



**SCHOOL-BASED
HEALTH ALLIANCE**
The National Voice for School-Based Health Care

Welcome

**Webinar will start in a few
minutes!**

www.sbh4all.org





**Here are a few
ANNOUNCEMENTS...**



2022 CENSUS

of School-Based Health Centers has begun!

We invite every school-based or school-linked health center, mobile health, and telemedicine program in the nation to participate!

All individuals who complete the survey (one per SBHC) will be eligible to win a gift card (valued at \$10-\$100).

To complete the survey today, go to:

<http://tiny.ucsf.edu/2022censusofsbhcs>



The 2022 Census is being conducted in partnership with the School Health Services Research Team from the University of California, San Francisco (UCSF).

Register Now to Reserve Your Spot!

Spaces are Limited

National School-Based Health Care Conference

2022 

ACHIEVING
HEALTH EQUITY

THROUGH SCHOOL-BASED HEALTH CARE

 VIRTUAL CONFERENCE June 27-30, 2022



Conference will include:

- Opening session begins June 27 at noon ET
- “School-Based Health Alliance Resources, Tools, and Technical Assistance Hour” each morning
- Keynote speakers and workshops will feature experts on a wide range of topics
- Poster session
- Earn a maximum of 6 CE hours for workshop sessions
- And more....

Visit our website for more information:

www.sbh4all.org



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Addressing diabetes risk factors in school-aged children: In clinic and at the Bright Bodies Healthy Lifestyle Program

School-Based Health Alliance (SBHA)

Mary Savoye, MS, RD, CD-N, CDE

Yale University School of Medicine

May 24, 2022

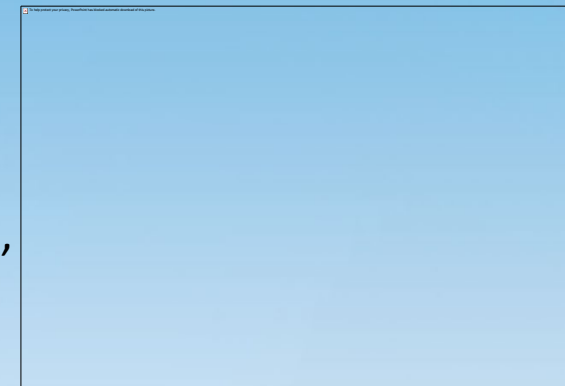
Continuing Education Credits

In support of improving patient care, this activity has been planned and implemented by the School-Based Health Alliance and Community Health Center Inc. and its Weitzman Institute and is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

This series is intended for Nurses, Nurse Practitioners, Pharmacists, Physicians, Physicians' Assistants/Associates, Psychologists, Registered Dietitians, Social Workers

Please complete the survey – linked in the chat, and emailed to all attendees – to request your continuing education credit.

A comprehensive certificate will be available shortly after the end of the Part 2 of the webinar series.



Disclosures

- With respect to the following presentation, there has been no relevant (direct or indirect) financial relationship between the presenters or other activity planners and any ineligible company in the past 24 months which would be considered a relevant financial relationship.
- The views expressed in this presentation are those of the presenter(s) and may not reflect official policy of Community Health Center, Inc. and its Weitzman Institute.
- We are obligated to disclose any products which are off-label, unlabeled, experimental, and/or under investigation (not FDA approved) and any limitations on the information that are presented, such as data that are preliminary or that represent ongoing research, interim analyses, and/or unsupported opinion.



School-Based Health Alliance

Transforming Health Care for Students

- We provide technical assistance and training to the school-based health care field
- We support the improvement of students' health via school-based health care by supporting and creating community and school partnerships

www.sbh4all.org



Today's Team:



Mary Savoye, MS, RD, CD-N, CDE
Yale University School of Medicine

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Vice President of Programs & TA



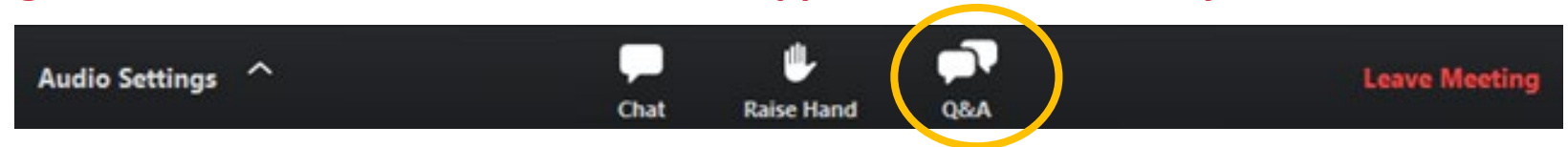
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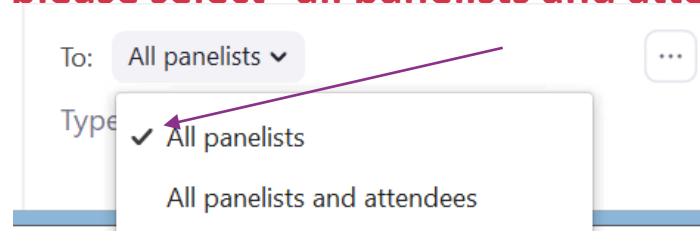


REMINDERS

- All attendees are in listen-only mode.
- To ask a question during the session, use the “Q&A” icon that appears on the bottom your Zoom control panel.



- When using the chat, please select “all panelists and attendees” before typing a message.



- Please complete evaluation poll questions at the end of the presentation.



What We'll Cover

- Risk factors associated with the development of T2DM in children and how to screen for this;
- Practical strategies to treat childhood obesity/prevent T2DM in the clinical setting (nutrition & PA counseling);
- Components of the Bright Bodies Program;
- Research re: prevention of T2DM and Bright Bodies;
- How to refer a child to Bright Bodies or start a program at your school;
- Brief Case of prediabetes and Bright Bodies

BMI - NATIONAL PERFORMANCE MEASURE

 **Center for Medicare and Medicaid Services**

 **Uniform Data Set**

 **HEDIS**

 **School-Based Health Centers – Quality Counts**


The national recommendation varies slightly between agencies but all similarly note the importance of:

- annual Body Mass Index (BMI) Screening
- nutrition and physical activity counseling



SBHC NATIONAL QUALITY INITIATIVE (NQI)

WHY NQI?
DISCOVER WHAT THE NATIONAL QUALITY INITIATIVE (NQI) MAKES POSSIBLE FOR YOUR STUDENTS




3 The only proven intervention for obesity in children and adolescents is comprehensive, intensive behavioral interventions with 26 or more contact hours.

How does your SBHC's behavioral change strategy measure up?

BODY MASS INDEX

To learn more about the National Quality Initiative (NQI), visit www.sbh4all.org/nqi



1 The annual well visit represents the highest standard of quality, preventive care. And yet for most adolescents across the country today, it is grossly underutilized.

What percent of SBHC patients under your watch are receiving the highest standard of preventive care?

WELL CARE VISIT


Homelessness, hunger, substance misuse, anxiety, school failure, victimization, domestic violence.

You can't know if you don't ask.

2

What might you learn and prevent with 100 percent screening?

RISK ASSESSMENT





Fewer than half of children and adolescents with major depression receive treatment for mental health issues. It's worse for young people of color.

4

What does depression screening and follow up in SBHCs make possible for your students' wellbeing and academic success?

DEPRESSION SCREENING



5 Rates of Chlamydia in 15-19 year-old females are five times higher among young women of color than their white peers.

What's your SBHC's screening rate for one of the top ten most beneficial and cost-effective (but underutilized) preventive services?

CHLAMYDIA SCREENING

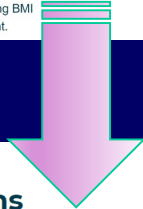
Find proven ideas for improving each measure

sbh4all.org >> Initiatives
>> Quality Improvement
Resources



BMI Assessment & Nutrition/Physical Activity Counseling

Children and adolescents should be screened at least annually for body mass index (BMI), according to the U.S. Preventive Services Task Force. Patients with a high or increasing BMI should be counseled on nutrition and physical activity to encourage healthy weight.



