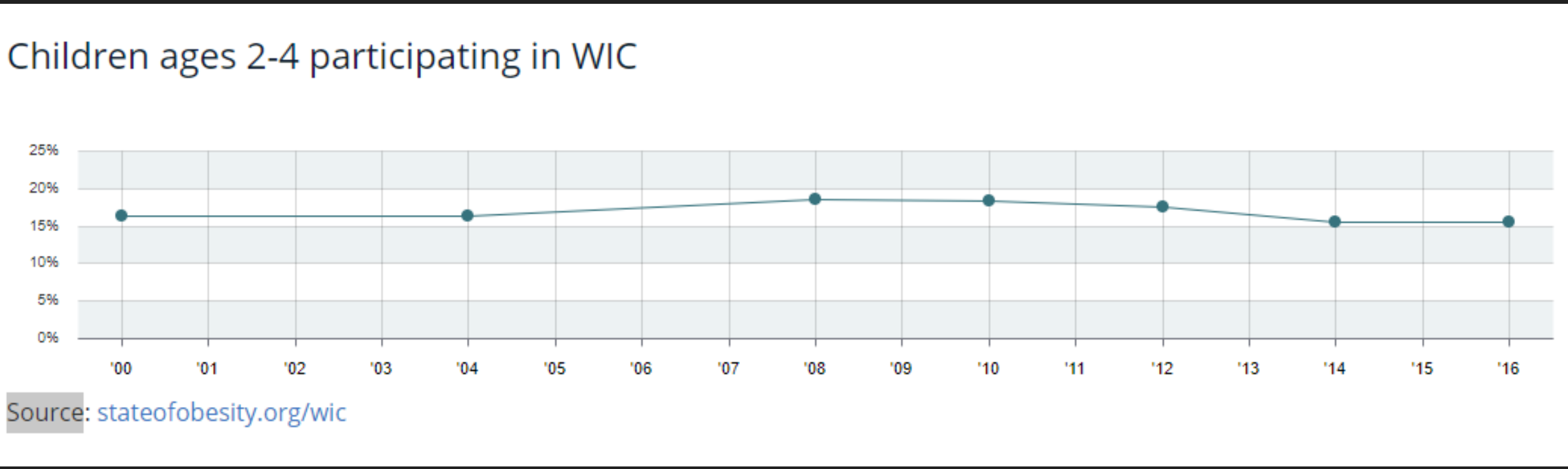
Training Objectives

- ***By the end of this presentation, you will be able to:***
- Accurately ***weigh*** & ***measure*** children for the CHDP well child exam
- Select appropriate ***growth chart*** for age (WHO vs. CDC)
- Identify the ***age range*** for which Body Mass Index (BMI) screening is used and calculate ***BMI value***
- ***Plot BMI value*** on the appropriate growth chart
- Determine ***BMI-for-age percentile***
- Identify ***weight category*** & ***document all results***

Obese Children

California children ages 2 to < 5 years



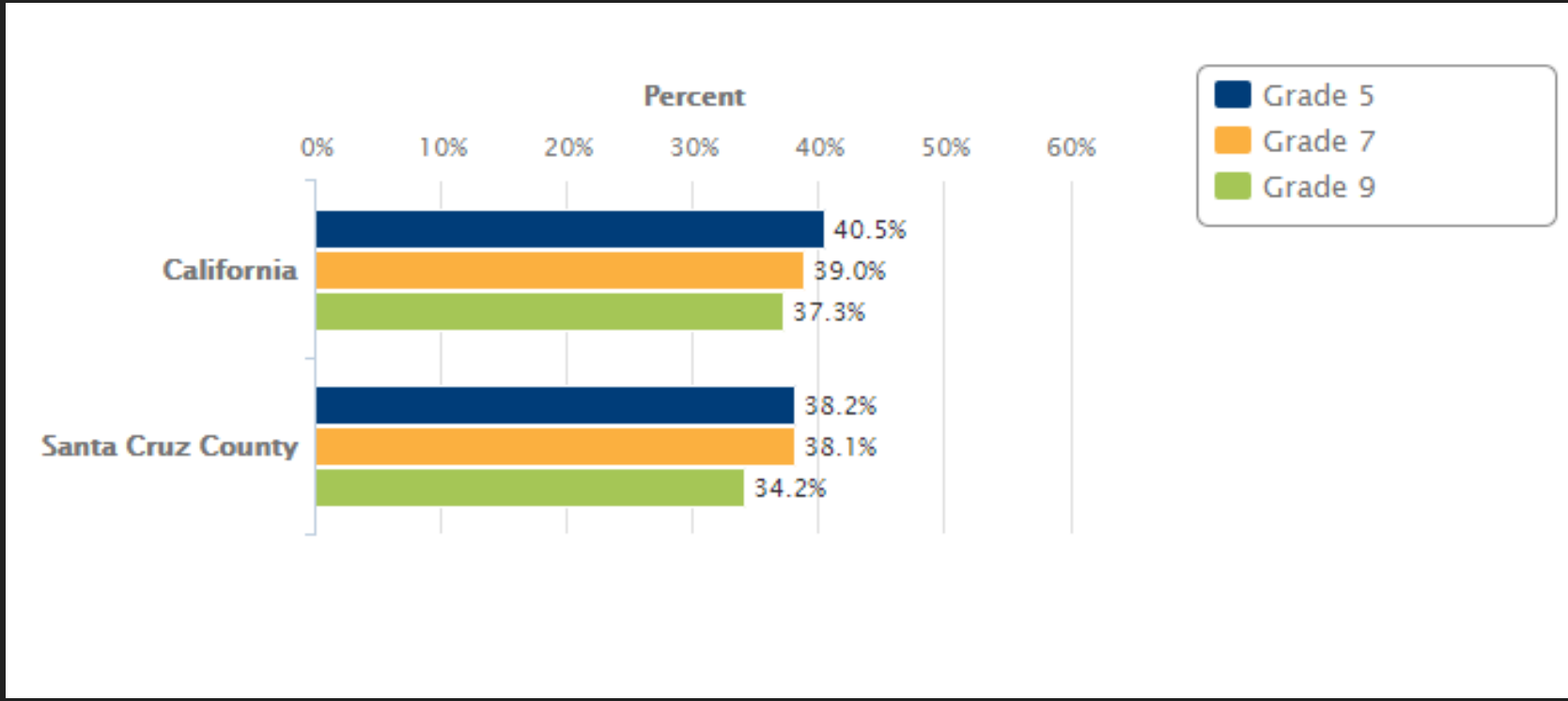
Declining Obesity Among 2-4 year olds: In California, obesity rates declined among 2-4 year olds enrolled in WIC from 2010 to 2016. the rate of obesity dropped from 18.4% to 15.5.

State Obesity Data - The State of Childhood Obesity

Overweight & Obese Children

California children: Grades 5, 7, and 9

Students Who Are Overweight or Obese, by Grade Level: 2015



Definition: Percentage of public school students in grades 5, 7, and 9 with body composition scores above the Healthy Fitness Zone of the Fitnessgram assessment (e.g., 40.5% of 5th graders in California public schools were overweight or obese in 2018).

Data Source: As cited on kidsdata.org, California Dept. of Education, Physical Fitness Testing Research Files (Dec. 2018).

