# "Approach to Pediatric Obesity"

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## Objectives

- Define the Expert Guidelines on Obesity
- Recognize obesity related comorbidities
- Differentiate the impact of the obesity epidemic in the under 5 population
- Define feeding and activity problems common to the under 5 group
- Describe approaches to family based lifestyle change in the under 5 year age group



## Expert Committee Recommendations

- Purpose: Update pediatric obesity prevention and treatme recommendations
- Focus
  - Pediatric practice change
  - "Universal prevention"
  - Parents/families as partners in lifestyle change
  - Obesity in the context of the Chronic Disease model
  - Connections to the Community
  - Did not address obesity under 2
  - Medical Home



## Expert Recommendations on Obesity Pediatrics Dec 2007

- Assessment-BMI/nutrition/activity/readiness to change
- Evidence based/evidence informed/expert opinion on high risk behavior for obesity
- Stepwise approach to prevention and treatment
- Addressed obesity management in primary and tertiary care
- Multidisciplinary approach
- Family centered/parenting/motivational interviewing



### Assessment of Obesity

- Calculate, chart and classify BMI for all children 2-18 yrs at least yearly
- Assess dietary patterns
- Assess Activity/Inactivity
- Assess Readiness for Change
- Assess obesity related comorbidities
- Assess ongoing progress





### BMI- Calculate, Chart, Classify

- ▶ BMI is a screening measure, determines further evaluation
- BMI based on age and gender and is a population based reference
- Underweight BMI<5%</p>
- "Normal weight" BMI 5%-84%
- Overweight BMI > 85%-94% (IOM classification)
- ▶ Obese BMI 95%-99% (IOM classification)
- ► Morbid (severe) obesity BMI>99%
  - □ Freedman et al J Pediatr 2007;150;12-17



## Step wise prevention and treatment

- Steps based on location, BMI and response to treatment
  - Prevention
  - Prevention Plus
  - Structured Weight Management
  - Comprehensive Multidisciplinary Intervention
  - Tertiary Care



### Step wise prevention and treatment

- Evidence base is constant
- Intensity of intervention changes
  - Increasing contact
  - Increasing family involvement
  - Increasing self monitoring
  - Increasing multidisciplinary support



### Consistent Evidence

- Multiple studies show consistent association between recommended behavior and either obesity risk or energy balance
  - Limit consumption of sugar sweetened beverages
  - Limit TV (0 hours <2 years, <2 hours >2 years old)
  - Remove TV from primary sleeping area
  - Eat breakfast daily
  - Limit eating out
  - Encourage family meals
  - Limit portion size
  - Sleep (added since guideline publication)





### **Evidence Suggests**

- Studies have not examined association with weight or energy balance, or too few or too small, but expert committee thinks could support healthy weight and would not be harmful
  - Eat a diet rich in Calcium
  - ▶ Eat diet high in fiber
  - Eat a diet with balanced macronutrients (food groups)
  - Breastfeeding \*
  - Promote moderate-vigorous activity 60 minutes/day
  - Limit consumption energy dense foods



### Prevention-BMI 5%-84%

- Promote breastfeeding
- Diet and physical activity:
  - Five or more servings of fruits and vegetables per day
  - 2 Two or fewer hours of screen time per day, and no television in the room where the child sleeps
  - I One hour or more of daily physical activity
  - No sugar-sweetened beverages



- Dietary Energy Density (ED) positively associated with body weight status in U.S. children 2-8 y.
- Children with obesity had a higher dietary ED than lean children
- Diets high in ED found to be associated with greater intakes of energy and added sugars.
  - More energy from fat; and significantly lower intake of fruits and vegetables
- Interventions that lower dietary ED by means of increasing fruit and vegetable intake and decreasing fat consumption may be an effective strategy for reducing childhood obesity.
  - Vernarelli JA, Mitchell DC, Hartman TJ, Rolls BJ Dietary energy density is associated with body weight status and vegetable intake in US children | Nutr. 2011 Dec;141(12):2204-10.



- Fiber content is likely one of the main mechanisms through which plant foods could be related to childhood obesity
- Girls with higher intakes of dairy, fruit and non-starchy vegetables had about a 40-50% reduced risk an LDL-C ≥ 170 mg/dL and non-HDL-C ≥ 145 mg/dL
  - ▶ Bradlee ML, Singer MR, Daniels SR, Moore LL Eating patterns and lipid levels in older adolescent girls Nutr Metab Cardiovasc Dis. 2012 Mar 12.





### DASH diet

- Low in saturated fat, cholesterol, and total fat
- Focuses on fruits, vegetables, and fat-free or low-fat dairy products
- Rich in whole grains, fish, poultry, beans, seeds, and nuts
- Contains fewer sweets, added sugars and sugary beverages, and red meats than the typical American diet



- Youth with a DASH score in the top tertile had a 0.24 lower BMI Z score than youth in the lowest DASH score tertile.
- ▶ Marked association of adherence to DASH diet with A<sub>1c</sub> in youth with TIDM.
  - Liese AD, Bortsov A, Günther AL, et al. Association of DASH diet with cardiovascular risk factors in youth with DM: the SEARCH for Diabetes in Youth study Circulation. 2011 Apr 5;123(13):1410-7
- ▶ Early adolescents with higher intakes of fruits, vegetables and dairy products had an adjusted mean systolic blood pressure of 106 +/- 2.9 mm Hg, those with lower intakes in both food groups had a mean systolic blood pressure of 113 +/-1.5 mm Hg.
  - Moore LL, Singer MR, Bradlee ML, et al Intake of fruits, vegetables and dairy products in early childhood and subsequent blood pressure change. Epidemiology. 2005 Jan; 16(1):4-11



- Adolescent girls whose diet more closely resembled the DASH eating pattern had smaller gains in BMI over 10 years.
- The strongest individual food group predictors of BMI were total fruit intake and low fat dairy.
  - Mean BMI, 26.0 vs 23.6 for <1 vs ≥2 servings fruit per day; P < .001) and low-fat dairy (mean BMI, 25.7 vs 23.2 for <1 vs ≥2 servings per day; P < .001).</p>
  - Whole grain consumption was more weakly but beneficially associated with BMI.
    - Berz JP, Singer MR, Guo X, Daniels SR, Moore LL. Use of a DASH food group score to predict excess weight gain in adolescent girls in the National Growth and Health Study Arch Pediatr Adolesc Med. 2011 Jun; 165(6):540-6.



