Pediatric Obesity: Where are we now?

Sarah Hampl, MD
Medical Director, Weight Management
Objectives

• Review the current statistics for childhood overweight and obesity locally and nationally.

• Explain the spectrum of medical and emotional health co-morbidities of obesity in children.

• Describe clinical treatment services offered by CMH Weight Management.

• Identify community advocacy services offered by CMH Weight Management.
Adult obesity in US

Figure 1. Age-adjusted prevalence of obesity, by sex and age group, among adults aged 20 and over: United States, 2011–2012

1Crude estimate 35.1%.
2Significant difference from ages 20–39.
3Significant difference from ages 40–59.

NOTE: Estimates are age-adjusted for all adults aged 20 and over by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over.

Future Adult Obesity Rates-2030
US childhood obesity rates have tripled since 1980

Obesity among Children and Adolescents

- 6-11 years
- 12-19 years
- 2-5 years

HP2020 Target: 16.1
HP2020 Target: 15.7
HP2020 Target: 9.6

Note: Data are for the proportion of children and adolescents who are obese, defined as a BMI-for-age ≥ 95th percentile on the sex specific 2000 CDC Growth Charts for 2-19 years. BMI is calculated based on measured height and weight. Source: National Health and Nutrition Examination Surveys (NHANES), CDC/NCHS.

Obj. NWS-10.1-10.3
Prevalence of children living with a parent who is overweight/obese
Childhood obesity: Definitions

• Weight status in children 2 and older is evaluated using Body Mass Index (BMI)
• BMI is a ratio of weight to height, BMI percentile compares BMI to children of same age, gender
• Child with BMI between 85th and 94th %ile=overweight; ≥95th %ile=obese
Children’s Mercy Clinics-Well Child Check
% Children Overweight and Obese, 2011-12

Overweight/Obese %

2-5 years  6-11 years  12-18 years

All Kids
Blacks Boys
Black Girls
Hispanic Boys
Hispanic Girls
White Girls
White Boys
Obesity epidemic is fueling...

...Serious economic, health, educational & social problems.

Annual cost of being obese per year:
• $4,879 for an obese woman
• $2,646 for an obese man

Health problems
– Diabetes
– High Blood Pressure
– Cardiovascular Disease

Social Problems
• Weight bias
• Bullying

This is the first generation in US history that could live sicker and die younger than their parents’ generation.
Long-term consequences of childhood obesity

- Obesity in childhood tracks into adulthood
  - Relationship is stronger for older children
  - Systematic review found 24-90% of obese adolescents became overweight/obese adults
  - In one study:
    - 87% of obese adolescents were obese adults
    - 39% of obese adolescents were severely obese adults
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

Endocrine
- Type 2 diabetes
- Precocious puberty
- Polycystic ovary syndrome (girls)
- Hypogonadism (boys)

Musculoskeletal
- Forearm fracture
- Blount’s disease
- Slipped capital femoral epiphysis
- Flat feet
- Risk for degenerative joint disease

Stress incontinence
- Risk of GYN malignancy

DVT/PE

Hernia
Co-morbidity tracking

• BMI-for-age correlates with clinical risk factors for cardiovascular disease—hyperlipidemia, elevated insulin and HTN

• Elevated BMI is #1 risk factor for childhood HTN, dyslipidemia, IGT

• BMI-for-age during adolescence is related to lipid levels and HTN in middle age
Investing in Childhood Obesity Prevention, Early Detection & Treatment

CMH Weight Management Program
Macro-Level

Community and Organizational

Home/Family

Individual

Psychosocial
- food norms, preferences
- knowledge
- attitudes
- skills, supports
- role models

Biological
- age
- gender
- genes
- physiology

Governance
- Food Industry action (product, packaging, pricing)
- Food advertising and marketing
- Media and public education campaigns
- National healthcare policy

Local public health programs, policies
- Local health care services/coverage
- Gov’t food assistance programs
- Land use, zoning, business incentives
- Federal policies (dietary guidelines, food labeling)

Access to healthy and unhealthy foods in schools
- Household environment and feeding practices, incl. portion size
- Access to healthy foods in communities (grocery stores, fast food, farmers markets)

Point-of-purchase information, promotions in restaurants, convenience/grocery stores
- Parent/child care provider training and education

Agriculture and economic policies, food subsidies
- Societal and cultural norms
- Local health care services/coverage
- Individualized health care interventions

Individualized health care interventions
- Diet, exercise, nutrition, weight management
- Health literacy, social support

Psychosocial
- food norms, preferences
- knowledge
- attitudes
- skills, supports
- role models
Hungry? Many supersize options

CHANGING ENVIRONMENTS
Want to play? How do I get there? Is it safe?

