Childhood Obesity and the Link to Diabetes

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Learning Objectives

• Define the terms *overweight* and *obesity*.
• Describe three health consequences of childhood obesity.
• Identify at least two nursing interventions that can be implemented in schools to address obesity and prevent Type 2 diabetes.
• Develop an Individualized Health Care plan that includes nursing outcomes for weight management and physical fitness.
Update on Change in Definition of Obesity and Overweight

- Texas has established a surveillance system, School Physical Activity and Nutrition (SPAN), to monitor the prevalence of overweight/obesity in school-aged children.
- The information below helps in understanding the next slides about SPAN data.
- There was a change in the definitions of overweight and obesity among children and adolescents (17 years and younger) since 2007.
- These changes were implemented in accordance with the 2007 recommendations from the Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity convened by the American Medical Association (AMA) and co-funded by AMA in collaboration with the Health Resources and Services Administration and the CDC.

<table>
<thead>
<tr>
<th>Definition</th>
<th>As categorized before 2007</th>
<th>As categorized 2007 and later</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI ≥ to 95th percentile for age and sex</td>
<td>Overweight</td>
<td>Obese</td>
</tr>
<tr>
<td>BMI ≥ 85th percentile and &lt; 95th percentile for age and sex</td>
<td>At risk for overweight</td>
<td>Overweight</td>
</tr>
</tbody>
</table>

Percentage of U.S. Children and Adolescents Classified as Obese, 1963–2008*

*≥95th percentile for BMI by age and sex based on 2000 CDC BMI-for-age growth charts.
***Source: NCHS. Health, United States, 2010: With Special Feature on Death and Dying. Hyattsville, MD: 2011


http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.pdf

11th Grade Prevalence of Overweight* by Health Service Region in Texas, SPAN, 2000-2002 to 2004-2005

*Overweight is ≥ 95th Percentile for BMI by Age/Sex

Note: As explained in the previous slide the definition of overweight before 2007 was ‘≥ 95th Percentile for BMI by Age/Sex’ which is now categorized as obese.
Prevalence of Obesity among 11th Graders by Health Service Region, SPAN 2009-2011

8th Grade Prevalence of Overweight* by Health Service Region in Texas, SPAN, 2000-2002 to 2004-2005

*Overweight is ≥ 95th Percentile for BMI by Age/Sex
Prevalence of Obesity among 8th Graders by Health Service Region, SPAN 2009-2011

4th Grade Prevalence of Overweight* by Health Service Region in Texas, SPAN, 2000-2002 to 2004-2005

*Overweight is ≥ 95th Percentile for BMI by Age/Sex
Prevalence of Obesity among 4th Graders by Health Service Region, SPAN 2009-2011

Obesity In High School: Texas and the U.S., 2001-2009

Prevalence of High School Students Who Were Obese (At or Above the 95th Percentile for BMI by Age and Sex) 2001, 2005, 2007, 2009 YBBS
Texas vs. United States

<table>
<thead>
<tr>
<th>Year/Region</th>
<th>Texas</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>14.2</td>
<td>13.9</td>
</tr>
<tr>
<td>2005</td>
<td>15.9</td>
<td>15.9</td>
</tr>
<tr>
<td>2007</td>
<td>16.8</td>
<td>16.8</td>
</tr>
<tr>
<td>2009</td>
<td>17.6</td>
<td>17.6</td>
</tr>
</tbody>
</table>

HP2010 Target
Obesity In High School: Trend in Texas and the U.S., 1999-2009

Obesity Prevalence Trend in Texas and US Adolescents, YRBS 1999 to 2009

Obesity Prevalence Trend in Texas and US Adolescents, YRBS 1999 to 2011

Prevalence of High School Students Who Were Obese (At or Above the 95th Percentile for BMI by Age and Sex) by Race/Ethnicity

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Obesity in High School: By Race and Ethnicity

Prevalence of High School Students Who Were Obese (At or Above the 95th Percentile for BMI by Age and Sex) by Race/Ethnicity

Page 16
Obesity in High School: By Race and Ethnicity, Texas 2001-2011

Prevalence of Obesity among High School Students: By Race and Ethnicity, Texas 2001-2011

