A Tool Kit for Battling Childhood Obesity:

Implementing the ABCD Program for Childhood Obesity in Pediatric Primary Care

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Disclosures

- The authors have no financial relationships to disclose.

Session Objectives

- At the conclusion of this presentation participants will:
  - Describe the causes and health implication of childhood obesity
  - Describe the AAP recommendations for Stages of Intervention
  - Define the acronym and components of the ABCD Program for weight management
  - Discuss the feasibility of implementing the program in primary care

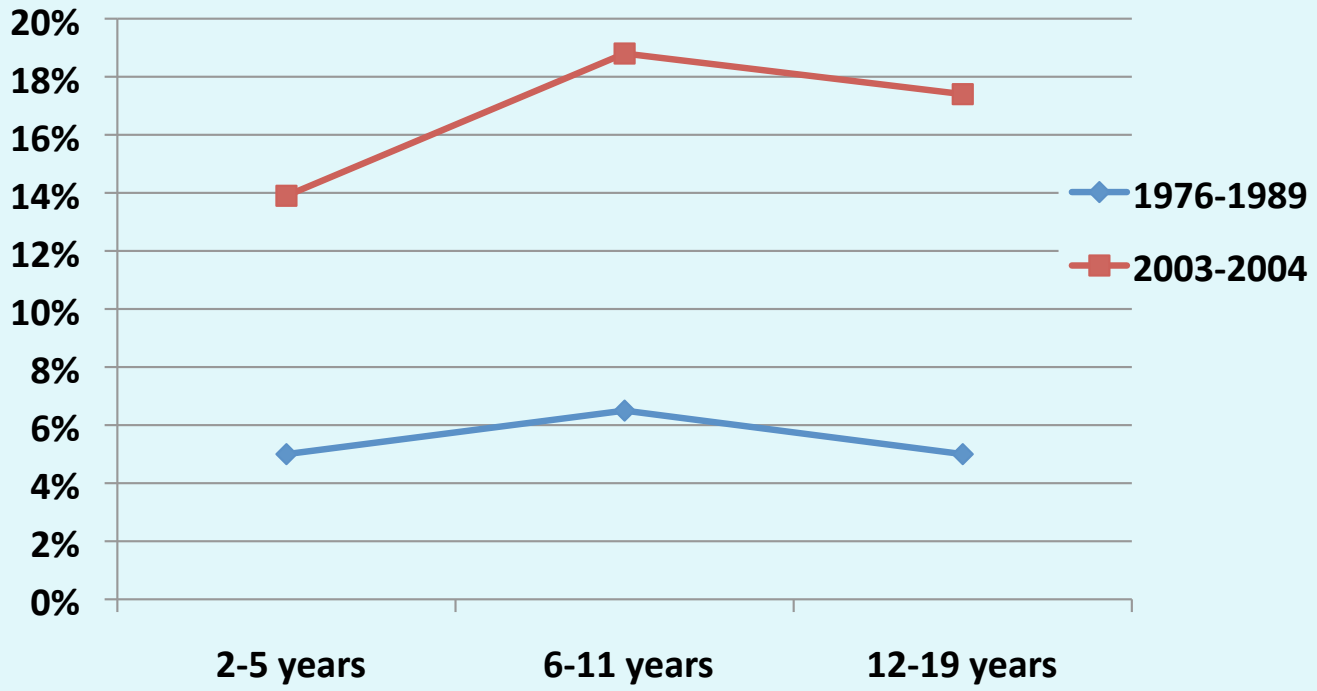
Background: Pediatric Obesity

- **Prevalence of obesity increased significantly**
  - 34% : ages 6-11 overweight
  - 17% : ages 6-11 obese

- **Preschool rates alarming**
  - 26%: ages 2-6 overweight
  - 14%: ages 2-6 obese

(Dunlop ,et al, 2007)

Percentage of Children Considered to be Obese in the Years (1976-89) and (2003-04) National Health and Nutrition Examination Surveys (NHANES)



BACKGROUND

- More than 9 million children and youth over 6 years of age are obese (Miller, 2007)
- 79% of overweight 3 year olds will be overweight at 16 years (Wilfey, 2008)
- A positive family history for obesity correlates with persistence of obesity into adulthood (Caprio & Myron, 2005)

BACKGROUND

- Childhood obesity is an international problem with obesity now replacing malnutrition as the major dietary problem in some parts of Africa (Miller& Silverstein, 2007)

- The impact of this epidemic on health care systems, health insurers, and governments may be calamitous unless it can be reversed (Harbaugh, 2007).

