

SECTION I. BASIC MEASURE INFORMATION

I.A. Measure Name

Access to Outpatient Specialty Care for Children

I.B. Measure Number (auto-generated)

Clark SJ, Riebschleger MP, Cohn LM, Dong S, Madden BW, Nelson S, Young KA, Dombkowski KJ for the Quality Measurement, Evaluation, Testing, Review, and Implementation Consortium. Access to outpatient specialty care for children. National Quality Measures Clearinghouse (NQMC). Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). Published July 20, 2015. National Quality Measures Clearinghouse (NQMC). Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). Published April 4, 2016.

I.C. Measure Description

This measure assesses the respective rates of participating cardiologists, dermatologists, endocrinologists, gastroenterologists, hematologists/oncologists, nephrologists, neurologists, otolaryngologists, pulmonologists, and rheumatologists who have seen at least one enrolled child in the measurement year for at least one outpatient visit. This rate will be expressed in terms of 1,000 eligible children (number of providers/1,000 eligible children), where the eligible population includes children younger than 18 years of age who have been enrolled in a Medicaid program or health plan that includes outpatient specialty care for at least one 90-day period (or 3 consecutive months) within the measurement year. Specialists are identified by specific taxonomy codes, as outlined in the numerator statement below. This measure is implemented with administrative claims data and is calculated as 10 rates:

- 1) The number of cardiologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 2) The number of dermatologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 3) The number of endocrinologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 4) The number of gastroenterologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 5) The number of hematologists/oncologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 6) The number of nephrologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 7) The number of neurologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 8) The number of otolaryngologists who have provided any outpatient care to at least one child, per 1,000 eligible children.

- 9) The number of pulmonologists who have provided any outpatient care to at least one child, per 1,000 eligible children.
- 10) The number of rheumatologists who have provided any outpatient care to at least one child, per 1,000 eligible children.

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 Availability of Specialty Services 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 populations for the numerators are:

- 1) The number of cardiologists who have provided any outpatient care to at least one enrolled child.
- 2) The number of dermatologists who have provided any outpatient care to at least one enrolled child.
- 3) The number of endocrinologists who have provided any outpatient care to at least one enrolled child.
- 4) The number of gastroenterologists who have provided any outpatient care to at least one enrolled child.
- 5) The number of hematologists/oncologists who have provided any outpatient care to at least one enrolled child.
- 6) The number of nephrologists who have provided any outpatient care to at least one enrolled child.
- 7) The number of neurologists who have provided any outpatient care to at least one enrolled child.
- 8) The number of otolaryngologists who have provided any outpatient care to at least one enrolled child.
- 9) The number of pulmonologists who have provided any outpatient care to at least one enrolled child.
- 10) The number of rheumatologists who have provided any outpatient care to at least one enrolled child.

These specialist physicians are identified using taxonomy codes (Table 1) linked to a National Provider Identifier (NPI) with the National Plan & Provider Enumeration System (NPPES) registry (NPPES, 2015). Only individual physicians are included as eligible providers.

Table 1: Taxonomy Codes by Specialty

Specialty		Taxonomy Code
Cardiology	Cardiovascular Disease	207RC0000X
	Interventional Cardiology	207RI0011X
	Pediatric Cardiology	2080P0202X
Dermatology	Dermatology	207N00000X
	MOHS-Micrographic Surgery	207ND0101X
	Dermatopathology	207ND0900X
	Clinical & Laboratory Dermatological Immunology	207NI0002X
	Pediatric Dermatology	207NP0225X
	Procedural Dermatology	207NS0135X
Endocrinology	Endocrinology, Diabetes and Metabolism	207RE0101X
	Pediatric Endocrinology	2080P0205X

Gastroenterology	Gastroenterology	207RG0100X
	Pediatric Gastroenterology	2080P0206X
Hematology/Oncology	Hematology	207RH0000X
	Hematology and Oncology	207RH0003X
	Pediatric Hematology-Oncology	2080P0207X
	Medical Oncology	207RX0202X
Nephrology	Nephrology	207RN0300X
	Pediatric Nephrology	2080P0210X
Neurology	Behavioral Neurology and Neuropsychiatry	2084B0040X
	Neuromuscular Medicine	2084N0008X
	Neurology	2084N0400X
	Neurology with Special Qualifications in Child Neurology	2084N0402X
	Clinical Neurophysiology	2084N0600X
	Neurodevelopmental Disabilities	2084P0005X
	Vascular Neurology	2084V0102X
Otolaryngology	Otolaryngology	207Y00000X
	Pediatric Otolaryngology	207YP0228X
	Facial Plastic Surgery	207YS0123X
	Plastic Surgery within the Head and Neck	207YX0007X
	Otolaryngic Allergy	207YX0602X
	Otology and Neurotology	207YX0901X
	Otolaryngology/Facial Plastic Surgery	207YX0905X
Pulmonology	Pulmonary Disease	207RP1001X
	Pediatric Pulmonology	2080P0214X
Rheumatology	Rheumatology	207RR0500X
	Pediatric Rheumatology	2080P0216X

For this measure, outpatient care is defined as any visit within the measurement year to a facility with a Place of Service code listed in Table 2. The outpatient visit must be with a child enrolled in a Medicaid program or health plan, without regard to duration of enrollment.

Table 2: Place of Service Codes

Place of Service	Code
School	03
Homeless Shelter	04
Indian Health Service Free-standing Facility	05
Indian Health Service Provider-based Facility	06
Tribal 638 Free-standing Facility	07
Tribal 638 Provider-based Facility	08
Office	11
Home	12
Mobile Unit	15

Outpatient Hospital	22
Ambulatory Surgical Center	24
Military Treatment Facility	26
Independent Clinic	49
Federally Qualified Health Center	50
Community Mental Health Center	53
Non-residential Substance Abuse Treatment Facility	57
Mass Immunization Center	60
Comprehensive Outpatient Rehabilitation Facility	62
End-stage Renal Disease Treatment Facility	65
Public Health Clinic	71
Rural Health Clinic	72

I.H. Numerator Exclusions (as appropriate)

- NPIs representing organizations and clinics.
- NPIs representing professionals who are not physicians (e.g., nurse practitioners and physician assistants).

I.I. Denominator Statement

The eligible population for the denominator is the number of children born on September 30 or earlier in the measurement year but younger than 18 years on December 31 of the measurement year, who are enrolled in a Medicaid program or health plan that includes outpatient specialty care for at least one 90-day period (or 3 consecutive months) within the measurement year. This denominator is divided by 1,000 to calculate the rate per 1,000 eligible children.

I.J. Denominator Exclusions (as appropriate)

None

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)	X
2. Paper Medical Record	
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

National Plan & Provider Enumeration System (NPPES). NPI Registry. Available at:

<https://nppes.cms.hhs.gov/NPPESRegistry/NPIRegistryHome.do>; accessed August 7, 2015.

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 Availability of Specialty Services Measure 4, Access to Outpatient Specialty Care for Children*, at the end of this document.

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).

Prevalence among Children

Many children have conditions that would benefit from confirmatory testing, definitive diagnosis, initial treatment, and/or ongoing management provided by specialists. Given the variety of specialties and the associated conditions those specialists treat, providing prevalence estimates for all relevant conditions is beyond the scope of this measure description. In its place, assessing the overall prevalence of children's need for specialty care can serve as a direct proxy. According to the 2011-2012 National Survey on Children's Health, nearly one quarter of US children (22.6%) saw a specialist in the previous year (CAHMI, Indicator 4.12a). The 2003 NSCH included questions on need to see a specialist, in which the results were comparable: 18.3% of children 0-5 years were reported to

have needed specialty care; the figures for older children were 18.9% of those 6-11 years, and 22.4% of those 12-17 years (CAHMI, S5Q09).

Performance Gaps

A primary shortcoming regarding children's access to specialty care is the type of insurance they have, specifically whether they have private insurance or either of the two main forms of public insurance – Medicaid or CHIP. The 2011-2012 National Survey on Children's Health reported that 19% of children with Medicaid/Children's Health Insurance Program (CHIP) coverage received specialty care in the prior year, compared with 26% of privately insured children; 8% of Medicaid/CHIP-covered children had problems accessing specialty care, compared with 5% of privately insured children (CAHMI, Indicator 4.12a). A 2010 study in Illinois found that callers posing as parents of children enrolled in Medicaid/CHIP were denied specialty appointments six times more often than parents of privately insured children (Bisgaier and Rhodes, 2011). A 2010 national survey conducted by the Government Accountability Office (GAO) found that specialists participated in Medicaid/CHIP less frequently than primary care providers (71% vs 83%). Moreover, among specialists who participated in Medicaid/CHIP, 84% accepted all privately insured children while only 51% accepted all Medicaid/CHIP-enrolled children. These findings were mirrored in responses by primary care providers: 34% reported having "great difficulty" referring Medicaid/CHIP-enrolled children for specialty care compared with only 1% for privately insured children (US GAO, 2011).

A related challenge is that even specialists who accept Medicaid patients may not be open to new patients, or may not participate in a child's specific Medicaid health plan or program. A 2014 report from the Office of the Inspector General explored this issue among a sample of specialists who were listed as participating in a Medicaid health plan, and found that only 43% would offer an appointment to a new Medicaid patient (US HHS, 2014). Not participating in the health plan, despite being listed, was the major contributor to not offering an appointment.

Severity and Burden of Condition

Lack of specialist availability can affect children in at least three ways. The most severe outcome would be that children would not see a specialist at all and would go without needed care. In the event they do obtain an appointment with a specialist, it may require a longer wait period than is appropriate for their condition, delaying their care. The specialist may also be located much further away than is optimal, forcing longer travel times.

These obstacles are a greater burden for families with fewer financial resources, as they may not have reliable transportation or be able to take time off work when appointments are available. Challenges are likely to be exacerbated for families who face language or cultural barriers with their health care providers (Jewett et al., 2005).

