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

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Overview and Learning Objectives

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

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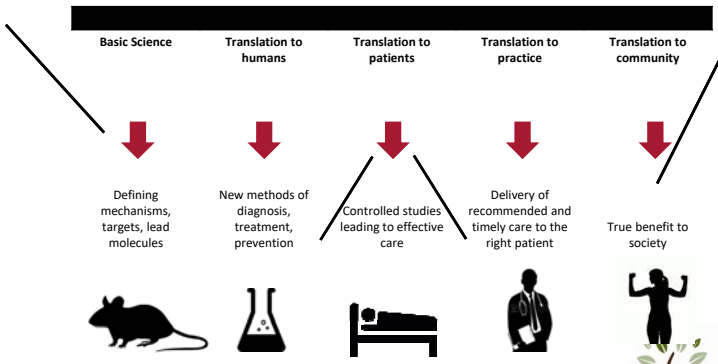
http://chlnkc.org/current-projects/
http://chlnkc.org/our-members/

Research

Dr. John Thyfault- metabolism

'translational science' related to obesity through work of our members

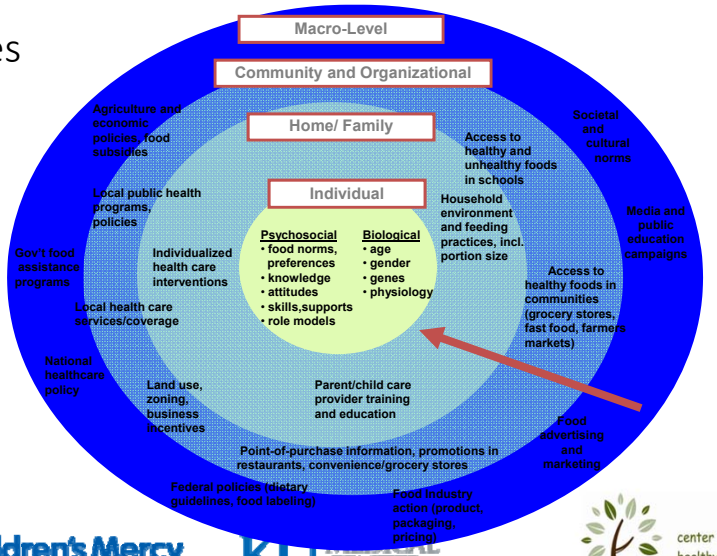
Dr. Jordan Carlson- schools



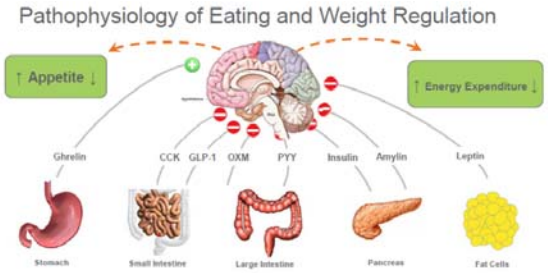
Dr. Amanda Bruce- reward Dr. Robin Shook- appetite

5

Causes



Individual pathophysiology



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Definition of obesity, severe obesity in kids

	Adult BMI	Pediatric BMI Percentile
Overweight	25-29.9	85-94th%ile
Obese	30-34.9	95-120% of 95th %ile
Class II obesity	35-39.9	120-140% of 95th %ile
Class III obesity	≥40	>140% of 95th %ile

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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

