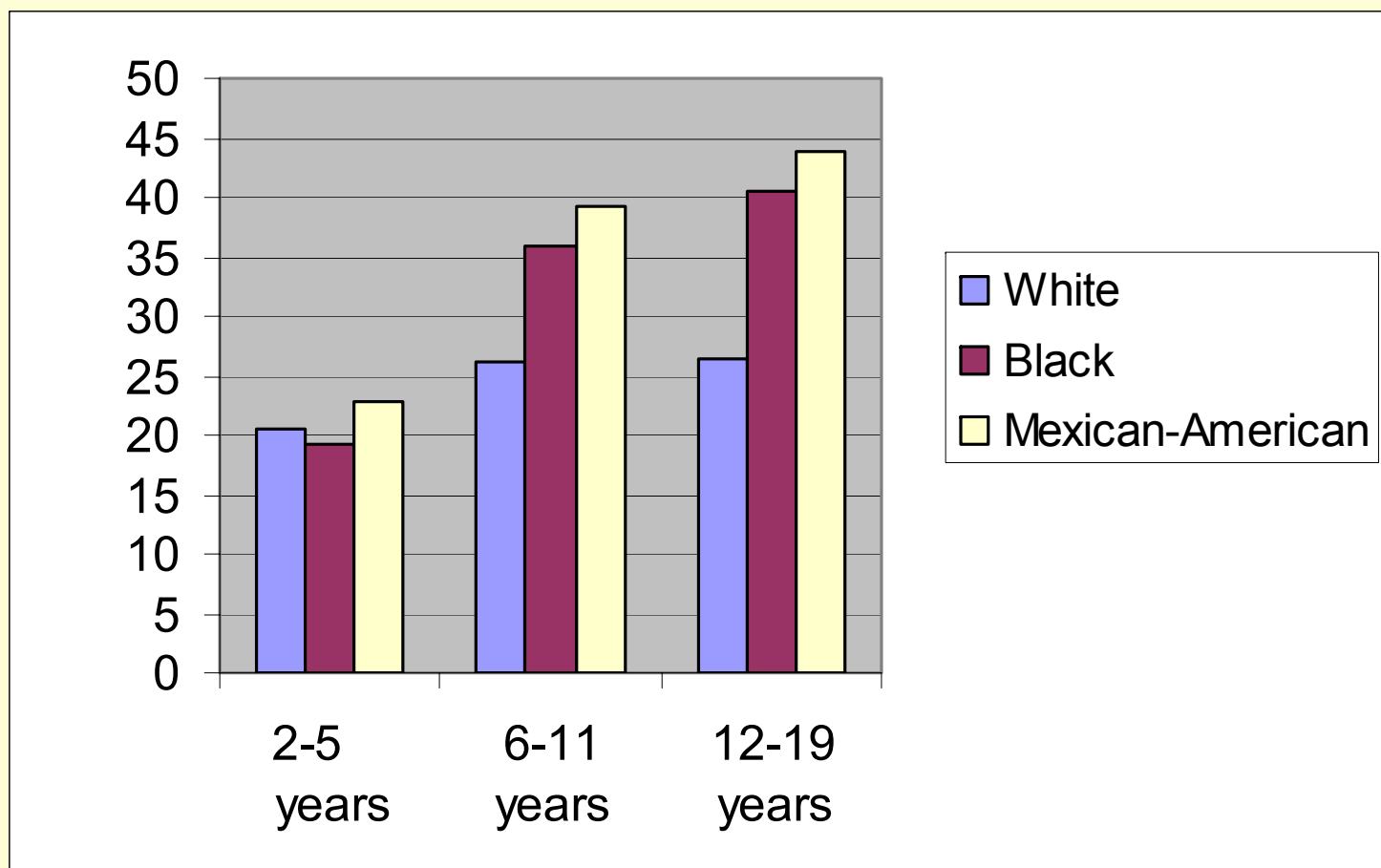
Three Seed Grant Activities

1. Chart review to examine prevalence of overweight at preschool/daycare centers
2. Pen-and-paper surveys with parents of preschool-aged children
3. Interviews with directors of preschool centers

