SECTION I.
BASIC MEASURE INFORMATION

I.A. Measure Name

Documentation of BMI Percentile and Weight Classification for Children

I.B. Measure Citation Information

Lee JM, Freed GL, Shevrin CA, McCormick JA, Gebremariam A, Madden BW, Dombkowski KJ for the Quality Measurement, Evaluation, Testing, Review, and Implementation Consortium. Documentation of BMI percentile and weight classification for children. National Quality Measures Clearinghouse (NQMC). Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). Published November 23, 2015.

I.C. Measure Description

This measure assesses the percentage of children, ages 2 through 17 years old, who had documentation of body mass index (BMI) percentile and weight classification at an outpatient care visit during the measurement year. BMI is a measure of weight for height and is calculated by dividing weight by height squared. BMI percentile for children is calculated based on the age and sex of the child and is a screening tool used to identify children and adolescents who are underweight, normal weight, or who have excess weight (further categorized as being overweight or obese). Tracking BMI percentile allows providers to assess a child's weight status and weight trajectory over time and to monitor children who have abnormal BMI percentiles. A higher percentage of documentation of BMI percentile and weight classification indicates better performance.

Obesity in children is associated with a broad spectrum of serious health issues, including obstructive sleep apnea, asthma, nonalcoholic fatty liver disease, type 2 diabetes mellitus, depression, orthopedic problems, and skin conditions (Barlow, 2007). While childhood obesity rates have stabilized over the past decade, the percentage of young children and adolescents who are overweight or obese remains high (Ogden et al., 2014). For the 2011-2012 period, nearly 32% of children in the United States were reported to be either overweight or obese (having a BMI ≥85th percentile on sex-specific age-for-growth charts), and 17% were obese (having a BMI ≥95th percentile) (Ogden et al., 2014).

Health risks and body fat levels are proportionate (Barlow, 2007). BMI is a cheap and easy initial screen for evaluating the health, growth, and development of children. Expert committee recommendations state that for children, BMI should be calculated and plotted at least annually and the classification of weight should be integrated with growth patterns, family history of obesity, and medical risks (Barlow, 2007). Used as a screening tool, BMI can raise concerns that prompt further assessment of clinical information and guide treatment of specific health issues (Barlow, 2007; Speiser et al., 2005). While BMI-for-age percentile does not provide a direct measure of adiposity, it

does correlate reasonably well with percentile rankings of directly measured percent body fat in children. Because BMI changes with age, percentile scores based on age- and sex-specific norms are used to monitor growth (USPSTF, 2010).

Entrenched environmental factors such as the ubiquity of processed foods and sugary drinks coupled with lack of physical activity make pediatric obesity a challenging health problem to treat. However, addressing weight problems early reduces the risk of serious and persistent health issues and sets children on course for a healthy adulthood.

This measure uses medical record data and is calculated as two individual rates:

1. The percentage of eligible children who had documentation of BMI percentile.
2. The percentage of children who had documentation of weight classification, usually characterized as underweight, normal weight, overweight, or obese.

I.D. Measure Owner

The Quality Measurement, Evaluation, Testing, Review, and Implementation Consortium (Q-METRIC)

I.E. National Quality Forum (NQF) ID (if applicable)

Not applicable

I.F. Measure Hierarchy

Please use this section to note if the measure is part of a measure hierarchy or is part of a measure group or composite measure. The following definitions are used by AHRQ's National Quality Measures Clearinghouse and are available at http://www.qualitymeasures.ahrq.gov/about/hierarchy.aspx:

I.F.1. Please identify the name of the **collection** of measures to which the measure belongs (if applicable). A Collection is the highest possible level of the measure hierarchy. A Collection may contain one or more Sets, Subsets, Composites, and/or Individual Measures.

This measure is part of the Q-METRIC High BMI in Children Follow-Up Measures collection.

I.F.2. Please identify the name of the measure **set** to which the measure belongs (if applicable). A Set is the second level of the hierarchy. A Set may include one or more Subsets, Composites, and/or Individual Measures.

Not applicable

I.F.3. Please identify the name of the **subset** to which the measure belongs (if applicable). A Subset is the third level of the hierarchy. A Subset may include one or more Composites and/or Individual Measures.

Not applicable

I.F.4. Please identify the name of the **composite** measure to which the measure belongs (if applicable). A Composite is a measure with a score that is an aggregate of scores from other measures. A Composite may include one or more other Composites and/or Individual Measures. Composites may comprise component measures that can or cannot be used on their own.

Not applicable

I.G. Numerator Statement

The eligible population for the numerator is the number of children, ages 2 through 17 years old, who had documentation of BMI percentile and documentation of weight classification at an outpatient care visit during the measurement year (January 1-December 31). Two individual numerators are calculated:

Rate 1. BMI Percentile – The number of eligible children who had documentation of BMI percentile in the medical record for an outpatient visit; for children ages 16 and 17 years old, a BMI score is sufficient.

Documentation in the medical chart is a written BMI percentile as calculated by the electronic health record (EHR) or a BMI percentile plotted on a BMI for age and sex growth chart. For older children 16 and 17 years of age, the BMI score is sufficient and BMI does not need to be plotted on a growth curve.

Note: Documentation is insufficient if it consists only of BMI score (for children ages 2 through 15 years), weight, height, weight percentile, or height percentile. These individual values do not qualify as a numerator event.

Rate 2. Weight Classification – The number of eligible children who had documentation of weight classification in the medical record for an outpatient visit.

Using BMI percentile, children can be classified into categories as shown in Table 1. Table 2 lists categories based on BMI score, which can only be used for children ages 16 and 17 years old. Weight classification documentation is a written note of BMI percentile or score from medical records. Documentation in the medical records must include at least one classification from any of the lists below:

"Underweight," "Overweight," "Obese"

OR

"Normal weight," "Healthy weight," "Abnormal weight," "Unhealthy weight"

OR

"BMI <5th percentile," "BMI 5th through 84th percentile," "BMI 85th through 94th percentile," "BMI ≥95th percentile"

OR

"BMI score <18.5," "≥18.5 and less than 25," "≥25 and less than 30," "≥30" (for children 16 and 17 years of age only).

For medical records, acceptable documentation consists of ICD-9 codes for "obesity" or "abnormal weight gain" (Table 3).

Note: Documentation is insufficient if it consists only of BMI, BMI percentile, weight, height, weight percentile, or height percentile. These individual values do not qualify as a numerator event.

Codes to identify outpatient care visits are listed in Table 4.

Table 1: Weight Classification Based on BMI Percentile*

Classification	Percentile
Underweight	<5th percentile
Normal weight	5th to 84th percentile
Overweight	85th to 94th percentile
Obese	≥95th percentile

*Children ages 2 through 17 years old

Table 2: Weight Classification Based on BMI Score*

Classification	BMI score
Underweight	<18.5
Normal weight	≥18.5 and <25
Overweight	≥25 and <30
Obese	≥30

*Children ages 16 and 17 years old only

Table 3: ICD-9 Codes for Obesity or Abnormal Weight Gain

Description	Code
Morbid obesity	278.01
Obesity, unspecified	278.00
Obesity of endocrine origin NOS	259.9
Abnormal weight gain	783.1
Obesity	V77.8

ICD-9 = International Classification of Diseases, 9th Revision

Table 4: Codes to Identify Ambulatory or Preventive Care Visits

Description	CPT	HCPCS	ICD-9-CM Diagnosis
Office or other outpatient services	99201-99205, 99211-99215, 99241-99245		
Preventive medicine	99381-99385, 99391-99395, 99401-99404, 99411-99412, 99420, 99429	G0438, G0439	
General medical examination			V20.2, V70.0, V70.3, V70.5, V70.6, V70.8, V70.9

CPT = Current Procedural Terminology; HCPCS = Healthcare Common Procedure Coding System; ICD-9 CM = International Classification of Diseases, 9th Revision, Clinical Modification

I.H. Numerator Exclusions (as appropriate)

1. Inpatient stays, emergency department visits, and urgent care visits are excluded from the calculation.
2. A diagnosis of pregnancy during the measurement year excludes the patient from the calculation.

I.I. Denominator Statement

The eligible population for the denominator is the number of children, ages 2 through 17 years, who had an outpatient care visit during the measurement year (January 1-December 31).

I.J. Denominator Exclusions (as appropriate)

1. Inpatient stays, emergency department visits, and urgent care visits are excluded from the calculation.
2. A diagnosis of pregnancy during the measurement year excludes the patient from the calculation.

I.K. Data Sources

Check all the data sources for which the measure is specified and tested.

Data Source	
1. Administrative Data (e.g., claims data)	
2. Paper Medical Record	**X**
3. Survey – Health care professional report	
4. Survey – Parent/caregiver report	
5. Survey – Child report	
6. Electronic Medical Record	
7. Other (If other, please list all other data sources in the field below.)	

References for Section I

Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics* 2007; 120(Suppl 4):S164-S192.

Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA* 2014; 311(8):806-814.

Speiser PW, Rudolf MCJ, Anhalt H, et al. on behalf of the Obesity Consensus Working Group. Consensus statement: Childhood obesity. *J Clin Endocrinol Metab* 2005; 90(3):1871-1887.

US Preventive Services Task Force. Screening for obesity in children and adolescents: US Preventive Services Task Force recommendation statement. *Pediatrics* 2010; 125(2):361-367.

SECTION II.
DETAILED MEASURE SPECIFICATIONS

Provide sufficient detail to describe how a measure would be calculated from the recommended data sources, either by uploading a separate document or by providing a link to a URL in the field below. Examples of detailed measure specifications can be found in the CHIPRA Initial Core Set Technical Specifications Manual 2011 published by the Centers for Medicare & Medicaid Services.[1] Although submission of formal programming code or algorithms that demonstrate how a measure would be calculated from a query of an appropriate electronic data source are not requested at this time, the availability of these resources may be a factor in determining whether a measure can be recommended for use.

Please see the specifications document, Q-METRIC High BMI Follow-Up Measure 1, *Documentation of BMI Percentile and Weight Classification for Children*, at the end of this document. The codebook used for medical record data abstraction is also included as a separate file.

