

Body Mass Index Growth Module in the Michigan Care Improvement Registry

User Guide

Background

The Body Mass Index (BMI) Growth Module in the Michigan Care Improvement Registry (MCIR) has been developed for use by health care providers for their pediatric patients 0 to 18 years of age. This module is used to record patient height, weight, and counseling information and access BMI information and clinical decision support to guide the prevention and treatment of overweight and obesity issues.

This tip sheet covers:

1. Recording height, weight, BMI assessment, and counseling activities.
2. Viewing MCIR generated results such as BMI percentile/BMI percentile category, height percentile, and weight percentile.
3. Accessing the clinical decision support tools and generating the growth charts.

If you have additional questions, please contact the Michigan Department of Community Health's Cardiovascular Health, Nutrition and Physical Activity Section. Phone number: 517-335-8418



1. BMI/Growth Module Tab

This screen displays the MCIR-shared data at the top, including patient name, address, date of birth, age (years/months), guardian (responsible party), phone number, gender and county of residence.

The bottom half of the screen includes the various MCIR modules, including **BMI/Growth**.

Hovering over the **BMI/Growth** tab displays the patient's status—the most recent BMI-related measurements (if available in the system), including BMI percentile category, date (of measurement), age (years/months at date of measurement), weight, weight percentile, height, height percentile, BMI value, BMI percentile, and expected blood pressure range.

At the bottom of the status pop-up is a link to [Clinical Decision Support Tools](#). The tools are covered in item 6.

NOTE: The most recent growth information is not displayed when those measurements are more than 12 months old.

The **BMI/Growth** tab is no longer visible when patients reach age 18.

Person: Wool, Baby Print
 Birth Date: 12/12/1995 Print Help
 Provider: Overdue View Home Exit

General Information

Person Rem/Rcl VIM My Site Admin Reports Other

Add/Find Roster Add Imm Information Status History

Person Information : Edit MCIR ID : 36538190691

Name: Wool, Baby Birthdate: 12/12/1995 Gender: Female
 Age: 14 Years 5 Months County: Washtenaw (81) County

Address: 920 State St
 Ann Arbor, MI 48104 Resp. Party: Wool, Mom
 As of 04/28/2010 Phone:

High Risk Conditions : Edit Hover over indicator to see status

Influenza Screening Notification BMI/Growth Tab

Pregnancy: Add

Immunizations		Other		BMI/Growth		Status	
Series	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6+	Status
No Immunization Given							
Other Administrations							
Series							Status
No Other Administrations Given							
Non-Administered Doses/Positive Immunity							
Series/Antigen	Date	Reason	Entered by				
No Non-Administered Doses/Positive Immunities Found							
Invalid Doses							
Series/Dose #	Vaccine	Date	Age	Reason			
No Invalid Doses Found							

Take off Roster Unlock Person

Healthy Weight

- Date: 03/01/2011
- Age: 15 Years 11 Months
- Weight: 180 lbs
- Weight Percentile: 94
- Height: 6 ft 2 in
- Height Percentile: 98
- BMI Value: 23.1
- BMI Percentile: 79
- [Clinical decision support...](#)

6 ft 2 in/98 23.1 79

View Metric Units

2. BMI Module Screen

Selecting the BMI/Growth tab brings up the **BMI/Growth** screen, which shows BMI measurements and counseling activity.

BMI/Growth Charts provides links to growth charts for the patient (e.g., BMI for Age).

BMI Measurements shows data collected at an encounter:

- Date (of measurement)
- Age (years/months at date of measurement)
- Weight and weight percentile
- Height and height percentile (if available)
- Length and length percentile (if available)
- BMI and BMI percentile (if child is greater than 2 years)
- *NOTE: The percentile values for length, height, weight, and BMI are calculated using the CDC United States Growth Charts to calculate exact percentiles*
- The color blocks next to the measurement correspond to the different BMI percentile categories
 - Blue = Underweight (BMI percentile < 5%)
 - Green = Healthy weight (BMI percentile 5-84%)
 - Yellow = Overweight (BMI percentile 85-94%)
 - Red = Obese (BMI percentile >= 95%)
- Users who create a measurement entry (and MDCH users) will see a trash icon they can use to