Measurements You Take Are Important

For Providers:

- Growth problems
- Feeding problems
- Emotional or social problems
- Illness

Growth provides insight to a child's life

Important measurements include more than just height, weight, and age. Environmental impacts on children socially and emotionally affect their physical health and should be noted during evaluations. ACE's (Adverse Childhood Experiences) should be considered for a more comprehensive evaluation.

- Resource disparity impacts health equity by making some children more predisposed to health issues than others
- Children of different ethnicities and socioeconomic backgrounds do not experience ACE's equally
- Understanding ACE's and how racial injustice impacts them is crucial

https://www.centerforchildcounseling.org/aces-and-minorities/

What is Health Equity?

“Health equity is achieved when every person has the opportunity to “attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.” Health inequities are reflected in differences in length of life; quality of life; rates of disease, disability, and death; severity of disease; and access to treatment.”

- CDC

https://www.racialequityalliance.org/

Structural Racism

A history and current reality of institutional racism across all institutions, combining to create a system that negatively impacts communities of color.

Institutional Racism

Policies, practices, and procedures that work better for white people than for people of color, often unintentionally.

Your Measurements Guide Many Others

Your Measurements

- Weight
- Height
- Age
- BMI

BMI % Growth Chart

- HeadStart
- WIC
- Schools
- Parents
- PH/Ins. Data

Challenges:
Respect Privacy

Use a private area or exam room for the following:

- Removal of clothing and donning gown
- Taking measurements
- Discussing results

Measuring Length/Height

Length (Lying)

- Birth – 24 months: WHO growth chart
- Unable to stand without assistance

Stature (Standing)

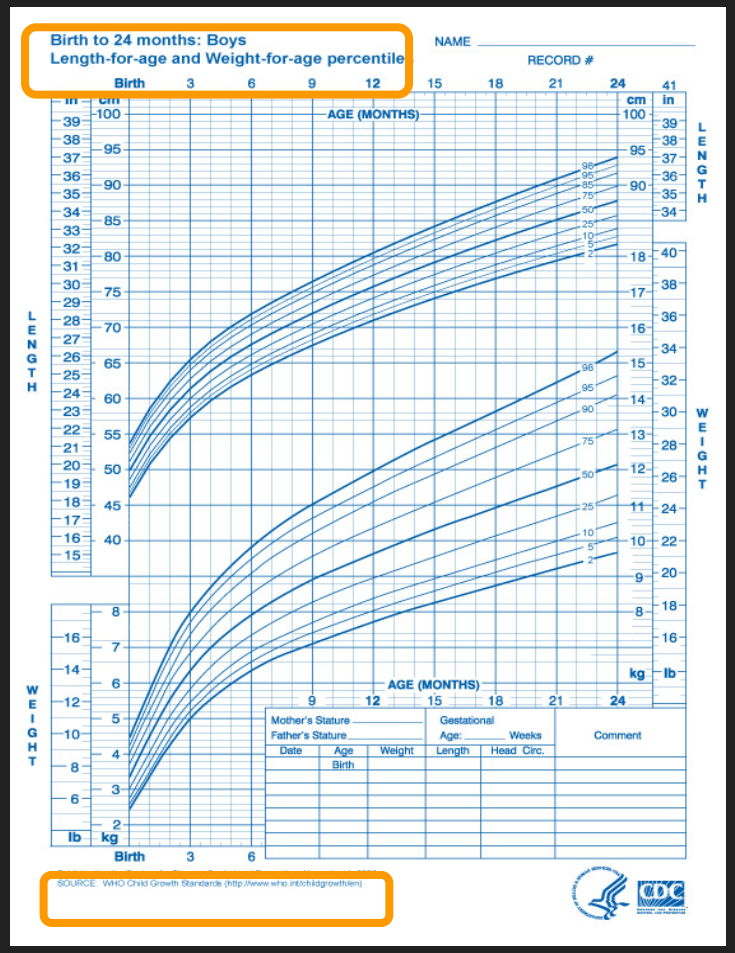
- Able to stand without assistance
- Use 2 – 20 years: CDC growth chart

Inappropriate measurement methods:

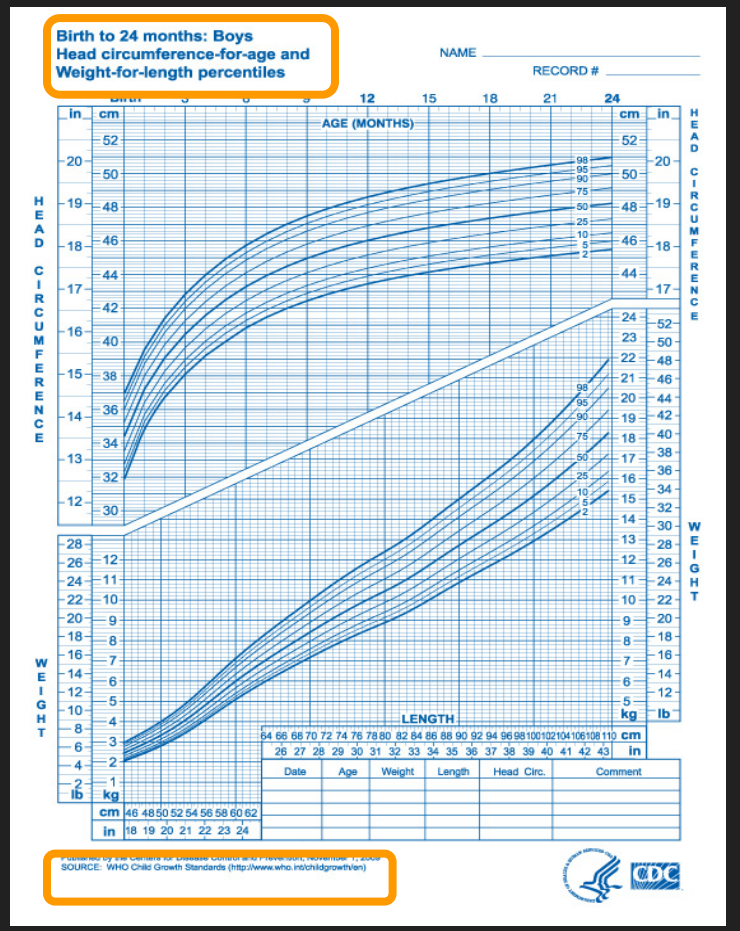
- **Measuring tape or yardstick**
- **Pencil marks on table**
- **Height rod attached to scale**