[1] Initial Core Set of Children's Health Care Quality Measures: Technical Specifications and Resource Manual for Federal Fiscal Year 2011 Reporting. Available at http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/Downloads/InitialCoreSetResourceManual.pdf and http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/CHIPRA-Initial-Core-Set-of-Childrens-Health-Care-Quality-Measures.html.

SECTION III.
IMPORTANCE OF THE MEASURE

In the following sections, provide brief descriptions of how the measure meets one or more of the following criteria for measure importance (general importance, importance to Medicaid and/or CHIP, complements or enhances an existing measure). Include references related to specific points made in your narrative (not a free-form listing of citations).

III.A. Evidence for General Importance of the Measure

Provide evidence for all applicable aspects of general importance, including but not limited to the following:

- Addresses a known or suspected quality gap or disparity in quality (e.g., addresses a socioeconomic disparity, a racial/ethnic disparity, a disparity for Children with Special Health Care Needs (CSHCN) and/or a disparity for limited English proficiency (LEP) populations.

- Potential for quality improvement (i.e., there are effective approaches to reducing the quality gap or disparity in quality).

- Prevalence of condition among children under age 21 and/or among pregnant women.

- Severity of condition and burden of condition on children, family, and society (unrelated to cost).

- Fiscal burden of measure focus (e.g., clinical condition) on patients, families, public and private payers, or society more generally, currently and over the life span of the child.

- Association of measure topic with children's future health—for example, a measure addressing childhood obesity may have implications for the subsequent development of cardiovascular diseases.

- The extent to which the measure is applicable to changes across developmental stages (e.g., infancy, early childhood, middle childhood, adolescence, young adulthood).

Importance

Childhood overweight and obesity are recognized as major medical and public health problems associated with serious medical complications over the life course, including conditions such as type 2 diabetes, metabolic syndrome, and hypertension (Speiser et al., 2005). As a result, early screening and identification of weight status in children is critical for both prevention and treatment of

childhood overweight and obesity. Primary care providers measure weight and height at yearly visits throughout childhood, and, using these measures, can calculate BMI. Based on the sex- and age-specific growth charts for children developed by the Centers for Disease Control and Prevention [CDC]), overweight is defined as a BMI percentile from the 85th to 94th percentile on sex-specific age-for-growth charts, and obesity is defined as a BMI percentile ≥95th percentile (Barlow, 2007).

Prevalence of Obesity and Unhealthy Weight in Children

Significant increases in the prevalence of US childhood obesity across both sexes were seen in the 1980s and 1990s (Ogden et al., 2012). For the 2011-2012 period, nearly 32% of children in the United States were reported to be overweight or obese (having a BMI ≥85th percentile) and at least 17% were obese (having a BMI ≥95th percentile) (Ogden et al., 2014). At the population level, this increase in prevalence is too rapid to be a genetic shift. Rather, changes in eating and physical activity behaviors are affecting the intake and expenditure of energy resulting in overweight and obesity (Barlow, 2007).

Cost of Obesity and Unhealthy Weight in Children

Excess weight in young people creates great economic burden. Children who are obese are approximately three times more expensive for the health care system than the average insured child, and children diagnosed with obesity are two to three times more likely to be hospitalized (Marder and Chang, 2006). In a study by Wang et al., the authors used projected overweight/obesity prevalence and national estimates of per capita excess health care costs of overweight/obesity to estimate that health care costs attributable to overweight/obesity in the entire US population would reach between $861 and $957 billion by 2030, accounting for 16%-18% of US health care costs (Wang et al., 2008).

Pathology and Severity of Obesity and Unhealthy Weight in Children

Children gain excess weight for many reasons. There is a clear genetic component to obesity: conditions for early humans were stressful, making storage of fat advantageous (Speiser et al., 2005). Hormones such as leptin, ghrelin, and adiponectin influence appetite, satiety, and fat distribution; they are key metabolic mechanisms that can influence physiologic risk (Barlow, 2007). In those who are genetically predisposed to obesity, behavior and environment influence its development (Barlow, 2007). Currently, genetic susceptibility to obesity is influenced by an environment rife with fast food, processed foods, sugar-sweetened beverages, and easy opportunities for meals eaten outside the home (White House Task Force, 2010). Compounding unhealthy food choices is a noticeable decrease in physical activity for children, as schools cut physical education classes and community design promotes driving over walking and biking (White House Task Force, 2010). Screen time is another contributor to obesity, as children spend increasing amounts of time engaged with television, video games, smart phones, tablets, and computers. Screen time replaces exercise, encourages consumption of advertised foods, and affects sleep quality, which itself is linked to an increased risk of obesity (White House Task Force, 2010). Medical issues associated with obesity affect almost every organ of the body, though some conditions are without symptoms and signs (Barlow, 2007). Obese children are more likely to suffer from respiratory issues such as disordered breathing (Wing et al., 2003), which can lead to right

ventricular hypertrophy and pulmonary hypertension, as well as inattention, poor academic performance, and enuresis (Barlow 2007). Asthma also occurs more frequently among children who are obese (Barlow, 2007). Gastrointestinal problems include nonalcoholic fatty liver disease (NAFLD), which is related to both obesity and diabetes (Barlow, 2007); gallstones (Kaechele et al., 2006); and gastroesophageal reflux disease and constipation, which are worsened by obesity (Barlow, 2007). Obese children are more likely to have endocrine disorders such as abnormal glucose metabolism (sometimes called pre-diabetes), which indicates higher risk for the development of diabetes (Li et al., 2009); Type 2 diabetes mellitus, polycystic ovary syndrome, and hypothyroidism (Barlow, 2007). Cardiovascular problems for overweight/obese children include dyslipidemia (Lamb et al., 2011) and hypertension (Barlow, 2007). Orthopedic problems include Blount disease (a visible bowing of the lower extremities), slipped capital femoral epiphysis, and an increased risk of fractures, musculoskeletal pain, and orthopedic problems (Dietz et al., 1982; Manoff et al., 2005). Skin conditions include acanthosis nigricans, a chronic irritation and infection in the folds of the skin (Nguyen et al., 2001). Metabolic syndrome, a cluster of concurrent conditions (abnormal triglycerides, large waist circumference, and high blood pressure) that increase the risk of heart disease, stroke, and diabetes is not yet defined in children (Speiser et al., 2005). However, among severely obese children, the risk of developing metabolic syndrome has been estimated at 50% (Weiss et al., 2004).

Children who are obese also contend with psychiatric problems including depression, anxiety, and eating disorders (Barlow, 2007). One study found that among female adolescents who were obese, patterns of observation showed more adverse social, educational, and psychological correlates (Falkner et al., 2001). Children who are obese may also be at risk for academic difficulties, alcohol and tobacco use, premature sexual behavior, inappropriate dieting practices, and physical inactivity (Daniels et al., 2009). Increasing weight is associated with decreasing health-related quality of life, lower body satisfaction, and low self-esteem. Children who are overweight experience more teasing and are vulnerable to bullying (Daniels et al., 2009). Children share society's negative opinions about those who are overweight or obese, regardless of their own weight status or sex (Speiser et al., 2005). Their perceptions of obesity emphasize laziness, selfishness, lower intelligence, social isolation, poor social functioning, as well as low levels of perceived health, healthy eating, and activity. Children as young as 5 years of age are aware of their own levels of overweight, which affects their perceptions of appearance, athletic ability, social competence, and self-worth (Speiser et al., 2005). Research has also shown that children diagnosed with obesity are much more likely to be diagnosed with mental health disorders or bone and joint disorders than children who are not obese; they are also two-to-three times more likely to be hospitalized (Marder and Chang, 2006).

Being overweight or obese in early life also has implications for a child's future health. First, for a child who is overweight, medical risks include future or persistent obesity (Barlow, 2007, Daniels et al., 2009). The risk of an obese child becoming an obese adult is 25% at age 6 years, increasing to 75% during adolescence (Baker et al., 2010). Being overweight or obese in childhood and adolescence is also associated with increased risk of premature mortality and comorbidities in adulthood. A 2011 systematic review reports a significant association between child and adolescent overweight/obesity and premature mortality, with hazard ratios ranging from 1.4 to 2.9 (Reilly and Kelly, 2011). In

addition, being overweight or obese as a child or adolescent is significantly associated with increased risk of cardiometabolic morbidity (including diabetes, hypertension, heart disease, and stroke) in later life, with hazard ratios ranging from 1.1 to 5.1, as well as increased risk of asthma in adulthood and polycystic ovary syndrome in adult women (Reilly and Kelly, 2011). Obesity in adolescence is associated with negative self-image that persists into adulthood (Dietz, 1998). These children are also at long-term higher risk for chronic conditions such as breast, colon, and kidney cancer; musculoskeletal disorders; and gall bladder disease (Daniels et al., 2009). Childhood obesity contributes to a significant and increasing burden of chronic disease, rising health care costs, disability, and premature death.

Outcomes of Documenting BMI Percentile and Weight Classification

Given the vulnerability of obese children to serious physical and emotional complications, the case for prevention and treatment of pediatric obesity is irrefutable (Speiser et al., 2005). Reducing childhood obesity can only be achieved through a comprehensive and coordinated effort that includes a range of multidisciplinary strategies (Daniels et al., 2009). The goals of treatment are, first, to restore the balance between energy intake and expenditure, usually through a decrease in energy consumption and an increase in energy expenditure (Daniels et al., 2009; Speiser et al., 2005). Then, over the longer term, the goal shifts to reducing BMI and reversing or preventing short- and long-term comorbidities (Speiser et al., 2005). The essential first step: identification of children at risk by documenting BMI percentile and weight classifications in order that these patients may receive ongoing, consistent, and supportive treatment to address unhealthy weight.

