

## Assessment, Prevention and Treatment of Childhood Obesity- Expert Committee Recommendations

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## Goal

Develop a set of recommendations for the prevention, assessment, & management of pediatric overweight and obesity that are endorsed by major health provider organizations and are based on best evidence

## Expert Committee

National Association of Pediatric Nurse Practitioners  
 American College of Preventive Medicine  
 American Dietetic Association  
 American Academy of Hispanic Physicians  
 American Pediatric Surgical Association  
 National Medical Association  
 American Academy of Family Practice  
 American Psychological Association  
 National Association of School Nurses  
 North American Association for the Study of Obesity  
 Association of American Indian Physicians  
 The Endocrine Society  
 American College of Sports Medicine  
 American Academy of Child & Adolescent Psychology  
 American Academy of Pediatrics

NIH (liaison) and Canadian Task Force on Obesity (liaison)

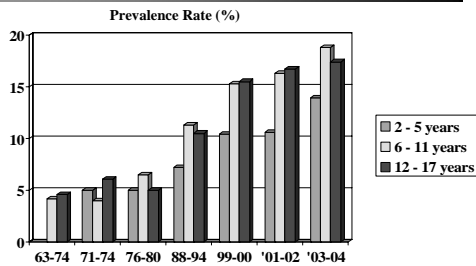
## Writing Groups\* \*

Assessment	Prevention	Treatment
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\*\*Sarah Barlow authors the 4<sup>th</sup> paper

## Prevalence of overweight children and adolescents in the United States is increasing




Ogden CL JAMA 2006;295:1549-1555

## 2003-2004 prevalence by racial/ethnic group


	2-5 yrs	6-11 yrs	12-17 yrs
White (non-Hispanic)	11.5%	17.7%	17.3%
Black (non-Hispanic)	13.0%	22.0%	21.8%
Mexican American	19.2%	22.5%	16.3%

Ogden CL JAMA 2006;295:1549-1555



## Prevention

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### Behaviors for obesity prevention

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1. Breastfeed <sup>2</sup>
2. Limit sugar-sweetened beverages <sup>1</sup>
3. Avoid excessive fruit juice <sup>3</sup>
4. Balance fat, carbohydrate, and protein <sup>3</sup>
5. Consume recommended fruits and vegetables <sup>2</sup>
6. Consume a diet rich in calcium <sup>3</sup>
7. Eat daily breakfast <sup>2</sup>
8. Limit fast food <sup>2</sup>

1. Evidence supports—consistent 2. Evidence supports—mixed 3. Expert committee suggests




### Behaviors for obesity prevention

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9. Use appropriate portion size <sup>2</sup>
10. Avoid restrictive eating practices <sup>2</sup>
11. Eat meals together as a family <sup>2</sup>
12. Limit television and screen time <sup>1</sup>
13. Keep televisions out of children's bedrooms <sup>1</sup>
14. Encourage moderately vigorous physical activity of 60 minutes a day or more <sup>1</sup>

1. Evidence supports—consistent 2. Evidence supports—mixed 3. Expert committee suggests




### Provider-family interactions

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How pediatric providers can talk to patients and families about changing behavior

Examples


- Motivational interviewing
- Behavioral modification techniques



### Office practices to support obesity-prevention efforts

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1. Routine documentation of BMI
  - Proper equipment and staff training
  - Measure, calculate, plot
2. Routine delivery of obesity-prevention messages
  - Ex: 5 2 1 0 from Maine Collaborative
    - 5 or more fruits and vegetables a day
    - 2 hours or less of screen time
    - 1 hour or more of vigorous play
    - Little or no sugar-sweetened beverages