Frequently Asked Questions

[Back to Top](#)

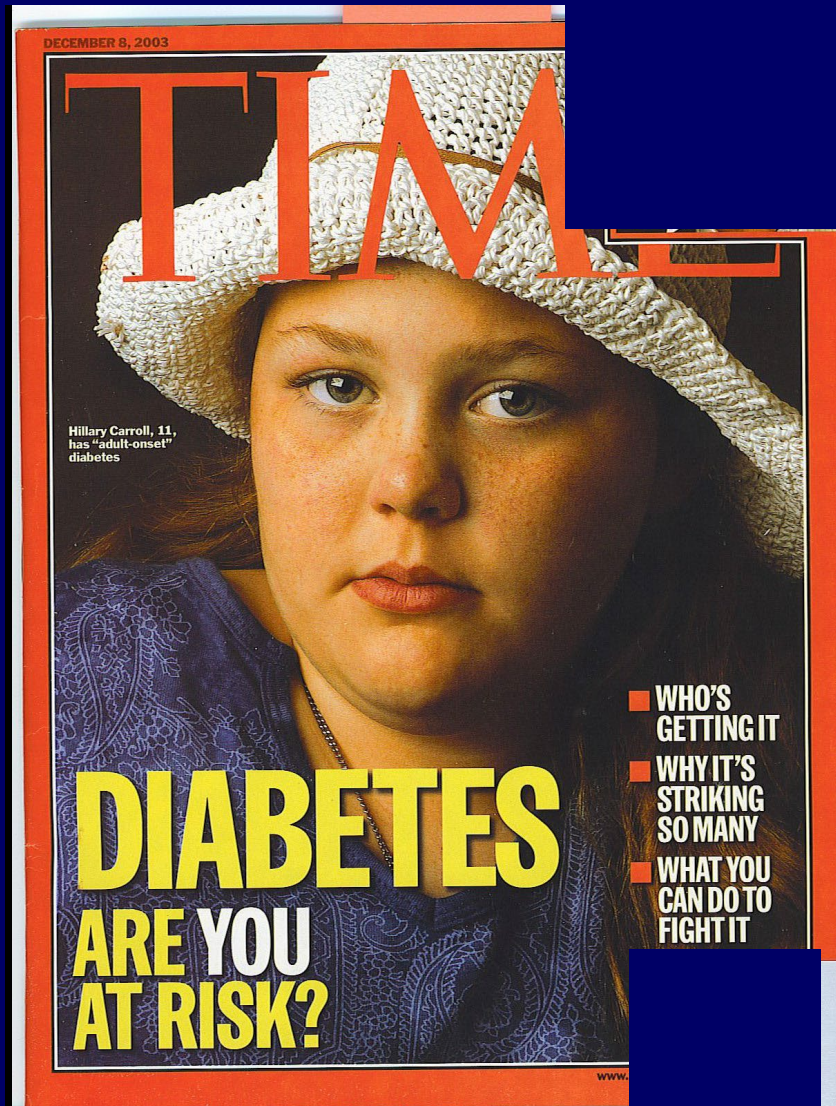
- What are some promising strategies I can use to increase the number of clients my SBHC assesses for BMI?
- How do I document nutrition and physical activity counseling?
- If a BMI assessment is part of a WCV or risk assessment, how can we separate it for reporting?

Case Example: Documenting BMI Data in Electronic Health Records

Providers from one Connecticut SBHC conduct BMI screenings during each initial patient visit and provide nutrition and physical activity counseling to everyone. They offer a subsequent weight management and nutrition visit to any clients with a BMI greater than 85%. Based on the client's responses to questions about readiness for change, providers schedule an additional follow-up appointment. To be able to document, track, and report this work, the sponsoring organization developed an EHR template with discrete fields so they could extract BMI data (including nutrition and physical activity counseling).



Why Me?



DECEMBER 8, 2003

TIME

Hillary Carroll, 11, has "adult-onset" diabetes

DIABETES

ARE YOU AT RISK?

- WHO'S GETTING IT
- WHY IT'S STRIKING SO MANY
- WHAT YOU CAN DO TO FIGHT IT

www.

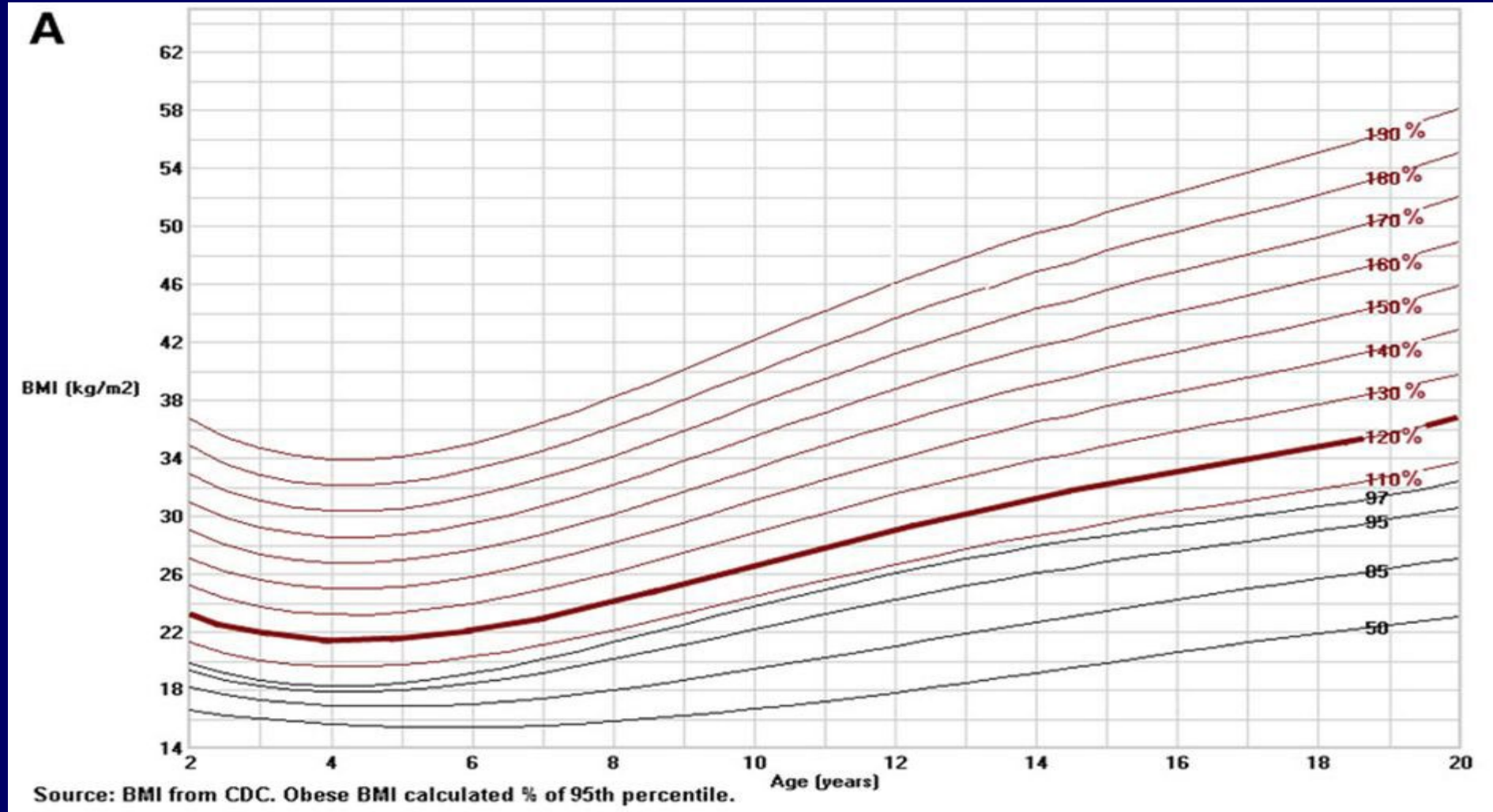
Overweight and Obesity Prevalence 1999-2012

Overweight	%	<i>P</i> Value	Obesity	%	<i>P</i> Value
1999-2000	28.7%		1999-2000	14.5%	
2001-2002	29.8		2001-2002	15.2	
2003-2004	33.5		2003-2004	17.3	
2005-2006	30.2	.07	2005-2006	15.9	.03
2007-2008	31.6		2007-2008	17.3	
2009-2010	32.0		2009-2010	17.0	
2011-2012	32.2		2011-2012	17.3	

Classes 2 and 3 Obesity Prevalence 1999-2012

Class 2	%	P Value	Class 3	%	P Value
1999-2000	3.8		1999-2000	0.9	
2001-2002	5.1		2001-2002	1.3	
2003-2004	5.1		2003-2004	1.6	
2005-2006	4.8	0.4	2005-2006	1.2	.002
2007-2008	5.0		2007-2008	1.5	
2009-2010	5.7		2009-2010	1.6	
2011-2012	5.9		2011-2012	2.1	

In with the new....



Risk Factors For T2DM in Youth

- **Obesity (Insulin Resistance/Hyperinsulinemia)**
- **Puberty**
- **Ethnicity**
- **Gender (F>M)**
- **Family History**
- **Maternal Diabetes**
- **Sedentary Lifestyle**
- **Poor diet**



Marked Acanthosis Nigricans

Ways to Diagnose Prediabetes/T2DM

Method	Prediabetes	T2DM
HbA1c	5.7 to 6.4%	≥ 6.5
Fasting Plasma Glucose	100 to 125 mg/dL	≥ 126 mg/dL
Oral Glucose Tolerance Test (OGTT) at 2 hrs. (with 75 g load)	140 to 199 mg/dL	≥ 200 mg/dL

Nutrition Counseling:Preschool and Early Elementary School-Aged Children

Beverage modification should be the first line of intervention for the child with overweight/obesity and is a practical intervention for pediatricians .