Genetics and Environment

- Biochemical markers
- Increased portion size
- Increased sweetened drinks
- Increased processed foods
- Decreased physical activity
- Increased sedentary behaviors

THE IMPACT OF OBESITY

Physical Health

- Type 2 Diabetes
- Hypertension
- Dyslipidemia
- Glucose Intolerance/ Insulin Resistance
- Hepatic Steatosis
- Sleep Apnea
- Orthopedic Complications

Emotional Health

- Low self-esteem
- Negative body image
- Depression

Social Health

- Stigma
- Discrimination
- Negative stereotyping
- Bullying

American Academy of Pediatrics Stages of Obesity Treatment

- Stage 1 : Prevention Plus
- Stage 2: Structured Weight Management Program
- Stage 3: Comprehensive Multidisciplinary Intervention
- Stage 4: Tertiary Care Intervention

AAP Recommendations

- **Stage 2 - Structured Weight Management Protocol**
  - Implemented by primary care provider highly trained in weight management
  - Development of a plan including specifics related to diet and macronutrients, physical activity, screen time
  - Increased monitoring and follow-up (AAP, 2008)

ABCD Weight Management Program

- Meets criteria for Stage 2: Structured Weight Management Program

- Planned daily eating pattern
- Reduction of television and other screen time
- Planned physical activity/play for 60 minutes /day
- Reinforcement for achieving targeted behaviors (Goals)
- Motivational interviewing
- Frequent office visits

Why Don't Providers Follow Recommendations?

- Futility
- Avoiding confrontation
- Lack of evidence/ best practice
- Inadequate resources
- Time constraints
- Reimbursement issues

WHY IMPLEMENT IN PRIMARY CARE?

- Routine visits for pediatric primary care provide an excellent opportunity for screening and management of overweight children.

- Advanced practice nurses, with established relationships with patients and their families, are uniquely poised to implement a weight management program as part of their practice.

- Lack of access to tertiary care programs

ABCD Program

- The "*ABCD*" acronym describes the intervention strategies:
  - A= "Activity Goals"
  - B= "Behavior modification"
  - C="Close contact and counseling"
  - D= "Dietary Modifications"

ABCD PROGRAM PILOT STUDY

- "Developmental Differences in Adherence to the ABCD Program for Pediatric Weight Measurement" was conducted by Dr. Judith Kaufmann through the University of Pittsburgh

- Feasibility study to assess implementation in a primary care setting

- ABCD Program for weight management in pediatric primary care was associated with improvement and/or stabilization of BMI's across all age groups (p=0.008)

Pilot Study Recommendations

- Need for program revision – improved retention at 5 versus 6 visits
- Development of structured provider guidelines and parent/child educational binders
- Recruitment based on family and child motivation and readiness to change
- Portability assessed through multi-site implementation

Purpose of ABCD Program

- Does a structured intervention program using a "tool kit" to deliver information regarding dietary modifications, nutrition education and activity recommendations in a pediatric primary care center influence the Body Mass Index (BMI) of children identified as being obese?
- Can the ABCD Program be integrated into the routine schedule in a pediatric primary care setting?
- Can similar results be achieved in multi-site implementation?

ABCD Program Specifics

- Cognitive Behavioral Theory/Motivational Interviewing
- 10 week program – 30 minute visits bi-weekly
- Assessment of motivation,, co morbidities, family history
- Assessment of current diet and activity patterns
- Individual binders consisting of educational materials/take home assignments

ABCD Program Specifics

- Individualized based on child's developmental level
- Health vs. Weight
- Lifestyle Changes vs. Diet
- Concrete & attainable goals set biweekly