Potential for Quality Improvement

A 2003 GAO report found that states varied in their requirements for specialty care access and did not routinely verify whether access requirements were being met (US GAO, 2003). A 2013 issue brief from the US Department of Health and Human Services (HHS) identified major limitations in current data sources to measure access to care for Medicaid populations; HHS recommends support for

development of new measures that would allow comparison of data over time and across states (US HHS, 2013).

This measure requires that specialists had at least one visit with a Medicaid-enrolled child during the measurement year. This stipulation directly addresses the challenge of outdated or inaccurate provider participation lists. Inaccurate provider lists not only inflate the rate of specialists per Medicaid-enrolled children, but, more importantly, may impede children’s access to needed specialty care by suggesting a broader array of specialists than is actually available” (US HHS, 2014).

This measure does not purport to establish a singular threshold that specifies a sufficient ratio of specialists to eligible children; a singular threshold would not be appropriate, given the variation in disease rates, severity of conditions, and frequency of follow-up across specialty areas. However, this measure will create a standardized mechanism to track specialty-specific rates of provider participation over time, allowing Medicaid programs and health plans to identify their own critical threshold to meet demand for specialty care. In short, this measure can serve as a tool to assess efforts to enhance specialist availability.

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).

Sensitivity to Changes in Medicaid or CHIP

As access to specialists is associated with public versus private insurance type, this measure is likely to be very sensitive to changes in Medicaid and CHIP policy. Indeed, the GAO findings summarized physicians’ justifications for non-participation as being due to “administrative issues such as low and delayed reimbursement and provider enrollment requirements” (US GAO, 2011). Thus, Medicaid or CHIP policy changes that alter reimbursement or administrative requirements are likely to directly affect the number of participating specialists.

Availability and EPSDT

Medicaid’s Early and Periodic Screening, Diagnosis and Treatment (EPSDT) benefit provides the foundation for comprehensive and preventive health care services for all Medicaid-enrolled children under age 21. Health screenings are mandated by the EPSDT guidelines, under which states are

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>.

required to arrange (directly or through referral) for corrective treatment, as indicated by the screenings, which include screening for developmental and behavioral concerns (Medicaid.gov, 2014). In order to fulfill these obligations, it is imperative that providers are available to treat patients.

Though EPSDT is designed to cover screening, diagnosis, and treatment, parents of children on Medicaid may find it difficult to obtain specialty care. Indeed, many primary care physicians struggle to find specialists who will accept publically insured patients because there are fewer specialists participating in Medicaid/CHIP. For those specialists who do participate, there may be a tendency for them to preferentially accept patients who are privately insured over those who are publically insured.

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).

We are unaware of any existing quality measures specific to the rate of participating specialists for the population of children enrolled in a Medicaid program or health plan.

References for Section III

Bisgaier J, Rhodes KV. Auditing access to specialty care for children with public insurance. *N Engl J Med* 2011; 364:2324-2333.

Child and Adolescent Health Measurement Initiative (CAHMI). Data Resource Center for Child & Adolescent Health; Indicator 4.12a: During the past 12 months, did [child name] see a specialist other than a mental health professional? Available at: <http://www.childhealthdata.org/browse/survey/results?q=2496&r=1>; accessed September 1, 2015.

Child and Adolescent Health Measurement Initiative (CAHMI). Data Resource Center for Child & Adolescent Health; Specialists are doctors like surgeons, heart doctors, skin doctors, psychiatrists etc. During the past 12 months did you or (child's name)'s personal doctor or nurse think that he/she needed to see any specialist doctor or doctors? (S5Q09). Available at: <http://www.childhealthdata.org/browse/survey/results?q=627&g=24>; accessed September 1, 2015.

Jewett EA, Anderson MR, Gilchrist GS. The Pediatric Subspecialty Workforce: Public policy and forces for change. *Pediatrics* 2005; 116(5): 1192-1202.

Medicaid.gov. Early and Periodic Screening, Diagnosis and Treatment. Updated June 17, 2014. Available at: <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Early-and-Periodic-Screening-Diagnostic-and-Treatment.html>; accessed: September 1, 2015.

United States Government Accountability Office (US GAO). Medicaid and SCHIP: States Use Varying Approaches to Monitor Children's Access to Care. GAO-03-222; January 2003. Available at: <http://www.gao.gov/new.items/d03222.pdf>; accessed September 1, 2015.

United States Government Accountability Office (US GAO). Medicaid and CHIP: Most Physicians Serve Covered Children But Have Difficulty Referring Them for Specialty Care. GAO-11-624; June 2011. Available at: <http://www.gao.gov/assets/330/320559.pdf>; accessed September 1, 2015.

United States Department of Health and Human Services (HHS), Office of the Assistant Secretary for Planning and Evaluation. ASPE Issue Brief: Recommendations for Monitoring Access to Care among Medicaid Beneficiaries at the State-level. February 2013.

United States Department of Health and Human Services (US HHS), Office of Inspector General. Access to Care: Provider Availability in Medicaid Managed Care. OEI-02-13-00670; December 2014. Available at: <http://oig.hhs.gov/oei/reports/oei-02-13-00670.pdf>; accessed September 1, 2015.

SECTION IV. MEASURE CATEGORIES

CHIPRA legislation³ 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.

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	No	
e. Service – care for acute conditions	Yes	
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	No	
k. Measure Topic – patient safety	No	
l. Measure Topic – family experience with care	Yes	
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) [o on new form]	Yes	All ages in this range
q. Population – infants (29 days to 1 year) (specify age range)[p on new form]	Yes	All ages in this range
r. Population – pre-school age children (1 year through 5 years) (specify age range)	Yes	All ages in this range
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	Adolescents 11 through 17 years, i.e., younger than 18 years

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.

A significant proportion of children have conditions that would benefit from treatment provided by specialists. However, difficulties with access to specialty care have been reported by both parents and primary care physicians (Krauss et al., 2003; U.S. GAO, 2011; Steinman et al., 2012). This Q-METRIC availability of specialty services measure focuses on the availability of a broad range of specialists.

Table 3 summarizes several key sources of evidence for this measure, using the US Preventive Services Task Force (USPSTF) rankings. (Criteria are denoted in a note to the table.)

Table 3: Evidence Supporting the Importance of Access to Outpatient Specialty Care for Children

Type of Evidence	Key Findings	Level of Evidence (USPSTF Ranking*)	Citation(s)
Clinical Guideline	<p>The EPSDT benefit for Medicaid-enrolled children provides that if the screening exam warrants it, any necessary referral must be made without delay.</p> <p>Further, states are required to provide any additional health care services that are coverable under the Federal Medicaid program and found to be medically necessary...regardless of whether the service is covered in a state's Medicaid plan.</p>	III	<p>Medicaid.gov. Early and Periodic Screening, Diagnosis and Treatment. Updated June 17, 2014. Available at: http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Early-and-Periodic-Screening-Diagnostic-and-Treatment.html; accessed: September 1, 2015.</p>
Descriptive Study	<p>The Data Resource Center for Child and Adolescent Health report that approximately 20% of children need to see a specialist in any given year.</p>	III	<p>Child and Adolescent Health Measurement Initiative (CAHMI). Data Resource Center for Child & Adolescent Health; Specialists are doctors like surgeons, heart doctors, skin doctors, psychiatrists etc. During the past 12 months did you or (child's name)'s personal doctor or nurse think that he/she needed to see any specialist doctor or doctors? (S5Q09). Available at: http://www.childhealthdata.org/browse/survey/results?q=627&g=24; accessed September 1, 2015.</p>
Descriptive Study	<p>One third of primary care providers reported difficulty in referring Medicaid/CHIP-enrolled children to specialty care compared with only 1% for privately insured children. The disparity in referral difficulties persisted regardless of physician type and geographic location.</p>	III	<p>United States Government Accountability Office (US GAO). Medicaid and CHIP: Most Physicians Serve Covered Children But Have Difficulty Referring Them for Specialty Care. GAO-11-624; June 2011. Available at: http://www.gao.gov/assets/330/320559.pdf; accessed September 1, 2015.</p>
Descriptive Study	<p>In this study documenting access to care for Medicaid managed care enrollees, 39% of specialists listed as being in a managed care plan network were found to not participate in that plan.</p>	III	<p>United States Department of Health and Human Services (US HHS), Office of Inspector General. Access to Care: Provider Availability in Medicaid Managed Care. OEI-02-13-00670; December 2014. Available at:</p>

			http://oig.hhs.gov/oei/reports/oei-02-13-00670.pdf ; accessed September 1, 2015.
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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.

Not applicable

Additional References for Section V

Krauss MW, Gulley S, Sciegaj M, Wells N. Access to specialty medical care for children with mental retardation, autism, and other special health care needs. *Ment Retard* 2003; 41(5):329-339.

Steinman KJ, Kelleher KJ, Dembe A, Shoben A. [A] *Children’s Access to Psychiatric Care in Ohio: Final Report*. Columbus, OH: Ohio Colleges of Medicine Government Resources Center; 2012. Available at: https://osuwmcdigital.osu.edu/sitetool/sites/grc2public/documents/CAPCO_final_report4.pdf. Accessed May 19, 2015.

SECTION VI. SCIENTIFIC SOUNDNESS OF THE MEASURE

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.

Reliability testing was done to examine the extent to which this measure yields reproducible results. Two methods were used to test the reliability of the measure: 1) replication of the measure calculation process and 2) comparison of the taxonomy-based provider identification data sources.

Reliability Test 1: Replication of the Measure Calculation Process

Reliability testing for this measure was performed for one state Medicaid program (Michigan) using data housed in program files in the state's data warehouse. Combined, these files contain all Medicaid health care utilization (claims) data and program enrollment and eligibility files, as well as provider enrollment files for the State of Michigan.