BMI is a measure of body weight adjusted for height, calculated as weight in kilograms divided by the square of height in meters. BMI levels correlate with body fat; high levels of body fat are associated with increased health risks (Barlow, 2007). Thus, BMI is used as a screening tool in children and adolescents to determine whether concern should exist about weight. Its sensitivity over the 85th percentile in children is good. BMI is feasible and has acceptable clinical validity if used with thought. It has the added benefit of continuity with adult assessments of body weight (Barlow, 2007). Recording and graphical plotting of height, weight, BMI, and waist circumference should be done at each visit (Speiser et al., 2005). Using sex-specific, BMI-for-age growth charts from the CDC offers the advantage of follow-up over time with graphical plotting of serial BMI measures. The disadvantage is that the charts are based on arbitrary statistical measures (developed from five national US datasets) and not on biological data related to risk of future morbidity (Speiser et al., 2005).

Health care providers assess the value of the BMI percentile or score in the context of other information, such as the patient's medical history, family history, diet, activity levels, blood pressure readings, and other tests. Taken together, these findings can help determine whether a patient has excess body fat and obesity-related health risks (White House Task Force, 2010). Screening children for obesity-related medical issues is squarely the responsibility of health care providers, especially those providing primary care. Clinicians should consider current medical conditions associated with obesity, risk of future conditions associated with obesity and ameliorated by weight control, and rare conditions that cause obesity (Barlow, 2007).

It is understandable for providers to feel overwhelmed in dealing with obesity given the entrenched environmental forces that have contributed to the rise of unhealthy eating habits and sedentary behavior. Clinicians, however, can help improve outcomes for their patients by identifying problems early, showing families how to create positive home environments, and providing structured guidance to overweight and obese children and their families (Barlow, 2007). Successful obesity treatment improves long-term physical health through the development of permanent healthy lifestyle habits. For some children, these changes will be enough to induce weight loss or maintenance during growth periods. For others, further work will be needed. But developing and keeping healthy eating and exercise habits, regardless of weight loss, is important because of the long-term health benefits. Even slowed weight gain during growth periods will result in lower BMI percentiles (Barlow, 2007).

This measure assesses documentation of BMI percentile and weight classification for children ages 2 through 17 years at an outpatient visit within the measurement year. The measure does not change across developmental stages.

Performance Gap

The rates of BMI percentile documentation by providers vary greatly: among 10 US health plans and care delivery systems with total enrollments ranging from 175,000 to 3.2 million members, the documentation of BMI percentile for children ages 2 through 17 years of age ranged from 21% to 81%, with a median documentation rate of 71% (Arterburn et al., 2010). Other studies report physicians documenting BMI percentile for approximately 50% of pediatric patients (Huang et al., 2011; Klein et al., 2010). Rates for *weight classification* documentation are consistently low. In two studies of pediatric primary care visits, providers documented weight status in 10%-14% of charts (Shaikh et al., 2010; Lazorick et al., 2011). In two studies of children with a BMI ≥95th percentile, physicians documented their weight status ("obese") in only 18%-28% of patients (Dilley et al., 2007; Patel et al., 2010). Taken together, these findings suggest a significant performance gap exists in provider documentation of both BMI percentile and weight status. Certainly, this information is not being documented in children as often as recommended by national guidelines.

Clinicians seem to be selective about conditions of concern during exams. Daniels et al. (2009) showed that only 27% of overweight pediatric patients were correctly identified compared with 86% of obese children. If BMI is correctly plotted, weight classification documented, and charts kept current, more patients would receive counseling for diet and physical activity (Daniels et al., 2009). Klein's study, noted above, surveyed practicing pediatricians and found that nearly all respondents measured height and weight at well-child visits, using growth charts as a reference. But only half calculated and assessed BMI percentile for sex and age in children older than 2 years of age. Many pediatricians said they lacked the time to counsel patients about weight or found counseling alone to provide poor results; some noted that simple diet and exercise recommendations would be helpful (Klein et al., 2010).

Not unreasonably, primary care providers may feel at a loss for dependable guidance, as science has lagged behind the obesity epidemic, leaving many gaps in evidence-based recommendations. Randomized, controlled clinical trials have not been conducted to prove or disprove the effect of

certain behaviors on weight control in obese children (Barlow, 2007). Primary care systems have often been ineffective in developing processes to implement guidelines to assess children and adolescents who are overweight or obese. Some of this reluctance may trace to a lack of well-defined, validated preventive and therapeutic interventions for children and families (Daniels et al., 2009). The adult morbidity associated with childhood obesity may begin early in life, but public policy has not kept up (Speiser et al., 2005).

Barriers to care may also lie with the clinicians themselves. In a 2005 study looking at pediatricians' self-perceptions about weight, nearly half of pediatricians who were overweight did not identify themselves as such (Perrin et al., 2005). And both self-identified "thin" and "overweight" pediatricians reported difficulty in providing weight counseling. The authors hypothesized that pediatricians who identified as overweight worried about appearing hypocritical, while those who saw themselves as thin were concerned about being perceived as lacking empathy. Helping pediatricians overcome personal weight-related obstacles may enable them to be more successful in helping their patients achieve a healthy weight (Perrin et al., 2005).

Office systems should be designed to track overweight and obese children, thus better supporting those working to manage their condition (Barlow, 2007). Offices should have the right equipment to document BMI consistently and accurately. This includes reliable scales for infants and children, recumbent infant length boards, and wall-mounted stadiometers. All equipment should be regularly calibrated. Likewise, staff must know how to accurately measure weight and height, calculate BMI, and plot the measures on growth curves. Further, chart audits can help make routine collection of BMI standard by assessing baseline practices, setting goals for improvement, and then measuring improvement over time (Barlow, 2007).

Providers have reported that lack of reimbursement is a barrier to care for children who are obese (Barlow, 2007). Important gaps exist between prevention and treatment of childhood obesity and what is covered by health insurance (Daniels et al., 2009). Other challenges include program recruitment and retention, financing, apathy at the policy and clinical levels, and variation in the priority placed on childhood obesity (Daniels et al., 2009).

Unlike smoking where there is no safe level of use, food is not deadly; everyone needs to eat every day. Because of this, the public health response has focused on strategies that rely on individuals changing their behavior. However, the food industry's substantial resources to influence what people eat make this an ineffective strategy (Daniels et al., 2009). Encouraging collective responsibility for the availability of healthy foods and the value of physical exercise will better support individual efforts at successful weight management.

III.B. Evidence for Importance of the Measure to Medicaid and/or CHIP

Comment on any specific features of this measure important to Medicaid and/or CHIP that are in addition to the evidence of importance described above, including the following:

- The extent to which the measure is understood to be sensitive to changes in Medicaid or CHIP (e.g., policy changes, quality improvement strategies).

- Relevance to the Early and Periodic Screening, Diagnostic and Treatment benefit in Medicaid (EPSDT).[2]

- Any other specific relevance to Medicaid/CHIP (please specify).

BMI percentile assessment and documentation fall under the "screening" portion of the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit in Medicaid. The EPSDT benefit requires states to cover preventive services for children; this includes services necessary to prevent and treat obesity. The health-education component of this mandate provides an opportunity for clinicians to discuss health concerns regarding weight and nutrition with the child and/or the parent or guardian. Necessary medical services can be covered by Medicaid under the EPSDT benefit. There is, however, considerable variability in coverage among the states. In a 2010 report to Congress, *Preventive and Obesity-Related Services Available to Medicaid Enrollees*, the Department of Health and Human Services (HHS) states, "CMS will encourage States to include specific information on the standards of practice related to obesity prevention and treatment in their [State Medicaid] provider manuals. Examples include: the importance of calculating body mass index (BMI)…" BMI percentile screening is a national priority and an important part of obesity prevention; Medicaid and the State Children's Health Insurance Program (CHIP) can help improve access to preventive screenings and interventions (HHS, 2010). Through provisions in the Affordable Care Act, CMS can work with the public health community to prevent and treat obesity (HHS, 2010).

One in five children is covered by Medicaid or CHIP, and many others are eligible but do not receive services because parents are unaware of their eligibility (Daniels et al., 2009). The number of children dependent on Medicaid is important, as the burden of the obesity epidemic disproportionately affects them. Nationally, 43.2% of children with public insurance are overweight or obese versus 27.3% of children with private insurance (NICHQ, 2007). Children enrolled in Medicaid are six times more likely to be treated for obesity than children with private insurance (Marder and Chang, 2006). This may be an underestimate, given the difficulty children with Medicaid have accessing the health system. Annual health care costs for children who are obese and enrolled in Medicaid are approximately $6,700 compared with $3,700 for obese children covered by private insurance; the national cost of treating children with obesity is estimated at roughly $11 billion for children with private insurance compared with $3 billion for those covered by Medicaid (Marder and Chang, 2006).

It has further been noted that children covered by Medicaid are less likely to visit the doctor and more likely to enter the hospital compared with children covered by private insurance (Marder and Chang, 2006). This may suggest that available outpatient resources are inadequate for these Medicaid patients. This lack of services may lead families to postpone seeking treatment, allowing conditions to deteriorate until urgent care is needed.

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[2] The EPSDT is a comprehensive set of benefits available to children and youth under age 21 who are enrolled in Medicaid. For more information, see http://www.healthlaw.org/images/stories/epsdt/3-ESDPT08.pdf.

III.C. Relationship to Other Measures (if any)

Describe, if known, how this measure complements or improves on an existing measure in this topic area for the child or adult population, or if it is intended to fill a specific gap in an existing measure category or topic. For example, the proposed measure may enhance an existing measure in the initial core set, it may lower the age range for an existing adult-focused measure, or it may fill a gap in measurement (e.g., for asthma care quality, inpatient care measures).

Many quality measures regarding pediatric BMI measurement and counseling exist. These measures assess, for populations of varying ages, regular measurement of BMI and documentation of BMI percentile; number of well-child visits with documented BMI; identification of weight classification status; and education about weight management strategies, including counseling regarding nutrition and physical activity. This Q-METRIC measure, *Documentation of BMI Percentile and Weight Classification for Children*, differs from existing measures in that it lowers the age range of patients for consideration and measures rates of documentation for both calculation of BMI percentile (not simply measurement of BMI) and assignment of an appropriate weight classification upon which subsequent treatment will be based.

