GROW 2016 Pediatric Calculations:
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Objectives

• Recognize appropriate growth chart for specific age range

• Accurately plot and interpret anthropometric measurements on a growth chart

• Adjust for prematurity utilizing corrected gestational age equation

• Assess growth velocity
Growth Charts

• World Health Organization (WHO)
  – 0-2 years of age
  – Based on 17 countries
  – Wt/age, length/age, HC/age, wt/length

• Center for Disease Control and Prevention (CDC)
  – 2-20 years of age
  – Based on USA
  – Wt/age, height/age, BMI/age
Growth Charts

• Fenton
  - Preterm Infant
  - 22 weeks preterm until 20 weeks post term
  - Revised to accommodate the WHO Growth Standard and reflect actual age instead of completed weeks, in order to improve preterm infant growth monitoring

• Specialty growth charts
  – Cerebral Palsy
  – Down’s Syndrome
  – Achondroplasia
Plotting Points On The Growth Chart

• What does it all mean? (CDC Growth Charts)
  – 5-85\textsuperscript{th} %tile - normal
  – <5\textsuperscript{th} %tile - underweight
  – 85-95\textsuperscript{th} %tile - overweight
  – >95\textsuperscript{th} %tile - obese

• Interpreting the growth curves
Correcting for Gestational Age (CGA)

• What do we consider “preterm?”
  – Born less than 37 weeks

• Until what age do we correct for prematurity?
  – Up until 24 months of corrected gestational age for weight
  – Up until 40 months of corrected age for length

• How do we adjust for corrected gestational age?
  – Adjust for prematurity = 40 weeks (term) - gestational age at birth
  – Corrected gestational age = chronological age - adjustment for prematurity
Assessing Growth Velocity

• What does it mean?
  – Way of identifying if the baby/child is growing at expected rate
  – Will determine if further nutrition interventions are indicated

• Why do we care?
  – Our children need to GROW!
Assessing Growth Velocity

• How can we calculate growth velocity?
  – Current weight (kg) - past weight (kg)
  – Convert answer into grams
  – Divide number of grams by number of days = gm/day

*Same method used to calculate Length and Head Circumference*
### Assessing Growth Velocity

#### Average Growth Velocity by Age Group

Table 1.6, 10\textsuperscript{th} Edition Pediatric Nutrition Reference Guide

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight (grams)</th>
<th>Height (cm/week)</th>
<th>FOC (cm/week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premie &lt;2kg</td>
<td>15-20gm/kg/day</td>
<td>0.8-1.1</td>
<td>0.8-1</td>
</tr>
<tr>
<td>Premie &gt;2kg</td>
<td>20-30gm/day</td>
<td>0.8-1.1</td>
<td>0.8-1</td>
</tr>
<tr>
<td>0-4 months</td>
<td>23-34gm/day</td>
<td>0.8-0.93</td>
<td>0.38-0.48</td>
</tr>
<tr>
<td>4-8 months</td>
<td>10-16gm/day</td>
<td>0.37-0.47</td>
<td>0.16-0.2</td>
</tr>
<tr>
<td>8-12 months</td>
<td>6-11gm/day</td>
<td>0.28-0.37</td>
<td>0.08-0.11</td>
</tr>
<tr>
<td>12-16 months</td>
<td>5-9gm/day</td>
<td>0.24-0.33</td>
<td>0.04-0.08</td>
</tr>
<tr>
<td>16-20 months</td>
<td>4-9gm/day</td>
<td>0.21-0.29</td>
<td>0.03-0.06</td>
</tr>
<tr>
<td>20-24 months</td>
<td>4-9gm/day</td>
<td>0.19-0.26</td>
<td>0.02-0.04</td>
</tr>
<tr>
<td>2-6 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-10 years</td>
<td></td>
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</tr>
</tbody>
</table>

While growth patterns vary among children, from ages 2 years to puberty, children gain an average of 2-3kg (5-8gm/day) and grow in height 5-8cm per day.
Let’s Practice
QUESTIONS?
Thank you...