Eat This, Not That: Prevention and Management of Childhood Obesity
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Disclosure Statement

- I, do not have a vested interest or affiliation with an corporate organization offering financial support or grant money for this continuing education program, or any affiliation with an organization whose philosophy could potentially bias my presentation.
Upon completion of this CE activity, the pharmacist should be able to:

- Discuss the prevalence of obesity in children and risk for metabolic disorders
- Identify effective life style modifications for management of obesity in children
- Identify medications considered for treating childhood obesity
- Discuss considerations when determining healthy diet and exercise options for children
Prevalence
What is Childhood Obesity?

- Obesity is defined as having excess adiposity
- BMI (weight \( \text{kg} \) / height \( \text{m}^2 \)) is the standard for measuring obesity in children
  - Defined as index of healthy weight and predictor of morbidity and mortality risk.
  - Calculation begins at age 2
    - Underweight is < 5th percentile
    - Healthy Weight 5th - 84th percentile
    - Overweight 85th - 94th percentile
  - Obesity in childhood is defined as BMI in 95th - 99th percentile from ages 2-20
  - Severe Obesity is defined as BMI > 99th percentile
A Nationwide Look

- Childhood obesity rates have more than tripled over the past 30 years
- Prevalence amongst children and adolescents aged 2-19 years was 18.5% (13.7 million people)
  - 2-5 year olds - 13.9%
  - 6-11 year olds - 18.4%
  - 12-19 year olds - 20.6%
- Overall target based on Healthy People 2020 is a prevalence <14.5%
Prevalence By Race

- Hispanics - 25.8%
- Non-Hispanic Blacks - 22%
- Non-Hispanic Whites - 14.1%
- Non-Hispanic Asians - 11.0%
US Prevalence

Figure 5. Trends in obesity prevalence among adults aged 20 and over (age adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2015–2016


NOTES: All estimates for adults are age adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over. Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#5.

Percentage of high school students who had obesity, 2007

Percentage of high school students who had obesity, 2017

https://www.cdc.gov/healthyschools/obesity/obesity-youth.htm
Prevalence of obesity in children and adolescents aged 2-19 decreased with increasing income level (based on Federal Poverty Level)

- < or = 130% : 18.9%
- >130% to < or = 350% : 19.9%
- >350% : 10.9%

Similar trend with education groups

- High School Graduate or less- 21.6%
- Some college - 18.3%
- College Graduate- 9.6%
How is Florida Doing?

- Age 2-4 (enrolled in WIC): Obesity rates dropped from 14.6% to 12.7% (41/51 states)

- Age 10-17: 16.9% (13/51 states)
WIC Children $\geq 2$ who are Overweight or Obese, 2017

http://www.flhealthcharts.com/charts/OtherIndicators/NonVitalIndRateOnlyDataViewer.aspx?cid=0679
Discussion: Causes of Increased Prevalence
High Risk, No Reward
Obese children are at increased risk for a variety of health problems not only as adults but also as children. These include:

- Hyperlipidemia
- Impaired glucose tolerance/insulin resistance
- Increased risk of type 2 diabetes
- Hypertension
- Metabolic Syndrome (HTN, DM, increased abdominal fat, and HLD)
- Sleep Apnea
- Asthma
- Nonalcoholic steatohepatitis
- Coagulation abnormalities
- PCOS
- Growth plate injuries
- Slipped Capital Femoral Epiphysis
- Depression
Teach a Man to Fish
In the Beginning…

- Maternal/Paternal Obesity is a heavy predictor of childhood obesity.
- Environment during conception, birth, and thereafter are crucial to the risk of becoming overweight or obese.
- Gestational diabetes may result in increased birth weight and subsequently obesity later in life.
Breastfeeding

- 15-30% decrease in adolescent obesity rates if any breastfeeding occurred in infancy
- Each month of breast feeding associated with a 4% reduction risk in obesity
- Breast milk has high nutrition and easy digestion.
- Feeding from breast also has child to decide how much to eat and when to eat, developing healthy eating patterns
- Should continue exclusively for the first 6 months of life
- After 6 months should introduce nutrient rich solid foods in adequate amounts and continue with breastfeeding for at least 1 year
Limit high calorie, low nutrient foods and beverages

5 or more servings of fruit/veggies per day

Consume healthy breakfast daily

Engage in regular physical activity (suggested 60 min/day - supervised for children with BMI > 95th percentile)

Limit screen time to 2 hours daily

Limit fast food/restaurant frequency

Eat at the table as a family 5 to 6 times weekly
GO TO SLEEP

- Adequate sleep is imperative to decreasing chances of childhood obesity
- Sleep Goals:
  - Infants: 12-17 hours
  - Toddlers: 10-14 hours
  - School Age Children (6-13): 9-11 hours
  - Teenagers: 8-10 hours
- Deprivation can cause:
  - Increasing hunger
  - Increased time to eat
  - Decreased physical activity
Weight-loss Targets

