

Assessing Child Growth Using Body Mass Index (BMI)-for-Age Growth Charts



Adapted by the State of California CHDP Nutrition Subcommittee from materials developed by
California Department of Health Care Services – Children's Medical Services Branch
Centers for Disease Control and Prevention
Maternal and Child Health Bureau

Training Objectives

By the end of this presentation, you will be able to:

- Select appropriate **growth chart** for age group
- 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**
- **Record results** on PM 160

Which Growth Chart Should I Use?

Birth to 2:

- Use WHO



2 to 20:

- Use CDC



Which Growth Chart Should I Use?

Background Information:

In September 2010, the Centers for Disease Control (CDC), the National Institutes of Health (NIH), and the American Academy of Pediatrics (AAP) recommended that health care providers use World Health Organization growth standards for assessment of growth of infants from birth to 24 months. The 2009 WHO Growth Charts describe a **standard** for how healthy children should grow under optimal environmental and health conditions. The charts were developed from a multicenter research study of infants in six countries. These infants were predominantly breastfed for at least four months and continued to breastfeed during the introduction of complementary foods between four and twelve months of age.

The familiar CDC Growth Charts (2000) are growth **references** describing how certain children grew in a particular place and time, not necessarily in environments for optimal growth. The CDC growth charts published in 2000 continue to be recommended for use with children ages 2 to 20.

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
- It is an indirect *screening test* for body fatness



What is Body Mass Index?

Background Information:

Although BMI is a fairly accurate indicator of body fat, it may overestimate or underestimate actual body fat. BMI does not take into account the difference between lean mass (muscle, bone and organs) and fat mass. Athletes, for example, may have high BMIs even though the percentage of body fat is low. In children with BMIs $\geq 85^{\text{th}}$ percentile, the BMI is a good indicator of excess fat. However, the differences in the BMIs of relatively thin children (that is, BMI for age $< 85^{\text{th}}$ percentile) can be largely due to differences in lean mass. BMI-for-age is a less reliable indicator for body fat in children classified as underweight.

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*

Body Mass Index Cutoff Values for Adults

- Standard weight categories
- Same for all ages 18 +
- Same for men and women

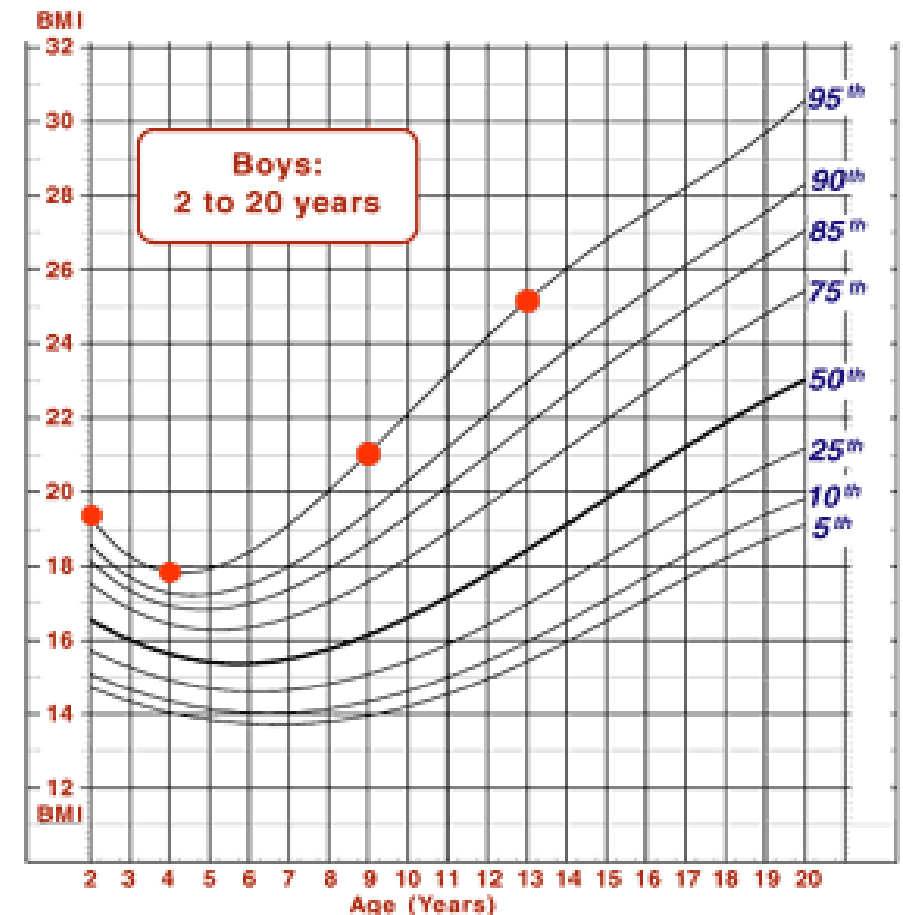


Weight Status	BMI
Obese	30.0 and above
Overweight	25.0 - 29.9
Normal	18.5 - 24.9
Underweight	Below 18.5

For Children, BMI Changes with Age

Example: 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 & Teens

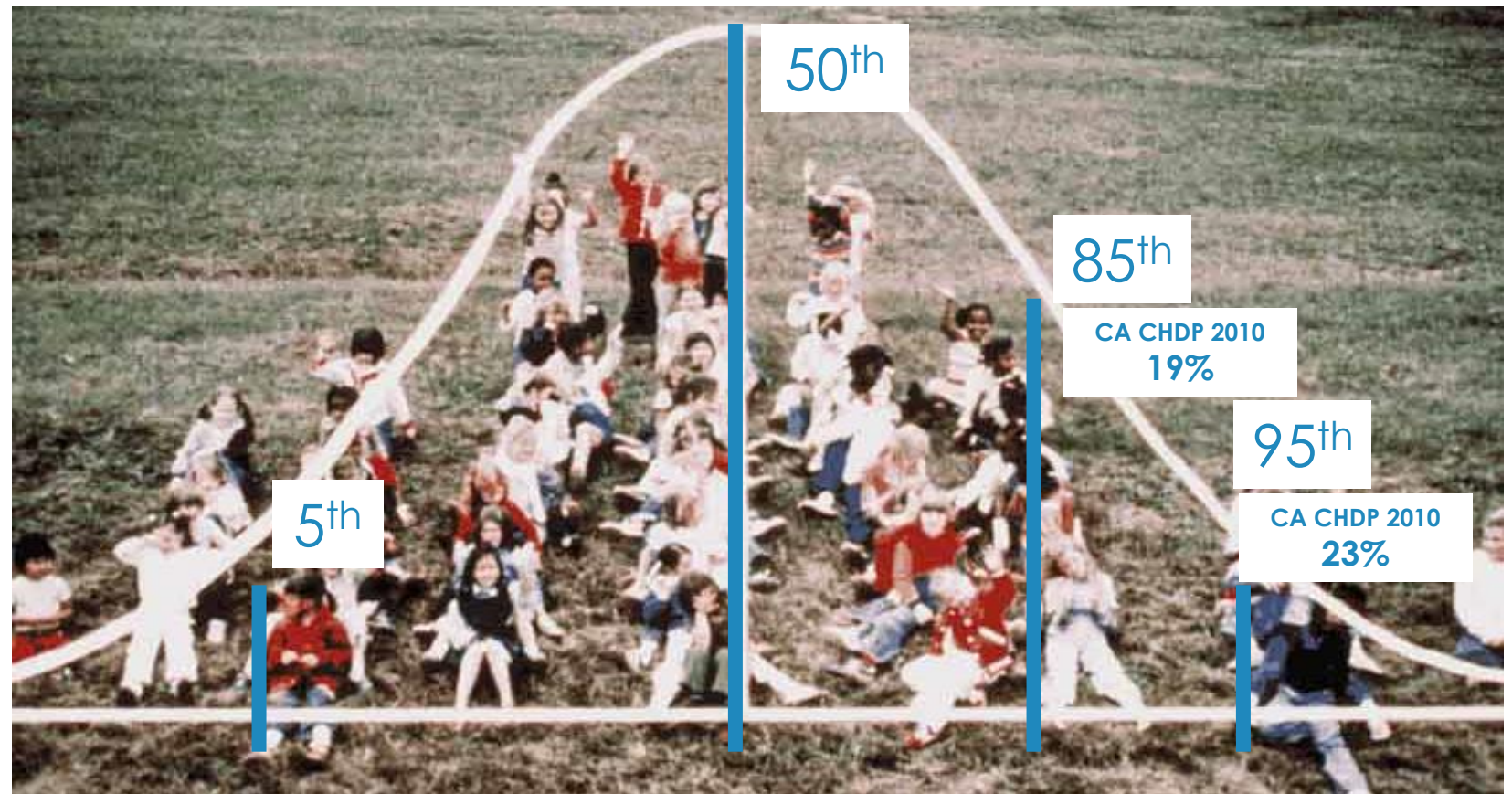
- Age-and sex-specific
- Plot BMI to find percentile
- Determine weight status



Weight Status Category	Percentile Range
Obese	$\geq 95^{\text{th}}$ percentile
Overweight	85^{th} to $< 95^{\text{th}}$ percentile
Normal	5^{th} to $< 85^{\text{th}}$ percentile
Underweight	$< 5^{\text{th}}$ percentile

What is a Percentile?