Boys: Birth to 24 months

Length-for-age
Weight-for-age

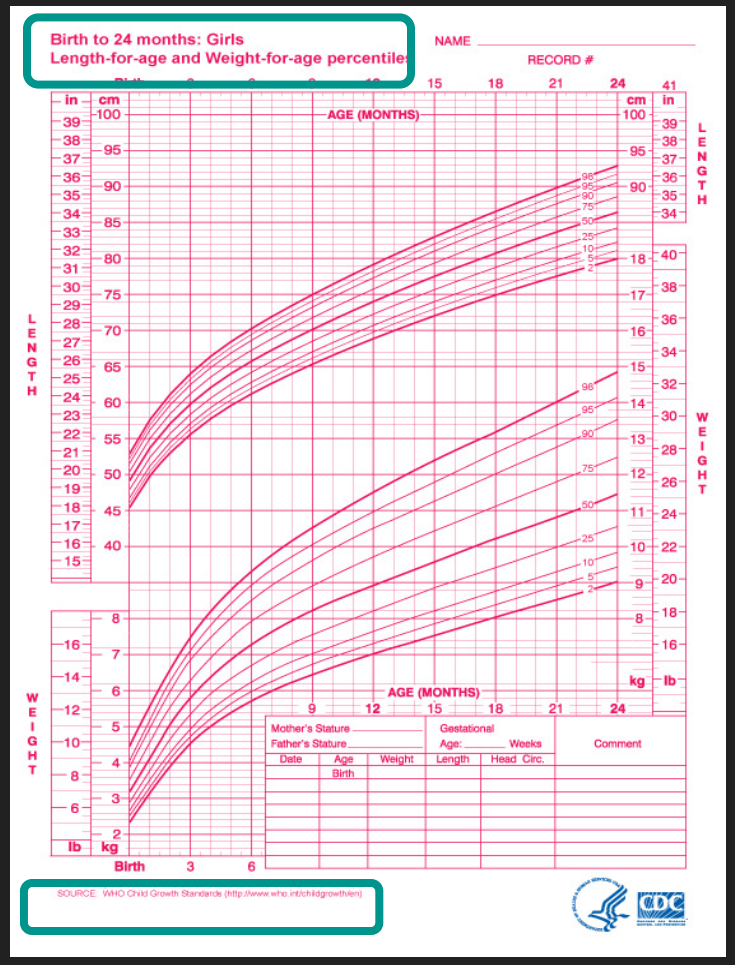


Head circumference-for-age
Weight-for-length

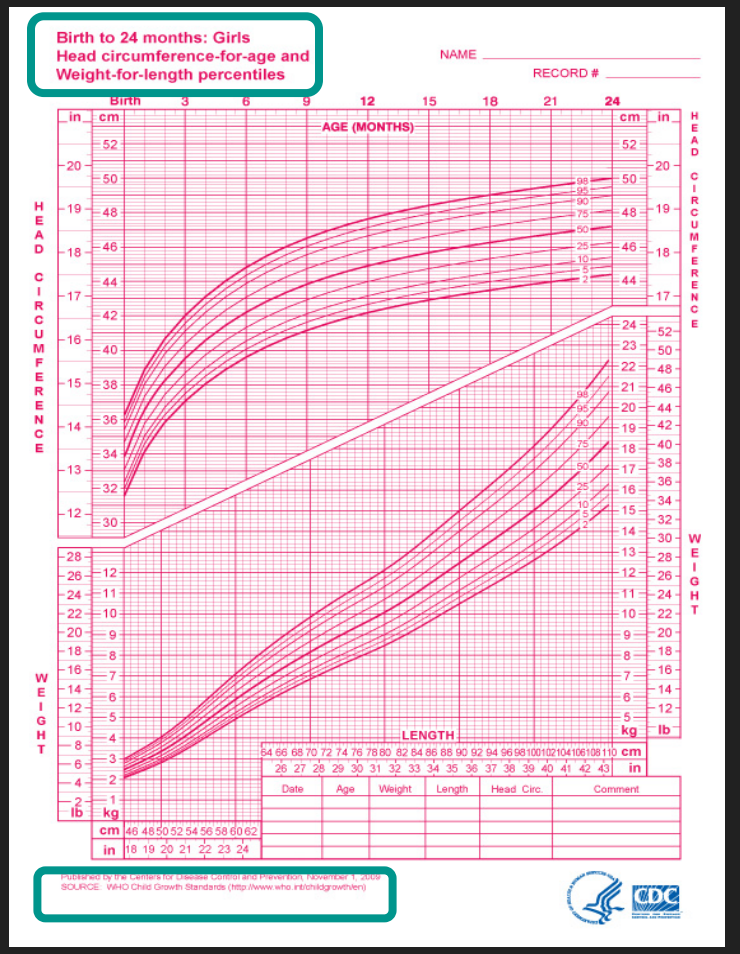


Girls: Birth to 24 months

Length-for-age
Weight-for-age



Head circumference-for-age
Weight-for-length



Incorporating the WHO Growth Charts Into Your Practice

- Review growth at each health assessment and interpret carefully
- Understand that an infant will plot differently on the WHO growth chart than on the CDC chart
- Encourage breastfeeding
- Review feeding with each health assessment and determine if foods are developmentally appropriate

When Growth Deviates from the Norm

- Check accuracy of your measurements
- Note that individual growth may not follow a smooth curve
- Obtain serial measurements over time
- If weight-for-length is < 2nd % or > 98 %, assess fully, follow closely and refer, if needed

What Is Body Mass Index?

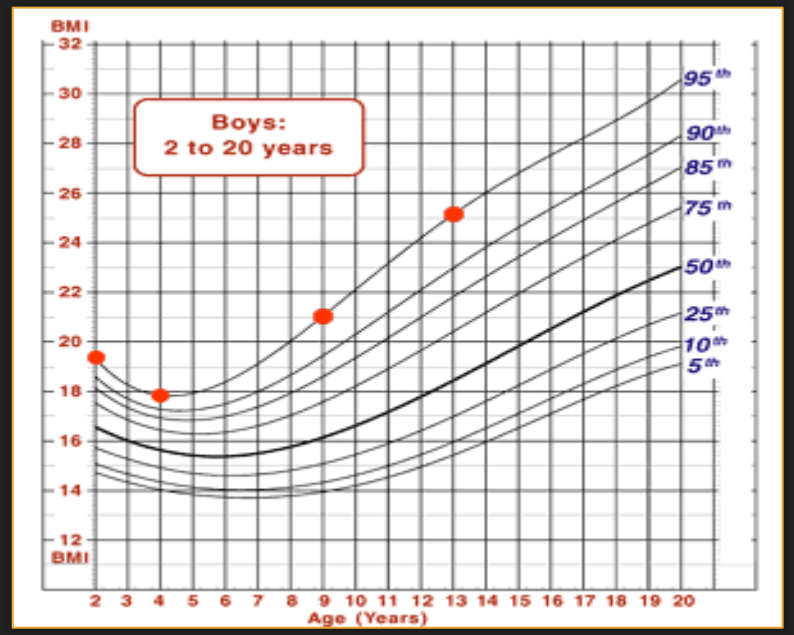
- A number calculated using weight and height measurements:
  Body Mass Index (BMI) = Weight (kg) / Height $(m)^2$
- It compares a person's weight to height
- BMI is used to screen for weight categories that may lead to health problems.

Why Use BMI-for-Age?