- Skim milk safely replaces whole milk after 2 yo
- Juice should be cut out or limited to 4 oz. per day
- Water and skim milk are primary beverages suggested for this age group




Rule of thumb: Water for thirst and snack; milk for meals



Preschool and Elementary-Aged

- Over-restriction of food or allowing foods at specific times only (characteristics of dieting) should be discouraged.
Impedes autonomy and self-regulation, natural skills learned at a young age.
- Snacking is crucial for this age group since the young child has a smaller stomach (needs to eat more often).
- Preschool children can be quite active so many need food more often.

 Rule of Thumb: Have healthy food choices available; do not restrict.

American Academy of Pediatrics. *Pediatrics* 2003; 112:424-430

Birch LL, Fisher JO. *Pediatrics* 1998; 105:539-549

Adolescent-Aged Children



- In early adolescence (10-14 yo) physical changes take place more rapidly than any other time in lifespan except infancy.
- Growth spurt that lasts about 3 years, beginning about 2 years earlier in girls than boys. This is a “window of opportunity” to decrease BMI with increased height.



Rule of Thumb: No calorie prescription; concept of balanced meal planning and elimination of sugared drinks.

Traffic Light Diet is Good for All Ages



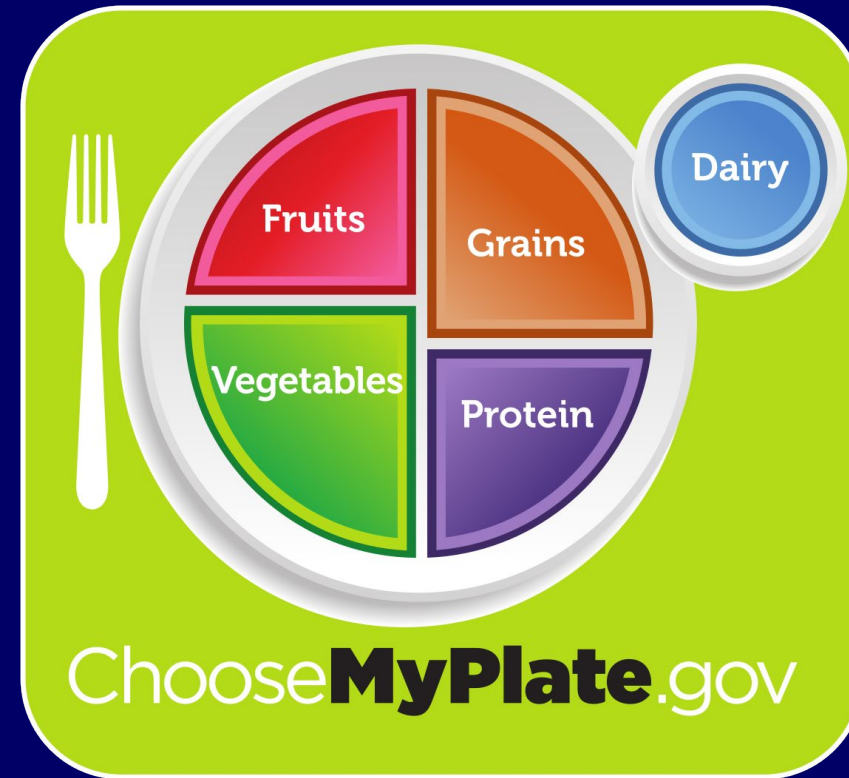
- Most widely used diet modification approach for young children
- Originated by Leonard Epstein, PhD
- Most studied diet approach, mostly in family-based setting
- **Red** = high in sugar, fat, calories
- **Yellow** = nutrient-dense and relatively low in fat (moderate portion sizes)
- **Green** = low in calories (can be eaten in larger quantities)

Epstein LH, et al. J Pediatr 1985; 107: 358-361.

Johnston CA, Steele RG. J Ped Psych 2007; 32(1): 106-110

My Plate also Good for All Ages

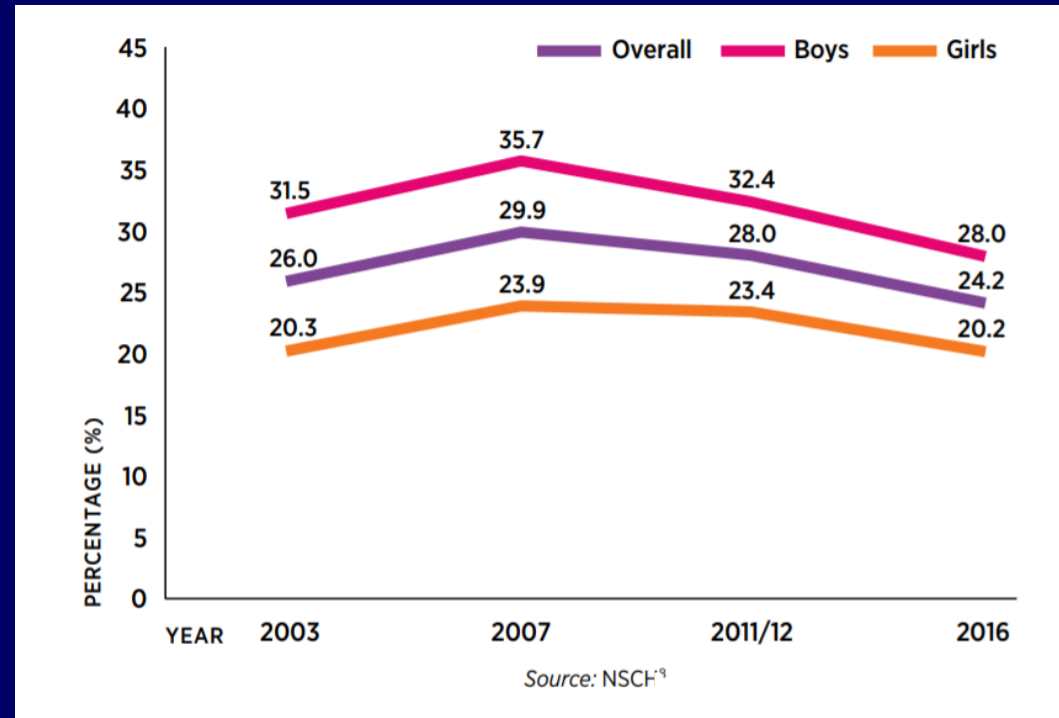
- Emphasizes balance using food groups and portion & plate divide.
- Sends message that half of one's plate should be fruits and vegetables.
- Website offers weight management tool for all ages. Gives daily food group recommendations and portion sizes.
- Replaced Food Guide Pyramid.



Physical Activity Levels of US Youth

PERCENTAGE OF 6-17
YEAR OLD CHILDREN
WHO ENGAGED IN AT
LEAST 60 MINUTES
OF PHYSICAL
ACTIVITY EVERY DAY

U.S. 2003 to 2016.



PHYSICAL ACTIVITY COUNSELING FOR OBESITY

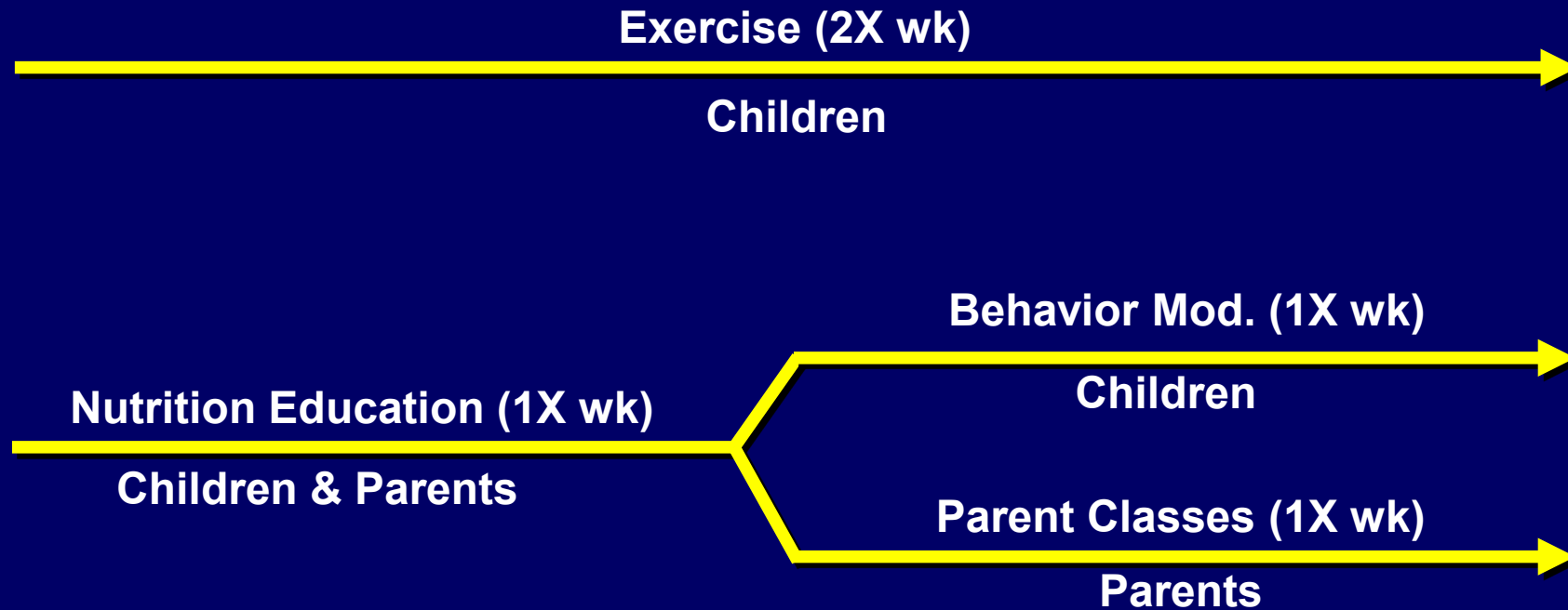
- Individualization
- Start where individual/family is
- Find activity child enjoys
- Build the habit
- Gradual, realistic expectations



