Using Evidence-based Practices to Provide Nutrition and Physical Activity Counseling in the SBHC

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1. To describe the evidence-based guidelines for providing nutritional and physical activity counseling for overweight/obese children seen in SBHCs.

2. Demonstrate how motivational interviewing can be used to address pediatric overweight and obesity.
Disclosure Statement – no financial relationships to disclose

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Statement of Disclosure

I have no relevant financial relationships with commercial interests pertaining to the content presented in this program.
Prevalence of Obesity Among Children & Adolescents

Obesity by age group by year

BMI ≥ 95%

- 2-5 yrs
- 6-11 yrs
- 12-19 yrs

Health Information Technology to Support Clinical Decision Making in Obesity Care

Last Updated: January 12, 2015
Prevalence of Overweight/Obese Children & Adolescents

Overweight by age group by year

BMI ≥ 85%
Ethnic Disparities in Childhood Obesity

Ogden, C. et al. (2012)

Overweight (≥ 85%)

Obese (≥ 95%)

Non-Hisp White  Non-Hisp Black  Mexican-American

Last Updated: January 25, 2016

Health Information Technology to Support Clinical Decision Making in Obesity Care
AHRQ # 1R18HS018646-01A1
Health Risks of Being Overweight

Potential Problems in Childhood
- Type II Diabetes
- Joint Problems
- High Blood Pressure
- High Cholesterol/Lipids
- Asthma/Sleep Apnea
- Depression/Self-Esteem
- Eating Disorders

Additional Potential Problems in Adulthood
- Heart Attack
- Stroke
- Cancer
- Gallbladder Disease
- Kidney Stones
- Osteoarthritis
- Pregnancy Complications
Health Risks: Psychosocial

• School Performance in Middle Schoolers
  - Students with BMI > 85%ile had lower grades (p< 0.001) and lower physical fitness scores (p< 0.0001).
  - GPA was 0.4 letter grade lower than normal weight students
  - Students with BMI > 85%ile had more detentions, poor attendance, tardiness, and less participation in athletics.

• Quality of Life
  - Obese children and their parents rate the quality of life as similar to pediatric cancer patients.

Universal Recommendations

Family History
- Early CV events
- Hypertension
- Diabetes

Using MI Discuss
- Growth
- Activity
- Eating habits

Growth Charts
- H/W
- BMI, BMI% for age > 2 yrs
- Infant weight/length ratio
Assessment

MyActivity Pyramid
- Be physically active at least 60 minutes every day.
- Use these suggestions to help meet your goal.

- Inactivity cut down
- Flexibility and Strength
  2-3 times a week
- Active Aerobics and Recreational Activities
  3-5 times a week
- Everyday Activities
  as often as possible

Health Information Technology to Support Clinical Decision Making in Obesity Care

© University of Missouri (2006)
Body Mass Index (BMI):

- Surrogate measure of body fat
- Correlates with adiposity
- \( \text{BMI} = \frac{\text{Weight in Kilograms}}{(\text{Height in Meters})^2} \)

Measurement of Growth

Chart BMI percentile

http://www.cdc.gov/growthcharts/
Laboratory Screening Recommendations

- BMI ≥ 85% and no risk factors
  - Fasting lipid panel only
- BMI ≥ 85% plus 2 risk factors (FH, ↑BP, ↑lipids, tobacco use)
  - Fasting lipid panel
  - AST and ALT
  - Fasting glucose
- BMI ≥ 95%
  - Fasting lipid panel
  - AST and ALT
  - Fasting glucose
Developmental Factors and Communication

- Assess school behaviors (eating, activity, junk food)
- Tanner Stage (sexual maturity)
- BP percentile for age, sex, height
- Discuss physical, psychosocial and emotional changes
- Set goals and ask which of the recommendations might work for them
- Encourage parents to model a healthy lifestyle!
Nutrition Essentials, Optimal Feeding and Eating Behaviors

- Family meals
- Breakfast every morning
- Limiting sweetened beverages
- Food from all groups
- Portion control
- Include friends and family members when you can
Encourage Physical Activity

Current recommendations:

At least 60 minutes of physical activity daily.