Reliability testing was performed by two data analysts experienced in extracting and analyzing Medicaid enrollment, utilization, and provider data. Testing was performed using the same measure specifications for two calendar years (2012, 2013). Analyst 1 performed data extraction and initial measure calculation in September 2014; Analyst 2 repeated data extraction and measure calculation in February 2015.

Measures were calculated according to measure specifications, with Analysts 1 and 2 using their own discretion in determining how to process the data. Provider NPIs from rendering and billing provider fields were linked to relevant specialty taxonomy codes from two data sources: 1) the National Plan & Provider Enumeration System (NPPES) registry, a national system developed by the Centers for Medicare & Medicaid Services (CMS) to assign unique identifiers for providers (www.nppesregistry.com), and 2) taxonomy codes in provider enrollment data collected and maintained for use by the Michigan Medicaid program.

This measure calculated the rate of participating specialists who have seen at least one enrolled child, younger than 18 years of age, for at least one outpatient visit during the measurement year. This measure represents the number of providers per member, where a higher rate indicates better performance, as reflected by an increased availability of service. Results for Analysts 1 and 2 are shown in Table 4 and Figures 1 and 2. The differences in measure results for Analyst 1 versus Analyst 2 ranged from 0.001-0.008 providers per 1,000 members.

Table 4. Comparison of Measure Calculations for Analyst 1 versus Analyst 2

Analyst 1	2012			2013		
	Numerator	Denominator of eligible children	Measure Result (per 1,000 children)	Numerator	Denominator of eligible children	Measure Result (per 1,000 members)
Cardiology	569	1,033,560	0.551	545	1,028,252	0.530
Dermatology	229	1,033,560	0.222	235	1,028,252	0.229
Endocrinology	110	1,033,560	0.106	123	1,028,252	0.120
Gastroenterology	209	1,033,560	0.202	209	1,028,252	0.203
Hematology/Oncology	149	1,033,560	0.144	153	1,028,252	0.149
Nephrology	75	1,033,560	0.073	71	1,028,252	0.069
Neurology	360	1,033,560	0.348	360	1,028,252	0.350
Otolaryngology	306	1,033,560	0.296	296	1,028,252	0.288
Pulmonology	227	1,033,560	0.220	231	1,028,252	0.225
Rheumatology	53	1,033,560	0.051	51	1,028,252	0.050
Analyst 2	2012			2013		
	Numerator	Denominator of eligible children	Measure Result (per 1,000 children)	Numerator	Denominator of eligible children	Measure Result (per 1,000 members)
Cardiology	578	1,033,584	0.559	552	1,028,949	0.536
Dermatology	237	1,033,584	0.229	235	1,028,949	0.229
Endocrinology	112	1,033,584	0.108	123	1,028,949	0.120
Gastroenterology	212	1,033,584	0.205	211	1,028,949	0.205
Hematology/Oncology	144	1,033,584	0.139	149	1,028,949	0.145
Nephrology	76	1,033,584	0.074	73	1,028,949	0.071
Neurology	369	1,033,584	0.357	362	1,028,949	0.352
Otolaryngology	313	1,033,584	0.303	298	1,028,949	0.290
Pulmonology	233	1,033,584	0.225	234	1,028,949	0.227
Rheumatology	53	1,033,584	0.051	52	1,028,949	0.051

Figure 1. Comparison of 2012 Measure Results for Analyst 1 versus Analyst 2

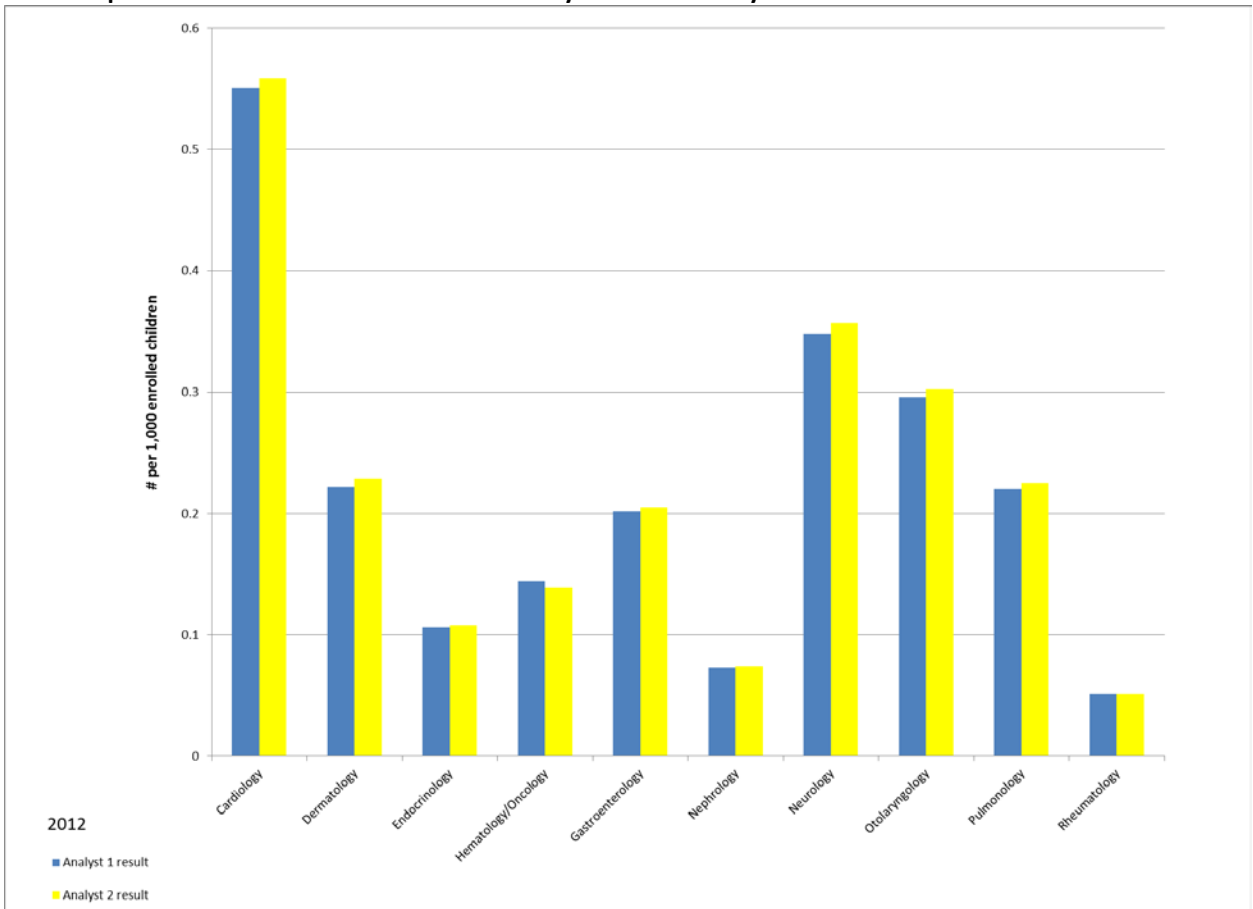
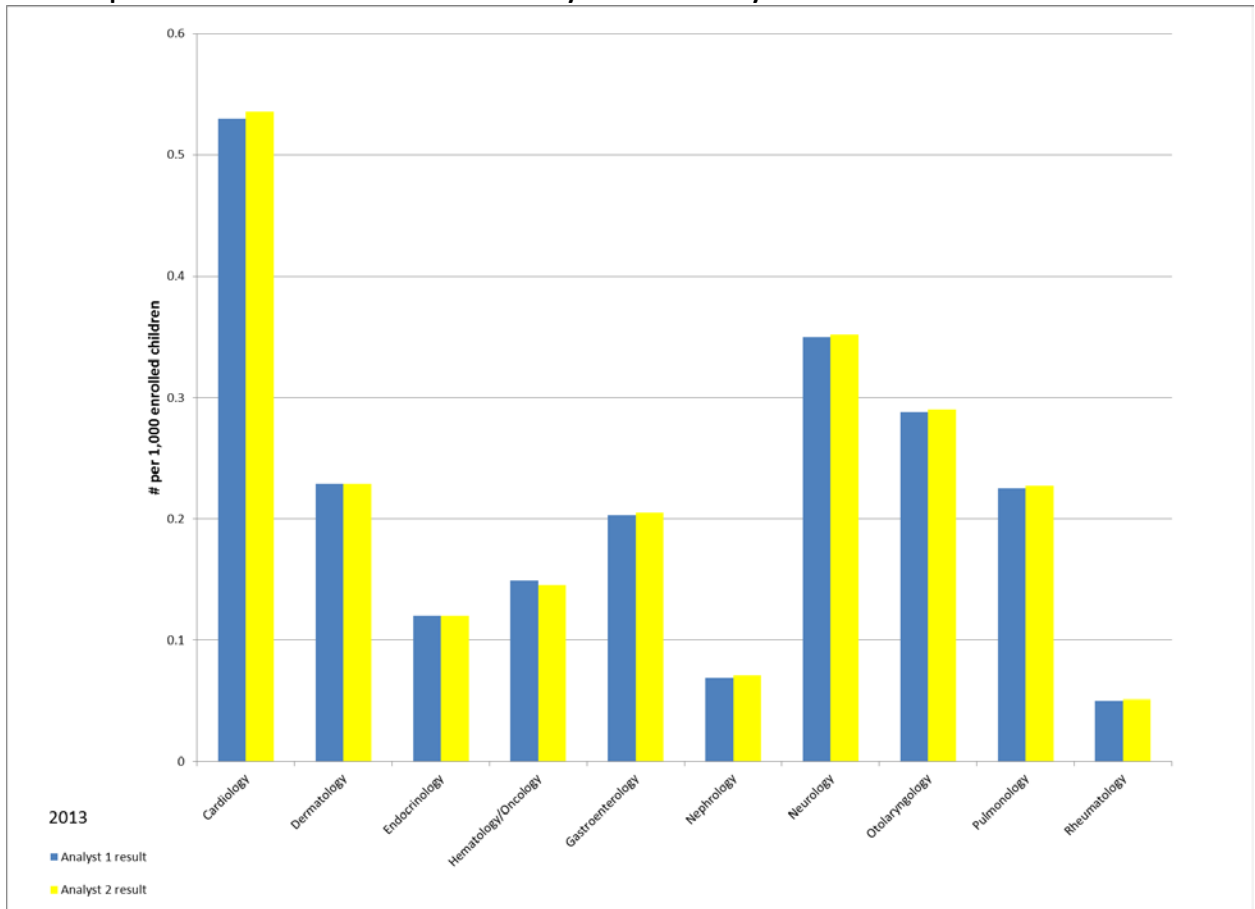


Figure 2. Comparison of 2013 Measure Results for Analyst 1 versus Analyst 2



Examination of differences was performed to describe the reasons for the variance between Analyst 1 and Analyst 2.

