

# Pediatric Obesity: Current Guidelines and Recommendations

Dr. Carrie Brower-Breitwieser  
Sanford Children's Feeding and Nutrition Center



1

## Disclosures

- I have nothing to disclose

2

## Objectives

- Explore the etiology of childhood obesity
  - Diagnostic criteria
  - Prevalence
  - Etiology
  - Sociocultural considerations
  - Associated health problems
- Describe assessment, prevention, and treatment options for childhood obesity
  - 2023 AAP Clinical Practice Guidelines

3

## Definitions

- Overweight
  - BMI between 85<sup>th</sup> and 95<sup>th</sup> percentile
- Obesity
  - BMI at or above the 95th percentile
- Severe Obesity
  - Class 2
    - BMI > 120% to 140% of the 95th percentile
  - Class 3
    - $\geq$ 140% of the 95<sup>th</sup> percentile

4

## Definitions

- Obesity is a public health problem
  - 1998-NIH classified as chronic disease
  - 14.4 million children and adolescents
- Obesity is the most common chronic disease in childhood
- The problem is only getting worse....

5

## AAP Clinical Practice Guidelines

- “Obesity results from a multifactorial set of socioecological, environmental, and genetic influences that act on children and families”
- Does not include:
  - Prevention recommendations
  - Evaluation and/or treatment recommends for children less than 2

6

## Prevalence

- (CDC)
  - 19% of children and adolescents aged 2—19 years are obese
    - 3X increase from 1980 data
    - 12% with BMI above 97%
  - If the epidemiologic model stays stable
    - 57% of children will become obese by age 35

7

## Prevalence

- 2-5 year olds
  - 13.9%
  - No increase from the 1999 data
- 6-11 year olds
  - 18.4%
  - Increase from 15.8%
- 12-19 year olds
  - 20.6%
  - Increase from 16%

8

## Etiology (AAP Guidelines)

**TABLE 1** Selected Examples of Multilevel Influencers and Contributors to Obesity

Example	Description
A. Policy factors	<ul style="list-style-type: none"> <li>● Marketing of unhealthy foods</li> <li>● Underresourced communities</li> <li>● Food insecurity</li> </ul>
B. Neighborhood and community factors	<ol style="list-style-type: none"> <li>1. School environment</li> <li>2. Lack of fresh food access</li> <li>3. Fast food proximity</li> <li>4. Access to safe physical activity</li> <li>5. Environmental health</li> </ol>
C. Family and home environment factors	<ol style="list-style-type: none"> <li>1. Parenting feeding style</li> <li>2. Sugar-sweetened beverages</li> <li>3. Portion sizes</li> <li>4. Snacking behavior</li> <li>5. Dining out and family meals</li> <li>6. Screen time</li> <li>7. Sedentary behavior</li> <li>8. Sleep duration</li> <li>9. Environmental smoke exposure</li> <li>10. Psychosocial stress</li> <li>11. Adverse childhood experiences</li> </ol>

9

## Etiology

### D. Individual factors

- D.1. Genetic factors
  - a. Monogenic syndromes and polygenetic effects
  - b. Epigenetic effects
- D.2. Prenatal risk
  - a. Parental obesity
  - b. Maternal weight gain
  - c. Gestational diabetes
  - d. Maternal smoking
- D.3. Postnatal risk
  - a. Birth weight
  - b. Early breastfeeding cessation and formula feeding
  - c. Rapid weight gain during infancy and early childhood
  - d. Early use of antibiotics
- D.4. Childhood risk
  - a. Endocrine disorders
  - b. Children and youth with special health care needs
    1. Children with autism spectrum disorder
    2. Children with developmental and physical disabilities
    3. Children with myelomeningocele
  - c. Attention-deficit/hyperactivity disorder
  - d. Weight-promoting appetitive traits
  - e. Medication use (weight-promoting medications)
  - f. Depression

10

## Associated Problems

- Physical Health
  - Type II Diabetes
  - Metabolic syndrome
  - Cardiac disease
  - Hypertension
  - Hyperlipidemia
  - Sleep apnea
  - Orthopedic problems
  - Nonalcoholic fatty liver disease (NAFLD)
  - Risk of altered response to medications
- Emotional Health
  - Self-esteem
  - Body image
  - Depression
  - Lower quality of life ratings
- Social Health
  - Stigma
  - Bullying

11

## Assessment

- Overweight children are identified as such by their PCP only 28% of the time
  - Parents identify their own children even less often
- Who was identified?
  - Older children
  - Those with highest body mass index (BMI)
- What are the consequences of missed identification?
  - Missed early intervention for those at-risk of being overweight

12

## How do we assess?

- Obesity assessment should be completed at every Well Child Visit
  - BMI still gold standard
    - 24+ months
  - Diet assessment
    - Diet quality
    - Feeding difficulties
    - Food insecurity
  - Physical activity assessment
    - Screen time

13

## Assessment

- Focused family history
  - Risk of obesity
    - 9% if both parents are lean
    - 60-80% if both parents are obese
- Developmental considerations
  - Increased prevalence in children with special health care needs
- Adverse Childhood Experiences (ACEs)
- Laboratory Evaluation
  - Consider lipid evaluation for 2-9 yo with severe obesity