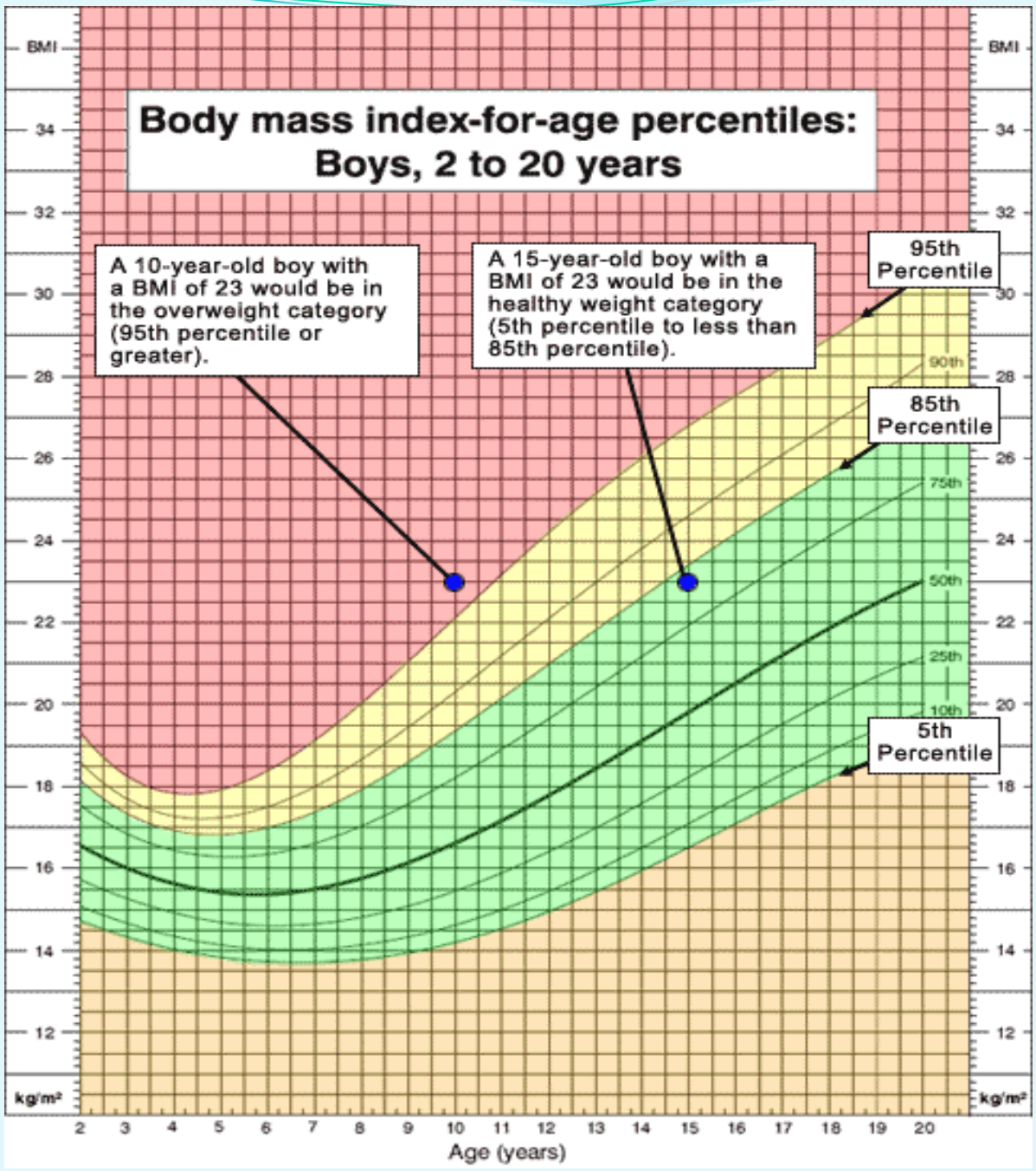
Methods

- Design
  - Pre-post intervention descriptive design
  - Conducted at two primary care centers in southwestern Pennsylvania
- Primary Outcome Measures
  - BMI
  - Provider Time
- Data Analysis
  - Means, standard deviation, frequency
  - Paired t-tests, multivariate tests
  - ANOVA

SELECTION OF PATIENTS

- ABCD Program designed for use in children ages 6-17 years with a body mass index (BMI) greater than or equal to the 95th percentile for age and gender
- The BMI is an accepted screening tool for identifying obesity in the child (Mei, 2002)
- In adults, the absolute BMI is used to define body weight while percentiles specific for age and gender define underweight, healthy weight, overweight and obesity in children (Barlow, 2007)