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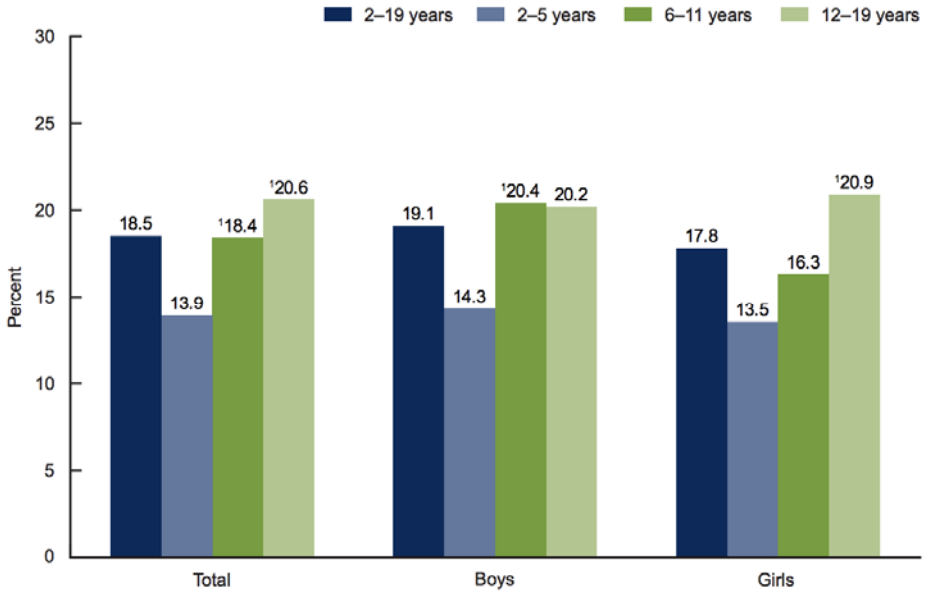
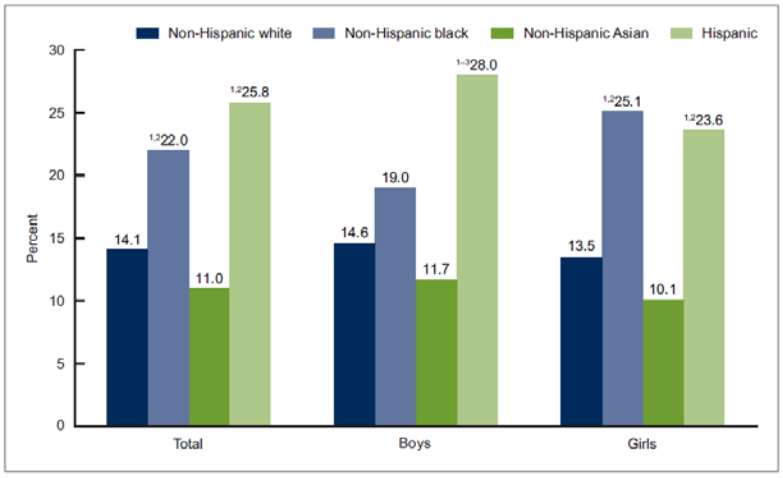
Lancet 2017(390):2627-2642

Figure 3. Prevalence of obesity among youth aged 2–19 years, by sex and age: United States, 2015–2016



Significantly different from those aged 2–5 years.
NOTE: Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#3.

Figure 4. Prevalence of obesity among youth aged 2–19 years, by sex and race and Hispanic origin: United States, 2015–2016



[1]Significantly different from non-Hispanic Asian persons.
[2]Significantly different from non-Hispanic white persons.
[3]Significantly different from non-Hispanic black persons.
NOTE: Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#4.
SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

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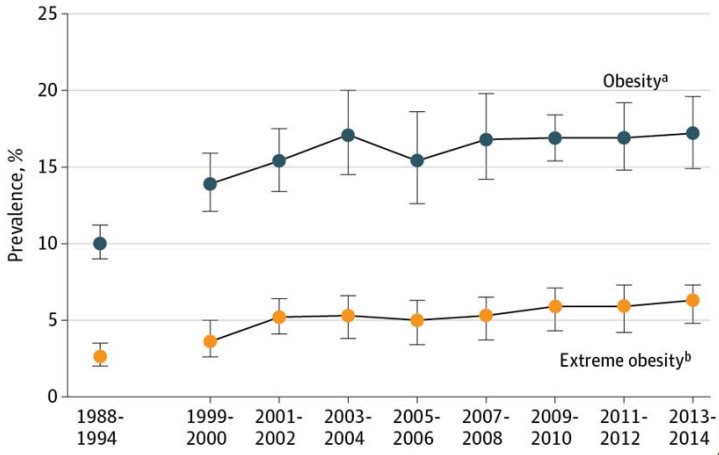
US childhood obesity, severe obesity prevalence



