CHILDHOOD OBESITY PREVENTION:
SETTING THE STAGE FOR LIFETIME WELLNESS

Russ Stevens - Public Health Specialist II
Early Childhood Obesity Prevention Coordinator
Section of Chronic Disease Prevention & Health Promotion
Department of Health and Social Services - Division of Public Health
Let’s Talk About

- Latest Obesity Data
- Health Impact of Obesity
- Causes of Obesity
- Childhood Obesity Prevention
- Role of Health Professionals
As of 2013

- No states under 20%
- No states lowered obesity %
- 2 states over 35% obese
- Alaska = 28.4% obese

BRFSS (2013)

20%–<25%  25%–<30%  30%–<35%  ≥35%
Obesity in Alaska

Alarming levels of overweight and obesity everywhere we look:

- 65% of Alaska adults (71% Men, 59% Women)
- 26% of Alaska high school students, and
- 44% of Alaska 3-year olds

(BRFSS & CUBS Data)
What’s the **BIG** Deal about Obesity?

**Obesity is...**

- Associated with poor health outcomes *in adults*
- Associated with poor health outcomes *in childhood*
- Economically costly to Alaskans
Adult Health Consequences of Obesity

Obesity and overweight increase risk of:

- Heart disease
- Diabetes
- Several cancers
- Esophageal reflux
- Gall bladder disease/stones
- Fatty liver disease
- Kidney stones
- Kidney failure
- Arthritis
- Back problems
- Sleep apnea
- Pulmonary embolism
- Obstetrical risk
- Menstrual irregularity
- Infertility

http://dhss.alaska.gov/dph/Chronic/Pages/default.aspx
Childhood Health Consequences of Obesity

- 70% of obese 5-17 year olds have 1+ CVD risk factor; 39% have 2+
- Obesity and overweight increase the following risks in youth:
  - Type II diabetes (adult onset?)
  - Asthma
  - Obstructive sleep apnea
  - Orthopedic problems
  - Fatty liver disease
  - Depression
  - Low self-esteem

http://dhss.alaska.gov/dph/Chronic/Pages/default.aspx
What Causes Obesity?

- More calories in than calories out.
- Nutrition and activity are common denominators...BUT
Cause of Obesity
How Do We Prevent & Control Obesity?

- Reversing or leveling obesity rates will need a multi-setting approach in communities, schools, worksites, and health care;
- If “control” is difficult and expensive, “prevention” may be the key;
- Research is identifying risk factors early in life that contribute to obesity as an adult;
- Life-course approach beginning very early may be most effective.
Obese Kids become Obese Adults

- Obese 5-year olds are 4x as likely to be obese at age 15.
- 80% of overweight or obese 10-15 year olds were obese at age 25.
Why Obese Toddlers?
Developmental Origins

- Low birth weight babies have increased lifetime risk for heart disease, hypertension, stroke, and diabetes.

- High birth weight is associated with obesity, diabetes, and other adult diseases.

- Nutrition and overall wellness preconception and during critical periods of fetal development influence development of adult disease =

Developmental Origins of Health & Disease (DOHaD)
Factors Associated with Early Childhood Obesity

- Pregravid obesity
- Maternal nutrition
- Excessive maternal weight gain
- Maternal cigarette smoking
- Birth weight (low or high)
- Rapid early life weight gain
- Initiation and duration of breastfeeding
Other Possible Factors

Emerging evidence for:

- Paternal obesity
- Stress before and during pregnancy
- Birth spacing
- Caesarean birth
- Infant/child sleep
- Adverse childhood experiences
Factors Associated with Child & Adolescent Obesity

- Early elevated growth (adiposity rebound)
- Physical (in)activity
  - Television viewing
  - Walk/Bike to school
- Nutrition
  - Consumption of sugar-sweetened beverages
  - Fruit N Veggie consumption
Childhood Obesity Prevention Strategies

- Encourage healthy pregravid weight;
- Promote adherence to pregnancy weight gain guidelines;
- Promote smoking cessation and maternal nutrition;
- Promote breastfeeding;
- Reduce consumption of sugary drinks;
- Increase consumption of fruits and vegetables;
- Increase physical activity;
- Limit screen time.
# Pregravid Obesity Risks