References for Section III

Arterburn DE, Alexander GL, Calvi J, et al. Body mass index measurement and obesity prevalence in ten U.S. health plans. *Clin Med Res* 2010; 8(3/4):126-130.

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SECTION IV.
MEASURE CATEGORIES

CHIPRA legislation[3] requires that measures in the initial and improved core set, taken together, cover all settings, services, and topics of health care relevant to children. Moreover, the legislation requires the core set to address the needs of children across all ages,[4] including services to promote healthy birth. Regardless of the eventual use of the measure, we are interested in knowing all settings, services, measure topics, and populations that this measure addresses. These categories are not exclusive of one another, so please indicate "Yes" to all that apply.

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3 Children's Health Insurance Program Reauthorization Act of 2009. Public Law No. 111-3, 123 Stat. 8 (2009). Available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ003.111.

4 Under Section 214 of CHIPRA, States may elect to cover the following groups under Medicaid only or under both Medicaid and CHIP: pregnant women and children up to age 19 for CHIP or up to age 21 for Medicaid.

	Does the measure address this category	
a. Care Setting – ambulatory	**Yes**	
b. Care Setting – inpatient	**No**	
c. Care Setting – other—please specify	**No**	
d. Service – preventive health	**Yes**	
e. Service – care for acute conditions	**No**	
f. Service - care for children with special health care needs/chronic conditions	**Yes**	
g. Service – health promotion and services to promote healthy birth	**No**	
h. Service-other (please specify)	**No**	
i. Measure Topic -duration of enrollment	**No**	
j. Measure Topic – clinical quality	**Yes**	
k. Measure Topic – patient safety	**No**	
l. Measure Topic – family experience with care	**No**	
m. Measure Topic – care in the most integrated setting	**No**	
n. Measure Topic – other (please specify)	**No**	
o. Population – pregnant women	**No**	
p. Population – neonates (28 days after birth) (specify age range)	**No**	
q. Population – infants (29 days to 1 year) (specify age range)	**No**	
r. Population – pre-school age children (1 year through 5 years) (specify age range)	**Yes**	Ages 2 through 5 years
s. Population – school-age children (6 years through 10 years) (specify age range)	**Yes**	All ages in this range
t. Population – adolescents (11 years through 20 years) (specify age range)	**Yes**	Age 11 through 17 years (i.e., younger than 18 years old)

SECTION V.
EVIDENCE OR OTHER JUSTIFICATION FOR THE FOCUS OF THE MEASURE

The evidence base for the focus of the measures will be made explicit and transparent as part of the public release of CHIPRA deliberations; thus, it is critical for submitters to specify the scientific evidence or other basis for the focus of the measure in the following sections.

V.A. Research Evidence

Research evidence should include a brief description of the evidence base for valid relationship(s) among the structure, process, and/or outcome of health care that is the focus of the measure. For example, evidence exists for the relationship between immunizing a child or adolescent (process of care) and improved outcomes for the child and the public. If sufficient evidence existed for the use of immunization registries in practice or at the State level and the provision of immunizations to children and adolescents, such evidence would support the focus of a measure on immunization registries (a structural measure).

Describe the nature of the evidence, including study design, and provide relevant citations for statements made. Evidence may include rigorous systematic reviews of research literature and high-quality research studies.

This measure focuses on a process (documenting BMI percentile and weight classification in children during an outpatient visit) that, if followed, results in a desirable clinical outcome (assessing a child's risk for health issues based on weight status in order to provide appropriate obesity prevention and/or treatment while following weight status over time). The measure highlights where providers or health systems are falling short in documenting weight status in children according to expert recommendations.

In 2007, the American Academy of Pediatrics (AAP), American Medical Association (AMA), and the CDC collaborated to form an expert committee to update recommendations on the prevention, assessment, and treatment of child and adolescent overweight and obesity. The committee recommended a minimum yearly assessment of weight status for all children, in which weight and height are plotted on standard sex- and age-appropriate growth charts to determine a BMI percentile and weight classification (Barlow, 2007). The link between weight status documentation and health outcomes is indirect. However, in a study of 13 diverse pediatric practices, Dilley et al. found that documentation of weight status was associated with screening and referral for comorbidities (Dilley et al., 2007). Table 5 summarizes several key sources of evidence for this measure, using the US Preventive Services Task Force (USPSTF) rankings (criteria denoted as a note to Table 5).

Table 5: Evidence for Documentation of BMI Percentile and Weight Classification for Children

Type of Evidence	Key Findings	Level of Evidence (USPSTF Ranking*)	Citations
Expert recommendation	In 2007, the AAP, AMA, and CDC collaborated to form an expert committee to update recommendations on the prevention, assessment, and treatment of child and adolescent overweight and obesity. The committee recommended that physicians and allied health care providers perform, at a minimum, a yearly assessment of weight status for all children. This assessment should include calculation of height, weight (measured appropriately), and BMI for age and plotting of those values on standard growth charts (p. 186). Electronic health record programs may be used to calculate BMI values, report percentiles, and automatically plot a child's BMI values over time on a BMI curve. (p. 168) With regard to classification, the expert committee recommends that individuals 2 to 18 years of age with BMI of ≥95th percentile for age and gender or BMI of ≥30 (whichever is smaller) should be considered obese and individuals with BMI of ≥85th percentile but <95th percentile for age and gender should be considered overweight. (p. 186) The committee further recommends the use of the clinical terms overweight and obesity for documentation and risk assessment. (p. 168)	III	Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics* 2007; 120(Suppl 4):S164-192
Consensus statement	The justification of any screening program is to improve important health outcomes with benefits that outweigh inconvenience, cost, and direct risk for those being screened. While firm evidence for the success of any particular prevention strategy is lacking, the consensus committee still recommends that primary care providers screen all children for overweight and obesity. Resources permitting, BMI indicating overweight status would trigger weight management counseling; obesity would prompt screening for comorbidities and appropriate referrals. (p 1879) Recording and graphical plotting of height, weight, BMI, and waist circumference should be done at each visit. (p. 1872)	III	Speiser PW, Rudolf MC, Anhalt H, et al. Childhood obesity. *J Clin Endocrinol Metab* 2005; 90(3):1871-1887

Task force 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. This is a Grade B recommendation: The USPSTF recommends the service. There is moderate certainty that the net benefit is moderate for screening for obesity in children aged 6 years and older and for offering or referring children to moderate- to high-intensity interventions to improve weight status. (p. 362-363) Screening consists of BMI calculated from the weight in kilograms divided by the square of the height in meters. BMI percentile can be plotted on a chart or obtained from online calculators. The definition of overweight is age- and gender-specific BMI at the ≥85th to 94th percentile; obesity is age- and gender-specific BMI at the ≥95th percentile. BMI percentile for age and gender is the preferred measure for detecting overweight in children and adolescents because it is feasible and reliable and because it tracks with adult obesity measures. (p 364) Based on results, patients should be referred to comprehensive moderate- to high-intensity programs that include dietary, physical activity, and behavioral counseling components. (p. 365)	III	US Preventive Services Task Force. Screening for obesity in children and adolescents: US Preventive Services Task Force recommendation statement. *Pediatrics* 2010; 125(2):361-367
Observational study	In a study of 1,216 children, Dilley et al. found that documentation of overweight status increased the chances of overweight children being referred for screening or referral for evaluation of comorbidities. Findings showed that 54% of children identified as overweight in the medical record received screening or referral for evaluation of comorbidities, compared with 17% of overweight children who were not identified as overweight in the medical record.	II	Dilley KJ, Martin LA, Sullivan C, Seshadri R, Binns HJ. Identification of overweight status is associated with higher rates of screening for comorbidities of overweight in pediatric primary care practice. *Pediatrics* 2007; 119(1):e148-155
Scientific statement	Evaluation of obesity begins with the calculation of BMI, which has clinical validity because it correlates with adiposity, adult adiposity, cardiovascular risk, and long-term mortality. No perfect cutpoint exists that identifies all children with elevated body fat. Absolute BMI is an inappropriate screen for children because BMI norms shift with age and sex. Instead, BMI should be plotted on the CDC's percentile curves to identify the appropriate BMI percentile category. (p 2115)	III	Daniels SR, Jacobson MS, McCrindle BW, Eckel RH, McHugh Sanner B. American Heart Association Childhood Obesity Research Summit: Executive Summary. *Circulation* 2009; 119:2114-2123

Scientific statement	According to a scientific statement from the American Heart Association, children <85th percentile with no other health risk factors should be screened (weight, height, and BMI percentile calculated and plotted) every year. (p. 2007)	III	Daniels SR, Arnett DK, Eckel RH, et al. Overweight in children and adolescents: Pathophysiology, consequences, prevention, and treatment. *Circulation;* 2005; 111(15):1999-2012
Task force recommendation	The White House Task Force on Childhood Obesity states there is a critical need for health providers to engage in BMI measurement. The task force recommends that pediatricians be encouraged to routinely calculate children's BMI and provide information to parents about how to help their children achieve a healthy weight. (p. 35) According to the Surgeon General, "people access the health care system through multiple channels, and medical care settings are an important avenue for preventing and controlling overweight and obesity. Clinicians are often the most trusted source of health information and can be powerful role models for healthy lifestyle habits." p. 34	III	White House Task Force on Childhood Obesity. Solving the Problem of Childhood Obesity Within a Generation 2010
HHS recommendation	Improving access to obesity-related services is a priority for the federal government. CMS will reference and encourage states to implement the USPSTF recommendations on prevention and treatment of obesity, including guidance that health care providers use age- and sex-specific BMI to screen for obesity and refer patients to comprehensive, intensive behavioral interventions to promote improvements in weight status. The increasing prevalence of BMI among children makes it important that attention be given to assure that screening and services are provided to children when medically necessary. CMS guidance will encourage States to remind providers to include diet and exercise advice in the comprehensive well-child examinations. The Affordable Care Act includes a range of provisions that will help promote obesity-related preventive efforts and coverage. (pp 8-10)	III	Report to Congress. Preventive and Obesity-Related Services Available to Medicaid Enrollees. Kathleen Sebelius. Secretary of Health and Human Services; 2010, pp 1-13

Note: *USPSTF criteria for assessing evidence at the individual study level are as follows: I) Properly powered and conducted randomized controlled trial (RCT); well-conducted systematic review or meta-analysis of homogeneous RCTs. II) Well-designed cohort or case-control analytic study. III) Opinions of respected authorities, based on clinical experience; descriptive studies or case reports; reports of expert committees.*

V.B. Clinical or Other Rationale Supporting the Focus of the Measure (optional)

Provide documentation of the clinical or other rationale for the focus of this measure, including citations as appropriate and available.