AAP Guidelines

Stage 1 – Prevention Plus	Planned follow up themes; consider partnering with RD, SW or PT. Monthly F/U visits. If after 3-6 mos, no BMI stabilization or decrease in velocity, advance.
Stage 2 – Structured Weight Management	Same as above with more intense support; F/U every 2-4 weeks. If no BMI stabilization or decrease in velocity, advance.
Stage 3 – Comprehensive Multidisciplinary Intervention	Structured behavior modification program, including food and activity monitoring. F/U weekly preferred. If no BMI stabilization or decrease in velocity, advance.
Stage 4 –Tertiary Care	Severe obesity Pharmacological agents Bariatric surgeries

Let's talk about Stage 3: Bright Bodies



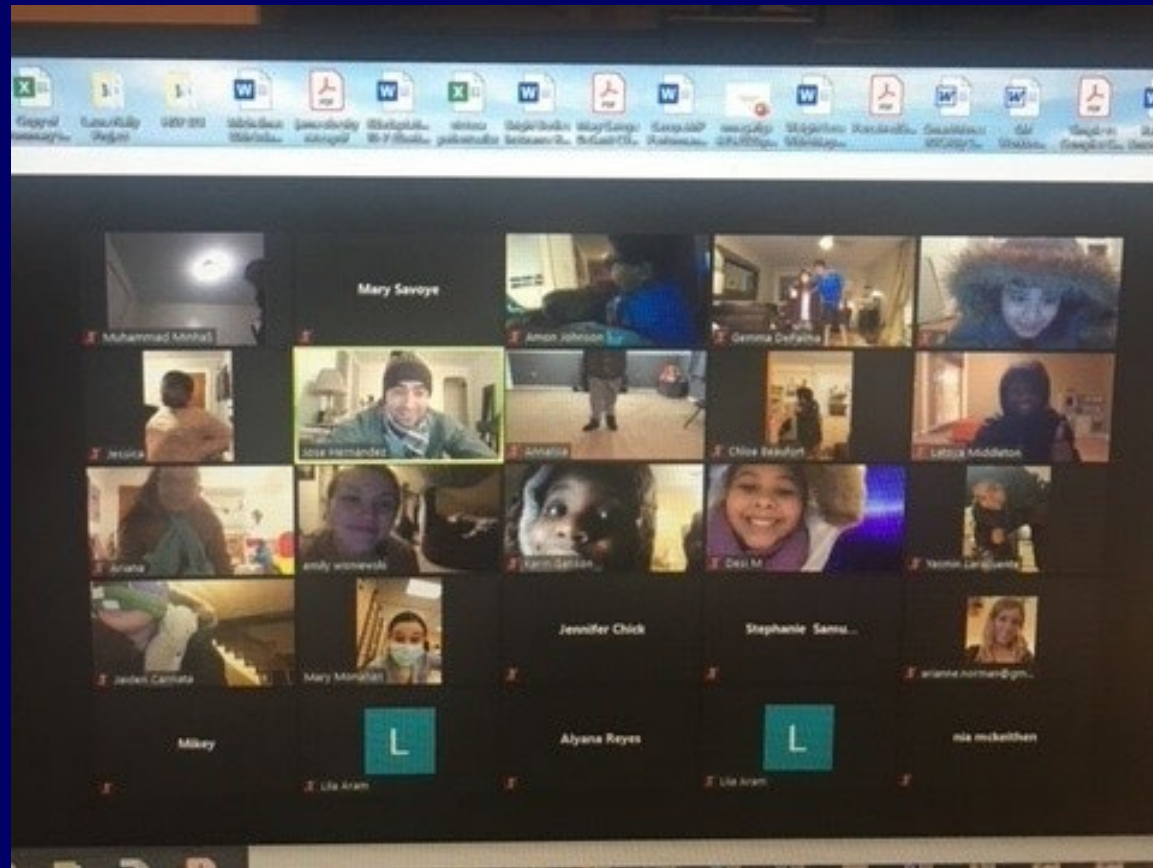
Members are encouraged to complete consecutive 12-wk sessions

Program Philosophy & Eligibility Criteria

- **Non-diet, healthy food choices approach**
- **Family-oriented (parent/caregiver must participate with child/adolescent)**
- **Children ages 7 to 16**
- **BMI >85th percentile for age and gender**

Exercise Component

- Goal: To instill sense that exercise can be fun and is critical to weight management.
- Children exercise with peers of similar age 2 x/wk for 45 minutes while supervised by an exercise physiologist.
- Encouraged to exercise at least 3 additional days per week and decrease sedentary behaviors.

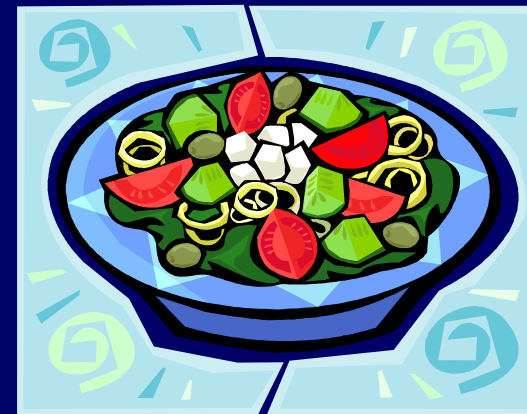


Our new world of Zoom

The young group of members are all smiles as they play a game of “Getting Dressed for the Cold” with exercise physiologist Jose Hernandez.

Nutrition Education Component

- Overall Goal: To foster healthy eating habits for the overweight child and their family
- 40-minute classes, 1 x/wk facilitated by RD (virtual delivery shortened to 15-20 minutes)
- Grouped according to age (7-10, 11-13, 14 and up)
- Different levels (Beginner, Intermediate, Advanced/Maintenance)
- Parent attends all nutrition topics with child
- Non-diet, better food choices approach



Non-diet approach includes (1) more nutrient-dense food choice, (2) decreased portion, or (3) healthier cooking technique

Non- Diet Approach	Diet
Lifestyle and behavior change	Eat certain foods for a given amount of time to lose weight
Long term	Short term
Gradual, realistic changes and goals	Unrealistic changes and goals
Takes time and effort	Pre-printed and follow directions
Education	Information

Non-Diet
Approach
vs.
Diet

	Teaspoons of Sugar
Coca Cola (20 oz.)	16.25
Orange Soda (12 oz.)	10.75
Grape Juice (11.5 oz.)	12.75
Gatorade (20 oz.)	8.5
Starbucks Grande Mocha Frappacino (16 oz.)	15.5
Sunny Delight Drink (16 oz.)	6.5
Monster Energy Drink (16 oz.)	13.5
Snapple Lemonade Iced Tea (16 oz.)	12.5
Seltzer (8 oz.)	0
Water (8 oz.)	0

How to find the amount of
sugar in a drink:

Grams of Sugar \div 4 =
Teaspoons of Sugar



What's in Your Drink

Things to consider when choosing a drink:

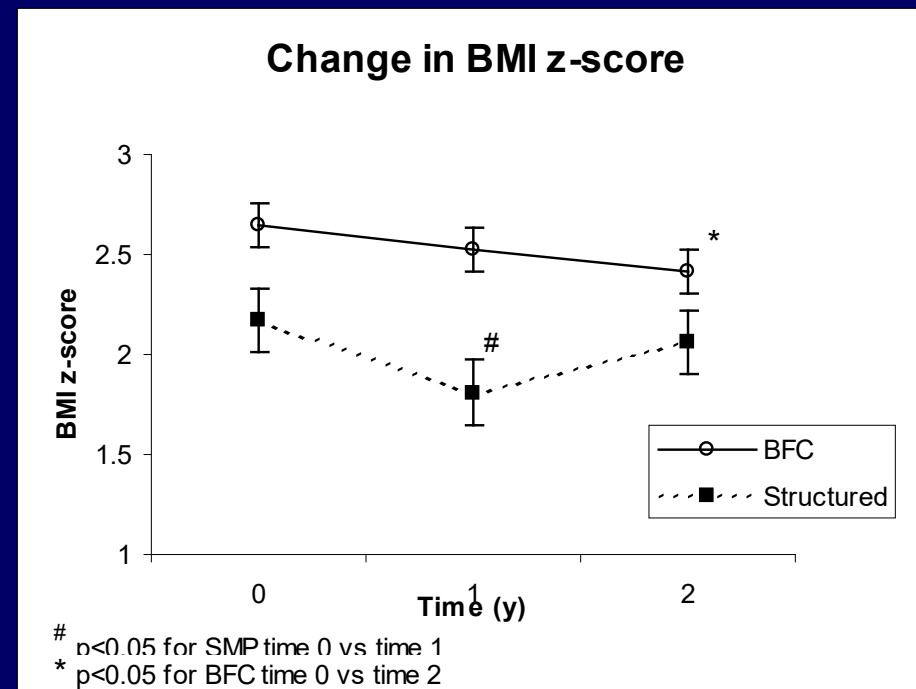
1. Is it going to quench your thirst?
2. Is it going to build strong teeth?
3. Is it going to fuel your body? Choose a drink with vitamins and minerals like milk.

