Understanding Obesity: Evidence-Based Practices for Prevention and Management

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“Childhood obesity undermines the physical, social, and psychological wellbeing of children and is a known risk factor for adult obesity and noncommunicable diseases. There is an urgent need to act now to improve the health of this generation and the next.”

-World Health Organization
Mott Poll Report

- The annual Top 10 Mott Poll (2017) shows that adults across the country once again recognize bullying, including cyberbullying, as the leading health problem for US children. Close behind are big health problems surrounding childhood obesity: inadequate exercise and unhealthy eating.

1. Bullying/cyberbullying (61%)
2. Not enough exercise (60%)
3. Unhealthy eating (57%)
4. Drug abuse (56%)
5. Internet safety (55%)

6. Child abuse and neglect (53%)
7. Suicide (45%)
8. Depression (44%)
9. Teen pregnancy (43%)
10. Stress (43%)

Source: C.S. Mott Children’s Hospital National Poll on Children’s Health, 2017
Missouri Teen Takes His Life After Enduring Years of Bullying

- Co-workers testified that “his boss ridiculed and made him do tasks meant to humiliate him...to the point he would go outside and cry”
- His best friend testified she had seen students “bully him hundreds of times in virtually every area of the school building” and that “kids made fun of basically everything about him, including his weight, a speech impediment, the way he walked and how he acted.”

Kenneth (Kenny) Suttner
Born: January 14, 1999
Died: December 21, 2016

https://www.washingtonpost.com/news/morning-mix/wp/2017/02/02
Objectives

• Describe why childhood obesity is a public health crisis
• Highlight the need for early intervention
• Review the evidence for treatment of childhood obesity
• Detail the components of effective family-based treatment (FBT)
• Discuss the role of the school nurse in obesity prevention and treatment
• Provide relevant resources
DEFINING OBESITY
What is Obesity?

- Weight that is higher than recommended for a given height
- **Body Mass Index (BMI)** is the standard measurement of relationship between weight and height

**Children**
- BMI is categorized by sex and age using Center for Disease Control (CDC) growth charts

<table>
<thead>
<tr>
<th>Category</th>
<th>BMI 5th – 84th percentiles</th>
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</thead>
<tbody>
<tr>
<td>Healthy Weight</td>
<td></td>
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<tr>
<td>Overweight</td>
<td>BMI 85th – 94th percentiles</td>
</tr>
<tr>
<td>Obese</td>
<td>BMI &gt;95th percentile</td>
</tr>
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</table>

**Adults**

<table>
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<tr>
<th>Category</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Healthy Weight</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>BMI 25.0 – 29.9</td>
</tr>
<tr>
<td>Obesity</td>
<td>BMI ≥30</td>
</tr>
</tbody>
</table>
Body mass index-for-age percentiles:
Boys, 2 to 20 years

A 10-year-old boy with a BMI of 23 would be in the obese category (95th percentile or greater).

A 10-year-old boy with a BMI of 21 would be in the overweight category (85th to less than 95th percentile).

A 10-year-old boy with a BMI of 18 would be in the healthy weight category (5th percentile to less than 85th percentile).

A 10-year-old boy with a BMI of 13 would be in the underweight category (less than 5th percentile).

https://www.cdc.gov/growthcharts/clinical_charts.htm
Maria’s Story

Age 7
- 168 lbs
- Told she was just going through a growth spurt by pediatrician
- Mother felt blamed and concerned about daughter’s weight since she and her husband also struggle with their weight

Age 12
- 398 lbs
- Suffered unbearable stigmatization at school
- Maria and her mother completed programs together that were geared either toward adults or children, except for one which included the entire family but was not of sufficient duration

Age 14
- 443 lbs; BMI 63.6
- Gastric bypass surgery was her only option after spending countless dollars out-of-pocket on ineffective, insufficient, or non-evidence based programs
A new classification system recognizes BMI $\geq 95$th percentile as class I obesity, BMI $\geq 120\%$ of the 95th percentile as class II obesity, and BMI $\geq 140\%$ of the 95th percentile as class III obesity. Class II and III obesity are strongly associated with greater cardiovascular and metabolic risk.
OBESITY AS A PUBLIC HEALTH CONCERN
Obesity: A Leading Public Health Issue

- Obesity has now surpassed smoking as the **biggest burden on America's health**

- Linked to higher rates of chronic conditions than are smoking, drinking, or poverty

- Now affects more people:
  - **1 in 3** US children and adolescents have overweight or obesity
  - 29% of MO 10-17 year olds have overweight or obesity
  - 13% of MO 2-5 year olds have obesity
  - National costs of childhood obesity are estimated at $14 billion
  - **MO ranks 10th in state prevalence of adolescent obesity** and 17th for adult obesity


NOTES: Obesity is defined as body mass index (BMI) greater than or equal to the 95th percentile from the sex-specific BMI-for-age 2000 CDC Growth Charts.

Childhood Obesity by Sex

FIGURE 1
The prevalence of obesity and severe obesity among US children 2 to 19 years of age from 1999 to 2016.

Prevalence of Obesity Among Racial/Ethnic groups

Percentage

All: Asian (10), White (15), Black (20), Hispanic (25)
Males: Asian (10), White (15), Black (20), Hispanic (25)
Females: Asian (10), White (15), Black (20), Hispanic (25)

CDC, NCHS Databrief, 2017; Skinner et al. Pediatrics, 2018
Prevalence of **Class II** Obesity in US Children and Adolescents

![Graph showing prevalence of obesity among racial/ethnic groups]

Prevalence of Obesity Among Racial/Ethnic groups

- Asian
- White
- Black
- Hispanic

Prevalence of Class III Obesity in US Children and Adolescents

![Graph showing prevalence of obesity among racial/ethnic groups](image-url)

- **All**
  - Asian: 
  - White: 
  - Black: 
  - Hispanic: 

- **Males**
  - Asian: 
  - White: 
  - Black: 
  - Hispanic: 

- **Females**
  - Asian: 
  - White: 
  - Black: 
  - Hispanic: 

IMPACT OF CHILDHOOD OBESITY
## An Urgent Public Health Issue

By 2050, it is estimated that the prevalence of type 2 diabetes (T2D) will quadruple among youth, resulting in nearly 85,000 cases of T2D.