White Non-Hispanic | African-American Non-Hispanic | Hispanic | Other

Percentage

2001 2005 2007 2009 2011

0 5 10 15 20 25 30

2001 2005 2007 2009 2011
Obesity
Not just an adult concern anymore…

Conditions Seen in Children
• High Cholesterol
• Type 2 Diabetes/
  Impaired Glucose Tolerance
• High Blood Pressure
• Social Problems and
  Poor Self-Esteem
• Sleep Disturbances
• Orthopedic Problems

Obese children and adolescents
are more likely to become
overweight or obese adults
• Heart Disease
• Cancer
• Stroke
• Type 2 Diabetes
• Osteoarthritis
• Physical Disability
• High Blood Pressure
• Sleep Apnea
Factors Contributing to Obesity

- Genetics
- Environment
- Unhealthy Diet
- Sedentary Lifestyle
- Lack of Physical Activity

School Environments

School Food Environment
Low-nutrient, energy-dense foods and beverages are
- Served in vending machines, à la carte lines, school stores, fundraisers, and classroom parties.
- Marketed to students.

(cont.)
School Environments

School Physical Activity Environment

• Daily physical education is not provided in most schools.
• Daily recess for elementary school students is not offered at many schools.
• Walking or biking to school is less common.
GUIDELINE 1

Policies and Practices

School Health Council

Coordinated School Health Team

School Health Coordinator

Assess*

Develop and Implement

Evaluate

* Using the School Health Index (www.cdc.gov/HealthyYouth/SHI)

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Family and Community

Schools

Promote Communication and Involvement

- Families
- Community Members

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NANDA Nursing Diagnosis
(These are just the basic ones)

- Altered nutrition: intake exceeds the body’s needs
- Impaired physical mobility
- Deficit recreation
- Knowledge deficit related to (nutrition, physical activity)
- Chronic low self-esteem or Disorder of low self-esteem
- Social isolation
Nursing Intervention Classifications (NIC)

- Comprehensive
- Research based
- Reflects current clinical practice
- Easy to use (Domains, Classes, Interventions, Activities all have definitions)
- Uses language that is clear and meaningful
- Continually updated
- Field tested

Possible Nursing Interventions

- Behavior modification (4360)
- Body image enhancement (5220)
- Emotional support (5270)
- Family involvement promotion (7110)
- Health education (5510)
- Journaling (4740)
- Nutrition management (1100)
- Program development (8700)
- Teaching: activity/exercise (5612)
### Exercise Promotion (0200)

- Appraise beliefs
- Explore prior experiences
- Determine motivation
- Explore barriers
- Encourage verbalization
- Encourage to begin or continue exercise
- Assist in finding positive role model
- Assist in setting short and long term goals
- Include family in planning
- Inform about health benefits
- Instruct on frequency, duration, and intensity
- Monitor adherence
- Help in preparing progress chart
- Instruct on proper warm up and cool down
- Monitor response to program

### Nursing Outcome Classifications

- Developed inductively and deductively
- Grounded in clinical practice and research
- Uses clear, useful language
- Helps in organizing outcome measures
- Outcomes can be shared by all disciplines
- Optimizes information for evaluation of effectiveness.
- Funded by the National Institute of Nursing Research
Nursing Outcome Measures

- Knowledge-diet (1802)
- Compliance Behavior: Prescribed diet (1622)
- Knowledge-Weight management (1841)
- Physical Fitness (2004)

### Knowledge: Diet- (1802)

**Outcome Target Range:** Maintain at _______ Increase to ______

<table>
<thead>
<tr>
<th>Knowledge: Diet Overall Rating</th>
<th>No Knowledge</th>
<th>Limited Knowledge</th>
<th>Moderate Knowledge</th>
<th>Substantial Knowledge</th>
<th>Extensive Knowledge</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
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<tr>
<td>Recommended diet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale for diet</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>Dietary goals</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Relationship among diet, exercise and weight</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Interpretation of food labels</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strategies to change dietary habits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Self-monitoring techniques</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Individualized Healthcare Plan

- Nursing Assessment
- Nursing Diagnosis
- Planning Care Utilizing Nursing Interventions and Outcome Classifications
- Implementation
- Evaluation