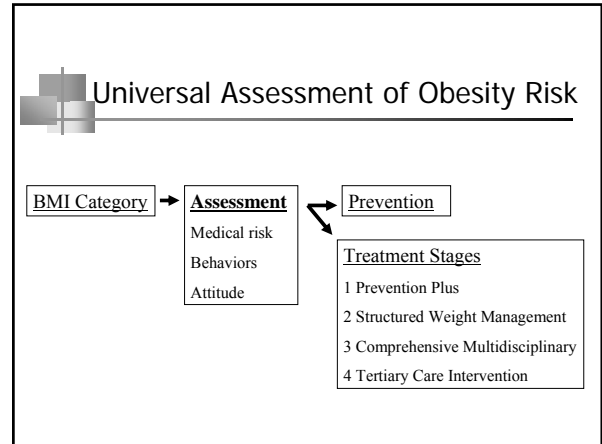


### Office practices to support obesity-prevention efforts

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3. Standard procedures to address overweight and obese children
  - Ex: review family history, consider need for labs, assess level of concern, offer resources
4. Involvement of entire office staff
  - Physicians, nurses, administrative staff
5. Chart audits

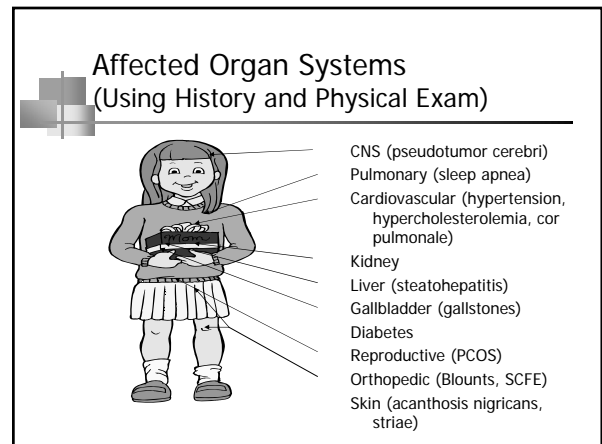
# Assessment



- ## Assessment of medical risks
1. Body Composition
  2. Parent weight status
  3. Family history
  4. Current health condition
    - Symptoms and signs
    - Laboratory

- ## Body composition assessment
- Body mass index calculation  
(Despite its limitations)
  - Skinfold thickness  
Difficult to perform reliably
  - Waist circumference  
Current lack of reference values

- ## Family history
- Diabetes
  - Insulin resistance
  - Cardiovascular disease
  - CVD risk factors
  - Hypertension
  - Hyperlipidemia
- 1<sup>st</sup> and 2<sup>nd</sup> degree relatives



## Laboratory assessment

Abnormal lipids, diabetes, and NAFLD cannot be identified by history and PE

≥ 95<sup>th</sup> percentile BMI

Other risk factors

Fasting lipid profile  
Fasting glucose  
ALT and AST

85<sup>th</sup> – 94<sup>th</sup> percentile BMI

## Behaviors

Identify key diet and activity behaviors that are modifiable

Consider

1. Calories—impact on energy imbalance
2. Capacity—family and community resources
3. Concern--family motivation to change

## Treatment



## Nutrition

- Fruit and Vegetable
  - ½ of studies found an association with adiposity between low fruit and vegetable intake and weight status.
- Fruit Juice Consumption
  - Increased adiposity with > 12 oz fruit juice per day
  - WIC data showed that there was no difference in BMI between children 100% fruit juice (> or < 12 oz)
  - AAP recommendations of 8-12 oz/d are based on nutrient quality and GI problems not on obesity risk.



## ■ Sweetened beverages

- Soft drink intake was higher among overweight than non-overweight
- One RCT showed that in teens who had high consumption of soft drinks at baseline-
  - Decreased BMI by drinking sugar-free drinks for 6 months vs those who continued regular sodas.



## ■ Snacking

- In overweight girls only the fat content of snacks was associated with BMI
- Research is confounded by an unclear definition in the literature of what constitutes a snack or snack food
- Eating out
  - Eating out is associated with difficulty with portion control and higher energy intake
- Meal frequency
  - Overweight has been associated with less frequent eating
- Breakfast
  - Showed a positive association between breakfast skipping and reported BMI in teens, but not younger children

## Specific Interventions

- Traffic Light Diet/Stop light diet
  - Green- < 20 calories per average serving
  - Yellow: Staples of the diet that provide most of the nutrition
  - Red- Foods high in fat and simple carbohydrates
- Daily caloric intake 900-1200 with later studies 1200-1500 calorie intake