CHANGING ENVIRONMENTS
What’s the problem?

Average Per Day Media Use: 8 To 18 Year Olds

<table>
<thead>
<tr>
<th>Year</th>
<th>TV Content</th>
<th>Music / Audio</th>
<th>Computer</th>
<th>Video Games</th>
<th>Print Media</th>
<th>Movies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>3:47 hrs</td>
<td>1:48 hrs</td>
<td>0:27 hrs</td>
<td>0:26 hrs</td>
<td>0:43 hrs</td>
<td>0:18 hrs</td>
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<td>2004</td>
<td>3:51 hrs</td>
<td>1:44 hrs</td>
<td>1:02 hrs</td>
<td>0:49 hrs</td>
<td>0:43 hrs</td>
<td>0:25 hrs</td>
</tr>
<tr>
<td>2009</td>
<td>4:29 hrs</td>
<td>2:31 hrs</td>
<td>1:29 hrs</td>
<td>1:13 hrs</td>
<td>0:36 hrs</td>
<td>0:25 hrs</td>
</tr>
</tbody>
</table>

Total Media Exposure

- 1999: 7:29 hrs
- 2004: 8:33 hrs
- 2009: 10:45 hrs

What’s the problem?

Trends in Portion Sizes in Children's Foods (ages 2 to 18, in calories)

- Hamburgers: 379 '94-'98, 418 '03-'06
- Pizzas: 368 '94-'98, 446 '03-'06
- Mexican Fast Food: 450 '94-'98, 512 '03-'06

SOURCE: http://jn.nutrition.org/content/111.138727.DC1/nut_138727_T1-2.pdf
What’s the problem?

Exercise Needed to Burn Off a Serving of French Fries

- **Average Serving of French Fries:**
  - **610 Calories**
  - **6.9 Ounces**

- **Running at 5 MPH**
  - **1:05 hrs**
    - 150 lb Adult
  - **0:49 hrs**
    - 200 lb Adult

- **Swimming**
  - **1:32 hrs**
    - 150 lb Adult
  - **1:09 hrs**
    - 200 lb Adult

- **Leisure Bicycling**
  - **2:14 hrs**
    - 150 lb Adult
  - **1:41 hrs**
    - 200 lb Adult

- **Walking at 2 MPH**
  - **3:13 hrs**
    - 150 lb Adult
  - **2:24 hrs**
    - 200 lb Adult

- **Singles Tennis**
  - **1:07 hrs**
    - 150 lb Adult
  - **0:50 hrs**
    - 200 lb Adult

**SOURCE:** https://sites.google.com/site/compendiumofphysicalactivities/
Macro-Level

Community and Organizational

Home/ Family

Individual

Psychosocial
- food norms, preferences
- knowledge
- attitudes
- skills, supports
- role models

Biological
- age
- gender
- genes
- physiology

Agriculture and economic policies, food subsidies

Local public health programs, policies

Individualized health care interventions

Gov’t food assistance programs

Local health care services/ coverage

National healthcare policy

Land use, zoning, business incentives

Federal policies (dietary guidelines, food labeling)

Point-of-purchase information, promotions in restaurants, convenience/grocery stores

Parent/child care provider training and education

Access to healthy and unhealthy foods in schools

Access to healthy foods in communities (grocery stores, fast food, farmers markets)

Food Industry action (product, packaging, pricing)

Media and public education campaigns

Societal and cultural norms

Household environment and feeding practices, incl. portion size

Individualized health care interventions

Macro-Level

Community and Organizational

Home/ Family

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Individual, Family and Community Strategies Key to Prevention & Treatment
Mission

CMH’s Weight Management Program treats children, educates families and leads community efforts to end childhood obesity
Individual, Family and Community Strategies Key to Prevention & Treatment

Cities, States

Weight Management

Community, Healthcare, Schools, Childcare

Weighing In

Family

Clinics, Group Programs

Child

Clinics, Group Programs
2012-14 Strategic Plan

Increase and improve:

GOAL 1: Weight management treatment services

GOAL 2: Weight Management Group Programs

GOAL 3: Community treatment capacity

GOAL 4: Regional systems approach

...to prevent and reduce childhood obesity.
Activities fit strategic plan

Cities, States
Weight Management
Community, Healthcare, Schools, Childcare
Weighing In
Family Clinics, Group Programs
Child Clinics, Group Programs