Immunizations		Other		BMI/Growth			
BMI/Growth Charts							
BMI for Age		Get Chart					
BMI Measurements (red highlight denotes taken during pregnancy)							
Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile
Add Measurement							
04/28/2010	14yrs 4mos	105 lbs/37	5 ft 0 in/11	0 in/0	0 in/0	20.4	61
12/15/1997	2yrs	44 lbs/99	3 ft 3 in/99	0 in/0	16 in/1	20.6	99
12/12/1996	1yr exactly	14.1 lbs/1	0 ft 0 in/0	22 in/1	25 in/99	0.0	0
View Metric Units							
Counseling Activity							
Date	Provider	Type					
Add Counseling Activity							
04/28/2010	MCIR BMI	Weight Counseling					

Immunizations		Other		BMI/Growth			
BMI/Growth Charts							
BMI for Age		Get Chart					
BMI Measurements (red highlight denotes taken during pregnancy)							
Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile
Add Measurement							
04/15/2010	16yrs 4mos	160 lbs	5 ft 4 in				
03/21/2009	15yrs 3mos	120 lbs/58	5 ft 4 in/53			20.6	57
12/12/1995	2yrs	100 lbs/99	4 ft 10 in/99			20.9	99
View Metric Units							
Counseling Activity							
Date	Provider	Type					
Add Counseling Activity							
No counseling activity found							

delete the measurement

- Entries cannot be edited. To make changes, you must delete the entry and recreate it with the desired changes

Counseling Activity shows:

- Date of counseling activity
- Counseling provider
- Type of counseling (BMI Assessment, Nutrition Counseling, and Physical Activity Counseling)

NOTE: The corresponding codes for the counseling activities are taken from the HEDIS 2009 Weight Assessment and Counseling for Nutrition and Physical Activity metrics.

Immunizations		Other		BMI/Growth			
BMI/Growth Charts							
BMI for Age		Get Chart					
BMI Measurements (red highlight denotes taken during pregnancy)							
Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile
Add Measurement							
01/01/2010	15yrs 1mo	100 lbs/9	4 ft 10 in/1			20.9	63
12/15/2009	15yrs	120 lbs/42	4 ft 10 in/1			25.1	91
12/14/2009	15yrs	130 lbs/59	4 ft 10 in/1			27.2	96
12/12/2000	6yrs	67 lbs/99	3 ft 3 in/1			31.0	99
05/06/1996	1yr 5mos	36 lbs/99		28 in/1		0.0	0
View Metric Units							
Counseling Activity							
Date	Provider	Type					
Add Counseling Activity							
01/01/2010	MDCH - Cardiovascular Health	BMI Percentile Assessment					
01/01/2010	MDCH - Cardiovascular Health	Nutritional Counseling					
12/12/2000	MDCH - Cardiovascular Health	BMI Percentile Assessment					
12/12/2000	MDCH - Cardiovascular Health	Weight Counseling					
12/12/2000	MDCH - Cardiovascular Health	Physical Activity Counseling					

3. Entering Height and Weight Information

At the **BMI/Growth** screen, click on the [Add Measurement](#) link to record a new measurement.

At the **Add Measurement** pop-up screen:

- Select the **Date of Measurement** (MM/DD/YYYY)
- Choose either **English** or **Metric** units for data entry
- Click **Submit** to enter measurement data
- Enter measurement data in the required fields:
 - For children under age 2: **Weight** and **Length** are required fields.
 - For children age 2 and above: **Weight** and **Height** are required fields
- When entering **Weight** using **English** units, enter ounces for children up to 1 year of age. After year 1 you must enter pounds. Both units allow entry of one decimal place
- When entering **Height** in **English** units, enter inches and quarter inches
- The system will alert you when entries are outside acceptable ranges:
 - Height must be 4–99 inches
 - Weight must be 1–998 lbs
 - Alerts appear for entries that are 5 standard deviations out of the CDC values

Click **Submit** to record the data. Click **Cancel** to clear all entered data and start over.