Major Percentile Divisions



CDC Growth Chart

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

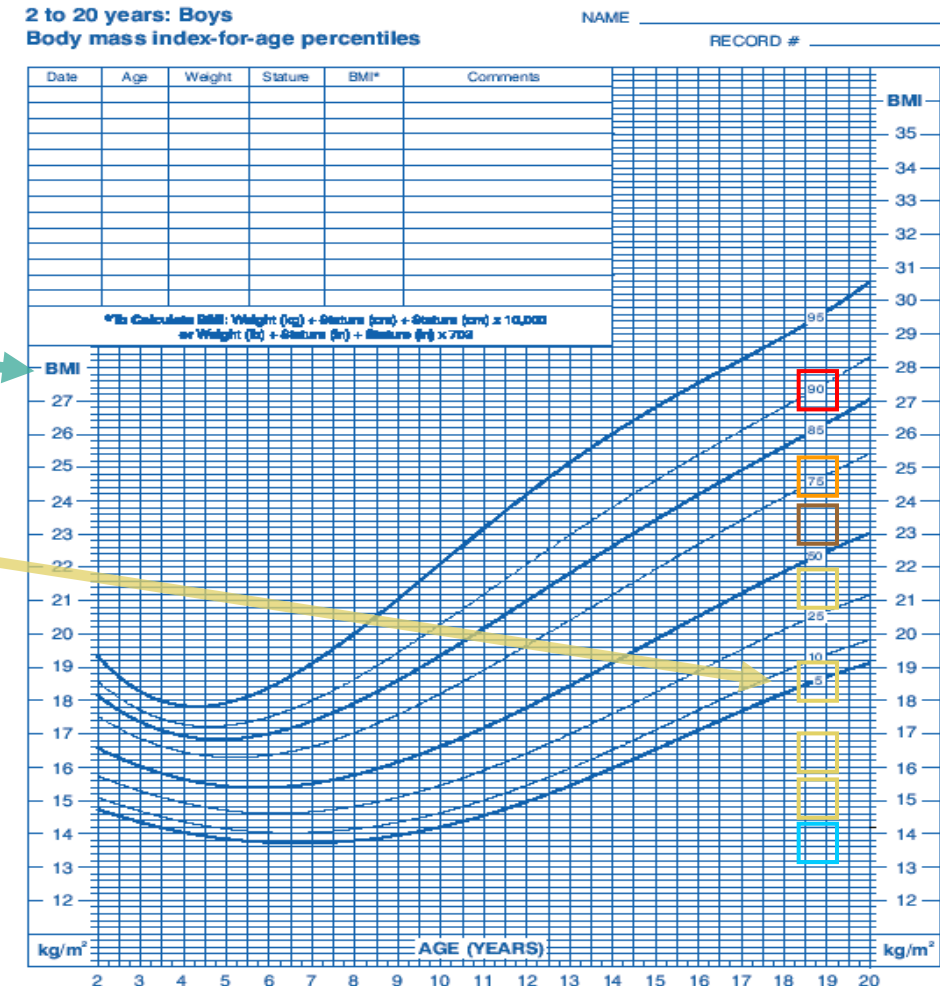
Formula to calculate BMI

Percentile lines

5th - 10th - 25th - 50th

75th - 85th - 90th - 95th

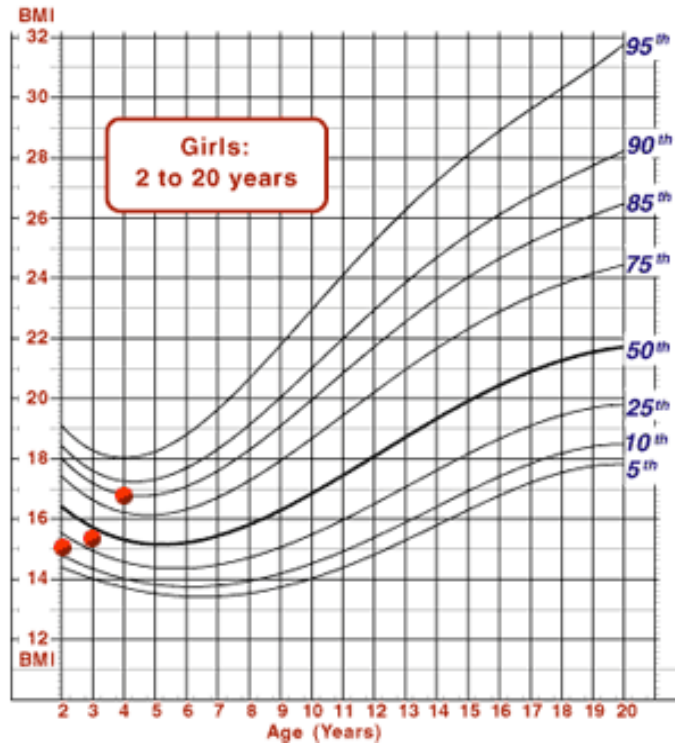
Published May 30, 2000
(Modified 2000-2001)



Published May 30, 2000 (modified 10/16/00)

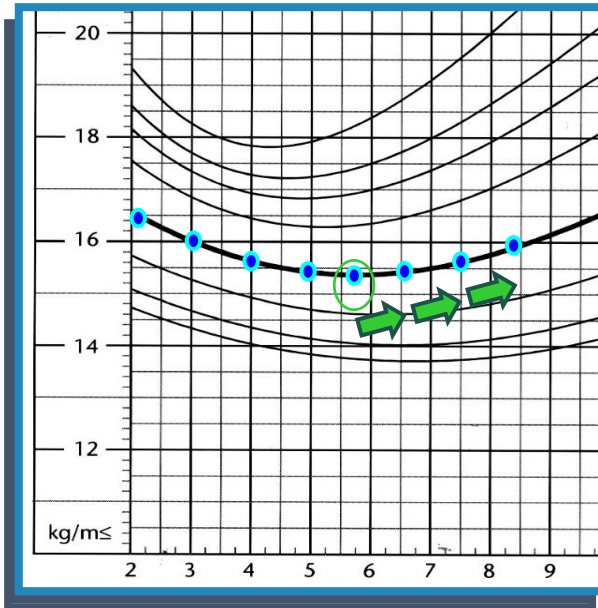
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000). <http://www.cdc.gov/cio/withch aids>

How to Read & Interpret the Growth Chart

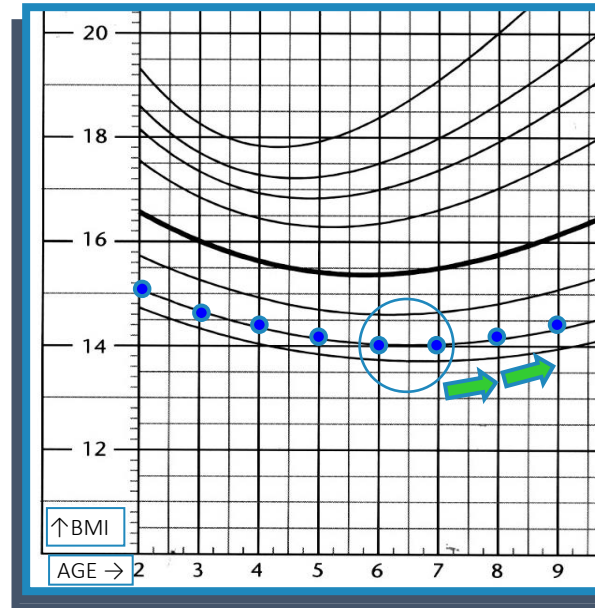


- A single point on the curve indicates current status
- A series of BMI plots are needed to determine the growth trend
- If growth deviates from the expected growth pattern, further assessment may be needed

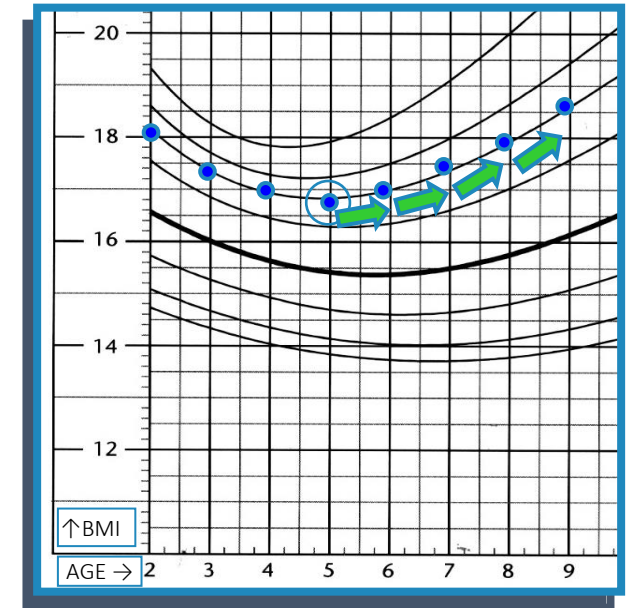
Adiposity Rebound



Child following
50th percentile curve



Child following
10th percentile curve

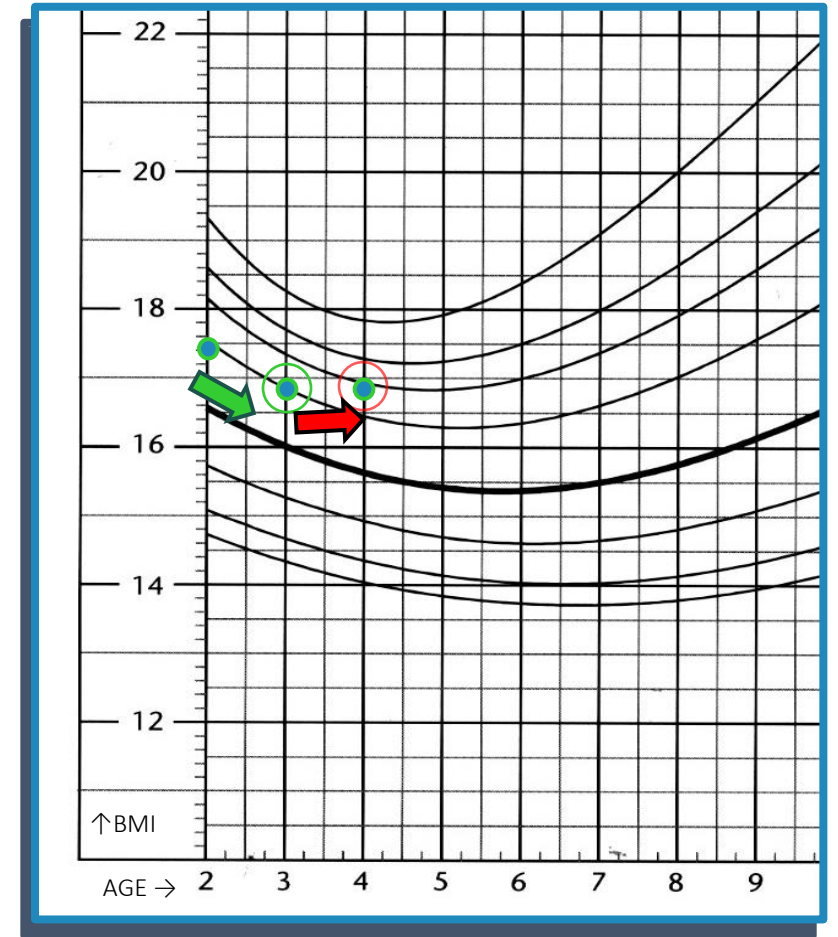


Child following
85th percentile curve

A normal increase in BMI after it reaches its lowest point, usually between ages 4 and 6