Epstein, JAMA 1990; Epstein, Health Psychol 1994

## Traffic Light Diet Approach

- Also included
  - Self monitoring
  - Praise and modeling
  - Therapy
  - Contracting with the family
- Results
  - Modest sustained weight loss over 5 & 10 yrs
  - Unclear what part the diet played vs the behavior component
  - The traffic light diet as part of a comprehensive clinically supervised, multi-component weight loss treatment program is associated with short and longer term reduction in adiposity.
  - Population was white, middle class who were provided incentives for participation in data collection

## Specific Interventions

- Food Pyramid
  - Not designed as a weight loss tool
  - May be used as a component of a comprehensive childhood weight management program
  - But, limited evidence for it's use alone



Saelens B, Obesity Res, 2002

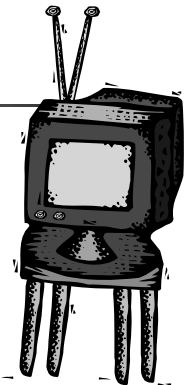
## Physical Activity/Physical Inactivity

- Increased PA is associated with decrease in BMI
- Lower SES groups have reduced access to facilities, which was associated with decrease PA and increased overweight
- Some evidence that lifestyle activity is as efficacious as structured exercise



## TV viewing

- Clinical trials showed that TV viewing results in increased energy intake and decreased energy expenditure.
- TV in bedroom is a major predictor of TV viewing
- Number of hours increases risk for overweight



- Stronger associations between TV viewing and overweight have been seen among girls compared to boys-
  - strongest effect of reduced TV viewing were among AA girls



## Behavioral

- Behavioral interventions (multidisciplinary)
  - Most interventions are 8-16 visits long
  - 4-12 months in duration
  - Most include some group component
  - Parents as target leading to better child outcome (evidence stronger in < 12 years of age)

## Behavioral

- Behavior modification treatment > education alone or minimal or no treatment
  - Core behavioral strategies (monitoring, contingency management, environmental control) appear most efficacious
  - Mastery of behavioral skills better than skills teaching alone

## Staged Treatment

- Committee has suggested a staged approach to treatment.
  - Healthy Lifestyle Changes
  - Structured Weight Management
  - Comprehensive Multidisciplinary Intervention
  - Tertiary Care Intervention

## Prevention Plus (stage 1)

- Components
  - $\geq 5$  Fruit and vegetable/d\*
  - $\leq 2$  hours of screen time\*
  - 1 hour PA/d\*
  - No sugared sweetened beverages\*
  - Limit eating out\*
  - Involve the whole family\*

\* Evidenced based

## Prevention Plus (stage 1)

- Where implemented
  - Primary Care Office
- By whom
  - Primary Care Provider or trained professional staff
- Frequency of visits
  - Based on readiness to change/behavioral counseling

## Prevention Plus (stage 1)

- When to go to next stage
  - Evaluate after 3-6 months
    - If there is weight maintenance or BMI deflection downward stay in Stage one
    - If no improvement
      - 85<sup>th</sup>-95<sup>th</sup> and co-morbidity and/or parental obesity move to stage 2 otherwise continue with stage 1
      - If > 95<sup>th</sup> percentile advance to stage 2
    - In 12-18 year old > 99<sup>th</sup> % tile and no weight loss in 3 months then move to stage 2

## Healthy Lifestyle Pilot Research

- Purpose: determine the impact of brief MI
  - BMI in children 3-7 years 85<sup>th</sup> -94<sup>th</sup> % BMI
  - Family's diet and activity habits
- Population
  - 15 pediatricians (PROS) offices
  - 3 groups: control, minimal (MD only), Intensive (MD + RD)

Schwartz, R Arch Pediatr Adol Med, May 2007

## Strategies employed

- Increase fruits and vegetables
- Increase water
- Decrease desserts and snacks
- Decrease soda and sugar sweetened drinks
- Limit dining outside the home
- Decrease TV/Video tape viewing
- Increase active play

## Maine Collaborative

- Primary Care Offices
  - Targeted >85<sup>th</sup> % tile
  - MD trained in interviewing
  - Tickler system for charts to begin process
  - Message
    - 5 fruits and Vegetables
    - 2 hours or less of TV per day
    - 1 hour or more physical activity
    - 0 servings of sweetened beverages