<table>
<thead>
<tr>
<th>For the woman:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impaired glucose tolerance</td>
</tr>
<tr>
<td>• Gestational diabetes</td>
</tr>
<tr>
<td>• Miscarriage</td>
</tr>
<tr>
<td>• Pre-eclampsia</td>
</tr>
<tr>
<td>• Thromboembolism</td>
</tr>
<tr>
<td>• Maternal death</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For the baby:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fetal death</td>
</tr>
<tr>
<td>• Stillbirth</td>
</tr>
<tr>
<td>• Preterm birth</td>
</tr>
<tr>
<td>• Congenital abnormality</td>
</tr>
<tr>
<td>• Shoulder dystocia</td>
</tr>
<tr>
<td>• Large for their gestational age (LGA or macrosomia)</td>
</tr>
<tr>
<td>• Autism</td>
</tr>
<tr>
<td>• Obesity in childhood</td>
</tr>
<tr>
<td>• Obesity as adult</td>
</tr>
</tbody>
</table>
Pregravid Body Mass Index (BMI)

Women Delivering Live Births, Alaska, 2009-2010

- 21% Normal (18.5 ≤ BMI < 25.0 kg/m^2)
- 50% Overweight (25.0 ≤ BMI < 30.0 kg/m^2)
- 26% Obese (BMI ≥ 30 kg/m^2)
- 3% Underweight (BMI < 18.5 kg/m^2)

Source: Alaska PRAMS
Gestational Weigh Gain (GWG)

- Excessive gestational weight gain (independent of pregravid BMI) significantly increases the odds of high birth weight as well as overweight/obesity in pre-school, adolescence, and adulthood.

- 66% of Alaskan women self-report excessive weight gain during pregnancy (PRAMS).
Inappropriate Prenatal Weight Gain (2009-2010)

Source: Alaska PRAMS

Percent of women delivering live births

<table>
<thead>
<tr>
<th>Race</th>
<th>Not Ovrwt/Obese</th>
<th>Overweight</th>
<th>Obese</th>
<th>1st birth</th>
<th>Not 1st birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>65%</td>
<td>59%</td>
<td>63%</td>
<td>72%</td>
<td>63%</td>
</tr>
<tr>
<td>Alaska Native</td>
<td>69%</td>
<td>70%</td>
<td>79%</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>70%</td>
<td>70%</td>
<td>72%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant difference between categories.
2009 Institute of Medicine Guidelines for Pregnancy Weight Gain

<table>
<thead>
<tr>
<th>Pre-pregnancy BMI</th>
<th>Singleton pregnancy</th>
<th>Twin pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Gain 28-40 lbs</td>
<td>***</td>
</tr>
<tr>
<td>Normal weight</td>
<td>Gain 25-35 lbs</td>
<td>Gain 37-54 lbs</td>
</tr>
<tr>
<td>Overweight</td>
<td>Gain 15-25 lbs</td>
<td>Gain 31-50 lbs</td>
</tr>
<tr>
<td>Obese</td>
<td>Gain 11-20 lbs</td>
<td>Gain 25-42 lbs</td>
</tr>
</tbody>
</table>

- First time new guidelines issued since 1990
- Issued due to dramatic changes in the population:
  - More twin and triplet pregnancies
  - Women today are older at conception
  - **Women today are heavier**
- Now have a recommendation for obese women
Obesity and Breastfeeding

- Breastfed babies are less likely to become overweight children, compared to formula-fed babies.
- Breastfeeding for longer duration has a greater impact on infant overweight.
- The beneficial effects of breastfeeding persist into adolescence and adulthood.
- Among AK children who were never breastfed, 35% were obese by age 3 compared to 16% breastfed 12+ months.
Other Possible Obesity-Related Benefits

- May help mothers lose pregnancy weight
- Can assist in birth spacing
- Promotes beneficial gut bacteria
- May influence childhood food allergies
AAP Breastfeeding Guidelines

