

Important Developments for MCIR BMI

Amy Sheon, Vani Katta, Kevin Garnett, Sarah Poole

February 9, 2010



Healthy Kids, Healthy Michigan

Advocates of Healthy Weight in Children

Three Important Developments



Michelle Obama makes obesity campaign personal

ALEXANDRIA, Va. (AP) — First lady Michelle Obama framed her national campaign against childhood obesity in intensely personal terms Thursday, relating that her own daughters were starting to get off-track before the family's pediatrician gave her a wake-up call and warned her to watch it.

"In my eyes, I thought my children were perfect," the first lady said. "I didn't see the changes."

"It was really very minor stuff, but these small changes resulted in some really significant improvements, and I didn't know it would," Mrs. Obama said. "It was so significant that the next time we visited our pediatrician, he was amazed. He looked over the girls' charts and he said, 'What on earth are you doing?'"

But the family's pediatrician, she said, kept a close eye on trends in African-American children and "warned that he was concerned that something was getting off-balance." The doctor "cautioned me that I had to take a look at my own children's BMI," or body mass index, the first lady said.

"Even though I wasn't exactly sure at that time what I was supposed to do with this information about my children's BMI, I knew that I had to do something," she said. "I had to lead our family to a different way."

PEDIATRICS®

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Screening for Obesity in Children and Adolescents: US Preventive Services Task Force Recommendation Statement
US Preventive Services Task Force
Pediatrics published online Jan 18, 2010;
DOI: 10.1542/peds.2009-2037

RECOMMENDATION. The USPSTF recommends that clinicians screen children aged 6 years and older for obesity and offer them or refer them to intensive counseling and behavioral interventions to promote improvements in weight status (grade B recommendation). *Pediatrics* 2010;125:361–367

Morbidity and Mortality Weekly Report (MMWR)

January 22, 2010 / Vol. 59 / No. 2

Prevalence of Abnormal Lipid Levels Among Youths — United States, 1999–2006

counseling among overweight youth, CDC analyzed results from the National Health and Nutrition Examination Survey for 1999–2006. This report describes the results of that analysis.

Compared with youths who were normal weight, overweight and obese youths were significantly more likely to have at least one abnormal lipid level (PR = 1.6 and PR = 3.0, respectively). A greater

Using AAP guidelines, screening overweight and obese youths for abnormal lipid levels can identify youths who are candidates for therapeutic lifestyle counseling. Clinicians should be aware of lipid screening guidelines and recommended interventions, especially for children and youths who are overweight or obese.

BMI**			
Normal weight ^{††}	(12.1–16.6)	1.0	Ref
Overweight ^{††}	(18.0–27.4)	1.6	(1.2–2.1)
Obese	(36.0–50.1)	3.0	(2.5–3.7)
Total	(18.0–22.8)		

Body Mass Index Surveillance

Michigan Care Improvement Registry

- Add BMI module that includes fields for height/length, weight, confirmation of BMI assessment, weight counseling, nutritional counseling and physical activity counseling
- Calculate BMI, BMI percentile, height percentile, weight percentile, weight status, BMI for-age-growth chart.
- Alert for problematic BMI percentiles and missing data
- Provide clinical decision support to help providers streamline treatment guidance

Body Mass Index Surveillance

Rationale

- MCIR allows providers to track a patient across various providers and health systems.
 - Focus group revealed that providers with EMRs still use MCIR to assess new patient immunization history and generate HEDIS metrics.
- Hand calculation of BMI is error prone and time consuming.
- Focus group revealed that providers would appreciate streamlined decision support to help them follow AAP guidelines for screening and treatment.
- Complete BMI surveillance information will benefit research and analysis of childhood weight issues in Michigan.

