



# **SCHOOL NURSE** *Spotlight*

## **Childhood and Adolescent Obesity**

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May 9, 2024



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# Childhood and Adolescent Obesity

Jenny Schanzle, DO

Adolescent Medicine Fellow

# Objectives

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- 1. Be able to define body mass index (BMI) and weight categories for youth**
- 2. Understand the recommendations for diagnosis and treatment of obesity in youth**
- 3. Be aware of the new obesity treatment guidelines from the American Academy of Pediatrics (AAP)**

# Obesity and Overweight Defined

- Excess of body fat
- Obese:  $\geq$  or equal to the 95<sup>th</sup> percentile of BMI
- Overweight: 85<sup>th</sup>-95<sup>th</sup> percentile of BMI



(Sahoo, 2015)

# World Health Organization (WHO) Weight Categories

- **Child under 5 years old:**

- Overweight: weight-for-height greater than 2 standard deviations above the WHO Child Growth Standards median
- Obese: weight-for-height greater than 3 standard deviations above the WHO Child Growth Standards median

- **Children 5-19 years old:**

- Overweight: BMI for age greater than 1 standard deviation above the WHO growth reference median
- Obese: greater than 2 standard deviations above the WHO Growth Median

(WHO, 2024)

# BMI Chart

BMI Category	BMI Range
Underweight	Less than the 5 <sup>th</sup> percentile
Healthy Weight	5 <sup>th</sup> percentile to less than the 85 <sup>th</sup> percentile
Overweight	85 <sup>th</sup> percentile to less than the 95 <sup>th</sup> percentile
Obesity	95 <sup>th</sup> percentile or greater
Severe Obesity	120% of the 95 <sup>th</sup> percentile or greater OR 35 kg/m <sup>2</sup> or greater

(CDC, 2023)

# Concerns Using BMI



- BMI inaccuracies
  - Comparison to body fat percentages
  - Discrepancies noted at normal and overweight categories
  - Increased in girls
- Lack of diversity
  - Historical harm
  - Based on non-Hispanic white populations
  - American Medical Association (AMA) Policy 2023

(Clasey, 2023)

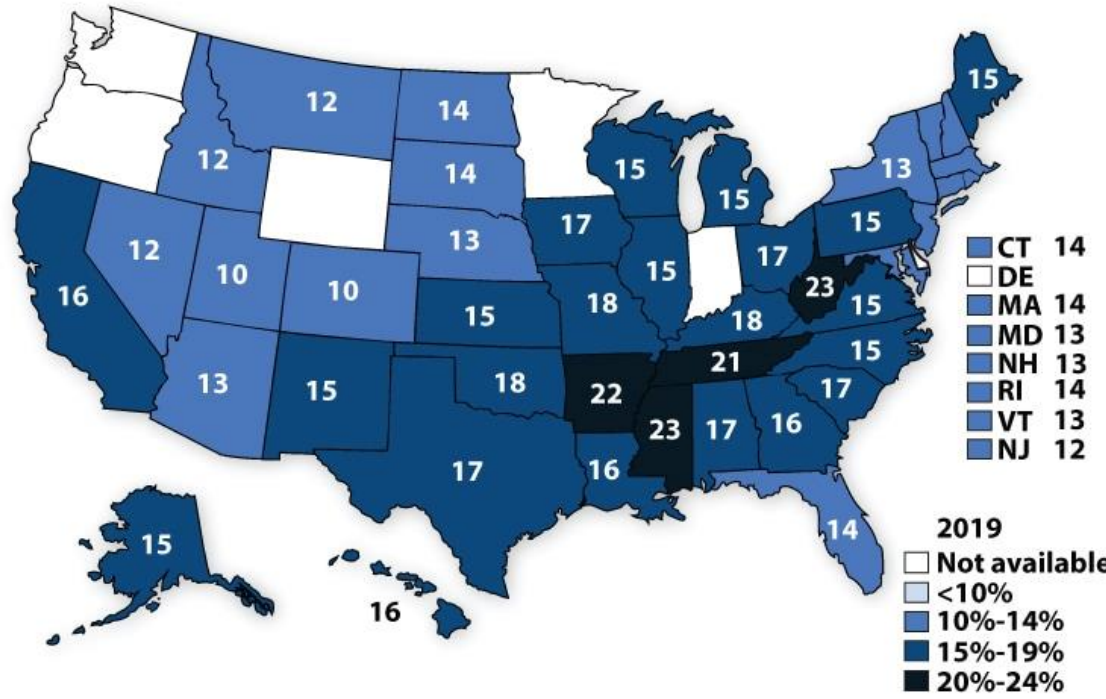
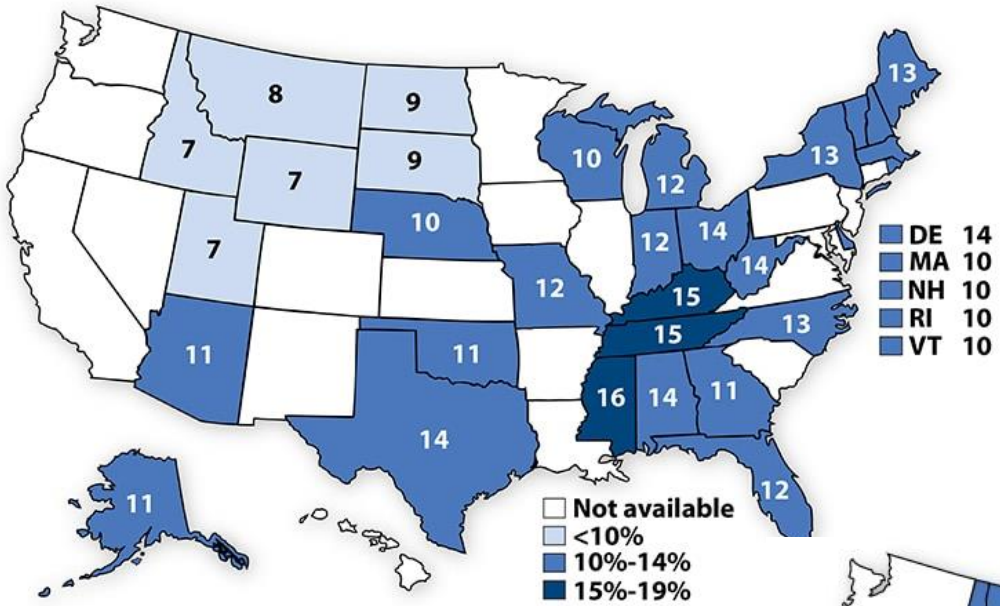
# Youth Overweight/Obesity Prevalence