## Maine Collaborative

- Results
  - Increased attention to patients weight and nutrition
  - Increase patient satisfaction with MD to identify a problem
  - Easy to remember and good suggestions
  - Currently, data not available for weight change

[www.maineaap.org/project\\_youthoverweight.htm](http://www.maineaap.org/project_youthoverweight.htm)

## Structured Weight Management (stage 2)

- Components
  - Develop a plan for family and/or teen to include:
    - Balance macronutrient diet \*
    - More structure to daily meals and snacks \*
    - Reducing screen time to < 1hour/d
    - Increase time spent in PA
    - Provide for monitoring to improve success\*
      - E.g., screen time, PA logs, dietary intake, restaurant logs

\* Evidenced based

## Structured Weight Management (stage 2)

- Where implemented
  - Referral to Dietitian
  - Primary Care Provider office
- By whom/skills
  - RD or MD/PNP/FNP with training in
    - Assessment techniques
    - Motivational interviewing/behavioral counseling
    - Parenting skills and managing family conflict
    - Food planning
    - Physical activity counseling
- Frequency of visits
  - Monthly visits tailored to individual patient and family

## Structured Weight Management (stage 2)

- When to go to next stage
  - Evaluate after 3-6 months
    - If there is weight maintenance or BMI deflection downward stay in Stage two
    - If no improvement
      - If 2-5 year olds and >99<sup>th</sup> percentile with co-morbidity or parental obesity advance to stage 3, if not stay in stage 2
      - If > 95<sup>th</sup> percentile advance to stage 3
    - In 12-18 year old > 99<sup>th</sup> % tile and no weight loss in 3 months then move to stage 3

### Healthy Living Prescription

LOGO

Patient # \_\_\_\_\_

Activity Goals	Minutes	Sessions/day	Days/week
<input type="checkbox"/> Be more physically active	10	1	2-3
Activity 1: _____	20	2	4-5
Activity 2: _____	30	3	6-7
<input type="checkbox"/> Spend less time: Watching TV, and playing computer and video games	Goal: less than 1-2 hours per day total		2-3 4-5 6-7

Nutrition Goals	Days/week
<input type="checkbox"/> Eat more family meals together at home	
<input type="checkbox"/> Eat a healthy breakfast	
<input type="checkbox"/> Increase fruit intake: _____ servings/day	
<input type="checkbox"/> Increase intake of colorful vegetables _____ servings/day	
<input type="checkbox"/> Reduce soda & sweetened fruit drinks _____ servings/day	
<input type="checkbox"/> Reduce sweets and salty snacks _____ servings/day	

Referral: \_\_\_\_\_

Our family agrees to make these nutrition and activity behavior changes part of our daily routine from: Start Date \_\_\_\_\_ Follow-up Date: \_\_\_\_\_

Signatures: \_\_\_\_\_ Patient: \_\_\_\_\_

Clinician: \_\_\_\_\_ Parent: \_\_\_\_\_

White Copy – Patient, Yellow Copy – Medical Record

From International Life Sciences Institute (ILSI)

## Comprehensive Multidisciplinary Intervention (stage 3)

- Components
  - Multidisciplinary team\*
  - Strong parental involvement especially <12 years\*
  - Structured behavioral program \*
    - Includes food monitoring, goal setting and contingency management,
  - Improving home food environment
  - Structured dietary and PA interventions that result in negative energy balance\*

\* Evidenced based

## Comprehensive Multidisciplinary Intervention (stage 3)

- Where implemented
  - Weight management program
  - Primary Care Provider office
  - Pediatric Weight Management Centers
- By whom/skills
  - Multidisciplinary team including:
    - Registered Dietitian
    - Behavioral counselor
    - Exercise counselor
      - could be RD with expertise or programs- e.g., YMCA
- Frequency of visits
  - Weekly 8-12 weeks then monthly follow-up
  - Consider non-traditional when face-to-face not possible

