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INTRODUCTION

Over the past several decades, the United States has experienced major expansions in public health insurance for low-income children through Medicaid, the Children’s Health Insurance Program (CHIP), and other State-level efforts. Most recently, many low-income parents and other adults gained Medicaid coverage under the Affordable Care Act.¹ Although Medicaid expansion through the Affordable Care Act targeted adults, some of its provisions had the potential to affect children’s coverage both directly (e.g., by changing how Medicaid and CHIP define income and family size) and indirectly (e.g., by increasing parents’ access to and awareness of enrollment options for eligible children).² Indeed, Medicaid and CHIP participation among eligible children increased during the first year of implementation of the Affordable Care Act’s major coverage provision—from 88.7 percent in 2013 to 91.0 percent in 2014.³

Responding to the rapidly evolving state of public health coverage for low-income children and the low-income population more generally, an important and growing body of research examines health outcomes, and health care access, cost, and utilization among CHIP and Medicaid beneficiaries.^{4,5,6,7} Researchers pursuing such research questions using the Healthcare Cost and Utilization Project (HCUP) databases may rely on the “expected payer” element to identify discharges with Medicaid and/or CHIP as the expected sources of payment for the hospital bill. To provide guidance for these researchers, this report examines the completeness and accuracy of HCUP expected payer codes representing Medicaid and CHIP.

A 2014 HCUP Methods Series report focused on the expected payer data element, providing comparisons of 2011 HCUP inpatient discharges and 2011 enrollment or population estimates for Medicare, Medicaid, private insurance, and uninsurance.⁸ The current report differs from or expands on the 2014 report in two key ways. First, it focuses specifically on Medicaid and

¹ Kominski GF, Nonzee NJ, Sorensen A. The Affordable Care Act's impacts on access to insurance and health care for low-income populations. *Annu Rev Publ Health*. 2017 Mar; 38:489–505.

² Kenney GM, Haley J, Pan C, et al. Children’s Coverage Climb Continues: Uninsurance and Medicaid/CHIP Eligibility and Participation Under the ACA. Urban Institute / Robert Wood Johnson Foundation. 2016. www.urban.org/sites/default/files/publication/80536/2000787-Childrens-Coverage-Climb-Continues-Uninsurance-and-Medicaid-CHIP-Eligibility-and-Participation-Under-the-ACA.pdf. Accessed July 14, 2018.

³ Ibid.

⁴ Decker SL, Kostova D, Kenney GM, et al. Health status, risk factors, and medical conditions among persons enrolled in Medicaid vs uninsured low-income adults potentially eligible for Medicaid under the Affordable Care Act. *JAMA*. 2013 Jun 26;309(24):2579–86.

⁵ Flores G, Lin H, Walker C, et al. The health and healthcare impact of providing insurance coverage to uninsured children: A prospective observational study. *BMC Pub Health*. 2017 Dec;17(1):553.

⁶ Kuo DZ, Hall M, Agrawal R, et al. Comparison of health care spending and utilization among children with Medicaid insurance. *Pediatrics*. 2015 Dec 1;136(6):1521–9.

⁷ Sommers BD, Blendon RJ, Orav EJ, et al. Changes in utilization and health among low-income adults after Medicaid expansion or expanded private insurance. *JAMA Intern Med*. 2016 Oct 1;176(10):1501–9.

⁸ Barrett M, Lopez-Gonzalez L, Hines A, et al. An Examination of Expected Payer Coding in HCUP Databases. 2014. HCUP Methods Series Report # 2014-03. December 17, 2014. U.S. Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/reports/methods/methods.jsp. Accessed July 16, 2018.

CHIP, and includes an analysis of CHIP-specific HCUP expected payer codes (available for a small subset of States). Second, the current report uses more recent HCUP data and enrollment data than did the previous report. HCUP inpatient discharge frequencies are presented for 2016 and fiscal year (FY) 2013, and comparisons of HCUP inpatient discharges and enrollment estimates for CHIP and Medicaid are presented for FY 2013. FY 2013 was the most recent year for which both CHIP and age-specific Medicaid annual enrollment data were available. We used Statistical Enrollment Data System (SEDS) data for child enrollment in CHIP and Medicaid (as reported by Medicaid.gov) and Medicaid Statistical Information System (MSIS) data for adult enrollment in Medicaid (as reported by the Kaiser Family Foundation). Both the SEDS and MSIS contain data submitted by the States to the Centers for Medicare & Medicaid Services (CMS).

The objectives of this report include the following:

1. Provide background on CHIP and Medicaid programs
2. Identify general and State-specific CHIP and Medicaid codes
3. Assess the completeness and accuracy of State-specific CHIP code reporting
4. Compare HCUP inpatient discharges with CHIP and Medicaid as expected payer (by State) with publicly available enrollment data to assess the degree to which HCUP captures data for these populations
5. Provide guidance on using CHIP and Medicaid payer codes in research

HCUP EXPECTED PAYER DATA ELEMENT

In the HCUP databases, Medicaid and CHIP discharges can be identified using the “expected payer” data element. The expected payer data element in HCUP databases and other similar hospital encounter databases provides information on the type (category) of payer that the hospital expects to be the source of payment for the hospital bill. This data element is widely used as an important explanatory variable in health services research to examine such issues as trends or variations observed in hospitalizations^{9,10,11} or readmissions^{12,13} and in outcomes

⁹ Cunningham P, Sabik LM, Bonakdar Tehrani A. Trends in hospital inpatient admissions following early Medicaid expansion in California. *Med Care Res Rev.* 2017 Dec;74(6):705–22.

¹⁰ Nikpay S, Freedman S, Levy H, et al. Effect of the Affordable Care Act Medicaid expansion on emergency department visits: evidence from state-level emergency department databases. *Ann Emerg Med.* 2017 Aug; 70(2):215–25.e6

¹¹ Nuckols TK, Fingar KR, Barrett M, et al. The shifting landscape in utilization of inpatient, observation, and emergency department services across payers. *J Hosp Med.* 2017 Jun;12(6):443–46.

¹² Fuller RL, Atkinson G, McCullough EC, et al. Hospital readmission rates: the impacts of age, payer, and mental health diagnoses. *J Ambul Care Manage.* 2013 Apr-Jun;36(2):147–55.

¹³ Horney C, Capp R, Boxer R, et al. Factors associated with early readmission among patients discharged to post-acute care facilities. *J Am Geriatr Soc.* 2017 Jun;65(6):1199–205.

such as quality of care,¹⁴ utilization,¹⁵ and costs.^{16,17} Because the expected payer data element is widely used in research, publications, and policy papers, it is important to understand what is included in the data element to make best use of this information.

Unlike most data elements in the HCUP databases, the expected payer data element is not created in the same way across States. In large part, this variation is caused by the fact that the national standard for hospitals to submit a bill to payers (Uniform Bill), which most States use as the basis for their hospital data collection, does not include a data element for a classification of expected payer.¹⁸ Instead, the Uniform Bill (UB) includes the name and identification number for the specific payer for bill payment. Because of the importance of a payer classification for analyses of hospital services, all States participating in HCUP include a data field for expected payer classification. But the historic absence of expected payer classification on the UB has led each statewide data organization to develop its own approach to creating the data element. In developing their expected payer classification codes, statewide data organizations often factor in their local needs and interests to track (1) specific State and local programs that pay for hospital services, (2) different forms of health plans (e.g., HMOs, preferred provider organizations [PPOs]), and (3) payers that cover a substantial portion of the residents in their State (e.g., Indian Health Service in some States). Some States use the “Claim Filing Indicator Code”¹⁹ to obtain expected payer classification. This data element, which is on the electronic hospital claim (ANSI x12n 837i), can be problematic for data analysts because the code set involves overlapping, missing, and obscure concepts and does not include definitions.

To address the lack of a national standard for payers, the Public Health Data Standards Consortium developed the Source of Payment Typology through a consensus process, with input from individual statewide data organizations, the National Association of Health Data Organization (NAHDO), the Agency for Healthcare Research and Quality (AHRQ), the Centers for Disease Control and Prevention (CDC), and other stakeholders.²⁰ In 2009, the Source of Payment Typology was added to the UB “for public health data reporting only when required by

¹⁴ Hennings DL, Baimas-George M, Al-Quarayshi Z, et al. The inequity of bariatric surgery: publicly insured patients undergo lower rates of bariatric surgery with worse outcomes. *Obes Surg*. 2018 Jan;28(1):44–51.

¹⁵ Sabesan VJ, Petersen-Fitts G, Lombardo D, et al. Medicaid payer status is linked to increased rates of complications after treatment of proximal humerus fractures. *J Shoulder Elbow Surg*. 2017 Jun; 26(6): 948–53.

¹⁶ Barradas DT, Wasserman MP, Daniel-Robinson L, et al. Hospital utilization and costs among preterm infants by payer: Nationwide Inpatient Sample, 2009. *Mat Child Health J*. 2016 Apr; 20(4): 808–18.

¹⁷ Mehta V, Flores JM, Thompson RW, et al. Primary payer status, individual patient characteristics, and hospital-level factors affecting length of stay and total cost of hospitalization in total laryngectomy. *Head Neck*. 2017 Feb; 39(2):311–19.

¹⁸ Coffey RM, Ball JK, Johantgen M, et al. The case for national health data standards. *Health Aff (Millwood)*. 1997, Sep-Oct;16(5):58–72.

¹⁹ Agency for Healthcare Research and Quality. Claim Filing Indicator Code. www.ushik.ahrq.gov/ViewItemDetails?system=sdo&itemKey=133096000. Accessed July 18, 2018.

²⁰ Public Health Data Standards Consortium. Source of Payment Typology (Version 7.0). 2016. www.phdsc.org/standards/payment-typology-source.asp. Accessed July 18, 2018.

state or Federal law or regulations” (but is not allowed on claims submitted to payers by hospitals). To date, only a handful of States have adopted the Source of Payment Typology.

In addition to the categories used, other differences exist in the ways that States obtain expected payer information. In most States, hospitals are provided with a set of codes for different payer types as part of their hospital data reporting requirements and are required to provide the code for the type of payer expected to pay the bill. No studies on how hospitals determine the expected payer code have been published, but according to anecdotal reports from HCUP State representatives it likely varies from hospital to hospital. Many hospitals likely rely on the business or financial unit’s information on the health plan (e.g., name and plan identifier), information gathered by hospital admission or registration staff from the patient or the patient’s insurance card, or both. Some hospitals may keep an internal code set for payer type used for their analyses and then map the internal code to the State’s required code set. In other States, hospitals are not required to provide the expected payer code; instead the statewide data organization classifies the payer type using information about the payer (e.g., health plan name or identifier) on the discharge abstract reported to them by the hospital.

In addition to the problems related to lack of uniformity in coding and collection practices, there are concerns about the accuracy of the data. For example, patients covered by a Medicaid managed care plan may not be distinguishable from patients covered by a private insurance managed care plan. In addition, the hospital is reporting *expected* payer. The actual payer could be different than what was expected at the time of preparing the discharge abstract for claim submission. This potential discrepancy may be particularly relevant to patients who enter the hospital without insurance coverage, but who the hospital believes will be retroactively enrolled and covered by Medicaid. The hospital’s expectation of Medicaid payment may not always be fulfilled.

Using the expected payer data element for studies of hospital services poses other challenges. The response to the question “Who is expected to pay the hospital for a given service?” may be different from the response to “Who is the patient’s insurer?” This distinction applies particularly to uninsured patients, whose hospital stays may be paid for by various State or local programs for the indigent that are not insurance programs. Researchers often rely on the payer codes “self-pay” and “no charge” to identify records for the uninsured. This approach omits uninsured patients whose hospital stay is paid for by an indigent care program.