Body Mass Index Surveillance

Functionality – Data Input

- Data allowed for all children aged 0 – 20 years
- Capture the following information
 - Date of Birth
 - Gender
 - Date of visit
 - Height/length (metric and English)
 - Weight (metric and English)
 - Pregnancy alert
 - Confirmation of the following HEDIS metric numerator services:
 - BMI assessment
 - Nutritional Counseling
 - Physical Activity Counseling
- Data Quality Checks
 - Outlier data quality check using CDC values
 - Typographical error check (e.g. no weight or height can be zero)

Body Mass Index Surveillance

Functionality – Data Output

- BMI measurement alert
 - If no height/weight recorded in the last 12 months, generate BMI overdue alert.
- Reporting
 - **MCIR BMI Interface:** Display Date of Measurement, Age, Weight/Weight Percentile, Height/Height Percentile, BMI/BMI Percentile, BMI percentile category (underweight, healthy weight, overweight, obese), Nutritional or Physical Activity Counseling visits.
 - **MCIR Immunization Batch Report:** Display Date of Measurement, Age, Weight/Weight Percentile, Height/Height Percentile, BMI/BMI Percentile, BMI percentile category (underweight, healthy weight, overweight, obese).
 - **Clinical Decision Support Sheet:** Customized clinical decision support sheet for clinician use.
 - **Growth Charts:**
 - Ages 0 – 2 years: Gender specific Length-for-Weight chart
 - Ages 2 – 20 years: Gender specific BMI-for-Age chart

Body Mass Index Surveillance

Michigan Care Improvement Registry
(MCIR)

BMI Screen Design

Kevin Garnett

Person Information : [Edit](#) MCIR ID : 1234567890AB

Name: Jane Jacob Jingleheimer-Schmidt	Birthdate: 03/04/1995	Gender: Female
Address: 312 South First Street NW Apt 3E Kalamazoo, MI 49009-1773	Age: 14yrs 8mos	County: Kalamazoo
Phone: (517)555-1212	Resp. Party: Andy Warhol (P/G)	

High Risk Conditions

Influenza Screening Notification

Pregnancy: [Edit](#) Start Date 01/12/2008 End Date 11/20/2009

Immunizations	Lead	EPSDT	NBS	EHDI	BMI	Other	Invalid Doses
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BMI/Age Chart Weight treatment guidelines

BMI Measurements (red highlight denotes taken during pregnancy)

Date	Age	Weight/Pctl	Height/Pctl	BMI	Percentile	
Add Measurement						
07/04/2009	14yrs 4mos	175 lbs/98	6 ft 1 in/99	23.1	99	
01/04/2008	12yrs 10mos	165 lbs/97	5 ft 7 in/95	25.8	94	?
03/04/2006	11yrs	90 lbs/40	5 ft 0 in/40	17.6	51	

[View Metric Units](#)

Counseling Activity

Date	Provider	Type
Add Counseling Activity		
07/04/2009	Lansing Pediatrics	BMI Assessment
07/16/2008	Nutrition for Health	Weight Counseling
01/04/2008	Lansing Pediatrics	BMI Assessment

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Immunizations <input type="checkbox"/>	Lead <input type="checkbox"/>	EPSDT <input type="checkbox"/>	NBS	EHDI	BMI <input type="checkbox"/>	Other	Invalid Doses		
BMI/Age Chart						Weight treatment guidelines			
BMI Measurements (recent)									
Date	Age					BMI	Percentile		
Add Measurement									
07/04/2009	14yr	<div style="background-color: yellow; padding: 10px; text-align: center;">94%</div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; color: blue;">Overweight</p> <ul style="list-style-type: none"> Date: 07/04/2009 Weight: 165 lbs Weight Percentile: 97 Height: 5 ft 7 in Height Percentile: 95 BMI Value: 25.8 </div>				23.1	99	<div style="width: 100%; height: 10px; background-color: red;"></div>	
01/04/2008	12yr					25.8	94	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	<input style="float: right; border: 1px solid black; padding: 2px 5px;" type="button" value="?"/>
03/04/2006	11yr					17.6	51	<div style="width: 100%; height: 10px; background-color: green;"></div>	
View Metric Units									