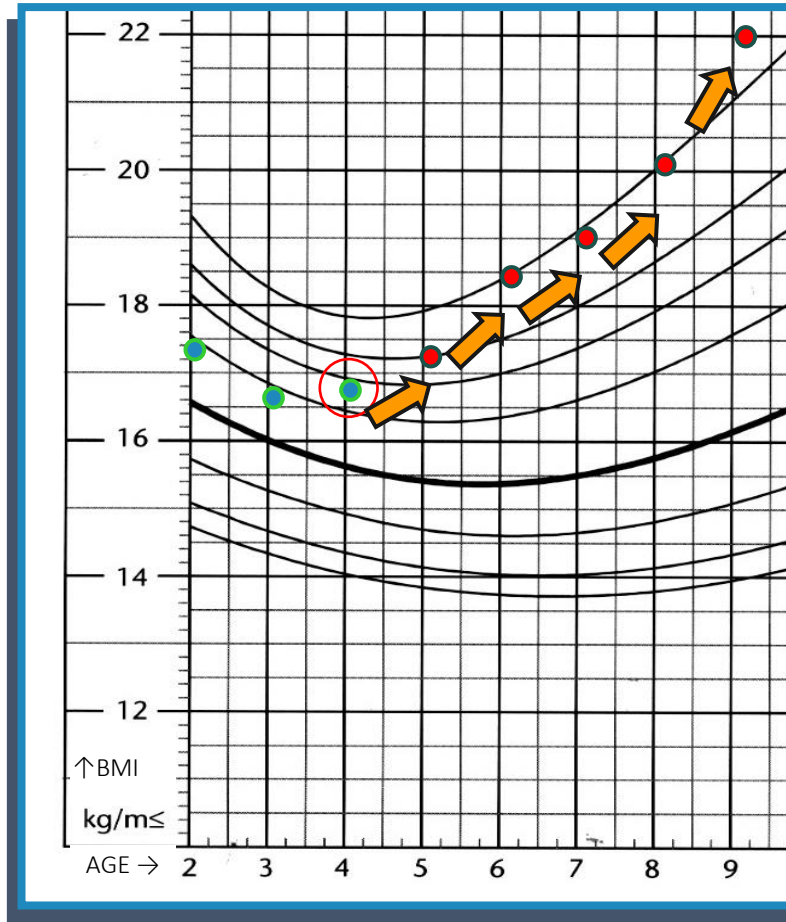
Early Adiposity Rebound

- An increase in BMI before age 5 is called *early adiposity rebound*
- An upward BMI trend before age 5 is related to higher BMI in adulthood
- This is a red flag indicating need for further nutrition and physical activity assessment

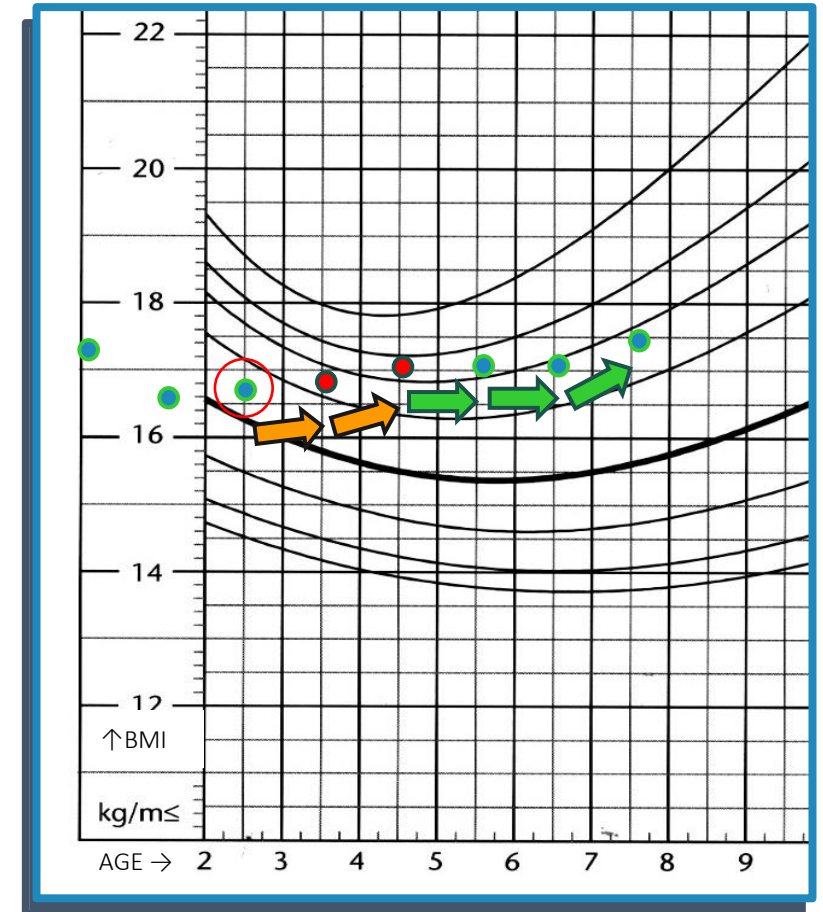


Early Adiposity Rebound

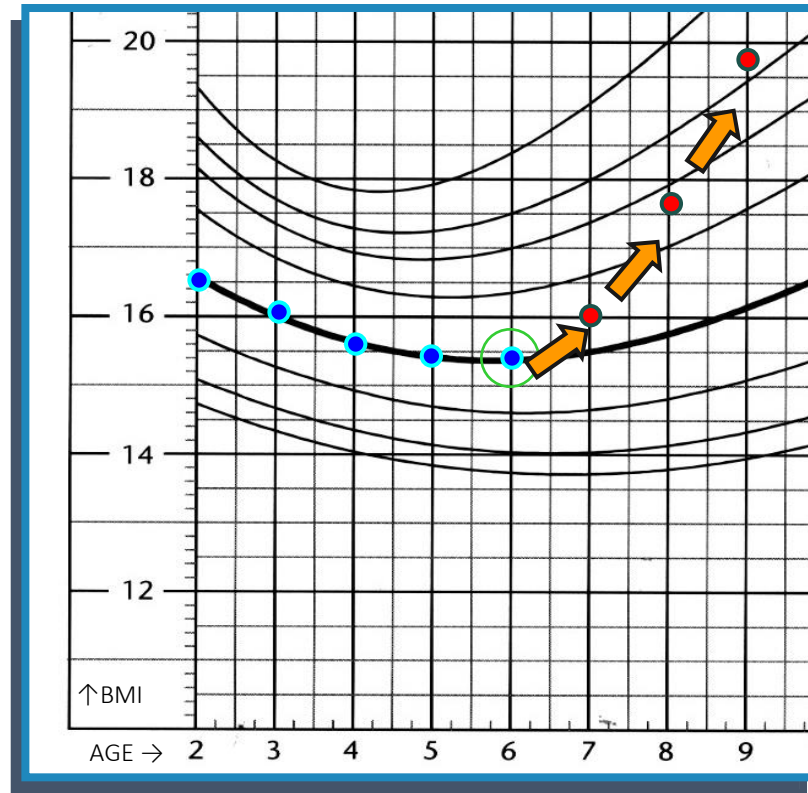
Without
Intervention



With
Intervention



Excessive Adiposity Rebound



- Excessive adiposity rebound is also related to higher BMI in adulthood
- Increasing BMI percentiles that cross major percentile lines are red flags indicating need for further nutrition and physical activity assessment

Steps to Plot BMI for Age

1. **Select** appropriate growth chart
2. **Measure** standing height accurately
3. **Measure** weight accurately
4. **Determine** BMI value
5. **Determine** BMI-for-age percentile
6. **Record** BMI percentile on PM 160
7. **Determine** weight category

Step 1: Chart Carlos Correctly

- **Select** Appropriate Growth Chart
- **Boys:** CDC 2 to 20 years
 - Stature-for-age
 - Weight-for-age
 - BMI-for-age



Step 2: Measure Standing Height

Record on growth chart and PM 160

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

HEIGHT IN INCHES 0 45 3/4	WEIGHT LBS OZS	BODY MASS INDEX (BMI) PERCENTILE	BLOOD PRESSURE
HEMOGLOBIN	HEMATOCRIT .0%	%	BIRTH WEIGHT LBS OZS



Step 3: Measure Weight

Record on growth chart and PM 160

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

HEIGHT IN INCHES 0 4 5 3 4	WEIGHT LBS OZS 0 4 3 0 8	BODY MASS INDEX (BMI) PERCENTILE	BLOOD PRESSURE
HEMOGLOBIN	HEMATOCRIT .0%	%	BIRTH WEIGHT LBS OZS

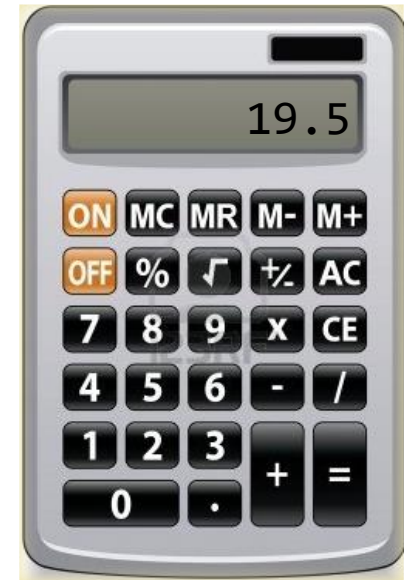


Step 4A: Determine BMI Value

Method 1: Using a calculator

- **English measurements**
 $\text{Wt (pounds)} \div \text{Ht (inches)} \div \text{Ht (inches)} \times 703$
- **Metric measurements**
 $\text{Wt (kg)} \div \text{Ht (cm)} \div \text{Ht (cm)} \times 10,000$

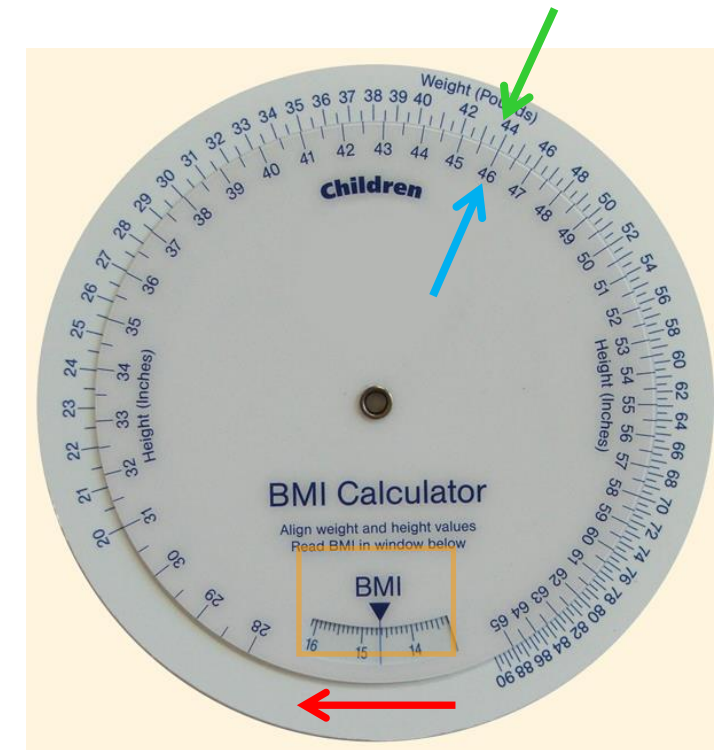
TIP: Formulas are listed on the BMI-for-age chart



Step 4A: Determine BMI Value

Method 2: Using a BMI calculation wheel

- Line up the **height** on inner wheel with the **weight** on outer wheel
- Read BMI value in the window on the inner wheel
Read number and decimal points from right to left!