Given the wide use of the expected payer data and these issues surrounding its collection, it is surprising that few studies have examined expected payer data collection practices and data quality. We identified two studies that used California’s discharge data from the 1990s that were linked to program enrollment to validate the accuracy of the payer recorded on the discharge data. These studies found mixed results regarding the accuracy of Medicaid coding, specifically. In the first study,²¹ the discharge data were linked to Medicaid (Medi-Cal in California) enrollment files for patients younger than 65 years who were hospitalized for ambulatory care sensitive conditions. The study found that 10 percent of the discharges for

²¹ Chattopadhyay A, Bindman AB. Accuracy of Medicaid payer coding in hospital patient discharge data: implications for Medicaid policy evaluation. *Med Care*. 2005 Jun;43(6):586–91.

Medicaid enrollees were inaccurately coded as private insurance (7 percent), uninsured (2 percent), or other (1 percent). Of discharges for Medicaid enrollees in managed care, 22 percent were erroneously coded in the discharge data as private insurance. In addition, 10 percent of discharge records with an expected payer of Medicaid were not actually Medicaid enrollees during the month of hospitalization. The second study²² linked hospital discharge data with health benefits data for a large employer in California (University of California). Within this sample, miscoding of uninsured, Medicaid, or other State/local payer was rare (less than 5 percent).

THE MEDICAID AND CHIP PROGRAMS

Background

The CMS Center for Medicaid and CHIP Services oversees the Medicaid and CHIP programs. Both programs are administered by the States, according to Federal requirements, and funded jointly by the States and the Federal government.

Authorized by Title XIX of the Social Security Act, Medicaid was signed into law in 1965. All States, including the District of Columbia, have Medicaid programs that provide health coverage for low-income people. The Federal government provides basic requirements that States must follow; however, each State is otherwise allowed to design its own Medicaid program.²³ Most States provide coverage to the aged, blind, and disabled, children aged 0 through 18 years, pregnant women, and parents who meet the Medicaid income eligibility limits. Thirty-two States provide coverage to other adults as well through Medicaid expansion.²⁴ See Appendix A for more information on each State Medicaid program and its Medicaid eligibility requirements.

CHIP provides health coverage to children if the family cannot afford private insurance coverage and their household income is too high to qualify for Medicaid. Together, Medicaid and CHIP provide health insurance coverage for over one-third of all children.²⁵

CHIP (formally State CHIP [SCHIP]) was created by the Balanced Budget Act of 1997 (enacted Title XXI of the Social Security Act). CHIP was created as a complement program to Medicaid by providing funding that is intended to increase children's health care coverage and enrollment. Further expansion of these programs came from the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA), which increased Federal funding, provided new tools,

²² Buchmueller TC, Allen ME, Wright W. Assessing the validity of insurance coverage data in hospital discharge records: California OSHPD data. *Health Serv Res.* 2003 Oct;38(5):1359–72.

²³ Medicaid.gov. Program History. www.medicaid.gov/about-us/program-history/index.html. Accessed July 17, 2018.

²⁴ Kaiser Family Foundation. Where Are States Today? Medicaid and CHIP Eligibility Levels for Children, Pregnant Women, and Adults, January 2018. www.kff.org/medicaid/fact-sheet/where-are-states-today-medicaid-and-chip. Accessed April 23, 2018.

²⁵ Rudowitz R, Artiga S, Arguello R. Children's Health Coverage: Medicaid, CHIP, and the ACA. March 26, 2014. The Kaiser Commission on Medicaid and the Uninsured. www.kff.org/health-reform/issue-brief/childrens-health-coverage-medicaid-chip-and-the-aca/. Accessed July 18, 2018.

and gave fiscal incentives to further expand and strengthen children's coverage in Medicaid and CHIP.²⁶ CHIP was recently reauthorized through FY 2027, when Congress passed a 6-year extension of the program in January 2018 (HEALTHY KIDS Act) and extended it for another four years in February 2018 (Bipartisan Budget Act of 2018).²⁷

States can design their CHIP program in one of three ways: (1) as an expansion of the State Medicaid program, (2) as a separate CHIP program, or (3) as a combination of both approaches. Whereas Medicaid-expansion CHIP programs generally operate under Federal Medicaid rules, separate CHIP programs are governed under a distinct set of Federal rules. Under these rules, States can design CHIP benefit packages that resemble commercial insurance, charge premiums, and create waiting periods.²⁸ With combination programs, States receive funding to implement both a Medicaid-expansion CHIP program and a separate CHIP program. For example, a State may use a Medicaid-expansion program to cover low-income children or young children and use a separate CHIP program for other children.

The upper income eligibility limit for CHIP in each State ranges from 175 percent of the Federal poverty level (FPL) (North Dakota) to 405 percent of the FPL (New York). The separate CHIP eligible age range for all but five States is from 0 to 18 years of age. The majority of States (40) offer combination programs, nine States (including the District of Columbia) offer Medicaid expansion programs, and two States have separate CHIP programs. See Appendix B for more information on each State CHIP program.

Enrollment Data

For this report, we used FY 2013 Medicaid and CHIP enrollment data. This was the most recent public data that we could obtain for both Medicaid and CHIP annual enrollment that also provided Medicaid enrollment by age group (0–18, 19–64, and 65+ years). We used SEDS data, available through Medicaid.gov, for all child enrollment data (CHIP, Medicaid, and both CHIP and Medicaid),²⁹ and Medicaid Statistical Information System (MSIS) data, available through the Kaiser Family Foundation, for adult Medicaid enrollment estimates.³⁰ Both the MSIS and the SEDS contain data submitted by the states to CMS.

Although ideally, we would have used a single source for all enrollment data, CHIP enrollment estimates for FY 2013 were not available through MSIS. Prior to October 1, 2010, CMS only required that states submit aggregate CHIP demographic and enrollment data through SEDS and the CHIP Annual Reporting Template System (CARTS), but not through MSIS. States with

²⁶ Medicaid.gov. CHIPRA. www.medicaid.gov/chip/chipra/index.html. Accessed July 17, 2018.

²⁷ Medicaid and CHIP Payment and Access Commission (MACPAC). State Children's Health Insurance Program (CHIP) Fact Sheet. February 2018. www.macpac.gov/wp-content/uploads/2015/03/State-Childrens-Health-Insurance-Program-Fact-Sheet.pdf. Accessed July 17, 2018.

²⁸ Medicaid and CHIP Payment and Access Commission (MACPAC). Key CHIP Design Features. www.macpac.gov/subtopic/key-design-features/. Accessed July 18, 2018.

²⁹ Medicaid.gov. 2014 Number of Children Ever Enrolled Report. www.medicaid.gov/chip/downloads/fy-2014-childrens-enrollment-report.pdf. Accessed July 18, 2018.

³⁰ Kaiser Family Foundation State Health Facts. FY 2013 Medicaid Enrollment by Age. www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age. Accessed July 18, 2018.

Medicaid-expansion CHIP programs were required to submit person-level CHIP enrollment and claims data to MSIS, but States with combination or separate CHIP programs were only able to submit limited eligibility data for separate CHIP enrollees.³¹ Beginning October 1, 2010, CMS permitted (but did not mandate) States to submit complete CHIP data to MSIS. As of 2012, only seven States were reporting more than limited eligibility data to MSIS for separate CHIP enrollees, 22 were reporting limited eligibility data, and 14 were not reporting any data to MSIS.³²

Although child Medicaid enrollment estimates (excluding CHIP) were available through MSIS, for consistency (and to reduce the likelihood of double counting enrollees), we elected to use SEDS data for both child enrollment estimates used in our analysis: CHIP only and CHIP and Medicaid combined. See Appendix C for enrollment totals in CHIP and Medicaid by State. Medicaid enrollment totals are provided for children (aged 0–18 years), adults aged 19–64 years, and seniors aged 65 years and older.

HCUP DATABASES AND PAYER CODING

HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by AHRQ. HCUP databases bring together the data collection efforts of State governments, hospital associations, private data organizations, and the Federal government to create a national information resource of encounter-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, featuring all-payer, encounter-level information beginning in 1988.

For the analyses in this report, we used the HCUP State Inpatient Databases (SID), which include the universe of the inpatient discharge abstracts in participating States. To correspond with the FY 2013 CHIP and Medicaid enrollment data, we combined Quarter 4 (Q4) 2012 and Q1–Q3 2013 data from the calendar-year SID file. A total of 44 States participated in the SID in both 2012 and 2013. Their discharges encompassed about 94 percent of all annual discharges in the United States. See Appendix D for a list of participating HCUP State Partners.

³¹ Limited eligibility data elements include all quarterly variables (personal identifiers, demographic information, and the quarter, year, and type of record for each enrollee), as well as several monthly variables (maintenance assistance status, basis of eligibility, eligibility group, and CHIP code).

³² Camillo CA. CHIP Data in the Medicaid Statistical Information System (MSIS): Availability and Uses. MAX Medicaid Policy Brief No. 12. Centers for Medicare & Medicaid Services; October 2012. www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/Downloads/MAX_IB12_CHIPData.pdf. Accessed July 18, 2018.

Overview of HCUP Uniform Expected Payer Codes

The HCUP databases include three types of information on the expected payer.

1. *Expected payer as received from the State.* Every HCUP State provides one to three expected payers (HCUP data elements PAY1_X, PAY2_X, and PAY3_X). The coding for the payers is State specific. For example, one State may code Medicare discharges with the value “M” and another State may use the value “100.” States also vary in the level of detail with which they describe programs.
2. *Expected payer plan identifier as received from the State.* A small number of HCUP States provide one or two health plan identifiers for the expected payer (HCUP data elements PAYER1_X and PAYER2_X). The coding for the payers is State specific and provides additional detailed information on the name or type of insurance plan. For example, the expected payer would indicate private insurance, and the expected payer plan identifier would distinguish the insurance carrier (e.g., Blue Cross, UnitedHealth, Aetna).
3. *HCUP uniformly coded expected payer.* To facilitate comparisons across States, HCUP combines the State-specific detailed categories into six general groups:
 - Medicare (HCUP value 1): patients covered by fee-for-service and managed care Medicare
 - Medicaid (HCUP value 2): patients covered by fee-for-service and managed care Medicaid
 - Private insurance (HCUP value 3): fee-for-service and managed care programs, including Blue Cross, commercial carriers, private HMOs, and PPOs
 - Self-pay (HCUP value 4): patients who are financially responsible for their stay
 - No charge (HCUP value 5): hospital does not plan to charge the patient or another payer for the stay
 - Other (HCUP value 6): CHIP, Workers’ Compensation, TRICARE (health care for military families, formerly known as CHAMPUS), Veterans Affairs (VA) health care, Title V, and other payers.

The State-specific codes in the HCUP data element PAY1_X are combined into the six groups in the HCUP data element PAY1. The State-specific codes in the HCUP data element PAY2_X are combined into the six groups in the HCUP data element PAY2, and the same procedure is completed for PAY3_X and PAY3. The expected payer plan identifier (HCUP data element PAYERn_X) is not used to assign the uniformly defined groups in PAY1, PAY2, or PAY3.

HCUP State-Specific Payer Codes for CHIP and Medicaid

Although all HCUP data sources have payer codes to identify discharges insured by Medicare and Medicaid, they vary on the reporting of other Federal, State, and local government programs. Only seven of the HCUP States have a payer code designated solely for CHIP. See Supplement 1 for the State-specific CHIP codes used in HCUP. For the States that do not have

a specific payer code for CHIP, it is assumed that CHIP discharges are coded using Medicaid payer code(s). Although in most cases, HCUP discharges identified as CHIP are uniformly coded as “other” payer (HCUP value 6) in the HCUP expected payer variables,³³ some studies may want to consider these discharges as Medicaid because the census population surveys take this approach when creating insurance population estimates.³⁴

As noted above, State-specific payer codes representing Medicaid are assigned to the uniformly defined “Medicaid” (HCUP value 2) category in primary or other expected payer (PAY1, PAY2, or PAY3). See Supplement 2 for the State-specific Medicaid payer codes used in HCUP.