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Influenza Screening Notification

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Immunizations  Lead  EPSDT  NBS EHCI BMI  Other Invalid Doses

BMI/Age Chart

Weight treatment guidelines

BMI Measurements (red highlight denotes taken during pregnancy)

Date	Age	Weight /Pctl	Height /Pctl	RMT	Percentile
Add Measurement					
07/04/2009	14yrs 4mos	< 5%	Underweight		99 
01/04/2008	12yrs 10mos				94  ?
03/04/2006	11yrs	5 - 84%	Healthy Weight		51 
Counseling Activity		85 - 94%	Overweight		
Date	Provider				
Add Counseling Activity		≥ 95%	Obese		
07/04/2009	Lansing Pediatr				
07/16/2008	Nutrition for Health			Weight Counseling	
01/04/2008	Lansing Pediatrics			BMI Assessment	

Name: Jane Jacob Jingleheimer-Schmidt Birthdate: 03/04/1995 Gender: Female
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High Risk Conditions

Influenza Screening Notification

Pregnancy: [Edit](#) Sta

Immunizations Lead

BMI/Age Chart

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07/04/2009	14yrs 4mos
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03/04/2006	11yrs

Counseling Activity

Date	Provid
Add Counseling Activity	
07/04/2009	Lansing Pediatrics
07/16/2008	Nutrition for Health
01/04/2008	Lansing Pediatrics

Transfer Interface - Mozilla Firefox (P/G)

file:///C:/MyCVS/mcir-modeling/screens/bmi/MeasurementA ☆

Add Measurement

English Metric

Date of Measurement

Weight lbs

Height in

Done

er	Invalid Doses
t treatment guidelines	
BMI	Percentile
23.1	99
25.8	94 ?
17.6	51

Person Informa

Name: Jane
Address: 312 S
Apt 3
Kalar
Phone: (517)

High Risk Condit

Influenza Scre
Pregnancy: [Edit](#)

Immunization

BMI/Age Chart

BMI Measureme

Date

[Add Measurement](#)

- 07/04/2009
- 01/04/2008
- 03/04/2006

Counseling Acti

Date

[Add Counseling A](#)

- 07/04/2009
- 07/16/2008
- 01/04/2008

Add Counseling Activity - Mozilla Firefox

file:///C:/MyCVS/mcir-modeling/screens/bmi/CounselingActivityAdd.html

Add Counseling Activity

Date of Visit

Check all that apply

- BMI Percentile Assessment**
ICD-9-CM: V85.5 only
- Weight Counseling**
ICD-9-CM: 278.00, 278.01, 278.02 only
- Physical Activity Counseling**
HCPCS: H2032, S9451 only
ICD-9-CM: V65.41, 93.11, 93.13, 93.31, 93.19 only
- Nutrition Counseling**
CPT: 97802, 97803, 97804
HCPCS: G0270, G0271, H2032, S9449, S9452, S9470 only
ICD-9-CM: V65.31 only

Done

Body Mass Index Surveillance

Clinical Decision Support Tools

- Developed by a small sub-group of the Family & Providers Resources Task Force – Dr. Jon Gold, Dr. Susan Woolford, Dr. Chris Pohlod, Amy Sheon, Vani Katta, Sarah Poole, MDCH staff
- Intended to help guide providers through assessment & treatment that is consistent with the expert committee recommendations published in 2007.
- Tools broken down into 3 categories defined by BMI percentile (Healthy Weight, Overweight, Obese).
- Each category is further broken down into age groups (2-5, 6-11, 12-18)

Body Mass Index Surveillance

Clinical Decision Support Tools

- Each decision support tool includes an age appropriate survey to be filled out by patient, parent or provider.
 - Assesses nutrition habits
 - Assesses physical activity habits
 - Family history
 - Change readiness

Survey for Caregivers of Children Ages 2-5 years old Patient Name: _____
 Age: _____ Date: _____

In our office, we are interested in discussing the aspects of a healthy lifestyle with all of our families. Please take a moment to answer the following questions. We realize how busy parents are and how difficult it is to do all the right things! The questions below reflect only a small number of the challenges that face families each day.