The likelihood of being bullied is 63% higher for a child with obesity compared to a peer who is at a healthy weight.

Children with obesity rate their quality of life as low as young cancer patients on chemotherapy.

Children with obesity have significantly higher healthcare costs; when coupled with psychological illness the costs are even higher.

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Consequences of Childhood Obesity

• Liver disease
• High cholesterol
• Depression
• Low self-esteem
• Bullying
• Higher rate of school absence
• Lower academic achievement
BMI Tracks – Predicted Probabilities of Age 12 BMI ≥85th percentile

Preschool = 1x OW >5 times as likely of OW @ 12

Elementary = the more times OW the > the odds of OW @ 12

1x = 25 times more likely of OW @12
2x = 159 times more likely of OW @12
3x = 374 times more likely of OW @12

Nader et al., 2006, Pediatrics
Obesity: A Leading Public Health Issue

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- Now affects more people:
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  - 29% of MO 10-17 year olds have overweight or obesity
  - 13% of MO 2-5 year olds have obesity
- National costs of childhood obesity are estimated at $14 billion
- MO ranks 10th in state prevalence of adolescent obesity


NOTES: Age-adjusted by the direct method to the year 2000 U.S. Census Bureau estimates using age groups 20–39, 40–59, and 60–74. Overweight is body mass index (BMI) of 25 kg/m² or greater but less than 30 kg/m²; obesity is BMI greater than or equal to 30; and extreme obesity is BMI greater than or equal to 40. Pregnant females were excluded from the analysis.

SOURCES: NCHS, National Health Examination Survey and National Health and Nutrition Examination Surveys.
Health Risk Later

- Children with obesity are more likely to become adults with obesity
- Obesity is associated with over 20 diseases such as:
  - Heart Disease
  - Type 2 Diabetes
  - Some Cancers (e.g., breast, colon, kidney, liver)
  - Osteoarthritis (a breakdown of cartilage and bone within a joint)
  - Obstructive Sleep Apnea and Other Lung Diseases (e.g., asthma)
  - Mental Illness (e.g., depression, anxiety, eating disorders)
  - Fatty Liver Disease
  - Neurocognitive Diseases (e.g., Alzheimer’s)

Pervasive Weight-Based Stigma

- Children with overweight or obesity are **more likely to be bullied** by their classmates than thinner peers
  - Likelihood of being bullied is **63% higher** for a child with obesity compared to a peer who is at a healthy weight
  - **60%** of children with overweight report victimization

- Negative impact on:
  - Peer relationships (e.g., loneliness, isolation, social rejection)
  - Psychological health and well-being (e.g., depression, poor body image, unhealthy weight control behaviors, suicidality)
  - Likelihood of participation in physical activity
Weight Based Victimization

- Multiple forms: Verbal, physical, relational, cyber
- Multiple sources: Peers, teachers, parents
- Multiple consequences: Emotional, social, physical

Puhl et al., 2011, Journal of School Health
Teasing vs Bullying

- **Teasing**: verbal taunting and unkind “jokes” used to poke fun at others
- **Bullying**: more extreme and can be damaging psychologically and/or physically
  - Verbal (taunting, name calling)
  - Social (intentionally leaving someone out and isolated)
  - Physical (pushing, tripping, taking things, making gestures)
  - Cyber (electronic through email, internet, social media, apps)
Reflection Questions

• What are your observations about weight bias among your students?

• Have you ever noticed a child being bullied or teased because of their weight? How did you respond?

• How do you think weight bias affects children?
WHAT FACTORS CONTRIBUTE TO OBESITY?
Drivers of the Obesity Epidemic

Genetic risk increases susceptibility
Genetic Risk

• Obesity runs in families
  • 60-80% of the risk for obesity is accounted for by genes
  • More heritable than other complex diseases like breast cancer, depression, heart disease

• Can affect your metabolism & physiology

• Can affect your brain
  • Genetic vulnerability to the reinforcing aspects of food

Interaction of Genes and Environment

• Interaction of genes and environment
  • Individuals with genetic predisposition are more affected by our obesogenic environment where food is everywhere
  • Example of genetic susceptibility- children who are fair-skinned may need more sun protection
Appetitive Traits

Examples of appetitive traits associated with a higher BMI

- Eating in the absence of hunger
- Placing high reinforcing value on food
- High reward sensitivity
- Rapid eating rate
- Loss of control

Kral et al. 2018, *Appetite*
Note: Bi-Directional influences within and between the systems. Obesity-related behavior are influenced by the social and physical environment, and by biological phenomena.