Numerator Differences:

The most common reasons for variance in specialist identification related to the addition of new information in the administrative data sources during the 5-month interval between data extraction for Analyst 1 versus Analyst 2. This included new NPIs with relevant specialty taxonomy codes in either the NPPES or the state taxonomy data or visit/procedure claims added to administrative claims data. Overall, 57% of the variance in specialist identification was related to updates of administrative data.

Another common reason for variance in specialist identification involved differences in data processing between Analyst 1 and Analyst 2. This included identification of rendering NPIs at the Line Information level, rather than at that Claims level; and inadvertent exclusion of one of the taxonomy codes. Overall, 43% of the variance in specialist identification was related to processing differences.

Table 5 displays the specific reasons, and counts, for situations in which one analyst differed in their physician identification, and the time-adjusted reliability of physician identification for each specialty for each year studied (reliability calculated as the percent of specialists identified by both analysts for data available at the time of Analyst 1’s data extraction).

Table 5. Reasons for Variance in Specialist Identification and Reliability for Concurrent Data

	Analyst 1	Analyst 2	Reliability
Cardiology 2012			99.4%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		3	
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		1	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		2	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		3	
Cardiology 2013			99.8%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		2	
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		2	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		2	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		1	
Dermatology 2012			99.6%
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		2	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		5	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		1	
Dermatology 2013			100%
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		1	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		3	
Endocrinology 2012			98.2%
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		2	
Endocrinology 2013			100%
<i>No variance</i>			
Gastroenterology 2012			99.5%
Data update: Specialty taxonomy record was added after Analyst 1 data extraction		1	
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		1	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		1	
Gastroenterology 2013			100%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		1	

	Analyst 1	Analyst 2	Reliability
Data update: Specialty-related visit claims added after Analyst 1 data extraction		1	
Hematology/Oncology 2012			93.7%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		2	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		1	
Processing: Medical Oncology taxonomy code inadvertently excluded by Analyst 1	9		
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		1	
Hematology/Oncology 2013			95.6%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		2	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		1	
Processing: Medical Oncology taxonomy code inadvertently excluded by Analyst 1	7		
Nephrology 2012			100%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		1	
Nephrology 2013			100%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		2	
Neurology 2012			98.4%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		3	
Data update: Specialty-related visit claims added after Analyst 1 data extraction		2	
Processing: Provider class code = 'CCC-A' for audiologist inadvertently included by Analyst 1	1		
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		5	
Neurology 2013			99.7%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		3	
Processing: Provider class code = 'CCC-A' for audiologist inadvertently included by Analyst 1	1		
Otolaryngology 2012			98.4%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		1	
Data update: NPPES taxonomy code was added/updated after Analyst 1 data extraction		1	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		5	
Otolaryngology 2013			99.7%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		1	

	Analyst 1	Analyst 2	Reliability
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		1	
Pulmonology 2012			98.7%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		3	
Processing: Identification of rendering NPI in the Line Information table by Analyst 2		3	
Pulmonology 2013			100%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		3	
Rheumatology 2012			100%
<i>No variance</i>			
Rheumatology 2013			100%
Data update: State specialty taxonomy record was added after Analyst 1 data extraction		1	
Total Differences	18	77	

In summary, the majority of the variance in specialist identification pertained to the addition of new administrative data during the 5-month period between data extraction for Analyst 1 versus Analyst 2. This difference reflects the dynamic nature of administrative data, where corrections/updates to provider enrollment and claims are processed continuously by Medicaid programs. Modifications to provider enrollment data typically are prompted by an administrative change (e.g., change in institution or health plan affiliation); modifications to claims data are added retrospectively after adjudication. In contrast, there were 41 instances of dissonant identification due to data processing differences between Analyst 1 and Analyst 2, including erroneous exclusion of medical oncologists and erroneous inclusion of audiologists by Analyst 1, as well as additional specialists identified through Analyst 2's use of Line Information NPI numbers. Thus, for data that were concurrently present in the Medicaid data warehouse at the time of Analyst 1's data extraction, the identification of specialists would have had an overall reliability of 98.2% (2,287 of 2,328 specialists identified by both analysts), ranging from 93.7% to 100% by specialty by year.

Denominator Differences:

In reliability testing for the measure denominator (eligible children), Analyst 2 had enrollment counts that were <.001% higher than Analyst 1. This was the result of updates to enrollment data that occurred in the period between the data extraction for Analysts 1 and 2. Thus, the reliability of denominator calculation was 99.999%.

In summary, Reliability Test 1 demonstrates excellent reliability of this measure, with some minor variance observed due to the dynamic nature of health administrative data. Consequently, it is likely that Medicaid programs assessing availability of specialty services using these methods would yield very consistent results; this suggests a high degree of reproducibility, given similar conditions in other settings.

Reliability Test 2: Comparison of National versus Program-Specific Taxonomy-Based Provider Identification Data Sources

A second component of reliability testing compared the results of specialty identification by data source. Feasibility testing utilized two sources of specialty information: the NPPES registry and the taxonomy codes from Michigan Medicaid’s own provider enrollment data. Using the population of specialists identified for 2012 and/or 2013, comparison of the relative contribution of each data source is shown in Table 6.

Table 6. Source of Physician Specialty Identification

Specialty	Number Unique Physicians Identified (2012 and/ or 2013)	Number (%) Identified in Both NPPES and State Taxonomy Codes	Number (%) Identified in NPPES Only	Number (%) Identified in State Taxonomy Codes Only
Cardiology	719	612 (85%)	53 (7.5%)	54 (7.5%)
Dermatology	268	212 (79%)	46 (17%)	10 (4%)
Endocrinology	144	124 (86%)	14 (10%)	6 (4%)
Gastroenterology	281	238 (85%)	20 (7%)	23 (8%)
Hematology/Oncology	200	172 (86%)	18 (9%)	10 (5%)
Nephrology	96	82 (86%)	9 (9%)	5 (5%)
Neurology	441	386 (87%)	25 (6%)	30 (7%)
Otolaryngology	337	299 (89%)	20 (6%)	18 (5%)
Pulmonology	293	253 (86%)	25 (9%)	15 (5%)
Rheumatology	67	56 (84%)	5 (7%)	6 (9%)

As shown in Table 6, the majority of specialists were identified by taxonomy codes in both the NPPES and state taxonomy data, ranging from 79% for dermatology to 89% for otolaryngology. An additional 6%-17% were identified by NPPES but not state taxonomy codes. Combined, the use of NPPES taxonomy codes as the sole source of specialty identification would yield 91%-96% of the specialists identified through the combined NPPES/state taxonomy methods. The addition of state taxonomy codes contributed 4%-9% of the overall specialist identification.

As all Medicaid programs and health plans have access to NPPES taxonomy data, all would be expected to have reliability of specialist identification of at least 90%. Moreover, while the inclusion of program-specific taxonomy code data resulted in the identification of additional specialists, many specialists identified in the program-specific taxonomy data were also identified in NPPES. Thus, Reliability Test 2 demonstrates very good reliability for the use of taxonomy-based specialty codes.

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

The validity of this measure was determined from face validity, the degree to which the measure construct characterizes the concept being assessed. The face validity of the measure was reviewed by an expert panel convened by Q-METRIC. The Q-METRIC panel included nationally recognized experts representing pediatrics, family medicine, psychiatry, dentistry, and two parent representatives. In addition, 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 Availability of Specialty Services panel included 13 experts, providing a comprehensive perspective on the availability of specialty services 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 parents' ability to access outpatient child specialty care. Concepts and draft measures were rated by this group for their relative importance. The measure, *Access to Outpatient Specialty Care for Children*, received a score of 6.7 on a scale of 1-9, with 9 representing the highest possible ranking.

Measure Validity

Validity testing was performed to assess three aspects of the measure: whether identified specialists' content of care provided during outpatient visits with Medicaid beneficiaries reflected the specialty areas; whether identified specialists with a lower proportion of specialty-related visits had specific certification and/or training in the respective specialty areas; and whether the inclusion of an alternate provider specialty data source would enhance specialist identification. Three methods were used to test these aspects of measure validity: 1a) examination of the proportion of outpatient visits with Medicaid-enrolled children containing a specialty-related diagnostic code; 1b) examination of credentials for specialists with <70% specialty-related visits; and 2) examination of the number and characteristics of specialists identified through an alternate, non-taxonomy-based source of physician specialty data.

Validity Test 1a: Examination of the Proportion of Outpatient Visits with Medicaid-Enrolled Children Containing a Specialty-Related Diagnostic Code

The first component of validity testing examined the extent to which identified physicians were delivering specialty-related outpatient care, as reflected in the diagnosis codes contained in Medicaid utilization data.