- Increased overtime (WHO, 2024)
  - 8% in 1990
  - 20% in 2022
- From 2017-2020 (CDC, 2022)
  - Prevalence was 19.7% affecting 14.7 million youth
    - 12.7% of 2-5 year olds
    - 20.7% of 6-11 year olds
    - 22.2% of 12-19 year olds
  - Racial/Ethnic Differences
    - 26.2% of Hispanic youth
    - 24.8% of non-Hispanic Black youth
    - 16.6% of non-Hispanic White youth
    - 9% of non-Hispanic Asian youth

(WHO, 2024)  
(CDC, 2022)



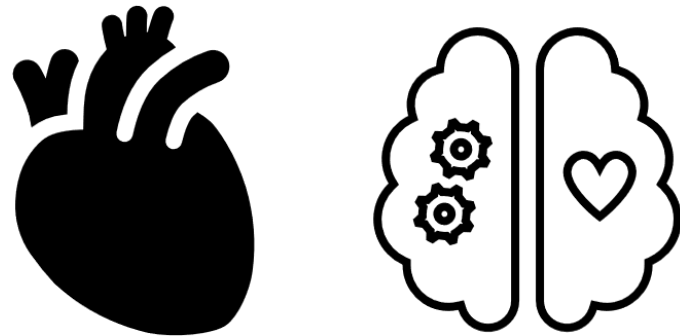
# Youth Obesity Epidemic 2003 to 2019



(CDC, 2003 & 2019)

# Youth Obesity Epidemic Continued

- At risk for non-communicable diseases such as type 2 diabetes and cardiovascular disease
- Psychological affects
- Impact on low- and middle-income countries
- Economic impact



(WHO, 2024)