Constructing a Nursing Care Plan

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Nursing Diagnosis</th>
<th>Planning (NIC and NOC)</th>
<th>Implementation</th>
<th>Evaluation (NOC Completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td>1) Promotion of Behavior Change</td>
<td>Should outline who you will be collaborating with if applicable.</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>2) Body Image Enhancement</td>
<td>Also should outline specific timeline for implementation.</td>
<td></td>
</tr>
<tr>
<td>Calculate BMI B/P</td>
<td></td>
<td>3) Emotional Support</td>
<td>Should outline the steps of implementation.</td>
<td></td>
</tr>
<tr>
<td>Family History</td>
<td></td>
<td>4) Exercise Promotion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FitnessGram data</td>
<td></td>
<td>5) Family Involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food diary</td>
<td></td>
<td>6) Health Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activity log</td>
<td></td>
<td>7) Journaling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Assessment</td>
<td></td>
<td>8) Nutrition Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td></td>
<td>9) Nutritional Counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10) Program Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>11) Teaching: Prescribed Activity/Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>1) Altered nutrition intake exceeds the body’s needs</td>
<td>1) Promotion of Behavior Change</td>
<td>Should outline who you will be collaborating with if applicable.</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2) Activity intolerance</td>
<td>2) Body Image Enhancement</td>
<td>Also should outline specific timeline for implementation.</td>
<td></td>
</tr>
<tr>
<td>Calculate BMI B/P</td>
<td>3) Impaired physical mobility</td>
<td>3) Emotional Support</td>
<td>Should outline the steps of implementation.</td>
<td></td>
</tr>
<tr>
<td>Family History</td>
<td>4) Knowledge deficit/nutrition or physical activity</td>
<td>4) Exercise Promotion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FitnessGram data</td>
<td>5) Activity intolerance or high risk of intolerance</td>
<td>5) Family Involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food diary</td>
<td>6) Sleep pattern disturbance</td>
<td>6) Health Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activity log</td>
<td>7) Recreation deficit</td>
<td>7) Journaling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Assessment</td>
<td>8) Social isolation</td>
<td>8) Nutrition Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td></td>
<td>9) Nutritional Counseling</td>
<td></td>
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<td>10) Program Development</td>
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<tr>
<td></td>
<td></td>
<td>11) Teaching: Prescribed Activity/Exercise</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: Knowledge: Diet-1802
- Rational 1 2 3 4 5 N/A
- Advantages 1 2 3 4 5 N/A
- Dietary Goals 1 2 3 4 5 N/A
- Interpretation Food Labels 1 2 3 4 5 N/A
- Strategies to Change 1 2 3 4 5 N/A
- Social Situations 1 2 3 4 5 N/A
- Self-monitoring Techniques 1 2 3 4 5 N/A
Training and Resources

National Association of School Nurses (Online Courses)

Childhood Overweight and Obesity: Overview
1.0 CNE Contact Hour
Free to NASN Members! (Non-member price: $15.00)

Evidence-based Practice
1.0 CNE Contact Hour
Free to NASN Members! (Non-member price: $15.00)

School Nurse Leadership: Advocating for Change
1.0 CNE Contact Hour
Free to NASN Members! (Non-member price: $15.00)

Height/Weight and BMI Screening, Resources and Interventions
1.0 CNE Contact Hour/module
Free to NASN Members! (Non-member price: $15.00)

Acanthosis Nigricans - School Nurse Educational Program
1.0 CNE contact hour
Free for all audiences!

Texas Health Step Modules (Free CEs) http://www.txhealthsteps.com/cms/

- Obesity
- Exercise Induced Asthma
- Other Child Health Topics

Resources

- DSHS-Diabetes Council Algorithms
  http://www.tdctoolkit.org/download_a_tool_kit.asp
- DSHS-Diabetes Main Page
  http://www.dshs.state.tx.us/diabetes/
- DSHS-Obesity Prevention (Videos)
  http://www.dshs.state.tx.us/obesity/GrowingCommunity.shtm
- DSHS-Nutrition, Physical Activity and Obesity Home Page
  http://www.dshs.state.tx.us/obesity/NPAOProgrampage.shtm
Contact Information

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