	Please circle true or false.	
	True	False
1. My child eats 5 or more servings of fruits and vegetables on most days.	True	False
2. My child eats a healthy breakfast every day.	True	False
3. My child usually eats dinner at the table with other family members.	True	False
4. My child eats take out, fast food, or other restaurant food less than two times per week.	True	False
6. My child spends more than 2 hours per day in front of the TV or computer.	False	True
7. My child has a TV in the bedroom.	False	True
8. My child participates in physical activity for at least 1 hour each day. *This would include sports as well as general play where you are up and moving.	True	False
9. My child does NOT drink soda, sports drinks, punch or fruit drinks that are less than 100% fruit juice on most days.	True	False
10. My child drinks fat free or 1% milk rather than 2% or whole milk.	True	False
11. My child drinks less than 6 ounces of 100% fruit juice every day.	True	False

My child has (circle the correct answer):

Parent or sibling who is overweight or obese.
 Yes No

Siblings, parents, grandparents, aunts or uncles with:

Diabetes Type 2	Yes	No
High blood pressure	Yes	No
High cholesterol	Yes	No
Heart attack before age 55	Yes	No
Stroke before age 55	Yes	No

Circle the number which best reflects where you are at on the number continuum.

How concerned are you about your child's diet and physical activity habits?
 Not concerned 1 2 3 4 5 6 7 8 9 10 Very concerned

How ready are you to make changes?
 Not ready 1 2 3 4 5 6 7 8 9 10 Very ready

How confident are you that you can make changes?
 Not confident 1 2 3 4 5 6 7 8 9 10 Very confident

Body Mass Index Surveillance

Clinical Decision Support Tools

- Overweight & Obese decision support tools include:
 - Medical Assessment
 - Review of Systems
 - Family history & behavior attitudes (change readiness)
 - Tailored treatment & follow up guidance
 - Documentation space
 - Resource suggestions
 - Billing suggestions
- Healthy Weight decision support tools include:
 - Prevention messages according to guidelines
 - Resource suggestions

Body Mass Index Surveillance

Clinical Decision Support Tools

Pt Name, DOB, date of visit, BMI percentile, height percentile will all be auto populated at the top of this page.

Weight Status: This 2-5 year old's BMI percentile puts her/him in the **overweight** category. (BMI 85th to 95th percentile)

STEP 1: ASSESS THE CURRENT AND FUTURE WEIGHT-RELATED DISEASE BURDEN.

a. Assess Vitals: Is the patient hypertensive?

N Y

Blood Pressure Table for OBESITY by Age and Height Percentile		Standard BP (mmHg) %Percentile of Height		Standard BP (mmHg) %Percentile of Height									
Age	BP %	85 th	90 th	95 th	100 th	85 th	90 th	95 th	100 th	85 th	90 th	95 th	100 th
2	85 th	102	105	108	110	102	105	108	110	102	105	108	110
3	85 th	104	107	110	112	104	107	110	112	104	107	110	112
4	85 th	106	109	112	114	106	109	112	114	106	109	112	114
5	85 th	107	110	113	115	107	110	113	115	107	110	113	115

b. Is the child taking any of these obesogenic medications?

Antipsychotics ___ Mood Stabilizers ___ TCA ___ Anticonvulsants ___ Prednisone ___ SSRI ___

N Y

c. Laboratory Assessment - Are any levels above borderline or higher?

Total Cholesterol ≥ 170 ___ LDL ≥ 110 ___ Triglycerides ≥ 110 ___ HDL < 40 ___

N Y

d. Assess Comorbidities and ROS - Is there presence of comorbidities from the ROS?