### 2 Television

- Food is the most commonly advertised product on children's television
- Almost 90 percent of children begin watching television regularly before the age of 2.
- By the time they are 5 years old, children have seen an average of more than 4,000 television commercials for food annually.
- During Saturday morning cartoons, children see an average of one food ad every five minutes- up to 95 percent -- are for foods with poor nutritional value.
  - Zimmerman FJ, Bell JF Associations of Television Content Type and Obesity in Children. American Journal of Public Health: February 2010, Vol. 100, No. 2, pp. 334-340.



### 2 Television

- Commercial viewing significantly associated with higher BMI, stronger effect in children <7 yr.</li>
- Non-commercial viewing, (DVD's or educational programming), had no significant association with obesity.
  - "the availability of high-quality, enjoyable and educational programs for all ages on DVD should make it relatively easy for health educators and care providers to nudge children's viewing toward content that does not contain unhealthy messages about food and eating"
    - Zimmerman FJ, Bell JF Associations of Television Content Type and Obesity in Children.
       American Journal of Public Health: February 2010, Vol. 100, No. 2, pp. 334-340.



## 1 Physical Activity

- Positive effects on BMI in children with 30-60 minutes of physical activity 3-5 times/week
  - HHS 1996 Physical acgtivity and health A report of the US Surgeon General Washington
     DC
- Strong evidence was found for an inverse association between total physical activity and overweight.
  - te Velde SJ, van Nassau F, Uijtdewilligen L, van Stralen MM, Cardon G, De Craemer M, Manios Y, Brug J, Chinapaw MJ; ToyBox-study group. Energy balance-related behaviours associated with overweight and obesity in preschool children: a systematic review of prospective studies. Obes Rev. 2012 Mar; 13 Suppl 1:56-74.



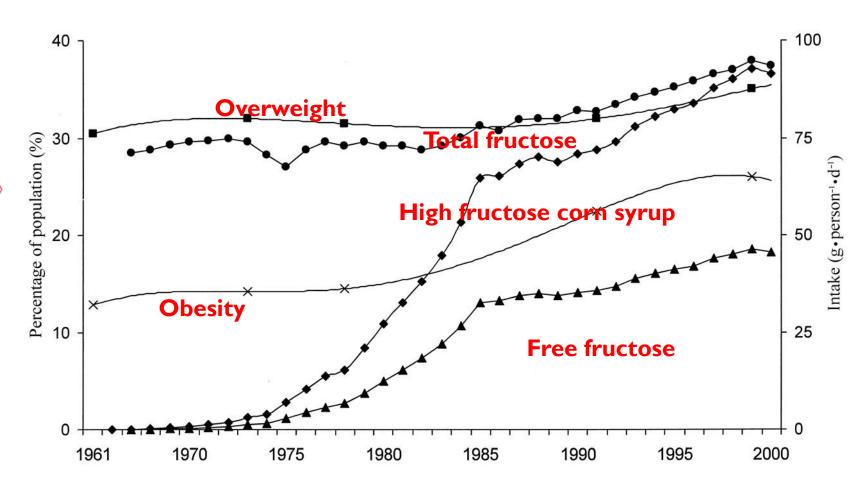


## O Sweetened beverages (High fructose corn syrup)

- The digestion, absorption, and metabolism of fructose differ from those of glucose.
  - ▶ Hepatic metabolism of fructose favors de novo lipogenesis.
  - Unlike glucose, fructose does not stimulate insulin secretion or enhance leptin production.
  - Because insulin and leptin act as key afferent signals in the regulation of food intake and body weight, this suggests that dietary fructose may contribute to increased energy intake and weight gain.
    - Bray GA, Nielsen SJ, Popkin BM. Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity Am j Clin Nutr 2004 Apr;79(4) 537-43.



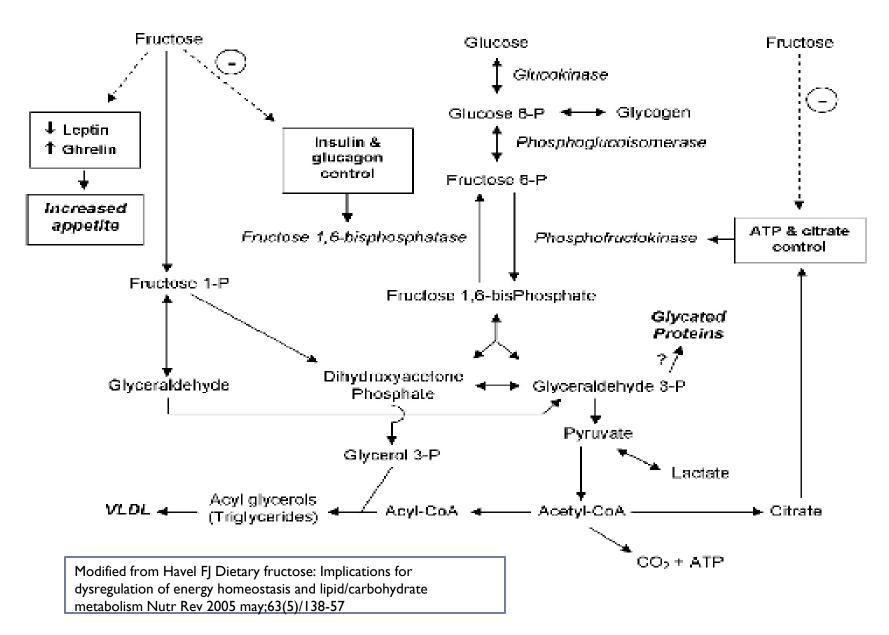
Estimated intakes of total fructose (•), free fructose (▲), and high-fructose corn syrup (HFCS, ♦) in relation to trends in the prevalence of overweight (•) and obesity (x) in the United States.