## Comprehensive Multidisciplinary Intervention (stage 3)

- When to go to next stage
  - Evaluate after 3-6 months
    - If there is weight maintenance or BMI deflection downward stay in Stage three
    - If no improvement (improvement=weight loss or BMI deflecting downward)
      - Ages 2-5 remain in stage 3 with continued support
      - Ages 6-11 if >99<sup>th</sup> %tile and a co-morbidity go to stage 4
      - Ages 12-18 if >99<sup>th</sup> %tile with a co-morbidity or with >6 months of no weight loss in stage three advance to stage 4



- Developed By: Pennington Biomedical Research Center & Louisiana State Univ.
- Program: Individualized approach and conducted in an outpatient, group setting.
- Staff: physician, dietitian, exercise physiologist and behavior specialist.
- Tools: Body measurement, exercise & nutritional evaluation, and therapy throughout the program.
- MPEP (Moderate intensity Progressive Exercise Program): strength, flexibility, and aerobic training via videos and educational materials.
- Work books for kids and parents



## Other Ideas

- Partnering with community agencies
  - YMCAs
  - Recreation Centers
- Physicians offices
  - After hours, a team runs programs in their offices

## Tertiary Care Intervention (stage 4)

- Components
  - Continued diet and activity counseling plus consider
    - Meal replacement
    - Very low calorie diets
    - Medication
    - Surgery

## Tertiary Care Intervention (stage 4)

- Where implemented
  - Pediatric Weight Management Centers- operating under established protocols.
- By whom/skills
  - Multidisciplinary team with expertise in childhood obesity including:
    - Physician
    - Registered Dietitian
    - Behavioral counselor
    - Exercise specialists

## How about drug therapy for pediatric obesity?

- Sibutramine
  - Serotonin and norepinephrine transporter inhibitor
- Orlistat
  - Gastrointestinal lipase inhibitor
- Opinion of the expert writing group that medication should only be utilized in a tertiary care center with close monitoring by health care team


## Adolescent Bariatric Surgery

- Considered as treatment option in severe obesity with complication who have "failed" conventional weight management
- Should be considered an INTENSIVE therapy for pediatric obesity
- Should be undertaken in a specialized pediatric center

## Weight Changes

- 3 groups
  - 85-94<sup>th</sup>
  - 95<sup>th</sup>-98
  - $\geq 99^{\text{th}}$ 
    - Children  $\geq 99^{\text{th}}$  BMI percentile have greatly increased frequency of biochemical abnormalities (estimate ~ 4% of population).


Freedman D et al. Risk factors and excess adiposity among very overweight children and adolescents: The Bogalusa Heart Study, J Pediatr Jan 2007



## Suggested Weight Changes

- Age 2-5 (importance of parental obesity)
  - 85<sup>th</sup> -94<sup>th</sup> Weight maintenance until BMI < 85th percentile
  - > 95<sup>th</sup> Weight maintenance until BMI < 85th percentile
  - Rare very high BMI (>21 or 22)  
Gradual weight loss not more than 1 lb/month


Note: In the short term (< 3 mos), in general, weight changes may be easier parameter to measure



## Suggested Weight Changes

- Age 6-11 (importance of parental obesity)
  - 85<sup>th</sup> - 94<sup>th</sup> Weight maintenance or BMI percentile deflection down
  - 95<sup>th</sup> -98<sup>th</sup> Gradual weight loss not more than 1 lb/month\*
  - ≥ 99<sup>th</sup> Weight loss. Maximum of an average of 2 lbs per week\*


\* Excessive weight loss should be evaluated for high risk behaviors



## Suggested Weight Changes

- Age 12 - 18 (importance of parental obesity)
  - 85<sup>th</sup> -94<sup>th</sup> Weight maintenance or BMI percentile deflection down.
  - 95<sup>th</sup> -98<sup>th</sup> Weight loss. Maximum of an average of 2 lbs per week\*.
  - ≥ 99<sup>th</sup> + average Weight loss. Maximum of an average of 2 lbs per week\*.

\* Excessive weight loss should be evaluated for high risk behaviors



## Good Obesity Action Network

A healthcare campaign to stop the epidemic: *A web-based national network aimed at rapidly sharing knowledge, successful practices and innovations.*

- **Implementation Guide**
  - NICHQ--together with key partners--is developing an Implementation Guide for the new recommendations.
  - [www.nichq.org](http://www.nichq.org).