SECTION VI.
SCIENTIFIC SOUNDNESS OF THE MEASURE

Explain the methods used to determine the scientific soundness of the measure itself. Include results of all tests of validity and reliability, including description(s) of the study sample(s) and methods used to arrive at the results. Note how characteristics of other data systems, data sources, or eligible populations may affect reliability and validity.

VI.A. Reliability

Reliability of the measure is the extent to which the measure results are reproducible when conditions remain the same. The method for establishing the reliability of a measure will depend on the type of measure, data source, and other factors. Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., the Kappa statistic). Provide appropriate citations to justify methods.

This measure is based on medical record data. Reliability testing is described below.

Data and Methods

Our testing data were obtained through an audit of medical records maintained by HealthCore, Inc. HealthCore is an independent subsidiary of Anthem, Inc., the largest health benefits company/insurer in the United States. HealthCore owns and operates the HealthCore Integrated Research Database (HIRD), a longitudinal database of medical and pharmacy claims and enrollment information for members from 14 geographically diverse Blue Cross and/or Blue Shield Health Plans in the Northeast, South, West, and Central regions of the United States, with members living in all 50 states. In total, the HIRD includes approximately 59 million individuals between January 2006 and June 2014.

More than 12 million members were enrolled at some point during the 2013 measurement year for this study, among which 2.3 million were aged 2-18 years old. There were 637,100 children aged 2-18 years old with a routine outpatient encounter in 2013 who were currently enrolled and were fully insured. This group was narrowed to a subset who had a provider with a specialty of pediatric medicine or general practice/family practice (451,003). One child per family was then randomly selected, resulting in 293,741 eligible children from all 50 states, as well as the District of Columbia and territories such as Puerto Rico and the Virgin Islands.

A simple random sample (SRS) was used to select 27,000 candidates for a parent survey, of which 26,569 (98%) had valid contact information. From this group, a total of 1,580 parent surveys were completed, of which 402 parents reported that their eligible child had a BMI $\geq 85^{th}$ percentile. Additionally, an independent SRS of 750 candidates was selected to provide additional cases for medical record abstraction to ensure the study goal for abstracted charts would be achieved; 722 children from this group had valid contact information. Combining these two groups, medical records were requested for review for 1,124 (402+722) children. In total, 600 medical records were reviewed and abstracted.

Once subjects were identified, patient medical records were requested from provider offices and health care facilities; these records were sent to a centralized location for data abstraction. Trained nurse or pharmacist medical record abstractors collected and entered information from paper copies of the medical records into a password-protected database. To help ensure consistency of data collection, the medical record abstractors were trained on the study's design and presented with a standardized data collection form designed to minimize the need to make subjective judgments during the abstraction process. In addition, data entered onto a scanner form and subsequently scanned was reviewed through a series of quality checks.

Reliability of medical record data was determined through re-abstraction of patient record data to calculate the inter-rater reliability (IRR). Broadly, IRR is the extent to which the abstracted information is collected in a consistent manner. Low IRR may be a sign of poorly executed abstraction procedures, such as ambiguous wording in the data collection tool, inadequate abstractor training, or abstractor fatigue. For this measure, the medical record data collected by two abstractors was individually compared with the data obtained by a senior abstractor to gauge the IRR for each abstractor. Any differences were remedied by review of the chart. IRR was determined by calculating both percent agreement and Cohen's Kappa statistic.

Results

Data were abstracted from the medical records of 600 children meeting denominator criteria for this measure. Of these, 59 records (10%) from the two abstractors were reviewed for IRR. Agreement was assessed for four measure variables: documentation of BMI percentile, documentation of weight classification, documentation of height, and documentation of weight (necessary to calculate BMI).

Table 6 shows the percent agreement and Kappa statistic for each variable. Abstractor agreement for documentation of BMI percentile was 98% with a Kappa statistic of 0.982; agreement for documentation of weight classification was 93%, with a Kappa statistic of 0.924. Agreement for documentation of height and documentation of weight were both 100%, with Kappa statistics of 1. These results indicate a very high level of IRR was achieved for all measure variables.

Table 6: Agreement and Kappa Statistics for Inter-Rater Reliability

Variable Description	Records Reviewed For IRR (N)	N Agreed (%)	Kappa Statistic
Documentation of BMI percentile	59	58 (98)	0.982
Documentation of weight classification	59	55 (93)	0.924
Documentation of height	59	59 (100)	1
Documentation of weight	59	59 (100)	1

VI.B. Validity

Validity of the measure is the extent to which the measure meaningfully represents the concept being evaluated. The method for establishing the validity of a measure will depend on the type of measure, data source, and other factors. Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., R^2 for concurrent validity). Provide appropriate citations to justify methods.

Face Validity

Face validity is the degree to which the measure construct characterizes the concept being assessed. The face validity of this measure was established by a national panel of experts and advocates for families of children with high BMI convened by Q-METRIC. The Q-METRIC expert panel included nationally recognized experts in childhood obesity, representing pediatrics, nephrology, nutrition and dietetics, endocrinology, gastroenterology, health behavior/education, and family advocacy. In addition, measure validity was considered by experts in state Medicaid program operations, health plan quality measurement, health informatics, and health care quality measurement. In total, the Q-METRIC High BMI Follow-Up panel included 17 experts, providing a comprehensive perspective on childhood obesity and the measurement of quality metrics for states and health plans.

The Q-METRIC expert panel concluded that this measure has a high degree of face validity through a detailed review of concepts and metrics considered to be essential to effective management and treatment of childhood obesity. Concepts and draft measures were rated by this group for their relative importance. This measure was very highly rated, receiving an average score of 8.6 (with 9 as the highest possible score).

Abstracted Medical Record Data

This measure was tested using medical record data. This source is considered the gold standard for clinical information; our findings indicate that these data have a high degree of face validity and reliability. This measure was tested among a total of 600 children ages 2 through 17 years of age with an outpatient care visit during the measurement year (Table 7). Overall, 32.0% of eligible children had documentation of BMI percentile and 36.5% of children had documentation of weight classification in the medical record. A total of 191 children (31.8%) had documentation of both BMI percentile and weight classification in the medical record. In addition, 86.2% had documentation of height and 96.0% had documentation of weight in the medical record.

Table 7: Documentation of BMI Percentile and Weight Classification

Measure	Numerator (N)	Denominator (N)	Proportion (%)
Documentation of BMI Percentile	192	600	32.0%
Documentation of Weight Classification	219	600	36.5%
Documentation of Both BMI Percentile and Weight Classification	191	600	31.8%
Documentation of Height	517	600	86.2%
Documentation of Weight	576	600	96.0%

SECTION VII.
IDENTIFICATION OF DISPARITIES

CHIPRA requires that quality measures be able to identify disparities by race, ethnicity, socioeconomic status, and special health care needs. Thus, we strongly encourage nominators to have tested measures in diverse populations. Such testing provides evidence for assessing measure's performance for disparities identification. In the sections below, describe the results of efforts to demonstrate the capacity of this measure to produce results that can be stratified by the characteristics noted and retain the scientific soundness (reliability and validity) within and across the relevant subgroups.

VII.A. Race/Ethnicity

Recent analyses by Ogden et al. (2014) of data from the 2011-2012 National Health and Nutrition Examination Survey (NHANES) covered many demographic aspects of childhood obesity, including race. Among NHANES participants aged 2 to 19 years old, the prevalence of obesity (BMI≥95th percentile) was highest in Hispanics (22%) compared with non-Hispanic blacks (20%), non-Hispanic whites (14%), and non-Hispanic Asians (9%) (Ogden et al., 2014). This order was consistent among racial and ethnic groups when looked at by sex: Hispanic boys and girls had the highest incidence of obesity (24% and 21%, respectively) compared with non-Hispanic black boys and girls (20% and 21%), white boys and girls (13% and 16%), and Asian boys and girls (12% and 6%). The order also held when considering the broader category of those who were overweight or obese (i.e., having a BMI ≥85th percentile): Hispanic boys and girls had the highest incidence of obesity (41% and 37%, respectively) compared with non-Hispanic black boys and girls (34% and 36%), white boys and girls (28% and 29%), and Asian boys and girls (25% and 14%). In both weight classifications, Hispanic boys had the highest rate of obesity and Asian girls the lowest; for both black and white children, girls tended to have slightly higher rates of excess weight than boys (Ogden et al., 2014).

It is interesting to note that two studies reported better communication regarding the topic of excess weight among children who often receive substandard care. Non-Hispanic black girls were more likely to be told they were overweight compared with non-Hispanic white girls (47% vs. 31%) (Ogden and Tabak, 2005). And notification of overweight status by a doctor or health professional was more likely to occur among Mexican American and other Hispanic children; there was a trend toward increased notification about excess weight to the parents of non-Hispanic black and publicly insured children (Perrin et al., 2012). This is the opposite of most health-related disparities (Perrin et al., 2012).

Census Characteristics

Race and ethnicity were not available from the medical records reviewed for this study. However, the overall race and ethnicity characteristics can be summarized using demographic characteristics based upon ZIP codes of sampled children. This race/ethnicity information was obtained from the 2010 United States Census (US Census Bureau, 2010), which enables characterization of the areas in which sampled children live.