Bray G A et al. Am J Clin Nutr 2004;79:537-543

#### Fructose Metabolism





## O High fructose corn syrup (HFCS)

- ▶ The increased use of HFCS in the United States mirrors the rapid increase in obesity.
  - Accounts for 132 kcal/day for all Americans aged ≥ 2 y
- The starch in corn can be efficiently converted to glucose and then to various amounts of fructose using a glucose isomerase
- ▶ HFCS is made by enzymatic isomerization of glucose to fructose
  - Introduced as HFCS-42 (42% fructose) 1967 and HFiCS-55 (55% fructose) 1977
  - The development of these inexpensive, sweet corn-based syrups made it profitable to replace sucrose (sugar) and simple sugars with HFCS in our diet
    - Bray GA, Nielsen SJ, Popkin BM. Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity Am j Clin Nutr 2004 Apr;79(4) 537-43.



### O Sugar sweetened beverages

- In the quantity of sugar-sweetened beverages ingested predicted initial body mass index (BMI; in kg/m²) and gain in BMI during the follow-up period.
  - Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. Lancet2001;357:505–8.



### Prevention

- All children considered "at risk for obesity"
- Message at well visits
  - Simple
  - Consistent
  - Cumulative prevention
- > 5210 "Gateway message" to nutrition, activity and high risk behavior

### Prevention-BMI 5%-84%

- Portions
  - Age appropriate
  - "Parent's provide child decides"
- Structure
  - Breakfast
  - Family dinners, no TV
  - Limit fast food
- Balance
  - Food groups
  - Limit refined sugar

### Prevention Plus – BMI >85%<94%

- Build on Prevention with monthly follow up
  - Family meals should happen at least 5-6 times per week
  - Allowing the child to self-regulate his or her meals and avoiding overly restrictive behaviors "Parents provide child decides"



## Structured Weight Management

## Plan for activity and nutrition

- Develop a plan for utilization of a balanced macronutrient diet emphasizing low amounts of energy-dense foods
- Increased structured daily meals and snacks
- Supervised active play of at least 60 per day
- Screen time of I hour or less per day





### Structured Weight Management

- Increased monitoring (e.g., screen time, physical activity, dietary intake, restaurant logs) by provider, patient and/or family
- This approach may be amenable to group visits with patient/parent component, nutrition and structured activity



### Comprehensive Multidisciplinary Intervention

- Multidisciplinary obesity care team
  - Physician, nurse, dietician, exercise trainer, social worker, psychologist.
- Eating and activity goals are the same as in Structured Weight Management
- Activities within this category should also include:
  - Structured behavioral modification program, including food and activity monitoring and development of short-term diet and physical activity goals



### Comprehensive Multidisciplinary Intervention

### Behavior modification

- Involvement of primary caregivers/families in children under age 12 years
- Training of primary caregivers/families for all children



### **Tertiary Care**

- Referral to pediatric tertiary weight management center with access to a multidisciplinary team with expertise in childhood obesity and which operates under a designed protocol.
- Continued diet and activity counseling and the consideration of such additions as meal replacement, very-low-calorie diet, medication, and surgery.





### Dietary Assessment

- Consumption of sugar sweetened beverages
- Daily breakfast
- Eating out
- Family meals
- Portion size
- Five or more servings of fruits and vegetables
- Calcium
- Fiber
- Balanced macronutrients (food groups)
- Energy dense foods
- Readiness to change





## Physical Activity/Inactivity Assessment

- Screen time
- ▶ TV in room
- Daily activity
- Self-efficacy and readiness to change
- Physical (Built) Environment
- Social/community support for activity
- Barriers to physical activity
- Assess patient and family's activity and exercise habits
- Assess outdoor activity





### History and Physical Examination

- Focused family history
  - Obesity, type 2 diabetes, cardiovascular disease (particularly hypertension), and early deaths from heart disease or stroke
  - Family history may be the touch point for emphasizing family involvement
- Review of Systems
- Physical Examination

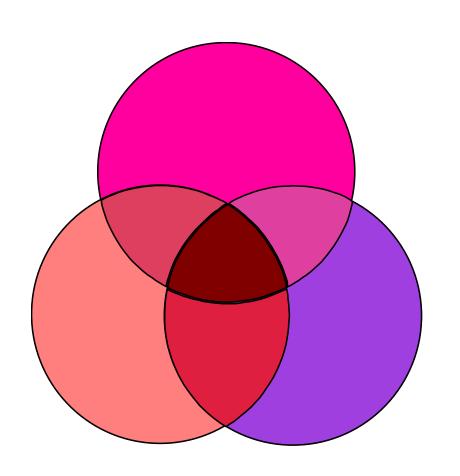


### Laboratory Evaluation

- ▶ BMI >85% <94%
  - Fasting lipid profile, AST, ALT q 2 years
- ▶ BMI >95%
  - Fasting lipid profile, AST, ALT q 2 years, fasting glucose
- Laboratory evaluation as always depends on clinical assessment



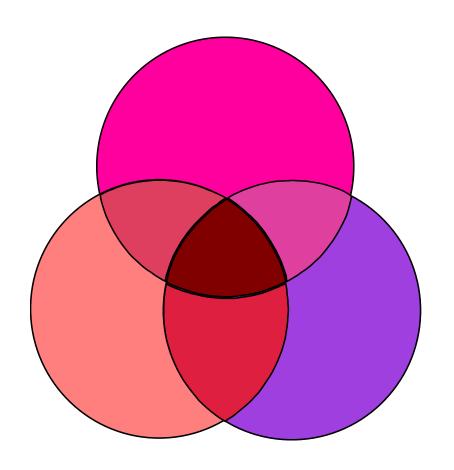
#### Severe Obesity Related Emergencies



- Hyperglycemic Hyperosmolar state
- **DKA**
- Pulmonary emboli
- Cardiomyopathy of obesity