Designation of specialty-related diagnosis codes was based on the Agency for Healthcare Research and Quality's Clinical Classification Software (<http://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixCMultiDX.txt>), using both the Category level and searching text descriptions for specialty-related terminology. Websites for relevant professional specialty societies were searched for additional information (e.g., code lists) to supplement CCS codes. The full list of diagnostic codes used in validity testing is found in Appendix A.

For physicians identified by the measure specifications, all outpatient visits with Medicaid-enrolled children in 2012 and 2013 were identified. Each visit was categorized as specialty-related (i.e., containing at least one diagnostic code from the lists in Appendix A) or not specialty-related. The

proportion of each physician's outpatient visits that were specialty-related was calculated for each year.

Results are presented in Table 7, showing the number and proportion of specialists with ≥90% specialty-related visits, 70%-89% specialty-related visits, 50%-69% specialty-related visits, and <50% specialty-related visits.

Table 7. Proportion of Outpatient Visits with Medicaid-Enrolled Children that Were Specialty-Related 2012 and 2013

Specialty	Number Unique Physicians	≥90% of Visits Specialty-related	70%-89% of Visits Specialty-related	50%-69% of Visits Specialty-related	<50% of Visits Specialty-related
Cardiology					
2012	569	410 (72%)	124 (22%)	19 (3%)	16 (3%)
2013	545	377 (69%)	136 (25%)	15 (3%)	17 (3%)
Dermatology					
2012	228	209 (92%)	13 (6%)	3 (1%)	3 (1%)
2013	235	216 (92%)	15 (6%)	2 (1%)	2 (1%)
Endocrinology					
2012	110	85 (77%)	15 (14%)	6 (5%)	4 (4%)
2013	123	102 (83%)	9 (7%)	7 (6%)	5 (4%)
Gastroenterology					
2012	209	157 (75%)	29 (14%)	7 (3%)	16 (8%)
2013	209	159 (76%)	32 (15%)	5 (2%)	13 (6%)
Hematology/Oncology					
2012	149	117 (79%)	19 (13%)	6 (4%)	7 (5%)
2013	153	112 (73%)	31 (20%)	4 (3%)	6 (4%)
Nephrology					
2012	75	52 (69%)	14 (19%)	5 (7%)	4 (5%)
2013	71	55 (77%)	9 (13%)	1 (1%)	6 (8%)
Neurology					
2012	360	225 (63%)	112 (31%)	8 (2%)	15 (4%)
2013	360	237 (66%)	99 (28%)	15 (4%)	9 (3%)
Otolaryngology					
2012	306	264 (86%)	29 (9%)	6 (2%)	7 (2%)
2013	296	261 (88%)	23 (8%)	7 (2%)	5 (2%)
Pulmonology					
2012	227	184 (81%)	23 (10%)	8 (4%)	12 (5%)
2013	231	186 (81%)	29 (13%)	5 (2%)	11 (5%)
Rheumatology					
2012	53	42 (79%)	3 (6%)	3 (6%)	5 (9%)
2013	51	43 (84%)	1 (2%)	2 (4%)	5 (10%)

*Row percentages may not sum to 100% due to rounding.

For all 10 specialty groups, the majority of physicians had ≥90% specialty-related visits, ranging from a high of 92% (dermatology) to a low of 63% (neurology). For all 10 specialty groups, at least 85% of physicians had 70% or greater specialty-related visits. A small proportion of physicians had <50% specialty-related visits, ranging from a low of 1% (dermatology) to a high of 10% (rheumatology). Results were generally consistent from 2012 to 2013.

In summary, for all 10 specialty areas, at least 90% of identified specialists had the majority of outpatient Medicaid visits categorized as specialty-related. Thus, the results of Validity Test 1a indicate that the validity of this measure in identifying specialists who provide outpatient specialty-relevant care is excellent.

Validity Test 1b: Examination of Credentials for Identified Specialists with <70% Specialty-Related Visits

To further assess the validity of the measure in identifying specialists, an examination of public information sources was performed to document the specialty-oriented training and board certification history for the subset of identified providers with <70% of outpatient Medicaid visits categorized as specialty-related. Results are summarized below, by specialty area. Specific data, by physician, are found in Appendix B.

Cardiology: Among the 50 cardiologists with <70% specialty-related visits in either 2012 or 2013, 45 of 50 (90%) had evidence of fellowship training and/or board certification in cardiology or cardiovascular disease. This included 22 cardiologists with fewer than five Medicaid visits in either 2012 or 2013; this group mainly reflected physicians whose primary practice location was in another state. Seven were ≥70 years of age.

Five physicians appear to have been misidentified as cardiologists, including one endocrinologist (identified as such in state taxonomy codes), one family physician (identified as such in NPPES taxonomy codes), one pediatrician age 70 years, one combined internal medicine and pediatrics physician, and one specialist in pediatric critical care medicine.

Dermatology: Among the eight dermatologists with <70% specialty-related visits in either 2012 or 2013, 7 (88%) had evidence of fellowship training and/or board certification in dermatology or dermatopathology. This included four physicians with fewer than five Medicaid visits in either 2012 or 2013.

One physician appears to have been misidentified; as a dermatologist this individual had certification in family practice and venous and lymphatic medicine, and identified as a family physician in state taxonomy codes.

Endocrinology: Among the 12 endocrinologists with <70% specialty-related visits in either 2012 or 2013, 10 (83%) had evidence of fellowship training and/or board certification in endocrinology. This included one physician with fewer than five Medicaid visits in 2012. Two endocrinologists had additional board certification: nuclear medicine and clinical genetics (identified as such in NPPES taxonomy codes).

Two physicians appear to have been misidentified as endocrinologists; both had board certification in internal medicine, and both had conflicting taxonomy codes (one endocrinology, the other internal medicine).

Gastroenterology: Among the 29 gastroenterologists with <70% specialty-related visits in either 2012 or 2013, 25 (86%) had evidence of fellowship training and/or board certification in gastroenterology. This included 15 gastroenterologists with fewer than five Medicaid visits in either 2012 or 2013, and three who completed fellowship training in 2013.

Two physicians appear to have been misidentified as gastroenterologists, including one pediatric endocrinologist (identified as such in NPPES taxonomy codes), one pediatrician

(identified as such in state taxonomy codes), one internist (age 70 years), and one pulmonologist/critical care physician (identified as internal medicine in state taxonomy codes).

Hematology/Oncology: Among the 19 hematologists/oncologists with <70% specialty-related visits in either 2012 or 2013, 18 (95%) had evidence of fellowship training and/or board certification in hematology/oncology. This included five physicians with fewer than five Medicaid visits in either 2012 or 2013, and three who were older than 70 years.

One physician appears to have been misidentified as a hematologist/oncologist; this individual had certification in geriatric medicine, and identified internal physician in NPPES taxonomy codes.

Nephrology: Among the 11 nephrologists with <70% specialty-related visits in either 2012 or 2013, all 11 (100%) had evidence of fellowship training and/or board certification in nephrology. This included five nephrologists with fewer than five Medicaid visits in either 2012 or 2013, and one who completed fellowship training in 2013.

Neurology: Among the 34 neurologists with <70% specialty-related visits in either 2012 or 2013, 24 (71%) had evidence of fellowship and/or board certification in neurology. This included five neurologists with fewer than five Medicaid visits in either 2012 or 2013, and nine physicians with both neurology and another area of training/certification (three with nuclear medicine, two with sleep medicine, and one each with developmental and behavioral pediatrics, critical care medicine, brain injury medicine, and forensic psychiatry).

Ten physicians appear to have been misidentified as neurologists. Eight physicians had evidence of fellowship and/or board certification in psychiatry, seven of whom had conflicting taxonomy codes (one source stated neurology, the other source listed psychiatry and neurology-psychiatry). Two had unrelated training/certification (vascular surgery, audiology) and were identified as such in NPPES taxonomy codes.

Otolaryngology: Among the 18 otolaryngologists with <70% specialty-related visits in either 2012 or 2013, 13 (72%) had evidence of fellowship training and/or board certification in otolaryngology. This included five otolaryngologists with fewer than five Medicaid visits in either 2012 or 2013, and eight with additional training and certification in facial plastic and reconstructive surgery or head and neck surgical oncology.

Five physicians appear to have been misidentified as otolaryngologists, including one certified in plastic surgery (identified as such in NPPES taxonomy codes), one dentist certified in general dentistry and prosthodontics (identified as such in state taxonomy codes), one certified in allergy and immunology (identified as such in NPPES taxonomy codes), one certified in diagnostic radiology (identified as such in state taxonomy codes) but who completed residency training in otolaryngology, and one family physician (identified as such in NPPES taxonomy codes).

Pulmonology: Among the 26 pulmonologists with <70% specialty-related visits in either 2012 or 2013, 21 (81%) had evidence of fellowship training and/or board certification in pulmonology. This included six pulmonologists with fewer than five Medicaid visits in either 2012 or 2013, and 10 with additional training and certification (seven with critical care, and one each with sleep medicine, allergy and immunology, and infectious disease).

Five physicians appear to have been misidentified as pulmonologists, including three certified in anatomic and clinical pathology, and two certified in internal medicine (one identified as such in NPPES taxonomy codes).

Rheumatology: Among the 10 rheumatologists with <70% specialty-related visits in either 2012 or 2013, seven (70%) had evidence of fellowship training and/or board certification in rheumatology. This included four rheumatologists with fewer than five Medicaid visits in either 2012 or 2013.

Three physicians appear to have been misidentified as rheumatologists, including one certified in allergy and immunology (identified as such in state taxonomy codes), one certified in pulmonary disease and critical care medicine (identified as pulmonary disease in NPPES taxonomy codes), and one certified in pediatrics (identified as such in NPPES taxonomy codes).

This examination of credentials for identified specialists with <70% specialty-related visits demonstrated that the majority of these specialists were, indeed, trained and/or certified to provide care in their identified specialty care, and thus were correctly identified in their specialty area. The proportion with specialty training and/or certification ranged from a high of 100% (nephrology) to a low of 70% (rheumatology).