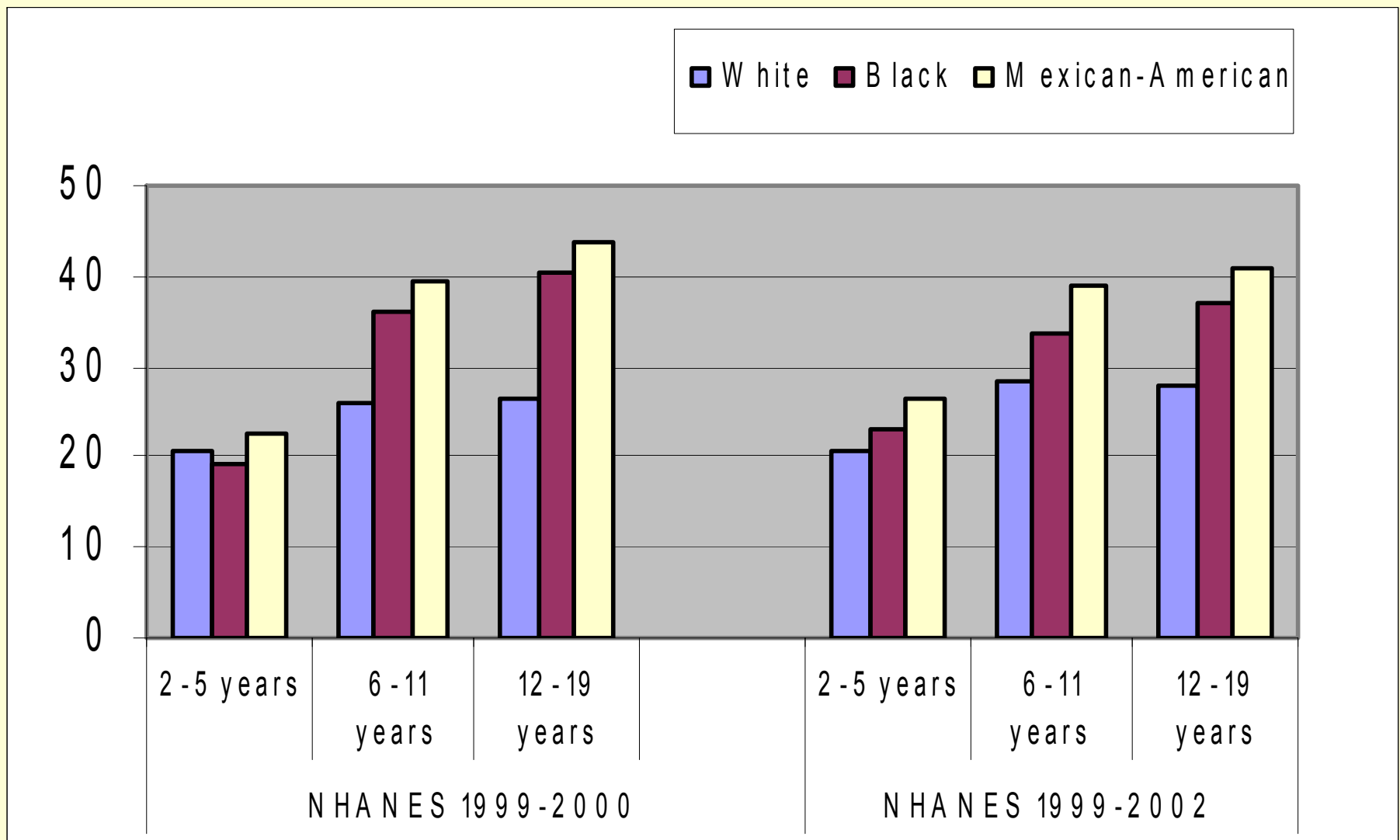
Why Preschools and Daycares?