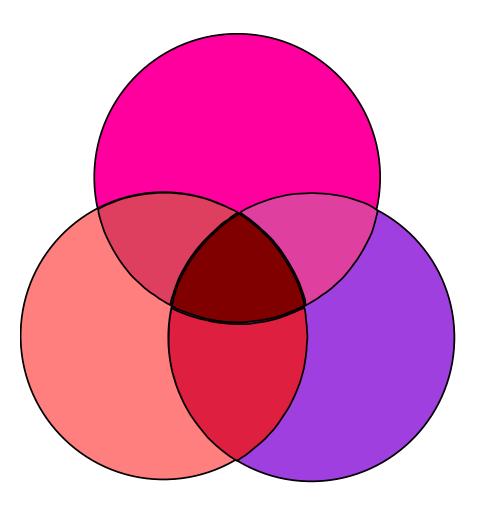
#### Co-morbidity's Requiring Immediate Attention



- Pseudotumor Cerebri
- Slipped Capital Femoral Epiphysis
- Blount's Disease
- Sleep Apnea
- Asthma
- Non alcoholic hepatosteatosis
- Cholelithiasis



#### Chronic-Obesity Related Co Morbid Conditions



- Insulin Resistance (Metabolic Syndrome)
- Type II Diabetes
- Polycystic OvarySyndrome
- Hypertension
- Hyperlipidemia
- Psychological

#### Communication

- Positive discussion of what healthy lifestyle changes families can make (evidence base)
- Allow for personal family choices
- Have families set specific achievable goals and follow up with these on revisits
- Be aware of cultural norms, significance of meals and eating for family/community, beliefs about special foods, and feelings about body size.



### Modeling in the office

- Waiting room
  - Books, posters, videos promoting healthy lifestyle
- Staff role models
  - Drinking water, healthy snacks, physical activity
- Consistent messages, involvement with community



The Institute serves as a translational engine for pediatric obesity prevention, assessment, management and treatment; and moves policy and research from theory into practice in American healthcare, communities, and homes.



# Pediatric Obesity Clinical Decision Support Chart

#### **Clinical Guidelines**

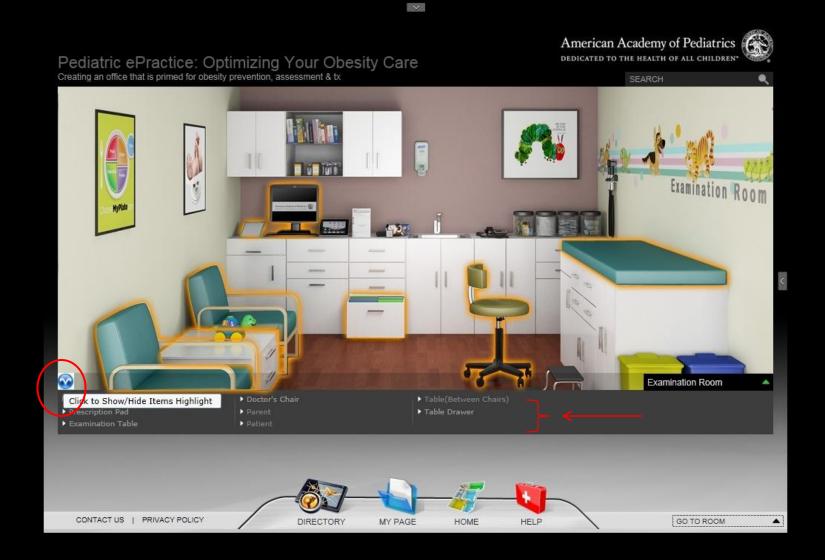
- 5 Eat fruits and vegetables at least 5 or more times on most days.
- 2 Limit screen time unrelated to school to 2 hours or less daily.
- Get 1 hour or more of moderate to vigorous physical activity every day and 20 minutes of vigorous activity at least 3 times a week.
- O Drink less sugar. Try water and low-fat milk instead of sugar-sweetened drinks.



#### Pediatric e-Practice: Optimizing Your Obesity Care



www.pep.aap.org



#### Prevention of Pediatric Obesity Policy Tool

#### -www.aap.org/obesity/matrix-1-.html

-0	Practice	Community	Schools	State	Federal
	Increased Access     to Healthy Food	Increased Access     to Healthy Food	• Increased Access to Healthy Food	• Increased Access to Healthy Food	Increased Access to Healthy Food
	Limited Access to Unhealthy Foods				
	Point of Purchase	• Point of Purchase	Point of Purchase	* Point of Purchase	• Point of Purchase
	• Media	• Media Campaigns	• Media Campaigns	• Media Campaigns	• Media Campaigns
		Change Relative     Pricing	Change Relative     Pricing	Change Relative     Pricing	Change Relative Pricing
	Restrict Screen	Restrict Screen	Restrict Screen	• Restrict Screen Time	• Restrict Screen Time
	<ul> <li>Increased access for safe and attractive places for Physical Activity</li> </ul>	<ul> <li>Increased access for safe and attractive places for Physical Activity</li> </ul>	<ul> <li>Increased access for safe and attractive places for Physical Activity</li> </ul>	<ul> <li>Increased access for safe and attractive places for Physical Activity</li> </ul>	<ul> <li>Increased access for safe and attractive places for Physical Activity</li> </ul>
	<ul> <li>Increase Physical Activity</li> </ul>	• Increase Physical Activity	<ul> <li>Increase Physical Activity</li> </ul>	<ul> <li>Increase Physical Activity</li> </ul>	<ul> <li>Increase Physical Activity</li> </ul>
	<ul> <li>Access to Healthy Beverages</li> </ul>	• Access to Healthy Beverages	• Access to Healthy Beverages	• Access to Healthy Beverages	<ul> <li>Access to Healthy Beverages</li> </ul>
	<ul> <li>Limit Access to Unhealthy Beverages</li> </ul>				
		• Point of Purchase	Point of Purchase	• Point of Purchase	• Point of Purchase
		• Change Relative Price	• Change Relative Price	Change Relative     Price	Change Relative     Price
		• Media Campaigns	• Media Campaigns	• Media Campaigns	• Media Campaigns
					• Taxes
E	<ul> <li>Breastfeeding Friendly Environments</li> </ul>				
ui I	■ Payment	BMI Screening	■ Payment	■ Payment	■ Payment