These summary statistics are reported below (Tables 8 and 9) for the following sampled individuals with valid ZIP codes:

1) candidates for the parent survey with non-missing contact information (n=26,569; n=25,961 with valid ZIP codes);
2) an SRS for medical chart abstraction (n=722; n=711 with valid ZIP codes); and
3) a subset of children with reviewed and abstracted medical records (a combination of medical records from the SRS and the parent survey, n=600; n=590 with valid ZIP codes).

Overall, the proportion of residents in specific racial groups was similar in all three groups of sampled children. On average, sampled children reside in ZIP codes reporting primarily white race and approximately 10%-11% of residents within ZIP codes reporting Hispanic ethnicity.

Table 8. Mean (Standard Deviation) Proportion in Racial Groups within ZIP Codes of Residence

	American Indian or Alaska Native	Asian	Black or African American	Native Hawaiian or Other Pacific Islander	White	Mixed Race	Other
Candidates for parent survey (n=25,961)*	0.5 (1)	6.6 (10)	6.4 (11)	0.1 (0.2)	79.0 (17)	2.9 (2)	4.4 (7)
SRS for medical chart abstraction (n=711)**	0.5 (1)	6.2 (9)	6.6 (11)	0.1 (0.2)	79.5 (17)	2.9 (2)	4.3 (7)
Reviewed and abstracted medical charts (n=590)***	0.6 (4)	5.2 (8)	6.1 (10)	0.1 (0.2)	81.3 (16)	2.7 (2)	3.9 (6)

*Among candidates for the parent survey (n=26,569), no information available for 608 members due to missing or unmatched ZIP code, yielding n=25,961

** Among an SRS for medical chart abstraction (n=722), no information available for 11 members due to missing or unmatched ZIP code, yielding n=711

*** Among children with reviewed and abstracted medical records (n=600), no information available for 10 members due to missing or unmatched ZIP code, yielding n=590

Table 9. Mean (Standard Deviation) Proportion Reporting Hispanic Ethnicity within ZIP Codes of Residence

	Hispanic Ethnicity
Candidates for parent survey (n=25,961)*	11.4 (15)
SRS for medical chart abstraction (n=711)**	11.2 (15)
Reviewed and abstracted medical charts (n=590)***	10.1 (15)

*Among candidates for the parent survey (n=26,569), no information available for 608 members due to missing or unmatched ZIP code, yielding n=25,961

** Among an SRS for medical chart abstraction (n=722), no information available for 11 members due to missing or unmatched ZIP code, yielding n=711

*** Among children with reviewed and abstracted medical records (n=600), no information available for 10 members due to missing or unmatched ZIP code, yielding n=590

VII.B. Special Health Care Needs

The medical records data abstracted for this study does not include indicators of special health care needs.

VII.C. Socioeconomic Status

Findings have varied regarding the relationship between socioeconomic status and excess weight. In 2003, Gordon-Larsen et al. reported that in adolescents (ages 12 to 20 years) overweight prevalence decreased among white girls as their socioeconomic status increased, while the reverse was true for African American girls. Higher socioeconomic status was associated with elevated and/or increasing BMI in African American adolescent girls. The authors suggest that efforts to reduce disparities regarding excess weight between ethnic groups must look beyond income and education to consider environmental, contextual, biological, and socio-cultural influences (Gordon-Larsen et al., 2003). More recent findings by Miech et al. (2006) produced different results when dividing adolescents into two age groups (12- to 14-year olds and 15- to 17-year olds). Trends of increasing overweight showed a greater effect among families living below the poverty line compared with those above it for older but not younger adolescents. Additional analyses suggested that physical inactivity and eating habits such as skipping breakfast and consuming sugary drinks contributed to disparities. The authors reason that there is a unique association in later adolescence between poverty and overweight because food choices and activity levels at this age differ considerably from those of early childhood and adulthood. Older adolescents have opportunities and discretionary income to make their own choices regarding food and activities (Miech et al., 2006).

Census Characteristics

Socioeconomic status was not available from the medical records reviewed for this study. However, the overall median household income can be summarized based upon the overall characteristics of the ZIP codes of sampled children. This information was obtained from the 2011 American Community Survey (ACS) (US Census Bureau, 2013), which enables characterization of the areas in which sampled children live.

The summary statistics for median household income are reported below (Table 10) for the following sampled individuals with valid ZIP codes:

1) candidates for the parent survey with non-missing contact information (n=26,569; n=25,961 with valid ZIP codes);
2) an SRS for medical chart abstraction (n=722; n=711 with valid ZIP codes); and
3) a subset of children with reviewed and abstracted medical records (a combination of medical records from the SRS and the parent survey, n=600; n=590 with valid ZIP codes).

Overall, median household income at the ZIP code level was similar among the candidates for the parent survey and the SRS for medical chart abstraction ($71,418); the median household income for the subset with reviewed and abstracted medical charts was slightly lower at $66,679.

Table 10. Median Household Income within ZIP Codes of Residence

Description	Mean	SD	Min	25th Percentile	Median	75th Percentile	Max
Candidates for parent survey (n=25,961)*	$71,418	$28,320	$9,487	$50,794	$66,624	$86,364	$234,932
SRS for medical chart abstraction (n=711)**	$71,019	$28,306	$17,058	$49,629	$65,980	$87,680	$213,423
Reviewed and abstracted medical charts (n=590)***	$66,679	$26,831	$17,058	$46,729	$62,237	$80,157	$213,423

*Among candidates for the parent survey (n=26,569), no information available for 608 members due to missing or unmatched ZIP code, yielding n=25,961

** Among an SRS for medical chart abstraction (n=722), no information available for 11 members due to missing or unmatched ZIP code, yielding n=711

*** Among children with reviewed and abstracted medical records (n=600), no information available for 10 members due to missing or unmatched ZIP code, yielding n=590

VII.D. Rurality/Urbanicity

Census Characteristics

Urbanicity was not available from the medical records reviewed for this study. However, urbanicity can be summarized based upon the overall characteristics of the ZIP codes of sampled children. This information was obtained from the 2010 United States Census (US Census Bureau, 2010), which enables characterization of the areas in which sampled children live.

The summary statistics for urbanicity are reported below (Table 11) for the following sampled individuals with valid ZIP codes:

1) candidates for the parent survey with non-missing contact information (n=26,569; n=25,961 with valid ZIP codes);
2) an SRS for medical chart abstraction (n=722; n=711 with valid ZIP codes); and
3) a subset of children with reviewed and abstracted medical records (a combination of medical records from the SRS and the parent survey, n=600; n=590 with valid ZIP codes).

Overall, the ZIP codes of the candidates for the parent survey and the ZIP codes for the SRS for medical chart abstraction were largely categorized as being urban (80.4%); the subset with reviewed and abstracted medical charts resided in ZIP codes categorized as urban to a lesser degree (76.7%).

Table 11. Proportion of ZIP Codes Categorized as Urban

Description	Mean	SD	Min	25th Percentile	Median	75th Percentile	Max
Candidates for parent survey (n=25,961)*	80.4	31.0	0	73.7	97.0	100	100
SRS for medical chart abstraction (n=711)**	80.4	31.0	0	74.0	96.9	100	100
Reviewed and abstracted medical charts (n=590)***	76.7	33.7	0	66.1	95.7	100	100

*Among candidates for the parent survey (n=26,569), no information available for 608 members due to missing or unmatched ZIP code, yielding n=25,961

** Among an SRS for medical chart abstraction (n=722), no information available for 11 members due to missing or unmatched ZIP code, yielding n=711

*** Among children with reviewed and abstracted medical records (n=600), no information available for 10 members due to missing or unmatched ZIP code, yielding n=590

VII.E. Limited English Proficiency (LEP) Populations

The medical records data abstracted for this study did not include indicators of LEP.

References for Section VII

Gordon-Larsen P, Adair LS, Popkin BM. The relationship of ethnicity, socioeconomic factors, and overweight in U.S. adolescents. *Obes Res* 2003; 11(1):121-129.

Miech RA, Kumanyika SK, Stettler N, Link BG, Phelan JC, Chang VW. Trends in the association of poverty with overweight among US adolescents, 1971-2004. *JAMA* 2006; 295(20):2385-2393.

Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA* 2014; 311(8):806-814.

Ogden CL, Tabak CJ. Children and teens told by doctors that they were overweight — United States, 1999-2002. *MMWR* 2005; 54(34):848-849.

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US Census Bureau. 2011 American Community Survey (ACS). http://www.census.gov/acs/www/data_documentation/2011_release. Published January 29, 2013. Accessed March 9, 2015.

US Census Bureau. 2010 United States Census. http://www.census.gov/2010census/. Published December 21, 2010. Accessed March 9, 2015.

SECTION VIII.
FEASIBILITY

Feasibility is the extent to which the data required for the measure are readily available, retrievable without undue burden, and can be implemented for performance measurement.[5] Using the following sections, explain the methods used to determine the feasibility of implementing the measure.

VIII.A. Data Availability

VIII.A.1. What is the availability of data in existing data systems? How readily are the data available?

As noted within the Reliability section of this report, our testing data consisted of an audit of medical records acquired by HealthCore, Inc., which maintains the HealthCore Integrated Research Database (HIRD). This longitudinal database contains medical and pharmacy claims and enrollment information for members from 14 geographically diverse Blue Cross and/or Blue Shield Health Plans, with members living in all 50 states. The HIRD includes approximately 59 million individuals between January 2006 and June 2014.

More than 12 million members were enrolled at some point during the 2013 measurement year that was used for this study, among which 2.3 million were aged 2-18 years. The sample began with 1,048,559 children aged 2-18 years with a routine outpatient encounter in 2013. This group was subsequently narrowed as described in the Reliability section of this report.

This measure was tested among a total of 600 children ages 2 through 17 years of age with an outpatient care visit during the measurement year (See Table 7). Overall, 32.0% of eligible children had documentation of BMI percentile and 36.5% of children had documentation of weight classification in the medical record. A total of 191 children (31.8%) had documentation of both BMI percentile and weight classification in the medical record. In addition, 86.2% had documentation of height and 96.0% had documentation of weight in the medical record.