- 4-6 months exclusive breastfeeding
- At least 1 year of breastfeeding in combination with complementary foods
Breastfeeding initiation increased significantly in Alaska over the past two decades, from 79% in 1991 to 93% in 2010;
AK CUBS DATA

Percent of mothers of 3-yr-olds

No breastfeeding < 1 Month 1-6 Mos 7-12 Mos 13-24 Mos 24+ Mos

- 2010
- 2011
- 2012
Meeting AAP Recommendations

Percent of mothers of 3-year olds

- 2010
- 2011
- 2012

< 1 year

> 1 year
Breastfeeding Promotion Strategies

- **Early Care & Education**
  - Implement 10 Steps to breastfeeding friendly childcare

- **Worksites**
  - Implement lactation support services & supports

- **Healthcare Providers**
  - Prenatal education

- **Hospitals & Birthing Centers**
  - Implement 10 Steps to successful breastfeeding
  - Baby-Friendly Designation
Fruit and Veggie Health Benefits

- May reduce the risk for obesity and help sustain weight loss.
- Contain water and fiber that increase volume and the feeling of fullness while adding relatively few calories.
Fruit N Veggie Guidelines

- The Dietary Guidelines for Americans recommends 2 ½ to 6 ½ cups of fruits and vegetables a day for adults, or the equivalent of 5 to 13 servings depending on age, sex and activity level.

- Children should have a daily intake between 1-2 cups/day of fruit and ¾ - 3 cups of veggies per day depending on age.

To calculate daily servings
www.fruitsandveggiesmatter.gov
In Alaska, 3 of every 4 adults eat less than the recommended 5 or more servings of fruits and vegetables per day; men are more likely than women to fail to meet this goal.

83% of Alaska high school students eat less than 5 servings of fruits and vegetables per day.

Rural Alaskans are significantly more likely to eat less than 5 servings of fruits and vegetables daily than residents in Anchorage, Southeast and Fairbanks.
## Fruit and Veggie Cubs Data

### Percent of Mothers of 3-yr olds

<table>
<thead>
<tr>
<th></th>
<th>Fruit</th>
<th>Veggies</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>7.7</td>
<td>7.7</td>
</tr>
<tr>
<td>One</td>
<td>25.2</td>
<td>35.1</td>
</tr>
<tr>
<td>Two</td>
<td>22.5</td>
<td>34.3</td>
</tr>
<tr>
<td>Three</td>
<td>9.6</td>
<td>13.8</td>
</tr>
<tr>
<td>3+</td>
<td>4.5</td>
<td>4.5</td>
</tr>
</tbody>
</table>
Fruit N Veggie Strategies

- Substitute whole fruit for fruit juices.
- Support and promote community and home gardens.
- Introduce fruits and veggies early.
- Allow children to assist in preparation of new healthy foods.
- Model healthy eating.
- Support policies to incorporate fruit and vegetables into schools.
Health Professionals Can

- Conduct dietary assessments that include fruit and vegetable intake on all children 2 to 18 years of age; encourage diets with recommended quantities of fruits and vegetables.
- Encourage patients increase intake of fruits and vegetables, as well as reducing overall intake of calories for weight loss.
Sugary Drinks and Obesity

- Significant source of added sugars and calories.
- Associated with obesity, diabetes, and cardiovascular, liver, and kidney diseases in adults.
- Positive association between drinking sugar-sweetened beverages and body fat in children.
- Consumption in infancy doubles odds of consumption at age 6.
Consumption of Sugar-Sweetened Beverages (SSBs)

- 47% of adults have more than 1/day
- 45% of high school students have more than 1/day
- Alaska Native adults and youth consume more
- Adults and toddlers in certain regions of AK consume more
Sugary Drink Guidelines

- Only breast milk or water from 0-6 months
- 100% fruit juice = 4-6 oz/day
- Whole milk up to age 2
Consumption of Various sugar Sweetened Drinks by AK 3-year-olds