Step 4A: Determine BMI Value

Method 3: Using an online calculator or electronic health record

- CDC BMI Calculator for Child and Teen
<http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx>
- Children's Hospital of Philadelphia Body Mass Index and Z-Score Calculator in Children
<http://stokes.chop.edu/web/zscore>
- Your clinic's electronic health record system



Step 4A: Determine BMI Value

Method 3: Using an online calculator or electronic health record

Enter Data

BMI Calculator for Child and Teen English | Metric

Birth Date:
July 1 2007

Date of Measurement:
July 1 2013

Sex:
☒ boy ☐ girl

Height, to nearest 1/8 inch:
3 feet, 9 inches, 3/4 fractions of an inch
(12 inches = 1 foot; Example: 4 feet, 5 1/2 inches)

Weight, to nearest 1/4 (.25) pound:
43 pounds, 1/2 fractions of a pound
(8 ounces = 1/2 pounds; Example: 75 3/4 pounds)

[Calculate](#)

View Results

BMI Calculator for Child and Teen Calculate again: English | Metric

Information Entered


Age: 6 years 0 months
Birth Date: July 01, 2007
Date of Measurement: July 01, 2013

Sex: Boy
Height: 3 feet 9-3/4 inch(es)
Weight: 43-1/2 pounds

Results

Based on the height and weight entered, the **BMI is 14.6**, placing the BMI-for-age at the **24th percentile** for boys aged 6 years 0 months. This child has a **healthy weight**.

- What does this mean?
- What should you do?



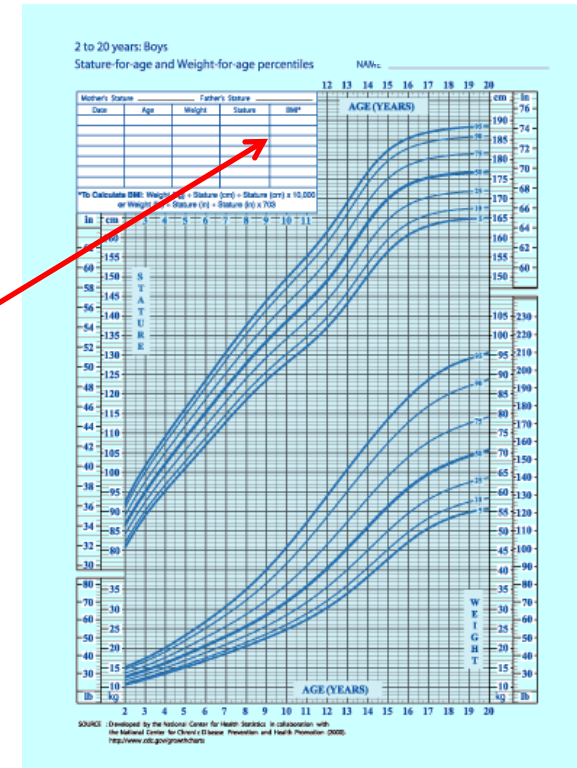
0 5 85 95 100

underweight, less than the 5th percentile
healthy weight, 5th percentile up to the 85th percentile
overweight, 85th to less than the 95th percentile
obese, equal to or greater than the 95th percentile

Step 4B: Determine BMI Value

Record on growth chart

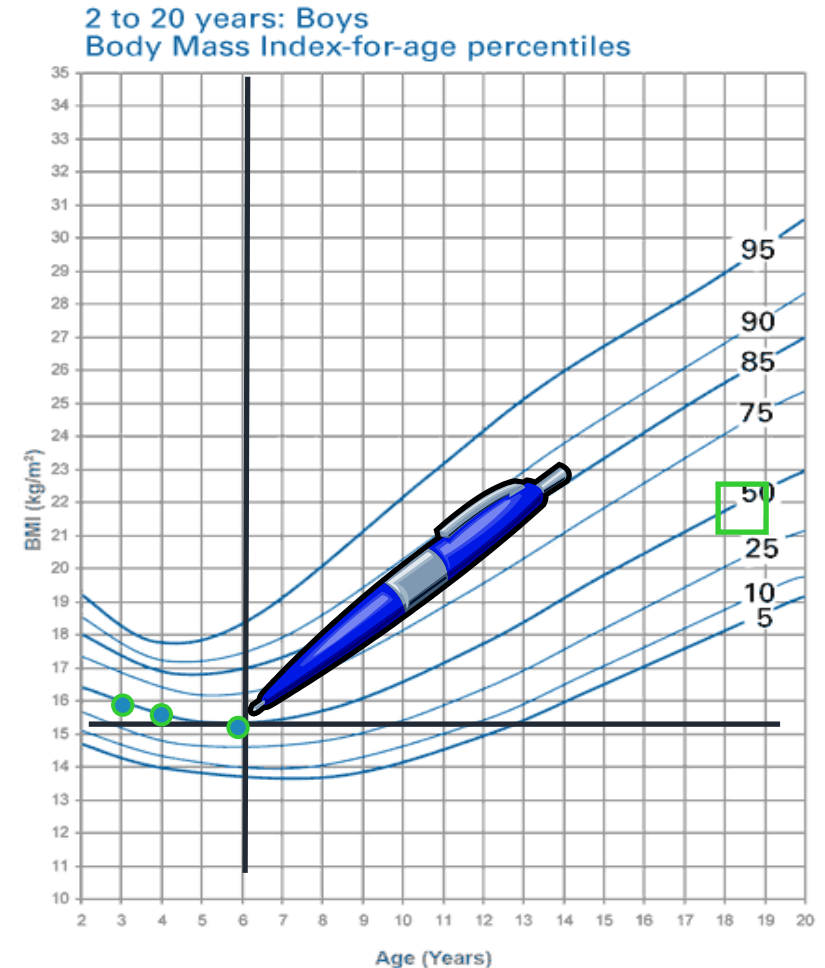
Date	Age	Weight	Stature	BMI*
	3	32 #	38 ½ "	15.2
	4	36 #	41 "	15.0
	6	43 ½ #	45 ¾ "	14.6



Step 5: Determine BMI-for-Age %ile

TIP: Use a transparent growth chart plotting aid

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



Step 6: Record BMI Percentile on PM 160

- Estimate a whole number between 1 and 99 that best represents the percentile point plotted on the growth chart

HEIGHT IN INCHES 0 4 5 3 4	WEIGHT LBS OZS 0 4 3 0 8	BODY MASS INDEX (BMI) PERCENTILE 2 5 %	BLOOD PRESSURE /
HEMOGLOBIN 	HEMATOCRIT .0%		BIRTH WEIGHT LBS OZS

Step 7A: Determine Weight Category

Determined by certified CHDP health care provider (MD, NP, or PA)

Weight Status Category	Percentile Range
Obese	$\geq 95^{\text{th}}$ percentile
Overweight	85^{th} to $< 95^{\text{th}}$ percentile
Normal	5^{th} to $< 85^{\text{th}}$ percentile
Underweight	$< 5^{\text{th}}$ percentile

Step 7B: Record Abnormal Results

CLAIM CONTROL NUMBER • FOR STATE USE ONLY

PATIENT NAME (LAST) (FIRST) (INITIALS) MEDICAL RECORD NO. 94 05778291 J

DATE OF SERVICE

CHDP ASSESSMENT

01 HISTORY AND PHYSICAL EXAM

02 DENTAL ASSESSMENT/REFERRAL

03 NUTRITIONAL ASSESSMENT

04 DEVELOPMENTAL ASSESSMENT

05 SNELLEN OR EQUIVALENT

07 AUDIOLOGIC

08 HEMOGLOBIN OR HEMATOCRIT

09 URINE DIPSTICK

10 COMPLETE URINALYSIS

12 TB MANTOUX

IMMUNIZATIONS

THE QUESTIONS BELOW MUST BE ANSWERED

1. Patient is Exposed to Passive (Second Hand) Tobacco Smoke. Yes ☐ No ☐

2. Tobacco Used by Patient Yes ☐ No ☐

3. Counseled About/Referred For Tobacco Use Prevention/Cessation. Yes ☐ No ☐

STATE OF CALIFORNIA-CHILD HEALTH AND DISABILITY PREVENTION PROGRAM

CONFIDENTIAL SCREENING/BILLING REPORT

On PM 160, enter follow up code in appropriate column under **PROBLEM SUSPECTED**