BODY MASS INDEX



RECRUITMENT OF SUBJECTS

- Subjects identified at yearly physicals or at episodic sick child visits
- Convenience sample of current patient population of both practices
- Those with interest in participating referred to researchers
- Implemented from June through December, 2008

Initial Assessment

Sex of child: M F Birthdate of child: __/__/__ **Ethnicity of child:**
Has your child ever expressed concern about their weight? Y N
Does your child follow any particular diet? Y N
What are your child's favorite foods?
List your child's favorite "away from home" foods.
How many hours a day does your child play videogames?
Do you have other children? Any with weight problems?
Are you currently employed? Y N

INITIAL ASSESSMENT

- My level of interest in a program to help my child to lose weight is:

  Not interested 1 2 3 4 5 Very interested

- How important do you believe that your child's weight problem is to their overall health?

  Not important 1 2 3 4 5 Very important

- How satisfied are you with your child's weight?

  Not satisfied 1 2 3 4 5 Very satisfied

- How likely do you think it is that your child can lose weight?

  Not likely 1 2 3 4 5 Very likely

FOOD DIARY AND ACTIVITY LOG

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Dairy/Milk	oo	oo	oo	oo	oo	oo	oo
Meat protein	oo	oo	oo	oo	oo	oo	oo
Vegetable	ooo	ooo	ooo	ooo	ooo	ooo	ooo
Fruit	ooo	ooo	ooo	ooo	ooo	ooo	ooo
Grains	ooooo	ooooo	ooooo	ooooo	ooooo	ooooo	ooooo
Fats/sweets	oo	oo	oo	oo	oo	oo	oo
Breakfast							
Snack							
Lunch							
Snack							
TV/computer							
Physical activity							
Pedometer							
Parent notes							

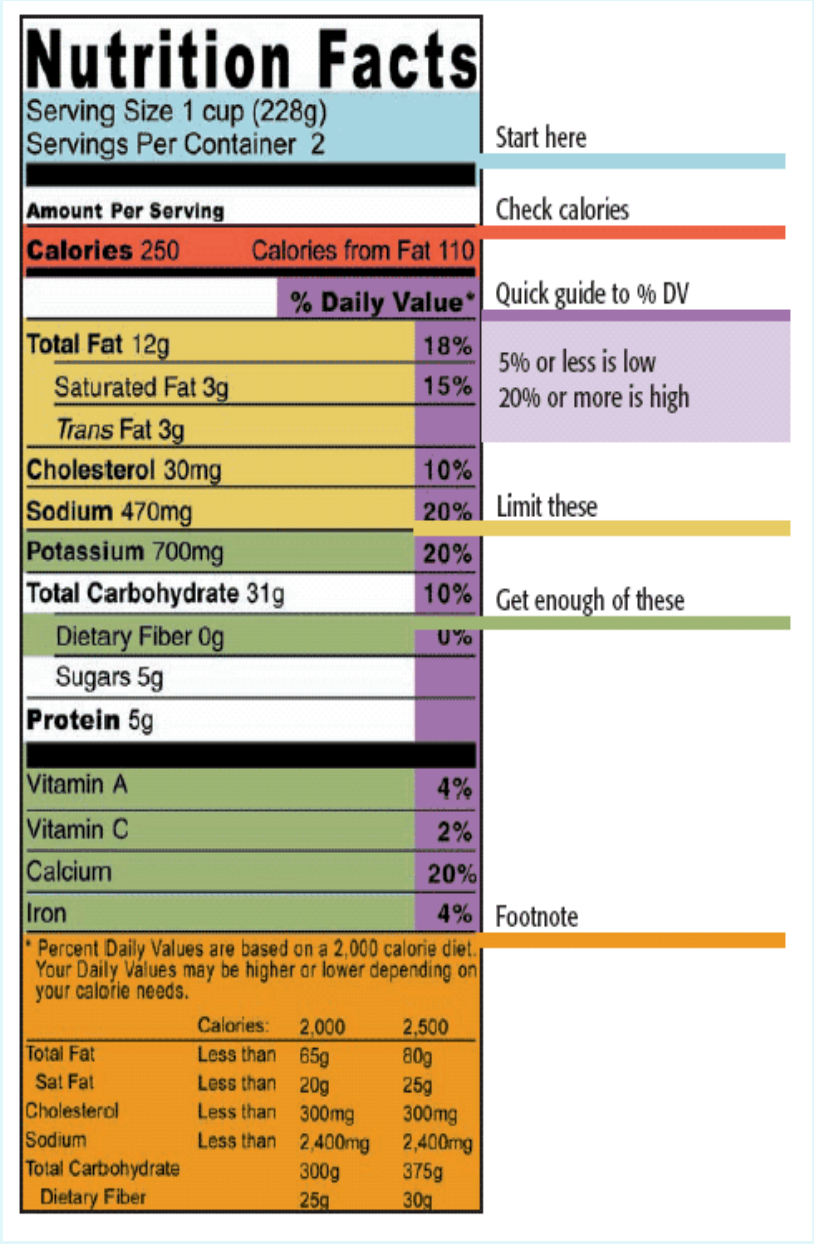
PROVIDER GUIDELINES (VISIT 1)