<table>
<thead>
<tr>
<th>Category</th>
<th>100% juice</th>
<th>Sweetened drinks</th>
<th>Soda*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (&lt;5th percentile)</td>
<td>81%</td>
<td>27%</td>
<td>9%</td>
</tr>
<tr>
<td>Normal (5th &lt; 85th percentile)</td>
<td>78%</td>
<td>26%</td>
<td>14%</td>
</tr>
<tr>
<td>Overweight (85th &lt; 95th percentile)</td>
<td>78%</td>
<td>38%</td>
<td>18%</td>
</tr>
<tr>
<td>Obese (≥95th percentile)</td>
<td>80%</td>
<td>43%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Source: Alaska CUBS (2009-2010)

*Statistically significant difference between categories.
Consume Any Sugary Drinks per Day Alaska 3-Year Olds (2010-2011)

Percent of Mothers of 3-yr olds

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorage &amp;...</td>
<td>28%</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>32%</td>
</tr>
<tr>
<td>Interior</td>
<td>26%</td>
</tr>
<tr>
<td>Northern</td>
<td>75%</td>
</tr>
<tr>
<td>Southeast</td>
<td>21%</td>
</tr>
<tr>
<td>Southwest</td>
<td>73%</td>
</tr>
</tbody>
</table>

Source: CUBS
## 3 year Old Prevalence of Overweight or Obesity by Demographic

<table>
<thead>
<tr>
<th>Region*</th>
<th>Anchorage &amp; Mat-Su</th>
<th>Gulf Coast</th>
<th>Interior</th>
<th>Northern^</th>
<th>Southeast</th>
<th>Southwest</th>
<th>Alaska Native</th>
<th>Non-Native</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37%</td>
<td>34%</td>
<td>37%</td>
<td>63%</td>
<td>45%</td>
<td>72%</td>
<td>58%</td>
<td>35%</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

^Data may be unreliable. Number of respondents was at least 30 but less than 60.

*Statistically significant difference between categories. Source: Alaska CUBS 2009-2010

*Percent of mothers of 3-year-olds

Source: Alaska CUBS 2009-2010

http://dhss.alaska.gov/dph/Chronic/Pages/default.aspx
Reducing Sugar-Sweetened Beverage Consumption

- Provide infants and toddlers only water or milk
- Delay introducing sugary drinks as long as possible
- Ensure ready access to potable drinking water
- Limit access to and marketing of SSB’s
- Promote consumption of healthy alternatives
- Decrease relative cost of healthy beverages through differential pricing
- Include screening & counseling about SSB as part of routine medical care;
Physical Activity Benefits

- Helps maintain healthy weight
- Improves cardiovascular fitness
- Strengthens muscles and bones
- Reduces likelihood of developing chronic disease risk-factors
- May reduce anxiety and depression
- Regulates blood sugar & promotes metabolic health
Youth PA Guidelines

- **Infants**
  - Least restrictive environment (limit car seats, strollers, crib, etc.)
  - “Tummy time”
  - Encourage exploration of safe environments

- **Toddlers & Preschoolers**
  - 30 min/day STRUCTURED ACTIVITY
  - At least 60 min/day UNSTRUCTURED ACTIVITY
  - Not sedentary more than 60 min at a time unless sleeping
  - Indoor and Outdoor opportunities each day
**Children & Adolescents**
- 60 minutes or MORE
- Mainly moderate to vigorous intensity
- Vigorous 3X per week
- Muscle strengthening 3X per week
- Bone strengthening 3X per week
- FUN, age-appropriate, VARIETY
Physical Activity in Alaska

- 79% of Alaska high school students are getting less than the recommended 60 minutes of physical activity every day;

- High school girls are more at risk (86%) than are boys (72%) of not meeting the daily physical activity recommendation.
PA Strategies

- Manipulative play equipment in play areas
- Sufficient, safe equipment and supervision
- Active schools
- Quality physical education
- Walk or bike to school
- Community design
- Increase opportunities for activity
- Model active behavior
Child Television Viewing

- Associated with obesity and other health problems:
  - Poor nutrition, obesity, disordered eating
  - Body concept, self-image
  - Violence and aggressive behavior
  - Sexuality
  - Substance use and abuse patterns

- American Academy of Pediatrics (AAP) recommendation:
  - No TV before age 2
  - Children’s total media time should be limited to no more than 1 to 2 hours of quality programming per day
Screen Time in Alaska

