PEDIATRIC OBESITY: THE PERFECT STORM

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Why do we care?

- Estimated 1 in 3 children born in 2000 will develop Type 2 Diabetes
- Lack of activity/poor nutrition account for 300,000 preventable deaths/yr in US
- Overweight adolescents have a 70% chance of becoming overweight/obese adults

Objectives

- Definition of Obesity
- The Epidemic
- Prevention
- Assessment & Treatment

What is BMI?

- Body mass index
  - Standard measure of overweight and obesity
  - Weight (kg)/Height (m) squared
  - Correlates with body fat and health risks
  - Start measurement at age 2
Definition of Childhood Obesity

- **Obese:**
  - BMI >95 percentile
- **Overweight:**
  - BMI 85-95 percentile

![Body Mass Index Chart]

**Complications of Childhood Obesity**

- Psychosocial: Poor self-esteem, Depression, Quality of life
- Pulmonary: Asthma, Sleep apnea, Exercise intolerance
- Renal: Glomerulonephritis, Proteinuria
- Gastrointestinal: Pancreatitis, Stomach ulcers, Liver fibrosis, Gallstones, Risk for colitis, Risk for colon cancer
- Musculoskeletal: Fractures, Blount's disease, Scoliosis, slipped capital femoral epiphysis, Flat foot, Risk for degenerative joint disease

**Obesity Trends Among U.S. Adults**

- BRFSS, 1985
- BMI ≥30, or ~30 lbs., overweight for 5’ 4” person

![Map of Obesity Trends in the USA]
Obesity Trends* Among U.S. Adults
BRFSS, 1998
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4’’ person)

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Obesity Trends* Among U.S. Adults
BRFSS, 2001
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4’’ person)
Since 1976 prevalence has **TRIPLED** in children
- 1/4 of preschool children are overweight or obese
- 1/3 of school-aged children & adolescents are overweight or obese

**Percent of Overweight Children who Become Obese Adults**

**BMI Adolescence=Risk for Adult Diabetes and CAD**
WHY???

Causes

- Genes
  - Twin studies show genetic risk
  - Genes don’t account for the rapid population change

Environment

- More
  - Sugar-sweetened beverages
  - Larger portion sizes
  - Snacks
  - Ready-to-eat foods
  - Eating out
  - TV/screen time
  - Fear of crime

- Less
  - PE
  - Walking to/from school
  - Outside play
  - Sleep

Parent Unawareness

- Most parents of obese children don’t notice that their children are obese

Prevention

![Image showing a slide for CALEO Obesity Prevention Program]

Figure 2. Parental Perceptions of Children’s Weight Status for Children Age 6-17 Who Are Obese

Source: CDC National Health and Nutrition Examination Survey, 2007-2008
**Prevention: Target Behaviors**

*Evidence Based!*

- **Promote…**
  - Healthy Pregnancies
  - Breastfeeding
  - Family Meals
  - Breakfast daily
  - Sleep

**Pregnancy**

- Higher antenatal BMI = offspring higher BMI
- Higher pregnancy wt gain = larger babies and higher BMI
- Higher blood sugars = offspring higher BMI
- Post-bariatric surgery = offspring lower BMI

**Breastfeeding**

-15-30% decrease in odds for overweight
- Each month of breastfeeding decrease odds by 4% (6% if exclusive)
->30% decrease in odds in a child breastfed for 9 months

**Family Meals**

Better….
- nutrition
- test scores
- mood

Less….
- depression & suicide
- Tob/EtOH/substance abuse
- eating disorders
- sexual activity
**Prevention: Target Behaviors**  
*Evidence Based!*

**Daily Breakfast**
- 30% adolescent girls skip it

*Teens who eat breakfast daily have…*  
- a healthier diet  
- are more physically active  
- less weight gain  
- a lower BMI

**Sleep**
- More sleep leads to:
  - 25% decrease in obesity  
  - lower adult BMI  
  - less metabolic dysfunction

**Limit…**
- Fast food and restaurants  
- Juice & soda  
- Portion size  
- Screen time to <2 hours/day

**Fast food & restaurants**
- 40% of American adults eat out daily  
- 30% children eat fast food on a given day  
- Children who eat fast food consume more soda, burgers, pizza, fries, total fat and total calories, less veggies, fruit & milk  
- 187 additional calories (6lbs/year)
Prevention: Target Behaviors

Evidence Based!