Tips!

- Water is the best drink for thirst
- Add fruit to water or flavored seltzer for added taste
- Drink fluid every 15 minutes, even when you don't feel thirsty
- Be careful when exercising in warm/humid weather because of dehydration

Dieting vs. Non-dieting Approach

- Better food choices (non-diet approach) vs. structured meal plan (diet approach)
- Groups matched for age, gender, & motivational level



Savoie M, et al, *J Am Diet Assoc.* 2005; 105:364-370.

Behavior Modification Component

- Overall goal: To help the children replace negative behaviors that lead to overeating with positive, healthful behaviors, while improving overall self-image.
- 40-minute classes facilitated by RD or MSW
(now 15-20 minutes)

Methods Used for Behavior Modification

- Self-Awareness
“Risky Business”
- Stimulus Control
“Environmental Engineering”
Determine problem, change surroundings
- Client-centered Approach
“Alternative Activities to Overeating”
kids determine their own solution to overeating

Behavior Modification Topics

Risky Business: Identifying High-Risk Situations (11-16 year olds)

Goal: Identify situation(s) in which member is most likely to overeat.

Use food record to look for patterns.

Who, when, what, where's!!

Identifying a high-risk situation (eating trigger) is half the battle, learning how to deal with it is the other half (part 2).

All About Me (7-10 year olds)

Goal: Identify things that make one feel good and define themselves (non-food related). Collages of anything that describes who they are.

This is used as ice breaker to get to know each other. Each child can talk about their poster briefly.

More Risky Business...

Risky Business Part II: Coping with High-Risk Situations

(11-16 year olds)

Alternate Activities or “Environmental Engineering”

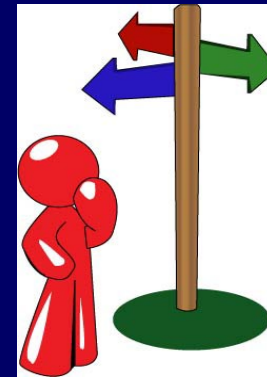
Discuss among the group what can be done to avoid an identified eating trigger. Can use examples in book in “Environmental Engineering”

Alternate Activities (7-10 year olds)

Have participants read activities and add to list.

Participants can use their posters at home as a “reminder”

of the things that are important to them when urge to eat when not hungry.



Parent/Caregiver Education Component

- Overall goal: to offer parents/caregivers ways to support their child and to provide a home environment conducive to healthy lifestyle and healthy weight.
- Parents/caregivers attend their own classes while children learn behavior modification topics



Behavior Modification Methods

Parent/Caregiver Class Facilitator uses:

- Brief Solution Focused Therapy
Strength cards, writing letters
- Problem Solving Approach (group support)

Parent/caregiver classes are facilitated by director or volunteer social worker, psychologist, or psychiatrist.

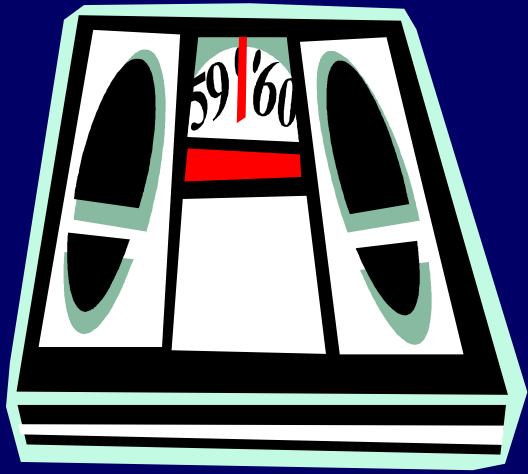
Strength Cards



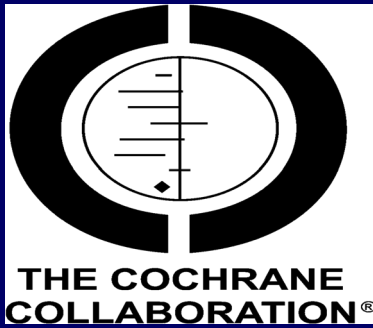
One of our success stories...



How does the program measure success?



- Decrease in Body Mass Index (BMI)
- Decrease in % body fat
- Decrease in Insulin Resistance
HOMA-IR [fasting plasma insulin + FPG) / 22.5]
- Increase in Self-Concept score



Best Outcome in Health Care Setting



Effects of a Weight Management Program on Body Composition and Metabolic Parameters in Overweight Children A Randomized Controlled Trial

Mary Savoye, RD, CD-N, CDE

Melissa Shaw, BS

James Dziura, PhD

William V. Tamborlane, MD

Paulina Rose, RD, CD-N, CDE

Cindy Guandalini, APRN

Rachel Goldberg-Cell, APRN

Tania S. Burgert, MD

Anna M. G. Cali, MD

Ram Weiss, MD, PhD

Sonia Caprio, MD

Context Pediatric obesity has escalated to epidemic proportions, leading to an array of comorbidities, including type 2 diabetes in youth. Since most overweight children become overweight adults, this chronic condition results in serious metabolic complications by early adulthood. To curtail this major health issue, effective pediatric interventions are essential.

Objective To compare effects of a weight management program, Bright Bodies, on adiposity and metabolic complications of overweight children with a control group.

Design One-year randomized controlled trial conducted May 2002-September 2005.

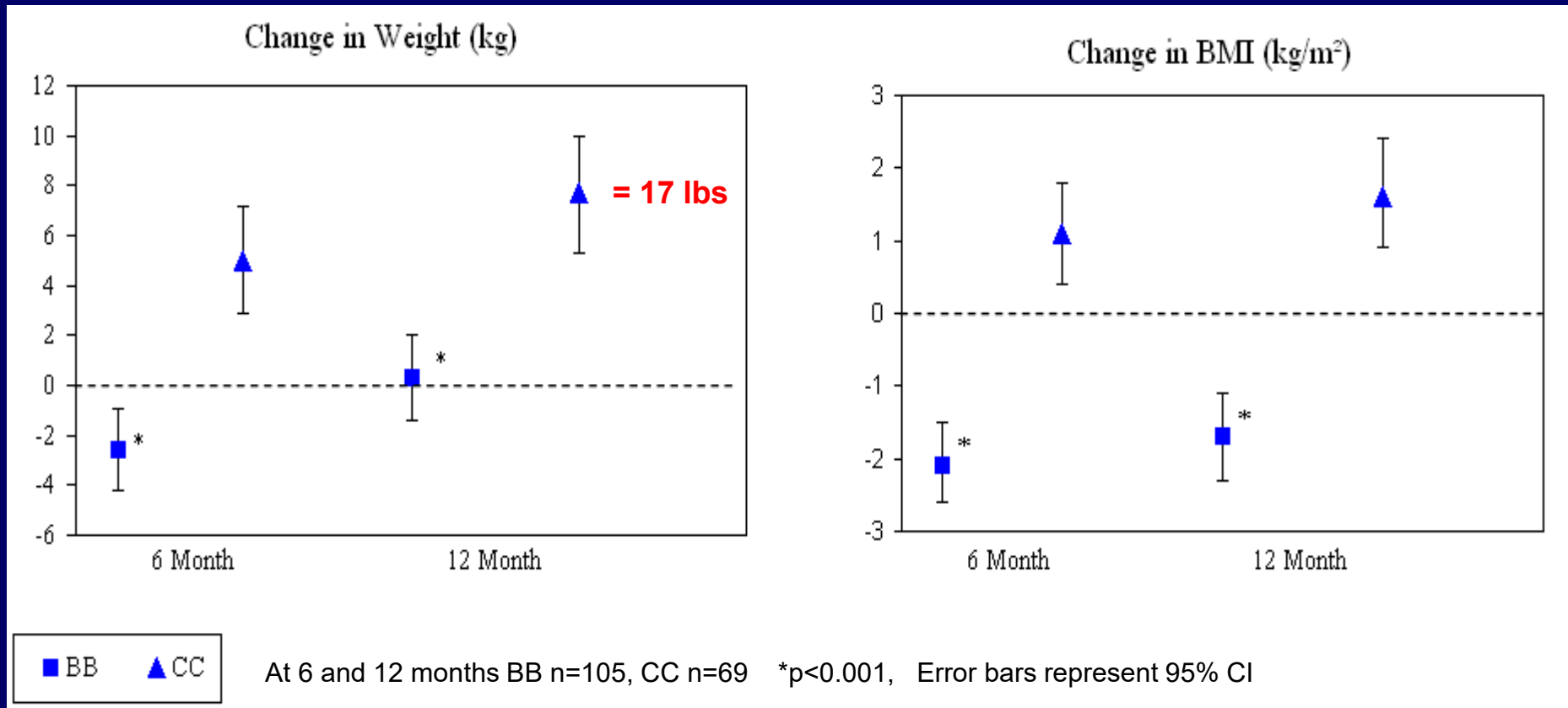
Setting Recruitment and follow-up conducted at Yale Pediatric Obesity Clinic in New Haven, Conn, and intervention at nearby school.