FREQUENCY AND ACCURACY OF STATE-SPECIFIC CHIP CODE REPORTING

Only seven HCUP States have a State-specific CHIP payer code: Florida, Georgia, Kansas, Montana, Tennessee, Utah, and West Virginia. Before using these codes to compare the percentage of HCUP inpatient discharges with CHIP as expected payer and the corresponding percentage of the population enrolled in CHIP, we conducted a preliminary assessment of the frequency and accuracy of hospital reporting of these codes within each State. Specifically, for each State, we examined (1) how many hospitals used the CHIP code and (2) whether the CHIP code was assigned to discharges for patients within the expected age range (based on age eligibility for the State’s CHIP program).

For this analysis, the HCUP SID was limited to community, nonrehabilitation hospitals. Transfers were deleted from the SID to avoid double counting. Discharges were limited to those in which the hospital State was the same as the patient’s State of residence, and therefore would be part of the in-State CHIP program. Discharges with a State-specific CHIP code listed as primary or other expected payer (PAY1_X, PAY2_X, or PAY3_X) were included.

As a first step, we examined the percentage of hospitals in each of the seven States that reported discharges with CHIP as an expected payer (hereafter referred to as “CHIP discharges.”) The results for FY 2013 (the year of data used in our enrollment comparison analyses) are reported in Table 1. In all but one of the seven States (Utah), less than half of the hospitals reported CHIP discharges. When limiting counts to hospitals with more than 10 CHIP discharges during the year, the percentages were even lower. Across all seven States, less than one-quarter of hospitals reported more than 10 CHIP discharges in FY 2013.

³³ State-specific CHIP expected payer codes for Montana and Georgia are exceptions. For the years of focus in this analysis, Montana’s CHIP-related expected payer code, “Healthy Montana Kids,” was assigned to the uniformly defined “Medicaid” (HCUP value 2) category. Georgia has two CHIP-related expected payer codes: “State SCHIP Program” and “Medicaid/SCHIP.” The State SCHIP Program code was assigned to the uniformly defined “other” payer (HCUP value 6) category, whereas the Medicaid/SCHIP code was assigned to the uniformly coded “Medicaid” (HCUP value 2) category. Because the State SCHIP Program code was not associated with any Georgia discharges in FY 2013, the Georgia CHIP discharges considered in this analysis represent those associated with the Medicaid/SCHIP code.

³⁴ U.S. Census Bureau. Small Area Health Insurance Estimates (SAHIE) Program. Data Inputs: Medicaid Participation. www.census.gov/programs-surveys/sahie/technical-documentation/model-input-data/medicaid.html. Accessed August 7, 2018.

To assess whether use of the CHIP codes increased over time, we conducted the same analysis with 2016 HCUP data. Results are reported in Table 2. For all States except for Montana and Tennessee, the percentage of hospitals with any CHIP discharges were lower in 2016 than in FY 2013. Between 3.2 and 52.8 percent of hospitals in each State reported one or more CHIP discharges, and between 1.6 and 31.0 percent of hospitals reported more than 10 CHIP discharges.

Table 1. Percentage of Hospitals Using CHIP Payer Code, FY 2013

State	Total Hospitals, N	Hospitals With CHIP Discharges, N	Hospitals With CHIP Discharges, %	Hospitals With >10 CHIP Discharges, N	Hospitals With >10 CHIP Discharges, %
Florida	242	88	36.4	32	13.2
Georgia	149	12	8.1	3	2.0
Kansas	125	12	9.6	5	4.0
Montana	38	6	15.8	5	13.2
Tennessee	116	38	32.8	27	23.3
Utah	49	32	65.3	10	20.4
West Virginia	51	23	45.1	8	15.7

Abbreviations: CHIP, Children's Health Insurance Program; FY, fiscal year

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013.

Table 2. Percentage of Hospitals Using CHIP Payer Code, 2016

State	Total Hospitals, N	Hospitals With CHIP Discharges, N	Hospitals With CHIP Discharges, %	Hospitals With >10 CHIP Discharges, N	Hospitals With >10 CHIP Discharges, %
Florida	239	86	36.0	31	13.0
Georgia	138	6	4.3	3	2.2
Kansas	125	4	3.2	2	1.6
Montana	40	10	25.0	7	17.5
Tennessee	100	51	51.0	31	31.0
Utah	53	28	52.8	9	17.0
West Virginia	50	14	28.0	3	6.0

Abbreviations: CHIP, Children's Health Insurance Program

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2016.

This first preliminary analysis indicated that the State-specific expected payer codes for CHIP are not used frequently or consistently across hospitals. Researchers using these codes should be aware that they do not capture all CHIP discharges in a given State. Even for these seven States, it is likely that a substantial portion of discharges covered by CHIP will have Medicaid (rather than CHIP) as an expected payer code.

As a second step, we examined the distribution of patient age associated with CHIP discharges in the subset of seven States. The results for FY 2013 are reported in Table 3. For Florida, Georgia, Utah, and West Virginia, the vast majority of CHIP discharges were among patients aged 0–18 years. This result was expected, because the age eligibility maximum for these CHIP programs is 18 years (see Appendix B). For Tennessee, 56.7 percent of CHIP discharges were among patients aged 19–64, with the remaining discharges among children. This result

also was expected, because Tennessee's CoverKids program covers pregnant women meeting certain eligibility requirements.³⁵ In fact, a follow-up analysis confirmed that the vast majority of Tennessee CHIP discharges were for maternal or neonatal diagnoses (data not shown). Taken together, these findings suggest that State-specific CHIP codes for Florida, Georgia, Utah, West Virginia, and Tennessee were assigned to relevant discharges (i.e., discharges for patients representing the eligible CHIP population.)

For Kansas and Montana, the majority of CHIP discharges were among patients aged older than 18 years, with a substantial proportion of CHIP discharges among patient aged 65 years and older (12.7 percent of Kansas discharges and 28.2 percent of Montana discharges). However, CHIP programs in these States do not cover pregnant women.³⁶ These findings suggest that the CHIP expected payer codes for Kansas and Montana encompass discharges with expected payers outside of CHIP (potentially other Medicaid program that cover adults). As such, we elected to exclude these two States from our analysis comparing the percentages of HCUP discharges with CHIP as expected payer and CHIP enrollment percentages.

Again, to examine whether the accuracy of CHIP coding improved over time, we repeated this analysis using 2016 HCUP data (see Table 4). Findings were similar for Florida, Georgia, Utah, and West Virginia, with the majority of CHIP discharges among patients aged 0–18 years. Unlike FY 2013, however; in 2016, a substantial portion of CHIP discharges in Georgia and West Virginia were among patients aged 19–64 years (17.4 and 9.6 percent, respectively) and patients aged 65 years and older (6.1 percent and 2.0 percent, respectively). Because these CHIP programs do not cover pregnant women,³⁷ it is unclear why discharges for patients in these older age groups were coded using CHIP-specific expected payer codes. As in FY 2013, Tennessee CHIP discharges in 2016 were among either pediatric patients or patients aged 19–64 years, reflecting the CHIP program's coverage of children and pregnant women. The 2016 findings for Kansas and Montana also were similar to those observed in FY 2013. Again, CHIP discharges were more often among adult patients than among children, even though CHIP programs in these States do not cover pregnant women. In sum, there was no observable improvement in CHIP coding practices from FY 2013 to 2016.

³⁵ For specific eligibility requirements, see www.tn.gov/coverkids/coverkids/eligibility.html.

³⁶ March of Dimes. CHIP Coverage for Pregnant Women. March of Dimes Issue Brief. May 2014. www.marchofdimes.org/materials/chip-coverage-for-pregnant-women-may-2014.pdf. Accessed July 20, 2018.

³⁷ Ibid.

Table 3. CHIP Inpatient Discharges by Age Group, FY 2013

State	Total CHIP Discharges, N	CHIP Discharges, 0–18 years, %	CHIP Discharges, 19–64 years, %	CHIP Discharges, 65+ years, %
Florida	3,126	99.8	0.1	0.0
Georgia	163	94.5	4.9	0.0
Kansas	8,688	32.4	55.0	12.7
Montana	1,868	28.5	43.4	28.2
Tennessee	5,768	43.3	56.7	0.0
Utah	478	96.2	3.6	0.2
West Virginia	377	99.5	0.5	0.0

Abbreviations: CHIP, Children's Health Insurance Program; FY, fiscal year

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013.

Table 4. CHIP Inpatient Discharges by Age Group, 2016

State	Total CHIP Discharges, N	CHIP Discharges, 0–18 years, %	CHIP Discharges, 19–64 years, %	CHIP Discharges, 65+ years, %
Florida	3,040	97.8	2.0	0.0
Georgia	132	75.0	17.4	6.1
Kansas	1,539	19.1	56.1	24.8
Montana	3,998	30.7	45.8	23.5
Tennessee	7,252	49.2	50.8	0.0
Utah	394	98.5	1.5	0.0
West Virginia	199	88.4	9.6	2.0

Abbreviations: CHIP, Children's Health Insurance Program

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2016.

Our preliminary analyses of the seven HCUP State-specific CHIP payer codes suggested that these codes are used infrequently, inconsistently, and in some States, inaccurately. In both FY 2013 and 2016, less than one-third of hospitals in each State had discharges with CHIP as an expected payer (excluding those hospitals reporting 10 or fewer CHIP discharges per year). Furthermore, in Kansas and Montana (and to an extent, in Georgia and West Virginia in 2016), a substantial number of discharges with CHIP expected payer codes were among adult patients—even though pregnant women are not eligible for coverage under the CHIP programs in these States. Considering these findings, researchers should be cautious about the use of these State-specific CHIP codes, because they capture only a subset of CHIP discharges in the State and for some States, may represent discharges with expected payers outside of CHIP.

COMPARISON OF HCUP INPATIENT DISCHARGES AND MEDICAID AND CHIP ENROLLMENT STATISTICS BY STATE

In our next set of analyses, we compared HCUP inpatient discharges with CHIP and Medicaid enrollment data to assess the degree which the HCUP SID accurately capture discharges for five groups:

- CHIP, ages 0–18 years (for States with State-specific CHIP codes)
- Any Medicaid (including CHIP), ages 0–18 years

- Any Medicaid, ages 19–64 years
- Any Medicaid, ages 65+ years
- Any Medicaid (including child enrollment in CHIP), all ages

For the purposes of these analyses, HCUP discharges with CHIP as an expected payer (i.e., “CHIP discharges”) were defined as discharges with one of the State-specific expected payer codes listed in Supplement 1, excluding codes for Kansas and Montana. Preliminary analyses suggested that the Kansas and Montana codes likely represented not only CHIP but also additional Medicaid programs that cover adults. As such, these codes were included only in analyses focused on both CHIP and Medicaid. HCUP discharges with Medicaid as an expected payer (i.e., “Medicaid discharges”) were defined as discharges with one of the State-specific Medicaid payer codes listed in Supplement 2. (These codes are assigned to the HCUP uniform expected payer category of “Medicaid.”) The analyses were not limited to primary expected payer codes. Rather, codes appearing in all payer fields (PAY1_X, PAY2_X, and PAY3_X) were considered.

Figures 1–5 present scatter plots of the percentage of SID discharges and the percentage of the population representing each age group/enrollment type. Population data was derived from U.S. Census Bureau estimates.³⁸ To adjust for use of FY data, State population estimates were calculated as the sum of one-quarter of the 2012 population and three-quarters of the 2013 population. The HCUP SID were limited to community, nonrehabilitation hospitals. Transfers were deleted from the SID to avoid double counting. For consistency with enrollment data based on State resident populations, discharges were limited to those for which the hospital State was the same as the patient’s State of residence.