Dynamic internet tool that delineates the various policy recommendations and opportunities into a matrix of 30 cells

Also has access to an obesity advocacy glossary

#### Each cell has layers that showcase:

- Policy opportunities & possible action steps at various levels (community, school, etc)
- Indicates organizations recommending the policy strategies (IOM, CDC, etc)
- Provides links to additional resources



Obesity in Young Children

#### Young Children Are Impacted

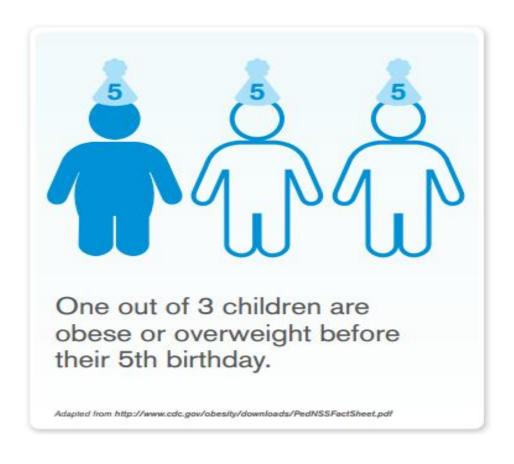
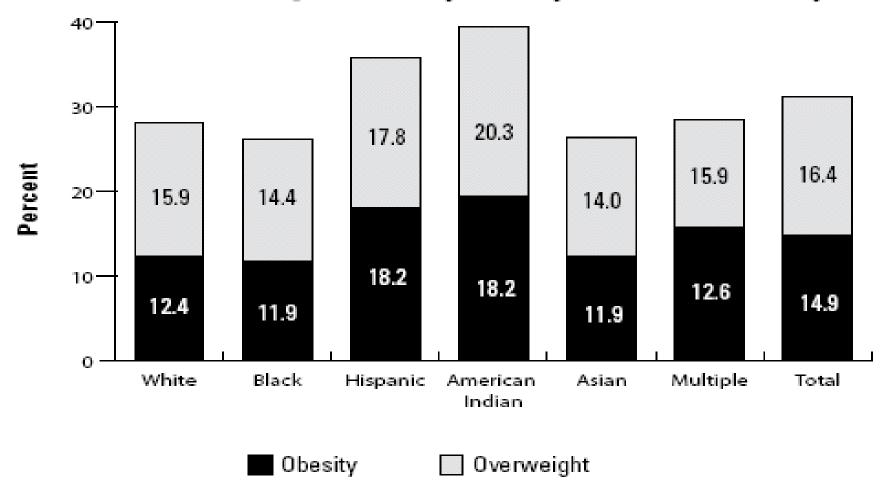


Figure 6. Prevalence of obesity\* and overweight<sup>†</sup> among children aged 2 to <5 years, by race and ethnicity



<sup>\*</sup> Obesity: <u>>95th percentile BMI-for-age.</u>

Source: 2007 National PedNSS Data Table 8D. Available at

http://www.cdc.gov/pednss/pednss\_tables/tables\_numeric.htm.

<sup>†</sup> Overweight: <u>></u>85th to <95th percentile BMI-for-age, CDC growth charts, 2000.

# **5**x

Children who are overweight or obese as preschoolers are 5 times as likely as normal-weight children to be overweight or obese as adults.



# Vitälsigns

INSTITUTE FOR HEALTHY CHIEDHOO GOV/vitalsigns

WEIGHT

## Obesity in Infancy and Early Childhood

- Slightly over 20 percent of children aged 2 to 5 are overweight or obese.
- Almost 10 percent of infants and toddlers have high weight for length.
- Approximately one in five children is already carrying excess weight as he or she enters kindergarten.
- During infancy and early childhood, children are acquiring their eating, activity, and sleep patterns—which can be discussed during the 15 recommended pediatric well child visits across a child's first 5 years of life.
  - ▶ IOM Report "Early Childhood Obesity Prevention Policies



#### What do we know?

#### In general, most young children:

- Are not eating enough fruit and vegetables (if any)
- If they are eating vegetables it is usually limited to the starchy ones (i.e. potato and corn)
- Many consume sugary drinks, cereal, and snacks on a daily basis
- Spend more time in front of a screen (TV, computer, phone, tablet, etc) than other generations
- Sleep less than recommended amount

### Obesity Under 5

- Rapidly growing proportion of the childhood obesity population
- Maximal access to pediatric visits
- Important period for establishing lifelong nutrition and activity behaviors
- Need for parenting information and skills
- Opportunity to for prevention and early intervention
- Cumulative prevention



### Important Factors in Onset of Obesity

- Maternal weight gain during pregnancy
- Rate of weight gain during infancy
- Breastfeeding
- Introduction of complimentary foods
- Diet quantity and quality
- Parent feeding practices
- TV viewing time
- Physical Activity
- Sleep Routine
- Family Meals

#### Parents want the best for their children

- ▶ But ....
  - Are confused about messages and strategies for healthy active living
  - Confronted daily with an environment that makes it hard to be healthy

## New products for 2013





#### **Infants**

- Breastfeeding
- Improved feeding practices for infants:
  - Understanding hunger and satiety cues
  - Safe and appropriate bottle feeding
  - Appropriate introduction of complimentary food and drink
    - Wait until 6 months to introduce solid foods
    - Expose infants to a variety of foods and textures consistently
    - Water, breast milk or formula are preferred beverage choice
- Foster self-feeding and responsive eating
  - Encourage feeding self with finger and utensils
  - Allow child to determine when they are "all done"
- Encourage movement and activity
  - Limit time spent in devices that restrain movement



#### Intervention - Infant

- Promote breastfeeding in all families, specifically target those at high risk for additional support
- Limit or eliminate juice
- Cued feeding for bottle feeders with feeding to satisfaction
- Advice to consider other factors besides hunger in response to crying
- ▶ Elective period for solid food between 4-6 months.
  - Committee on Nutrition American Academy of Pediatrics. Complementary feeding. In: Pediatric Nutrition Handbook, 5th ed, Kleinman, RE (Ed), American Academy of Pediatrics, Elk Grove Village, IL 2004. p. 103.