Participants Random sample of 209 overweight children (body mass index [BMI] >95th percentile for age and sex), ages 8 to 16 years of mixed ethnic groups were recruited. A total of 135 participants (60%) completed 6 months of study, 119 (53%) completed 12 months.

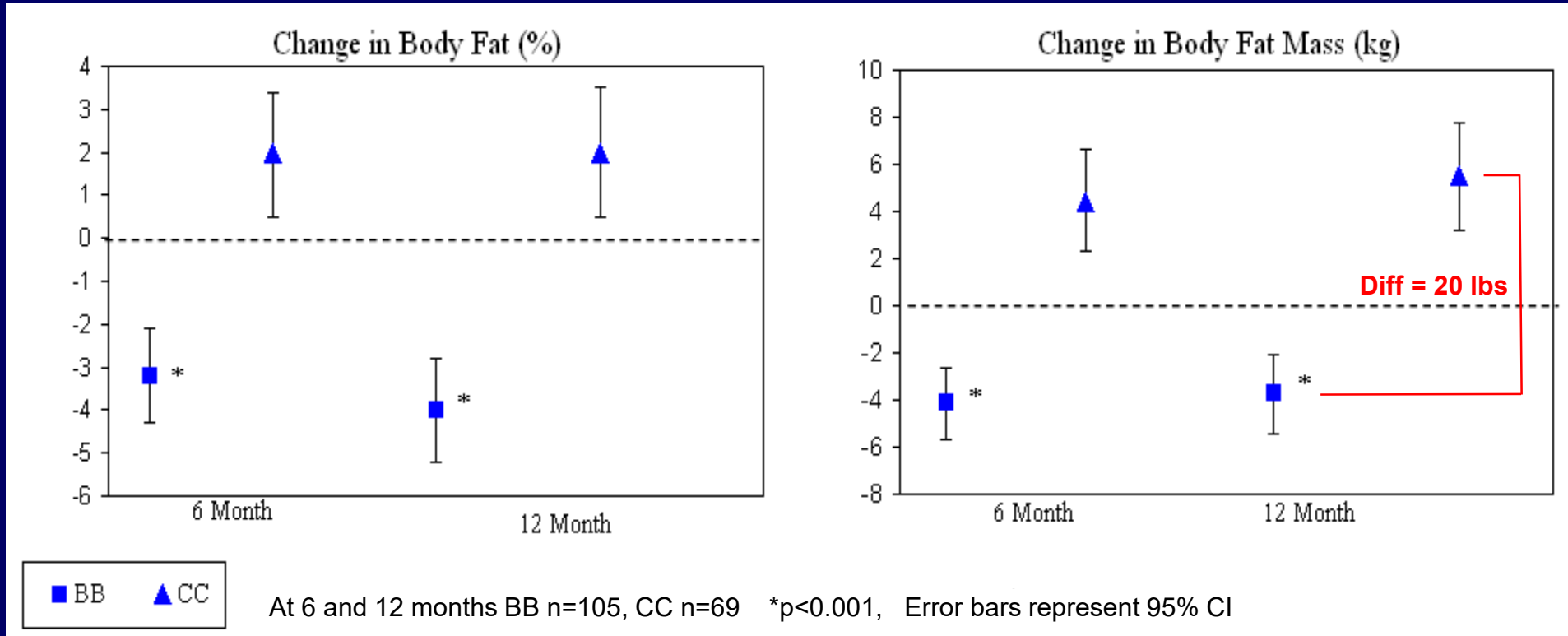
Intervention Participants were randomly assigned to either a control or weight management group. The control group (n=69) received traditional clinical weight man-

THE PREVALENCE OF OVER-
weight among children and

Changes in Adiposity Bright Bodies vs. Clinic

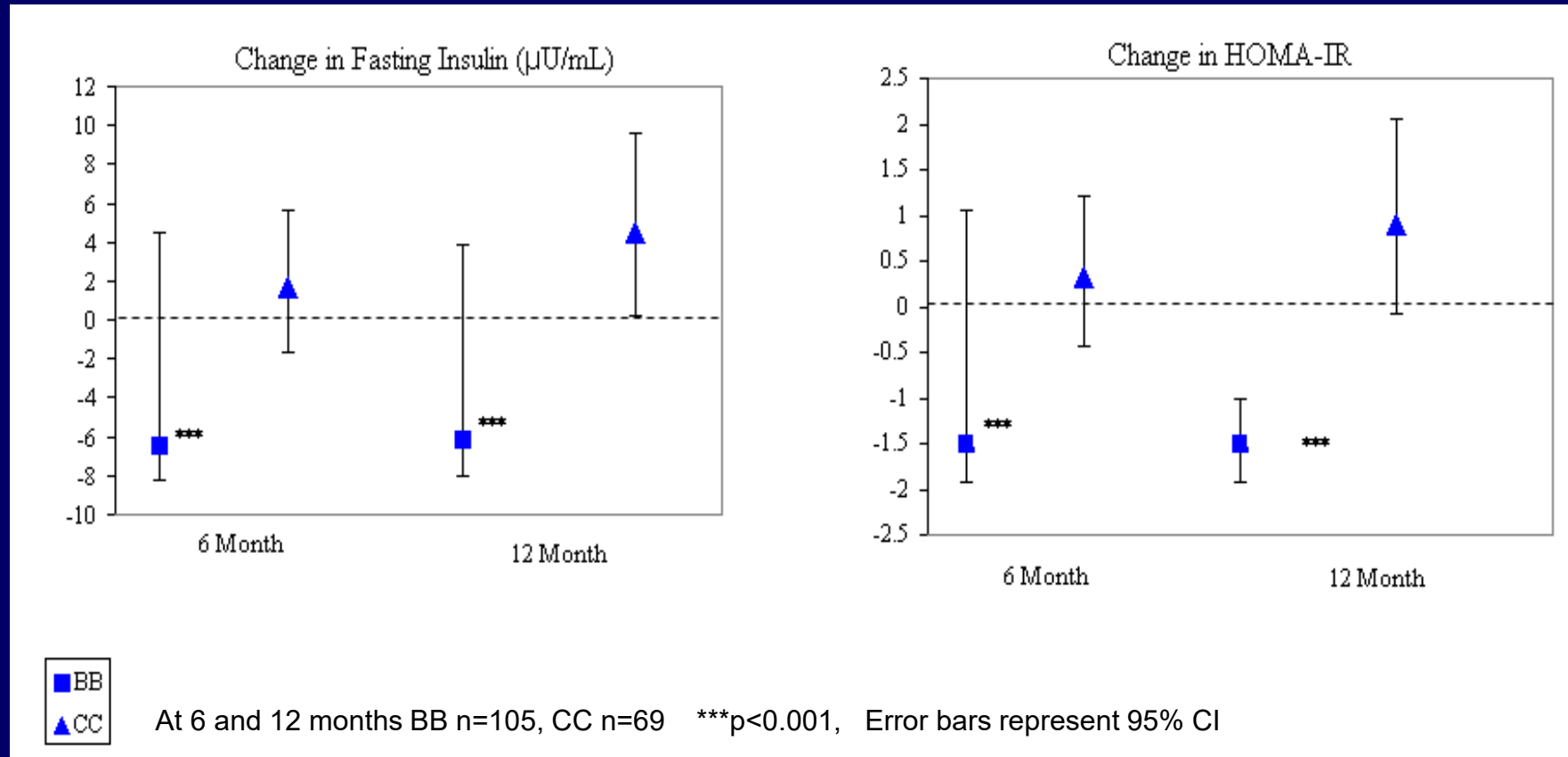


Changes in Adiposity Bright Bodies vs. Clinic (cont'd)



Insulin Sensitivity Changes

Bright Bodies vs. Clinic



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Long-term Results of an Obesity Program in an Ethnically Diverse Pediatric Population

Mary Savoye, Paulina Nowicka, Melissa Shaw, Sunkyung Yu, James Dziura, Georgia Chavent, Grace O'Malley, John B. Serrecchia, William V. Tamborlane and Sonia Caprio