Goals 1,4
Goals 1,3,4
Goals 1,2,3
Goals 1,2,3
Research

• On treatment clinics, group programs and Weighing In activities

• Collaborate within and outside Weight Management
  – Center for Children’s Healthy Lifestyles and Nutrition
Activities

• Treatment Clinics
• Group treatment Programs
• Weighing In
Treatment Clinics

• Promoting Health in Teens and Kids (PHIT Kids) Weight Management Clinic
  – For children ages 2-18 with obesity
  – Multidisciplinary clinic team, 3 locations
  – FY 2012: 1529 visits
Treatment Clinics

• Special Needs Weight Management Clinic (2010)
  – For children ages 2-21 with obesity and a special healthcare need
    • Autism
    • Down Syndrome
    • Other intellectual or physical disability
  – Multidisciplinary team

Held at Don Chisholm Center
SNWMC

• Initial outcomes
  – Served 80+ families
  – Decreased body mass index z-score at 6 month follow up
  – Increase in number of fruits and vegetables eaten
  – Serving primarily children with ASD and Down Syndrome
Group treatment programs

- PHIT Kids evening group program (2006)
  - 18-week weekly family- and behaviorally-based nutrition and activity education sessions for children ages 9-18 with obesity
  - Followed up monthly for a total of 2 years
  - Held at Don Chisholm Center, partner with YMCA, HyVee, Junior League, others
  - 400 children and their families served so far
PHIT Kids Outcomes

• Significant improvements in
  – BMI z-score (kids), BMI (parents)
  – Lab
  – Physical fitness
  – Nutrition and physical activity behaviors
  – Weight-related quality of life
  – General behavior
Group treatment programs

• Zoom to Health (2010)
  – 6-week group intervention that provides parenting skills and nutrition education for families of overweight 2-8 year olds
  – Families are served a healthy meal at each session, then divide up for education
  – Groups are provided in English and Spanish
  – Held at Don Chisholm Center
Zoom to Health

• Annually serve about 40 families from diverse backgrounds
  – Target child plus siblings under 12 and at least 1 caregiver
  – Have served over 100 families so far
Zoom to Health

• Initial Outcomes
  – Decreased BMI z-score during initial program
  – Z-score changes maintained at 6 month follow-up
  – Significant decreases in parent BMI
  – Improvements in healthy lifestyles behaviors
  – Improvements in feeding practices and parenting strategies
Weighing In
Regional Systems Approach

- Healthy Weight Pregnancies and Breastfeeding (MCHC)
- Early Childhood
- Schools
- Healthy Lifestyles
- Treatment
Healthy Lifestyles Initiative

1. Identify Partners, plan and track progress
2. Consistent message
3. Consistent assessment of weight and behaviors
4. Customized healthy weight plan for all
5. Align resources to build capacity in Kansas City
6. Influence policies that enable healthy eating and active living

www.collaborateforhealthyweight.org
The Healthy Lifestyle Initiative

Does what?

*Increase awareness and practice of healthy behaviors*
*Increase individuals at a healthy weight.*

By…

- Unify across sectors
- Integrate multiple factors
- Use proven approaches
- Track progress
- Enhance system of care
Multi-Sector Effort!

Community
- Child Care
- School
- Recreation/fitness centers
- Grocery Stores
- Many others

Health Care
- Primary Care
- Hospital
- Other

Government
- Public Health
- Cities/Counties
- Parks & Recreation
- Others

Healthy Lifestyles Initiative
Create a Consistent Message
Strengthening Partnerships
AND MANY MORE!
Aligning Resources
Policy Plans

Hospitals
- PHA
- Healthy Vending
- No SSB sales

Schools & Child Care
- Assessment
- School Wellness Policy Plan

Cities
- Livable Streets Transportation
- More sidewalks

Neighborhoods
- Safe Places to Walk and Play
Impact of school policies

Controlling classroom parties makes a big difference in total calorie intake.

To meet HP 2020 Goal

↓ 149 kcal/day for 6-11 year olds

↓ 177 kcal/day for 12-19 year olds

• How many extra calories do average 1st graders consume at a classroom party?
• How many calories in the average take-home “goodie” bag?
Children’s Mercy Leads Kansas City to…

… Become a Fit-Tastic Region!