CHIP: Ages 0–18 Years

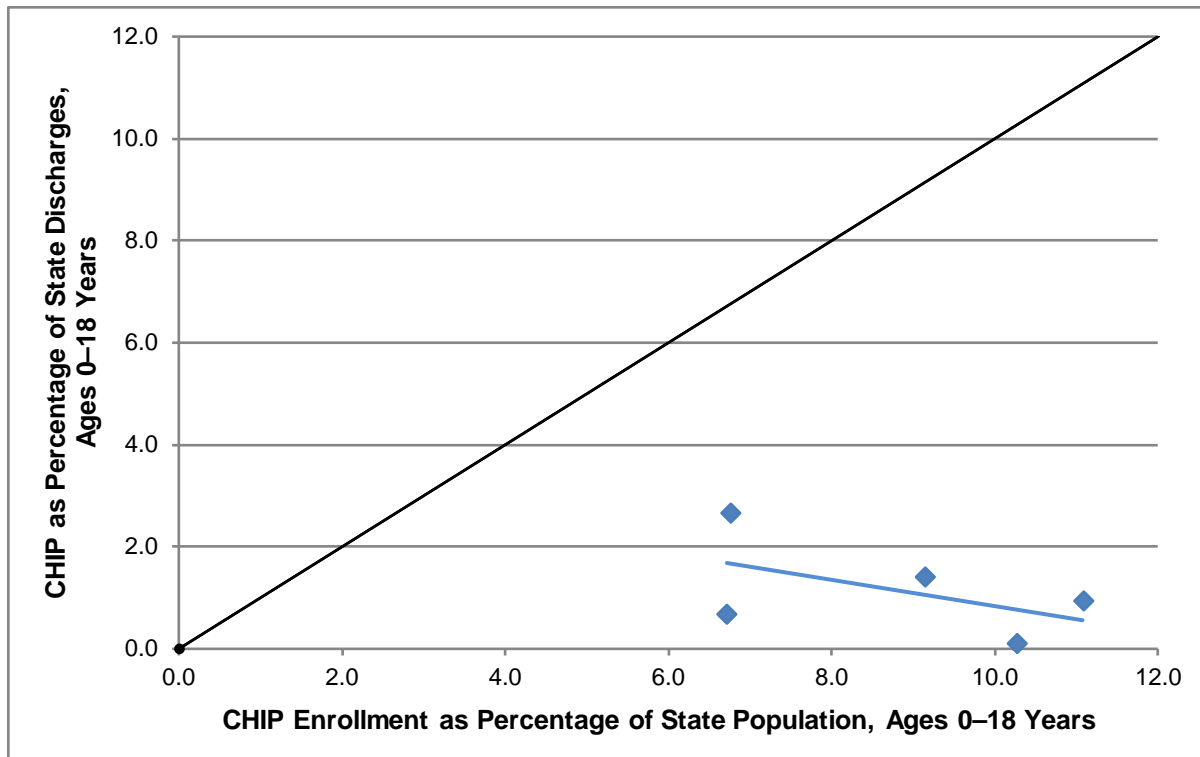
Our preliminary analyses indicated that in FY 2013, only five HCUP States had CHIP expected payer codes that were consistently assigned to patients who met CHIP age eligibility requirements: Florida, Georgia, Tennessee, Utah, and West Virginia. Therefore, our first enrollment comparison analysis (comparing HCUP discharges and enrollment data) was limited to these five States. For this analysis, SEDS enrollment data for CHIP were used.

The preliminary analysis also revealed that only a small portion of hospitals within these five States used the CHIP expected payer code frequently. The scatter plot of the results (Figure 1) reflects the underutilization of the CHIP expected payer codes. It shows that the percentage of SID discharges for children aged 0–18 years with CHIP as the expected payer ranged between 0.1 and 2.7 percent across States (y-axis) and the percentage of the population enrolled in CHIP ranged between 6.7 and 11.1 percent (x-axis). Generally, as the percentage of the population aged 0–18 years enrolled in CHIP increased, the percentage of SID discharges for individuals aged 0–18 years with CHIP as the expected payer decreased. For all five States, the percentage of discharges for children with CHIP as the expected payer in HCUP was lower

³⁸ U.S. Census Bureau, Population Division. Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States: April 1, 2010 to July 1, 2014. June 2015. www.factfinder.census.gov. Accessed April 15, 2018.

than the percentage of the population enrolled in CHIP according to the SEDS enrollment data (i.e., State data points were below the perfect linear line [in black], where the SID percentage equaled the enrollment percentage). These findings confirm that HCUP data representing the CHIP population do not align well with publicly available CHIP enrollment data. Researchers should be cautious about using CHIP expected payer codes, bearing in mind that these codes capture only a subset of CHIP discharges in a given State. (Please see Table 3a in Supplement 3 for a complete list of State-specific rates in a table format.)

Figure 1. CHIP Enrollees as a Percentage of the Population Aged 0–18 Years Versus CHIP as a Percentage of HCUP SID State Discharges, FY 2013



Abbreviations: CHIP, Children’s Health Insurance Program; FY, fiscal year; HCUP, Healthcare Cost and Utilization Project; SID, State Inpatient Databases

Sources: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013; Medicaid.gov. 2014 Number of Children Ever Enrolled Report. www.medicaid.gov/chip/downloads/fy-2014-childrens-enrollment-report.pdf

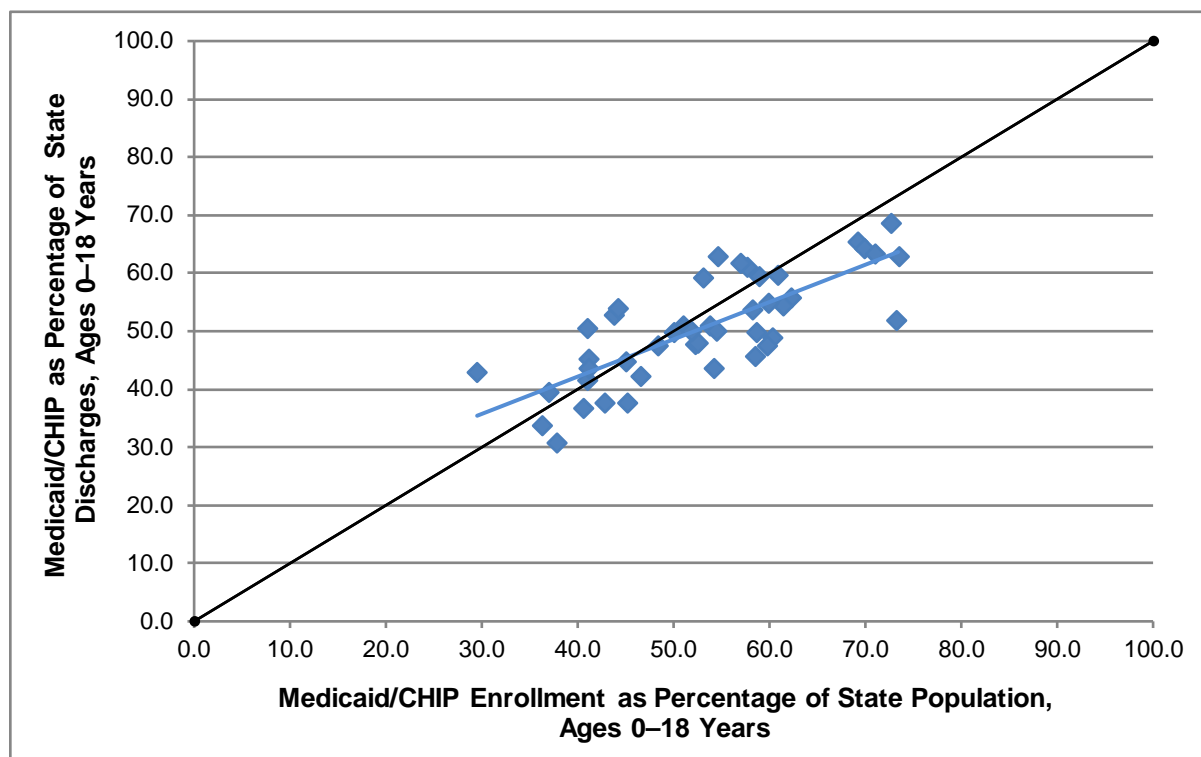
Medicaid and CHIP: Ages 0–18 Years

The next comparison analysis focused on SID discharges for patients aged 0–18 years with Medicaid or CHIP as an expected payer. All 44 available HCUP States were included in the analysis. SEDS enrollment data for children enrolled in CHIP and Medicaid (unduplicated) were used for comparison. We considered Medicaid and CHIP as a combined group for two reasons. First, the majority of HCUP States do not distinguish CHIP coverage using a separate payer code. Second, our preliminary analyses revealed that even among States with separate CHIP payer codes, the codes are not frequently or consistently used across hospitals, and for two

States, the CHIP payer codes appear to also capture non-CHIP payers. As such, we know that across States, some (if not all) discharges covered by CHIP are coded using Medicaid expected payer codes, and in at least two States, some discharges covered by Medicaid are coded using CHIP expected payer codes.

The scatter plot of the results (Figure 2) shows that the percentage of SID discharges for patients aged 0–18 years with Medicaid or CHIP as the expected payer ranged between 30.9 and 68.6 percent across States (y-axis), and the percentage of the population enrolled in Medicaid and CHIP ranged between 29.5 and 73.4 percent (x-axis). Generally, as the percentage of the population enrolled in Medicaid and CHIP increased, the percentage of SID discharges with Medicaid or CHIP as an expected payer also increased. For 31 of 44 States, the percentage of discharges with Medicaid or CHIP as an expected payer in HCUP was lower than the percentage of the population enrolled in Medicaid and CHIP (i.e., State data points were below the perfect linear line [in black], where the SID percentage equaled the enrollment percentage). However, for 13 States, the discharge percentage was higher than the population percentage. Of note, for eight States, the SID percentage was within 2 percentage points of the population percentage. The State data points were clustered around the blue linear line fit to the scatter plot, which was fairly close to the perfect linear line (i.e., many of the SID percentages were similar to enrollment percentages). Generally, the findings suggest a strong alignment between HCUP data representing the Medicaid/CHIP population (combined) aged 0–18 years and publicly available enrollment data. (See Table 3b in Supplement 3 for a complete list of State-specific rates in a table format.)

Figure 2. Medicaid and CHIP Enrollees as a Percentage of the Population Aged 0–18 Years Versus Medicaid and CHIP as a Percentage of HCUP SID State Discharges, FY 2013



Abbreviations: CHIP, Children's Health Insurance Program; FY, fiscal year; HCUP, Healthcare Cost and Utilization Project; SID, State Inpatient Databases

Sources: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013; Medicaid.gov. 2014 Number of Children Ever Enrolled Report. Available at: www.medicaid.gov/chip/downloads/fy-2014-childrens-enrollment-report.pdf

Medicaid and CHIP: Ages 19–64 Years

The next comparison analysis focused on SID discharges for patients aged 19–64 years with Medicaid or CHIP as an expected payer. All 44 available HCUP States were included in the analysis. Again, we considered Medicaid and CHIP as a combined group for the same reasons stated above in the analysis for the 0–18 years age group.