Juice & soda
"empty calories"
20 ounce bottle cola:
Carbonated water, natural
and artificial flavors, caffeine, and 17 tsp of sugar....
250 calories!

Prevention: Target Behaviors

Evidence Based!

Portion sizes:
Have grown very large at home
and in restaurants
Fast food restaurants have very
large servings of soda and
fries in particular
People eat more in presence of
large portions

Screen Time

- # minutes/week parents spend in
  meaningful conversation with their
  children: 3.5
- # minutes/week the average child
  watches TV: 1,680
- 70% day cares use TV on a typical
  day
- 73% parents want to limit TV
- Hours per year in school: 900
- Hours per year in front of TV: 1500

Cultural & Socioeconomic

- 2003-2005 NHANES survey
  - Obese children ages 2-5
    - White 10.7%
    - Black 14.9%
    - Mexican American 16.7%
Infant/Toddler Risk Factors by Race/Ethnicity

Poverty vs Overweight Children in California

Treatment Goals (AAP)

- Permanent healthy lifestyle habits
- Behavior change
- Reduce Medical Risks

- If Overweight (BMI 85-95%)
  - Weight maintenance
- If Obese (BMI >95%)
  - 2-5 yrs: weight maintenance
  - 6-11 yrs: weight maintenance or gradual loss
  - 12-18 yrs: weight loss (maximum of 2 lb/week)
Treatments to date

- Many interventions complex and costly
  - nutrition
  - weight management
  - weekly follow up
  - subspecialty care

What do we do?

- FIRST: check the BMI!!
- SECOND: get the Family History
- THIRD: assess behaviors
- FOURTH: check motivation
- FIFTH: counsel
- SIXTH: order labs (if appropriate) and follow up!

Assessment

- Family History
  - Parental Obesity
  - Type 2 Diabetes
  - Gestational DM
  - Insulin resistance
  - Cardiovascular Disease
  - Hypertension
  - Hyperlipidemia

Assessment

- Behaviors
  - Juice and soda
  - Fruits and vegetables
  - Screen time
  - Breakfast daily
  - Fast food/restaurants
  - Family meals
  - Portion sizes
  - Breastfeeding
  - Sleep
Assessment

- Motivational Interviewing
  - Combines assessment and intervention
  - Talk to the parents of young children
  - Focus directly on older children and adolescents & involve parents

Assessment: LABS

- If over 10 yrs and obese, or overweight with risk factors, every 3 years check:
  - Fasting lipid profile (or total chol/direct LDL)
  - Fasting glucose (and/or A1C)
  - AST/ALT
  - TSH if signs/family hx of thyroid disease
- If Oligomenorrhea/amenorrhea:
  - Free testosterone, LH, FSH, TSH, Prolactin

Clinical Tool: The Get Healthy Action Plan
**The Get Healthy Action Plan**

- Simplifies the office assessment of obese children
  - Risk Assessment
  - Behavior assessment
  - Motivational tool
  - Guides labs
  - 2-3 changes at a time
  - Home calendar
  - Activity Resource
  - How to use it….

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**Language**

- Be supportive, empathic and non-judgmental
- Do NOT use “fatness,” “excess fat,” or “obese”
- Obese adolescents prefer “overweight”
- Alternatives: “weight,” “excess weight,” “BMI”
Follow-Up Plan

- Labs if appropriate
- Phone follow up 1-2 months
- Classes only if available and interested
Get Healthy Action Plan: Lessons Learned

- Must pre-plan for optimal use
- Takes 3-10 minutes
- Best used during Well Child Exams for children with BMI >95%
- Do NOT use alternative providers in your place—nutritionist, health educators, classes
  - use in addition
- Doctor/Provider follow up essential
- Phone follow-up preferred by patients

Get Healthy Action Plan

- Follow up results after 5 months or more
  - 54 children met criteria
  - 70% improved BMI (towards the curve)
  - 30% were unchanged or worsened BMI
- Preliminary differences:
  - Success group had avg of 2+ follow-up contacts
  - Failure group had avg of 1 follow-up contact
This patient responded to the Get Healthy Action Plan beautifully. Basically we discussed interventions and the best one was to speak with the babysitter-grandma! Thank you for this excellent tool.

-Jose Morales, MD
Thank you!

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