Not One-Size-Fits-All

- Obesity is different for each child
- Numerous combinations of the contributing factors could be the reason a child develops obesity
- Thus, there is no one-size-fits-all intervention that will meet the needs of every child
Early Intervention is Crucial

- Childhood obesity represents an important point of intervention for preventing adult obesity and associated complications
- Prevents harmful effects
- Harnesses parental support
- Fosters healthy habits
- Small weight losses can make a big impact
### Necessary Weight Change for Normalization of Weight Status in Children

<table>
<thead>
<tr>
<th>Age</th>
<th>BOYS</th>
<th>GIRLS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>90th</td>
<td>95th</td>
</tr>
<tr>
<td>8-9 y.o.</td>
<td>5.38</td>
<td>-0.09</td>
</tr>
<tr>
<td>9-10 y.o.</td>
<td>6.59</td>
<td>-0.35</td>
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<td>10-11 y.o.</td>
<td>6.06</td>
<td>-2.23</td>
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<tr>
<td>11-12 y.o.</td>
<td>7.08</td>
<td>-2.69</td>
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<tr>
<td>12-13 y.o.</td>
<td>8.60</td>
<td>-2.54</td>
</tr>
<tr>
<td></td>
<td>90th</td>
<td>95th</td>
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<td>8-9 y.o.</td>
<td>7.10</td>
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<td>11-12 y.o.</td>
<td>7.28</td>
<td>-3.37</td>
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<tr>
<td>12-13 y.o.</td>
<td>5.84</td>
<td>-6.42</td>
</tr>
</tbody>
</table>

RECOMMENDATION: The USPSTF recommends that clinicians screen for obesity in children and adolescents 6 years and older and offer or refer them to comprehensive, intensive behavioral interventions to promote improvements in weight status. (Grade B).

Recommended Interventions
Provide or refer patients to comprehensive behavioral interventions (≥26 contact hours) over a period of up to 12 months to improve weight status.

Height and weight, from which BMI is calculated, are routinely measured during health maintenance visits.

USPSTF, 2017, JAMA

APA – Behavioral Treatment of Obesity and Overweight in Children and Adolescents
http://www.apa.org/about/offices/directorates/guidelines/obesity-clinical-practice-guideline.pdf
Longer treatment duration and greater number of treatment sessions are associated with more positive results.

O'Connor et al., 2017, JAMA
Importance of Intervening with the Family

- Obesity is multi-generational
- Robust **predictors of childhood obesity associated with home/family**
  - Home food availability
  - Family meal frequency
  - Parent feeding practices
  - Parent support for physical activity
- Household routines (meal patterns, sleep, TV viewing) impact BMI
- Potential for **generalization of treatment effects to entire family**

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Traffic Light Eating & Activity Plan

**Healthy Eating**

**RED – Stop and Think!**
High in calories & fewer nutrients
*e.g., fried foods, sugary drinks, candy*
≤ 2 **RED** foods per day

**YELLOW – Caution: SLOW!**
Higher in calories but still nutritious
*Found in all food groups except fats, oils, and sweets*

**GREEN – GO!**
Low in calories but rich in nutrients
*Most vegetables including spinach, carrots, broccoli, & many more*
≥ 5 **GREEN** foods per day

**Physical Activity**

**RED – Stop and Think!**
When your body is stopped
*Screen time or playing most video games* ≤ 2 hours **RED** activity per day

**YELLOW – Caution: SLOW!**
When you are doing some activity
*Stretching, catching the ball, or playing air hockey*

**GREEN – GO!**
When you are doing physical activity
*Riding your bike, jumping rope, or playing tag*
≥ 90 minutes of **GREEN** activity per day
Family-based Behavioral Treatment (FBT)

- **First line of treatment for children and adolescents**
- Targets reduction in energy intake and increase in energy expenditure in both youth and caregivers
- Recognizes that **knowledge alone is not sufficient**
- Focuses on successive changes using **family support**
- Core strategies include: **self-monitoring, modeling, stimulus control, goal setting, contingency management**
- Shown to impact: weight status, psychosocial health, and health related parameters (e.g., blood pressure, cholesterol, insulin sensitivity)
- More cost effective than treating parent and child separately

Engineer the Environment to Support Health
Enhanced Social Facilitation Maintenance (SFM+)

**Phase 1 Targets**
- Application of self-regulatory skills to weight maintenance
- Strengthen the **Home** context to support healthy eating and physical activity

**Phase 2 Targets**
- Strengthen the **Peer** context to support healthy eating and physical activity
- Strengthen navigation of the **Community** context; utilizing opportunities for physical activity and healthy eating and problem-solving constraints

**Phase 3 Targets**
- Use self-regulatory skills to prevent relapse
- Solidify social network and community resources to promote healthy weight-related behaviors
- Strengthen and consolidate the use of weight maintenance skills across all contexts

Wilfley et al., 2017, JAMA
Dose, Content, and Mediators of FBT

- SFM+ High greater weight loss outcomes than SFM+ Low
- SFM+ High and Low both yielded significantly greater weight loss outcomes than Control
- Behavioral and socio-environmental components mediated weight outcomes
Helping Families: Nancy’s Story
Benefits of Family-Based Behavioral Treatment

• Demonstrated effectiveness for children with obesity
• Provides **combined treatment for parent** with obesity and can generalize to other family members
• More **cost effective** than separate treatment of parent and child with obesity
• Can be **individualized** and produces positive psychosocial benefits
• Can be implemented with 2-18 years of age and in diverse settings like primary care
• Family-based interventions could be used to treat: obesity in multiple family members, obesity and comorbidities in multiple family members, and obesity in the parent and prevention of obesity in children

Ecker et al., AAP, 2014.
Lack of Access to Care

• Despite national recommendations, most children in Missouri do not receive adequate care for obesity

• Access to programs in Missouri is limited
  • Many successful programs have to rely on national research grant funding for support

• Most health insurance coverage specifically excludes coverage of healthcare services related to addressing weight and/or obesity in children
Creating a Healthier Missouri

• Increase access to evidence-based programs
• Improve nutrition, increase physical activity, and create lifelong healthy behaviors
• Reduce obesity-related diseases and health spending significantly
MO Children’s Service Commission (CSC) Establishes Childhood Obesity Subcommittee

• Invited broad group of stakeholders
  State agencies (education, health, MHD), academic healthcare institutions, MO AAP, lead child care agency, funders

• Secured facilitator and report writer
  Small grants from:
  • Health Care Foundation of Greater Kansas City
  • Missouri Foundation for Health