Immunizations		Other		BMI/Growth	
BMI/Growth Charts					
BMI for Age		Get Chart			
BMI Measurements (red highlight denotes taken during pregnancy)					
Date	Age	Wt/Pctl	Ht/Pctl	BMI	Percentile
Add Measurement					
08/15/2011	16yrs 5mos	176 lbs/90	6 ft 0 in/88	23.9	81
08/03/2009	14yrs 4mos	180 lbs/98	6 ft 0 in/98	24.4	91
View Metric Units					

Add Measurement

Add Measurement

Date of Measurement: 02/22/2012

Measurements

English Metric

Submit Cancel

Add Measurement

Add Measurement

Date of Measurement: 02/22/2012

Measurements

English Metric

Weight: lbs

Height: in /4

Submit Cancel





4. Viewing calculated BMI information

Once data has been entered and submitted, the screen displays the entered height and weight data, newly calculated BMI value and BMI percentile and associated color classification. The main screen will only display height to the nearest inch so it will round the number. The original numbers entered are preserved. The BMI calculations are accurate to the nearest millimeter. The quarter inch rounding error is not statistically significant for BMI calculations.

To see additional data based on the new entry:

- Click the ? (Question Mark) icon to see the **BMI Value** and other calculations based on the new measurements
- *NOTE: When measurements are greater than one year old a message of **OVERDUE** will be displayed*

BMI Measurements (red highlight denotes taken during pregnancy) Click to view percentile & other data

Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile	
<i>Add Measurement</i>								
05/12/2010	14yrs 5mos	108 lbs/42	5 ft 3 in/39	0 in/0	0 in/0	19.3	46	
04/28/2010	14yrs 4mos	105 lbs/37	5 ft 0 in/11	0 in/0	0 in/0	20.4	61	
12/15/1997	2yrs	44 lbs/99	3 ft 3 in/99	0 in/0	16 in/1	20.6	99	
12/12/1996	1yr exactly	14.1 lbs/1	0 ft 0 in/0	22 in/1	25 in/99	0.0	0	

Healthy Weight

- **Date:** 03/01/2011
- **Age:** 15 Years 11 Months
- **Weight:** 180 lbs
- **Weight Percentile:** 94
- **Height:** 6 ft 2 in
- **Height Percentile:** 98
- **BMI Value:** 23.1
- **BMI Percentile:** 79
- Clinical decision support...

6 ft 2 in/98
23.1
79




[View Metric Units](#)

5. Adding Counseling Activity data

At the **BMI/Growth** screen, click on the Add Counseling Activity link to record a new entry.

At the **Add Counseling Activity** pop-up screen:

- Select the **Date of Visit** (MM/DD/YYYY)
- Select all counseling services that apply to the date of visit. *NOTE: The corresponding codes for the counseling activities are taken from the HEDIS 2009 Weight Assessment and Counseling for Nutrition and Physical Activity (WCC) metrics.*
- Click **Submit** to record the data
- Click **Cancel** to clear all entered data and start over
- Users who create a counseling activity entry (and MDCH users) will see a trash icon they can use to delete the entry

The screenshot shows the BMI/Growth screen with tabs for Immunizations, Other, and BMI/Growth. Under BMI/Growth, there are sections for BMI/Growth Charts, BMI Measurements (with a red highlight on the pregnancy note), and a Counseling Activity table. The Counseling Activity table has columns for Date, Provider, and Type. A red circle highlights the 'Add Counseling Activity' link in the Date column, with a red arrow pointing to it and the text '1. Click link'.

Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile
05/12/2010	14yrs 5mos	108 lbs/42	5 ft 3 in/39	0 in/0	0 in/0	19.3	46
04/28/2010	14yrs 4mos	105 lbs/37	5 ft 0 in/11	0 in/0	0 in/0	20.4	61
12/15/1997	2yrs	44 lbs/99	3 ft 3 in/99	0 in/0	16 in/1	20.6	99
12/12/1996	1yr exactly	14.1 lbs/1	0 ft 0 in/0	22 in/1	25 in/99	0.0	0

Date	Provider	Type
Add Counseling Activity		
04/28/2010	MCIR BMI	Weight Counseling

The screenshot shows the 'Add Counseling Activity' pop-up screen. It has a title bar and a close button. Below the title bar, there is a message: 'Please check at least one counseling activity'. The main section is titled 'Add Counseling Activity' and contains a 'Date of Visit' field with '05/12/2010' selected, a red circle around it, and the text '2. Select date'. Below this is a section titled 'Check all that apply' with a red circle around the checkboxes. It lists four counseling activities: BMI Percentile Assessment, Weight Counseling (checked), Physical Activity Counseling, and Nutrition Counseling. A red arrow points to the 'Submit' button with the text '4. Click Submit'.