- Sign consent form
- Complete assessment form
- Obtain height, weight, blood pressure
- Calculate and chart BMI
- Review growth chart and pattern of weight gain
- Explain BMI
- Address log-term health complications of obesity
- Focused family history (Obesity, Type II diabetes, gestational diabetes, Hypertension, Cardiovascular disease, Early deaths due to Cardiovascular disease or stroke)

FOOD RECOMMENDATIONS

CEREALS
ALL-BRAN
OAT BRAN
OATMEAL OLD-FASHIONED
CHEERIOS
CREAM OF WHEAT
LIFE
MUESLI
NUTRIGRAIN
RAISIN BRAN
GOLDEN GRAHAMS
GRAPE NUTS

READING A FOOD LABEL



Serving Size: Based on a typical serving. Compare this amount to the amount that you are eating.

Calories: Indicates total calories and calories from fat. Choose foods with low percentages of these items.

FAT, SATURATED FAT, AND CHOLESTEROL: Select foods with a low % for the daily values.

CARBOHYDRATES, DIETARY FIBER, VITAMINS, AND MINERALS: Try to reach your daily goals of 100% of these items consuming "multi-grain products.
Avoid products that list as the first ingredient: sucrose, fructose, high-fructose corn syrup, fruit juice concentrate, honey or molasses.

The lower portion of the food labels has guidelines for intake of fat, cholesterol, sodium (salt), carbohydrate and fiber for 2000 and 2500 calories per day diets.

EXERCISE CALORIC EXPENDITURES

Activity	90 lbs.	100 lbs.	110 lbs.	120 lbs.	130 lbs.	140 lbs.	150 lbs.	160 lbs.
Aerobic dancing (low impact)	104	115	127	138	149	161	172	184

Bi-Weekly Log

Date Duration	B/P	Height Weight	BMI	BMI %	Pedometer reading	Reflections on past 2 weeks	Goals
_____		_____					
_____		_____					
_____		_____					
_____		_____					
_____		_____					