MSIS Medicaid enrollment data for the population aged 19–64 years were used for comparison. Annual CHIP enrollment counts for adults were not reported in the publicly available MSIS or SEDS data used in this analysis, so these enrollment estimates do not include pregnant women covered by CHIP. During 2013, eighteen states used CHIP funding to cover pregnant women.³⁹

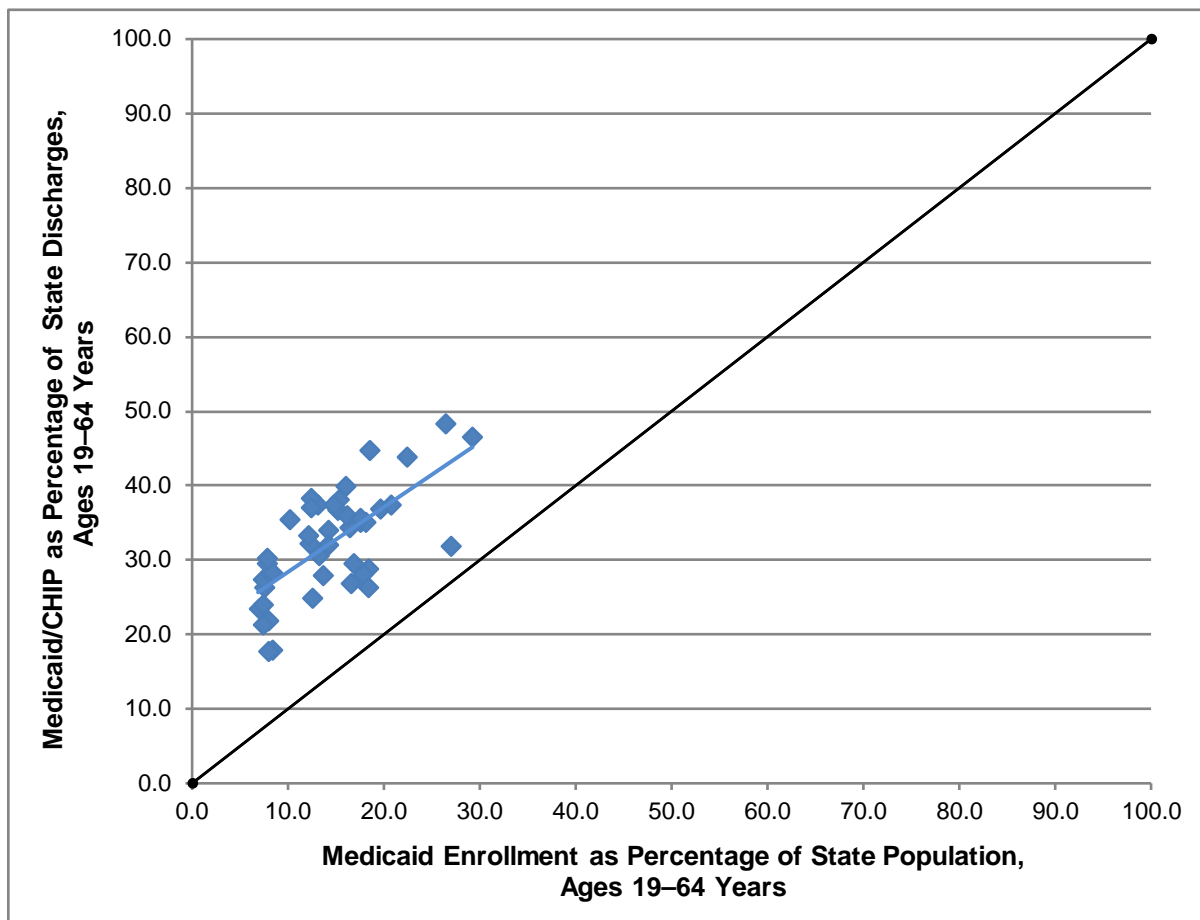
³⁹ For a list of States using CHIP to cover pregnant women in 2013 and for details about each State's coverage, see www.marchofdimess.org/materials/chip-coverage-for-pregnant-women-may-2014.pdf. For more recent information about CHIP coverage of pregnant women, see Table 4 of the Kaiser Family Foundation report accessible at: www.kff.org/medicaid/report/medicaid-and-chip-eligibility-enrollment-renewal-and-cost-sharing-policies-as-of-january-2017-findings-from-a-50-state-survey/.

At that time, it was estimated that approximately 370,000 women received care through CHIP each year.⁴⁰ As such, the MSIS enrollment data used in this analysis underestimate the percentage of the population enrolled in either Medicaid or CHIP.

The scatter plot of the results (Figure 3) shows that the percentage of SID discharges for patients aged 19–64 years with Medicaid or CHIP as the expected payer ranged between 17.7 and 48.4 percent across States (y-axis), and the percentage of the population enrolled in Medicaid ranged between 6.9 and 29.2 percent (x-axis). Generally, as the percentage of the population enrolled in Medicaid increased, the percentage of SID discharges with Medicaid or CHIP as the expected payer also increased. Across States, the percentage of discharges with Medicaid and CHIP as the expected payer in HCUP was higher than the percentage of the population enrolled in Medicaid (i.e., State data points were above the perfect linear line [in black], where the SID percentage equaled the enrollment percentage). The State data points were clustered around the blue linear line fit to the scatter plot. Overall, the findings suggest general alignment between HCUP data representing the Medicaid/CHIP population (combined) aged 19–64 years and publicly available enrollment data. (See Table 3c in Supplement 3 for a complete list of State-specific rates in a table format.)

⁴⁰ March of Dimes. CHIP Coverage for Pregnant Women. March of Dimes Issue Brief. May 2014. www.marchofdimes.org/materials/chip-coverage-for-pregnant-women-may-2014.pdf. Accessed July 20, 2018.

Figure 3. Medicaid Enrollees as a Percentage of the Population Aged 19–64 Years Versus Medicaid and CHIP as a Percentage of HCUP SID State Discharges, FY 2013



Abbreviations: CHIP, Children’s Health Insurance Program; FY, fiscal year; HCUP, Healthcare Cost and Utilization Project; SID, State Inpatient Databases

Note: Discharge totals include discharges with Medicaid or CHIP as an expected payer. In 18 States, CHIP covers low-income pregnant women. FY 2013 adult enrollment estimates for CHIP were not available and are not reflected in enrollment totals. As such, enrollment percentages are underestimated for these States.

Sources: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013; Kaiser Family Foundation State Health Facts. FY 2013 Medicaid Enrollment by Age. www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age

Medicaid: Ages 65 Years and Older

The next comparison analysis focused on SID discharges for patients aged 65 years and older with Medicaid or CHIP as expected payer. Again, Medicaid or CHIP could be listed in any payer field, as primary expected payer or other expected payer. Because more than 60 percent of aged and disabled Medicaid enrollees are eligible for both Medicare and Medicaid benefits,⁴¹

⁴¹ Kaiser Family Foundation State Health Facts. FY 2013 Dual Eligibles as a Percent of Total Medicaid Beneficiaries. www.kff.org/medicaid/state-indicator/duals-as-a-of-medicaid-beneficiaries. Accessed July 18, 2018.

the majority of these discharges likely represented patients who are dually eligible for Medicare and Medicaid. All 44 available HCUP States were included in the analysis. Kansas and Montana were the only HCUP States with discharges for individuals aged 65 years and older with CHIP as an expected payer. As discussed above, this result suggests that the State-specific CHIP codes for Kansas and Montana represent other Medicaid programs in addition to CHIP. As such, we counted CHIP discharges for this age group as Medicaid discharges. MSIS Medicaid enrollment data for the population aged 65 years and older was used for comparison.

The scatter plot of the results (Figure 4) shows that the percentage of SID discharges for patients aged 65 years or older with Medicaid or CHIP as the expected payer ranged between 0.2 and 26.6 percent across States (y-axis) and the percentage of the population enrolled in Medicaid ranged between 6.3 and 27.0 percent (x-axis). Generally, as the percentage of the population enrolled in Medicaid increased, the percentage of SID discharges with Medicaid or CHIP as the expected payer also increased. For 25 of 44 States, the percentage of discharges with Medicaid and CHIP as the expected payer in HCUP was lower than the percentage of the population enrolled in Medicaid (i.e., State data points were below the perfect linear line [in black], where the SID percentage equaled the enrollment percentage). However, for 19 States, the discharge percentage was higher than the population percentage. Of note, for 19 states, the SID percentage was within 2 percentage points of the population percentage.

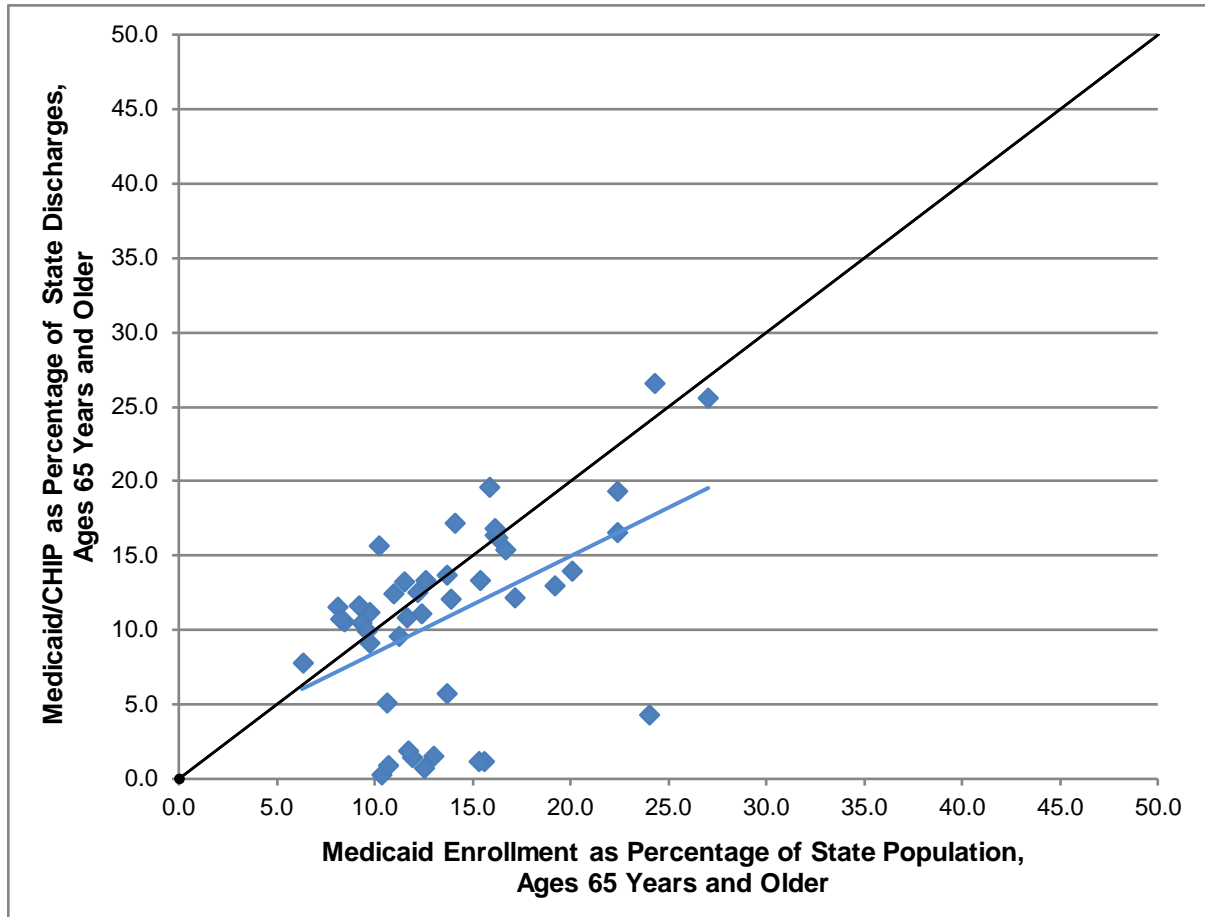
The State data points were clustered somewhat around the blue linear line fit to the scatter plot. Many of the State data points were clustered around the perfect linear line. However, a number of States were far below the perfect linear line. Specifically, nine of these States only report one expected payer in HCUP data: Arizona, California, Florida, Hawaii, Ohio, Oklahoma, Rhode Island, South Dakota, and Virginia. For these States, the SID percentage was very low in general (between 0.2 and 4.3 percent) and substantially lower than the enrollment percentage (with discrepancies between 9.7 and 19.7 percentage points). These discrepancies are most likely explained by beneficiaries who are dually eligible for Medicare and Medicaid. These individuals are included in the Medicaid enrollment totals but would not be counted as Medicaid discharges in the HCUP data if Medicare was listed as primary expected payer and secondary payer data were not available on the record. HCUP records for beneficiaries who are dually eligible for Medicare and Medicaid typically list Medicare as primary expected payer and Medicaid as secondary expected payer.⁴²

Researchers designing Medicaid studies using HCUP may want to closely examine the State-specific findings for this age group (specifically the findings for States with only a single expected payer reported) as they relate to their research objectives before deciding which States to include in their studies. Among the States that report two or more payers in the HCUP SID, the findings suggest a strong alignment between HCUP data representing the Medicaid

⁴² Barrett M, Lopez-Gonzalez L, Hines A, et al. An Examination of Expected Payer Coding in HCUP Databases. 2014. HCUP Methods Series Report # 2014-03. December 17, 2014. U.S. Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/reports/methods/methods.jsp. Accessed July 16, 2018.

population aged 65+ years and publicly available enrollment data. (Please see Table 3d in Supplement 3 for a complete list of State-specific rates in a table format.)