• Convened Subcommittee monthly in 2014
• Drafted recommendations
• Conducted 4 public forums for community input
Community Input at Public Forums

Kansas City
Columbia
Saint Louis
Springfield
Missouri’s Call to Action

Subcommittee Actions
• Created 5 draft recommendations
  • Prevention (childcare)
  • Prevention (schools)
  • Treatment (family-based behavioral treatment)
  • Coordination between prevention and treatment (state centers of excellence)
  • Commission on child health and wellness (coordinating council)

http://extension.missouri.edu/mocan/childhoodobesity/
Expanding the Reach of FBT

PLAN (Primary Care Pediatrics, Learning, Activity, and Nutrition) with Families

- First large scale trial of FBT as compared to usual care in primary care settings
- Over 500 families will participate from Buffalo, Columbus, Rochester, and St. Louis
- Evaluation of generalization of effects in family members & delayed discounting as a moderator
- NHLBI #1U01HL131552-01

PCORI-funded FBT Trial

- A Pragmatic-Family Centered Approach to Childhood Obesity Treatment
- Comparing American Medical Association enhanced standard of care (eSOC) vs. eSOC + FBT and treatment moderators (i.e., race, sex)
- Over 1200 families will participate (Baton Rouge, Rochester, St. Louis)
- Inclusion of multiple stakeholders (e.g., families, providers, payers)

https://www.pcori.org/research-results/2018/pragmatic-family-centered-approach-childhood-obesity-treatment
Role of the School

Whole School, Whole Community, Whole Child (WSCC) Model
ROLE OF THE SCHOOL NURSE
Reflection Question

How often do you see students due to weight related issues?

A. Multiple times a day
B. Once a day
C. Once a week
D. Once a month
Challenges of Childhood Obesity at School

• Child may have difficulty functioning at school
  • Participating in physical activity, require the use of inhaler
  • Uncomfortable navigating school hallways, fitting into desk and seats
  • Making sense of mixed messages about positive self-esteem and body image (love your body vs change your body)
• All of these challenges may impact the child’s ability to learn, which is why they are at school
Role of the School Nurse

- **Assess**
  - Identify students with obesity who may need further evaluation
  - Assess students for risk factors associated with overweight and obesity

- **Address**
  - Develop plans for children and set goals for lifestyle modifications
  - Provide ongoing counseling to support behavior change
  - Make necessary referrals to healthcare providers

- **Advocate**
  - Promote messages encouraging healthy foods and physical activity
  - Serve as a role model for healthy lifestyle choices and encourage parents and teachers to do the same
  - Educate the school community about healthy lifestyle behaviors and the preventable health risks associated with overweight and obesity

Training needs identified by school health care professionals

- Measurement and diagnosis of obesity
  - Measuring height and weight
  - Understanding BMI
  - Talking to parents about weight
- Onward referral
  - Referral routes
  - Leaflets and resources
- Background knowledge
  - Policy and guidance
  - Consequences of overweight
- Supporting healthy lifestyles
  - Facilitating behavior change, healthy eating, physical activity

Turner et al., 2016, J Child Health Care.
Assessing Children for Obesity

- Screen for obesity
- Review provider’s physical or take own exam
- Consult growth chart
- Look for large changes in BMI %tile, weight or blood pressure

<table>
<thead>
<tr>
<th>Healthy Weight</th>
<th>&lt;85th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>85th – 94th percentile</td>
</tr>
<tr>
<td>Obesity</td>
<td>≥95th percentile</td>
</tr>
</tbody>
</table>

How often do you use the CDC Growth Chart?

![Body mass index-for-age percentiles: Boys, 2 to 20 years](CDC.gov)
Addressing the Issue:
Challenges to Consider

- Home **environment** and parental impact
  - Parental overweight or obesity may lead to lack of receptivity to discussions about the topic
  - Denied health concerns of child makes hard to get buy-in
  - Socioeconomic challenges
  - Cultural differences

- **Weight-related stigma** among health providers
  - Makes individuals with obesity reluctant to seek health care
  - Causes providers to perceive patients with obesity as being lazier than healthy weight patients
  - Can negatively affect optimism about expected improvements of patients with obesity

Preparing to Discuss Child Weight

• Begin with a compassionate point of view
• **Self-reflection** is a tool to reflect and shift mindset
• Ask yourself these questions:
  • What are my first thoughts when I see someone with overweight?
  • What judgments do I make about people with overweight?
  • If I were a child with overweight or obesity, how would I feel when I woke up in the morning to get ready for school?
  • What fears would I have about going to school?
  • What am I (as the child) thinking about myself?
  • Imagine you are the parent. What goes through your mind if you put yourself in the parent’s place? How do you feel about your child’s weight? Do you know how your child thinks/feels about his/her weight?

https://health.mo.gov/living/families/schoolhealth/pdf/SchoolNurseInterventionstoPromoteHealthyWeight.pdf
Initiating the Conversation

• Under what circumstances would you talk with the parent/child about the child’s overweight or obesity?
Discussing Child Weight with Parents

• Explain growth charts
• Inform parent of potential health consequences
• Avoid “blame” language
• Use **non-stigmatizing language** that will motivate
  • Recent data suggests perceived negative judgment from provider leads to patient mistrust
• Emphasize lifestyle change, not number on scale
• Discuss making changes in the entire family to set the child up for success (don’t want to single out the child)
• Keep the child in the room to facilitate conversation between parent and child

Shifting Language

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<th>Instead of...</th>
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<tr>
<td>Obese or overweight child</td>
<td>Child with obesity or overweight</td>
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<tr>
<td>Ideal weight</td>
<td>Healthier weight</td>
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<tr>
<td>Personal improvement</td>
<td>Family progress</td>
</tr>
<tr>
<td>Focus on weight</td>
<td>Focus on lifestyle</td>
</tr>
<tr>
<td>Diets of ‘bad foods’</td>
<td>Healthier food choices</td>
</tr>
<tr>
<td>Exercise</td>
<td>Physical activity</td>
</tr>
</tbody>
</table>
Sample Structure and Dialogue

1. Engage the student/parent:
   • *Can we take a few minutes together to discuss your health and weight?*
   • *How do you feel about your health and weight?*

2. Share information:
   • *Your child’s current weight puts them at risk for developing health conditions (e.g. heart disease and diabetes). What does this mean to you?*
   • Some ideas for staying healthy include: (share poster, brochure, tip sheet, etc.).
   • *What are your ideas for working toward a healthy weight?*

3. Make a supportive statement:
   • *I hope to partner with you and your child to achieve a healthier weight and lifestyle:*
   • Use student’s ideas from Step #2.