The screenshot shows the Counseling Activity table from the previous screenshot. A red circle highlights the trash icon in the rightmost column of the row for '04/28/2010'. A red arrow points to the trash icon with the text 'Users who create an activity or have appropriate privileges can delete the entry'.

Date	Provider	Type
Add Counseling Activity		
05/12/2010	MCIR BMI	Weight Counseling
04/28/2010	MCIR BMI	Weight Counseling

6. View Clinical Decision Support Tools

At the **BMI/Growth** screen, click on the ? icon to open the BMI status summary popup. Click on the Clinical Decision Support Tools link to access, they will open in a new window.

The Clinical Decision Support Tools represent customized clinical guidelines for the child's gender, age group, and BMI percentile category. The clinical guidelines are based on the AMA/AAP Expert Recommendations (Barlow, et al).

The breakouts for the Clinical Decision Support Tools are as follows:

- Gender: Boys and Girls
- Age Group:
 - 2-5 years
 - 6-11 years
 - 12-18 years
- BMI Percentile Groups:
 - Healthy Weight: 5 – 84%
 - Overweight: 85 - 94%
 - Obese >= 95%

BMI Measurements (red highlight denotes taken during pregnancy)								Click to view
Date	Age	Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile	percentile &
Add Measurement								BMI calculations other data
05/12/2010	14yrs 5mos	108 lbs/42	5 ft 3 in/39	0 in/0	0 in/0	19.3	46	?
04/28/2010	14yrs 4mos	105 lbs/37	5 ft 0 in/11	0 in/0	0 in/0	20.4	61	
12/15/1997	2yrs	44 lbs/99	3 ft 3 in/99	0 in/0	16 in/1	20.6	99	
12/12/1996	1yr exactly	14.1 lbs/1	0 ft 0 in/0	22 in/1	25 in/99	0.0	0	

Healthy Weight

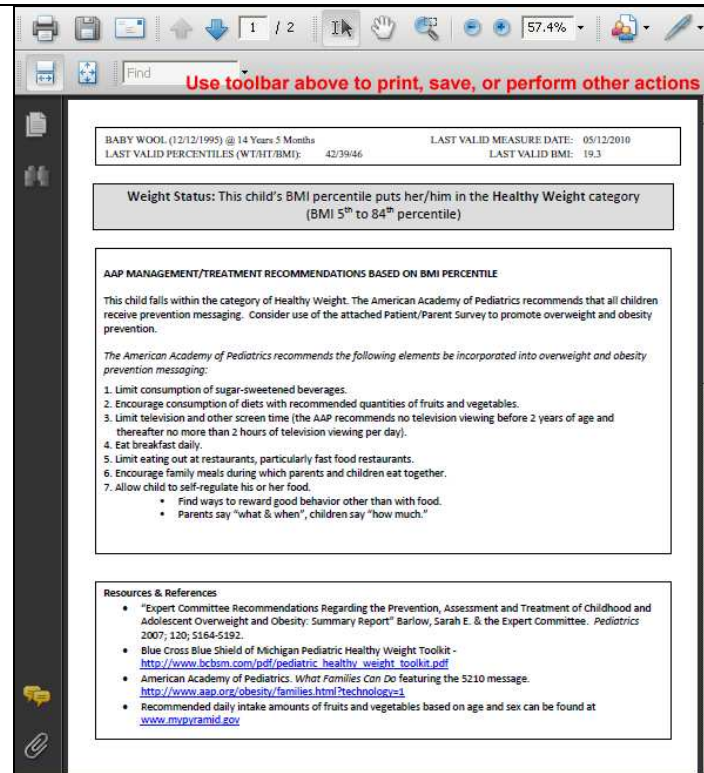
- Date: 03/01/2011
- Age: 15 Years 11 Months
- Weight: 180 lbs
- Weight Percentile: 94
- Height: 6 ft 2 in
- Height Percentile: 98
- BMI Value: 23.1
- BMI Percentile: 79
- Clinical decision support...