A number of factors appear to influence the accuracy of specialist identification. For physicians who practice at an out-of-state location or whose main clinical activity involves inpatient care, the small number of outpatient visits may exacerbate the risk of misclassification. Older specialists (who may pre-date some training or certification requirements) and newly trained specialists may be prone to inaccurate taxonomy codes.

Neurology, otolaryngology, and pulmonology have unique challenges, in that many physicians have concurrent or related specialty training and/or certification. Physicians with multiple areas of certification are problematic, as it is difficult for a taxonomy code system to identify the physician's clinical focus. As such, it cannot be assumed that all identified specialists are practicing solely in their identified specialty area.

Finally, there were a number of instances where the NPPES and state taxonomy data did not concur, which led to misclassification.

Assuming that (a) identified specialists with $\geq 70\%$ specialty-related visits are categorized accurately, and (b) identified specialists with <70% specialty-related visits but with relevant training and/or board certification are categorized accurately, results of this validity testing indicate that all specialty areas had an accurate identification rate of >95%:

- Of 719 unique cardiologists identified in feasibility testing, five were misidentified, yielding an accurate identification rate of 99%.
- Of 268 unique dermatologists identified in feasibility testing, one was misidentified, yielding an accurate identification rate of 99%.
- Of 144 unique endocrinologists identified in feasibility testing, two were misidentified, yielding an accurate identification rate of 99%.

- Of 281 unique gastroenterologists identified in feasibility testing, two were misidentified, yielding an accurate identification rate of 99%.
- Of 200 unique hematologists/oncologists identified in feasibility testing, one was misidentified, yielding an accurate identification rate of 99%.
- Of 96 unique nephrologists identified in feasibility testing, none were misidentified, yielding an accurate identification rate of 100%
- Of 441 unique neurologists identified in feasibility testing, 10 were misidentified, yielding an accurate identification rate of 98%.
- Of 337 unique otolaryngologists identified in feasibility testing, five were misidentified, yielding an accurate identification rate of 99%.
- Of 293 unique pulmonologists identified in feasibility testing, five were misidentified, yielding an accurate identification rate of 98%.
- Of 67 unique rheumatologists identified in feasibility testing, three were misidentified, yielding an accurate identification rate of 96%.

In summary, the results of Validity Test 1b indicate that across these 10 specialty areas, the validity of this measure in identifying physicians with specialty training and/or certification is excellent.

Validity Test 2: Examination of an Alternate Source of Physician Identification Data

Michigan Medicaid has an additional source of provider specialty information. This provider specialty table does not include taxonomy codes; rather, specialty data are stored as state-specific codes with text descriptions. Data are populated through Medicaid health plan provider enrollment records and other ad hoc mechanisms.

Applying the alternate physician identification data source to the measure specifications yielded an additional 78 unique specialists (Table 8).

Table 8. Number of Additional Specialists Identified through Alternate Source

	Additional Physician Identified	
	2012	2013
Cardiology	42	38
Dermatology	9	7
Endocrinology	21	23
Gastroenterology	21	26
Hematology/Oncology	28	28
Nephrology	20	19
Neurology	19	16
Otolaryngology	9	9
Pulmonology	25	27
Rheumatology	15	15

As shown in Table 9, recalculating the measure with the inclusion of these additional physicians yielded an increased rate per 1,000 members ranging from 0.006 to 0.041 across the 10 specialty areas. Increases in measure rate were smallest for dermatology and otolaryngology, reflecting the small numbers of additional physicians identified for those specialists by using the alternate data source. The largest increases in measure rate were seen for cardiology, hematology/oncology, pulmonology, gastroenterology, and endocrinology, which had rate increases of ≥ 0.020 with the addition of the specialists identified through the alternate data source.

Table 9. Impact of Alternate Specialty Identification Data Source on Measure Results (Rates per 1,000 Members)

	Initial Measure Result		Measure Result with Additional Physicians		Difference (Add'l-MD – Initial)	
	2012	2013	2012	2013	2012	2013
Cardiology	0.551	0.530	0.591	0.567	0.041	0.037
Dermatology	0.222	0.229	0.230	0.235	0.009	0.006
Endocrinology	0.106	0.120	0.127	0.142	0.020	0.022
Gastroenterology	0.202	0.203	0.223	0.229	0.020	0.026
Hematology/Oncology	0.144	0.149	0.171	0.176	0.027	0.027
Nephrology	0.073	0.069	0.092	0.088	0.019	0.019
Neurology	0.348	0.350	0.367	0.366	0.018	0.016
Otolaryngology	0.296	0.288	0.305	0.297	0.009	0.009
Pulmonology	0.220	0.225	0.244	0.251	0.024	0.026
Rheumatology	0.051	0.050	0.066	0.064	0.015	0.014

To understand the extent to which the physicians identified through the alternate data source were providing specialty-related care, additional validity testing was performed by calculating the percent of outpatient visits within the measurement year with a diagnosis and/or procedure code relevant to the specialty (i.e., replicating Validity Test 1a, described above). Results are shown in Table 10.

Table 10. Proportion of Outpatient Visits with Medicaid-Enrolled Children that Were Specialty-Related for Additional Physicians Identified 2012 and 2013 Using an Alternate Data Source

Specialty	Number Unique Physicians	≥90% of Visits Specialty-related	70%-89% of Visits Specialty-related	50%-69% of Visits Specialty-related	<50% of Visits Specialty-related
Cardiology					
2012	42	18 (43%)	6 (15%)	3 (7%)	15 (36%)
2013	38	13 (34%)	8 (21%)	2 (5%)	15 (39%)
Dermatology					
2012	9	4 (44%)	0 (0%)	1 (11%)	4 (44%)
2013	7	3 (43%)	0 (0%)	1 (14%)	3 (43%)
Endocrinology					
2012	21	6 (29%)	1 (5%)	2 (10%)	12 (57%)
2013	23	6 (26%)	1 (4%)	2 (9%)	14 (61%)
Gastroenterology					
2012	21	6 (29%)	1 (5%)	0 (0%)	14 (67%)
2013	26	9 (35%)	1 (4%)	0 (0%)	16 (62%)
Hematology/Oncology					
2012	28	9 (32%)	2 (7%)	0 (0%)	17 (61%)
2013	28	11 (39%)	1 (4%)	0 (0%)	16 (57%)
Nephrology					
2012	20	2 (10%)	2 (10%)	0 (0%)	16 (80%)
2013	19	1 (5%)	3 (16%)	1 (5%)	14 (74%)
Neurology					
2012	19	6 (32%)	4 (21%)	2 (11%)	7 (37%)
2013	16	7 (44%)	3 (19%)	1 (6%)	5 (31%)
Otolaryngology					
2012	9	6 (67%)	0 (0%)	0 (0%)	3 (33%)
2013	9	6 (67%)	0 (0%)	0 (0%)	3 (33%)
Pulmonology					
2012	25	2 (8%)	3 (12%)	5 (20%)	15 (60%)
2013	24	4 (17%)	0 (0%)	7 (29%)	13 (54%)
Rheumatology					
2012	15	1 (7%)	0 (0%)	2 (13%)	12 (80%)
2013	15	1 (7%)	0 (0%)	3 (20%)	11 (73%)

*Row percentages may not sum to 100% due to rounding.

The proportion of specialty-related care for physicians identified through the alternate data source was substantially lower than for those identified through taxonomy codes. The proportion of

physicians with $\geq 90\%$ of visits categorized as specialty-related ranged from a low of 5% (nephrology) to a high of 67% (otolaryngology); otolaryngology was the only specialty with more than half of identified physicians having $\geq 90\%$ specialty-related visits. In contrast, the proportion of physicians with less than 50% specialty-related visits ranged from a low of 31% (neurology) to a high of 80% (nephrology, rheumatology). In terms of overall proportion of identified physicians providing specialty-related care, the alternate data source does not demonstrate good validity.

Examination of the credentials of specialists identified through the alternate data source and who had $< 70\%$ specialty-related visits (i.e., replicating Validity Test 1b) yielded the following:

Cardiology: Of 48 unique cardiologists identified through the alternate data source, 26 (54%) had evidence of training and/or board certification in cardiology. Of the remaining 22 physicians, 13 were primary care providers with numerous specialties listed in the alternate data source, five had evidence of training and board certification in general internal medicine, one in pediatric infectious disease, one in palliative medicine, one in pediatric surgery, and one in emergency medicine.

Dermatology: Of nine unique dermatologists identified through the alternate data source, six (67%) had evidence of fellowship training and/or board certification in dermatology or dermatopathology; the others had evidence of training and/or board certification in anesthesiology/emergency medicine, critical care/palliative medicine, and internal medicine.

Endocrinology: Of 23 unique endocrinologists identified through the alternate data source, eight (35%) had evidence of training and/or board certification in endocrinology. Of the remaining 15 physicians, 13 were primary care providers with numerous specialties listed in the alternate data source, and two had evidence of training and board certification in general internal medicine.

Gastroenterology: Of 26 unique gastroenterologists identified through the alternate data source, nine (35%) had evidence of training and/or board certification in gastroenterology. Of the remaining 17 providers, 13 were primary care providers with numerous specialties listed in the alternate data source; two had evidence of training and board certification in general internal medicine, one in pediatric cardiology, and one in psychology.

Hematology/Oncology: Of 31 unique hematologists/oncologists identified through the alternate data source, 14 (45%) had evidence of training and/or board certification in hematology/oncology. Of the remaining 17 physicians, 12 were primary care providers with numerous specialties listed in the alternate data source, three had evidence of training and board certification in general internal medicine, one in general surgery, and one in pathology.

Nephrology: Of 21 unique nephrologists identified through the alternate data source, six (29%) had evidence of training and/or board certification in nephrology. Of the remaining 15 physicians, 13 were primary care providers with numerous specialties listed in the alternate data source; one had evidence of training and board certification in general internal medicine, and one in rheumatology.