Enter diagnosis under **COMMENTS/PROBLEMS**

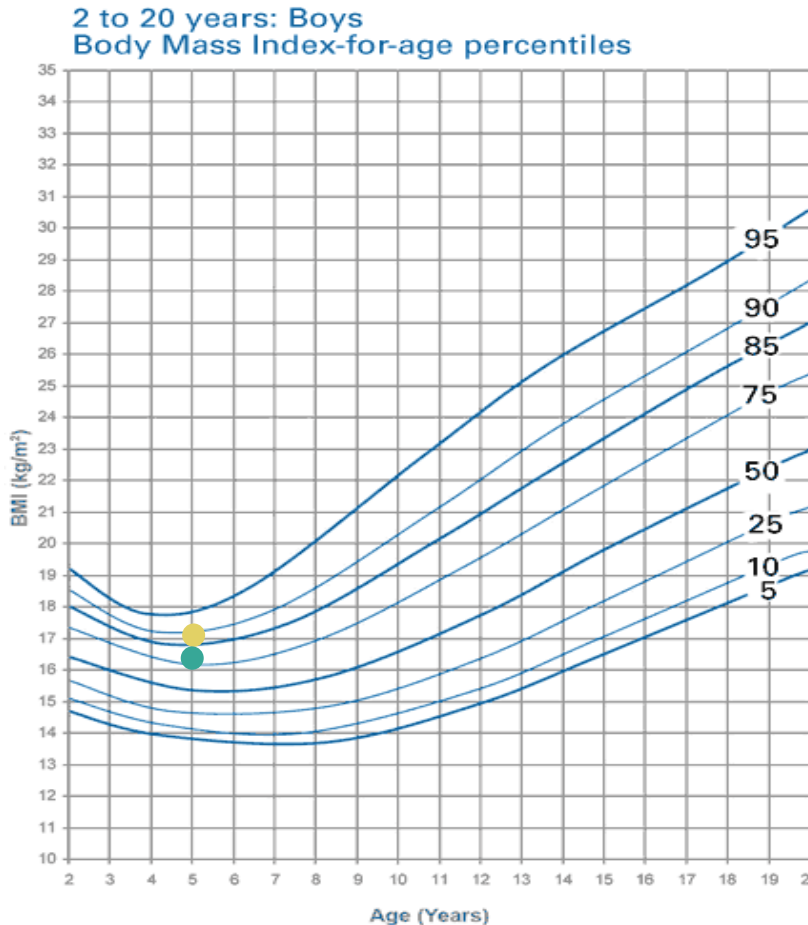
- Underweight
- Overweight
- Obese

- Carlos' weight status is normal so there is nothing to record in the comments

Accurate Measurements are Critical

BMI for 5-year-old boy

- 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*

Practice Using BMI-for-Age Growth Charts

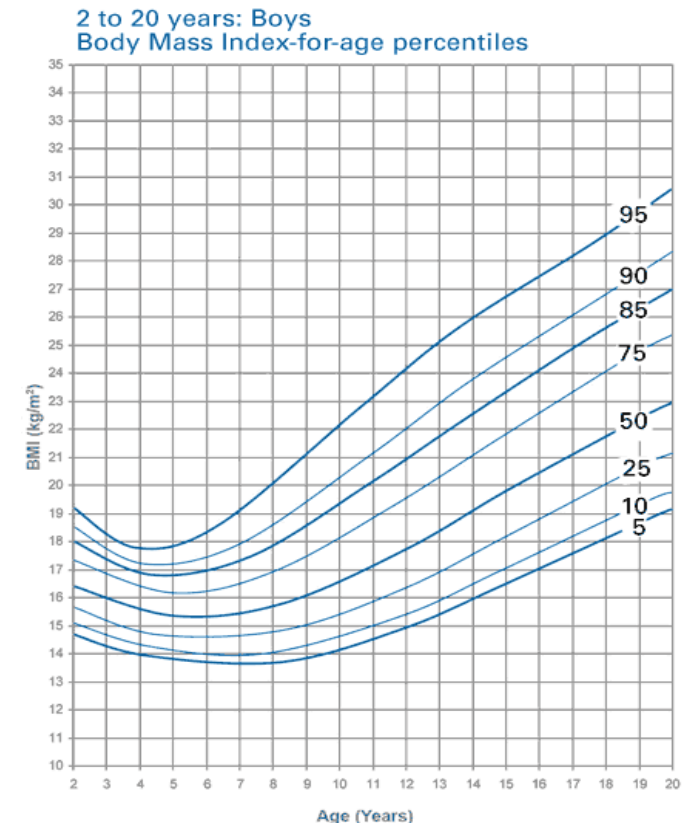


Plot Pete Precisely

FIRST STEPS

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

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

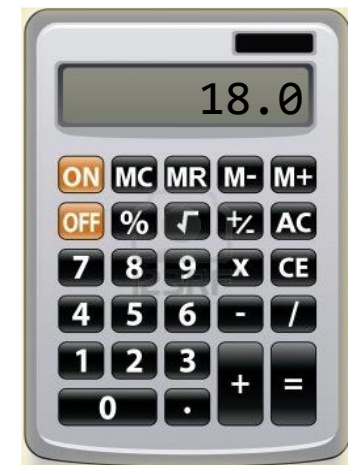
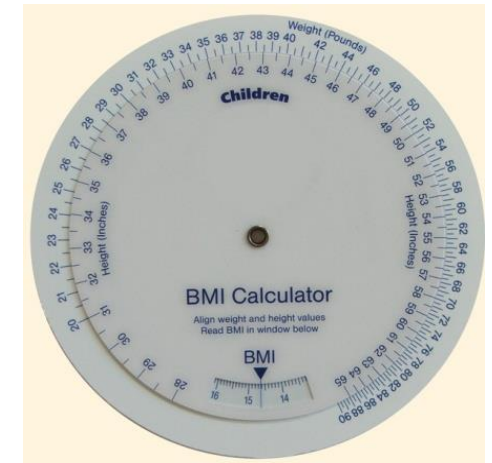


Plot Pete Precisely

NEXT STEP

4. Determine BMI Value

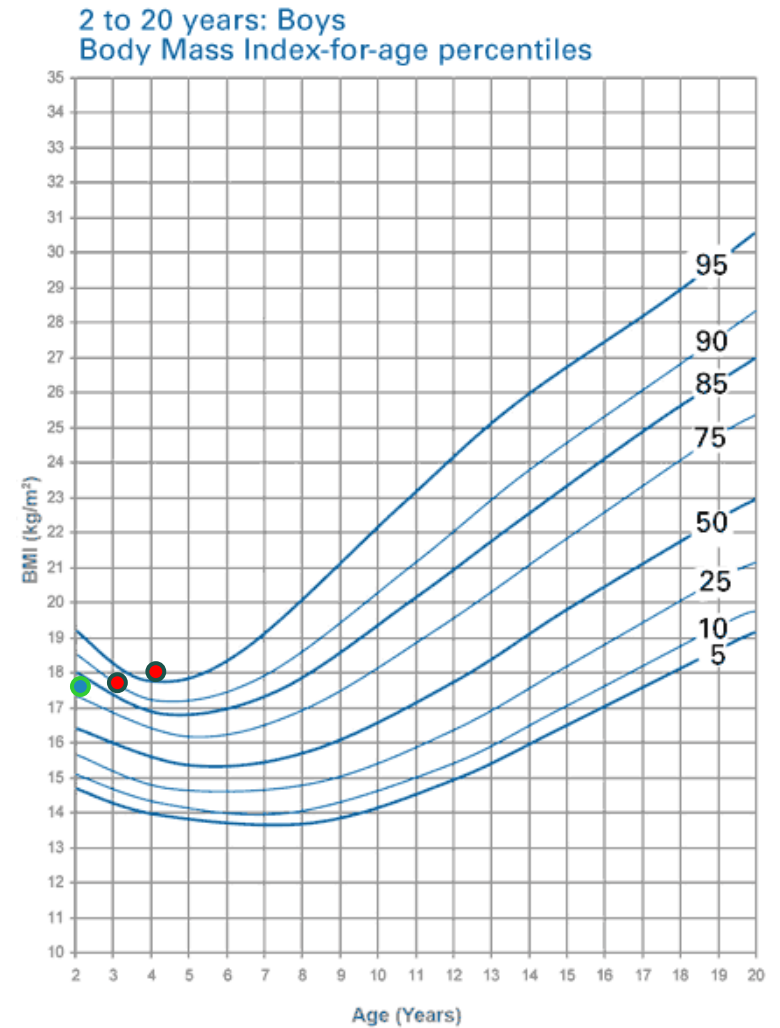
Date	Age	Weight	Stature	BMI*
	2	30 #	34 ½ "	17.7
	3	36 ½ #	38 "	17.8
	4	43 #	41 "	18.0



Plot Pete Precisely

NEXT STEP

5. Determine BMI-for-age percentile



Plot Pete Precisely

NEXT STEP

6. Record BMI Percentile on PM 160

- *Estimate a whole number between 1 and 99 that best represents the percentile point plotted on the growth chart*

HEIGHT IN INCHES 0 41 4	WEIGHT LBS OZS 04 300	BODY MASS INDEX (BMI) PERCENTILE 96 %	BLOOD PRESSURE /
HEMOGLOBIN	HEMATOCRIT .0%		BIRTH WEIGHT LBS OZS

Plot Pete Precisely

FINAL STEP

7. Determine category and record on PM 160 if needed

- Enter follow up code in appropriate column under **PROBLEM SUSPECTED**
- Enter diagnosis under **COMMENTS / PROBLEMS**
 - Underweight
 - Overweight
 - Obese

CLAIM CONTROL NUMBER * FOR STATE USE ONLY

DO NOT STAPLE IN BAR AREA

STAPLE HERE

PATIENT NAME (LAST) (FIRST) (INITIAL) MEDICAL RECORD NO. 94 05778291J

DATE OF BIRTH (Mo.) (Day) (Year) AGE (Mo.) (Day) (Year) SEX (M/F) PATIENT'S COUNTY OF RESIDENCE CO. CODE TELEPHONE NUMBER NEXT CHDP EXAM (Mo.) (Day) (Year)

RESPONSIBLE PERSON (NAME) (STREET) (APT./SPACE #) (CITY) (ZIP)

CHDP ASSESSMENT

Indicate outcome for each screening procedure

	NO PROBLEM SUSPECTED	PROBLEM SUSPECTED	DATE OF SERVICE (Mo.) (Day) (Year)	FOLLOW UP CODES
	✓ A	✓ B		1. NO DX/RX INDICATED OR NOW UNDER CARE 2. QUESTIONABLE RESULT, RECHECK SCHEDULED 3. DX MADE AND RX STARTED 4. SO PENDING RETURN VISIT SCHEDULED 5. REFERRED TO ANOTHER EXAMINER FOR DX/RX 6. REFUSAL REFUSED
01 HISTORY and PHYSICAL EXAM				
02 DENTAL ASSESSMENT/REFERRAL				
03 IMMUNIZATION ASSESSMENT				
04 HEARING/AUDITORY ASSESSMENT				
05 DEVELOPMENTAL ASSESSMENT				
06 SNELLEN OR EQUIVALENT				
07 AUDIOMETRIC				
08 HEMOGLOBIN OR HEMATOCRIT				
09 URINE DIPSTICK				
10 COMPLETE URINALYSIS				
11 TB MANTOUX				
12 OTHER TESTS				

HEIGHT IN INCHES (Mo.) (Day) (Year) WEIGHT (LBS) (Mo.) (Day) (Year) BLOOD PRESSURE (Mo.) (Day) (Year)

IMMUNIZATIONS

PLEASE REFER TO THE CHDP LIST OF IMMUNIZATION CODES

PATIENT VISIT (✓) ()

TYPE OF SCREEN (✓) ()

SERVICE LOCATION: Name, Address, Telephone Number (Please include Area Code)

PROVIDER NUMBER

PLACE OF SERVICE

TOTAL FEES

THE QUESTIONS BELOW MUST BE ANSWERED

1. Patient is Exposed to Passive (Second Hand) Tobacco Smoke. Yes ☐ No ☐

2. Tobacco Used by Patient Yes ☐ No ☐

3. Counseled About/Referred For Tobacco Use Prevention/Cessation. Yes ☐ No ☐

1 Enrolled in WIC 2 Referred to WIC

NOTE: WIC requires Ht, Wt, and Hemoglobin/Hematocrit

1 PARTIAL SCREEN 2 SCREENING PROCEDURE RECHECK

ACCOMPANIES PRIOR PM 160 DATED

PATIENT COUNTY AD IDENTIFICATION NUMBER

PATIENT ELIGIBILITY

1 ☐ If covered by Medi-Cal, or pre-enrolled in CHDP Gateway, enter SIC number.