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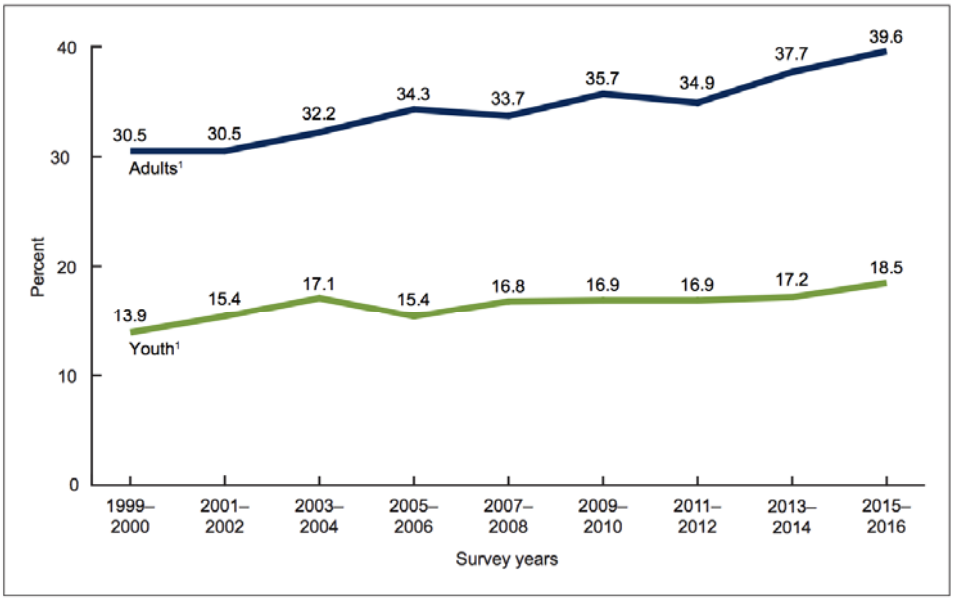
Ogden et al, JAMA 2016;315(21):2292-2299

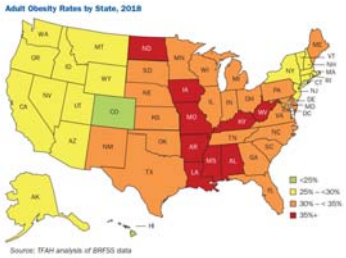
Figure 5. Trends in obesity prevalence among adults aged 20 and over (age adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2015–2016



[1]Significant increasing linear trend from 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.
SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

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 (2017 data)

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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)

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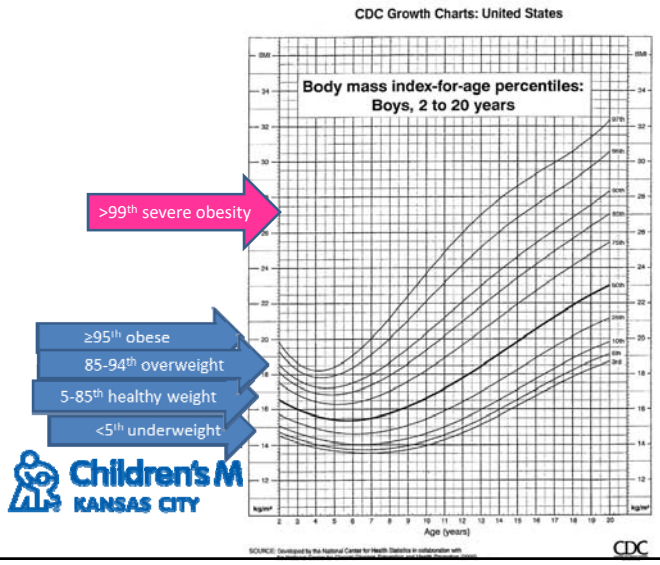
Definitions