- In 2002, 54.5% of 3-4 year olds were enrolled in center-based preschools (US Census data)
- Daily contact with parents
- Environmental school-based interventions are effective with older children (French & Stables, 2003, *Prev Med*)

National Prevalence of Overweight / At Risk for Overweight ($\geq 85^{\text{th}}$ percentile), NHANES 1999-2000 data



Source: Ogden et al. (2002) *JAMA*



Ogden et al. (2002) *JAMA*

Hedley et al. (2004) *JAMA*

Other local data

- 30% of 2-5 year olds in Illinois (CDC PedNSS)
- Sinai Improving Community Health Survey:
In 5 predominantly non-White Chicago community areas, 57%+ of 3-5 year olds

Study 1: Preschool Chart Review

15 preschool/daycare centers in Chicago

Selection:

- Identified 8 neighborhoods to target in recruitment
- Sent letters to DCFS-licensed centers
- Eligible centers were enrolled until 15 centers had been recruited

Student's Name <small>Last First Middle</small>			Birth Date	Sex	School	Grade Level/ ID #
HEALTH HISTORY TO BE COMPLETED AND SIGNED BY PARENT/GUARDIAN AND VERIFIED BY HEALTH CARE PROVIDER						
ALLERGIES (Food, drug, insect, other)			MEDICATION (List all prescribed or taken on a regular basis.)			
Diagnosis of asthma? Child wakes during the night coughing?	Yes No	No No	Indicate Severity	Loss of function of one of paired organs? (eye/ear/kidney/testicle)	Yes No	No No
Birth defects?	Yes	No		Hospitalizations* When? What for?	Yes	No
Developmental delay?	Yes	No		Surgery? (List all.) When? What for?	Yes	No
Blood disorders? Hemophilia, Sickle Cell, Other? Explain.	Yes	No		Serious injury or illness?	Yes	No
Diabetes?	Yes	No		TB skin test positive (past/present)?	Yes*	No
Head injury/Concussion/Passed out?	Yes	No		TB disease (past or present)?	Yes*	No
Seizures? What are they like?	Yes	No		Tobacco use (type, frequency)?	Yes	No
Heart problem/Shortness of breath?	Yes	No		Alcohol/Drug use*	Yes	No
Heart murmur/High blood pressure?	Yes	No		Family history of sudden death before age 50? (Cause?)	Yes	No
Dizziness or chest pain with exercise?	Yes	No		Dental <input type="checkbox"/> Braces <input type="checkbox"/> Bridge <input type="checkbox"/> Plate <input type="checkbox"/> Other		
Eye/Vision problems? <input type="checkbox"/> Glasses <input type="checkbox"/> Contacts <input type="checkbox"/> Last exam by eye doctor				Other concerns?		
Other concerns? (crossed eye, drooping lids, squinting, difficulty reading)				Information may be shared with appropriate personnel for health and educational purposes.		
Ear/Hearing problems?	Yes	No		Parent/Guardian Signature	Date	
Bone/Joint problem/injury/scoliosis?	Yes	No				
Entire section below to be completed by MD/DO/APN/PA (*INDICATES TESTING MANDATED FOR STATE LICENSED CHILD CARE FACILITIES)						
PHYSICAL EXAMINATION REQUIREMENTS		HEIGHT	WEIGHT	BMI	B/P	
DIABETES SCREENING BMD-85% age/sex Yes <input type="checkbox"/> No <input type="checkbox"/> And any two of the following: Family History Yes <input type="checkbox"/> No <input type="checkbox"/> Ethnic Minority Yes <input type="checkbox"/> No <input type="checkbox"/>						
Signs of Insulin Resistance (hypertriglyceridemia, dyslipidemia, polycystic ovarian syndrome, acanthosis nigricans) Yes <input type="checkbox"/> No <input type="checkbox"/> At Risk Yes <input type="checkbox"/> No <input type="checkbox"/>						
LEAD RISK QUESTIONNAIRE- Required for children age 6 months through 6 years enrolled in licensed or public school operated day care, preschool, nursery school and/or kindergarten.						
Blood Test Indicated? Yes <input type="checkbox"/> No <input type="checkbox"/>		Blood Test Date		Blood Test Result (Blood test required in Chicago and other high risk zip codes.)		
TB SKIN TEST Recommended only for children in high-risk groups including children who are immunosuppressed due to HIV infection or other conditions, recent immigrants from high prevalence countries, or those exposed to adults in high-risk categories. See CDC guidelines.						
LAB TESTS *INDICATES TESTING MANDATED FOR STATE LICENSED CHILD CARE FACILITIES		Date	Results	Date	Results	
Hemoglobin * or Hematocrit *					Sickle Cell * (as indicated)	
Urinalysis					Other	
SYSTEM REVIEW	Normal	Comments/Follow-up/Needs		Normal	Comments/Follow-up/Needs	
Skin				Endocrine		
Ears				Gastrointestinal		
Eyes Normal Yes <input type="checkbox"/> No <input type="checkbox"/> Objective screening Yes <input type="checkbox"/> No <input type="checkbox"/> Result Amblyopia Yes <input type="checkbox"/> No <input type="checkbox"/> Referred to Ophthalmologist/Optomestrist Yes <input type="checkbox"/> No <input type="checkbox"/>				Genito-Urinary	LMP	
Nose				Neurological		
Throat				Musculoskeletal		
Mouth/Dental				Spinal examination		
Cardiovascular/HTN				Nutritional status		
Respiratory				Mental Health		
NEEDS/MODIFICATIONS required in the school setting				DIETARY Needs/Restrictions		
SPECIAL INSTRUCTIONS/DEVICES e.g. safety glasses, glass eye, chest protector for amylblumia, pacemaker, prosthetic device, dental bridge, false teeth, athletic support/cup						
MENTAL HEALTH/OTHER Is there anything else the school should know about this student? If you would like to discuss this student's health with school or school health personnel, check title: <input type="checkbox"/> Nurse <input type="checkbox"/> Teacher <input type="checkbox"/> Counselor <input type="checkbox"/> Principal						
EMERGENCY ACTION needed while at school due to child's health condition (e.g., seizures, asthma, insect sting, food, peanut allergy, bleeding problem, diabetes, heart problem)? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please describe.						
On the basis of the examination on this day, I approve this child's participation in (If No or Modified, please attach explanation.)						
PHYSICAL EDUCATION Yes <input type="checkbox"/> No <input type="checkbox"/> Modified <input type="checkbox"/>			INTERSCHOLASTIC SPORTS (for one year) Yes <input type="checkbox"/> No <input type="checkbox"/> Limited <input type="checkbox"/>			
Physician/Advanced Practice Nurse/Physician Assistant performing examination						
Print Name			Signature		DATE	
Address			Phone			