4. Arrange for a follow-up:
   • *Would you be interested in working together to reach a healthier weight?*
   • *Let’s set up an appointment in ___ weeks to discuss this further.*

https://health.mo.gov/living/families/schoolhealth/pdf/SchoolNurseInterventionstoPromoteHealthyWeight.pdf
Motivational Interviewing Training

- AAP partnered with Kognito to create a new tool for pediatricians and other health professionals in the fight to reduce childhood obesity
  - *Change Talk*, an interactive web-based module and mobile app, was the result
- The app helps health professionals utilize motivational interviewing techniques
- The user engages in a virtual scenario where they are the provider and they converse with a parent and child about diet, screen time habits, and exercise routines

AAP, Kognito, 2016, [http://go.kognito.com](http://go.kognito.com)
Continuing the Conversation

- Current lifestyle behaviors
  - Healthy eating
  - Physical activity
  - Adequate sleep
  - Screen time
- Psychological concerns
  - Self-esteem
  - Teasing and bullying
  - Stigma
How to Discuss Eating Habits

**Daily Routines**

- What does your family eat in a typical day?
- Do you have breakfast? What do you usually eat for breakfast?
- When eating at home, does your family routinely eat while watching the television?
- How often does your family eat out each week?
- How often are fruits and vegetables served as part of your meals?
- What do you eat for snacks?
- How many sodas or sugary drinks do you drink each day?

https://health.mo.gov/living/families/schoolhealth/pdf/SchoolNurseInterventionstoPromoteHealthyWeight.pdf
How to Discuss Eating Habits

Appetitive traits

- Do you ever eat even when you aren’t hungry (e.g. because you feel sad, because you’ll feel left out if you don’t eat the food)? How many times a week do you do this?

- Do you ever eat even when you are full (e.g. you can’t stop eating even though you are stuffed)? How many times a week do you do this?

- Do you ever do things without quickly, without thinking or planning (e.g. making impulsive food choices)? How often do you do this?

- Do you feel enjoyment and reward from eating really tasty treats (e.g. you are really sensitive to the rewarding properties of the calorie-rich, tasty food and would work really hard to have it)?

- Do you often finish eating before others, or notice that you eat really fast?

If children answer yes to these questions, they may be more vulnerable to seeking out tasty, calorie-rich foods, overeating, and obesity.

Boggiano et al. 2015, Eating Behaviors; Kral et al. 2018, Appetite
How to Discuss Eating Habits

Eating Disorders

• Do you ever eat a lot of food in a short period of time?
• Do you ever feel like you can’t control how much you are eating?
• Do you ever eat in secret because you are embarrassed by how much you are eating?
• Do you ever eat a whole lot of food even when you aren’t hungry?
• Do you ever eat until you are uncomfortably full?
• Do you ever feel very guilty or sad about how much you eat?
• Do you ever try to get rid of calories so you won’t gain weight (examples: vomiting, using laxatives, fasting, excessive exercise)?

If children answer yes to these questions, they may have disordered eating behavior that could be of concern. Follow-up would be needed.

If children answer yes to question 2, they may be more vulnerable to the eating more when portion sizes are increased, especially for calorie-dense foods.
Nutrition Guidelines for Children

ChooseMyPlate.gov
## Nutrition Guidelines for Children

<table>
<thead>
<tr>
<th>AGE</th>
<th>MALES (Sedentary)</th>
<th>MALES (Moderately active)</th>
<th>MALES (Active)</th>
<th>FEMALES (Sedentary)</th>
<th>FEMALES (Moderately active)</th>
<th>FEMALES (Active)</th>
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## What does 2000 calories look like?

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<tr>
<th>Breakfast</th>
<th>Calories: 353</th>
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<tbody>
<tr>
<td>Pear &amp; walnut ricotta toast with honey</td>
<td></td>
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</tbody>
</table>
| Carbs: 45 g  
Protein: 13 g  
Fat: 14 g  
Fiber: 7 g |

<table>
<thead>
<tr>
<th>Afternoon Snack</th>
<th>Calories: 172</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small apple &amp; 1 tablespoon peanut butter</td>
<td></td>
</tr>
</tbody>
</table>
| Carbs: 24 g  
Protein: 4 g  
Fat: 8 g  
Fiber: 5 g |

<table>
<thead>
<tr>
<th>Morning Snack</th>
<th>Calories: 233</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup Greek yogurt &amp; ½ cup blueberries</td>
<td></td>
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</tbody>
</table>
| Carbs: 19 g  
Protein: 21 g  
Fat: 9 g  
Fiber: 2 g |

<table>
<thead>
<tr>
<th>Dinner</th>
<th>Calories: 464</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken and black bean burrito bowl &amp; 5 tortilla chips</td>
<td></td>
</tr>
</tbody>
</table>
| Carbs: 71 g  
Protein: 2 g  
Fat: 13 g  
Fiber: 18 g |

<table>
<thead>
<tr>
<th>Lunch</th>
<th>Calories: 589</th>
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</thead>
<tbody>
<tr>
<td>Loaded Greek salad, hard-boiled egg &amp; 100-calorie whole wheat pita</td>
<td></td>
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</tbody>
</table>
| Carbs: 43 g  
Protein: 24 g  
Fat: 37 g  
Fiber: 15 g |

<table>
<thead>
<tr>
<th>Dessert</th>
<th>Calories: 98</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½ cups raspberries</td>
<td></td>
</tr>
</tbody>
</table>
| Carbs: 23 g  
Protein: 2 g  
Fat: 1 g  
Fiber: 12 g |

What does 2000 calories look like?