- 53% of HS students have 3+ hours
- 45% of adults have 3+ hours
- 23% of 3-year olds have 2 or more hours per day!
Amount of Daily TV Viewed by Child’s Weight Status

Source: Alaska CUBS (2009-2010)

- Underweight (<5th percentile): 19% None*, 34% ≥ 2 hours*
- Normal (5th < 85th percentile): 15% None*, 41% ≥ 2 hours*
- Overweight (85th < 95th percentile): 3% None*, 42% ≥ 2 hours*
- Obese (≥95th percentile): 6% None*, 50% ≥ 2 hours*

*Statistically significant difference between categories.
Screen Time Reduction Strategies

- No screens in kids bedrooms
- Establish daily limits with schedules
- Cover screens when not in use
- Parent & teacher role modeling
- Schedule evening family games/activities
- Afterschool & weekend activities
- Make gradual reductions
Obesity Prevention for Health Professionals

- **Assess** BMI, physical activity, and nutrition with all patients;
- **Advise** women to maintain healthy weight prior to conception;
- **Educate** pregnant women on weight gain guidelines and proper nutrition – including folate;
- **Promote** breast feeding;
- **Provide** nutrition and physical activity counseling and resources to patients and families;
- **Advocate** for policy changes in your community that increase physical activity and access to healthy foods.
## Adult BMI

### What is your Body Mass Index (BMI)?

**How To Determine Adult Body Index (Age 21 or Greater).**

- Read across to find your height
- Read down to find your weight
- Find where they meet and that is your BMI

**If your height and weight aren’t included:**

- Take your height and weight
- Multiply your weight by 705
- Divide by your height in inches twice

**What does your score mean? If you have a BMI score of:**

<table>
<thead>
<tr>
<th>BMI Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 or Less</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 or less</td>
<td>Normal Weight</td>
</tr>
<tr>
<td>25.5 to 29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>&gt;30</td>
<td>Obese</td>
</tr>
</tbody>
</table>

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**Take Heart Alaska**

[http://dhss.alaska.gov/dph/Chronic/Pages/default.aspx](http://dhss.alaska.gov/dph/Chronic/Pages/default.aspx)
Assessing Childhood Weight Status

- BMI – For – Age growth charts
- Weight status category based on percentiles by age and sex;
  - Overweight > 85% - 94%
  - Obese ≥ 95%
- Key predictors of adult obesity are BMI at AGE 2 and age of ADIPOSITY REBOUND (AR)
More About Adiposity Rebound (AR)

- Also called “BMI Rebound”
- Occurs earlier in girls than boys
- AR at age 4-4.5 is associated with adult obesity
- Undernourished children may not have AR
AAP Online Tools

- Healthy Active Living for Families (HALF) Program
  - Specially designed messages and resources for parents around improving child nutrition and activity;
  - Consistent with Bright Futures and other evidence-based recommendations;
  - Messages for infant, toddler, and preschool age groups;
  - Includes website “widgets” and a “HealthyGrowth” app.
More AAP Resources

- Pediatric e-Practice
  - Online-based virtual office model
  - Designed to help health practitioners stage their clinical setting for effective prevention, assessment, and treatment of childhood overweight & obesity.
If You Only Remember One Thing.....

5. Eat at least five servings of vegetables and fruits per day
2. Spend no more than 2 hours a day in front of a screen
1. Get at least one hour of physical activity every day

Almost None
Drink almost no sugary beverages
Childhood Obesity Resources

- Bright Futures: Prevention & Health Promotion for Infants, children, adolescents, and their families
- American Academy of Pediatrics (www.aap.org)
- www.healthychildren.org
- Childhood Obesity Prevention Toolkit (www.healthierkidsbrighterfutures.org)
- Let’s Move Childcare (www.healthykidshealthyfuture.org)
- Preventing Childhood Obesity in Early Care & Education Programs
Thank You!

Russ Stevens - Public Health Specialist II
Early Childhood Obesity Prevention Coordinator
Section of Chronic Disease Prevention & Health Promotion
Health and Social Services - Division of Public Health
Fax: (907) 465-2770
Phone: (907) 465-8541