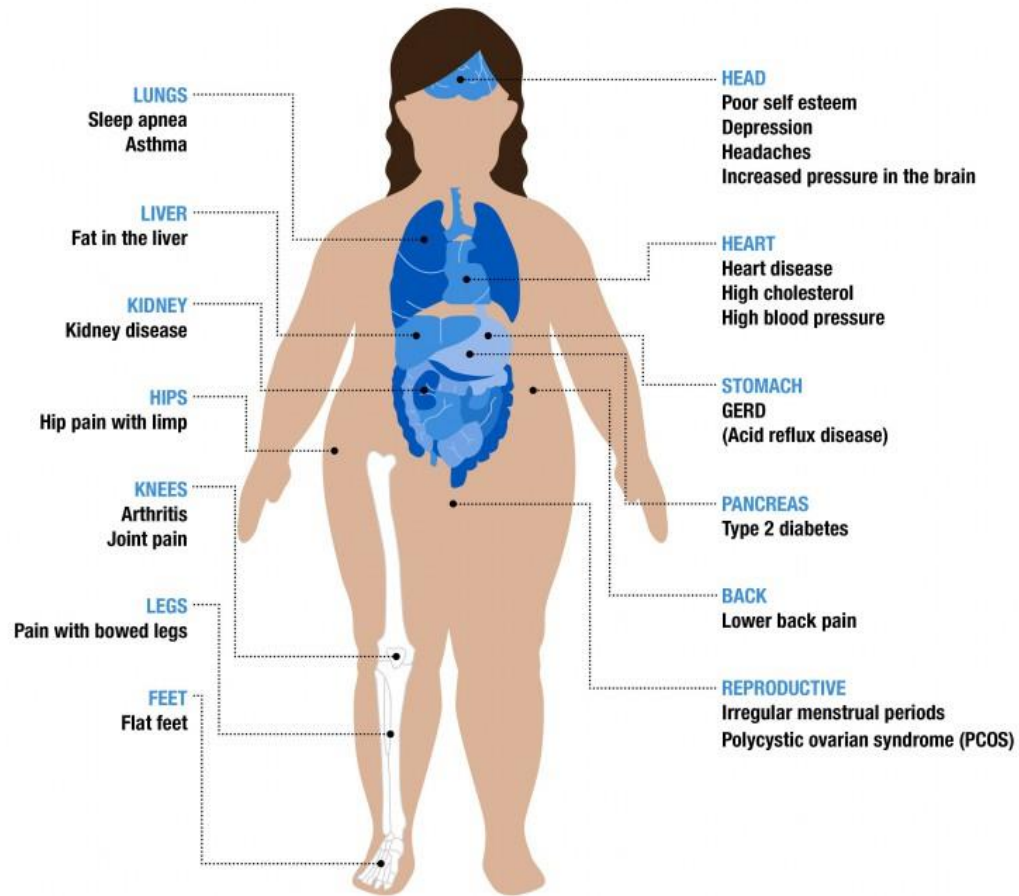
# Risk Factors

- Genetics
- Sedentary lifestyle
- Food intake
- Parenting style



(Sahoo, 2015)

# Complications of Childhood Obesity



(Nationwide Children's, 2015)

# Obesity Complications

- **Liver disease:**
  - Old Naming Convention: Non-Alcoholic Fatty Liver Disease (NAFLD)
  - New Naming Convention: Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)
- **Mental health impact:**
  - Poor self-esteem
  - Depression
  - Bullying
- **Patient case**
  - Type II DM
  - School Nurse Visits

# Health Inequities



- Obesity prevalence is decreased in high income group
    - 18.9% in the lowest income group
    - 19.9% in the middle income group
    - 10.9% in the highest income group
  - Head of household education level is associated with risk of childhood obesity
- (CDC, 2022)

# Health Inequities

- AAP 2023 Guidelines
- Social determinants of health
- Decrease stigmatization
- Address system level factors

American Academy  
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

(Hampl, 2023)

# Structural Racism

- Behavioral Risk Factor Surveillance Survey
- Structural racism based on housing or education discrimination
- Association with lower BMI in White males
- Association with higher BMI in Black adults, men more than women
- Further studies are needed to examine the potential implications of these findings in obesity treatment

(Dougherty, 2020)



# Weight Stigma

- Internalized weight bias
- Increase rates of:
  - Weight stigma
  - Victimization
  - Teasing
  - Bullying
- Lead to several health impacts such as:
  - Binge eating
  - Social isolation
  - Avoidance of health care services
  - Decreased physical activity
- Providers and weight bias



(Hampf, 2023)

# Adverse Childhood Experiences (ACEs)

## ADVERSE CHILDHOOD EXPERIENCES - ACEs

What are Adverse Childhood Experiences (ACEs)?  
ACEs are potentially traumatic events that occur in a child's life:

			
Physical Abuse	Emotional Abuse	Sexual Abuse	Domestic Violence
			
Parental Substance Abuse	Mental Illness	Suicide or Death	Crime or Imprisoned Family

Causing lifelong medical, mental & social suffering

 American SPCC  
American Society for the Positive Care of Children

[americanspcc.org](http://americanspcc.org)  
The Nation's Voice for Children  
\*Center for Disease Control

(Malhoit, 2020)



# Social Environments

- School
- Home
- Peer groups
- Social Media
- Culture



# School



(Hampl, 2023)

# Home



(Hampl, 2023)