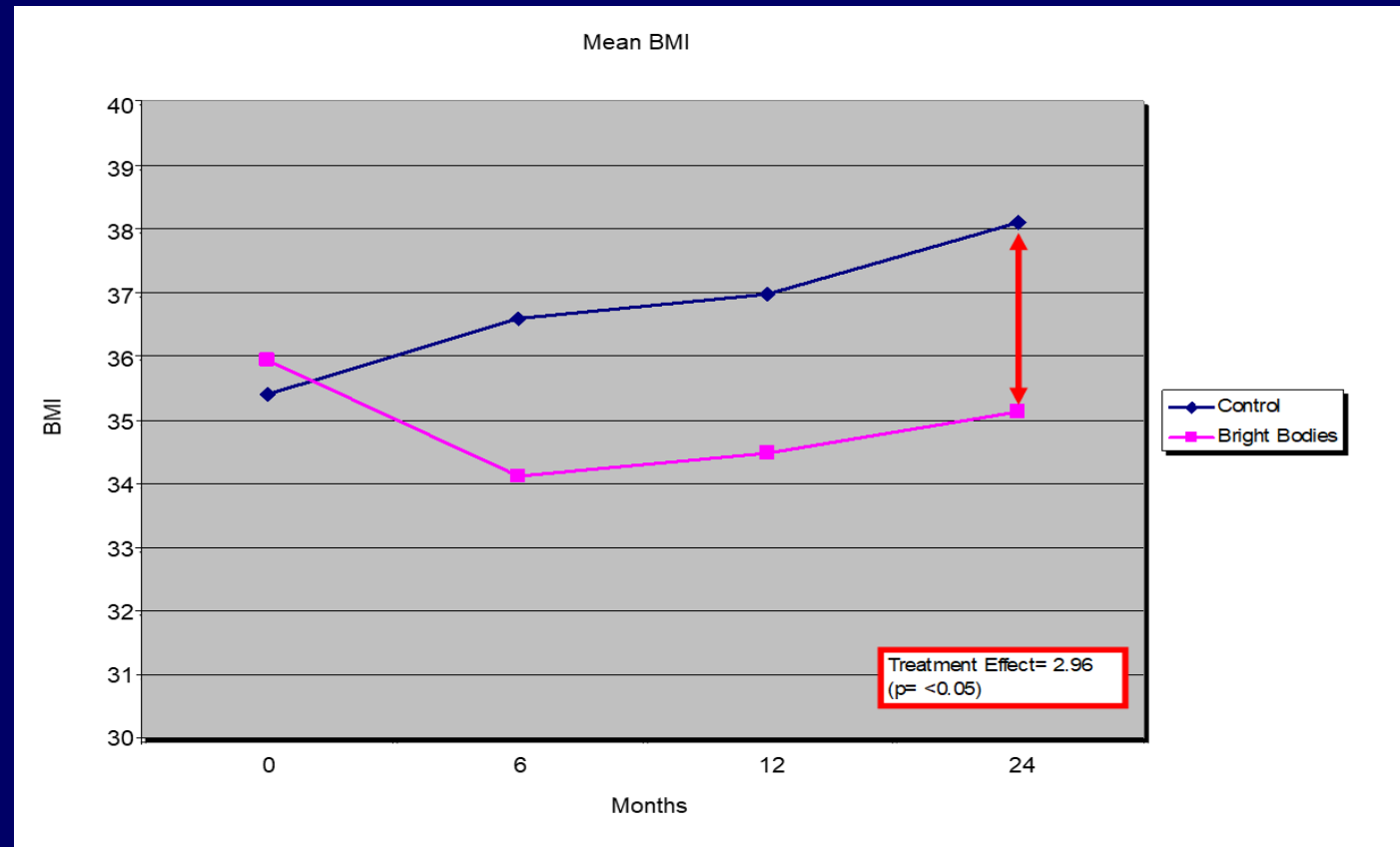
Pediatrics 2011;127:402-410; originally published online Feb 7, 2011;
DOI: 10.1542/peds.2010-0697

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



Was the treatment effect sustained at 2-yr follow up?



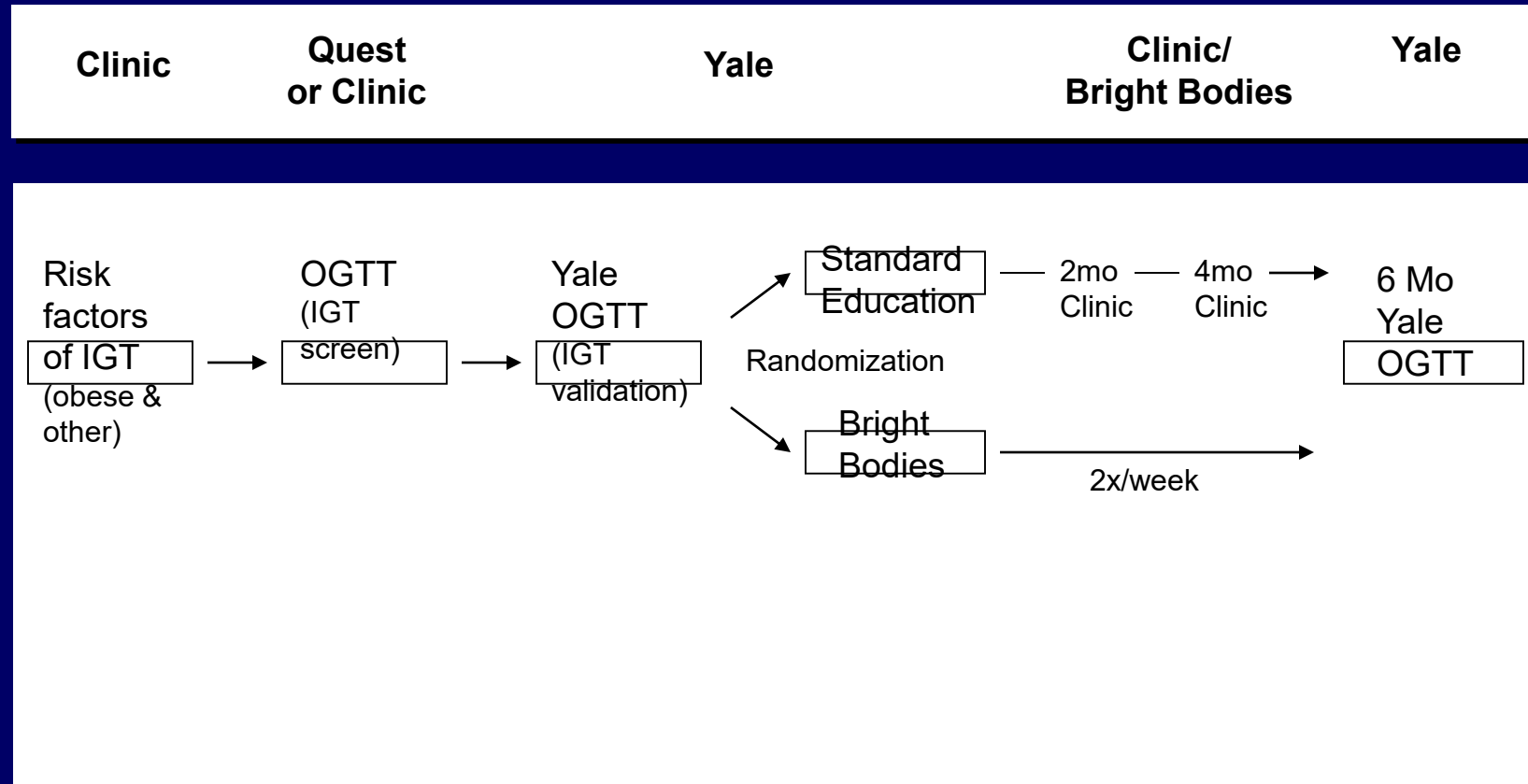
Savoye, et al., Pediatrics, 2011

Prevention of Type 2 Diabetes In Children

- ✓ Pediatric & Medical Associates
- ✓ Children's Medical Group
- ✓ Hill Health Center
- ✓ Fair Haven Community Health Center
- ✓ Yale Center for Clinical Investigation