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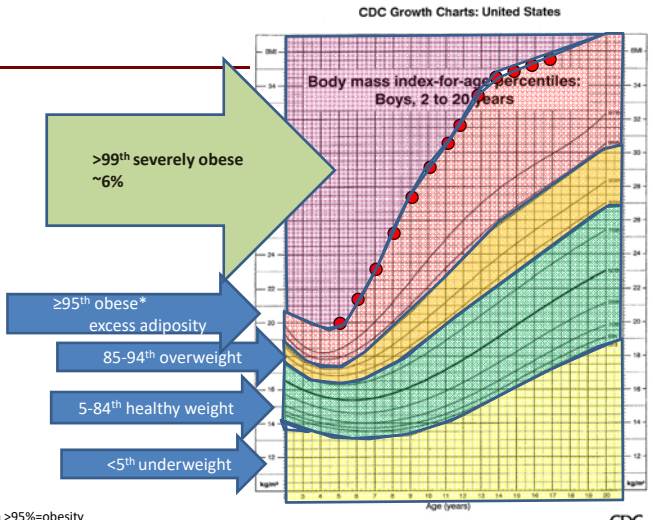
Categorize weight status



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

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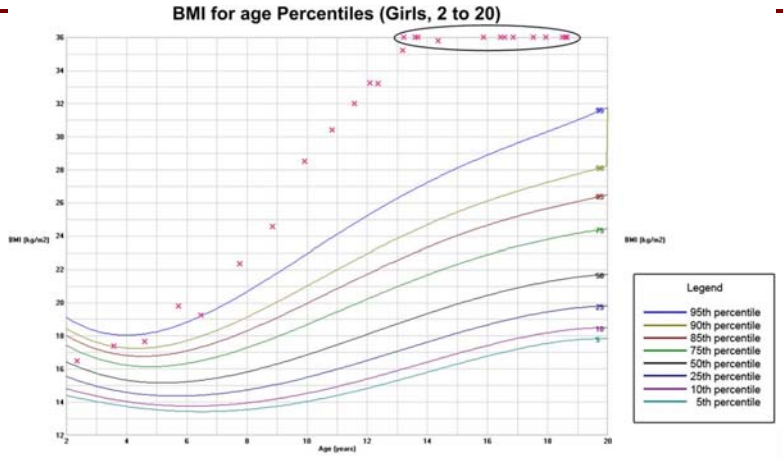
CDC enter for children's healthy lifestyles & nutrition

Traditional BMI curve falls short



Source: Centers for Disease Control and Prevention (CDC)

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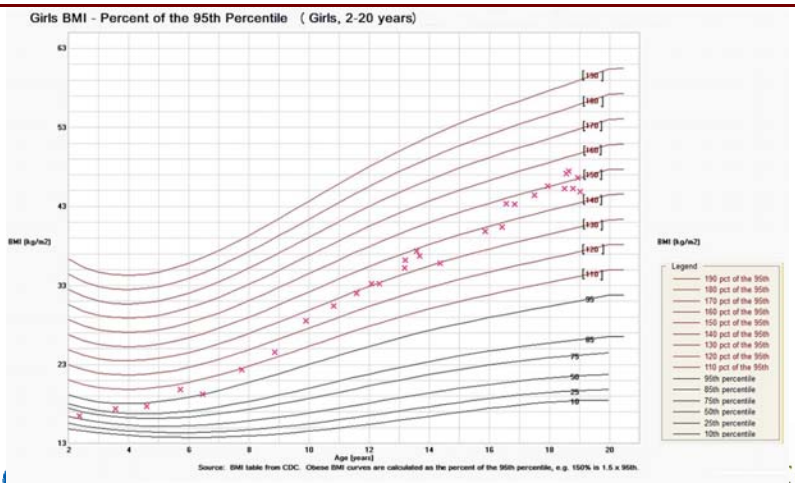
Gulati et al. Pediatrics 2012;130:1136-1140