Data abstraction was completed by experienced medical record abstractors who were trained on the study's design and presented with a standardized data collection form. In addition to the specific data values required for this measure, key patient characteristics, such as date of birth and sex, were also obtained.

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[5] The definition is adapted from: Centers for Medicare & Medicaid Services Quality Measurement and Health Assessment Group glossary, as part of the Measures Management System Measure Development Overview. Available at: http://www.cms.gov/MMS/19_MeasuresManagementSystemBlueprint.asp#TopOfPage. Accessed February 6, 2012.

Abstraction Times

In addition to calculating IRR, the study team assessed how burdensome it was to locate and document the information used to test this measure by having abstractors note the time it took to complete each record. On average, the abstractors spent 10 minutes per record abstracting the data for this measure.

VIII.A.2. If data are not available in existing data systems or would be better collected from future data systems, what is the potential for modifying current data systems or creating new data systems to enhance the feasibility of the measure and facilitate implementation?

Not applicable

VIII.B. Lessons from Use of the Measure

VIII.B.1. Describe the extent to which the measure has been used or is in use, including the types of settings in which it has been used, and purposes for which it has been used.

Not applicable

VIII.B.2. If the measure has been used or is in use, what methods, if any, have already been used to collect data for this measure?

Not applicable

VIII.B.3. What lessons are available from the current or prior use of the measure?

Not applicable

SECTION IX.
LEVELS OF AGGREGATION

CHIPRA states that data used in quality measures must be collected and reported in a standard format that permits comparison (at minimum) at State, health plan, and provider levels. Use the following table to provide information about this measure's use for reporting at the levels of aggregation in the table.

For the purpose of this section, please refer to the definitions for provider, practice site, medical group, and network in Section XVI. Glossary of Terms.

If there is no information about whether the measure could be meaningfully reported at a specific level of aggregation, please write "Not available" in the text field before progressing to the next section. Table IX-1 shows the questions (in columns) about the measure's use at different levels of aggregation for quality reporting (in rows) included in the CHIPRA PQMP Candidate Measure Submission Form (CPCF).

Table IX-1. Questions about the measure's use at different levels of aggregation for quality reporting

Level of aggregation (Unit) for reporting on the quality of care for children covered by Medicaid/CHIP†	**Intended use: Is measure intended to support meaningful comparisons at this level? (Yes/No)**	**Data Sources: Are data sources available to support reporting at this level?**	**Sample Size: What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**	**In Use: Have measure results been reported at this level previously?**	**Reliability & Validity: Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**	**Unintended consequences: What are the potential unintended consequences of reporting at this level of aggregation?**
State level*: Can compare States	☐Yes ☒No	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Other geographic level: Can compare other geographic regions (e.g., MSA, HRR)	☐Yes ☒No	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Medicaid or CHIP Payment model: Can compare payment models (e.g., managed care, primary care case management, FFS, and other models)	☐Yes ☒No	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Health plan*: Can compare quality of care among health plans.	☒Yes ☐No	This measure requires medical record abstraction; medical records are maintained by all health services providers.	This measure has not been tested at the health plan level and consequently, the minimum number of providers per plan has not been determined.	Not available	Not available	Not available
Provider-level* Individual practitioner: Can compare individual health care professionals	☒Yes ☐No	This measure requires medical record abstraction; medical records are maintained by all health services providers.	Availability of medical records meeting inclusion criteria will vary by practice, but require that providers furnish services to children. A minimum of 30 abstracted charts is recommended.	Not available	Not available	Not available
Hospital: Can compare hospitals	☐Yes ☒No	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Level of aggregation (Unit) for reporting on the quality of care for children covered by Medicaid/CHIP[†]	**Intended use:** Is measure intended to support meaningful comparisons at this level? (Yes/No)	**Data Sources:** Are data sources available to support reporting at this level?	**Sample Size:** What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?	**In Use:** Have measure results been reported at this level previously?	**Reliability & Validity:** Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?	**Unintended consequences:** What are the potential unintended consequences of reporting at this level of aggregation?
Practice, group, or facility:** Can compare: (i) practice sites; (ii) medical or other professional groups; or (iii) integrated or other delivery networks	☒Yes ☐No	This measure requires medical record abstraction; medical records are maintained by all health services providers.	This measure has not been tested at the practice level and consequently, the minimum number of providers per practice site has not been determined.	Not available	Not available	Not available

[†] There could be other levels of reporting that could be of interest to Medicaid agencies such as markets and referral regions.

* Required in CHIPRA legislation.

** There is no implication that measures that are applicable at one level are automatically applicable at all three of the levels listed in this row.

SECTION X.
UNDERSTANDABILITY

CHIPRA states that the core set should allow purchasers, families, and health care providers to understand the quality of care for children. Please describe the usefulness of this measure toward achieving this goal. Describe efforts to assess the understandability of this measure (e.g., focus group testing with stakeholders).

This measure provides families with a straightforward means to assess how well basic levels of comprehensive care are being provided for children in regard to assessing weight status by documenting BMI percentile and weight classification. Low rates for the provision of care are easily understood to be unsatisfactory. The simplicity of the measure likewise makes it a straightforward guide for providers and purchasers to assess how well comprehensive care is provided to children in order to assess, prevent, and treat overweight and obesity.

This measure has not been assessed for comprehension. The primary information needed for this measure comes from medical record data and includes basic demographics, weight classification, diagnostic codes, procedure codes, and dates of services, all of which are widely available.

SECTION XI.
HEALTH INFORMATION TECHNOLOGY

Please respond to the following questions in terms of any health information technology (health IT) that has been or could be incorporated into the calculation of the measure.

XI.A. Health IT Enhancement

Please describe how health IT may enhance the use of this measure.

This is a complex measure that will require data from a number of potential sources in the electronic health record (EHR), depending on the practice workflow. EHRs can alert providers to the need to capture height and weight at each visit, which are essential components of BMI percentile calculation. In addition, Health information technology (IT) can be used to provide alerts to all practice staff at workflow-appropriate timings, once these measures are obtained. For example, communication about weight classification might be an alert the provider receives before signing a note. Similarly, a prompt to record a blood pressure might be provided to a nurse on a dashboard that he or she sees before discharging the patient in order to foster more complete information being recorded at each patient visit.

Electronic health tools offer benefits for addressing overweight and obesity: more complete and accurate data with fewer errors, cost-effectiveness, use of online assessment tools, ease of sharing data, more security, elimination of paper document storage, and shorter time for analysis. Disadvantages include providers transitioning to new data collection workflows, cost, logistics, and intellectual property concerns (Daniels et al., 2009).

XI.B. Health IT Testing

Has the measure been tested as part of an electronic health record (EHR) or other health IT system?

No

If so, in what health IT system was it tested and what were the results of testing?

Not applicable

XI.C. Health IT Workflow

Please describe how the information needed to calculate the measure may be captured as part of routine clinical or administrative workflow.

These measures will require the aggregation of data collected and stored in various locations in the EHR, by various stakeholders, and likely using variable ways to represent work. For example, documentation of weight classification requires the child's age in months (under age 36 months) or years, so that one of the terms listed (e.g., normal weight) can be looked for—including all abbreviations—in nursing notes, physician notes, and technician notes. Other ways to classify weight, such as BMI percentile, will likely be found in the vital signs. Over the age of 16 years, the data might be found in the vital signs or in the documentation sections of the record.

XI.D. Health IT Standards

Are the data elements in this measure supported explicitly by the Office of the National Coordinator for Health IT Standards and Certification criteria (see: http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__standards_ifr/1195)?

Yes

If yes, please describe.

The ONC's Health IT Standards explicitly address the recording of vital signs such as height, weight, and BMI into EHRs, which are directly relevant to this measure. The ONC standards include the following specific requirements in the Certification criteria (Federal Register, 2010) pertaining to Stage 2 Meaningful Use requirements:

1. Enable a user to electronically record, modify, and retrieve a patient's vital signs including, at a minimum, the height, weight, blood pressure, temperature, and pulse.
2. Automatically calculate and display BMI based on a plot and display patient's height and weight.
3. Plot and electronically display, upon request, growth charts (height, weight, and BMI) for patients 2-20 years old.

XI.E. Health IT Calculation

Please assess the likelihood that missing or ambiguous information will lead to calculation errors.

Missing or ambiguous information in the following areas could lead to missing cases or calculation errors:

1. Child's date of birth
2. Date and time of treatment
3. Codes selected to identify obesity or abnormal weight gain
4. BMI percentile or score
5. Weight classification based on BMI percentile or score
6. Choice of CPT, HCPCS, or ICD-9 CM diagnosis codes to identify outpatient care visits

XI.F. Health IT Other Functions

If the measure is implemented in an EHR or other health IT system, how might implementation of other health IT functions (e.g., computerized decision support systems in an EHR) enhance performance on the measure?

Performance on this measure could benefit from a number of health IT integration steps:

- Documentation templates filled out by providers (or potentially by scribes, in communication with providers during the visit) could improve provider behavior with respect to these issues during the visit.
- Documentation templates created in specialty clinics could help with missed opportunities to provide this counseling in emergency departments, other clinic visits, home visits, or through patient-initiated contact with the health system via a patient portal or personal health application.
- Active decision support before, during, or after the visit could prompt providers or patients about these issues.
- EHRs could generate triggers to providers to document more carefully.

References for Section XI

Daniels SR, Jacobson MS, McCrindle BW, Eckel RH, McHugh Sanner B. American Heart Association Childhood Obesity Research Summit: Executive Summary. *Circulation* 2009; 119:2114-2123.

Health information technology: Initial set of standards, implementation specifications, and certification criteria for electronic health record technology. *Fed Regist* 2010; 75(8): 2013-2047.

SECTION XII.
LIMITATIONS OF THE MEASURE

Describe any limitations of the measure related to the attributes included in this CPCF (i.e., availability of measure specifications, importance of the measure, evidence for the focus of the measure, scientific soundness of the measure, identification of disparities, feasibility, levels of aggregation, understandability, health information technology).

