What’s New in Childhood Obesity Treatment

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Disclosures

• I have the following disclosures:
  – Receive book royalties from McGraw-Hill Education
  – Consultant on Patient-Centered Outcomes Research Institute grant
  – Co-Investigator on CDC cooperative agreement
Overview and Learning Objectives

1. Describe the recommended evaluation for children with obesity
2. Implement recommended treatment strategies when seeing children with obesity

http://chlnkc.org/current-projects/
http://chlnkc.org/our-members/
‘translational science’ related to obesity through work of our members

- Defining mechanisms, targets, lead molecules
- New methods of diagnosis, treatment, prevention
- Controlled studies leading to effective care
- Delivery of recommended and timely care to the right patient
- True benefit to society

Research

Dr. John Thyfault - metabolism
Dr. Amanda Bruce - reward
Dr. Robin Shook - appetitew

Macro-Level
- Community and Organizational
- Home/Family

Individual
- Psychosocial
  - food norms, preferences
  - knowledge
  - attitudes
  - skills
  - role models
- Biological
  - age
  - gender
  - genes
  - physiology

Causes
- Access to healthy and unhealthy foods in schools
- Household environment and feeding practices, portion size
- Parent/child care provider training and education
- Food advertising and marketing
- Media and public education campaigns
- Federal policies (dietary guidelines, food labeling)
- Food industry action (product, packaging, pricing)
- Local health care services/coverage
- Local public health programs/policies
- Land use, zoning, business incentives
- Federal policies (dietary guidelines, food labeling)

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Individual pathophysiology

Pathophysiology of Eating and Weight Regulation

Definition of obesity, severe obesity in kids

<table>
<thead>
<tr>
<th></th>
<th>Adult BMI</th>
<th>Pediatric BMI Percentile</th>
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</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>25-29.9</td>
<td>85-94th %ile</td>
</tr>
<tr>
<td>Obese</td>
<td>30-34.9</td>
<td>95-120% of 95th %ile</td>
</tr>
<tr>
<td>Class II obesity</td>
<td>35-39.9</td>
<td>120-140% of 95th %ile</td>
</tr>
<tr>
<td>Class III obesity</td>
<td>≥40</td>
<td>&gt;140% of 95th %ile</td>
</tr>
</tbody>
</table>
Global childhood obesity

- Affects ~124 million children ages 5-19
- Affects ~41 million children under age of 5
- Obesity prevalence will likely surpass underweight by 2022
- Highest prevalence in Pacific Islands, then Kuwait
- Lowest prevalence in Uganda, Rwanda, Niger, Burkina Faso and Ethiopia

Lancet 2017(390):2627-2642
US childhood obesity, severe obesity prevalence

Ogden et al, JAMA 2016;315(21):2292-2299
The state of obesity in KS--adults

- 32.4% of adults ages 18 and older have obesity
- 18/51 states

Trust for America's Health and RWJF State of Obesity report, 2018
The state of obesity in KS--kids

• 31% of kids ages 10-17 have overweight or obesity

Trust for America’s Health and RWJF State of Obesity report, 2018
(2016 data)

Definitions

>99th severe obesity

>95th obese

85-94th overweight

5-85th healthy weight

<5th underweight
Categorize weight status

- <5th underweight
- 5‐84th healthy weight
- 85‐94th overweight
- ≥95th obese*
- >99th severely obese ~6%

*<2yrs wt/length >95%=obesity

Traditional BMI curve falls short

BMI for age Percentiles (Girls, 2 to 20)
New BMI curves coming soon

Resources for Assessment, Treatment

- American Academy of Pediatrics Institute for Healthy Childhood Weight Treatment Algorithm
- [https://ihcw.aap.org/Pages/default.aspx](https://ihcw.aap.org/Pages/default.aspx)
Assessment

Everyone gets asked about Healthy Eating and Active Living (HEAL)

- 12345 Fit-tastic (www.fittastic.org)
- AAP 5210
Assessment

- Assess healthy eating and active living behaviors
  - 5: fruits/vegetables/day
  - 2: hours or less of screen time/day
  - 1: hour or more of active play
  - 0: sugar-sweetened beverages
  - 12345
  - 54321
  - Other tool
- Determine weight classification based on BMI

CM Healthy Lifestyles Screen
Screen for food insecurity

- 2-question screen recommended by the AAP
- “Within the past 12 months, we worried whether our food would run out before we got money to buy more.”
- “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?