New BMI curves coming soon



Gulati et al. Pediatrics 2012;130:1136-1140

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Resources for Assessment, Treatment

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

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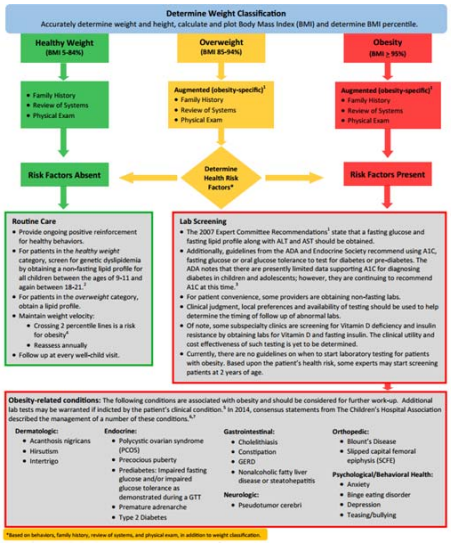
Assessment



https://ihcw.aap.org/Documents/Assessment%20%20and%20Management%20of%20Childhood%20Obesity%20Algorithm_FINAL.pdf

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

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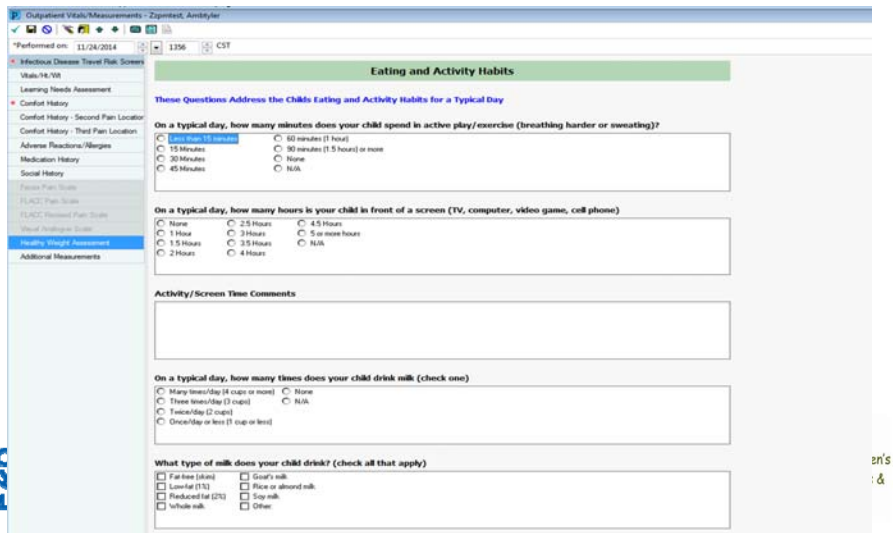
CM Healthy Lifestyles Screen



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?

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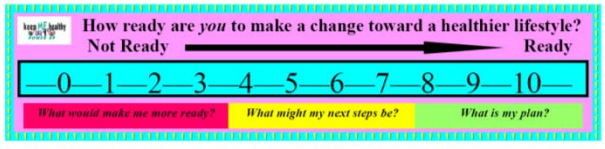
www.pediatrics.org/cgi/doi/10.1542/peds.2015-3301; https://frac.org/aaptoolkit

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?"