This measure assesses the percentage of children, ages 2 through 17 years old, who had documentation of BMI percentile and weight classification at an outpatient care visit during the measurement year. BMI is a measure of weight for height, and is calculated by dividing weight by height squared. BMI percentile for children is calculated based on the age and sex of the child and is a screening criterion used to identify children and adolescents who are underweight, normal weight, or who have excess weight (further categorized as being overweight or obese). Tracking BMI percentile allows providers to assess a child's weight status and weight trajectory over time and to monitor children who have abnormal BMI percentiles and weight classification. A higher percentage of documentation of BMI percentile and weight classification indicates better performance.

This measure was developed with the use of medical record data. The testing results reported here required the development of an abstraction tool and use of qualified medical record abstractors. Information needed for this measure includes demographics, date of birth, diagnosis codes, height, weight, and free text documentation in the note from the clinician. Our findings indicate that these data are generally available.

However, we observed some limitations. Height and/or weight were sometimes missing from the chart, and there could be substantial variation in how providers document/describe their assessment. In future implementation, the use of data from electronic medical records may ease the burden of data collection.

SECTION XIII.
SUMMARY STATEMENT

Provide a summary rationale for why the measure should be selected for use, taking into account a balance among desirable attributes and limitations of the measure. Highlight specific advantages that this measure has over alternative measures on the same topic that were considered by the measure developer or specific advantages that this measure has over existing measures. If there is any information about this measure that is important for the review process but has not been addressed above, include it here.

This measure, *Documentation of BMI Percentile and Weight Classification for Children,* assesses the percentage of children, ages 2 through 17 years old, who had documentation of BMI percentile and weight classification at an outpatient care visit during the measurement year. BMI percentile for children is calculated based on the age and sex of the child, and is a screening tool used to identify children and adolescents who are underweight, normal weight, or who have excess weight (further classified as being overweight or obese). Tracking BMI percentile allows providers to assess a child's weight status and weight trajectory over time and to monitor children who have abnormal BMI percentiles. A higher percentage of documentation of BMI percentile and weight classification indicates better performance. This measure was tested using medical record data. While similar measures exist, this measure lowers the age range of patients for consideration and measures rates of documentation for both calculation of BMI percentile (not simply measurement of BMI) and assignment of an appropriate weight classification upon which subsequent treatment will be based.

Nearly a third of young children and adolescents in the United States are either overweight or obese. This situation is of pressing concern, given the association between obesity in children and a broad spectrum of serious health issues. Health risks and body fat levels are proportionate; the use of BMI as a screening tool can identify concerns and prompt further assessment of clinical information, thus guiding treatment of specific conditions. However, a significant performance gap exists in provider documentation of BMI percentile and weight classification; current practice levels lag far behind the yearly assessments recommended by national guidelines. Contributing factors include lack of time, resources, awareness, effective guidance, and reimbursement.

Data were abstracted from the medical records of 600 children meeting denominator criteria for this measure. Overall, 32.0% of eligible children had documentation of BMI percentile and 36.5% of children had documentation of weight classification in the medical record. A total of 191 children (31.8%) had documentation of both BMI percentile and weight classification in the medical record. In addition, 86.2% had documentation of height and 96.0% had documentation of weight in the medical record. Limitations for this measure include missing chart values for height and/or weight, as well as substantial variation in how providers document/describe their assessment.

This measure provides families with a straightforward means to assess how well basic levels of comprehensive care are being provided for children in regard to assessing weight status by documenting BMI percentile and weight classification. The primary information needed for this measure includes basic demographics, dates of services, BMI percentiles or BMI score (for ages 16-17

years), diagnostic codes, and procedure codes, all of which are widely available. Continuing advances in the development and implementation of health information technology may establish the feasibility of regularly implementing this measure with data supplied by electronic medical records.

SECTION XIV.

IDENTIFYING INFORMATION FOR THE MEASURE SUBMITTER

Complete information about the person submitting the material, including the following:

a. Gary L. Freed, MD, MPH
b. Percy and Mary Murphy Professor of Pediatrics, School of Medicine; Professor of Health Management and Policy, School of Public Health
c. University of Michigan
d. 300 North Ingalls, Room 6E08, Ann Arbor, MI 48109
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g. Signed written statement guaranteeing that all aspects of the measure will be publicly available, as defined in the Public Disclosure Requirements.

Public Disclosure Requirements

Each submission must include a written statement agreeing that, should U.S. Department of Health and Human Services accept the measure for the 2014 and/or 2015 Improved Core Measure Sets, full measure specifications for the accepted measure will be subject to public disclosure (e.g., on the Agency for Healthcare Research and Quality [AHRQ] and/or Centers for Medicare & Medicaid Services [CMS] websites), except that potential measure users will not be permitted to use the measure for commercial use. In addition, AHRQ expects that measures and full measure specifications will be made reasonably available to all interested parties. “Full measure specifications” is defined as all information that any potential measure implementer will need to use and analyze the measure, including use and analysis within an electronic health record or other health information technology. As used herein, “commercial use” refers to any sale, license or distribution of a measure for commercial gain, or incorporation of a measure into any product or service that is sold, licensed or distributed for commercial gain, even if there is no actual charge for inclusion of the measure. This statement must be signed by an individual authorized to act for any holder of copyright on each submitted measure or instrument. The authority of the signatory to provide such authorization should be described in the letter (Section XIV: Identifying Information for the Measure Submitter).

This work was funded by the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare & Medicaid Services (CMS) under the CHIPRA Pediatric Quality Measures Program Centers of Excellence grant number U18 HS020516. AHRQ, in accordance to CHIPRA 42 U.S.C. Section 1139A(b), and consistent with AHRQ's mandate to disseminate research results, 42 U.S.C. Section 299c-3, has a worldwide irrevocable license to use and permit others to use products and materials from the grant for government purposes, which may include making the materials available for verification or replication by other researchers and making them available to the health care community and the public, if such distribution would significantly increase access to a product and thereby produce substantial or valuable public health benefits.

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High BMI Follow-Up

Measure 1: Documentation of BMI Percentile and Weight Classification for Children

Description

The percentage of children, ages 2 through 17 years old, who had documentation of BMI percentile and documentation of weight classification at an outpatient care visit during the measurement year. A higher proportion indicates better performance.

Calculation

This measure requires medical record data and is calculated as two individual rates:

1. The percentage of eligible children who had documentation of BMI percentile (percentile numerator divided by denominator).

2. The percentage of children who had documentation of weight classification (classification numerator divided by denominator).

Definitions

Intake period	January 1 to December 31 of the measurement year.
BMI percentile	The percentile ranking based on the BMI-for-age growth charts, which indicates the relative position of the patient's BMI number among others of the same gender and age.
BMI Percentile Documentation	Written documentation of BMI percentile in the chart, documentation of BMI percentile in the chart as calculated by the EHR (electronic health record), or BMI percentile plotted on a BMI for age and sex growth chart. For children ≥16 years of age, BMI score is sufficient.
Weight Classification based on BMI percentile or score	Using BMI percentile, children 2 through 17 years of age can be classified into categories as shown in Table 1-A. See Table 1-B for categories based on BMI score; this table can only be utilized for children 16 or 17 years of age.
Weight Classification Documentation	Written documentation of BMI percentile, from the medical record. Documentation in the medical record must include at least one classification from any of the lists below: "Underweight". "Overweight", "Obese" OR "Normal weight", "healthy weight", "abnormal weight", "Unhealthy weight" OR "BMI <5th percentile", "BMI 5th through 84th percentile", "BMI 85th through 94th percentile," "BMI ≥95th percentile" OR "BMI score <18.5," "≥18.5 and less than 25," "≥25 and less than 30," "≥30" (for children 16 and 17 years of age only).

For medical records, acceptable documentation consists of ICD-9 codes for "obesity" or "abnormal weight gain" (see Table 1-C).

Outpatient care A Health Maintenance Exam (HME) or an Evaluation and Management (E&M) visit with primary care provider or a specialist (see Table 1-D).

Table 1-A: Weight Classification Based on BMI Percentile (Children 2 through 17 Years of Age)

Classification	Percentile
Underweight	<5th percentile
Normal weight	5th to 84th percentile
Overweight	85th to 94th percentile
Obese	≥95th percentile

Table 1-B: Weight Classification Based on BMI Score (Children 16 or 17 Years of Age Only)

Classification	BMI score
Underweight	<18.5
Normal weight	≥18.5 and <25
Overweight	≥25 and <30
Obese	≥30

Table 1-C: ICD-9 Codes for Obesity or Abnormal Weight Gain

Description	Code
Morbid obesity	278.01
Obesity, unspecified	278.00
Obesity of endocrine origin NOS	259.9
Abnormal weight gain	783.1
Obesity	V77.8

Table 1-D: Codes to Identify Ambulatory or Preventive Care Visits

Description	CPT	HCPCS	ICD-9-CM Diagnosis
Office or other outpatient services	99201-99205, 99211-99215, 99241-99245		
Preventive medicine	99381-99385, 99391-99395, 99401-99404, 99411-99412, 99420, 99429	G0438, G0439	
General medical examination			V20.2, V70.0, V70.3, V70.5, V70.6, V70.8, V70.9

Eligible Population

The determination of eligible population for this measure requires medical record data.

Ages 2 through 17 years of age. The eligibility period begins with the second birthday and ends the day before the 18th birthday.

Event/Diagnosis An outpatient care visit.

Specification

Denominator Eligible children with an outpatient care visit.

Numerators

Percentile Eligible children with an outpatient care visit and documentation of BMI percentile in the chart. Note: Documentation of BMI, weight, height, weight percentile, or height percentile alone is not sufficient to qualify as a numerator event. BMI score qualifies if child is 16 or 17 years of age.

Classification Eligible children with an outpatient care visit and documentation of weight classification in the chart. Note: Documentation of BMI, BMI percentile, weight, height, weight percentile, or height percentile alone is not sufficient to qualify as a numerator event.

Exclusions

- Inpatient stays, emergency department visits, urgent care visits
- A diagnosis of pregnancy during the measurement year.