#### **Toddlers**

- 30-50% consuming sweetened beverages daily
- •Less than 10% of 1-2 year olds consuming a dark green vegetable/day
- Potatoes and french fries accounting for the bulk of vegetable consumption
- •65%-70% of 1-2 year olds consumed dessert, ice cream and/or candy once/day





# Toddlers - Patterns of eating are developed during childhood

- Child may have inappropriate access to food
- Child's demands for food may be met with inconsistent parental responses
- Multiple care givers may be inconsistent or may not share nutritional information
- Meal regularity: Grazing versus structured meal times
- Portion sizes: cues for fullness.
- Beverages as food.
- Uses of food for reward, comfort, and relief of boredom.



### Toddler Activity

- Time spent outdoors strongly correlates with physical activity in young children.
  - □ Burdette HL, Whitaker RC, Daniels SR. Parental report of outdoor playtime as a measure of physical activity in preschool-aged children. *Arch Pediatr Adolesc Med.* 2004;158:353–357
- Between 1981 and 1997, time for free play dropped by 25%.
   Free play in the preschool age group is composed of brief bouts of varied activity interspersed with frequent rest periods
  - Burdette HL, Whitaker RC. Resurrecting free play in young children: looking beyond fitness and fatness to attention, affiliation, and affect. Arch Pediatr Adolesc Med. 2005;159:46–50



# Activity/ Inactivity patterns are formed in childhood

- Children may lack activity opportunities (daycare, nursery school)
- Activity may be episodic and not sustained
- Older caregivers tend to be more inactive
- Multiple caregivers may not coordinate the child's activity level
- Activities of daily living may be limited



### **Toddler Inactivity**

- 40% of low-income children in a study of I-5 year olds had a television in their room. Time spent watching television has a direct relationship to overweight and obesity.
  - □ Dennison BA, Erb TA, Jenkins PL. Television viewing and television in bedroom associated with overweight risk among low-income preschool children. *Pediatrics*. 2002;109:1028–1035
- Children as young as 3 years watched an average of 1.7 hours /day and for each I hour increase in TV viewing they had increased intake of sugar sweetened beverages, fast food, red and processed meat, total energy intake and percent energy from trans fat.
- Increased TV time was also associated with lower fruit and vegetable, calcium and fiber intake.
  - Miller SA, Taveras EM, Rifas-Shiman SL, Gillman MW. Association between television viewing and poor diet quality in young children Int J Pediatr Obes. 2008;3(3):168-76.



#### Temperament and Behavior

- Child temperament and behavior has also been associated with a risk for overweight.
- In one study, young children with persistent tantrums over food and highly emotional temperament were at increased risk for overweight.
  - Agras WS, Hammer LD, McNicholas F, Kraemer HC. Risk factors for child--hood overweight: a prospective study from birth to 9.5 years. J Pediatr. 2004;145:20–25
- Parenting skills that help deal with their child's anger, temper tantrums, and emotions around boundary settings are crucial if parents are to guide their preschoolers through challenges to healthy eating and activity.
  - Dye BA, Shenkin JD, Ogden CL, Marshall TA, Levy SM, Kanellis MJ. The relationship between healthful eating practices and dental caries in children aged 2-5 years in the United States. 1988-1994. J Am Dent Assoc 2004;135:55-66



#### Sleep

- Sleep durations has also been recognized as a potential modifier of childhood obesity.
- A study of preschool children, found an increased rate of obesity in children who slept less than II hours/night and the risk of obesity increased as sleep time decreased. Children who got less than 9 hours of sleep had 1.5 times the risk of being obese as those with > II hours/night.
  - Sekine M, Yamagami T, Hamanishi S, Handa K, Saito T, Nanri S, Kawaminami K, Tokui N, Yoshida K, Kagamimori S.Parental obesity, lifestyle factors and obesity in preschool children: results of the Toyama Birth Cohort study. J Epidemiol 2002; 12:33–39



#### Household Routines

- In a large nationally representative sample of 4 year olds, 3 household routines were associated with a reduction in the risk of obesity.
  - Eating the evening meal (dinner) as a family 6-7 times/week
  - Obtaining > 10.5 hours of nighttime sleep; > 10.5 hours
  - Limiting screen viewing time (television/video/DVD) to 2 hours or less/day.
- In children with all 3 routines the prevalence of obesity was 14.3% compared with 24.5% in children with none of these routines.
  - □ Anderson SE, Whitaker RC. Household routines and obesity in US preschool aged children Pediatrics 2010 Mar; 125(3) 420-8



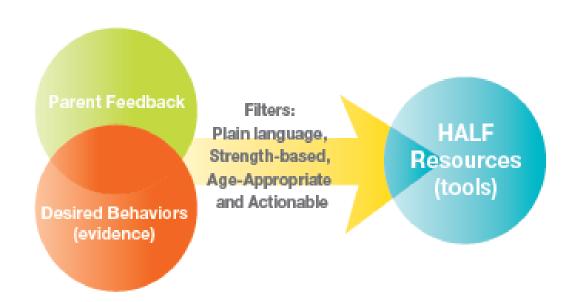
# Healthy Active Living for Families (HALF) Project

American Academy of Pediatrics Institute for Healthy Childhood Weight research project developed to enhance the quality of obesity prevention messaging during health supervision care of infants and young children





# Process for Developing HALF Resources





#### Editorial Board and Focus Groups

#### Editorial Board

- Charged with identifying evidence based strategies for obesity prevention in infants and young children
- Worked to develop parent and physician resources based on family focus group data

#### Formative focus groups

- Gather initial information and inform the development of strength-based healthy active living messages.
- 6 formative focus groups were conducted in the Fall of 2010.