- **Age 2-5**
  - Weight maintenance until BMI <85th percentile
  - Do not lose more than 1 lb/month

- **Age 6-11**
  - 94th-99th Percentile: Weight maintenance or loss - no more than 1 lb/month
  - >99th Percentile: Weight loss no more than 2 lb/week

- **Age >12**
  - 95th-98th Percentile: Weight loss until <85th Percentile - no more than 2 lb/week
  - >99th percentile: Weight loss - no more than 2 lb/week
More Intensive Changes

- If previous interventions don’t work, then more supervision and stricter parameters are placed on food intake, physical activity and sleep.
- Closer follow up with physician who specializes in pediatric weight management.
- Incorporate a whole family approach to lifestyle change.
- Can include behavioral health aspect (is food being used as an emotional crutch?)
Tertiary Care Intervention

- Very low calorie diets
- Consider tertiary care center with strict protocols
- Consider appetite suppressants
- Consider bariatric surgery
Medications
Orlistat

- Enteric lipase inhibitor
- Prevents breakdown and absorption of fat
- Approved for children >10 years
- SE: gassiness and oily stools
Metformin

- Approved in children >10 years with Type 2 DM
- 0.5 kg/m^2 BMI reduction compared to placebo when combined with lifestyle interventions
- Should take max recommended dose of 1000 mg BID
- Can cause GI upset first few weeks - managed with dose titration.
Phentermine

- Approved for children $\geq 16$ years old
- Results are small to moderate
- Can cause anxiety, tremors, slightly increased blood pressure
Medication Not FDA Approved for Weight Loss in Children

- Topiramate
- Vyvanse
- Bupropion (Wellbutrin)
- Byetta/Bydureon
- Liraglutide
- Qsymia
- Contrave
Let’s Be Real
Roadblocks to Success

- Population greatest influenced are those affected by poverty - mostly minorities and people with limited educational exposure
- 7.5 million American families lack consistent access to adequate, nutritious food - FOOD DESERTS
- Environmental Realities
  - Increased fast food
  - Intermittent access to adequate food [inadequate transportation (private and public)]
  - Corner stores / gas stations used for grocery shopping
Food Deserts in the US

Other Risks

- Children in immigrant families
- Families headed by single women
- Large families
- Parental separation or divorce

- 16% of low income households do not receive federal support
- Health effects of food insecurity affect food choices in adulthood which lead to co-morbidities of obesity
Corporate Responsibility

- Reduce fat, sugar and salt content of processed foods
- Ensure nutritious choices available and affordable to all consumers
- Promote responsible marketing especially those aimed at children and teenagers
- Presence of full grocery in areas of need
Screening Tool

✧ Hunger Vital Sign

✧ Within the past 12 months, we worried whether our food would run out before we got money to buy more (Yes or No)

✧ Within the past 12 months, the food we bought just didn’t last and we didn’t have money to get more (Yes or No)
Clicker Time!
ASSESSMENT: At what age is BMI first calculated?

A. Birth
B. 2
C. 5
D. 13
ASSESSMENT: What is the greatest predictor of childhood obesity?

A. Not Breastfeeding
B. Presence of Gestational Diabetes in Pregnancy
C. Food/Drink Choices
D. Maternal/Paternal Obesity

20% 20% 20% 20%
ASSESSMENT: A 12 yo boy has continued to gain weight despite heavy surveillance of physical activity and food intake. Patient has no other co-morbidities. The child’s pediatrician calls you to decide which medication is appropriate for this child?

A. Phentermine  
B. Metformin  
C. Orlistat  
D. Topiramate
ASSESSMENT: Which one of these disorders is a metabolic consequence of childhood obesity?

A. Sleep Apnea
B. PCOS
C. Coagulation disorders
D. Insulin Resistance
ASSESSMENT: What is the suggested amount of sleep for school aged children (6-13)?

A. 9-11 hours  
B. 10-14 hours  
C. 12-17 hours  
D. 8-10 hours
ASSESSMENT: What is the greatest contributing environmental factor to childhood obesity? (Pick most correct answer)

A. Lack of Grocery Stores
B. Food Desert
C. Increased exposure to Fast Food Restaurant
D. Lack of transportation

Answer 2 20%  Answer 3 20%  Answer 4 20%  Answer 5 20%
Questions?
Activity Time!
References


" Morbidity and Mortality Weekly Report. Centers for Disease Control and Prevention, 16 February 2018. https://www.cdc.gov/mmwr/volumes/67/wr/mm6706a3.htm?s_cid=mm6706a3_w#modalIdString_CDCTable_0.


References


“You cannot hope to build a better world without improving the individuals. To that end, each of us must work for his own improvement and, at the same time, share a general responsibility for all humanity, our particular duty to aid those to whom we think we can be most useful.

—Marie Curie
Thank you!