Figure 4. Medicaid Enrollees as a Percentage of the Population Aged 65 Years and Older Versus Medicaid and CHIP as a Percentage of HCUP SID State Discharges, FY 2013



Abbreviations: CHIP, Children's Health Insurance Program; FY, fiscal year; HCUP, Healthcare Cost and Utilization Project; SID, State Inpatient Databases

Sources: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013; Kaiser Family Foundation State Health Facts. FY 2013 Medicaid Enrollment by Age. www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age

Medicaid and CHIP: All Ages

The last comparison analysis focused on all-age SID discharges with Medicaid or CHIP as expected payer. All 44 available HCUP States were included in the analysis, and again, we considered Medicaid and CHIP as a combined group.

For comparison, the enrollment data for this analysis included children enrolled in CHIP and Medicaid (SEDS data) and adults enrolled in Medicaid (MSIS data). As described above, annual CHIP enrollment counts for adults were not reported in the publicly available MSIS or SEDS data used in this analysis, so these enrollment estimates do not include pregnant women

covered by CHIP. During 2013, eighteen states used CHIP funding to cover pregnant women.⁴³ At this time, it was estimated that approximately 370,000 women received care through CHIP each year.⁴⁴ As such, the MSIS enrollment data used in this analysis underestimate the percentage of the population enrolled in Medicaid and CHIP.

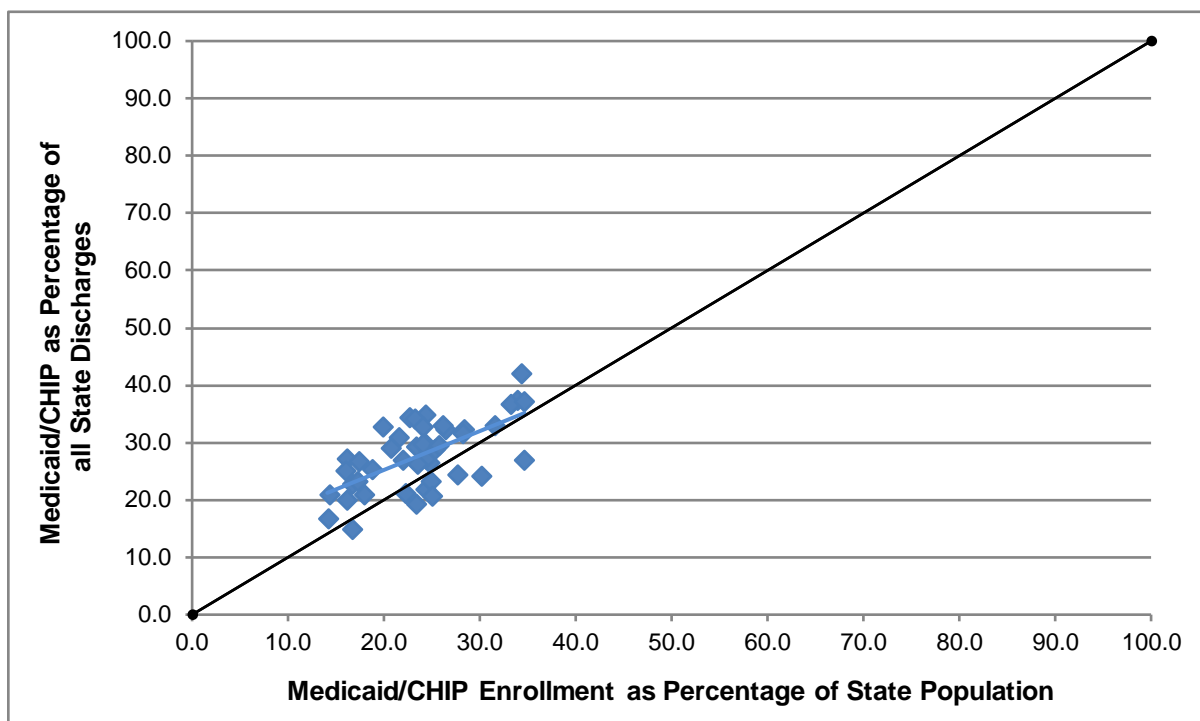
The scatter plot of the results (Figure 5) shows that the percentage of SID discharges with Medicaid or CHIP as an expected payer ranged between 14.9 and 41.9 percent across States (y-axis) and the percentage of the population enrolled in Medicaid and CHIP ranged between 14.1 and 34.6 percent (x-axis). Generally, as the percentage of the population enrolled in Medicaid and CHIP increased, the percentage of SID discharges with Medicaid or CHIP as the expected payer also increased. For the majority of States, the percentage of discharges with Medicaid and CHIP as the expected payer in HCUP was slightly higher than the percentage of the population enrolled in Medicaid and CHIP (i.e., State data points were above the perfect linear line [in black], where the SID percentage equaled the enrollment percentage). However, for several States, the discharge percentage was slightly lower than the population percentage. Of note, for five States, the discharge percentage was within 2 percentage points of the population percentage.

The State data points were closely clustered around the blue linear line fit to the scatter plot. The findings suggest a strong alignment between HCUP data representing the Medicaid/CHIP population (combined) and publicly available enrollment data. (See Table 3e in Supplement 3 for a complete list of State-specific rates in a table format.)

⁴³ For a list of States using CHIP to cover pregnant women in 2013 and for details about each State's coverage, see www.marchofdimes.org/materials/chip-coverage-for-pregnant-women-may-2014.pdf. For more recent information about CHIP coverage of pregnant women, see Table 4 of the Kaiser Family Foundation report accessible at: www.kff.org/medicaid/report/medicaid-and-chip-eligibility-enrollment-renewal-and-cost-sharing-policies-as-of-january-2017-findings-from-a-50-state-survey/.

⁴⁴ March of Dimes. CHIP Coverage for Pregnant Women. March of Dimes Issue Brief. May 2014. www.marchofdimes.org/materials/chip-coverage-for-pregnant-women-may-2014.pdf. Accessed July 20, 2018.

Figure 5. Medicaid and CHIP Enrollees as a Percentage of the Total Population Versus Medicaid and CHIP as a Percentage of HCUP SID State Discharges, FY 2013



Abbreviations: CHIP, Children’s Health Insurance Program; FY, fiscal year; HCUP, Healthcare Cost and Utilization Project; SID, State Inpatient Databases

Note: Discharge totals include discharges with for Medicaid and CHIP. In 18 States, CHIP covers low-income pregnant women. FY 2013 adult enrollment estimates for CHIP were not available and as such, are not reflected in enrollment totals. Therefore, enrollment percentages are underestimated for these States.

Sources: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), Q4 2012–Q3 2013; Medicaid.gov. 2014 Number of Children Ever Enrolled Report. www.medicaid.gov/chip/downloads/fy-2014-childrens-enrollment-report.pdf; Kaiser Family Foundation State Health Facts. FY 2013 Medicaid Enrollment by Age. www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age

DISCUSSION

Expected payer is the least uniform variable supplied by statewide data organizations. Researchers need to understand the information captured by expected payer data, so that they can use the data appropriately in their studies. This report provided background information about CHIP and Medicaid programs as well as details about the CHIP and Medicaid expected payer codes collected by HCUP States. Findings were presented for two sets of analyses: (1) an assessment of the completeness and accuracy of State-specific CHIP codes and (2) comparisons of the percentage of HCUP inpatient discharges with Medicaid and CHIP as expected payer and the percentage of State populations enrolled in Medicaid and CHIP. Although the comparison analyses were limited to 1 year of data (FY 2013), 2016 HCUP discharge counts for CHIP and Medicaid do not indicate any major shifts in CHIP and Medicaid coding over time. (See Supplement 3 for side-by-side comparisons of SID discharge totals from FY 2013 and FY 2016.) The findings summarized in this report illuminate the strengths and

limitations of HCUP State-specific payer coding of CHIP. This report should be used as a reference tool to inform research focused on health care utilization and quality by expected payer using the HCUP databases.

Summary of Findings

The first set of analyses demonstrated that State-specific expected payer codes for CHIP (reported by seven HCUP States) are not used frequently or consistently across hospitals (see Tables 1 and 2). These analyses also suggested that CHIP codes for at least two States (Kansas and Montana) capture non-CHIP payers (e.g., other Medicaid programs that cover adults) in addition to CHIP (see Tables 3 and 4). These results suggest that the State-specific CHIP payer codes do not capture all CHIP discharges in a given State. Therefore, even for the seven States with separate CHIP codes, it is likely that a substantial portion of discharges covered by CHIP will have Medicaid (rather than CHIP) as an expected payer code.

The second set of analyses compared HCUP discharge percentages and enrollment percentages for five age/payer groups:

1. CHIP, ages 0–18 years (for States with State-specific CHIP codes)
2. Any Medicaid (including CHIP), ages 0–18 years
3. Any Medicaid, ages 19–64 years
4. Any Medicaid, ages 65+ years
5. Any Medicaid (including child enrollment in CHIP), all ages

The first analysis included the only five HCUP States with State-specific CHIP codes that distinguish CHIP discharges from other Medicaid discharges: Florida, Georgia, Tennessee, Utah, and West Virginia (see Figure 1). The results confirmed that there is underreporting of patients enrolled in CHIP in all five States.

The remaining analyses included all 44 available HCUP States and focused on HCUP discharges with any type of Medicaid or CHIP as an expected payer (see Figures 2–5). For these analyses, we considered CHIP and Medicaid as a combined payer group. For the younger two age groups (ages 0–18 years and ages 19–64 years), the HCUP data and publicly available enrollment data were strongly aligned. For the oldest age group (ages 65+ years), there were a number of States for which the SID percentage was substantially lower than the enrollment percentage, especially for the nine HCUP States that report only one expected payer. For these States, the discrepancies can largely be explained by discharges for beneficiaries who are dually eligible for Medicare and Medicaid, which typically are coded with Medicare as the primary payer. When combining all age groups (total population), the HCUP data and enrollment data were strongly aligned, with the percentage of discharges with Medicaid or CHIP as the expected payer in HCUP slightly higher (in most cases) or slightly lower (in several cases) than the population percentage.