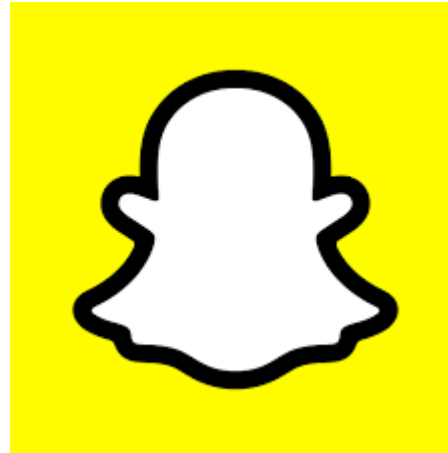
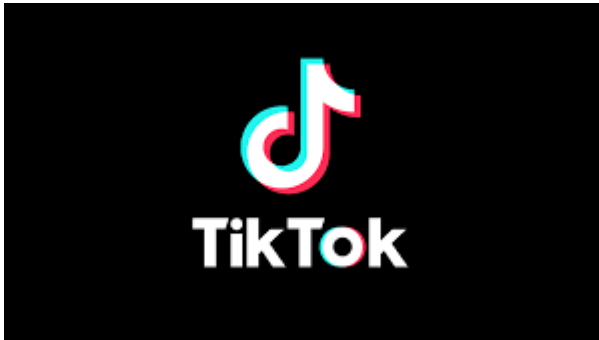
# Culture

- Food as reward
- Means of control
- Socializing
- Family food preferences



(Hampl, 2023)

# Social Media





# Social Media Campaigns

- Cost-effective tool
- Promote social connection
- Interactive Health Campaigns



(Jane, 2018)

# Diagnosis

- Use of BMI
- USPSTF Recommendations
- Monitoring overtime
- Assess for comorbidities and provide anticipatory guidance
- Laboratory evaluation:
  - Lipid Panel
  - Liver Enzymes
  - HgbA1c
- Include blood pressure measurements
- Sleep Evaluation

(Hampl, 2023)

# Communication

1. Asking permission to discuss weight
2. Use person-first language
3. Using words perceived as neutral language

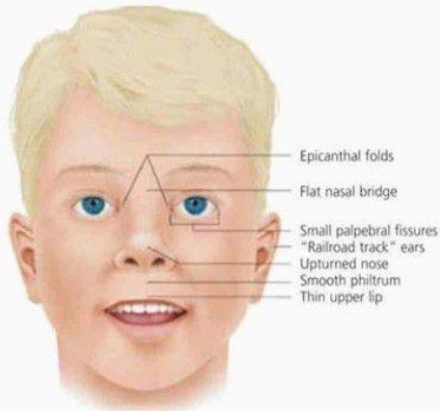
(HAMPL, 2023)

# Special Considerations

## PRADER WILLI FEATURES

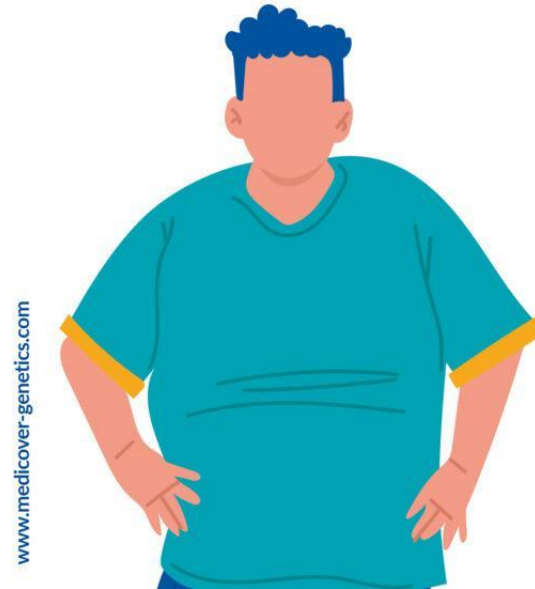
Mnemonic : H3O

- **Hyperphagia**
- **Hypotonia**
- **Hypopigmentation**
- **Obesity**



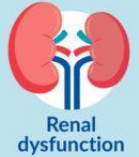
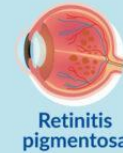
(Medizzy, 2022)

## BARDET-BIEDL SYNDROME



(Medicover Genetics, 2024)

### Main Symptoms



Not all symptoms are listed, and symptoms may vary in type and severity between affected people.