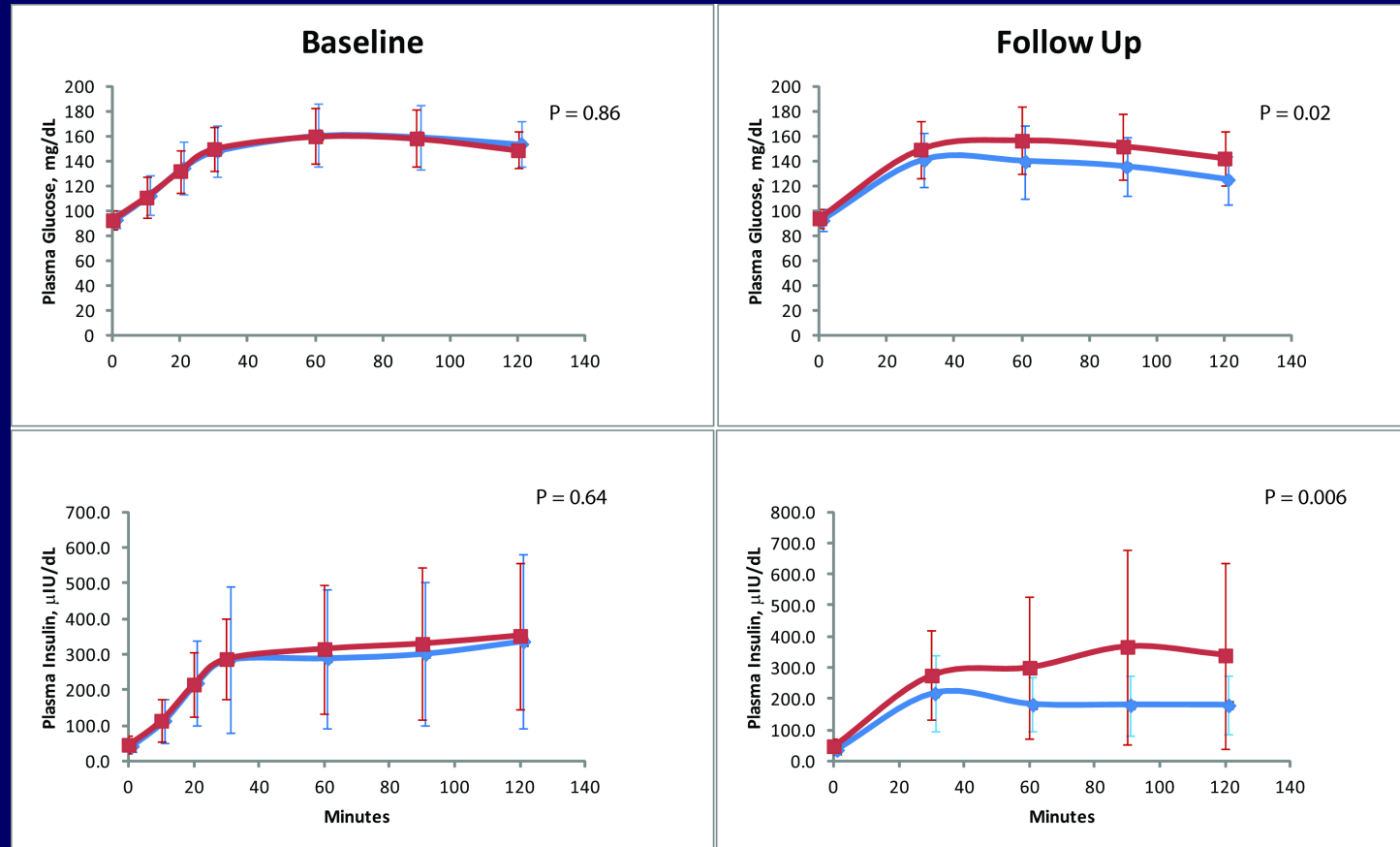
Prevention of T2DM in Children – Aim 2 Flow



Anthropometric Changes at 6 months

Measurement	Bright Bodies	Control	Tx Effect	P Value
Weight (kg)	0.6 (-0.9 to 2.1)	3.7 (2.1 to 5.2)	-3.1 (-5.3 to -0.9)	0.006
Height (cm)	1.9 (1.2 to 2.5)	1.7 (1.0 to 2.3)	0.1 (-0.7 to 1.0)	0.73
BMI (kg/M²)	-0.37 (-0.86 to -0.11)	0.67 (0.13 to 1.21)	-1.05 (-1.78 to -0.32)	0.005
Body Fat (%)	-3.3 (-4.8 to -1.8)	0.4 (-1.5 to 2.4)	-3.8 (-6.3 to -1.3)	0.003
Fat Mass (kg)	-2.7 (-4.5 to -0.9)	2.3 (-0.2 to 4.8)	-5.0 (-8.2 to -1.8)	0.002

Figure 2. OGTT Data at Baseline and Follow Up Between BB and CC Groups



P value is from comparing area under curve (AUC120) using t-test.

Psychosocial predictors and moderators of weight management programme outcomes in ethnically diverse obese youth

J. H. Taylor^{1,2}, Y. Xu³, F. Li³, M. Shaw⁴, J. Dziura³, S. Caprio⁴, W. V. Tamborlane⁴,
P. Nowicka^{5,6†} and M. Savoye^{4†}

Study Results

Results:

- Low self-esteem and poor family functioning predicted poor glucoregulatory and anthropometric tx outcomes overall in obese youths.
- However, intensive family-based treatment (relative to standard clinical care) lessened the impact of low-self esteem and family dysfunction outcomes.
- Our findings suggest intensive family-based lifestyle program are particularly beneficial for youth with low self-esteem and poor family functioning.

Brief Case

11-year old Hispanic Female, BMI 42.8

PCC informally dx'd with prediabetes (HbA1c 6.3)

Poor diet, sedentary

Diet and PA counseling: Recommended beverage change, PA 30 min/day

F/U: In 2 month interim, wt stable, BMI dropped to 42.2, HbA1c 6.2

Made beverage change, however, hard to get 30 min PA/day

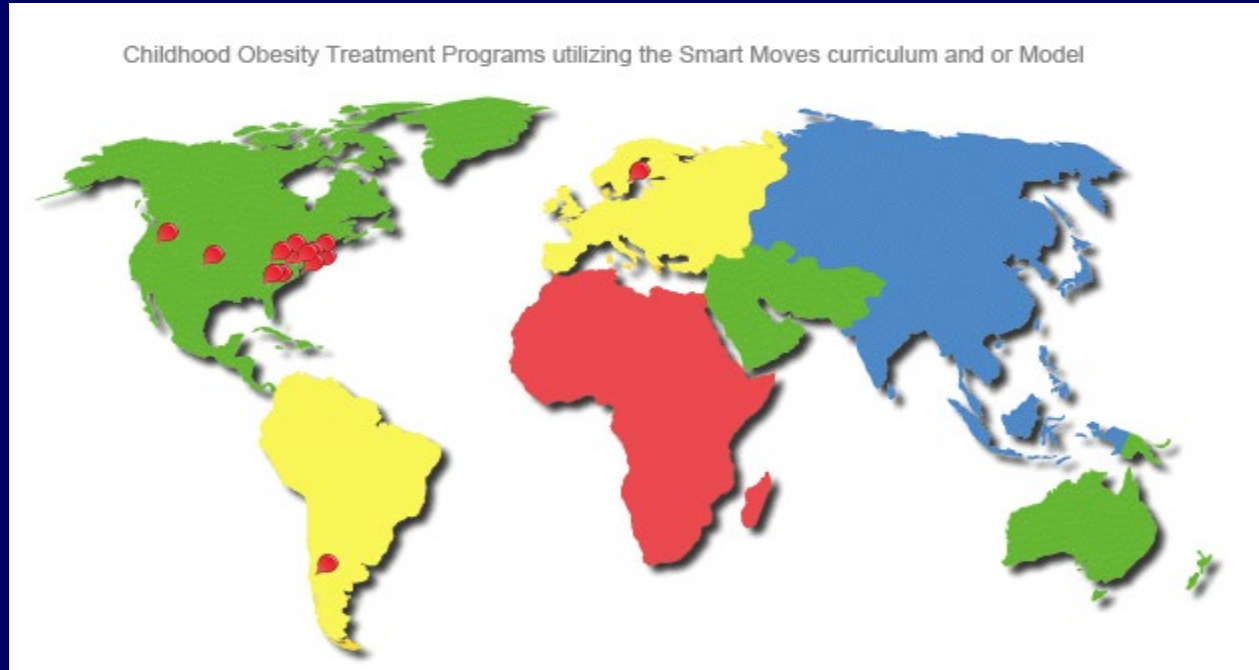
Because of prediabetes dx/suspicion, referred to specialty clinic (Stage 3)

F/U: 3-4 months later, **endocrinologist** ordered OGTT and referred to **Bright Bodies** for ↑PA (OGTT results=160 mg/dl @ 2 hr; HbA1c 6.2; BMI 41.9).

Dietitian made further suggestions regarding portion control

F/U: In 4 month interim (and after 12 week program), lost 7 lbs and 4% body fat, BMI dropped to 40.5, HbA1c 5.5, OGTT was 132 @ 2hr

We continue to grow...Stay tuned!



Program and/or curriculum used in over 30 US sites and 2 international sites.

Currently optimizing our package for easier replication.

Ways to Make a Referral to Bright Bodies

- Brightbodies.org (registration page)
- Email Mary Savoye at mary.savoye@yale.edu
- Call Mary Savoye at 203-737-4384
- Send an Epic in-basket notification with MR#.

- Zoom program until end of July; Hybrid scheduled for Sept (Tuesday zoom & Thursday in person)

Special Thanks



Bright Bodies & clinic group families.
Organizations adopting program.

Sonia Caprio, MD
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Brad Serrecchia, BS
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Melissa Shaw, BS
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THANK YOU!

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