Understanding Energy Balance

Energy Intake (Calories)  Energy Output (Physical Activity)

~850 calories  Running for 2 hours
How to Discuss Physical Activity

- How many hours of television do you watch each day?
- How many hours do you spend playing video games or other screen time each day?
- How often do you play outside? Is it safe to do so?
- How often does your family do something active together? What might that include?
- How often does your parent play actively with you?
Addressing Body Image and Stigma in the Media

- Discuss impact on weight-related behaviors
- Challenge the myth that people with overweight or obesity cannot be healthy or beautiful
- Brainstorm with the children ways to evaluate themselves that are not related to appearance or weight
  - Reduce body checking behaviors (e.g., scrutinizing aspects of one’s body he/she does not like)
  - Promote positive self-talk and affirmations
How to Discuss Teasing and Bullying

• Ask about their experience with stigmatization and teasing
  • If a child becomes emotional when discussing weight, eating, or food, ask if the family and/or friends comment on the child’s weight or eating behavior
• Be an ally—part of the child’s support system
  • Be a safe person to talk to about bullying and teasing
• If a parent expresses concern about their child’s self-esteem or depression, ask if bullying or teasing is occurring within or outside the home

STOP
BULLYING
NOW
STAND UP • SPEAK OUT

Puhl et al, 2012, Pediatrics
Talking on Teasing and Bullying

• Be patient, child may be hesitant to talk about teasing experiences for fear of further teasing
• Ask a short, direct question, *Is something bothering you?*
  • Don’t force it or pry
  • Let child know you will listen later when he or she is ready
• When the child is ready:
  • Be calm
  • Use active listening
  • Validate their feelings and experiences
  • Establish next steps
Suggestions for Coping with Teasing and Bullying

• Ignore the teaser—although this may make the teasing worse
• Find social support
  • Have child contact supportive friends or family members
• Practice positive self-talk strategies
  • Emphasize self-acceptance and positive self-esteem
• Role play bullying or teasing scenarios and discuss methods for problem-solving
  • Communicate to the teaser that his or her comments were hurtful and inappropriate
• Refer to the school counselor
• Contact parents, teachers, and principal
Connect Child and Family to Resources

• Connect and refer to primary care providers
• Connect to specialists in the area
• Provide handouts on healthy eating and lifestyle tips
• Physical activity resources
  • Sports teams
  • YMCA
  • Parks & Rec centers
• Identify/suggest community resources (St. Louis community example)
  • FBT in primary care settings (coming summer 2019)
  • YMCA weight management programs
  • Head to Toe at Children’s Hospital
  • Live Right! At Cardinal Glennon
  • Pediatric Nutrition Services, Inc. (PEDS)
Nutrition & Physical Activity Resources

Choosemyplate.gov

- A robust site with nutrition and physical activity information for both adults and children. Includes various interactive games and videos that can introduce health topics to children.

Nutrition.gov

- Provides trustworthy and accurate information to help family make healthy eating choices. The site contains information ranging from basic nutrition, specific health concerns, food storage, to food and nutrition app recommendations.

Fruitsandveggiesmattermore.org

- Provides information to help families eat more fruits and vegetables, find healthy recipes, and meal plan. Also includes resources health tips and activities for children.

Snaped.fns.usda.gov

- A dynamic online resource center for families receiving SNAP-Ed

Extension.missouri.edu/hes/nutritionhealth/

- Contains information and education on a variety of nutrition, healthy, and physical activity topics.
School Nurse-Delivered Interventions

Five randomized controlled trials (RCTs)

- 3 RCTs found significant effects of intervention on BMIz; although, the differences were small effects (.02 to .1 change in BMIz)

- Successful Intervention Components
  - 2 year prevention program with curriculum implementation & school nurse-delivered nutrition counseling
  - 6 week after-school program with parent education and support groups by school nurses
  - 2 year screening program with individual counseling and screening by school nurses

- Majority of trials had low-to-moderate dose (or contact time) of intervention

Summary of the Role of the School Nurse in Interventions

- School nurses can play important role in screening for overweight and obesity
- Screening strategies implemented by school nurses have potential to reduce prevalence of overweight and obesity
- The role of the school nurse can involve individual counseling, leading support/educational groups
- Overall more research needed to understand potential role for school nurse in intervention trials
- Small intervention effects suggest the need for higher intensity multi-component interventions that engage families to yield greater intervention effects
Child Information

**Name:** Lucy  
**Age:** 12  
**Grade:** 7th  
**Race:** African American  
**Height:** 5’3”  
**Weight:** 205 lbs  
**BMI:** 36.3, 99th percentile, 144% of the 95th percentile

**Prior Treatment/Weight Management History:** None.  
**Medical History:** Asthma  
**Psychiatric History:** No diagnoses; currently seeing counselor at school for the last year about teasing

**Background:** Lucy has several close friends at school, but does not identify as being popular. She recently has experienced teasing by some peers about her weight, and has been seeing the counselor to deal with this issue. She participates in band and is on the student council. She expresses exercising is difficult because of her asthma. She gets along with her brother Mark, who is seven years old. Mark is within a healthy BMI% range for his age. Lucy is motivated to lose weight, and wants to be able to join the soccer team.