14

## What do we say?

- 3 key factors to facilitate non stigmatizing conversation
  - Ask permission to discuss BMI and/or weight
  - Avoid labeling by using person first language
  - Use words that are perceived as neutral
    - Preferred words: unhealthy weight, too much weight for age, height, or health
    - Non-preferred words: obesity, large, overweight, chubby, fat

15

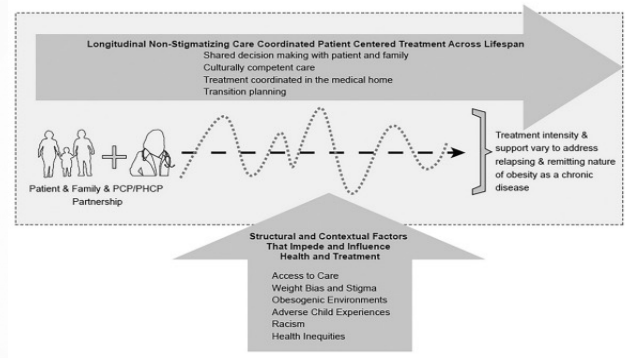
## What do we do?

- Have the conversation
- Assess factors impacting the family
- Assess readiness to change

16



## New Gold Standard



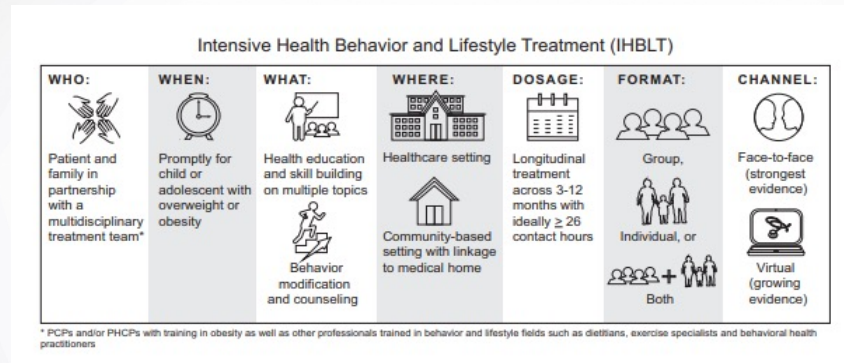
17

## Treatment of Obesity

- Chronic disease=chronic care model
  - Bring awareness
  - Motivational interviewing
  - Intervention

18

# Intensive Health Behavior and Lifestyle Treatment



- “Dose” matters!

19

# Pharmacotherapy

- Metformin
  - Not FDA approved for weight loss
  - Modest reduction in BMI when paired with lifestyle change
- Orlistat (Xenical)
  - FDA approved for 12+
  - Side effect profile poor—uncommonly used as a result
- Glucagon-like peptide-1 receptor agonists (liraglutide, exenatide, dulaglutide, and semaglutide)
  - Slows gastric emptying to decrease hunger
  - Liraglutide FDA approved for 12+ for obesity
  - Exenatide FDA approved for 10+ for T2DM
- Phentermine
  - FDA approved for short term use
  - Age >16
  - Side effect profile similar to other stimulants
- Topiramate
  - FDA approved
    - Seizures 2+
    - headaches for 12+
  - Side effect profile
    - Cognitive slowing
    - Potential teratogen
      - Counseling for birth control
- Phentermine+Topiramate
  - Approved for adult weight loss
  - Use to treatment resistant adolescents

20

## Metabolic and Bariatric Surgery (MBS)

- Reserved for adolescents with severe obesity
  - $\geq 10$  years of age
  - $\text{BMI} \geq 1.2 \times 95^{\text{th}}$  percentile with a weight related co-morbidity
  - $\text{BMI} \geq 1.4 \times 95^{\text{th}}$  percentile irrespective of co-morbidity
- Degree of BMI reduction 30%
  - Regardless of starting BMI
- Improved chances of consistently and durably altering co-morbid conditions

21

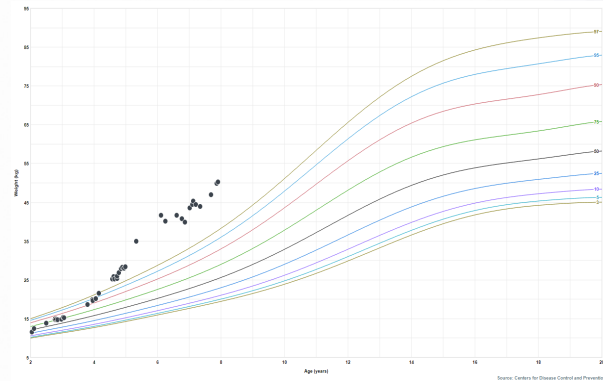
## Metabolic and Bariatric Surgery (MBS)

- Results are promising, but not without risk
  - Micronutrient deficiencies
  - Higher rate of fractures
  - Excess skin requiring future surgeries
  - Tendency for increased alcohol abuse
  - Increased post-surgical loss of control eating