#### Evaluative focus groups

- Explored the developed messages
- Obtained successful obesity prevention action strategies parents had tried in their own homes
- Discussed how parents would like to receive the messages from pediatric health care providers.
- ▶ 22 evaluative groups were conducted over the Spring and Summer of 2011.



# HALF Focus Groups 200 families

#### **HALF Focus Groups**





#### **Evidence-based Desired Behaviors**

- Breastfeeding
- Appropriate bottle feeding
- Introduction of solids
- Hunger and satiety cues
- Foster self-feeding and responsive feeding
- Establish routines
- Limit/eliminate juice and SSBs
- Limit TV and avoid TVs in the bedroom
- Encourage active play for all ages
- Role modeling



### Findings from Focus Groups

- Across the focus groups parents' thoughts, ideas and feelings regarding early obesity prevention most often fell into three categories:
- Open doors—where parents discussed ideas and expressed a need for additional support and action strategies
- Windows—where parents experienced disconnect from recommendations but were open to discussions about early obesity prevention themes and expressed a desire to know the "why"
- Closed doors—where parents' personal experience negated expert guidance and evidence



Open Doors: Receptive and Engaged



### Importance of parents

- Parents across all focus groups regardless of socioeconomic status, gender, ethnicity, number of children or region felt the most important message developed by the AAP regarding early obesity prevention was:
  - ▶ Being a parent is an important job! When you set a good example, your baby learns healthy habits. She watches what you eat and do to stay healthy.



### Importance of parents

- Parents responded to their role as an expert of their child and their own ability to be a positive influence on their child's life from the beginning.
  - Ithink a good thing to do would be to give parents the confidence of knowing that the choices that they're making for their kids [are good ones]. A lot of times when you go to a well visit check it's like ok, your height, your weight, this and that..."



### Individualized Attention

- Parents viewed early obesity prevention guidance as more meaningful and actionable when it was perceived to be specifically about their child as opposed to generalized guidance.
  - "They [doctors] follow a chart, well, this is how big, this is how old your baby is, this is what your baby is supposed to be doing. They don't doctor the individual child, they doctor on a time chart and not every kid is on that chart."



### Safe and Fun Active Play Ideas

- Parents welcomed discussions about fun active play.
- "Just be like oh, so what do you guys like to do for fun? And give a couple suggestions like have you tried doing this? Have you tried doing that? Oh, this is really fun..."
- Parents wanted guidance about safe suggestions for active play for their child and family across all seasons in their community.
- "Have a list of things in the community that are free."



### Guidance for Other Caregivers

- Parents expressed concerns, frustrations, and welcomed ideas on how to approach extended family to support their healthy eating decisions.
  - "...the little one, I'm losing, I need advice because I'm losing control on that one. She's 3 and literally when she stays over (with grandma), she's like 7:00am and she's got a chocolate ring from eating chocolate ice cream or an ice cream sandwich and my mother's like oh, leave her, I'm not gonna deal with her crying."



### **Breastfeeding Support**

- Parents across the groups supported breastfeeding and agreed that some breastfeeding no matter the duration was better than not breastfeeding.
- However, parents felt that the decision had to work for their family and barriers had to be overcome to continue to breastfeed successfully.
  - "...I think the information that says that if you breastfeed your baby for this much time she'll be more healthy or not fall sick, I think that info is fine but...it's the practical problems or challenges that you can't just overcome."
  - "As long as I could keep up with them I did (breastfeed)...but ... I worked for every pregnancy. I worked almost immediately so there was just no way for me to keep up with them."



## Windows: More explanation needed



### More explanation needed

Parents often "knew" or had heard of the recommendations pediatricians make to families related to childhood obesity prevention but expressed a consistent need for understanding the "why" behind some recommendations to make them relevant to their family.



### When Does Obesity Start?

- The majority of parents felt obesity prevention starts "when a baby starts eating solid foods." Many parents expressed a lack of concern regarding obesity prevention while the child was consuming only breast milk and/ or formula.
  - "...when they're born you can't control what they eat. They have to grow, they have to eat their milk every 3 hours and they have to grow...but as soon as she is 6 months and she starts eating her solid foods I can control what I give her."



### Transitioning to solids: It's what she eats?

- Many parents had followed the 4-6 month solid food introduction guidance of their pediatrician but more so out of food allergy or choking fears rather than a concern about obesity prevention.
- In general, parents did not a find the link between earlier feeding and later weight issues credible, again stating what a parent feeds a child is more important than the timing of solid introduction.
  - "...it depends on what you're feeding the kid and how much you're feeding them. Because I don't think (it matters) if they start eating (solids) at 4 months or 8 months, if you're portioning out the food the way it should be portioned out, I don't understand why that would make them more obese."



### Juice—Why Limit?

- Parents struggled with how to decipher juice recommendations. Many parents had discussed with various health care professionals the need to limit their child's juice intake but still struggled with understanding if juice was nutritive especially, 100% fruit juice.
  - "...all I know from my doctor, she would tell me, like everyone else, just give a certain amount of juice I-2 a day but there was never a why to it and that's what's catching my attention now. It's like even the 100% fruit juice could harm your baby's new teeth. I did not know that."



### Closed Doors: Immediate Needs Trump Future Benefits

### Immediate Needs Trump Future Benefits

Some early obesity prevention recommendations and discussions were polarizing to parents—parents valued the findings of their own day-to-day experience more than expert consensus or research, particularly guidance that focused far into the future. Parents' current and day-to-day struggles were much more real to them than worrying about what might happen in a year or 15 years



### Sleep! Sleep! Sleep!

- Parents often discussed sleep, both their own sleep and their child's sleep, as a motivation for not adhering to obesity prevention and media use recommendations for young children.
  - I think every parent, regardless of what's said, they're gonna do whatever it takes [referring to cereal in the bottle] to get that baby to sleep, to comfort that baby."