2 ☐ Patient eligible for CHDP benefits only.

STATE OF CALIFORNIA-CHILD HEALTH AND DISABILITY PREVENTION PROGRAM

Medi-Cal/CHDP

P.O. Box 15300

Sacramento, CA 95851-1300

PM 160 (10/07)

CONFIDENTIAL SCREENING/BILLING REPORT

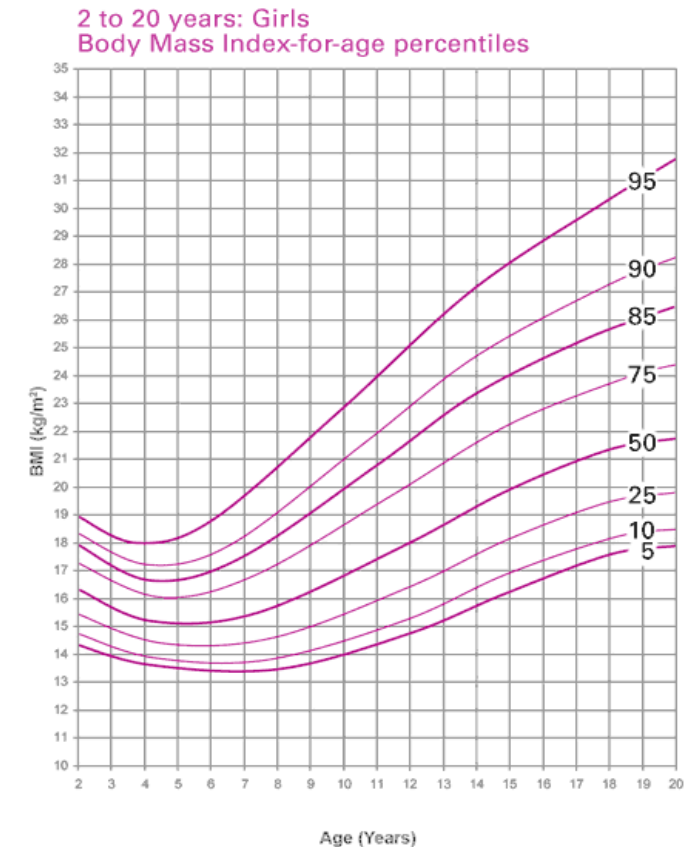
COPY 1 - MAIL TO MEDICAL CHDP

Let's Look at Liz

FIRST STEPS

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

Date	Age	Weight	Stature	BMI*
	2	28 ³ / ₄ #	33 ¹ / ₂ "	18.0
	3	33 #	36 ¹ / ₂ "	17.4
	4	37 #	39 ¹ / ₄ "	

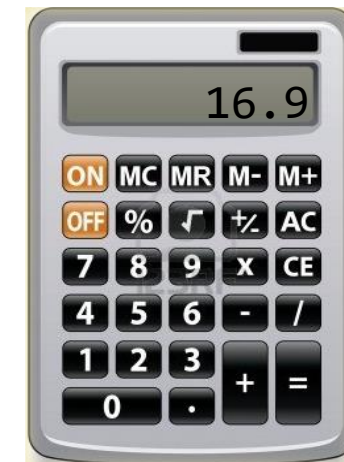
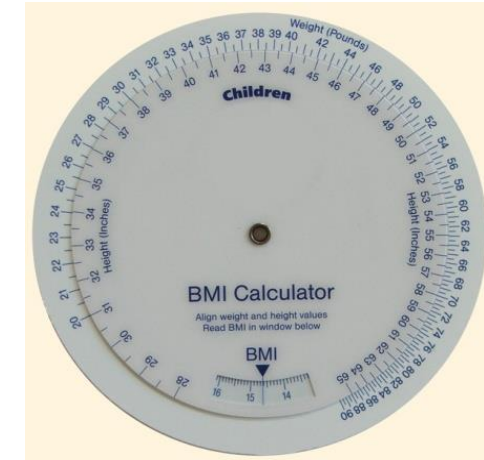


Let's Look at Liz

NEXT STEP

4. Determine BMI Value

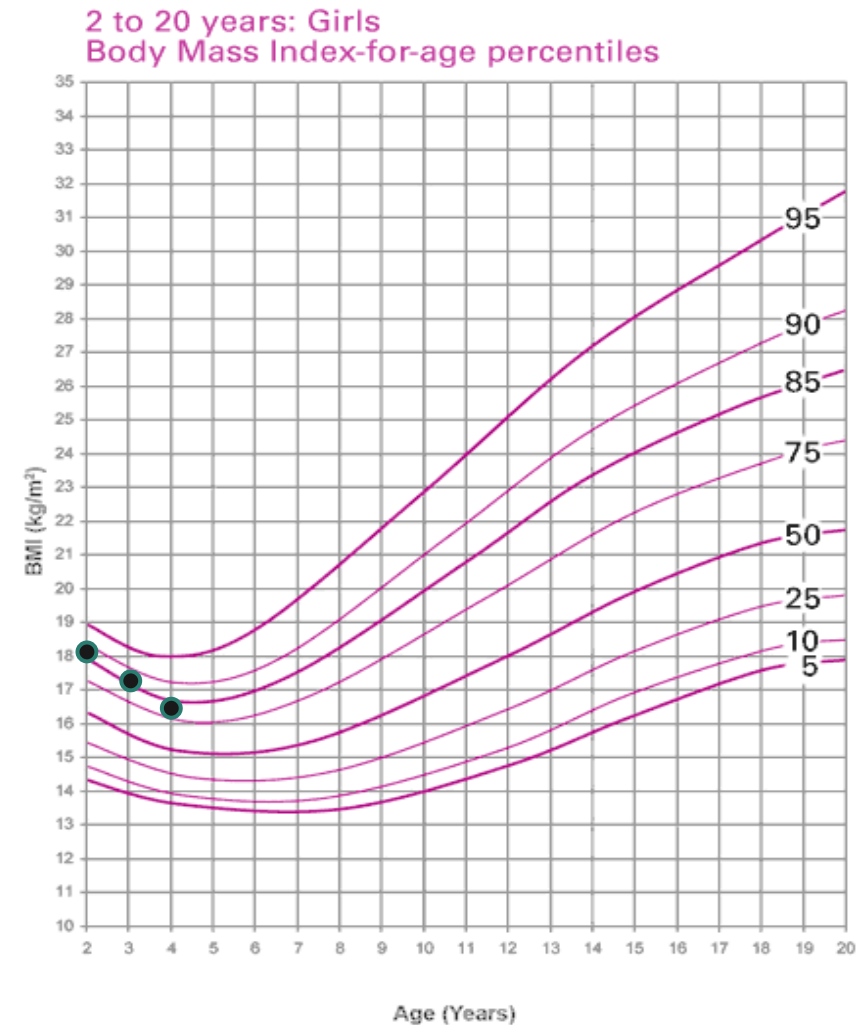
Date	Age	Weight	Stature	BMI*
	2	28 ³ / ₄ #	33 ¹ / ₂ "	18.0
	3	33 #	36 ¹ / ₂ "	17.4
	4	37 #	39 ¹ / ₄ "	16.9



Let's Look at Liz

NEXT STEP

5. Determine BMI-for-age percentile



Let's Look at Liz

NEXT STEP

6. Record BMI Percentile on PM 160
- Estimate a whole number between 1 and 99 that best represents the percentile point plotted on the growth chart

HEIGHT IN INCHES 0 3 9 1 4	WEIGHT LBS 0 3 7 0 0 OZS	BODY MASS INDEX (BMI) PERCENTILE 8 7 %	BLOOD PRESSURE /
HEMOGLOBIN 	HEMATOCRIT .0%		BIRTH WEIGHT LBS OZS

Let's Look at Liz

FINAL STEP

7. Determine category and record on PM 160 if needed

- Enter follow up code in appropriate column under PROBLEM SUSPECTED

- Enter diagnosis under COMMENTS/PROBLEMS

- Underweight*
- Overweight**
- Obese*

CLAIM CONTROL NUMBER * FOR STATE USE ONLY

DO NOT STAPLE IN BAR AREA

PATIENT NAME (LAST) (FIRST) (INITIAL) MEDICAL RECORD NO. 94 05778291 J

DATE OF BIRTH (Mo.) (Day) (Year) AGE SEX (M/F) PATIENT'S COUNTY OF RESIDENCE CO. CODE TELEPHONE NUMBER (Area) (Number) NEXT CHDP EXAM (Mo.) (Day) (Year)

RESPONSIBLE PERSON (NAME) (STREET) (APT./SPACE #) (CITY) (ZIP) ETHNIC CODE 1 American Indian 2 Asian 3 Black 4 Filipino 5 Hispanic/Latino 6 White 7 Other 8 Pacific Islander

CHDP ASSESSMENT Indicate outcome for each screening procedure

	NO PROBLEM SUSPECTED	PROBLEM SUSPECTED	PROBLEM SUSPECTED	DATE OF SERVICE	FEES	FOLLOW UP CODES
	✓ A	✓ B	NEW C KNOWN D	Mo. Day Year		1. NO DX/RX INDICATED OR NOW UNDER CARE. 2. QUESTIONABLE RESULT, RECHECK SCHEDULED. 3. DX MADE AND RX STARTED. 4. DX PENDING/RETURN VISIT SCHEDULED. 5. REFERRED TO ANOTHER EXAMINER FOR DX/RX. 6. REFERRAL REFUSED.
01 HISTORY and PHYSICAL EXAM						
02 DENTAL ASSESSMENT/REFERRAL						
03 OVERWEIGHT						
04 HEALTHY LOOK ASSESSMENT						
05 DEVELOPMENTAL ASSESSMENT						
06 SNIELLEN OR EQUIVALENT						
07 AUDIOLOGIC						
08 HEMOGLOBIN OR HEMATOCRIT						
09 URINE DIPSTICK						
10 COMPLETE URINALYSIS						
12 TB MANTOUX						