(Complete both sides)

Calculating Body Mass Index

Gender-specific BMI-for-age percentiles

- $< 5^{\text{th}}$ percentile = “underweight”
- 5^{th} to $<85^{\text{th}}$ percentile = “normal weight”
- 85^{th} to $<95^{\text{th}}$ percentile = “at-risk for overweight”
- $\geq 95^{\text{th}}$ percentile = “overweight”

Characteristics of the Centers

Enrollment ranged from 52 to 242 children ($M = 97.7$, $SD = 13.6$)

Centers were classified into three groups:

- Serving primarily ($\geq 80\%$) White non-Hispanic children ($n = 4$);
- Serving primarily ($\geq 80\%$) African-American children ($n = 5$);
- Serving a mixture of children, but a majority ($\geq 60\%$) of Hispanic/Latino children ($n = 6$).

Prevalence of At-Risk/Overweight at Selected Preschools

	At-Risk (85th to <95th)	Overweight (≥ 95th)	Total
Centers with predominantly Black/African-American children <i>n(children) = 425</i>	19.5% (15.8% to 23.3%)	20.0% (16.2% to 23.8%)	39.5% (34.9% to 44.2%)
Centers with predominantly Hispanic/Latino children <i>n(children) = 600</i>	16.3% (13.4% to 19.3%)	23.8% (20.4% to 27.2%)	40.2% (36.3% to 44.1%)
Centers with predominantly White non-Hispanic children <i>n(children) = 329</i>	14.9% (11.0% to 18.7%)	9.1% (6.0% to 12.2%)	24.0% (19.4% to 28.6%)

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Part 1: Conclusions

- The numbers are more than sufficient to justify intervening in preschools
- Racial/ethnic disparities may appear earlier than suggested by national surveys
- Preschools serving primarily Black and Latino children are an appropriate target for interventions

Parent Surveys: What do parents know, think, and do?