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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

McPherson AC et al. Obes Rev. 2017 Feb;18(2):164-182

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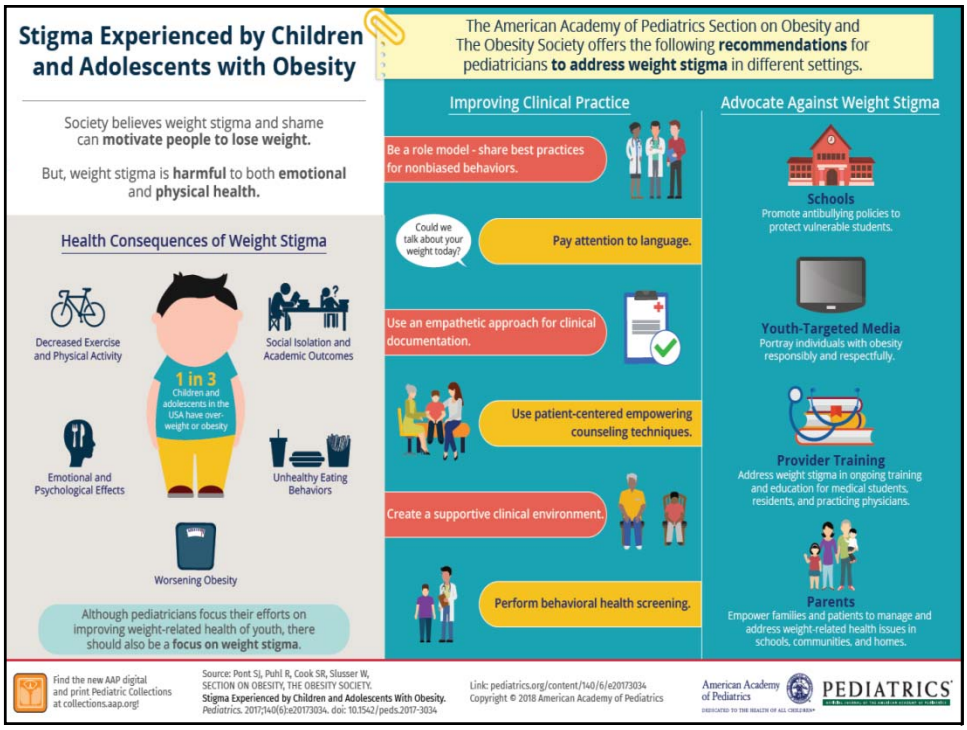

Onset/Concern

- 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

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Review of systems is guided by known medical, psychosocial complications

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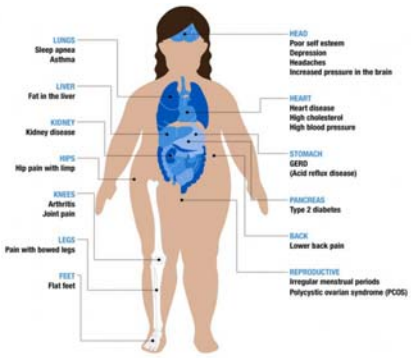
Complications



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Review of Systems

- 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)

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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

www.brightfutures.org; http://www.cqaimh.org/pdf/tool_phq2.pdf

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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

Pediatrics. 2016;138(3):e20161649

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Physical exam is guided by known medical, psychosocial complications

- New blood pressure clinical practice guideline

TABLE 6 Screening BP Values Requiring Further Evaluation

Age, y	BP, mm Hg			
	Boys		Girls	
	Systolic	DBP	Systolic	DBP
1	98	52	98	54
2	100	55	101	58
3	101	58	102	60
4	102	60	103	62
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	111	74
12	113	75	114	75
≥13	120	80	120	80

To cite: Flynn JT, Kaelber DC, Baker-Smith CM, et al. Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. *Pediatrics*. 2017;140(3):e20171904