- Most should be moderate or vigorous aerobic physical activity
- Muscle strengthening 3 days per week
- Bone strengthening 3 days per week
- Should be appropriate for age

Physical Activity and Sedentary Behavior

- Limit screen time to 2 hours per day
- No TV in the bedroom
- Encourage variety of active play options, preferably outdoors
• Lack of sleep linked to overweight
• Assess sleep behaviors
• Recommendations
  – Regular bedtime
  – Bedtime routine
  – Limit distraction in bedroom (no cell phone, computer, TV in bedroom)
  – Adequate duration for age

http://www.cdc.gov/features/sleep
Treatment

BMI: 85-95%

BMI ≥ 95%

Assessment
- Medical
- Health behavior
- Readiness to change

Prevention

Stage 1

Stage 2

Stage 3

Stage 4

Expert Panel Recommendations, 2007
## Stage 1: Prevention Plus

### What

- $\geq 5$ servings of fruits and vegetables per day
- $\leq 2$ hrs of television per day
- No television in bedroom
- ↓ sugar sweetened beverages
- Portion control
- Daily breakfast
- ↓ eating out
- Family meals
- $\geq 60$ min physical activity per day

### How

- Setting- PCP office
- Personnel- PCP or staff
- Visits- based upon readiness to change & severity of condition
- Advance stage based upon progress, medical condition, risks, length of time, & readiness to change.

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Expert Panel Recommendations, 2007
Stage 2: Structured Weight Management

What

• In addition to above
• Targeted effort to ↓ calories
• Balanced macronutrient diet
• ↓ screen time
• Focused behavior change counseling
• Self/parent monitoring

How

• Setting- PCP office + dietician
• Personnel- PCP + RD if available
• Connect with community programs
• Visits- monthly tailored & based upon readiness to change & severity of condition
• Support from mental health provider as needed
• Advance stage based upon progress, age, medical condition, risks, length of time, & readiness to change

Expert Panel Recommendations, 2007
Stage 3: Comprehensive Multidisciplinary Treatment

**What**
- In addition to all of above
  - More frequent visits (weekly)
  - Structured monitoring with assessment measures
- Multidisciplinary approach (dietician, psych, physical therapist, MD, NP, PA)
- Behavioral modification training for parents
- Strong parental involvement initially
- Group sessions may be helpful

**How**
- Setting- PCP coordinates care
  - Structured wt management program 8-12 weeks
  - Referral when available
  - Co-manage with experts if not available
- Personnel- interdisciplinary team: behavior, RD, PCP
- Visits weekly include nutrition, exercise & behavioral counseling
  - Goal setting
  - Monitoring
- Advance depending on response, age, health risk, motivation, & availability of Stage 4 programs.

Expert Panel Recommendations, 2007
Stage 4: Tertiary Care Treatment

**What**
- Consider referral for medical, surgical, meal replacement therapy to supplement behavioral tx

**How**
- Pediatric weight management center
- Multidisciplinary team with experience with children & adolescents
- Visits- according to clinical protocol

Expert Panel Recommendations, 2007
Motivational Interviewing

Creating a Working Partnership Using Motivational Interviewing
Motivational Interviewing: A Paradigm Shift

- Empowering, client centered, and collaborative
- Focus on individual beliefs
- Believe in client’s abilities
- Positive reinforcement
- Providing tools for life skills and behavior change

Motivational Interviewing Process

- Establish Rapport
- Set an Agenda
  - Assess Importance
  - Assess Confidence
  - Assess Readiness
  - Explore Importance
  - Build Confidence
Sample MI in practice
Advocacy Guidelines

napnapHEAT

Healthy Eating & Activity Together

NICHQ
Be Our Voice
• Research indicates widespread failure to implement guidelines
• Despite the recommendations to screen BMI
  • BMI documented in 5% of initial visits for children dx with obesity during WCC visit (Mabry, 2005)
  • <1% (0.93%) of WCC visits documented a diagnosis of obesity (Cook, 2005)
• Chart audit of 191 WCC visits (20% of population) at a SBHC (Kopanos, unpublished)
  • 98% had a weight and height documented
  • 20% had a BMI documented
  • 17% had a BMI %
  • 84% of those ≥ 3 years old had a BP
  • 1% had BP % for age
Specific Aims

Comparative effectiveness trial

1. To evaluate the effectiveness of web-based training with and without computerized clinical decision support on provider’s process and outcome behaviors related to implementing the current guidelines for prevention of obesity and related conditions.