___ Anxiety, irritability, somatization (Depression) ___ Polyuria, polydipsia, wt loss (DM)
 ___ Abdominal pain (GERD, Gall bladder disease, constipation) ___ Hip/knee pain, limping (SCFE)
 ___ Daytime sleepiness (Sleep apnea, hypoventilation syndrome, depression) ___ Headaches (Pseudotumor cerebri)
 ___ Night breathing problems (Sleep apnea, hypoventilation syndrome, asthma)

N Y

e. Physical Exam - Are comorbidities noted on the physical exam?

Potential Causes of Obesity
 ___ Viscerous striae (Cushing's syndrome)
 ___ Undescended testicle (Prader-Willi syndrome)
 ___ Dysmorphic features (Genetic disorders)
 ___ Poor linear growth (Hypothyroidism, Cushing's, Prader-Willi)

Potential Comorbidities/Complications of Obesity
 ___ Papilledema, cranial nerve VI paralysis (Pseudotumor cerebri)
 ___ Tonsillar hypertrophy (Sleep apnea)
 ___ Abdominal tenderness (Gall bladder disease, GERD, NAFLD)
 ___ Acanthosis nigricans (NIDDM, insulin resistance)
 ___ Lower leg bowing (Blount's disease)
 ___ Hepatomegaly (Nonalcoholic fatty liver disease)
 ___ Limited hip range of motion (Slipped capital femoral epiphysis)

N Y

f. Review assessment tool - Is family history positive for any of the following?

Family Hx: Obesity ___ HTN ___ Type 2 DM ___ Hyperlipidemia ___ Early MI ___ Early Stroke ___

N Y

If any above medical risks are noted "Yes" in Step 1 use tailored approach Step 3b.

STEP 2: REVIEW BEHAVIOR TARGETS & FAMILY READINESS FOR CHANGE

a. Reinforce positive behaviors noted on survey tool and note risky behaviors below.

___ Eats <5 svgs fruit & veggies every day. ___ Physical activity less than 1 hr per day.
 ___ Does not eat a healthy breakfast every day. ___ Drinks > 1 sugar sweetened beverage per day
 ___ Does not usually eat meals at the table with family. ___ Drinks 2% or greater milk.
 ___ Eats take out or fast food ≥2x per week. ___ Drinks > 6 oz 100% fruit juice per day.
 ___ Spends >2 hours TV &/or computer time per day. ___ TV in bedroom.

b. Assess readiness for change - Record number from survey tool

___ Concern about child's diet & physical activity habits? ___ Ready to make changes? ___ Confidence in ability to make changes?
 0-3-Not Ready 4-6-Unsafe 7-10-Ready

STEP 3: TAILOR APPROACH TO FAMILY/PATIENT

	3a. OVERWEIGHT (WITH NO MEDICAL RISK FACTORS) (PREVENTION)	3b. OVERWEIGHT (WITH MEDICAL RISK FACTORS) (STAGE 1: PREVENTION PLUS)
GOAL	Weight velocity maintenance.	Weight maintenance or slow weight gain. * * Review weight for age curve. If weight percentile is stable over time (ie weight velocity is stable) consider continued weight velocity maintenance.
RECOMMENDATIONS	<ul style="list-style-type: none"> Provide basic education specific to weight classifications and review the medical risks associated with obesity. Target problem behaviors identified in Step 2. Review prevention messages (e.g. 5210) Praise current practice when appropriate. 	<ul style="list-style-type: none"> Counsel and guide parents through goals they set themselves using Step 2. If low parental concern (i.e. pre-contemplation, 0 to 3) attempt to motivate by educating family regarding medical risk factors associated with obesity. Refer or order appropriate follow-up testing for comorbidities.
LABS	Obtain fasting lipid profile. Repeat every 3-5 years if normal.	Obtain fasting lipid profile. Repeat every 3-5 years if normal.
FOLLOW UP	Yearly for health maintenance. Consider more frequently to confirm weight percentile is stable especially if history is unknown.	Monthly ideally, if no progress in 3 months, advance to Stage 2 (Structured Weight Management).