01 HISTORY and PHYSICAL EXAM 02 DENTAL ASSESSMENT/REFERRAL 03 OVERWEIGHT 04 HEALTHY LOOK ASSESSMENT 05 DEVELOPMENTAL ASSESSMENT 06 SNIELLEN OR EQUIVALENT 07 AUDIOLOGIC 08 HEMOGLOBIN OR HEMATOCRIT 09 URINE DIPSTICK 10 COMPLETE URINALYSIS 12 TB MANTOUX

HEIGHT IN INCHES WEIGHT (LBS) BODY MASS INDEX (BMI) PERCENTILE BLOOD PRESSURE (SYS) (DIA) (MM HG) (SYS) (DIA) (MM HG)

HEMATOCRYT HEMATOCRIT % GIVEN TODAY NOT GIVEN TODAY

IMMUNIZATIONS PLEASE REFER TO THE CHDP LIST OF IMMUNIZATION CODES

PATIENT VISIT (✓) [] New Patient or Extended Visit [] Routine Visit TYPE OF SCREEN (✓) [] Initial [] Periodic

SERVICE LOCATION: Name, Address, Telephone Number (Please include Area Code) PROVIDER NUMBER PLACE OF SERVICE

TOTAL FEES

DIAGNOSIS CODES 1 2

THE QUESTIONS BELOW MUST BE ANSWERED

1. Patient is Exposed to Passive (Second Hand) Tobacco Smoke. Yes [] No []

2. Tobacco Used by Patient Yes [] No []

3. Counselor About/Referred For Tobacco Use Prevention/Cessation. Yes [] No []

[] Enrolled in WIC [] Referred to WIC NOTE: WIC requires Ht., Wt. and Hemoglobin/Hematocrit

[] PARTIAL SCREEN [] SCREENING PROCEDURE RECHECK

ACCOMPANIES PRIOR PM 160 DATED

PATIENT COUNTY AD IDENTIFICATION NUMBER

PATIENT ELIGIBILITY

This is to certify that the screening information is true and complete, and the results explained to the child or his parent or guardian. I understand that payment and satisfaction of this claim may be from Federal or State funds, and that any false claims, statements or documents or concealment of a material fact, may be prosecuted under applicable Federal or State law. I also certify that none of the services billed on this form have been or will be billed to Medi-Cal, the patient, or other insurance providers.

SIGNATURE OF PROVIDER DATE

CONFIDENTIAL SCREENING/BILLING REPORT COPY 1 - MAIL TO MEDICAL CHDP

STATE OF CALIFORNIA-CHILD HEALTH AND DISABILITY PREVENTION PROGRAM

Medi-Cal/CHDP P.O. Box 15-200 Sacramento, CA 95851-1300

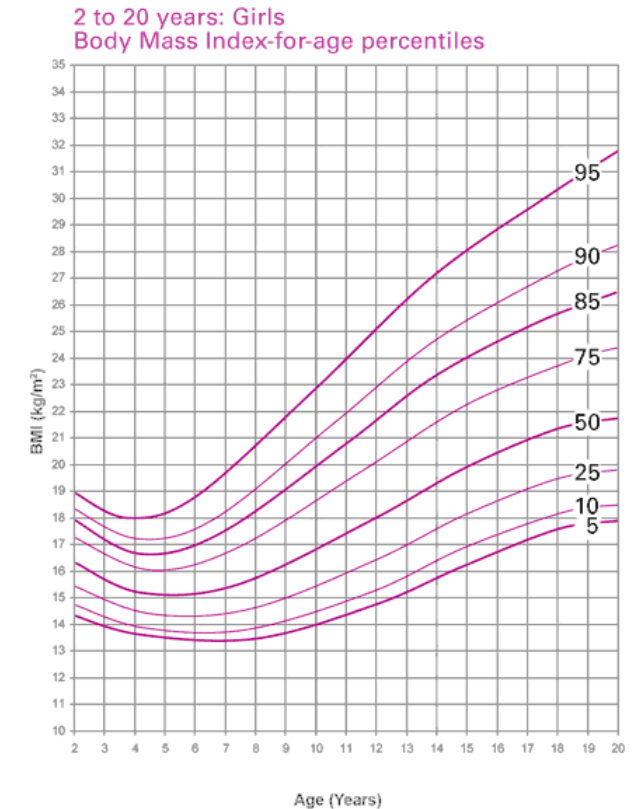
PM 160 (3/07)

Graph Gabriela's Growth

FIRST STEPS

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

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

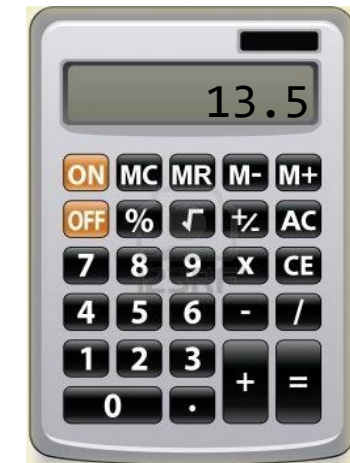
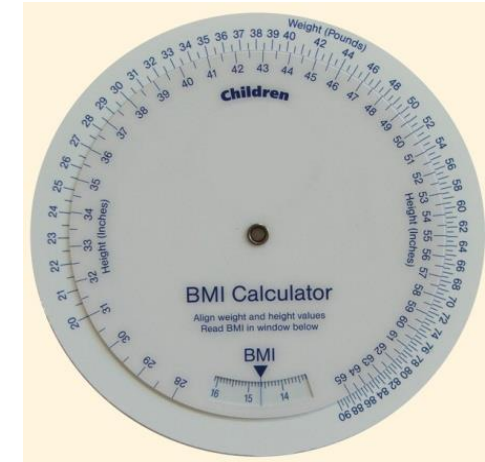


Graph Gabriela's Growth

NEXT STEP

4. Determine BMI Value

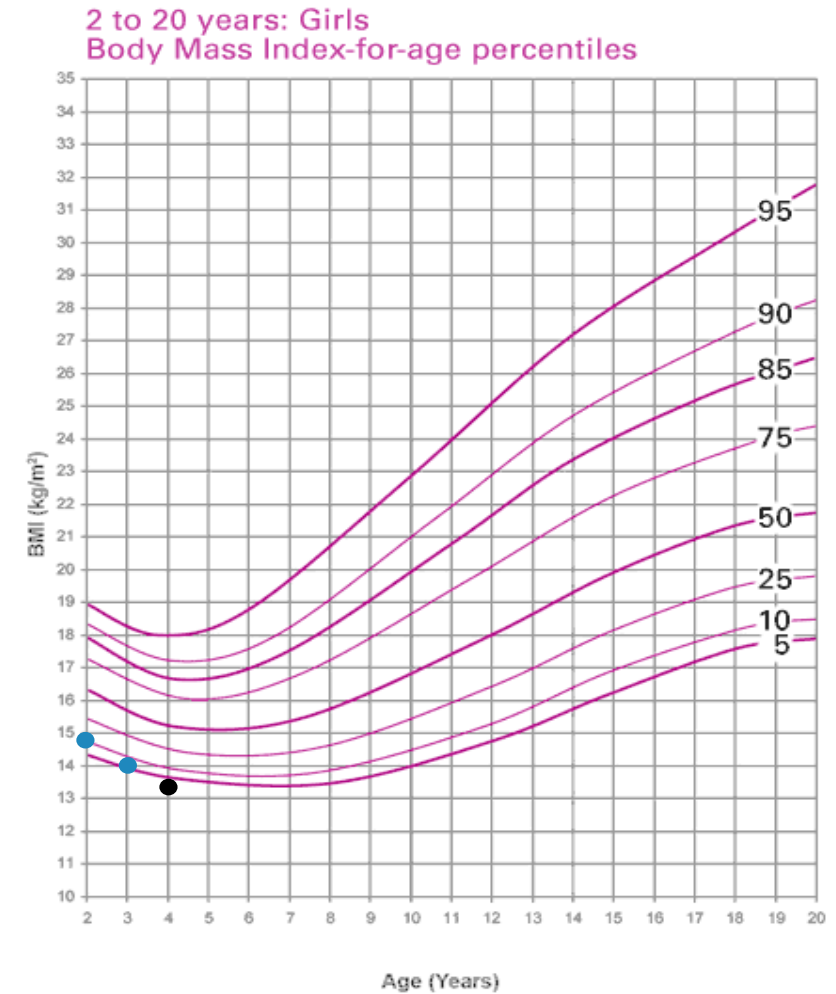
Date	Age	Weight	Stature	BMI*
	2	25 #	34 ½ "	14.8
	3	29 ½ #	38 ½ "	14.0
	4	32 ½ #	41 "	13.6



Graph Gabriela's Growth

NEXT STEP

5. Determine BMI-for-age percentile



Graph Gabriela's Growth

NEXT STEP

6. Record BMI Percentile on PM 160
- Estimate a whole number between 1 and 99 that best represents the percentile point plotted on the growth chart

HEIGHT IN INCHES 0 4 1 0 4	WEIGHT LBS OZS 0 3 2 0 8	BODY MASS INDEX (BMI) PERCENTILE 0 3 %	BLOOD PRESSURE /
HEMOGLOBIN	HEMATOCRIT .0 %		BIRTH WEIGHT LBS OZS

Graph Gabriela's Growth

FINAL STEP

7. Determine category and record on PM 160 if needed

- Enter follow up code in appropriate column under PROBLEM SUSPECTED
- Enter diagnosis under COMMENTS/PROBLEMS
 - **Underweight**
 - Overweight
 - Obese

CLAIM CONTROL NUMBER * FOR STATE USE ONLY

STAPLE HERE

PATIENT NAME (LAST) (FIRST) (INITIAL) MEDICAL RECORD NO. 94 05778291 J

BIRTHDATE (Mo.) (Day) (Year) AGE (Years) (Mo.) (Day) SEX (M/F) PATIENT'S COUNTY OF RESIDENCE () CD CODE () TELEPHONE NUMBER () NEXT CHDP EXAM ()

RESPONSIBLE PERSON (NAME) (STREET) (APT./SPACE #) (CITY) (ZIP)

ETHNIC CODE 1 American Indian 2 Asian 3 Black 4 Filipino 5 Lat. Amer./Hispanic 6 White 7 Other 8 Pacific Islander

CHDP ASSESSMENT Indicate outcome for each screening procedure

	NO PROBLEM SUSPECTED	PROBLEM SUSPECTED	NEW	KNOWN	FEES
01. HEAD AND NECK PHYSICAL EXAM	✓ A	✓ B			
02. DENTAL ASSESSMENT/REFERRAL					
03. NUTRITIONAL ASSESSMENT					
04. IMMUNIZATION ASSESSMENT					
05. DEVELOPMENTAL ASSESSMENT					
06. SNELLEN OR EQUIVALENT					
07. AUDIOMETRIC					
08. HEMOGLOBIN OR HEMATOCRIT					
09. URINE DIPSTICK					
10. COMPLETE URINALYSIS					
12 TB MANTOUX					

DATE OF SERVICE (Mo.) (Day) (Year)

FOLLOW UP CODES 1. NO DX/RX INDICATED OR NOW UNDER CARE. 2. QUESTIONABLE RESULT, RECHECK SCHEDULED. 3. DX MADE AND RX STARTED. 4. DX PENDING/RETURN VISIT SCHEDULED. 5. REFERRED TO ANOTHER EXAMINER FOR DX/RX. 6. REFERRAL REFUSED.