- Lifetime tracking tool from age 2 through adult
- Relates weight, stature *and* age
- Screening for health and nutrition status required by CHDP and health plans
- Early indicator of other health risk factors
  - Hyperlipidemia
  - Elevated insulin
  - High blood pressure

For Children, BMI Changes with Age

Ex: Child's growth tracking along 95th percentile



Age	2	4	9	13
BMI Value	19.3	17.8	21.0	25.1

BMI for Children and Teens

- Age- and sex-specific
- Plot BMI to find percentile
- Determine weight status

Weight Status Category	*Percentile Range*
Obese	≥ 95th percentile
Overweight	85th to < 95th percentile
Normal	5th to < 85th percentile
Underweight	< 5th percentile

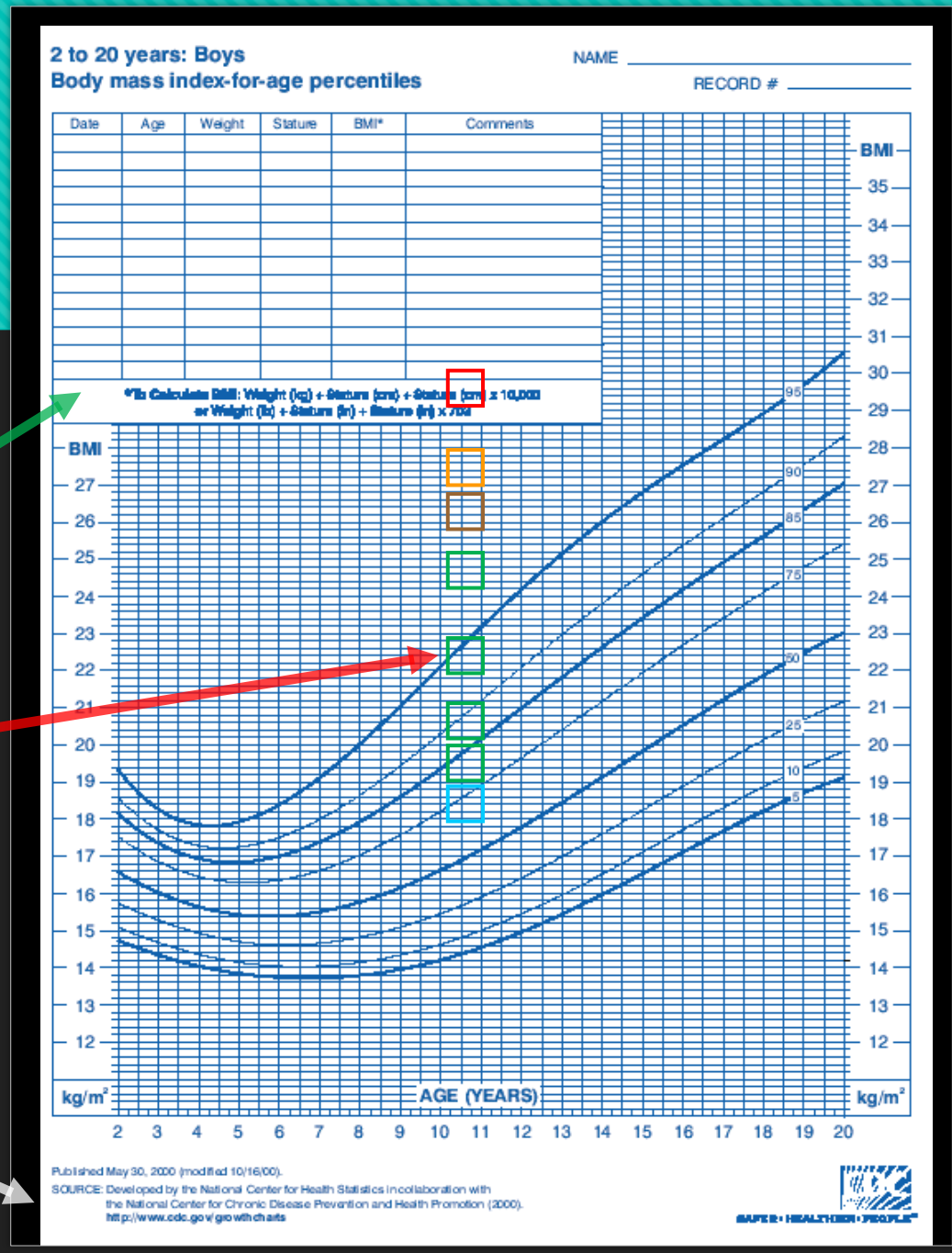
CDC Growth Charts 2-20

Tip: Download and print from www.cdc.gov/growthcharts/

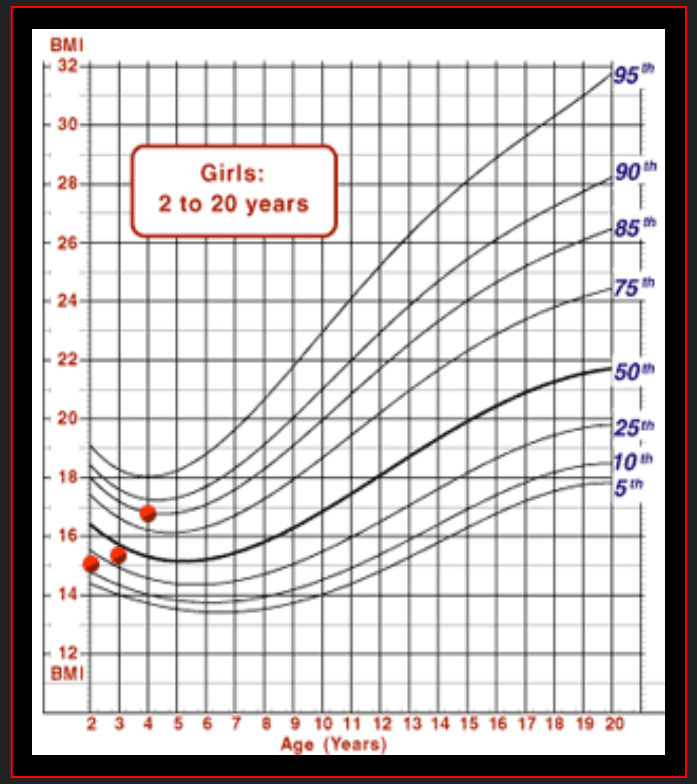
Formula to calculate BMI

Percentile lines
5th - 10th - 25th - 50th
75th - 85th - 90th - 95th

Published May 30, 2000



How to Read and Interpret the Growth Chart



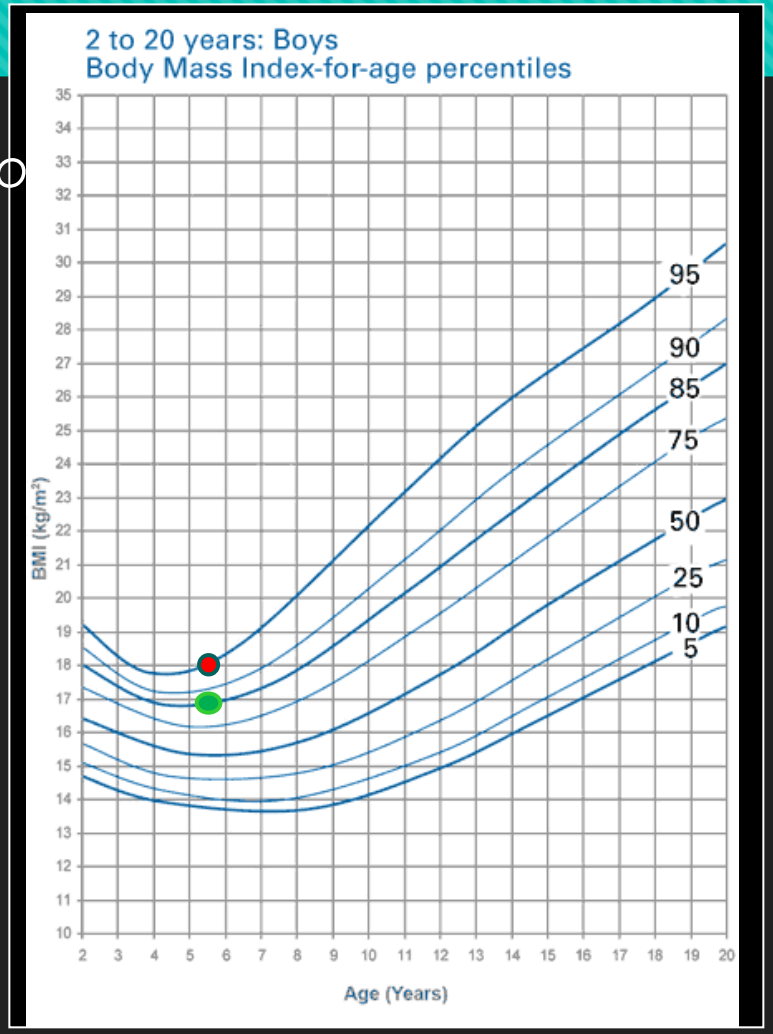
- A single point on the curve indicates current status
- A series of BMI plots are needed to determine the growth trend
- If growth deviates from the expected growth pattern, further assessment may be needed