### Sleep! Sleep! Sleep!

- He likes to be up at night so when he wakes up at 4:00am, I turn on the TV and go back to sleep because that's what keeps him quiet then and in bed for the most part."
- "My kids have a TV in their room. I've tried reading books to them, I've tried singing to them to get them to fall asleep, I've tried just leaving the TV off and everything but something that will help them fall asleep is watching Dora."



#### The Value of TV

- Parents across all groups were uniformly disinterested in limiting young children's TV viewing and only a few parents reported maintaining no TV watching while their children were under the age of 2.
- In the eyes of focus group parents, TV serves an educational purpose, and allows parents time for themselves or to complete household chores. TV was also viewed as a sleep aide.
- Parents truly felt their own experiences simply did not fit with evidence presented about the negative impact of TV for young children and did not connect TV watching with obesity.



### The value of TV

- "The TV is helping you out pretty much. So if you got the TV up in there and the kid's watching the TV you ain't got to worry about them all up in your house, messing up your house. I don't agree with you because the TV is useful for me and it's helping me out."
- "I was in school and working towards my degree and TV was my babysitter and it was literally how I grew up too. My daughter turned out fine, she started reading at 2 ½ and I have to say it wasn't me, that was probably Leap Frog."



# Parent's Perception about obesity in infants and young children

- Parents think obesity is a serious problem.
- ▶ However, it is not perceived as a problem in their family.
- Parents are receiving mixed messages about obesity.



# Factors that positively contributed to communication and message uptake



- Respect for the parent and his/her expertise
- Explanation of the "why" behind the recommendations
- Actionable strategies for implementation
- Tailored and personalized information

# Factors that interfered with communication and message uptake

- Use of "obesity" language, especially related to infants.
- Guidance focused on future outcomes.
- Limited knowledge of recommendations.
- Disconnect between guidance and personal experience.



### Reframing the message

Use of healthy active living, healthy habits, growing healthy and healthy weight instead of obesity and overweight:

Start today: Help your child stay at a healthy weight for life.

Yes, it's true! The first years set the stage for healthy habits for the rest of your child's life. It's never too early to start.

 Limited the use of obesity and overweight to describing specific outcomes (explanation of why which was deemed important by parents)



### Reframing the message

Incorporating immediate outcomes and benefits in addition to future outcomes:

You've probably heard that breastfeeding is best for you and your baby. You may have even heard that breastfed babies get sick less often. But did you know that your baby will benefit from breast milk long after you've stopped nursing?



### Reframing the message

Including the "why" to help increase knowledge and add value to statement:

Breast milk and formula are the best choices for your baby. When it's time for him to start using a cup (around 6 to 9 months), give him breast milk, formula, or water.

Soda pop and juice — even 100% fruit juice:

- ▶ Add unneeded calories to your baby's diet
- Get your baby used to very sweet, sugary flavors
- Can harm your baby's new teeth

Why: in simple & clear statements

### Reinforce the positive

Acknowledging their expertise and important role as a parent:

- ▶ Being a parent is an important and hard job!
- No one knows your child better than you, tell me a little bit about....



### Include realistic actionable strategies and try to meet parents where they are:

If TV time has gotten a bit out of control in your home, you are not alone! We understand that managing your kids' TV time can be a struggle. Even if you can't cut out TV completely, cutting back on TV will help. Try to limit TV to no more than 2 hours in a day.

- Skip the ads. Watch TV shows on DVDs or TV On Demand. Shows with lots
  of ads for unhealthy foods make it harder for your child to learn to make
  healthy food choices.
- o Try turning off the TV during mealtime, playtime, bath time, and bedtime.
- Watching TV will not help your child fall or stay asleep. It is best to keep the TV out of your child's bedroom so she can get the best rest possible.



## Acknowledge real life experiences and varying sources of information/inputs

- **:** 
  - Being a working mom is not easy and can be tiring, sometimes it can be really hard to ...
  - ▶ Grandparents love your baby/child and love to share advice, sometimes it is hard to sort through all the information ...
  - Many cultures have wonderful traditions and sometimes it is hard to figure out how to ...

### It is most important to:

- Listen to family.
- Personalize and customize information to their child and family experiences and needs.





### Healthy Active Living for Families





#### Parent 2Parent

"I love my baby but I'm really busy and I work. I have other kids. It's just a lot of work...I breastfed for the time that I'm off of work but trying to go back to work and pump...I'm like oh, forget it."

- Mom. Midwest



www.healthychildren.org/growinghealthy



### HALF Implementation Guide

#### Breastfeeding:

Exclusive breastfeeding for the first year

click to hide information

For information ->

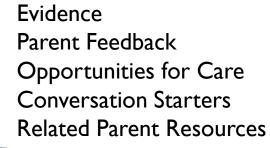












#### Evidence

Breastfed babies who are breastfed for at least 6 months are less likely to be overweight.

The duration of breastfeeding also is inversely related to the risk of obesity.

A reduction of 40% in the incidence of type 2 diabetes mellitus is reported, reflecting the long-term positive effect of breastfeeding on weight control and feeding self-regulation.

80% of mothers expect to breastfeed yet only 14% are exclusively breastfeeding at 6 months.

Critical periods for breastfeeding cessation are transition home from hospital, 6-8 weeks, transition back to work, and between 6-8 months due to self-weaning and/or introduction of solids.





### HALF Implementation Guide

Infant Timeline

#### Onset and Patterns of Risk Behaviors

This timeline illustrates when and what kind of risk behaviors associated with overweight and obesity develop during infancy. Use this tool to help prioritize anticipatory guidance for families.

To use: Point at the timeline dots below to see valuable information, click and hold a dot for Evidence. Important patient care information is available using the Acute/Medical Opportunities button at the bottom left. There is a close box at the top right of this window.