Screen for readiness to change

- “On a scale from 0-10, how ready are you to make changes to the way you eat and your activity habits right now?”
- “Why didn’t you pick a lower number?”
- “Why not a higher number?”
- What would it take to get you to choose a higher number?”

![Scale](https://example.com/scale.png)
How we talk about it matters

• Person-first language
  – Child who is obese, not obese child
  – Avoids labeling the child

• Terms
  – “Carrying extra weight”, “excess weight gain”
  – Discuss weight in terms of health risks—“weight puts him/her at risk for…”
  – Show and explain growth curve

Onset/Concern

• Age when increased weight gain first noted
• Has weight gain been gradual or abrupt?
• Is the parent (and patient if tween or older) worried about their child’s weight?
  — Good predictor of readiness for change

Look for risk factors

• Based on HEAL behaviors+
• Obesity-specific family history+
• Review of systems+
• Physical exam
Obesity-specific family history

- Parents or 1st degree relatives with obesity or obesity-related medical co-morbidities
  - Obesity: previous weight loss attempts, hx of bariatric surgery
  - Cardiovascular disease: HTN, dys/hyperlipidemia, CAD, MI
  - Cerebrovascular disease: CVA
  - Endocrine disease: DM, prediabetes, insulin resistance

Review of systems is guided by known medical, psychosocial complications
Complications

- Anxiety, school avoidance, social isolation (Depression)
- Bullying/teasing (self-esteem)
- Polyuria, polydipsia, weight loss (Type 2 diabetes mellitus)
- Headaches (Pseudotumor cerebri)
- Night breathing difficulties (Sleep apnea, hypoventilation syndrome, asthma)
- Daytime sleepiness (Sleep apnea, hypoventilation syndrome, depression)
- Abdominal pain (Gastroesophageal reflux, Gall bladder disease, Constipation)
- Hip or knee pain (Slipped capital femoral epiphysis)
- Oligomenorrhea or amenorrhea (Polycystic ovary syndrome)
Screening for psychological comorbidities

- Ask about depression, bullying, cyberbullying outside and within family
- Patient Health Questionnaire-2: 2 questions; or PHQ-9-9 questions
- Center for Epidemiologic Studies Depression Scale for Children (CES-DC): Bright Futures: 20 questions
- Pediatric Symptom Checklist: parent and youth report: Bright Futures: 17 questions

Screen for unhealthy/disordered eating habits

- Binge eating disorder: recurrent episodes of binge eating in which a larger amount of food is eaten within a 2-hour period compared with peers; and there is a perceived lack of control during the time of the binge
- Repeated use of unhealthy behaviors after a binge to prevent weight gain: (vomiting; abuse of laxatives, diuretics, or other medications; food restriction; or excessive exercise)
- Fast eating pace
- Overnight eating
Physical exam is guided by known medical, psychosocial complications

- New blood pressure clinical practice guideline

Complications of Childhood Obesity

- Psychosocial
  - Poor self esteem
  - Depression
  - Quality of life
- Pulmonary
  - Asthma
- Sleep apnea
- Exercise intolerance
- Renal
  - Glomerulosclerosis
  - Proteinuria
- Gastrointestinal
  - Pancreatitis
  - Steatorrhea
  - Liver fibrosis
  - Gallstones
  - Risk for cirrhosis
  - Risk for colon cancer
- Musculoskeletal
  - Fracture
  - Scoliosis
  - Spondylolisthesis
  - Flat feet
  - Risk for degenerative joint disease
- Neurological
  - Pseudotumor cerebri
  - Risk for stroke
- Cardiovascular
  - Dyslipidemia
  - Hypertension
  - Left ventricular hypertrophy
  - Chronic inflammation
  - Endothelial dysfunction
  - Risk of coronary disease
- Endocrine
  - Type 2 diabetes
  - Precocious puberty
  - Polycystic ovary syndrome (girls)
  - Hypogonadism (boys)
  - Hemia
  - Stress incontinence
  - Risk of GYN malignancy