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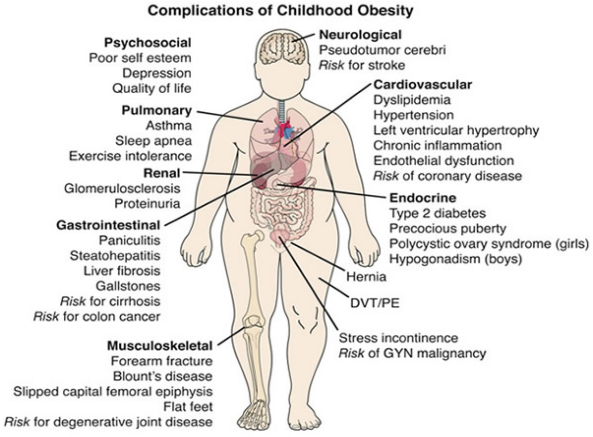

www.c2educate.com

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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

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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

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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)

Diabetes Care 2017;40(Suppl): S11-S24

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Lipid parameters (mg/dL)

Category	Low	Acceptable	Borderline	High
Total cholesterol		<170	170-199	≥200
LDL cholesterol		<110	110-129	≥130
Non-HDL cholesterol		<120	120-144	≥145
Triglycerides				
0-9 year olds		<75	75-99	≥100
10-19 year olds		<90	90-129	≥130
HDL cholesterol	<40	>45	40-45	

www.pediatrics.org/cgi/doi/10.1542/peds.2009-2107C
doi:10.1542/peds.2009-2107C

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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

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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.[8,9]
- 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 Whom: Primary Care Office/Primary Care Provider
What: Planned follow-up themed visits (15-20 min) focusing on behaviors that resonate with the patient, family and provider. Consider partnering with dietician, social worker, athletic trainer or physical therapist for added support and counseling.
Goals: Positive behavior change regardless of change in BMI. Weight maintenance or a decrease in BMI velocity.[4]
Follow-up: Tailor to the patient and family motivation. Many experts recommend at least monthly follow-up visits. After 3 – 6 months, if the BMI/weight status has not improved consider advancing to Stage 2.

Stage 2 Structured Weight Management

Where/By Whom: 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 behavior change. Weight maintenance or a decrease in BMI velocity.
Follow-up: Every 2 - 4 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 Whom: Pediatric Weight Management Clinic/Multi-disciplinary Team
What: Increased intensity of behavior changes, frequency of visits, and specialists involved. Structured behavioral modification program, including food and activity monitoring, and development of short-term diet and physical activity goals.
Goals: Positive behavior change. Weight maintenance or a decrease in BMI velocity.
Follow-up: Weekly or at least every 2 – 4 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 4.

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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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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)

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McPherson AC et al. Obes Rev. 2017 Feb;18(2):164-182

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

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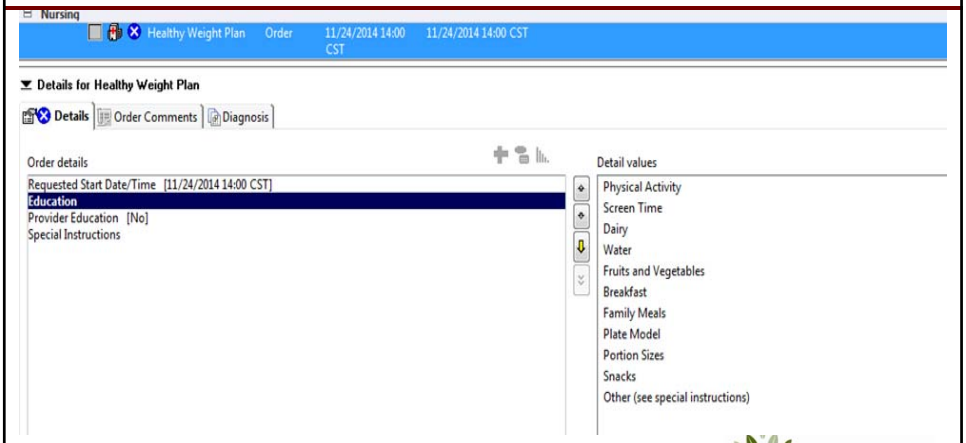
CM Healthy Lifestyle Plan