Neurology: Of 19 unique neurologists identified through the alternate data source, 11 (58%) had evidence of training and/or board certification in neurology and/or sleep medicine. The remaining eight had evidence of training and board certification in psychiatry.

Otolaryngology: Of 10 unique otolaryngologists identified through the alternate data source, six (60%) had evidence of training and/or board certification in otolaryngology. Of the remaining four physicians identified as otolaryngologists in the alternate data source, three had evidence of other training and board certification in ophthalmology, and one physician had training and board certification in pulmonary/critical care medicine.

Pulmonology: Of 25 unique pulmonologists identified through the alternate data source, seven (28%) had evidence of training and/or board certification in pulmonology. Of the remaining 18 physicians, 13 were primary care providers with numerous specialties listed in the alternate data source; two had evidence of training and board certification in allergy and immunology, two in general internal medicine, and one in nephrology.

Rheumatology: Of 16 unique rheumatologists identified through the alternate data source, three (19%) had evidence of training and/or board certification in rheumatology; the other 13 were primary care providers with numerous specialties erroneously included in the alternate data source.

The accuracy of the alternate data source in identifying specialists ranged from 19% (rheumatology) to 67% (dermatology). Moreover, in seven of 10 specialty areas, less than half of the providers identified in the alternate data source as specialists could be verified as having training and/or certification in that specialty area. This inconsistency across specialty areas is a significant threat to the validity of this alternate data source. Because many Medicaid programs and health plans may have their own unique data sources that could supplement taxonomy-based identification, it is imperative that such data sources should undergo careful verification of the accuracy of specialist identification before including them in measure calculation.

In summary, results of Validity Test 2 support the use of measure specifications that identify specialists based on taxonomy codes only. Moreover, these results underscore the importance of testing and verification prior to supplementing taxonomy-based codes with alternate data sources.

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

This measure does not address any disparities related to race or ethnicity, as the measure does not track any demographic information on the part of the children being seen.

VII.B. Special Health Care Needs

This measure does not address any disparities related to special health care needs, as the measure does not track any medical information on the part of the children being seen.

VII.C. Socioeconomic Status

This measure does not address any disparities related to socioeconomic status, as the measure does not track any demographic information on the part of the children being seen.

VII.D. Rurality/Urbanicity

This measure does not address any disparities related to rurality/urbanicity on the part of patients, as the measure does not track any residential information on the part of the children being seen.

VII.E. Limited English Proficiency (LEP) Populations

This measure does not address any disparities related to LEP populations, as the measure does not track any demographic information on the part of the children being seen.

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?

Data to calculate this measure are expected to be widely available to state Medicaid programs, as well as to public and private health plans. The measure requires the following data elements:

- Enrolled provider NPI – consistently collected during provider enrollment in a Medicaid program or health plan; consistently included in provider demographic files.
- Provider specialty – available by linking provider NPI with national or state databases via taxonomy codes.
- Child age – consistently collected during enrollment in a Medicaid program or health plan; consistently included in enrollee demographic files.
- Child enrollment duration – consistently maintained in Medicaid program/health plan enrollee demographic files.
- Outpatient visits – consistently collected through the processing of administrative claims for services provided.
- Place-of-service codes that indicate outpatient location – consistently collected through the processing of administrative claims for services provided.
- Rendering/billing provider NPI – consistently collected through the processing of administrative claims for services provided.

These data are considered typical components of health care administrative claims information. As such, they are expected to be routinely collected and maintained by public and private payers. Feasibility testing for this measure was performed for one state Medicaid program (Michigan) using data routinely maintained in the state's data warehouse. The data warehouse contains health care utilization and eligibility information for Michigan Medicaid members, as well as provider enrollment data. Feasibility testing was performed for two calendar years (2012, 2013) by a data analyst experienced in extracting and analyzing Medicaid enrollment, utilization, and provider data. Testing was performed according to measure specifications; measure results were calculated (shown in Section VI, Reliability).

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.

For feasibility testing, provider NPIs were linked to relevant taxonomy codes in two data sources: 1) the NPPES (National Plan & Provider Enumeration System) registry, a national data source available to all Medicaid programs and health plans, and 2) taxonomy codes in provider enrollment data collected by the Michigan Medicaid program. Child enrollment data were drawn from enrollment files in the data warehouse; utilization data were drawn from adjudicated claims files in the data warehouse. Rendering and billing provider NPIs were used to identify the providers for outpatient visits.

The required data were readily available in these data sources, with a missing data rate of <.001%. In summary, the feasibility of calculating this measure is excellent. It is anticipated that calculation of this measure is highly feasible by a data analyst experienced with Medicaid administrative data.

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 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 [†]	<u>Intended use:</u> Is measure intended to support meaningful comparisons at this level? (Yes/No)	<u>Data Sources:</u> Are data sources available to support reporting at this level?	<u>Sample Size:</u> 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?	<u>In Use:</u> Have measure results been reported at this level previously?	<u>Reliability & Validity:</u> Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?	<u>Unintended consequences:</u> What are the potential unintended consequences of reporting at this level of aggregation?
State level*: Can compare States	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes	NA – requires all enrolled children and providers	No	No	None identified
Other geographic level: Can compare other geographic regions (e.g., MSA, HRR)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA	NA	NA	NA	NA
Medicaid or CHIP Payment model: Can compare payment models (e.g., managed care, primary care case management, FFS, and other models)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA	NA	NA	NA	NA
Health plan*: Can compare quality of care among health plans.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes	NA – requires all enrolled children and providers	No	No	None identified
Provider-level* Individual practitioner: Can compare individual health care professionals	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA	NA	NA	NA	NA
Hospital: Can compare hospitals that serve SCD patients.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA	NA	NA	NA	NA
Practice, group, or facility:** Can compare: (i) practice sites; (ii) medical or other professional groups; or (iii) integrated or other delivery networks	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NA	NA	NA	NA	NA

[†] 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.

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 states, Medicaid programs, parents, and other stakeholders with a standardized mechanism to assess the availability of outpatient specialty care for children. The simplicity of the measure allows providers and purchasers to assess the rate of how many providers are available for a state's enrolled child population. Higher rates of available providers are easily understood to be preferred. Given the variability in disease prevalence and specialty care patterns across these 10 specialty areas, it is not appropriate to compare rates for one specialty versus another. Rather, this measure facilitates within-specialty tracking of specialist availability across time, as well as within-specialty comparisons across payers or across states.

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.

Health IT enhancements by providers, such as electronic health records (EHRs), are not applicable to this measure. Enhancements of state Medicaid programs to provide more robust data warehouse capabilities for administrative data may improve the timeliness, completeness, and accuracy of provider information used for this measure.

XI.B. Health IT Testing

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

No. This measure is derived from administrative data sources that characterize the health providers authorized to bill for services for state Medicaid programs. Consequently, EHR-based information for individual encounters is not applicable to this measure.

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.

Not applicable; this measure is derived from state Medicaid program administrative data files.

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?

No

XI.E. Health IT Calculation

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

Missing or ambiguous information has a direct impact on this measure. The completeness and accuracy of Medicaid administrative data files designating authorized providers will influence the validity of this measure. Missing provider specialty codes in administrative data files will understate

the availability of these specialists. Inaccurately coded provider specialties may either under- or overstate the availability of these providers.

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?

Not applicable

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).

Accuracy of Provider Specialty Identification Data Sources

There is no single comprehensive, accurate, up-to-date data source to identify physician specialty. The NPPES registry has significant advantages in that it is a national system that is widely available to Medicaid programs and health plans. NPPES is a very complete data source, identifying the majority of specialists that could also be identified through state- or program-specific sources. NPPES is a very accurate data source, as evidenced in validity testing. However, NPPES is also an incomplete data source; there is no standard mechanism or requirement for providers to update their NPPES registry information when additional certification is obtained. Moreover, NPIs can be deactivated in NPPES (e.g., for deceased physicians), which limits the ability to use NPPES as a retroactive data source. The incompleteness of NPPES data was demonstrated in validity testing, as the two types of Medicaid program-specific data sources identified additional specialists who were not identified in NPPES. The inclusion of program- or plan-specific physician specialty data improves the comprehensiveness of specialist identification, but may sacrifice accuracy. It is likely that the process by which specialty data are collected and entered into program- or plan-specific databases is highly variable, resulting in a mix of verified and self-reported specialty designations. As shown in validity testing, this was a particular issue for the alternate program-specific specialty data source.

Tension between Defining Specialists via Training/Certification versus Practice

A related issue is the extent to which specialist designation should be based on training/certification or clinical expertise and experience. For example, some primary care providers seek additional education (e.g., through continuing medical education or other professional development) and/or develop extensive clinical experience in certain specialty areas. The provision of this type of “enhanced primary care” may be particularly important in rural and other underserved areas, where specialist availability is limited. Beyond formal board certification or fellowship training, there is no standard threshold for additional training that would identify primary care providers who are highly qualified to provide specialty care. This may be a topic that warrants further research.

Additionally, the population of older physicians raises issues of defining specialty by training/certification or practice patterns. In validity testing, some older physicians had completed medical training prior to the establishment of fellowship training requirements, yet had completed some specialty-related training (e.g., an additional year of targeted residency training) and were practicing as specialists. In other cases, older physicians with specialty training and/or certification were no longer delivering specialty care, but rather providing primary care.

Completeness of Outpatient Visit Data

Accurate calculation of this measure requires complete data for all outpatient visits. There are several threats to data completeness. For children enrolled in managed care plans, outpatient visits that are covered under capitation arrangements may be underreported, if requirements are not in place for full reporting of all fields for managed care encounters. This may produce understated measure results. While this was not the case in the data used for reliability and validity testing of this measure, it remains a potential limitation for the measure's broader application. In addition, provider information may be incomplete due to use of organization billing NPIs, rather than specific rendering of provider NPI, for some visits, which also may lead to measure results that are understated.