Accurate Measurements Are Critical

BMI for 5 year old bo

- Weight: 43.5 lb
- Height: 43.0 in
- BMI= 16.5

- BMI-for-age = 75-84th percentile
- *Normal range*



If height is inaccurate:

- Weight: 43.5 lb
- Height: 42.5 in
- BMI = 17.0

- BMI-for-age = 85-94th percentile
- *Overweight range*

BMI Practicum: Chart Carlos Correctly

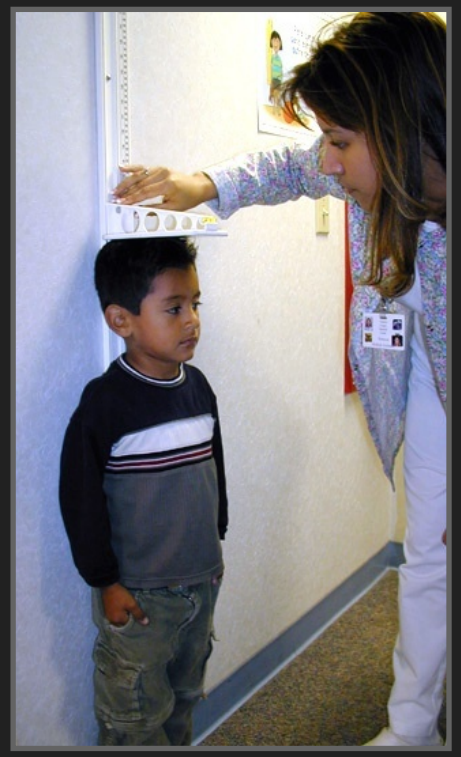
Step 1: Select Appropriate Growth Chart

CDC 2 to 20 years:
Boys

- Stature-for-age
- Weight-for-age
- BMI-for-age

Step 2: Measure Standing Height & Weight

Record on growth chart



Date	Age	Weight	Stature	BMI*
	3	32lb	38 ½"	15.2
	4	36lb	41"	15.0
	6	43½lb	45 ¾"	

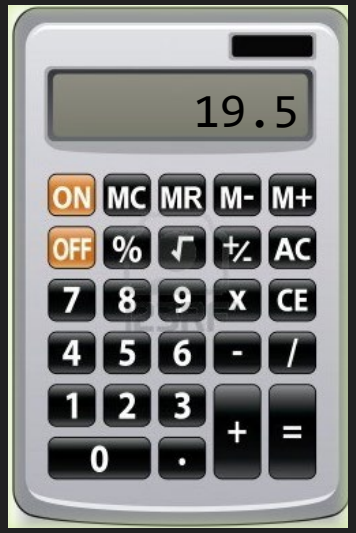
Step 3A:
Determine BMI Value

Method 1:

Using an online calculator or electronic health record

- CDC BMI Calculator for Child and Teen
  https://www.cdc.gov/healthyweight/bmi/calculator.html
- Your clinic's electronic health record system

Step 3A: Determine BMI Value



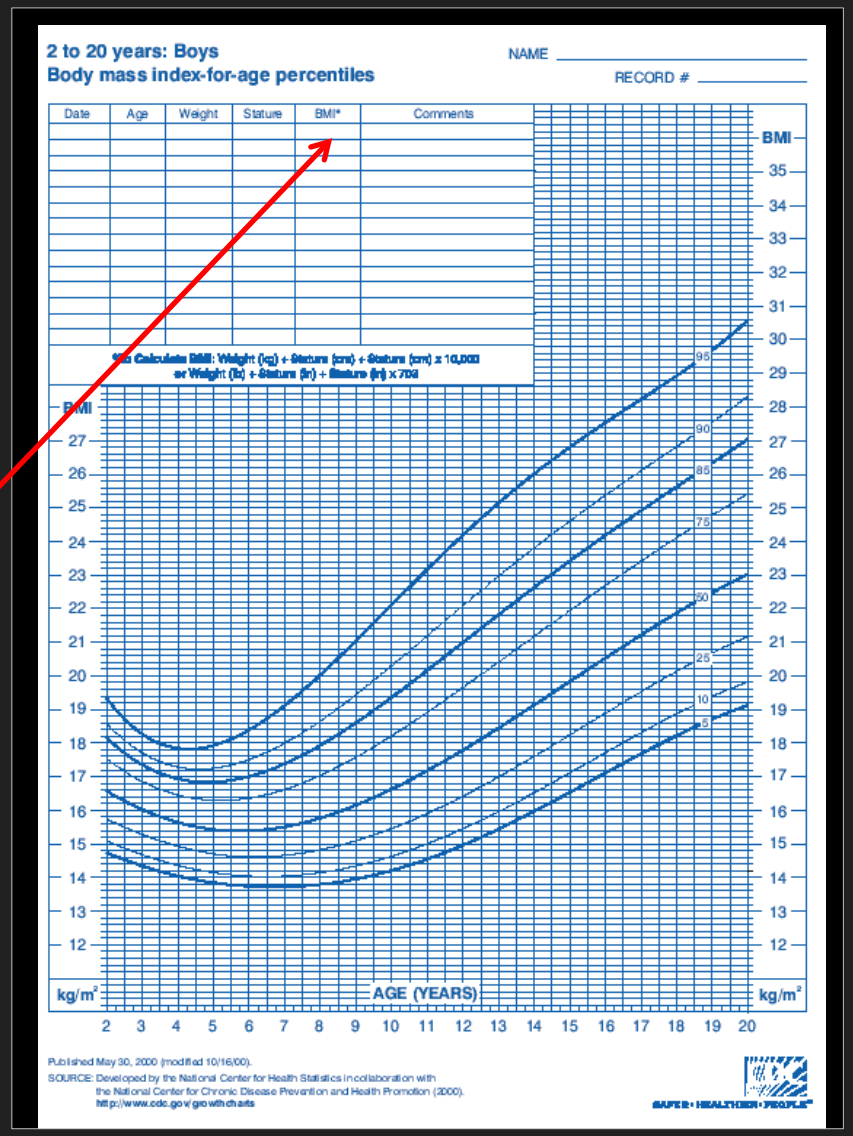
- English measurements
  Wt (pounds) ÷ Ht (inches) ÷ Ht (inches) x 703
- Metric measurements
  Wt (kg) ÷ Ht (cm) ÷ Ht (cm) x 10,000