**Initial Appointment**

Partner with someone to role play
Calculating Lucy’s BMI Percentile

1) Go to online BMI Calculator, enter child’s information
   • [https://www.cdc.gov/obesity/resources/multimedia.html#Widgets](https://www.cdc.gov/obesity/resources/multimedia.html#Widgets)
2) Enter child information, then calculate BMI percentile
3) Click “see BMI-for-Age Percentile Growth Chart”
Child Information

Name: Lucy
Age: 12
Grade: 7th
Race: African American
Height: 5’3”
Weight: 205 lbs
BMI: 36.3, 99th percentile, 144%

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Partner with someone to role play

Initial Appointment
Lucy’s Progress

• After meeting with the school nurse, Lucy has been focusing on healthier snack choices and incorporating more lifestyle activity into her daily routine, like walking to and from school.
• She is interested in joining a soccer team but is having hesitations.
• Despite these efforts teasing from her brother has started and is taking a toll on her self-talk and self-esteem.

Now switch roles and role play

Follow-up Appointment
Discussion

• What strategies worked well?
• What aspects of the conversation were challenging?
ADVOCACY IN THE SCHOOL
Strategies

What strategies can be implemented in your school to increase awareness of weight bias and reduce weight-based bullying?
School bullying policy

- What is your school’s current policy on bullying?
  - Is this policy adequate to protect children with overweight or obesity from being victimized because of their weight?
  - Talk to your school principal and counselors about establishing a no-tolerance policy on bullying and ways to reinforce the policy
Where to Advocate

Areas to advocate for healthy lifestyle and make positive changes

• School bullying policy
• Cafeteria
• Physical activity
• Classroom activities
• Extracurricular, before/after-school programs
• Staff
• Policies around phone and tablet use

Clarke et al., 2013. Obesity Prevention.
The Cafeteria

- Take an inventory of what breakfast, lunch, snack, and beverages options are provided
- If your school or school district has a dietitian or food service director, **collaborate** with them to offer healthier food choices and health events
- Look online to see if your cafeteria posts upcoming menus or nutritional information
- **Limit access** to vending machines and concession stands and advocate for selling healthier options

Clarke et al., 2013. *Obesity Prevention.*
Classroom Activities

• Provide healthy foods at class parties
• Work with teachers to incorporate these topics into the curriculum:
  • Nutrition or physical activity education
  • Teasing and bullying
  • Positive self-talk, self-esteem and body image?
• Implement a few physical activity breaks throughout the day, in addition to recess

Clarke et al., 2013. Obesity Prevention.
Evidence-based Rewards

• Eating tasty foods activate happy brain chemicals, but other rewarding activities do too! Examples:

- Exercise
- Playing with Friends
- Playing with Pets!
- Getting sunshine!

Physical Education and Recess

• Does your school have required physical education classes and recess?
• What equipment is available? Can it be improved?
• Discourage school policies that allow for physical activity to be withheld (no recess) or used as punishment (push-ups or running laps)
• Make sure gym classes encourage high-intensity physical activities
• Offer enough time for physical education
• Encourage students to be physically active during recess instead of sitting and talking with friends

Clarke et al., 2013. Obesity Prevention.
Extracurricular Activities & Before/After School Programs

• Advocate for new sport teams or clubs to promote physical activity
• Ask leaders of before or after-school programs to incorporate physical activity—can gym space/equipment or playground space be used?
• Initiate a student-led health or wellness club
• Offer healthy snacks/beverages at practices, games, club meetings or care programs

Clarke et al., 2013. Obesity Prevention
Staff

- Encourage teachers to discuss health and wellness with students
- Educate the staff on weight-based bias or stigma
- Ask teachers to be a role model for health and wellness—i.e. provide healthy food and beverage options at staff meetings
- Incentivize employees for promoting health and wellness

Clarke et al., 2013. Obesity Prevention
Other Ways to Help

• Role model a healthy lifestyle yourself!
• Apply for health and wellness grants
• Lead fundraisers for school resources that promote healthy lifestyles
• Organize a school-wide walk or run for all students and teachers
• Partner with community organization for cooking demonstrations
• Organize a school wellness day for students before standardized testing days
Reflection Question

What changes would you like to see at your school?
Where to Begin

Changes I Would Like To See At My School

Change: _____________________________________________
I would need to contact ________________________to take on this change. ________________________would support me in this change
This change would be easy/hard on a scale of 1-5 (1 being easiest and 5 being hardest)
1  2  3  4  5
Steps to getting started: _____________________________________________
_________________________________________________________
SCHOOL-BASED HEALTH CENTERS
School-Based Health Centers

- School-Based Health Centers (SBHCs) provide medical, behavioral, dental, and vision care directly in school.
- SBHCs help serve low-income children and adolescents who experience disparities in health care access and outcomes.

![Graph showing the student population of schools with SBHCs across different racial groups.](image)

School-Based Health Alliance, 2013-2014 Census Report
School-Based Health Centers

- 2315 SBHC in the United States
- 4 SBHC in Missouri in 2014, but that number is growing

School-Based Health Alliance, 2013-2014 Census Report
School-Based Health Centers

A promising avenue for obesity treatment and prevention
• Serves low-income minority groups, who are most at-risk for developing obesity, in a setting that is accessible and familiar
• Interdisciplinary team to comprehensively treat obesity
  • Behavioral health provider- can address the psychological consequences of obesity (depression, anxiety, low self-esteem) and help with behavioral change
  • Expert in nutrition- can provide nutrition education
  • Primary care provider- can run medical tests and monitor the medical complications related to obesity (i.e. Type II Diabetes)
• The majority of SBHCs have a primary care provider and a behavioral health provider. A growing number have an extended care team (i.e. experts in nutrition, social services, etc.)
School-Based Health Centers

What are SBHCs doing to prevent and treat childhood obesity?