www.c2educate.com
Obesity Lab Screening

• Check fasting lipid profile, fasting glucose, AST, ALT, HbA1c
• When to start? If child has risk factors (ex, +family hx) as early as age 2; otherwise no later than age 10 or when puberty begins
• How often? At least every year, more frequent as needed

Lab not to check and why

• Insulin (fasting or nonfasting): not as helpful as HbA1c in determining diabetes risk
• Thyroid function tests: untreated hypothyroidism very rarely a cause of obesity
  — If child has hx of poor linear growth, linear growth deceleration, symptoms of hypothyroidism or thyromegaly, consider checking a TSH only—sufficient screening test for hypothyroidism

Journal of Clinical Endocrinology and Metabolism; March 2017; www.choosingwisely.org
**Diabetes screening**

**Glucose**

- **Normal**
  - nonfasting <200 mg/dL
  - fasting <100 mg/dL
- **Impaired fasting glucose**
  - 101-125 mg/dL
- **Suspect T2DM**
  - ≥126 mg/dL
  - Check OGTT

**HbA1c**

- **Normal**
  - ≤5.6%
- **Prediabetes**
  - 5.7%-5.9% (no OGTT)
  - 6.0%-6.4% (check OGTT)
- **suspect T2DM**
  - ≥6.5% (check OGTT)

**Lipid parameters (mg/dL)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Low</th>
<th>Acceptable</th>
<th>Borderline</th>
<th>High</th>
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<tbody>
<tr>
<td>Total cholesterol</td>
<td>&lt;170</td>
<td>170-199</td>
<td>≥2200</td>
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</tr>
<tr>
<td>LDL cholesterol</td>
<td>&lt;110</td>
<td>110-129</td>
<td>≥130</td>
<td></td>
</tr>
<tr>
<td>Non-HDL cholesterol</td>
<td>&lt;120</td>
<td>120-144</td>
<td>≥145</td>
<td></td>
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<tr>
<td>Triglycerides</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-9 year olds</td>
<td>&lt;75</td>
<td>75-99</td>
<td>≥100</td>
<td></td>
</tr>
<tr>
<td>10-19 year olds</td>
<td>&lt;90</td>
<td>90-129</td>
<td>≥130</td>
<td></td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td>&lt;40</td>
<td>&gt;45</td>
<td>40-45</td>
<td></td>
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Steatohepatitis screening

- AST and ALT
  - "Normal" <40
    - Concern if >26 girls and >20 in boys and obese
  - Refer to a Liver Care Center* if:
    - AST/ALT 5x normal (200)
    - AST/ALT 2x normal (80) in spite of diet/weight loss
    - BMI <25, AST/ALT 2x normal
    - Any patient <5 with AST/ALT 2x normal (80)

*recommendations from CM Liver Care Center

Treatment

Management and Treatment Stages for Patients with Overweight or Obesity

- Patients should start at the least intensive stage and advance through the stages based upon the response to treatment, age, BMI, health risks and motivation.
- An empathetic and empowering counseling style, such as motivational interviewing, should be employed to support patient and family behavior change.
- Children age 2-5 who have obesity should not lose more than 1 pound/month; older children and adolescents with obesity should not lose more than an average of 2 pounds/week.

Stage 1 Prevention Plus

Where/By When: Primary Care Office/Primary Care Provider
What: Planned follow-up treatment visits (15-30) focusing on behaviors that reduce the risk of obesity, the family, and provider.
Consider partnering with dietician, social worker, athletic trainer, or physical therapist for added support and counseling.
Goals: Positive behavioral change, weight maintenance or a decrease in BMI velocity.
Follow-up: Every 3-6 weeks as determined by the patient, family, and physician. After 3-6 months, if the BMI/weight status has not improved consider advancing to Stage 2.