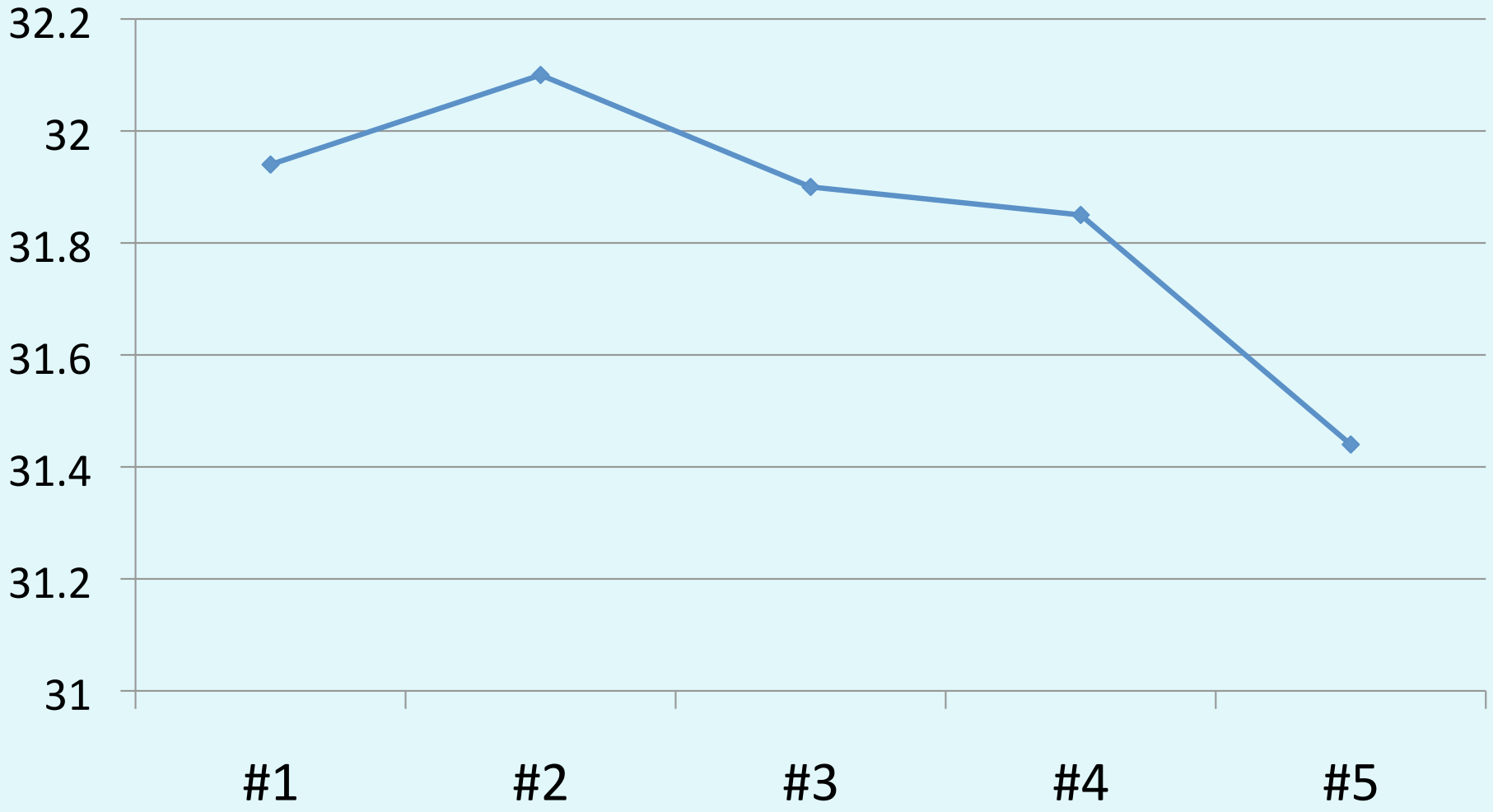
Sample

- N=35
- Ages 6-17, mean 11.7 years
- Female = 23 (66%), Male = 12 (34%)
- 86% Caucasian , 14% African Americans
- Baseline BMI 19.1-47.3 (mean 31.7)
- Baseline weight 58-289 pounds (mean 169 pounds)
- Equally distributed between sites

CHANGES IN BMI

Visit	Average BMI	P-value for difference in BMI using paired samples from 2nd visit
2nd visit	32.10	
3rd visit	31.90	0.015
4th visit	31.85	0.023
5th visit	31.44	<0.001