Recommendations for Using HCUP Medicaid and CHIP Payer Codes in Research

On the basis of the findings related to State-specific CHIP codes, HCUP recommends that researchers use caution in applying and interpreting these codes. These codes are not used

frequently or consistently across hospitals and as such, capture only a subset of CHIP discharges in each State. For Montana and Kansas, specifically, these CHIP codes may be assigned to discharges for non-CHIP patients. For these reasons, HCUP data (specifically the expected payer codes) do not effectively distinguish CHIP discharges from other Medicaid discharges and as such, do not currently support CHIP-specific analyses. As an alternative, HCUP recommends that researchers use the State-specific CHIP codes in combination with Medicaid expected payer codes. Our findings indicate that combined HCUP discharges with an expected payer of CHIP *or* Medicaid are better aligned with enrollment data. On the basis of these findings, beginning with 2017 HCUP data, all State-specific CHIP codes uniformly coded as “other” payer (HCUP value 6) in the HCUP expected payer variables will be reassigned to the uniformly defined “Medicaid” (HCUP value 2) category. (See Supplement 1 for a summary of these codes.) With this change, CHIP discharges consistently will be reported under Medicaid across all HCUP States.

For the total population and for the 0–18-year and 19–64-year age groups, the comparison of HCUP Medicaid discharge percentages with enrollment percentages demonstrated general alignment between HCUP data and enrollment data—although some States showed stronger alignment than others. HCUP recommends that researchers designing Medicaid studies using HCUP examine the State-specific findings reported in Supplement 3 as they relate to their research objectives before deciding which States to include in their studies. For the population aged 65+ years, the comparison analysis highlighted that Medicaid discharges are underreported for the nine HCUP States reporting only a single expected payer. HCUP recommends that researchers designing Medicaid studies consider this limitation before deciding which States and/or age groups to include in their analyses.

APPENDIX A. MEDICAID PROGRAMS BY STATE

The table below summarizes information on all State Medicaid programs. Most States provide coverage to the aged, blind, and disabled; children aged 0 through 18 years; pregnant women; and parents who meet the Medicaid income eligibility limits. Thirty-two States also provide coverage to other adults through Medicaid expansion.

State	Medicaid Income Eligibility Limits as a Percentage of the Federal Poverty Level, % ^a							Program Website
	Infants Ages 0–1 Years ^{b,c}	Children Ages 1–5 Years ^{b,c}	Children Ages 6–18 Years ^{b,c}	Pregnant Women ^{b,c}	Parents ^{b,c,d}	Expansion to Adults ^{b,c,d}	Aged, Blind, and Disabled ^{e,f}	
Alabama	146	146	146	146	18	0	73	www.medicaid.alabama.gov/
Alaska ^g	177	177	177	205	139	138	59	www.dhss.alaska.gov/dpa/Pages/medicaid/default.aspx
Arizona	152	146	138	161	138	138	100	www.azahcccs.gov/
Arkansas	147	147	147	214	138	138	73	www.medicaid.mmis.arkansas.gov/
California	208	142	133	213	138	138	100	www.dhcs.ca.gov/services/medical/Pages/default.aspx
Colorado	147	147	147	200	138	138	73	www.colorado.gov/pacific/hcpf/colorado-medicaid
Connecticut ^h	201	201	201	263	138	138	52	www.ct.gov/hh/site/default.asp
Delaware	217	147	138	217	138	138	73	www.dhss.delaware.gov/dss/medicaid.html
District of Columbia	324	324	324	324	221	215	100	www.dc-medicaid.com/dcwebportal/home
Florida	211	145	138	196	33	0	88	www.myflfamilies.com/service-programs/access-florida-food-medical-assistance-cash/medicaid
Georgia	210	154	138	225	36	0	73	www.dch.georgia.gov/medicaid
Hawaii ^h	191	139	133	196	138	138	100	www.medquest.hawaii.gov/
Idaho	147	147	138	138	26	0	73	www.healthandwelfare.idaho.gov/Default.aspx?TabId=123
Illinois ^h	147	147	147	213	138	138	100	www.illinois.gov/HFS/Pages/default.aspx
Indiana	218	165	165	218	139	139	100	www.in.gov/medicaid/

State	Medicaid Income Eligibility Limits as a Percentage of the Federal Poverty Level, % ^a							Program Website
	Infants Ages 0–1 Years ^{b,c}	Children Ages 1–5 Years ^{b,c}	Children Ages 6–18 Years ^{b,c}	Pregnant Women ^{b,c}	Parents ^{b,c,d}	Expansion to Adults ^{b,c,d}	Aged, Blind, and Disabled ^{e,f}	
Iowa	380	172	172	380	138	138	73	www.dhs.iowa.gov/ime/members
Kansas	171	154	138	171	38	0	73	www.kancare.ks.gov/
Kentucky	200	142	133	200	138	138	73	chfs.ky.gov/agencies/dms/Pages/default.aspx
Louisiana	142	142	142	138	138	138	73	www.ldh.la.gov/index.cfm/subhome/1
Maine	196	162	162	214	105	0	100	www.maine.gov/dhhs/mainecare.shtml
Maryland	194	138	133	264	138	138	73	www.mmcp.health.maryland.gov/Pages/home.aspx
Massachusetts	205	155	155	205	138	138	100	www.mass.gov/topics/masshealth
Michigan	195	160	160	200	138	138	100	www.michigan.gov/mdhhs/0,5885,7-339-71547_4860---,00.html
Minnesota ^h	275	280	280	283	138	138	100	www.mn.gov/dhs/people-we-serve/adults/health-care/health-care-programs/programs-and-services/medical-assistance.jsp
Mississippi	199	148	138	199	27	0	73	www.medicaid.ms.gov/
Missouri ^h	201	148	148	201	22	0	85	www.mydss.mo.gov/healthcare
Montana	148	148	148	162	138	138	73	www.dphhs.mt.gov/montanahealthcareprograms/memberservices
Nebraska	162	145	133	199	63	0	100	www.dhhs.ne.gov/medicaid/Pages/med_medindex.aspx
Nevada	165	165	138	165	138	138	73	www.dhhs.nv.gov/Find_Assistance/Medical_Assistance/
New Hampshire ^h	196	196	196	201	138	138	74	www.dhhs.nh.gov/ombp/medicaid/
New Jersey	199	147	147	199	138	138	100	www.state.nj.us/humanservices/dmahs/clients/medicaid/

State	Medicaid Income Eligibility Limits as a Percentage of the Federal Poverty Level, % ^a							Program Website
	Infants Ages 0–1 Years ^{b,c}	Children Ages 1–5 Years ^{b,c}	Children Ages 6–18 Years ^{b,c}	Pregnant Women ^{b,c}	Parents ^{b,c,d}	Expansion to Adults ^{b,c,d}	Aged, Blind, and Disabled ^{e,f}	
New Mexico	240	240	190	255	138	138	73	www.hsd.state.nm.us/LookingForAssistance/centennial-care-overview.aspx
New York	223	154	154	223	138	138	82	www.health.ny.gov/health_care/medicaid/
North Carolina	215	215	138	201	43	0	100	www.dma.ncdhhs.gov/medicaid
North Dakota ^h	152	152	138	152	138	138	73	www.nd.gov/dhs/services/medicalserv/medicaid/
Ohio	156	156	156	205	138	138	73	www.medicaid.ohio.gov/
Oklahoma ^h	210	210	210	138	43	0	100	www.okhca.org/individuals.aspx?id=52&menu=114&parts=11601_7453
Oregon	190	138	138	190	138	138	73	www.oregon.gov/oha/HSD/OHP/Pages/index.aspx
Pennsylvania	220	162	138	220	138	138	100	www.dhs.pa.gov/citizens/healthcare/medicalassistance/
Rhode Island	190	142	133	195	138	138	100	www.dhs.ri.gov/Programs/index.php
South Carolina	194	143	133	199	67	0	100	www.scdhhs.gov/Getting-Started
South Dakota	187	187	187	138	50	0	73	www.dss.sd.gov/medicaid/
Tennessee	195	142	133	200	98	0	73	www.tn.gov/tenncare/members-applicants/eligibility/tenncare-medicaid.html
Texas	203	149	138	203	18	0	73	www.hhs.texas.gov/services/health/medicaid-chip
Utah	144	144	138	144	60	0	100	www.medicaid.utah.gov/
Vermont	317	317	317	213	138	138	73	www.info.healthconnect.vermont.gov/Medicaid
Virginia ^h	148	148	148	148	38	0	80	www.dmas.virginia.gov/

State	Medicaid Income Eligibility Limits as a Percentage of the Federal Poverty Level, % ^a							Program Website
	Infants Ages 0–1 Years ^{b,c}	Children Ages 1–5 Years ^{b,c}	Children Ages 6–18 Years ^{b,c}	Pregnant Women ^{b,c}	Parents ^{b,c,d}	Expansion to Adults ^{b,c,d}	Aged, Blind, and Disabled ^{e,f}	
Washington	215	215	215	198	138	138	73	www.hca.wa.gov/free-or-low-cost-health-care/apple-health-medicaid-coverage
West Virginia	163	146	138	163	138	138	73	www.dhhr.wv.gov/bms/Pages/default.aspx
Wisconsin	306	191	133	306	100	100	83	www.dhs.wisconsin.gov/medicaid/index.htm
Wyoming	159	159	138	159	55	0	73	www.health.wyo.gov/healthcarefin/medicaid/

^a This table does not cover all eligibility rules and pathways. State-specific eligibility information is available through the individual State Web sites noted in the table. See footnotes in original source tables for more detail.

^b Source: Kaiser Family Foundation. Where Are States Today? Medicaid and CHIP Eligibility Levels for Children, Pregnant Women, and Adults. March 28, 2018. www.kff.org/medicaid/fact-sheet/where-are-states-today-medicaid-and-chip/. Accessed April 23, 2018.

^c January 2018 income limits reflect Modified Adjusted Gross Income (MAGI)-converted income standards and include a disregard equal to 5 percentage points of the Federal poverty level (FPL) applied at the highest income level for Medicaid. Eligibility levels are reported as percentage of the FPL. Eligibility levels for children, pregnant women, and parents are presented as a percentage of the 2018 FPL for a family of three, which is \$20,780. Eligibility limits for other adults are presented as a percentage of the 2018 FPL for an individual, which is \$12,140.

^d As of January 2018, 32 States have expanded Medicaid coverage to people with annual incomes below 138% of the FPL, on the basis of a provision in the Affordable Care Act that allows States to expand Medicaid coverage. DC extends eligibility beyond the expansion limit to parents with incomes up to 221% FPL and other adults with incomes up to 215%, and Alaska covers parents with incomes up to 139% FPL. Wisconsin covers adults up to 100% FPL in Medicaid but did not adopt the Affordable Care Act Medicaid expansion.

^e Source: Kaiser Family Foundation. Medicaid Eligibility Through the Aged, Blind, Disabled Pathway. Updated January 2017. www.kff.org/medicaid/state-indicator/medicaid-eligibility-through-the-aged-blind-disabled-pathway. Accessed April 23, 2018.

^f States generally must provide Medicaid to Supplemental Security Income (SSI) beneficiaries (equivalent to 73% FPL in 2017) and have the option to extend the income limit for seniors and persons with disabilities up to 100% FPL. To be eligible for SSI, beneficiaries must have low incomes, limited assets, and an impaired ability to work at a substantial gainful level as a result of old age (65 years or older) or significant disability. Asset limits range from \$2,000 to \$7,280. There is no asset limit for Arizona.

^g Aged, Blind, and Disabled Pathway eligibility is based on SSI dollar amount but lower FPL because of the variation in FPL for Alaska. Federal SSI amount does not vary by State.

^h For the Aged, Blind, and Disabled Pathway, Connecticut, Hawaii, Illinois, Minnesota, Missouri, New Hampshire, North Dakota, Oklahoma, and Virginia elect the Section 209(b) option whereby States can use financial and/or functional eligibility criteria that are more restrictive than the Federal SSI rules, as long as the State's rules are no more restrictive than the rules the State had in place in 1972, when the SSI program was enacted.