2. To explore the role of HIT in the processes of system change for implementation of the guidelines for prevention of obesity and related conditions including the facilitators, barriers, and impact of the care model on change.
Sample and Methods

- 24 SBHC providers from six states (AZ, CO, MI, NC, NM, NY)
- Measures
  2. Providers conduct chart audit pre, post, 1 year post on 32 charts.
  3. Parents complete a satisfaction survey (n=32) independent sample after well child visit at same intervals.
  4. Focus groups of adopters and non-adopters at the end.
Virtual Collaborative

Four learning sessions over one year

1. Overview of recommendations/guidelines
2. Motivational Interviewing
3. Culturally sensitive care and community collaboration
4. Sharing lessons learned
Technology Approach

Formative Considerations:

✓ Accessibility
✓ Transparency
✓ Usability
✓ Cost, Expertise
HEART SMART KIDS

www.heartsmartkids.com
HEARTSMARTkids

Cardiovascular risk summaries for pediatric patients in less than a minute of staff time

Step 1
Patient Interview

Self-guided, takes 2-6 minutes in waiting room or measurement station
Covers:
- Eating Habits
- Activity/Sedentary Levels
- Smoke Exposure
- Updated CV Family History

Step 2
Measurement Entry

takes 30 seconds on any office computer web browser and printer

Results:
- BMI, BMI%
- (Pre)hypertensive BP levels
- Growth Charts
- Guidelines and Recommendations
- Provider Guidance based on 2007 guidelines

©2008 HeartSmartKids, LLC
Patient interview

• Self-guided
• 2-6 minutes to gather behavioral information
Family History of CV Risk

Family History

Please indicate any family members who have had heart attacks or strokes before age 55, or have been told they have high cholesterol.

Uncles and Aunts

Don't Know »

Previous »

Cancel Interview »

None »
Sedentary Time

How many hours per day does your child spend watching TV, using the computer, playing video games, or on the telephone?

0 1 2 3 4+
Your Recommendations
Choose one or two changes to work on for several weeks. Experts advise not making many changes at the same time.

Activity
It seems you are doing a good job keeping your child active. Being active is very important for your child's health.

Nutrition
Give your child portion sizes that fit his or her age. Restaurants often give more food than children need.
Do not eat out more than two times per week.
Give your child a glass of milk with each meal.
Drink no more than one can or glass of sweet drinks each day (or 2-3 each week).
Remove all soda from the house.
At restaurants, order water instead of sweet drinks.

Notes from your provider:
Multi-level modeling as appropriate

Constant comparison method of analysis for the focus group data.
Results

MI Total Score

- Objectives Met
- Interesting Speaker
- Useful Information
- Knowledgeable Speaker
- Useful Audiovisual
- Average of Items
Results

- Qualitative data suggests
  - Providers plan to incorporate MI into their visits
  - Change the way they discuss behavior change
  - Use MI tools when counseling patients
## Pertinent Review of Symptoms

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pre &amp; Post</th>
<th>Just Post</th>
<th>Just Pre</th>
<th>Neither</th>
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<tbody>
<tr>
<td>Poor self-esteem* (M,O)</td>
<td>14</td>
<td>6</td>
<td>-</td>
<td>2</td>
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<td>Eating disorders* (M,O)</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>12</td>
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<td>Depression (M,O)</td>
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<td>3</td>
<td>3</td>
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<td>History of abuse* (M,O,S)</td>
<td>14</td>
<td>5</td>
<td>-</td>
<td>3</td>
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<td>Readiness to make changes (M,O)</td>
<td>15</td>
<td>4</td>
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<td>1</td>
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<tr>
<td>Parent concern about weight (M,O)</td>
<td>13</td>
<td>5</td>
<td>3</td>
<td>1</td>
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<td>Patient concern about weight (M,O)</td>
<td>20</td>
<td>2</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Being teased about weight (M,O)</td>
<td>12</td>
<td>3</td>
<td>2</td>
<td>5</td>
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<td>Family dynamics (M,O)</td>
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<td>6</td>
<td>1</td>
<td>5</td>
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*Significant change pre-test to post-test (p<0.05)
M=Most of the time; O=Often; S=Sometimes
## Provider Adherence to Recommendations

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<td>4</td>
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<td>Dyslipidemia (M,O)</td>
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<td>1</td>
<td>-</td>
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<td>Gallbladder disease (M,O)</td>
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<td>4</td>
<td>1</td>
<td>16</td>
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<td>Eating disorders in the parents*</td>
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<td>-</td>
<td>16</td>
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<tr>
<td>(M,O,S)</td>
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<td>Diabetes mellitus (M,O)</td>
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<td>-</td>
<td>-</td>
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<td>Other endocrine abnormalities (M,O)</td>
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<td>3</td>
<td>3</td>
<td>11</td>
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*Significant change pre-test to post-test (p<0.05)
M=Most of the time; O=Often; S=Sometimes
### Other Significant Changes