STEP 4: ASSESSMENT & PLAN

Lab's (check those obtained during visit) Recommended Follow Up Referrals: ___ None ___ Yes (list below)

___ Fasting lipid profile ___ Weeks ___
 ___ Other ___ Months ___
 ___ Year ___

Counseling occurred for ___ minutes and comprised 50% or more of visit. Yes ___ No ___
 Topics addressed: ___ weight counseling ___ physical activity counseling ___ nutrition counseling
 Agreed upon goals from target behaviors in 2a (above). OTHER NOTES: _____

Provider Signature: _____ Date: _____

Billing Information - This section is for information only and cannot be taken as a guarantee of payment for services. Check with the patient's health plan directly to determine eligibility and billing requirements.

Procedure	ICD-9	Obesity	738.00	BMI 30 th to <35 th	V85.53	BMI 35 th to 40 th	V85.54	Type 2 DM	250.00
Hypertension	272.0	Obesity (BMI 30 th to <35 th)	738.01	Primary biliary cirrhosis	570.0	Excessive weight gain	981.1	GERD	530.81
Sleep disturbance	780.50	Inappropriate diet	V88.1	Physical activity counseling	V86.41	Nutrition counseling	V86.9	PCOS	256.4
Depression	290.0	Lack of exercise	V88.2	Acute alcohol withdrawal	291.2	Hyperlipidemia	272.0	Asthma	486.9
Diabetes	250.00	Depression	290.0	Nonalcoholic fatty liver dis.	571.8	Hyperlipidemia	272.0	Constipation	564.0
Fam hx of type 2 DM	V18.0	Elevated BP	786.2	Fam hx of cardiovascular dis.	V17.3	Fam hx of type 2 DM	V18.0		

For more information and clarification on billing for pediatric obesity prevention, assessment and treatment services for patients on straight Medicaid, access a Medicaid 'L' Letter at http://www.nichigan.gov/documents/mchd/1_09_15-Obesity_Outreach_281184_T.pdf

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: S164-S192.
- Blue Cross Blue Shield of Michigan Pediatric Healthy Weight Toolkit: http://www.bcsbm.com/pdf/soediatric_health_weight_toolkit.pdf
- American Academy of Pediatrics. What Families Can Do featuring the 5210 message. <http://www.aap.org/obesity/families.html#technology-1>

Body Mass Index Surveillance

Clinical Decision Support Tools

- Next Steps

- In the process of developing 'underweight' guidance documents
- Packaging tools for sharing
- Revisions after pilot testing

Body Mass Index Surveillance

MCIR BMI Timelines

1. **Mid-February MCIR BMI Internal Testing** – MCIR development team and MCIR BMI workgroup.
2. **Late February MCIR BMI User Acceptance Testing** – MDCH staff, Altarum staff, and HKHM members.
3. **Early March MCIR BMI Pilot Testing** – Three clinic sites will be testing the MCIR BMI in their practice to provide feedback on design, utility and practice flow usage.
4. **Early April MCIR BMI development complete.**
5. **June Rules Change** – rules change implemented requiring reporting BMI into MCIR annually for children ages 0 – 20 years that visit their clinician in the calendar year

Body Mass Index Surveillance

MCIR BMI Pilot Tester Details

Name	Corner Health Center	MSU Pediatrics	Pediatric Care Center
Location	Ypsilanti	Okemos	Dearborn
EMR User	No	Yes	No
Number Pediatric Patients	Under 1,300	4,600	3,000
Percent Medicaid Patients	70%	23%	80%
Hospital Affiliation	University of Michigan Health System Saint Joseph Mercy Health	Sparrow Health System	Children's Hospital of Michigan (DMC) Oakwood Hospital
Clinic Focus	Community Health Center	Group practice (primary care, pediatrics)	Private Practice
Currently Refer Weight Issues	NA	Dietician	Underweight: GI and Endocrinologist