  TIP: Formulas are listed on the BMI-for-age chart

Step 3B: Determine BMI Value

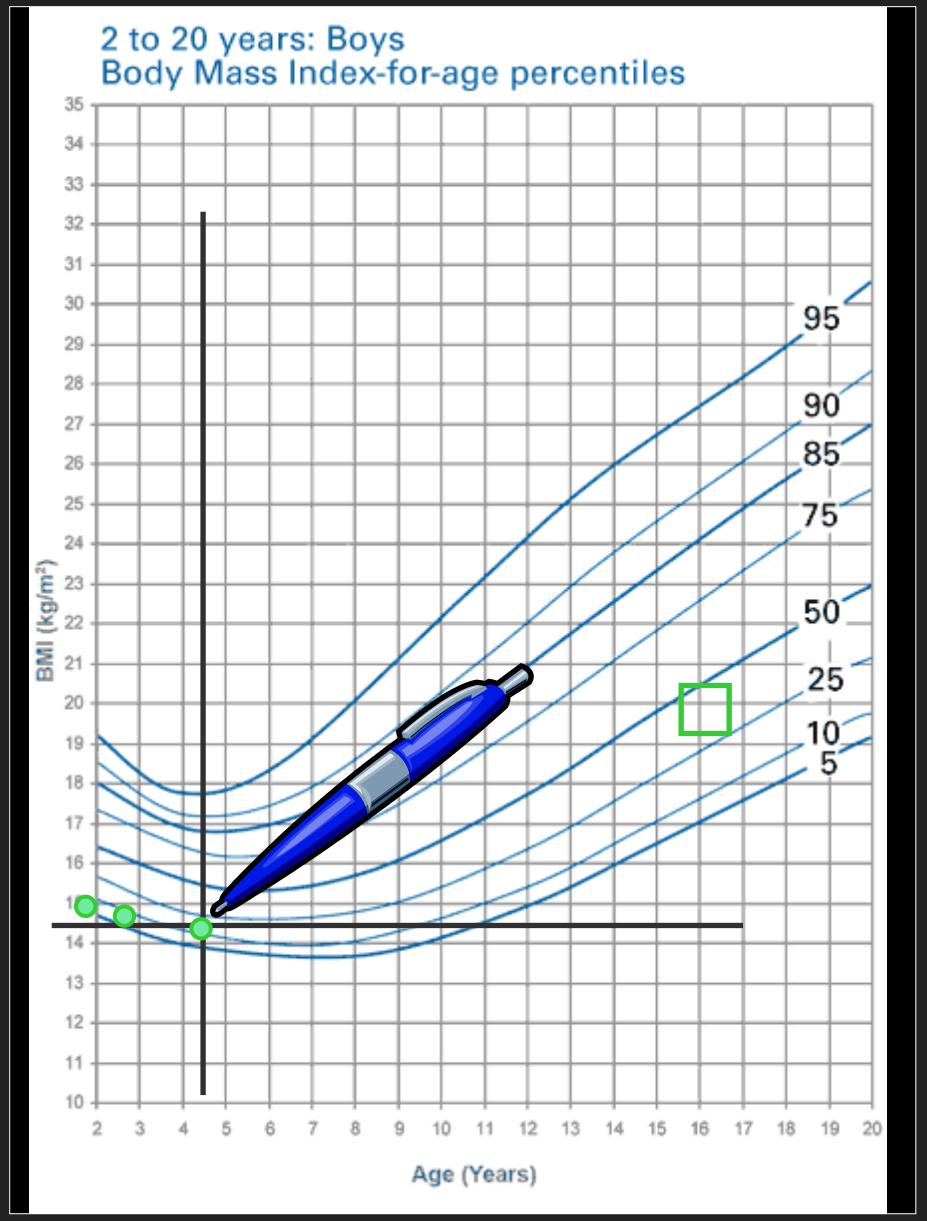
Record on growth chart

Date	Age	Weight	Stature	BMI*
	3	32 #	38 ½ "	15.2
	4	36 #	41 "	15.0
	6	43 ½ #	45 ¾ "	14.6

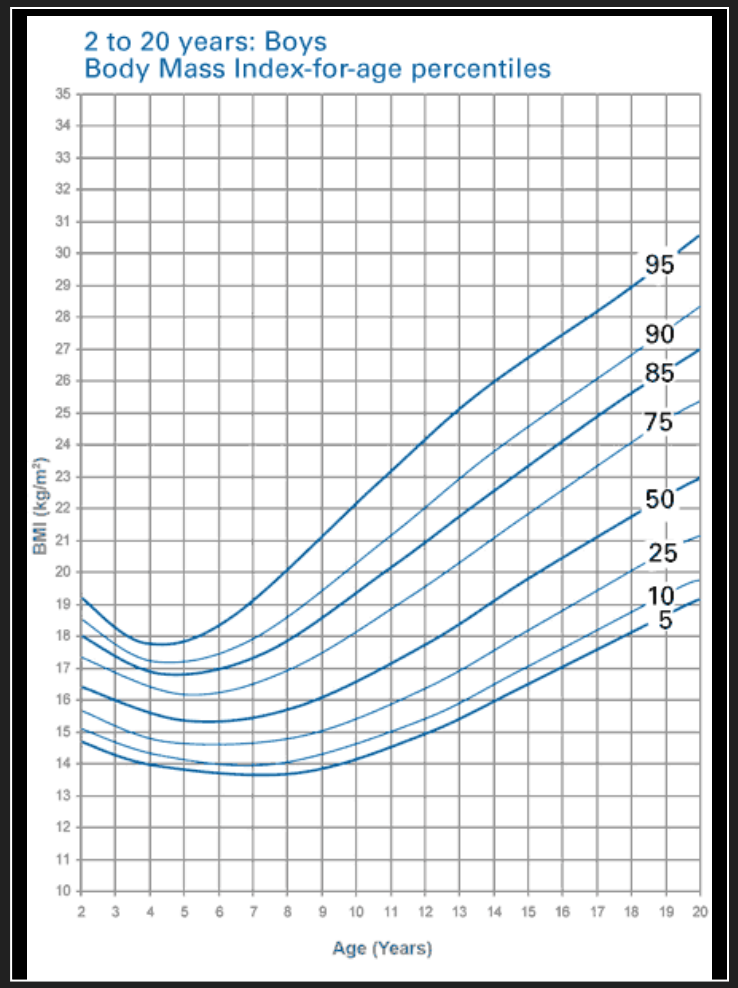


Step 4: Determine BMI-for-Age %ile

- Find age on horizontal axis
- Find BMI value on vertical axis
- Mark point of intersection
- Estimate BMI percentile



Practice Using BMI-for-Age Growth Charts: *Plot Pete Precisely*



FIRST STEPS

1. Select appropriate growth chart
2. Measure standing height
3. Measure weight
4. Determine BMI Value

Date	Age	Weight	Stature	BMI*
	2	30 #	34 ½ "	17.7
	3	36 ½ #	38 "	17.8
	4	43 #	41 "	