**Providers Responding “Most of the Time”**

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<th>Just Pre</th>
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<td>Asking about readiness to change weight*</td>
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*Significant change pre-test to post-test (p<0.05)
## Healthcare Climate Questionnaire

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<th>Variable</th>
<th>Group</th>
<th>T1</th>
<th>T2</th>
<th>Time Main Effect</th>
<th>Technology Main Effect</th>
<th>Time*Technology Interaction</th>
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<tr>
<td>A1: I feel that my healthcare providers have provided me with choices and options about changing my child’s diet (including not changing).</td>
<td>Tech</td>
<td>6.19</td>
<td>6.52</td>
<td>p=.49</td>
<td>p=.05</td>
<td>p=.09</td>
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<td>5.91</td>
<td>5.27</td>
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<td>A2: I feel my healthcare providers understand how I see things about my child’s diet.</td>
<td>Tech</td>
<td>6.32</td>
<td>6.47</td>
<td>p=.90</td>
<td>p=.26</td>
<td>p=.20</td>
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<td>6.11</td>
<td>5.32</td>
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<td>A3: My healthcare providers show confidence in my ability to make changes regarding my child’s diet.</td>
<td>Tech</td>
<td>6.33</td>
<td>6.51</td>
<td>p=.44</td>
<td>p=.06</td>
<td>p=.04</td>
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<td>6.04</td>
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<td>A4: My healthcare providers listen to how I would like to do things regarding my child’s diet.</td>
<td>Tech</td>
<td>6.40</td>
<td>6.54</td>
<td>p=.76</td>
<td>p=.07</td>
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<td>6.04</td>
<td>5.35</td>
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<td>A5: My healthcare providers encourage me to ask questions about my child’s diet.</td>
<td>Tech</td>
<td>6.38</td>
<td>6.54</td>
<td>p=.64</td>
<td>p=.09</td>
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<td>6.02</td>
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<td>A6: My healthcare providers try to understand how I see my child’s diet before suggesting any changes.</td>
<td>Tech</td>
<td>6.29</td>
<td>6.48</td>
<td>p=.78</td>
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<td>6.01</td>
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<td>B1: I feel that my healthcare providers have provided me with choices and options about changing my child’s exercising regularly (including not exercising regularly).</td>
<td>Tech</td>
<td>6.24</td>
<td>6.59</td>
<td>p=.50</td>
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<td>B3: My healthcare providers show confidence in my ability to make changes regarding my child exercising regularly.</td>
<td>Tech</td>
<td>6.28</td>
<td>6.58</td>
<td>p=.50</td>
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<td>B4: My healthcare providers listen to how I would like to do things regarding my child’s exercise.</td>
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<td>6.33</td>
<td>6.58</td>
<td>p=.50</td>
<td>p=.17</td>
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<td>6.03</td>
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<td>B5: My healthcare providers encourage me to ask questions about my child’s exercise regime.</td>
<td>Tech</td>
<td>6.31</td>
<td>6.58</td>
<td>p=.49</td>
<td>p=.21</td>
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<td>6.07</td>
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<td>B6: My healthcare providers try to understand how I see my child’s exercising before suggesting any changes.</td>
<td>Tech</td>
<td>6.29</td>
<td>6.58</td>
<td>p=.26</td>
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<td>6.00</td>
<td>5.30</td>
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Figure 2. BMI percentile documentation, by time and technology group.
Blood pressure percentile after training

Figure 3. Blood pressure percentile documentation, by time and technology group.
Figure 4. Proportion of overweight accurately diagnosed, by time and technology group.
Figure 5. Proportion of obese accurately diagnosed, by time and technology group.
Overall Results

- Provider satisfaction was high with web-based training
- Practices set goals for improving MI counseling
- There were significant improvements in provider behaviors after training
- Those who received technology were significantly better in counseling on diet
Limitations

- Retention was a challenge but clinics who dropped were replaced.
- Weakness of self report was balanced with chart audits.
- Did not measure patient outcomes.
- Non-tech group was aware they did not get the technology.
Questions?
Health Information Technology to Support Clinical Decision Making in Obesity Care

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