Stage 2 Structured Weight Management

Where/By When: Primary Care Office/Primary Care Provider with appropriate training.
What: Same intervention as Stage 1 while including more intense support and structure to achieve healthy behavior change.
Goals: Positive behavioral change, weight maintenance or a decrease in BMI velocity.
Follow-up: Every 3-6 weeks as determined by the patient, family, and physician. After 3-6 months, if the BMI/weight status has not improved consider advancing to Stage 3.

Stage 3 Comprehensive Multi-disciplinary Intervention

Where/By When: Pediatric Weight Management Clinic/Multi-disciplinary Team
What: Increased intensity of behavioral changes, frequency of visits, and special diet or exercise. Structured behavioral modification program, including food and activity monitoring, and development of long-term diet and physical activity goals.
Goals: Positive behavioral change, weight maintenance or a decrease in BMI velocity.
Follow-up: Weekly or at least every 2-3 weeks as determined by patient, family, and physician. After 3-6 months, if the BMI/weight status has not improved consider advancing to Stage 4.
Treatment

- Start at least intensive stage, advance based on treatment response, age, health risks and motivation; usually after 3-6 months
- Use empathetic, empowering counseling (MI, strengths-based approach)
- Preschoolers should not lose >1 lb/month; older children/teens not >2 lbs/week
- Staged treatment: where/by whom, what, goals, follow-up
- Stages 1 and 2 designed for PCP office with training


How we talk about it matters

- Set the stage in the WCC and request a follow up visit
  - Strengths-based approach
  - Use HEAL assessment as a springboard
  - Motivational interviewing
  - Change Talk
    (https://ihcw.aap.org/resources/Pages/default.aspx)

Treatment

- Consider using Healthy Lifestyle Plan, Next Steps tools
- Family chooses 1-2 goals
- Help them set SMART goals—specific, measurable, attainable, realistic, time-bound
- See them back frequently and for 3-12 months
  - Monthly for kids with less severe obesity
  - Every 2-4 weeks for more severe obesity
- Partner with RD, behavioral health provider, fitness professional

CM Healthy Lifestyle Plan
Stage 1 Prevention Plus

- What: Planned follow-up themed visits 15-20 min on behaviors meaningful to patient/family, PCP
- Consider partnering with RD, SW, athletic trainer or PT
- Goals: +behavior change regardless of BMI change; maintain weight or ↓BMI velocity
- Follow-up: Tailor to pt/family motivation; at least monthly


Recommended PA for kids

- Aerobic activity every day
- Muscle-strengthening activity at least 3 days/week
- Bone-strengthening activity at least 3 days/week

The 2018 United States Report Card on Physical Activity for Children and Youth
Tools you can use

www.myplate.gov

Stage 2 Structured Weight Management

• What: Stage 1+more intense support, structure
• Goals: behavior change regardless of BMI change; maintain weight or ↓BMI velocity
• Follow-up: Every 2-4 weeks as determined by patient/family, PCP

Stage 2: Structured Weight Management

- After 3-6 months in stage 1
- Use same intervention as in Stage 1, but intensify support, structure
  - Work with RD and/or behavioral therapist (SW, psychologist, LPC) and/or exercise specialist (athletic trainer, PT)
  - Communicate and coordinate care
- Goals:
  - Positive behavior change
  - Weight maintenance
  - Decrease in BMI velocity
- Follow-up: every 2-4 weeks, tailored to patient/family motivation

Stage 1 and 2 Behavioral Recommendations

- Involve the whole family in lifestyle changes
- Eliminate sugar-sweetened beverages
- Prepare 5-6 meals at home as a family per week
  - Decrease eating out to 1-2 times per week
- At least 5 servings of fruits and vegetables daily
- Consume a healthy breakfast daily
- Decrease screen time to 2 or fewer hours a day
- 1 hour or more of moderate to vigorous physical activity daily
- Avoid overly restrictive feeding practices
Stage 2: Structured Weight Management