Plot Pete Precisely

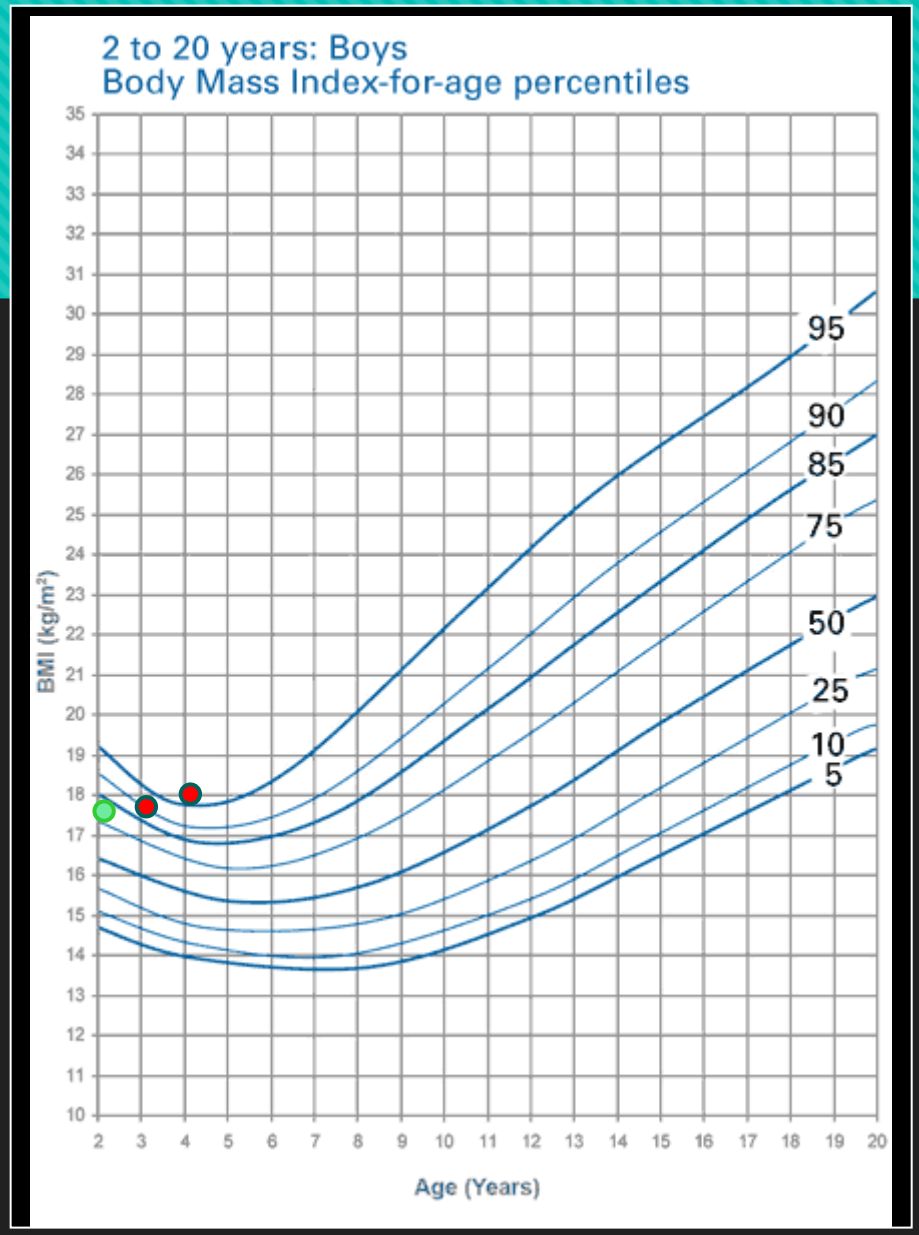
NEXT STEP:

Determine BMI-for-age percentile

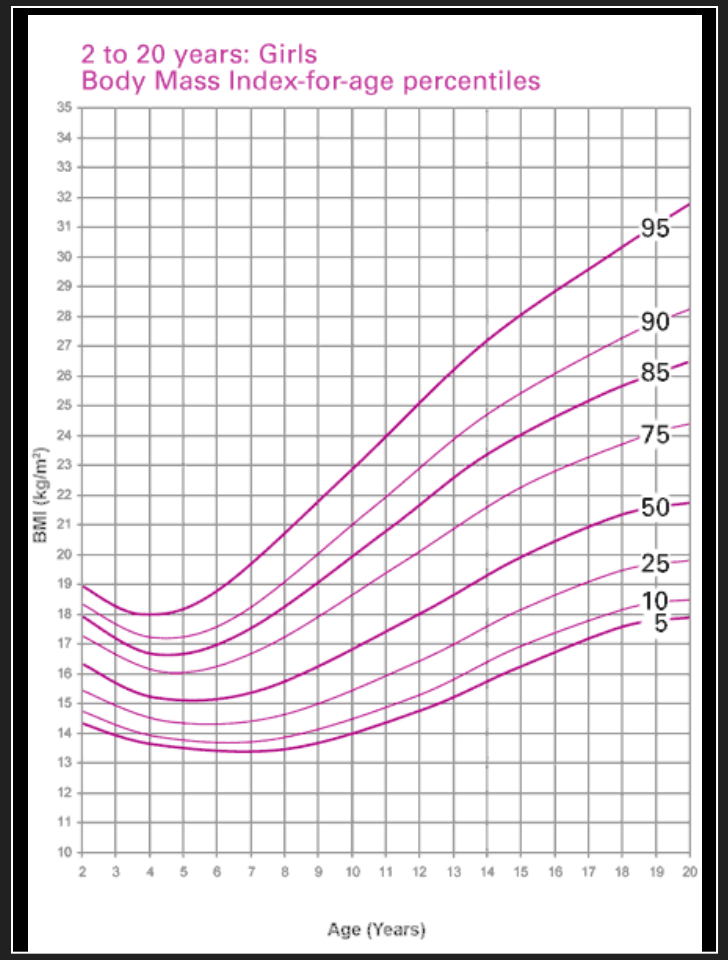
Determine Percentile: 96th

Determine Category: Underweight, normal, overweight, obese

Notify? MD and parents; needs nutritional counseling



Let's Look at Liz



FIRST STEPS

1. Select appropriate growth chart
2. Measure standing height
3. Measure weight
4. Determine BMI

Date	Age	Weight	Stature	BMI*
	2	28 ¾ #	33 ½ "	18.0
	3	33 #	36 ½ "	17.4
	4	37 #	39 ¼ "	16.9