(Hampl, 2023)

# Special Considerations

- **Children with disabilities**

- 27-59% more at risk of obesity
- Food as reward
- Food Selectivity

- **Children with Autism**

- 43.7% higher risk of obesity compared to peers
- No specific known cause: antipsychotic medications, food challenges

- **Children with ADHD**

- Unmedicated 40% higher risk of obesity
- Binge eating, impulsivities

(Hampl, 2023)

# Disordered Eating

- Normal BMI
- Unhealthy behaviors
  - Purging
  - Use of laxatives
  - Restriction or skipping meals
- Refer patients to provider and counseling services



(Hampl, 2023)

# Treatment Options

- Motivational Interviewing
- Family Based Treatment
- Intensive Health Behavior and Lifestyle Treatment
- Medications:
  - Metformin
  - GLP1 agonists
  - Phentermine
  - Topiramate



(Hampl, 2023)

# Motivational Interview (MI)

MI Process	Phase of Evaluation	Goal	Possible MI Tool
Engaging	Early, getting to know patient	Establishing collaborative role, understanding patient issues	Open-ended questions, affirmations, nonjudgmental graphics, empathic reflections
Focusing	Early and when desire to change weight status is expressed	Identifying appropriate and productive strategies to change weight status	Readiness ruler, elicit-provide-elicited, healthy habits survey, identifying and responding to change talk and sustain talk
Evoking	When behavior change is desired	Triggering internal motivation, empowering change	Values statement, double-sided and amplified reflections
Planning	When embarking on change	Carrying out effective change plan, dealing with relapse	Readiness ruler, action reflections, summarization, teach back, SMART goals (specific, measurable, achievable, realistic, and timely)

(Hampel, 2023)



# Family Based Treatment













- Engaging families
- Influences on food choices available for child
- Physical activity as a family
- Modeling behavior can illicit change



(Medindia, 2024)

# Intensive Health Behavior and Lifestyle Treatment (IHBLT)

## Intensive Health Behavior and Lifestyle Treatment (IHBLT)

WHO:	WHEN:	WHAT:	WHERE:	DOSAGE:	FORMAT:	CHANNEL:
 Patient and family in partnership with a multidisciplinary treatment team*	 Promptly for child or adolescent with overweight or obesity	 Health education and skill building on multiple topics   Behavior modification and counseling	 Healthcare setting   Community-based setting with linkage to medical home	 Longitudinal treatment across 3-12 months with ideally $\geq 26$ contact hours	 Group,   Individual, or   Both	 Face-to-face (strongest evidence)   Virtual (growing evidence)

\* PCPs and/or PHCPs with training in obesity as well as other professionals trained in behavior and lifestyle fields such as dietitians, exercise specialists and behavioral health practitioners

(Hampl, 2023)

# New AAP Recommendations

- Medications for children 12 years and older
- May be evidence for children 8-11 years old, ongoing research to determine its use
- Comorbidities may be another indicator for medication assisted treatment
- Be aware of these new recommendations and names of the more common treatment options

(Hampl, 2023)

# Medication Review

- **Metformin**

- Treatment for type 2 diabetes 10 years and older, treatment of PCOS and prediabetes
- Decreases glucose production in the liver
- Not approved as weight loss drug, but has shown weight reduction

- **GLP 1 agonists**

- Slow gastric emptying and decrease hunger
- Medications discussed in media
- Seem to be most successful for weight loss

- **Phentermine**: norepinephrine reuptake inhibitor, approved for short course in 16 years or older

- **Topiramate**: carbonic anhydrase inhibitor and suppresses appetite, tx for headaches, commonly used with Phentermine

(Hampl, 2023)

# Bariatric Surgery

## Criteria for Pediatric Metabolic and Bariatric Surgery

Weight Criteria	Criteria for Comorbid Conditions
Class 2 obesity, BMI $\geq 35$ kg/m <sup>2</sup> or 120% of the 95th percentile for age and sex, whichever is lower	Clinically significant disease; examples include but are not limited to T2DM, IIH, NASH, Blount disease, SCFE, GERD, obstructive sleep apnea (AHI >5), cardiovascular disease risks (HTN, hyperlipidemia, insulin resistance), depressed health-related quality of life.
Class 3 obesity, BMI $\geq 40$ kg/m <sup>2</sup> or 140% of the 95th percentile for age and sex, whichever is lower	Not required but commonly present.

(Hampl, 2023)

# How can you help?



- Nurse-led intervention programs are feasible
- Future studies are needed to determine effectiveness
- Trained nurses can use clinical opportunities to assist in treatment of childhood obesity

(Whitehead, 2021)

# Key Takeaways

- The language we use matters!
- Many factors contribute to obesity, and no one is to blame
- All individuals in a child’s life can be a support person
- Treatment options are available, but stay aware of special considerations that can impact the treatment options



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# Questions?

