



Measure Fact Sheet – The AHRQ-CMS Pediatric Quality Measures Program (PQMP)

Insurance Continuity Metric Suite I: Duration of First Observed Enrollment and Duration of Newborn’s First Enrollment

Measure Developer: The Children’s Hospital of Philadelphia (CHOP)

Measure	Numerator	Denominator	Exclusions
Duration of first observed enrollment.	Total number of children continuously enrolled in Medicaid at 6 months, 12 months, and 18 months after initial enrollment during a pre-specified observation period.	Total number of children newly enrolled in Medicaid during a 12-month pre-specified observation period.	<ul style="list-style-type: none"> Children 16 years and 5 months or older. This exclusion ensures that children do not reach age 18 or older before the end of the 18-month measurement period and lose age eligibility for Medicaid and CHIP programs. Children previously enrolled in Medicaid or CHIP within 1 month of the beginning of the observation window. Second period of enrollment within the observation window.
Duration of newborn’s first enrollment.	Total number of newborns continuously enrolled in Medicaid at 6 months, 12 months, and 18 months after enrollment during a pre-specified observation period.	Total number of newborns enrolled in Medicaid during a 12-month, pre-specified observation period.	<ul style="list-style-type: none"> None.

Note:

- The duration of first observed enrollment measure is adapted from the CMS duration measure of selected children.¹
- All measures are designed for use with administrative data sources.
- In States with joint Medicaid/CHIP programs or where separate CHIP programs report their enrollment data into Medicaid administrative records, these measures may be calculated jointly for Medicaid and CHIP and will take into account transition between programs.
- In States with separate CHIP programs where data is not reported into Medicaid administrative records, these measures may be calculated separately for Medicaid and CHIP, but will not reflect transition between programs.



Measure Importance

The reported numbers of children in the United States with gaps in coverage ranges from 9–11.1 million.^{2,3}

Disparities in continuity of coverage persist across several demographic groups represented in the Medicaid and CHIP populations, including minority children and children living in rural settings.^{4,5}

This measure can account for children with long durations of enrollment, thus providing a better snapshot of insurance coverage continuity among the Medicaid and CHIP populations.

Evidence Base for the Focus of the Measure⁶

Children with any insurance gaps are more likely to have an unmet medical need, such as access to preventive care or medications, compared with children who have continuous private coverage.⁷ States are engaged in efforts to maximize continuous insurance enrollment streamlining the enrollment and renewal process for Medicaid and CHIP.⁸

Advantages of the Measure

- These measures use existing administrative (claims) data, making them highly feasible.
- They are duration-oriented metrics, which means they are able to assess a State's ability to retain children once they are enrolled and are sensitive to efforts to streamline or reduce barriers to redetermination of eligibility.
- These measures can serve as a potential indicator of quality and access and reflect performance of States' outreach efforts to enroll children in these insurance programs.
- Newborn duration focuses on a vulnerable subgroup for which access to regular medical care is particularly important.

Levels of Aggregation Applicable to the Measure⁹

These measures may be applied at the State level as well as at other units of aggregation, including geographic aggregation down to the county level, and Medicaid and CHIP health plans.

Reliability and Validity of the Measure

- **Reliability** was framed in terms of the reproducibility of the measures of coverage, using random sampling of sizes 2000, 5000, and 10000 stratified by county. County-level stratification ensured that the reliability test avoided possible bias arising from differences in enrollee characteristics and the outcome retention metrics. Pairwise differences were estimated among these samples and the width of the resulting 95 percent confidence interval of these differences. The small confidence intervals of each metric in each State indicate a high degree of reliability.

- The metrics underwent two types of validity testing:
 - **Construct validity** was assessed via comparison of correlations and errors between duration and two independent insurance metrics. One, the continuity ratio,¹⁰ also utilized administrative data. The other used the American Community Survey,¹¹ which allowed observation of those who were eligible but unenrolled and thus providing additional perspective. Duration was poorly correlated with these two measures ($r=0.87$ and $r=0.44$, respectively), but that is indicative of the difference in population and focus.
 - **Predictive validity** testing assessed the association between the metrics and hospitalization for ambulatory care-sensitive conditions (ACSCs) and several utilization metrics included in the CHIPRA initial core set.¹² **Both metrics performed well with regard to predictive validity.** For example, greater duration was associated with having at least one preventive dental visit and having at least one dental treatment service over a calendar year and was associated with decreased likelihood of having an asthma-related emergency room visit.

Selected Results From Tests of the Measure

The measures were tested in eight States: Illinois, Louisiana, Montana, North Carolina, New Hampshire, New York, Oregon, and Utah. For duration, the percentage of children still continuously enrolled at 6 months ranged from 77 percent in Utah to 96 percent in New York. Percentage still enrolled at 12 and 18 months was substantially decreased, but followed a similar pattern across States, ranging between 60 percent and 84 percent at 12 months, and 39 percent and 61 percent at 18 months, with NY and UT still forming the upper and lower bounds. Newborn duration rates were generally higher at each time point in each State.

Stratification analyses by race/ethnicity and chronic disease status were also performed. In most States, Hispanics and non-Hispanic blacks had slightly higher duration and newborn duration rates than children classified as non-Hispanic white or “other” (Asian, American Indian, Alaskan Native, Pacific Islander, and race unknown/missing), which is consistent with the current literature.¹³ At all time points for duration, Hispanic children were most likely to retain coverage in the majority of the States. Rates varied widely across States, with 96.96 percent of Hispanic children in NY and 73.29 percent of other race/ethnicity in Utah retaining coverage at 6 months, compared to 65.07 percent of Hispanic children in NY and 23.06 percent of other race/ethnicity in Oregon at 18 months. Hispanic children in New York had the highest retention rate of all groups in each State at all time points.