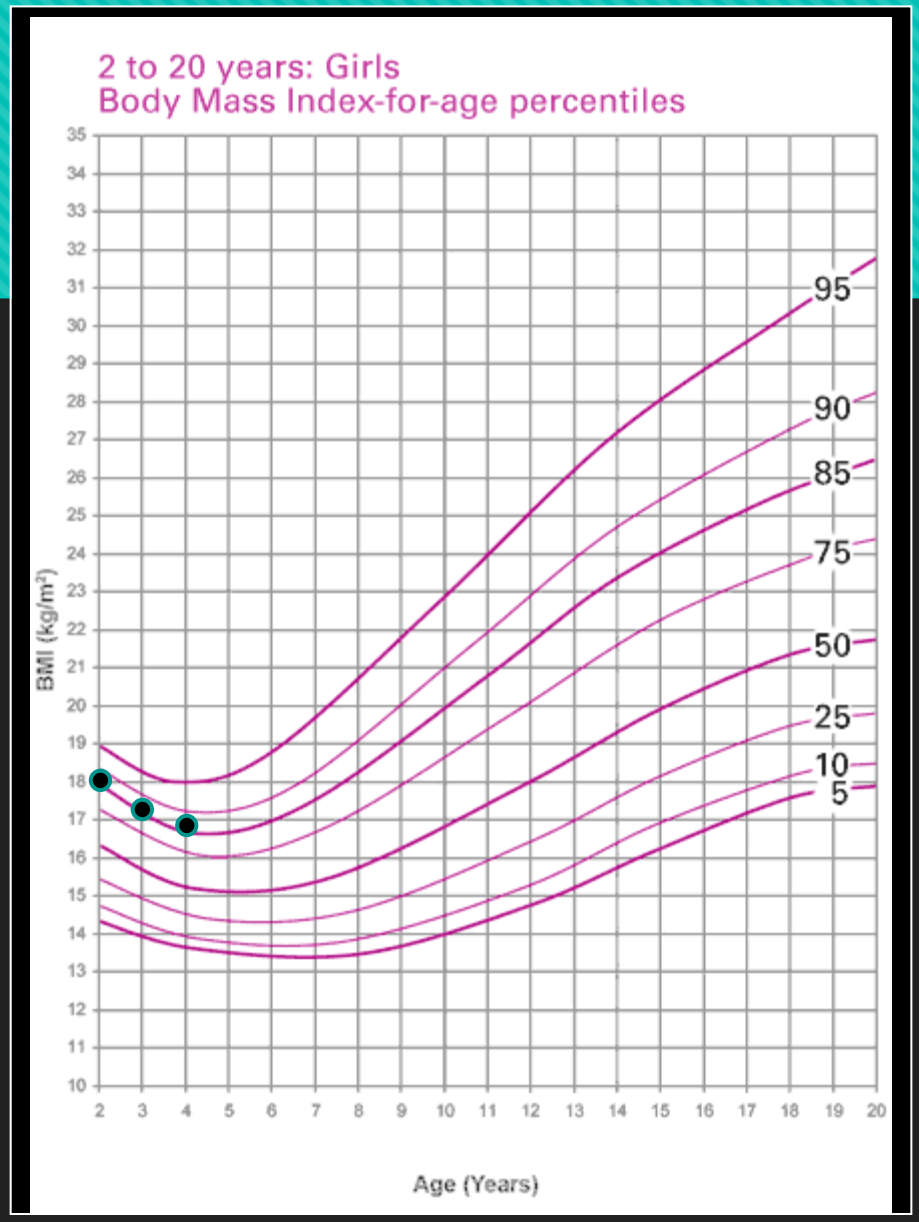
Let's Look at Liz

NEXT STEP: Determine
- BMI-for-age percentile

Determine Percentile

Determine Category

Notify?



Graph Gabriela's Growth

FIRST STEPS

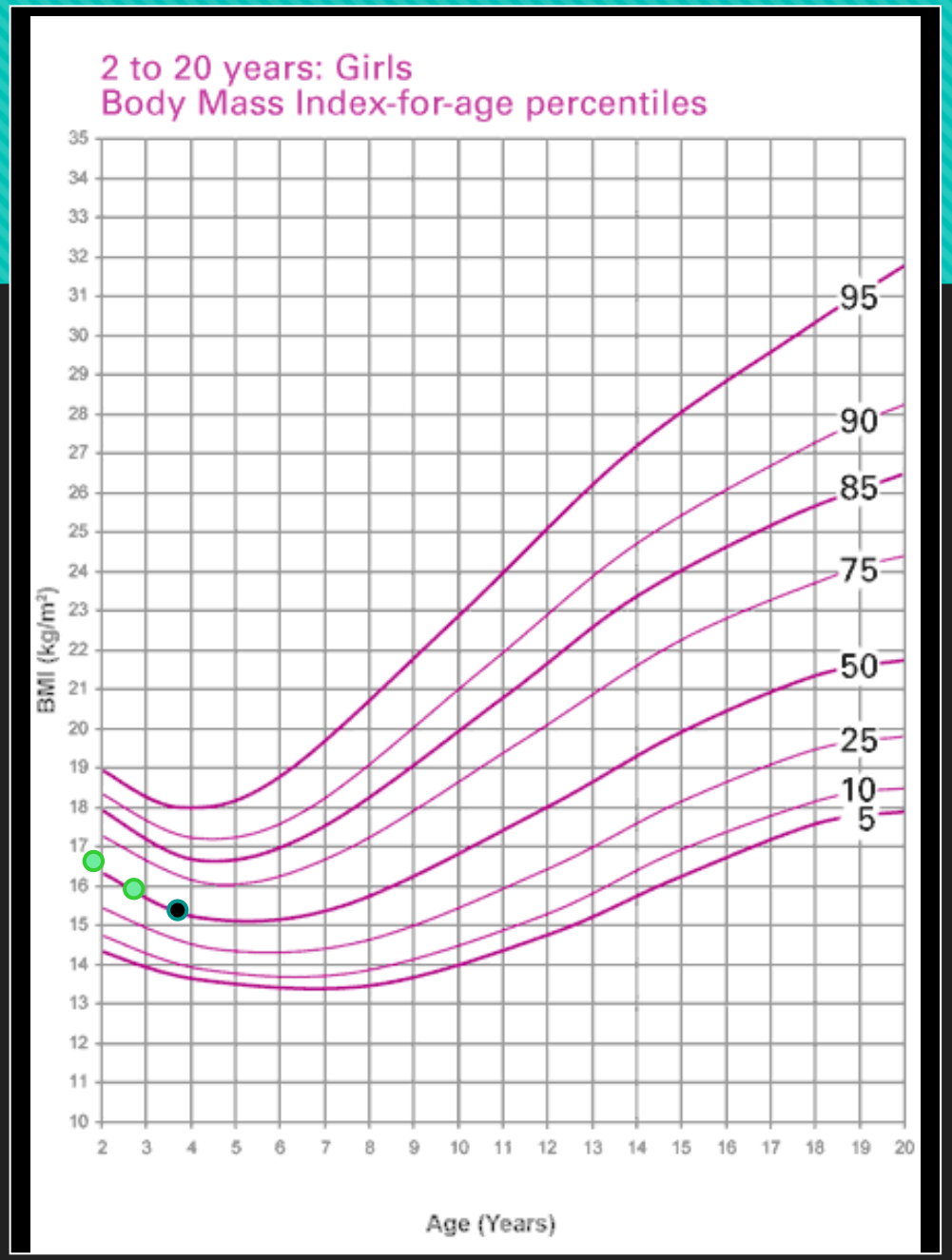
1. Select appropriate growth chart
2. Measure standing height
3. Measure weight
4. Determine BMI

Date	Age	Weight	Stature	BMI*
	2	25 #	34 ½ "	14.8
	3	29 ½ #	38 ½ "	14.0
	4	32 ½#	41 "	13.6

Graph Gabriela's Growth

***NEXT STEP*: Determine**

- **BMI-for-age percentile**
- **Determine Percentile**
- **Determine Category**
- **Notify?**



You have learned to:

- Accurately ***weigh*** & ***measure*** children for the CHDP WCE
- Select appropriate ***growth chart*** for age (WHO vs. CDC)
- Identify the ***age range*** for which Body Mass Index (BMI) screening is used
- Calculate or determine ***BMI value***
- Plot ***BMI value*** on the appropriate growth chart
- Determine ***BMI-for-age percentile***
- Identify ***weight category***
- ***Document results***

References

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