The Role of Health Care Providers in Addressing the Childhood Obesity Epidemic

http://www.healthjockey.com/2010/04/07/world-health-day-childhood-obesity-is-more-serious-than-thought/

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Presentation Overview

- Epidemiology of childhood obesity
- Consequences of childhood obesity
- Factors underlying the childhood obesity epidemic
- The role of health providers in addressing the childhood obesity epidemic
THE GLOBAL OBESITY PROBLEM

Obese adults in population %

- 30 – 40%
- 20 – 30%
- 10 – 20%
- 5 – 10%
- 0 – 5%
- No data

An obese adult is classified as having a Body Mass Index equal to or greater than 30

SOURCE: World Health Organization, 2005
Obesity: U.S. Leads the World

**Adult Obesity**

- United States
- Mexico
- United Kingdom
- Australia
- Slovak Republic
- New Zealand
- Hungary
- Czech Republic
- Portugal
- Iceland
- Spain
- Austria
- Netherlands
- Sweden
- Belgium
- Poland
- Norway
- Denmark
- France
- Switzerland
- Korea
- Japan

**Childhood Obesity**

- Lithuania
- Russia
- Netherlands
- Poland
- Switzerland
- Czech Republic
- Israel
- Sweden
- Germany
- France
- Croatia
- Austria
- Hungary
- Ireland
- Finland
- Scotland
- Greece
- Italy
- England
- Spain
- Canada
- Wales
- United States
- Malta

*Figure 1. Percentage of obese and overweight population by country.*

Obesity Trends in U.S. Children

U.S. Adolescent Obesity: Gender and Ethnicity

NHANES 2007-2008
Health Consequences of Obesity

Complications of Childhood Obesity

- Psychosocial
  - Poor self-esteem
  - Depression
  - Quality of life
- Neurological
  - Pseudotumor cerebri
  - Risk for stroke
- Cardiovascular
  - Dyslipidemia
  - Hypertension
  - Left ventricular hypertrophy
  - Chronic inflammation
  - Endothelial dysfunction
  - Risk of coronary disease
- Pulmonary
  - Asthma
  - Sleep apnea
  - Exercise intolerance
- Renal
  - Glomerulosclerosis
  - Proteinuria
- Gastrointestinal
  - Pancreatitis
  - Steatohepatitis
  - Liver fibrosis
  - Gallstones
  - Risk for cirrhosis
  - Risk for colon cancer
- Musculoskeletal
  - Forearm fracture
  - Blount’s disease
  - Slipped capital femoral epiphysis
  - Flat feet
  - Risk for degenerative joint disease

Fontaine et al, JAMA 2003

Life Expectancy

- 20-yr-old male/BMI = 24
- 20-yr-old male/BMI > 45
Percent Above Normal Weight Individuals’ Annual Health Care Costs by Obesity Status and Gender

Andreyeva et al, Obesity Research, 2004
Obesity in the United States

- Is the second leading cause of death in U.S. and expected to become the leading cause
- Will result in decreased U.S. life expectancy for first time in a century
- Is causing a diabetes epidemic
  - 33% of boys & 39% of girls born in 2000 will develop diabetes in their lifetime
  - 50% of African-American girls born in 2000 will develop diabetes in their lifetime
- Is expected to bankrupt the U.S. health care system

Mokdad et al, JAMA, 2004
Narayan et al, JAMA, 2003
The U.S. Childhood Obesity Epidemic: How Did This Happen?

Bouchard, Int J Obesity, 2007
The Obesogenic Environment: A Socio-Ecological Perspective

http://depts.washington.edu/waaction/plan/append/a.html
Factors Promoting Increased Calorie Consumption: Increase in US Working Mothers

**Figure 2**

The new workforce

Share of mothers who are breadwinners or co-breadwinners, 1967 to 2008

Source: See Table 1.

Notes: Breadwinner mothers include single mothers who work and married mothers who earn as much as or more than their husbands. Co-breadwinners include all breadwinners as well as wives who bring home at least 25 percent of the couple’s earnings. The data only include families with a mother who is between the ages of 18 and 60 and who has children under age 18 living with her.
Factors Promoting Increased Calorie Consumption: Rise of the US Fast Food Industry

- Number of per capita fast food restaurants doubled between 1972 and 1997 in the U.S.
- % family’s food budget spent on dining out:
  - 1960’s: 21%
  - 2008: 42%
- 30% of US children eat fast food every day
- Per capita calories in the U.S.
  - 1970: 3250 per day
  - 1997: 3800 per day

http://www.bls.gov/news.release/cesan.nr0.htm
Chou et al, J of Health Economics, 2004
Bowman et al, Pediatrics, 2003
Factors Promoting Increased Calorie Consumption: Rise of the US Soda Industry
Factors Promoting Increased Calorie Consumption: Marketing Fast Food to Youth

CALORIES VIEWED DAILY IN FAST FOOD TV ADS

Source: The Nielsen Company (ad exposure data) and TV ad nutrition analysis

http://fastfoodmarketing.org/media/FastFoodFACTS_Report_Summary.pdf
Factors Promoting Increased Calorie Consumption: US Farm Subsidies

- US farm subsidies result in mega farms producing so much corn and soybeans that high fructose corn syrup, hydrogenated fats from soybeans, and corn-based feed is kept artificially low, resulting in low prices for fast food, corn-fed beef and pork, and soda.

- No such subsidies exist for fresh fruits and vegetables which are produced in much lower quantities at higher cost to the public.