Method:

Mailback pen-and-paper survey was distributed to parents at 5 Chicago preschools

- 4 centers served primarily Black/African American families
- 1 center served approximately 30% Black/African American and 65% Hispanic/Latino families

Parent Surveys: What do parents know, think, and do?

Method:

- Teachers distributed a packet to parents (survey, cover letter, postage-paid return envelope)
- Survey was anonymous
- Parents were offered a \$15 gift certificate, choice of Jewel or Dominicks
- Response rate = 65%

Surveys Received

Sample: N = 148

- Some surveys received from parents of children beyond the “preschool” age range (1-7 years)
- 134 mothers, 14 other female guardians (stepmothers, foster mothers, grandmothers)

Surveys Received

Mothers/Female Guardians:

- Ages from 18-68 years ($M = 30.5$ years, $SD = 8.4$)
- Black: **81.1%**
- Latina: **16.2%**
- Other or not reported: **2.7%**
- Single (divorced, not married, widowed): **77.7%**
- Married or cohabitating: **21.8%**

Surveys Received

Mothers/Female Guardians:

- Less than high school diploma: **10.8%**
- High school graduate: **20.9%**
- Some college: **55.5%**
- 4-year college degree or higher: **11.5%**
- No information: **1.4%**

Survey Topics

Knowledge

General nutrition knowledge

Cognitions/Attitudes

Perceptions about nutrition, Concern, Monitoring, Food Restriction and Pushing, Perceived Barriers

Behaviors

Eating Habits

TV watching/sedentary behavior

Knowledge

Brief scale based loosely on adult nutrition knowledge measure by Parmenter & Wardle (1999)

Fat, Protein, Sugar, Fiber

Which of these foods are high in fat?

- | | |
|--|---|
| <input type="checkbox"/> Pasta (without sauce) | <input type="checkbox"/> Baked beans |
| <input type="checkbox"/> Luncheon meat | <input type="checkbox"/> Honey |
| <input checked="" type="checkbox"/> Nuts | <input type="checkbox"/> Bread |
| <input checked="" type="checkbox"/> Margarine | <input checked="" type="checkbox"/> Peanut butter |

Percent of respondents correctly identifying item:

FAT	
Margarine	84.5%
Peanut Butter	34.5%
PROTEIN	
Cheese	43.5%
Beans and Rice	69.6%
SUGAR	
Ice cream	85.7%
Canned fruit in sauce	81.6%
FIBER	
Broccoli	53.1%
Raspberries	24.5%

Additional Knowledge/Beliefs Items

	“Somewhat Agree” or “Strongly Agree”
Eating a lot of fried foods will <i>increase</i> my child’s chances of developing serious illnesses like heart disease or cancer	82.4%
Eating a lot of fruits and vegetables will <i>decrease</i> my child’s chances of getting serious diseases like heart disease or cancer	75.1%

Perceived Barriers to Healthy Eating

	“Somewhat Agree” or “Strongly Agree”
It is too much work to make sure my family eats healthy every day	18.5%
It is hard to get children to eat healthy snacks and meals	31.1%

Access/Availability

	“Somewhat Agree” or “Strongly Agree”
Fresh foods are too expensive	28.5%
I can get good quality food in my neighborhood	67.3%

Attitudes about Obesity

	“Somewhat Agree” or “Strongly Agree”
Children who are overweight are at risk for serious health problems	86.9%
It’s normal for children to be a little chubby	35.2%
Many of the children at my child’s school are overweight or at risk for weight problems	9.4%

Pressure to Eat

4 items from CFQ; alpha = .52

Source: Child Feeding Questionnaire (Birch et al, 2001, *Appetite*)

	“Somewhat Agree” or “Strongly Agree”
I have to be careful to make sure my child eats enough	52.1%
If my child says “I’m not hungry,” I try to get him/her to eat anyway	43.9%
My child should always eat all of the food on his/her plate	23.6%
Feeding my child a big meal shows that I love him/her	12.9%

Red Meat Consumption

“About how many days per week does your child eat red meat (e.g., beef, pork, ham, lamb) for dinner or a main meal?”