- Planned diet or daily eating plan w/balanced macronutrients
- 3 structured daily meals, 1-2 planned snacks
- Reduce screen time to <1 hour/day
- Use of logs to monitor behaviors
- Planned reinforcement for achieving targeted behaviors

Advanced treatment (stages 3&4)

- Stage 3 (Comprehensive Multidisciplinary Intervention): Weekly visits, multidisciplinary team, structured behavioral modification
  - New MO Medicaid treatment benefit fits here
- Stage 4 (Tertiary Care Intervention): Stage 3+/‐medication+/‐bariatric surgery

Medications—cause and treatment

- Medications inducing weight gain: Atypical antipsychotics (olanzapine, aripiprazole, risperidone, ziprasidone), certain antidepressants/anxiolytics, seizure medications, steroids
- Medications used in adults for weight loss: phentermine, phentermine/topimirate ER, lorcaserin, naltrexone SR/bupropion SR, liraglutide=act on CNS to decrease appetite; orlistat=blocks GI fat absorption


A word about coding

- Obesity E66.9
  - Class I: 95th to 120% of the 95th percentile
  - Class II: 120 to 140% of the 95th percentile
  - Class III: >140% of the 95th percentile
- Assessment of BMI and code
  - Z68.53 BMI pediatric, 85th percentile to less than 95th percentile for age
  - Z68.54 BMI pediatric, greater than or equal to 95th percentile for age
- Counseling and code
  - Z71.3—Dietary counseling and surveillance
  - Z71.82—Counseling for exercise
- Comorbidity/ies and code/s
- Coding for initial, f/u visits for obesity and insurance claims

center for children’s healthy lifestyles & nutrition
When to consider referral

italics means live and telehealth options

• Family interested in more intensive family-based approach
  – Consider Zoom to Health weekly group program if in KC area (2-9 yo)
  – Consider referral to PHIT Kids Weight Management Clinic, may be eligible for PHIT Kids weekly group program if in KC area (10-17 yo)

• No/minimal improvement after 3-12 months of lifestyle modification, BMI in class II or III or >40
  – PHIT Kids Weight Management Clinic
  – Healthy Hawks Clinic (KUMC)

• If have obesity and special healthcare need (intellectual disability)
  – Special Needs Weight Management Clinic

• If BMI>40 (>35 w/comorbidity) and interested in bariatric surgery
  – Metabolic-Bariatric Clinic

Referral for comorbidities
iAmHealthy is recruiting rural elementary schools in the state of Kansas to participate in our intervention study funded by the National Institutes of Health! Check us out online if you’re interested in joining!

www.iamhealthyschools.org

Resources for PCPs, parents
Helpful Resources

• AAP Institute for Healthy Childhood Weight
  — Healthy Active Living for Families (HALF; age infancy-age 5)
    • Implementation guide, quick start guide, recommendations by age, interactive tools, how to talk about behaviors and weight and parent resources (including mobile app)
  — www.healthychildren.org website for parents, family
  — Next Steps guide and flipchart
  — Pediatric ePractice
    • How to set up your office space and workflow for optimally caring for children who have obesity


https://ihcw.aap.org/Pages/default.aspx; https://doi.org/10.1016/j.acap.2018.05.004

https://ihcw.aap.org/Pages/default.aspx
Possible tweet/caption: Bump up your toddler’s fruit and veggie consumption by letting him choose between 2 healthy snacks.

Possible tweet/caption: #DYK? Relying on feeding every time a baby cries can set her up for unhealthy habits later on.

CMH Fit-tastic!

www.fittastic.org
Other Parent Resources


https://www.iha4health.org/product/what-to-do-when-your-child-is-heavy/

www.kidshealth.org

Questions?

• Please email me at shampl@cmh.edu
Thank you!