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 assesses the rate of participating cardiologists, dermatologists, endocrinologists, gastroenterologists, hematologists/oncologists, nephrologists, neurologists, otolaryngologists, pulmonologists, and rheumatologists who have seen at least one enrolled child in the measurement year for at least one outpatient visit per eligible population of children. This rate will be expressed in terms of 1,000 eligible children (number of providers/1,000 eligible children), where the eligible population includes children younger than 18 years of age who have been enrolled in a Medicaid program or health plan that includes outpatient specialty care for at least one 90-day period (or 3 consecutive months) within the measurement year. The measure is implemented with administrative claims data, and specialists are identified by specific taxonomy codes. There are no known existing quality measures that assess the availability of such specialists to pediatric patients.

Many children have conditions that would benefit from the confirmatory testing, definitive diagnosis, initial treatment, and/or ongoing management provided by specialists. However, difficulties with access to specialty care have been reported by both parents and primary care physicians, particularly for children who are enrolled in Medicaid. Many specialists do not participate in Medicaid, and some specialists listed as Medicaid participating providers are not accepting new Medicaid patients.

Q-METRIC used two methods to test the reliability of the measure: 1) Replication of the measure calculation process demonstrated excellent reliability, with some minor variance observed due to the dynamic nature of health administrative data. 2) Comparison of the taxonomy-based provider identification data sources showed very good reliability. Validity testing was performed to assess three aspects of the measure: 1) Testing to determine whether the identified specialists' content of care provided to Medicaid-enrolled children reflected the respective specialty areas showed excellent validity for all 10 specialty areas. 2) Testing to determine whether the identified specialists had specific certification and/or training in the respective areas showed excellent validity in all 10 specialty areas. 3) Testing to determine whether the inclusion of alternate provider specialty data sources would enhance specialist identification did not demonstrate good validity, suggesting that verification should be performed before using non-taxonomy, program-specific data sources in the measure calculation.

This measure provides states, Medicaid programs, parents, and other stakeholders with a way to assess the availability of outpatient specialty care for children. While the data sources needed to calculate this measure are readily available, limitations include accuracy of data sources for provider

specialty identification; tension between defining specialists via training/certification versus practice; and completeness of outpatient visit data. Health IT enhancements by state Medicaid programs to develop more robust data warehouse capabilities for administrative data may improve the timeliness, completeness, and accuracy of provider information used for this measure.

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
- e. 734-232-0657
- f. gfreed@med.umich.edu
- 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. The Measures can be reproduced and distributed, without modification, for noncommercial purposes, e.g., use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of the Measures for commercial gain, or incorporation of the Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the measures require a license agreement between the user and the Quality Measurement, Evaluation, Testing, Review and Implementation Consortium (Q-METRIC) at the University of Michigan (U-M). Neither Q-METRIC/U-M nor their members shall be responsible for any use of the Measures. Q-METRIC/U-M makes no representations, warranties or endorsement about the quality of any organization or physician that uses or reports performance measures, and Q-METRIC/U-M has no liability to anyone who relies on such measures. The Q-METRIC performance measures and specifications are not clinical guidelines and do not establish a standard of medical care.

This statement is signed by Gary L. Freed, MD, MPH, who, as the principal investigator of Q-METRIC, is authorized to act for any holder of copyright on the submitted measure.

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Availability of Specialty Services

Measure 4: Access to Outpatient Specialty Care for Children

Description

Rate of participating cardiologists, dermatologists, endocrinologists, gastroenterologists, hematologists/oncologists, nephrologists, neurologists, otolaryngologists, pulmonologists, and rheumatologists who have seen ≥ 1 enrolled child, age < 18 years, for at least one outpatient visit during the measurement year. A higher rate indicates better performance as reflected by increased availability of service.

Calculation

This measure requires administrative data and is calculated as 10 rates. The denominator is the number of eligible children divided by 1,000.

1. The number of cardiologists who have provided any outpatient care to at least one child (cardiologist numerator divided by denominator), per 1,000 eligible children.
2. The number of dermatologists who have provided any outpatient care to at least one child (dermatologist numerator divided by denominator), per 1,000 eligible children.
3. The number of endocrinologists who have provided any outpatient care to at least one child (endocrinologist numerator divided by denominator), per 1,000 eligible children.
4. The number of gastroenterologists who have provided any outpatient care to at least one child (gastroenterologist numerator divided by denominator), per 1,000 eligible children.
5. The number of hematologists/oncologists who have provided any outpatient care to at least one child (hematologist/oncologist numerator divided by denominator), per 1,000 eligible children.
6. The number of nephrologists who have provided any outpatient care to at least one child (nephrologist numerator divided by denominator), per 1,000 eligible children.
7. The number of neurologists who have provided any outpatient care to at least one child (neurologist numerator divided by denominator), per 1,000 eligible children.
8. The number of otolaryngologists who have provided any outpatient care to at least one child (otolaryngologist numerator divided by denominator), per 1,000 eligible children.
9. The number of pulmonologists who have provided any outpatient care to at least one child (pulmonologist numerator divided by denominator), per 1,000 eligible children.
10. The number of rheumatologists who have provided any outpatient care to at least one child (rheumatologist numerator divided by denominator), per 1,000 eligible children.

Definitions

Provider Identification

Identify specialists using taxonomy codes linked to provider NPI (National Provider Identifier). Examples include program enrollment files and the National Plan & Provider Enumeration System [NPPES] registry. Include only providers who are individual physicians (MD/DO). This can be accomplished with NPPES by requiring that Entity Type Code=1. Use rendering NPI or billing NPI. See Table AVS4-A for National Uniform Claim Committee provider taxonomy codes.

Table AVS4-A: Provider Taxonomy Codes

Specialty	Subtype	Taxonomy Code
Cardiology	Interventional Cardiology	207RI0011X
	Pediatric Cardiology	2080P0202X
	Cardiovascular Disease	207RC0000X
Endocrinology	Endocrinology, Diabetes and Metabolism	207RE0101X
	Pediatric Endocrinology	2080P0205X
Gastroenterology	Gastroenterology	207RG0100X
	Pediatric Gastroenterology	2080P0206X
Nephrology	Nephrology	207RN0300X
	Pediatric Nephrology	2080P0210X
Neurology	Behavioral Neurology and Neuropsychiatry	2084B0040X
	Neuromuscular Medicine	2084N0008X
	Neurology	2084N0400X
	Neurology with Special Qualifications in Child Neurology	2084N0402X
	Clinical Neurophysiology	2084N0600X
	Neurodevelopmental Disabilities	2084P0005X
	Vascular Neurology	2084V0102X
Otolaryngology	Otolaryngology	207Y00000X
	Pediatric Otolaryngology	207YP0228X
	Facial Plastic Surgery	207YS0123X
	Plastic Surgery within the Head and Neck	207YX0007X
	Otolaryngic Allergy	207YX0602X
	Otology and Neurotology	207YX0901X
	Otolaryngology/Facial Plastic Surgery	207YX0905X
Pulmonology	Pulmonary Disease	207RP1001X
	Pediatric Pulmonology	2080P0214X
Rheumatology	Rheumatology	207RR0500X
	Pediatric Rheumatology	2080P0216X

Outpatient Care

Any visit within the measurement year with a Place of Service code listed in Table AVS4-B will be considered outpatient care for this measure. The outpatient visit must be with a child enrolled in a Medicaid program or health plan, without regard to duration of enrollment.

Table AVS4-B: Place of Service Codes

Place of Service	Code
School	03
Homeless Shelter	04
Indian Health Service Free-standing Facility	05
Indian Health Service Provider-based Facility	06
Tribal 638 Free-standing Facility	07
Tribal 638 Provider-based Facility	08
Office	11
Home	12
Mobile Unit	15
Outpatient Hospital	22
Ambulatory Surgical Center	24
Military Treatment Facility	26
Independent Clinic	49
Federally Qualified Health Center	50
Community Mental Health Center	53
Non-residential Substance Abuse Treatment Facility	57
Mass Immunization Center	60
Comprehensive Outpatient Rehabilitation Facility	62
End-stage Renal Disease Treatment Facility	65
Public Health Clinic	71
Rural Health Clinic	72

Eligible Population for the Denominator

Ages	Children born on September 30 or earlier in the measurement year but younger than 18 years on December 31 of the measurement year.
Enrollment	At least one Medicaid program or health plan enrollment period of 90 days or 3 consecutive months within the measurement year

Specification

Denominator	Number of eligible children divided by 1,000
Numerators	
Cardiologist	Number of cardiologists who have provided any outpatient care to at least one enrolled child
Dermatologist	Number of dermatologists who have provided any outpatient care to at least one enrolled child
Endocrinologist	Number of endocrinologists who have provided any outpatient care to at least one enrolled child
Gastroenterologist	Number of gastroenterologists who have provided any outpatient care to at least one enrolled child

<i>Hematologist/Oncologist</i>	Number of hematologists/oncologists who have provided any outpatient care to at least one enrolled child
<i>Nephrologist</i>	Number of nephrologists who have provided any outpatient care to at least one enrolled child
<i>Neurologist</i>	Number of neurologists who have provided any outpatient care to at least one enrolled child
<i>Otolaryngologist</i>	Number of otolaryngologists who have provided any outpatient care to at least one enrolled child
<i>Pulmonologist</i>	Number of pulmonologists who have provided any outpatient care to at least one enrolled child
<i>Rheumatologist</i>	Number of rheumatologists who have provided any outpatient care to at least one enrolled child
Level of Measurement	State-level Medicaid programs or health plans

Exclusions

- NPIs representing organizations and clinics.
- NPIs representing professionals who are not physicians (e.g., nurse practitioners and physician assistants).