• During the 2013-14 school year, 84 percent of school-based health centers provided individual, 44 percent provided small group, and 27 percent provided classroom healthy eating and active living activities.

• Example- a randomized-controlled trial (Kong et al. 2013)
  • Participants: 60 high school students at or above the 85th percentile and their caregivers
  • 2 conditions
    • Control- 1 visit with the SBHC Provider who prescribed recommendations for a healthy weight
    • ACTION Intervention- A visit every few weeks (8 total visits) with a trained SBHC nurse practitioner using motivational interviewing to improve eating and physical activity
  • Results: 0.3% reduction in BMI percentile for the intervention, 0.2% increase for control

Kong et al., Journal of Obesity, 2013; School-Based Health Alliance, 2013-2014 Census Report
RECOMMENDED RESOURCES
Recommended Resource

Resource Guide

School Nurse Interventions to Promote Healthy Weight

Laura Beckmann

Director of Health, Physical Education and School Wellness
Department of Elementary and Secondary Education
Phone: 573-751-7613
laura.beckmann@dese.mo.gov
Health, Physical Education and School Wellness

https://health.mo.gov/living/families/schoolhealth/pdf/SchoolNurseInterventionstoPromoteHealthyWeight.pdf

https://dese.mo.gov/contacts/laura-beckmann
Additional Resources

• World Health Organization
  • Report of the Commission on Ending Childhood Obesity
    http://apps.who.int/iris/bitstream/handle/10665/204176/9789241510066_eng.pdf;jsessionid=B219CF2FCF0FBA8DF83FA0AC0F9316F2?sequence=1

• Robert Wood Johnson Foundation and Trust for America’s Health
  • The State of Obesity: Better Policies for a Healthier America
    https://stateofobesity.org/

• Missouri Eating Disorders Council
  • School Nursing and Eating Disorder Detection, Intervention, and Care, by Dr. Stephanie Bagby-Stone
    https://missouri.app.box.com/s/f4k2syxa2bhc4ostvau6aug13tqk51h7

• The Rudd Center for Food Policy and Obesity
  • Training Providers on Weight-Based Stigma
Additional Resources

• Next Steps AAP
  • [https://shop.aap.org/next-steps-a-practitioners-guide-for-themed-follow-up-visits-for-their-patients-to-achieve-a-heal/](https://shop.aap.org/next-steps-a-practitioners-guide-for-themed-follow-up-visits-for-their-patients-to-achieve-a-heal/)

• The Importance of Addressing Weight-based Bullying with Your Pediatric Patients: An excellent webinar with CME’s
  • [https://ihcw.aap.org/resources/Documents/The%20Importance%20of%20Addressing%20Weight-based%20Bullying_Final%20Slide%20Deck_Enduring.pdf](https://ihcw.aap.org/resources/Documents/The%20Importance%20of%20Addressing%20Weight-based%20Bullying_Final%20Slide%20Deck_Enduring.pdf)

• Childhood Obesity in Primary Care: Six educational modules with CME’s
  • [https://ihcw.aap.org/Pages/ChildhoodObesityPC.aspx](https://ihcw.aap.org/Pages/ChildhoodObesityPC.aspx)

• Advocacy: To assist in the advocacy role
  • [https://ihcw.aap.org/Pages/default.aspx](https://ihcw.aap.org/Pages/default.aspx)

• Change Talk: Free app available at
  • [www.aap.org/healthyweight](http://www.aap.org/healthyweight)
Additional Resources

• Helpful links for low resource families
  • WIC Food Guide: https://health.mo.gov/living/families/wic/wicfoods/index.php
  • Missouri Extension: http://extension.missouri.edu/fnep/index.htm
• For SNAP families
  • https://snaped.fns.usda.gov/recipes-menus
Provider Training to Screen and Initiate Evidence-Based Pediatric Obesity Treatment in Routine Practice Settings: A Randomized Pilot Trial

Rachel P. Kolko, PhD, Andrea E. Kass, PhD, Jacqueline F. Hayes, BA, Michele D. Levine, PhD, Jane M. Garbutt, MB, ChB, Enola K. Proctor, PhD, & Denise E. Wilfley, PhD

ABSTRACT

Introduction: This randomized pilot trial evaluated two training modalities for first-line, evidence-based pediatric obesity services (screening and goal setting) among nursing students.

Method: Participants (N = 63) were randomized to live interactive training or Web-facilitated self-study training. Pretraining, post-training, and 1-month follow-up assessments evaluated training feasibility, acceptability, and impact (knowledge and skill via simulation). Moderator (previous experience) and mediator (content engagement) analyses were conducted.

Results: Nearly all participants (98%) completed assessments. Both types of training were acceptable, with higher ratings for live training and participants with previous experience (p < .05). Knowledge and skill improved from pretraining to post-training and follow-up in both conditions (p < .001). Live training demonstrated greater content engagement (p < .01).

Conclusions: The training package was feasible, acceptable, and efficacious among nursing students. Given that live training had higher acceptability and engagement and online training offered greater scalability, integrating interactive live training components within Web-based training may optimize outcomes, which may enhance practitioners’ delivery of pediatric obesity services. J Pediatr Health Care. (2017) 31, 10-26.

KEY WORDS

Childhood obesity, nursing curriculum, evidence-based guidelines, training, simulation.

Evaluated methods of training nurses
Key Messages

• School nurses have an important role in addressing childhood obesity
• Opportunity to treat obesity as a disease of concern
• Drive forward behavior change with students and families through discussion, small goal setting, and serving as an ally
• Look for opportunities within the school system to make change
• Use existing resources to support your efforts
• Connect with likeminded individuals to drive change in your school and community
Thank You!

Denise Wilfley wilfleyd@wustl.edu