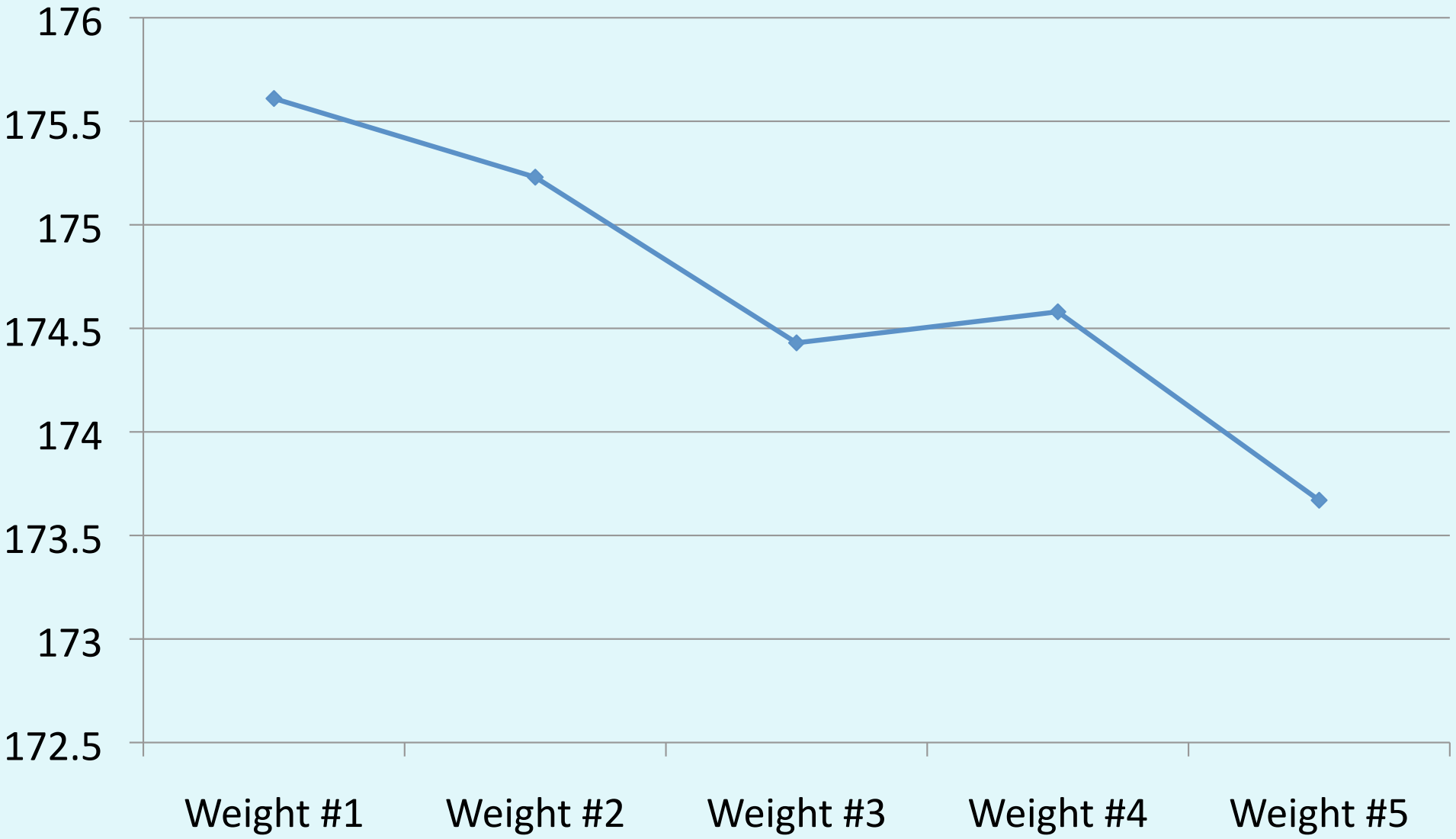
CHANGES IN THE AVERAGE OF THE BMI



CHANGES IN THE AVERAGE WEIGHT

Visit	Average Weight (Pounds)	P-value for difference in weight using paired samples from 5th visit
1st visit	175.61	0.026
2nd visit	175.23	0.033
3rd visit	174.43	0.16
4th visit	174.58	0.08
5th visit	173.67	--

CHANGES IN AVERAGE WEIGHT



TIME SPENT PER VISIT

- **Range of time spent per visit: 20 -45 minutes**
- **Average time per visit: An average of 29.56 minutes was spent per visit.**
- **The second visit was the longest of all 5 visits**

Comparing the Sites

- There was no statistically significant differences comparing the sites:
  - BMI changes
  - Provider time spent
  - Retention rates

Clinical Implications

- *ABCD* program shows promise in primary care settings
  - Retention rates high (80%)
  - Portability across sites
  - Feasibility of implementation into routine practice
  - Implementation by PNP/ CNS

Study Limitations

- Small sample size/convenience sample
- Homogeneous sample
- Longitudinal BMI measurements needed to track long term changes
- Wide range of weights and BMIs of the subjects

Future Research

- Replication in other primary care sites
- Implementation with culturally diverse population
- Development of prevention program in primary care
- Partner with schools and community resources

For further information

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