REFERRED TO: TELEPHONE NUMBER

COMMENTS/PROBLEMS IF A PROBLEM IS DIAGNOSED THIS VISIT, PLEASE ENTER YOUR DIAGNOSIS IN THIS AREA

(03) Underweight

ROUTINE REFERRALS (N/Y) PATIENT IS A FOSTER CHILD (N/Y)

BLOOD LEAD DENTAL

DIAGNOSIS CODES 1 2

THE QUESTIONS BELOW MUST BE ANSWERED

1. Patient is Exposed to Passive (Second Hand) Tobacco Smoke. Yes ☐ No ☐

2. Tobacco Used by Patient Yes ☐ No ☐

3. Counselor About/Referred For Tobacco Use Prevention/Cessation. Yes ☐ No ☐

PATIENT VISIT (N/Y) New Patient or Extended Visit Routine Visit

SERVICE LOCATION: Name, Address, Telephone Number (Please include Area Code)

PROVIDER NUMBER TYPE OF SCREEN (N/Y) Initial Periodic

PLACE OF SERVICE

TOTAL FEES

Enrolled in WIC Referred to WIC NOTE: WIC requires Hb, Wt, and Hemoglobin/Hematocrit

PARTIAL SCREEN SCREENING PROCEDURE RECHECK

ACCOMPANIES PRIOR PM 160 DATED

PATIENT COUNTY AD IDENTIFICATION NUMBER

PATIENT ELIGIBILITY 1 If covered by Medi-Cal, or pre-enrolled in CHDP Gateway, enter BIC number. 2 Patient eligible for CHDP benefits only.

STATE OF CALIFORNIA-CHILD HEALTH AND DISABILITY PREVENTION PROGRAM

Medi-Cal/CHDP P.O. Box 15300 Sacramento, CA 95851-1300

PM 160 (3/07)

CONFIDENTIAL SCREENING/BILLING REPORT

COPY 1 - MAIL TO MEDICAL CHDP

Resources & Clinical Tools

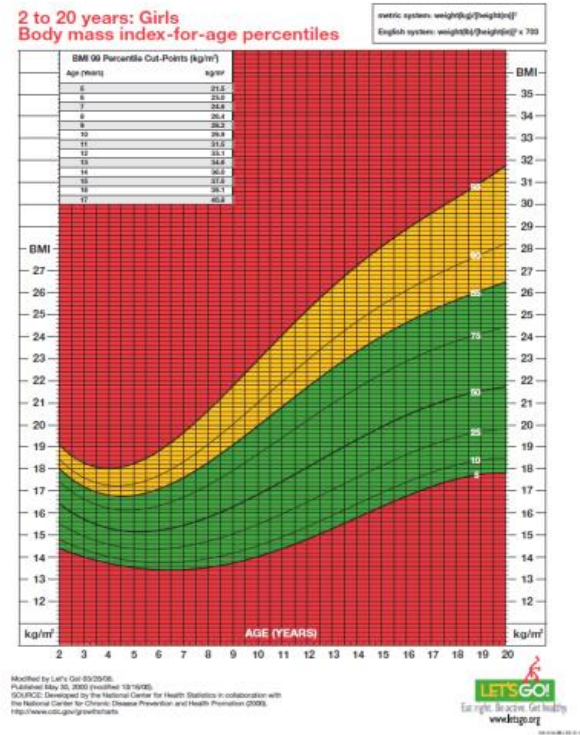
- Select appropriate **growth chart** for age group
- Identify the **age range** for which Body Mass Index (BMI) screening is used
- Calculate or determine **BMI value**
- Plot **BMI value** on the appropriate growth chart
- Determine **BMI-for-age percentile**
- Identify **weight category**
- **Record results** on PM 160

Resources & Clinical Tools

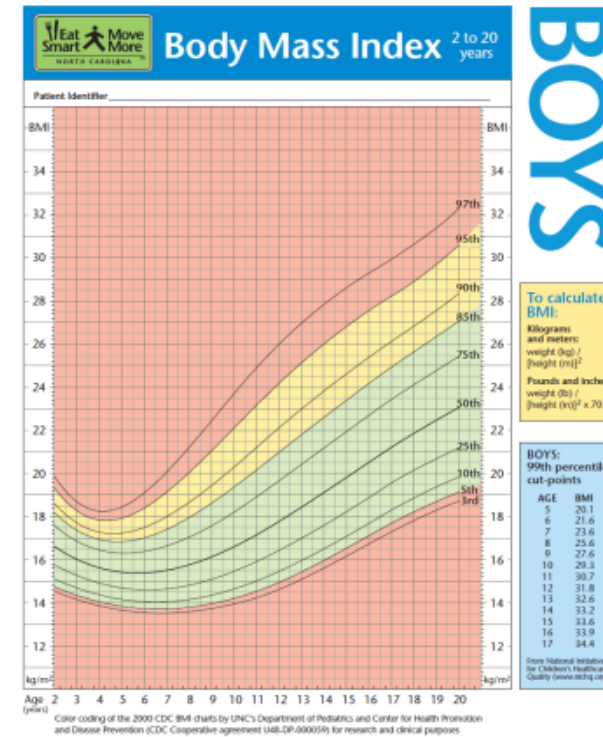
- Online tutorials
- Online resources
- Growth charts
- BMI wheels
- BMI calculators
- Plotting aids



Color-Coded BMI Charts

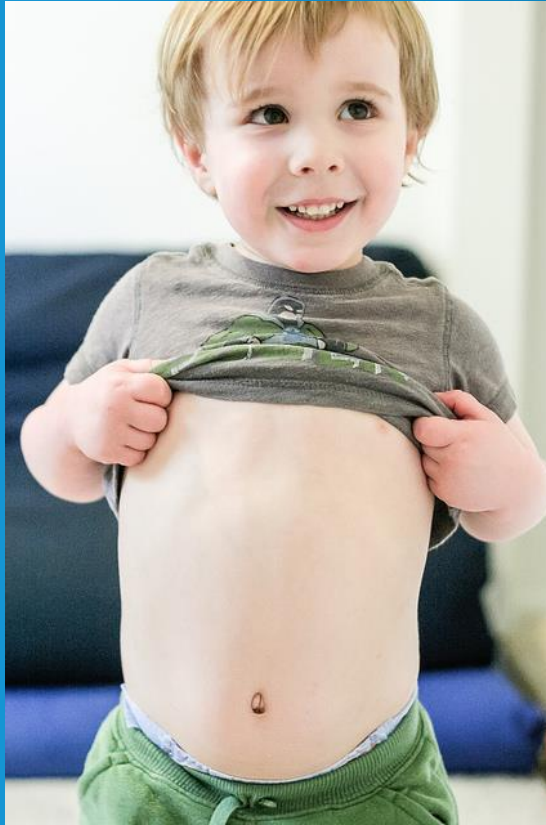


5210 Let's Go!



Eat Smart, Move More North Carolina

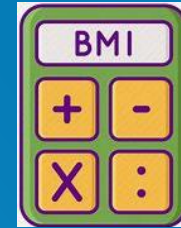
BMI Quiz



TRUE or FALSE

When calculating BMI, the units must always be in imperial units only (pounds and inches).

TRUE or FALSE



When calculating BMI, the units must always be in imperial units only (pounds and inches).

What is not a cause of obesity?

- A. Laughing
- B. Genetics
- C. Poor diet
- D. Lack of exercise

What is not a cause of obesity?



A. Laughing

B. Genetics

C. Poor diet

D. Lack of exercise

Which four data points are needed to determine a weight status in a child?

- A. Age, height, weight, gender
- B. Height, weight, gender, body mass index
- C. Age, weight, body mass index, gender
- D. Height, weight, body mass index, age

Which four data points are needed to determine a weight status in a child?



A. Age, height, weight, gender

B. Height, weight, gender, body mass index

C. Age, weight, body mass index, gender

D. Height, weight, body mass index, age

Important Next Steps:

cencalhealth.org/providers/care-guidelines/medi-cal-for-kids-teens-services/

1. Please take a moment to work with your Clinical Trainer and walk through a BMI calculation process practice session.
2. Once complete, please submit the CenCal Health Training Acknowledgement Form to receive your BMI Training Certificate of Completion for your records.

References

- Prevention of pediatric overweight and obesity. *Pediatrics*. 112: 424-430, 2003.
 - <http://pediatrics.aappublications.org/content/112/2/424.full>
- Assessment of child and adolescent overweight and obesity.
 - *Pediatrics* 120: S193-S228, 2007.
http://pediatrics.aappublications.org/cgi/content/full/120/Supplement_4/S193
- Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report.
 - *Pediatrics* 120 : S164-S192, 2007.
http://pediatrics.aappublications.org/cgi/content/abstract/120/Supplement_4/S164
- Recommendations for prevention of childhood obesity.
 - *Pediatrics* 120 : S229-S253, 2007.
http://pediatrics.aappublications.org/cgi/content/abstract/120/Supplement_4/S229
- The validity of BMI as an indicator of body fatness and risk among children.
 - *Pediatrics* 124: S23-S34, 2009.
http://pediatrics.aappublications.org/cgi/content/abstract/124/Supplement_1/S23

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Ventura County Health Care Agency
- Slides 17, 18. Photos with permission. Ventura County CHDP Program and Magnolia Family Medical Group. 2004. Ventura County Health Care Agency.
- Slide 19. US Department of Health and Human Services. Health Resources and Services Administration. Maternal and Child Health Bureau.
[Accurately Weighing and Measuring Infants, Children and Adolescents: Technique.](#)
- Slide 28. UC Berkeley Longitudinal Study, 1973. Adapted from the
CDC Growth Charts 2000 Slide Set. Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease and Prevention. 2002.



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