Fields, Environmental Health Perspectives, 2004
Factors Associated with Decreased Physical Activity: Suburban Living

Relationship between Transport and Land Use

A commonly used study of 32 cities by Newman & Kenworthy in 1989 concluded that there was a strong link between urban development densities and petroleum consumption.
Factors Associated with Decreased Physical Activity: School Transportation

Percent of US Children Walking or Biking to School

- All Children
- Children living <1 mile of school

US School Transportation (1999): Percent of Children

- walk or bike
- bus
- car

CDC, 2005

American Psychological Association
Decreased Physical Activity at School

Johnson et al, Am J of Preventive Medicine, 2007

Percent of US Schools Requiring Physical Education by Grade

Percent of US High School Students Participating in School Sports

Johnson et al, Am J of Preventive Medicine, 2007
Factors Associated with Decreased Physical Activity: US Policies

- US Department of Transportation spends most of its money on highways.
- Traffic concerns are one of the primary reasons parents do not allow their children to walk or bike to school.
- No Child Left Behind policy resulted in decreased access to physical education and recess as schools focus on high stakes testing.

http://unstats.un.org/unsd/pocketbook/Pocketbook%202006.pdf
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5132a1.htm
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5438a2.htm
http://www.bus.lsu.edu/mcmillin/seminars/anderson_accountability.pdf
Factors Associated with Decreased Physical Activity: Escalating Leisure Time Media Use

Hours Per Day Among 8-18 Year Olds

- White: [Hours]
- Black: [Hours]
- Hispanic: [Hours]

Rideout et al, 2010
Many Parents Fail to Recognize Their Child is Overweight

Eckstien et al, Pediatrics, 2006
Many Health Providers Fail to Monitor Child BMI

% of obese children identified by provider in a well-child visit

- Louthan et al, 2005
- O'Brien et al, 2004
- Rosado et al, 2012
Informing Parents of Their Child’s Overweight May Make a Difference

<table>
<thead>
<tr>
<th>% of Parents Who Recalled their Child as</th>
<th>Overweight (BMI %: ≥ 85)</th>
<th>At-risk for Overweight (BMI %: 85-94)</th>
<th>Normal (BMI %: 5-84)</th>
<th>Underweight (BMI %: &lt;5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>64.9</td>
<td>28.6</td>
<td>3.7</td>
<td>6.4</td>
</tr>
<tr>
<td>At-risk for Overweight</td>
<td>13.5</td>
<td>40.5</td>
<td>11.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Normal</td>
<td>10.8</td>
<td>23.8</td>
<td>74.1</td>
<td>21.3</td>
</tr>
<tr>
<td>Underweight</td>
<td>2.7</td>
<td>0</td>
<td>7.4</td>
<td>68.1</td>
</tr>
<tr>
<td>Don’t know</td>
<td>8.1</td>
<td>7.1</td>
<td>3.7</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Johnson et al, J of School Health, 2009
Informing Parents of Their Child’s Overweight May Make a Difference

Percent of Parents Expressing Concern or Dietary and Exercise Changes by Child Weight Status

- Overweight
- Normal Weight

Parental Concern
Changed Child’s Diet
Changed Child’s Exercise

Johnson et al, J of School Health, 2009
Informing Parents of Their Child’s Overweight May Make a Difference

<table>
<thead>
<tr>
<th>Predictors of Parent Intent to Take Action</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age</td>
<td>0.014</td>
</tr>
<tr>
<td>Older the child, more likely the parent was to take action</td>
<td></td>
</tr>
<tr>
<td>Child weight</td>
<td>0.001</td>
</tr>
<tr>
<td>When the child was overweight or obese, the parent was more likely to take action</td>
<td></td>
</tr>
<tr>
<td>Provider discussed child’s weight</td>
<td>0.010</td>
</tr>
<tr>
<td>Parents who reported the provider discussed the child’s weight were more likely to take action</td>
<td></td>
</tr>
<tr>
<td>Parent concern</td>
<td>0.001</td>
</tr>
<tr>
<td>Parents concerned about the child’s weight are more likely to take action</td>
<td></td>
</tr>
</tbody>
</table>

Rosado et al, 2012
Childhood Obesity Can Be Prevented & Treated

- 2011 Cochrane Review found “strong evidence to support beneficial effects of child obesity prevention programmes on BMI, particularly for programmes targeted to children six to 12 years”

- Particularly promising are interventions that:
  - increase physical activity and improve quality of food at school
  - target environments and cultural practices to increase healthier food consumption and daily physical activity
  - support parents to increase activity, decrease screen time, and eat healthier foods

The Role of Health Care Providers: AAP Recommendations

- Prevention (all patients): promote breastfeeding, family meals, limited screen time, regular physical activity, yearly BMI monitoring

- Prevention Plus (children with BMI percentiles of 85-94): 5 fruits/vegetable servings, 0 sugary drinks, ≤ 2 hours of screen time, ≥ 1 hr physical activity, healthy breakfast, home food preparation and limited eating out
The Role of Health Care Providers: AAP Recommendations

- Structured Weight Management (children with BMI percentiles of 95-98 or children for whom Prevention Plus has not been effective): more frequent follow-up, written diet/exercise plans

- Comprehensive Multidisciplinary Intervention (if 3-6 months of Structured Weight Management has been ineffective): team based intervention including dietary and behavioral specialists.
The Role of the Health Care Provider: Key Recommendations

- Regularly monitor child’s BMI & communicate with the parent & older child about the child’s weight
- Emphasize prevention – promote healthy lifestyles from birth
- Avoid child & parent blaming – acknowledge that this is a systems problem
- Empower parents & families to promote healthy lifestyles within their community
- Serve as a role-model and community leader – the obesity epidemic will not be solved solely in the confines of the health provider’s office
This presentation is available at www.apa.org/president