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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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

Recommended PA for kids

Bone-strengthening activity at least 3 days/week

Aerobic activity every day

Muscle-strengthening activity at least 3 days/week

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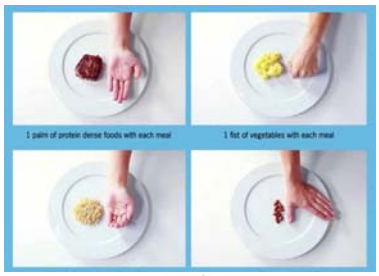
The 2018 United States Report Card on Physical Activity for Children and Youth

Tools you can use



www.myplate.gov

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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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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

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Barlow SE et al. Pediatrics 2007;120(4):S164-S192.

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

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Srivastava G and Apovian CM. Nat Rev Endocrinol. 2018 Jan; 14(1):12-24.

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

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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*

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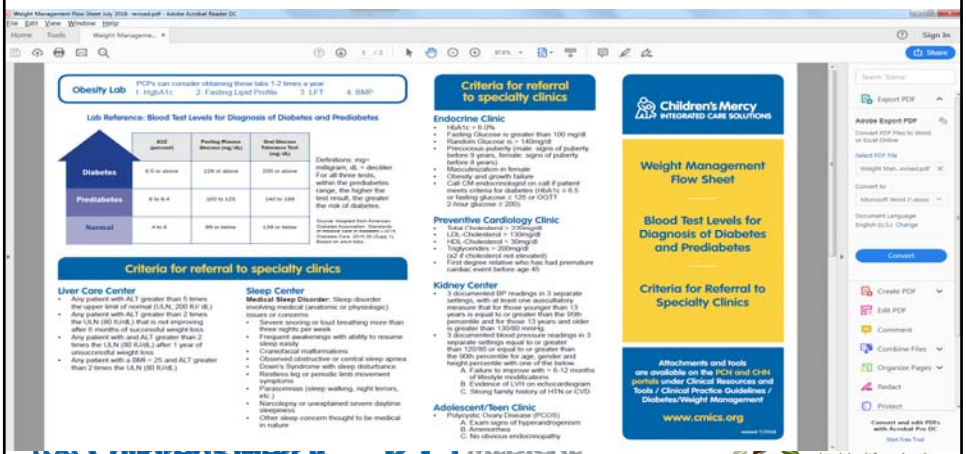
Referral for comorbidities



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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

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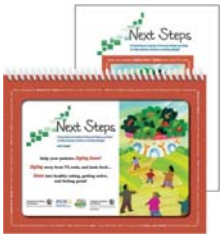
Resources for PCPs, parents



healthychildren.org
Powered by pediatricians. Trusted by parents.
from the American Academy of Pediatrics

Healthy Active Living for Families
Right From the Start

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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 media use plan
  - Next Steps guide and flipchart
  - Pediatric ePractice
    - How to set up your office space and workflow for optimally caring for children who have obesity
- Brown CL, Perrin EM.Obesity prevention and treatment in primary care.*Academic Pediatrics* 2018;18(7):736-45.

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

https://ihcw.aap.org/Pages/default.aspx

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AAP Institute for Healthy Childhood Weight social media assets

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.

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CMH Fit-tastic!

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www.fittastic.org

Other Parent Resources

www.kidshealth.org

http://www.stopobesityalliance.org/wp-content/themes/stopobesityalliance/pdfs/stopobesityalliance-weighin.pdf

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

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Questions?

- Please email me at shampl@cmh.edu

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Thank you!

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