Response options “None; 1 day; 2 days;...every day”

Item source: modified from Kristal et al (1990) AJHP

$M = 4.1, SD = 2.0$

13.6% responded “Every Day”

Vegetable Consumption

“About how many servings of vegetables does your child eat per day, not counting salad or potatoes?”

None	1.4%
Less than one	25.5%
1 to <2	27.6%
2 to <3	32.4%
3 to <4	11.0%
4 or more	2.1%

Fruit Consumption

“About how many servings of fruit does your child eat per day, not counting juices?”

Less than one	17.4%
1 to <2	27.8%
2 to <3	25.7%
3 to <4	18.8%
4 or more	10.4%

Juice Consumption

“About how many servings of fruit juice does your child drink per day?”

Less than one	13.1%
1 to <2	20.7%
2 to <3	28.3%
3 to <4	22.8%
4 or more	15.2%

Sedentary Behavior

“...how many hours per day does your child sit down to watch television or videos, or to play nintendo, playstation...”

Less than one hour	14.3%
1 hour per day	15.6%
2 hours per day	27.2%
3 hours per day	28.6%
4 hours per day	11.6%
5 hours per day	2.7%

Attitudes about Activity

	“Somewhat Agree” or “Strongly Agree”
Traffic makes it dangerous for my child to play outside	44.6%
It’s too dangerous for my child to play outside because of crime in the neighborhood	46.0%
Playing outside is good for children	89.2%

Children's Weight Status (BMI)

- Original sample = 148
- Data unavailable for 68 children...
under age 2 years (n = 9) or parent did
not report height or weight (n = 49).
- Sample available = 80

49 children (61.3%) above 85th percentile;
31 children (38.7%) below 85th percentile.

Comparisons by BMI

- Concern (from CFQ; alpha = .84)
- Maternal Restriction (from CFQ; alpha = .69)
- Maternal Monitoring (from CFQ; alpha = .78)
- Red Meat
- Fruit Juice Consumption

CFQ = Child Feeding Questionnaire, Birch et al, 2001, *Appetite*

Comparisons by child BMI

	t-value	Children < 85th M (SD)	Children ≥ 85th M (SD)
Concern	1.89 [^]	2.9 (1.4)	2.3 (1.4)
Restriction	.14	2.6 (0.8)	2.6 (0.9)
Monitoring	.53	4.0 (0.7)	4.1 (0.8)
Red Meat	1.71 [^]	3.5 (1.4)	4.2 (1.9)
Fruit Juice	.90	2.2 (1.3)	2.0 (1.1)

[^] marginally significant at $p < .10$

Children's Weight Status (BMI)

Among the 49 children classified as overweight:

Mother describes child's weight as "overweight:" 0%

Mother reports that a doctor or nurse has ever expressed concern that her child is overweight: 5% (n = 2)

Percent who agree with the statement "I am concerned about my child's weight:" 10% (n = 5)

Percent who agree with the statement "My child is a little heavier than many others:" 5% (n = 2)

Parent Education Through Preschool Centers?

Did staff discuss nutrition or food-related issues with parent in the past 4 weeks? **25% yes**

Interested in receiving and reading nutrition info, if available at preschool? **87% yes; 13% maybe**

Interested in attending brief nutrition classes at preschool center? **58% yes; 37% maybe**

Conclusions from Parent Survey

- There is room for improvement in parent knowledge.
- Parents are interested in nutrition education.
- Parents of overweight children do not perceive their children to be overweight.
- Interventions need to focus on changing attitudes in order to promote behavior change.