6 ft 2 in/98 23.1 79

[View Metric Units](#)

The tools open in a separate window. You can print, save, or perform other actions through the window's toolbar. Use the scroll bar to move through pages in the document.

Click the **X** icon in the upper right to close the window when done.



The screenshot shows a PDF viewer window with a toolbar at the top. A red text overlay reads "Use toolbar above to print, save, or perform other actions". The document content includes:

BABY WOOL (12/12/1995) @ 14 Years 5 Months LAST VALID MEASURE DATE: 05/12/2010
LAST VALID PERCENTILES (WT/HT/BMI): 42/39/46 LAST VALID BME: 19.3

Weight Status: This child's BMI percentile puts her/him in the Healthy Weight category (BMI 5th to 84th percentile)

AAP MANAGEMENT/TREATMENT RECOMMENDATIONS BASED ON BMI PERCENTILE

This child falls within the category of Healthy Weight. The American Academy of Pediatrics recommends that all children receive prevention messaging. Consider use of the attached Patient/Parent Survey to promote overweight and obesity prevention.

The American Academy of Pediatrics recommends the following elements be incorporated into overweight and obesity prevention messaging:

1. Limit consumption of sugar-sweetened beverages.
2. Encourage consumption of diets with recommended quantities of fruits and vegetables.
3. Limit television and other screen time (the AAP recommends no television viewing before 2 years of age and thereafter no more than 2 hours of television viewing per day).
4. Eat breakfast daily.
5. Limit eating out at restaurants, particularly fast food restaurants.
6. Encourage family meals during which parents and children eat together.
7. Allow child to self-regulate his or her food.
 - Find ways to reward good behavior other than with food.
 - Parents say "what & when", children say "how much."

Resources & References

- "Expert Committee Recommendations Regarding the Prevention, Assessment and Treatment of Childhood and Adolescent Overweight and Obesity: Summary Report" Barlow, Sarah E. & the Expert Committee. *Pediatrics* 2007; 120; 5164-5192.
- Blue Cross Blue Shield of Michigan Pediatric Healthy Weight Toolkit - http://www.bcbsm.com/pdf/pediatric_healthy_weight_toolkit.pdf
- American Academy of Pediatrics. *What Families Can Do* featuring the 5210 message. <http://www.aap.org/obesity/families.html#technology3>
- Recommended daily intake amounts of fruits and vegetables based on age and sex can be found at www.mypyramid.gov

7. View Growth Charts

At the **BMI/Growth** screen, click the drop-down arrow under **BMI/Growth Charts** to select a chart type in the list. Click **Get Chart** to open the chart in a new window.

Charts are generated as follows:

- Boys:
 - Ages 0–3 years generates a Length-for-Weight chart
 - Ages 2–18 years generates a BMI-for-Age chart
- Girls:
 - Ages 0–3 years generates a Length-for-Weight chart
 - Ages 2–18 years generates a BMI-for-Age chart
- NOTE: The growth charts are based on the CDC Clinical Growth Charts
- Both the Length-for-Weight and BMI-for-Age charts may be generated for children ages 2–3 years
- Click the **X** in the upper right to close the window when done

The screenshot shows the 'Immunizations' and 'Other' tabs at the top, with 'BMI/Growth' selected. Below the tabs, there are two main sections: '1. Select a chart' and '2. Click Get Chart'. Under '1. Select a chart', a dropdown menu is open, listing various chart types: BMI for Age, Stature for Age, Child Weight for Age, Weight for Stature, Length for Age, Infant Weight for Age, Weight for Length, and Head Circumference for Age. The 'Get Chart' button is circled in red. Below the dropdown, there is a table with columns: Wt/Pctl, Ht/Pctl, Len/Pctl, Hd/Pctl, BMI, and Percentile. The table contains three rows of data, with the first row highlighted in blue. A 'View Metric Units' button is located at the bottom right of the interface.

Wt/Pctl	Ht/Pctl	Len/Pctl	Hd/Pctl	BMI	Percentile
108 lbs/42	5 ft 3 in/39	0 in/0	0 in/0	19.3	46
105 lbs/37	5 ft 0 in/11	0 in/0	0 in/0	20.4	61
44 lbs/99	3 ft 3 in/99	0 in/0	16 in/1	20.6	99