Children with chronic disease also had better retention rates than those without; children with chronic disease had duration rates 1.96 to 15.18 percentage points higher at 6 months and 9.54 to 20.77 percentage points higher at 18 months. This finding is also reflected in the literature.^{2,14}

Caveats

- Because duration limits inclusion to “new enrollees,” a sizeable majority of children (70–85 percent of children in most States) are excluded from measurement (“left-hand censoring” in technical terms), a finding confirmed anecdotally in CHOP’s discussions with State Medicaid and CHIP officials. The newborn duration metric, however, is not subject to this limitation because it is anchored to the date of birth and subsequent enrollment.
- Because these metrics are designed to measure retention, they reflect only the first spell of continuous enrollment, and thus are not sensitive to gaps in coverage. As a consequence, they cannot be used to reflect State efforts to increase participation rates through outreach efforts.
- States with separate Medicaid and CHIP administration, governance, and data systems will need to allocate resources to merge these data files in order to produce accurate figures about duration of enrollment for children switching between these programs.

More Information

- AHRQ: CHIPRAqualitymeasures@ahrq.hhs.gov
- CHOP: Justin Ludwig
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- Coming soon: Link to measure details on the AHRQ Web site.

For more information about the PQMP, visit www.ahrq.gov/CHIPRA

The Children’s Health Insurance Program Reauthorization Act (CHIPRA) called for establishment of a Pediatric Quality Measures Program (PQMP) as a followup to identifying the initial core set of children’s health care quality measures. This fact sheet was produced by the Agency for Healthcare Research and Quality (AHRQ), based on information provided by the Children’s Hospital of Philadelphia, which was funded by an AHRQ/CMS grant as a CHIPRA Center of Excellence. A listing of all submitted PQMP Centers of Excellence can be found at www.ahrq.gov/CHIPRA. All measures are publicly available for noncommercial use.

Notes and references

- ¹General Services Administration. 2011. "Chip Annual Report Template System (Carts)" [accessed on May 6, 2013.] Available at: http://www.reginfo.gov/public/do/PRAViewIC?ref_nbr=201111-0938-009&icID=200547.
- ²Bethell CD, Kogan MD, Strickland BB et al. A National and State Profile of Leading Health Problems and Health Care Quality for U.S. Children: Key Disparities and Across-State Variations. *Academic Pediatrics*. Vol. 11, Issue 3, S22-33, May 2011. [http://www.academicpedsjnl.net/article/S1876-2859\(10\)00250-0/abstract](http://www.academicpedsjnl.net/article/S1876-2859(10)00250-0/abstract).
- ³Satchel M, Pati S. Insurance gaps among vulnerable children in the United States, 1999-2001. *Pediatrics*. 2005 Nov;116(5): 1155-61. <http://www.ncbi.nlm.nih.gov/pubmed/16264003/>.
- ⁴Flores, G., Tomany-Korman, S.C. (2008). Racial and ethnic disparities in medical and dental health, access to care, and use of services in US children. *Pediatrics*. 121 (2): E286-E298.
- ⁵Coburn, A. F., McBride, T. D., & Ziller, E. C. (2002). Patterns of health insurance coverage among rural and urban children. *Medical Care Research & Review*, 59(3), 272-292.
- ⁶An evidence base comprises the breadth and rigor of studies demonstrating 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).
- ⁷Olson LM, Tang SF, Newacheck PW. Children in the United States with discontinuous health insurance coverage. *N Engl J Med*. 2005 Jul 28;353(4): 382-91.
- ⁸Kaiser Commission on Medicaid and the Uninsured (2012): *An Analysis of Four States at the Forefront of the Nation's Gains in Children's Health Coverage*. The Henry J. Kaiser Family Foundation. Washington DC.
- ⁹The Children's Health Insurance Program Reauthorization Act required measures developed under this program to "permit comparison of quality and data at a State, plan, and provider level." The measure developer identified the intended levels of aggregation and comparison as reported here.
- ¹⁰Ku, L., E. Steinmetz and B. K. Bruen. 2013. "Continuous-Eligibility Policies Stabilize Medicaid Coverage for Children and Could Be Extended to Adults with Similar Results." *Health Affairs* 32 (9): 1576-82.
- ¹¹Boudreaux, M., K. T. Call, J. Turner, et al. 2013. "Accuracy of Medicaid Reporting in the Acs: Preliminary Results from Linked Data" [accessed on April 17, 2014]. Available at: <http://www.shadac.org/publications/accuracy-medicare-reporting-in-acs-preliminary-results-linked-data>.
- ¹²Centers for Medicare and CHIP Services. (2011). *Initial core set of children's health quality measures: technical specifications and resource manual for federal fiscal year 2011 reporting*. (Centers for Medicare & Medicaid Services). Retrieved from <http://www.medicare.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/Downloads/InitialCoreSetResouceManual.pdf>.
- ¹³Sommers BD. From Medicaid to uninsured: drop-out among children in public insurance programs. *Health Serv. Res.* Feb 2005;40(1):59-78.
- ¹⁴Silver EJ, Stein RE. Access to care, unmet health needs, and poverty status among children with and without chronic conditions. *Ambul. Pediatr.* Nov-Dec 2001;1(6):314-320.