Preschool Center Directors:

- Interviews with 6 directors of preschool centers
- All were receptive to discussion and were interested in nutrition & obesity prevention
- Some misperceptions about obesity
- Some centers lack exercise facilities
- Some centers are already trying innovative approaches

Next Steps:

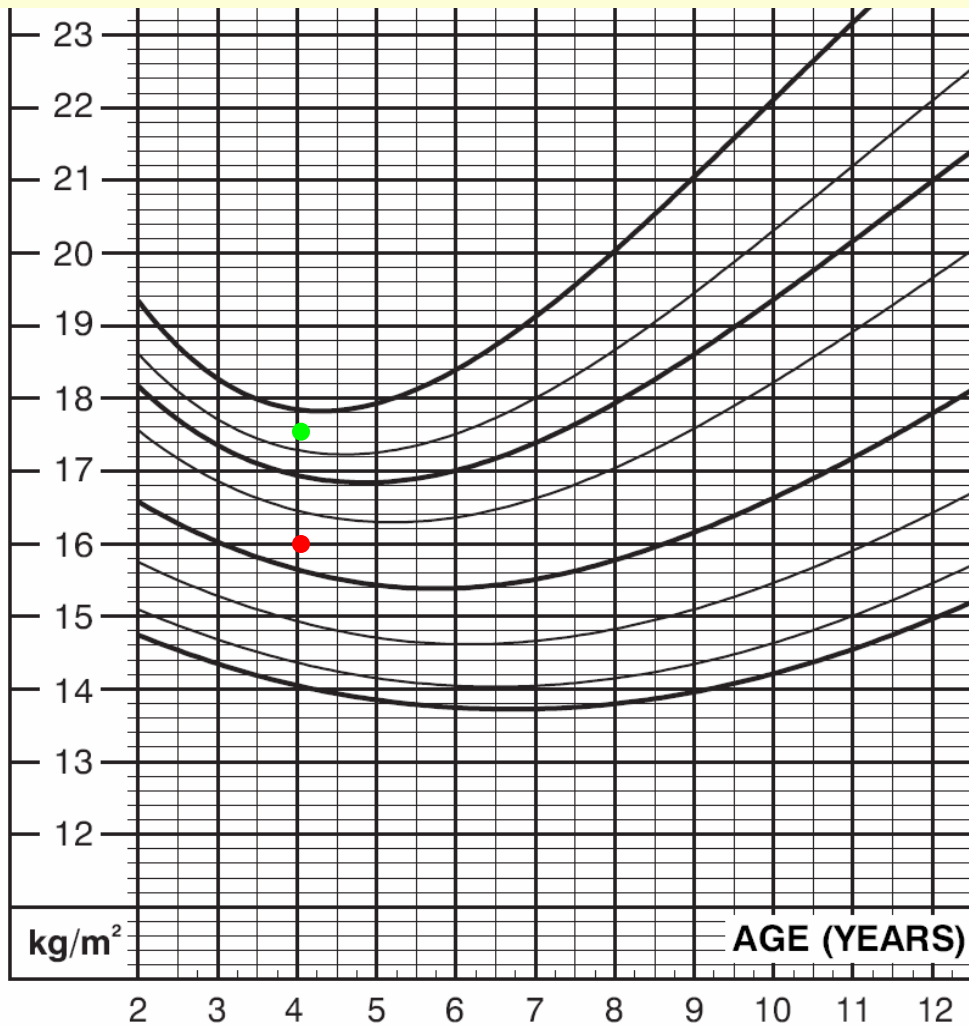
- Continue to work with parents and preschool centers to understand barriers to physical activity and healthy eating
- Identify and adapt nutrition education programs and health behavior change interventions
- Learn more about the feasibility of running interventions through preschool centers

Acknowledgments...

- Sarah Hagin
- All of the preschools, parents, and administrators
- CLOCC

20 to 20 years: Boys

Body mass index-for-age percentiles



4-year old boy:

40 inches, 40 lbs

BMI = 17.6

BMI percentile = 93.0

42 inches, 40 lbs

BMI = 15.9

BMI percentile = 60.2