22

## Case Example #1

- 8 yo female
  - Complex psychosocial history
  - COVID



23

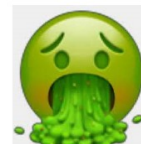
## Case Example #2

- 8 yo male presents to pediatric cardiologist
  - Complaints of non-cardiac chest pain
  - Hx of autism
  - Tx with risperidone
- Why is that important information?
  - Risperidone is associated with lipid/metabolic problems, specifically increased triglycerides and LDL

### • Diet

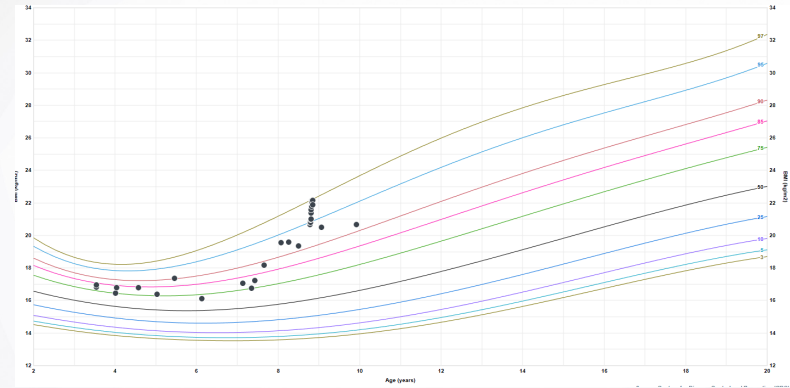
- captain crunch and cheerios--with milk
- applesauce with meds once a day
- McDonald's pancakes and French fries
- certain scrambled eggs--can't have any brown spots, particular cheese
- white rice with soy sauce
- tominos cheese pizza
- Gatorade/soda
- Pickles

### • Response to non-preferred foods



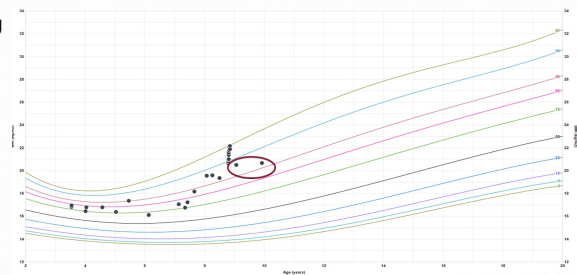
24

## Case Example



25

- Goals
  - Increase variety of foods
  - Reduce vomiting/gagging
- LOS
  - 4.5 weeks



26

## Summary

- Pediatric obesity is not going away
- It is a chronic health condition
  - Medical home
  - Community recourses
- Treatment needs to be comprehensive
  - Lifestyle change is often not enough
  - Medication and surgery discussions should not be avoided for extreme cases

27

## Resources

- [www.guidelines.gov](http://www.guidelines.gov), National Childhood Action Network Expert Committee Recommendation
- National Initiative for Children's Healthcare Quality (NICHQ)
- American Academy of Pediatrics (AAP)
- American Medical Association (AMA)

28

## References

- Barlow, S. E. (2007). Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics*, 120(Suppl. 4), S164-S192.
- Cunningham, S.A., Kramer, M.R., Narayan, K.M.V. (2014). Incidence of Childhood Obesity in the United States. *New England Journal of Medicine*, 370:403-411, DOI: 10.1056/NEJMoa1309753
- Daniels, S. (2006). The consequences of childhood overweight and obesity. *The Future of Children*, 16(1), 47-67.
- Fox, C.K., Gross, A.C., Bombberg, E.M. et al. (2019). Severe Obesity in the Pediatric Population: Current Concepts in Clinical Care. *Current Obesity Reports*.
- Dilley K, Martin L, Sullivan C, Seshadri R, Binns H. (2007). Identification of overweight status is associated with higher rates of screening for comorbidities of overweight in pediatric primary care practice. *Pediatrics*, 119(7):148-155.
- Hopkins, K.F., DeCristofaro, C., Elliott, L. (2011). How can primary care providers manage pediatric obesity in the real world? *Journal of the American Academy of Nurse Practitioners*, 23 (6), 278-288.
- Huang JS, Donohue M, Becerra K, Ronghui X. (2009). Relationship between parents' and children's weight perception: results of a survey. *Infant Child Adolesc Nutr*. 2(1):15-20.
- Kaechele, V, Wabitsch, M, Thieme, D, Kessler, A, L, Haenle, M, M, Mayer, H, Kratzer, W. (2006). Prevalence of gallbladder stone disease in obese children and adolescents: Influence of the degree of obesity, sex, and pubertal development. *Journal of Pediatric Gastroenterology and Nutrition*, 42:66-70.
- Ogden, C. L., Carroll, M. D., Curtin, L. R., McDowell, M. A., Tabak, C. J., & Flegal, K. M. (2006). Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA*, 295, 1549-1555.
- Steele, M.M., Steele, R.G., Cushing, Christopher C. (2012). Weighing the Pros and Cons in Family-Based Pediatric Obesity Intervention: Parent and Child Decisional Balance as a Predictor of Child Outcomes. *Children's Health Care*. 41 (1), 43-55.

29

30