APPENDIX B. CHILDREN'S HEALTH INSURANCE PROGRAMS BY STATE

The upper income eligibility limit for CHIP in each State ranges from 175 percent of the FPL (North Dakota) to 405 percent of the FPL (New York). The eligible age range for all but five States is from 0 to 18 years of age. The majority of States (40) offer combination programs; 9 States (including the District of Columbia) offer Medicaid expansion programs, and two States have separate CHIP programs.

State	Program Name	CHIP Program Type ^{a,b}	Separate CHIP Age Eligibility, Years ^a	Upper Income Eligibility Limit as a Percentage of the Federal Poverty Level, % ^{c,d,e}	Program Web Site
Alabama	All Kids	Combination	0–18	317	www.adph.org/allkids/
Alaska	Denali KidCare	Medicaid Expansion	0–18	208	www.dhss.alaska.gov/dhcs/Pages/denalikidcare/default.aspx
Arizona	KidsCare	Combination	0–18	205	www.azahcccs.gov/Members/GetCovered/Categories/KidsCare.html
Arkansas	ARKids First	Combination	0–18	216	www.arkidsfirst.com/important.htm
California	Medi-Cal	Combination	0–18	266	www.dhcs.ca.gov/services/medical/Pages/default.aspx
Colorado	Child Health Plan Plus (CHP+)	Combination	0–18	265	www.colorado.gov/hcpf/child-health-plan-plus
Connecticut	HUSKY B Program	Separate	0–18	323	www.ct.gov/huskyb
Delaware	Delaware Health Children Program (DHCP)	Combination	1–18	217	www.dhss.delaware.gov/dhss/dmma/dhcp.html
District of Columbia	Healthy Families	Medicaid Expansion	0–18	324	www.dhcf.dc.gov/service/dc-healthy-families
Florida ^f	KidCare	Combination	1–18	215	www.floridakidcare.org/
Georgia	PeachCare for Kids	Combination	0–18	252	www.dch.georgia.gov/peachcare-kids
Hawaii	Med-Quest	Medicaid Expansion	0–18	313	www.medquest.hawaii.gov/

State	Program Name	CHIP Program Type ^{a,b}	Separate CHIP Age Eligibility, Years ^a	Upper Income Eligibility Limit as a Percentage of the Federal Poverty Level, % ^{c,d,e}	Program Web Site
Idaho	Idaho Health Plan for Children	Combination	0–18	190	www.healthandwelfare.idaho.gov/Medical/Medicaid/IdahoHealthPlanforChildren/tabid/219/Default.aspx
Illinois	All Kids	Combination	0–18	318	www.illinois.gov/hfs/MedicalPrograms/AllKids/Pages/about.aspx
Indiana	Hoosier Healthwise	Combination	0–18	262	www.in.gov/medicaid/members/174.htm
Iowa	Healthy and Well Kids in Iowa (hawk-i)	Combination	1–18	380	www.dhs.iowa.gov/hawk-i
Kansas	KanCare	Combination	0–18	241	www.kdheks.gov/hcf/Medicaid/about.html
Kentucky	KCHIP	Combination	0–18	218	www.kidshealth.ky.gov/Pages/index.aspx
Louisiana	LaCHIP	Combination	0–18	255	www.ldh.la.gov/index.cfm/page/222
Maine	MaineCare	Combination	0–18	213	www.maine.gov/dhhs/ofi/services/cubcare/CubCare.htm
Maryland	Maryland Children's Health Program (MCHP)	Medicaid Expansion	0–18	322	www.mmcp.health.maryland.gov/chp/Pages/Home.aspx
Massachusetts	MassHealth	Combination	0–18	305	www.mass.gov/topics/masshealth
Michigan	MiChild	Combination	0–18	217	www.michigan.gov/mdhhs/0,5885,7-339-71547_2943_4845_4931---_00.html
Minnesota	MinnesotaCare	Combination	0–18	288	www.mn.gov/dhs/people-we-serve/adults/health-care/health-care-programs/
Mississippi	CHIP	Combination	0–18	214	www.medicaid.ms.gov/programs/childrens-health-insurance-program-chip/

State	Program Name	CHIP Program Type ^{a,b}	Separate CHIP Age Eligibility, Years ^a	Upper Income Eligibility Limit as a Percentage of the Federal Poverty Level, % ^{c,d,e}	Program Web Site
Missouri	HealthNet for Kids	Combination	0–18	305	www.dss.mo.gov/mhk/index.htm
Montana	Healthy Montana Kids/ Montana CHIP	Combination	0–18	266	www.dphhs.mt.gov/hmk.aspx
Nebraska	CHIP	Combination	0–18	218	www.dhhs.ne.gov/medicaid/Pages/med_CHIP.aspx
Nevada	Check Up	Combination	0–18	205	www.nevadahealthlink.com/start-here/about-the-aca/medicaid/
New Hampshire	Healthy Kids	Medicaid Expansion	0–18	323	www.dhhs.nh.gov/dfa/medical/children.htm
New Jersey	FamilyCare	Combination	0–18	355	www.njfamilycare.org/default.aspx
New Mexico	New MexiKids/ MexiTeens	Medicaid Expansion	0–18	305	www.hsd.state.nm.us/mad/
New York	Child Health Plus	Combination	0–18	405	www.health.ny.gov/health_care/child_health_plus/index.htm
North Carolina	Health Choice for Children	Combination	6–18	216	www.nchealthystart.org/resources/child-health-insurance/
North Dakota	Healthy Steps	Combination	0–18	175	www.nd.gov/dhs/services/medicalservices/chip/
Ohio	Healthy Start	Medicaid Expansion	0–18	211	www.medicaid.ohio.gov/FOROHIOANS/Programs/ChildrenFamiliesandWomen.aspx
Oklahoma	SoonerCare	Combination	0–18	210	www.okhca.org/about.aspx?id=21203
Oregon	HealthyKids	Combination	0–18	305	www.oregon.gov/ode/educator-resources/standards/health/Documents/healthykidsoverview.pdf
Pennsylvania	CHIP	Combination	0–18	319	www.chipcoverspakids.com/Eligibility/Pages/default.aspx

State	Program Name	CHIP Program Type ^{a,b}	Separate CHIP Age Eligibility, Years ^a	Upper Income Eligibility Limit as a Percentage of the Federal Poverty Level, % ^{c,d,e}	Program Web Site
Rhode Island	Rlte Care	Combination	0–18	266	www.eohhs.ri.gov/Consumer/FamilieswithChildren/HealthcarePrograms.aspx
South Carolina	Healthy Connections	Medicaid Expansion	0–18	213	www.scdhhs.gov/eligibility-groups/partners-healthy-children-phc
South Dakota	CHIP	Combination	0–18	209	www.dss.sd.gov/medicaid/generalinfo/verifyeligibility/
Tennessee	CoverKids	Combination	0–18	255	www.tn.gov/coverkids/coverkids/eligibility.html
Texas	CHIP	Combination	0–18	206	www.yourtexasbenefits.hhsc.texas.gov/programs/health/child/childrens-medicaid?utm_source=chipmed-domain&utm_medium=vanity-url&utm_campaign=website
Utah	CHIP	Combination	0–18	205	www.health.utah.gov/chip/
Vermont	Dr. Dynasaur	Medicaid Expansion	0–18	317	www.info.healthconnect.vermont.gov/Medicaid
Virginia	Family Access to Medical Insurance Security (FAMIS)	Combination	0–18	205	www.virginia.gov/services/apply-for-famis/
Washington	Apple Health for Kids	Separate	0–18	317	www.hca.wa.gov/free-or-low-cost-health-care/apple-health-medicaid-coverage/children
West Virginia	CHIP	Combination	0–18	305	www.chip.wv.gov/eligibility/Pages/default.aspx
Wisconsin	BadgerCare Plus	Combination	1–18	306	www.dhs.wisconsin.gov/badgercareplus/index.htm
Wyoming	KidCare CHIP	Combination	0–18	205	www.health.wyo.gov/healthcarefin/chip/doesmychildqualify/

Abbreviation: CHIP, Children's Health Insurance Program

^a Source: MACPAC. MACStats: Medicaid and CHIP Data Book. Exhibit 35. Medicaid and CHIP Income Eligibility Levels as a Percentage of the Federal Poverty Level for Children and Pregnant Women by State, January 2017. www.macpac.gov/wp-content/uploads/2015/01/EXHIBIT-35.-Medicaid-and-CHIP-Income-Eligibility-Levels-as-a-Percentage-of-the-Federal-Poverty-Level-for-Children-and-Pregnant-Women-by-State-Jan-2017.pdf. Accessed April 20, 2018.

^b States can design their Children's Health Insurance Program (CHIP) program in one of three ways: Medicaid expansion, a separate program, or a combination of the two approaches.

^c Source: Kaiser Family Foundation. Medicaid and CHIP Income Eligibility Limits for Children as a Percent of the Federal Poverty Level. Updated January 1, 2018. www.kff.org/health-reform/state-indicator/medicaid-and-chip-income-eligibility-limits-for-children-as-a-percent-of-the-federal-poverty-level. Accessed April 20, 2018.

^d January 2018 income limits reflect Modified Adjusted Gross Income (MAGI)-converted income standards and include a disregard equal to 5 percentage points of the Federal poverty level (FPL) applied at the highest income level for Medicaid and separate CHIP coverage. Eligibility levels are reported as percentage of the FPL. The 2018 FPL for a family of three was \$20,780.

^e Specific eligibility rules vary by State, and State-specific eligibility information is available through the individual State Web sites noted in the table.

^f Florida KidCare is the umbrella brand for four government-sponsored health insurance programs for children in Florida. These programs include Medicaid for Children and three separate CHIP programs: MediKids (covers children aged 1 through 4 years), Healthy Kids (covers children aged 5 through 18 years), and the Children's Medical Service Network (covers children with special health care needs from birth through 18 years of age). As such, although the "separate CHIP age eligibility" starts at age 1 year, KidCare (representing a combination CHIP approach) eligibility starts at birth.

APPENDIX C. FY 2013 MEDICAID AND CHIP ENROLLMENT DATA

FY 2013 Medicaid and CHIP enrollment totals for all States are presented below.

State	FY 2013 Enrollment Data				
	Number of Children in CHIP ^{a,b}	Number of Children in Medicaid ^{a,b}	Number of Children in CHIP and Medicaid ^{a,b}	Number of Adults Aged 19–64 Years in Medicaid ^{c,d}	Number of Adults Aged 65+ Years in Medicaid ^{c,d}
Alabama	113,490	598,045	711,535	414,700	119,900
Alaska	16,566	86,926	103,492	50,000	10,200
Arizona	80,238	913,271	993,509	714,100	119,800
Arkansas	109,301	407,121	516,422	247,900	72,700
California	1,913,793	4,462,514	5,705,404	6,406,500	1,141,800
Colorado	90,397	446,943	537,340	257,300	51,600
Connecticut	18,999	325,414	344,413	408,200	121,100
Delaware	13,180	96,916	110,096	137,100	16,300
District of Columbia	9,057	91,712	100,769	145,300	21,500
Florida	472,471	2,119,324	2,591,795	1,583,000	563,200
Georgia	269,906	1,162,529	1,432,435	627,400	191,800
Hawaii	30,979	138,258	169,237	150,500	28,200
Idaho	30,958	176,727	207,685	90,600	21,300
Illinois	306,781	1,623,674	1,930,455	1,216,200	243,700
Indiana	152,415	701,804	854,219	485,200	102,000
Iowa	83,670	318,377	402,047	302,600	46,500
Kansas	76,164	237,026	313,190	130,500	39,100
Kentucky	84,069	485,286	569,355	351,100	99,500
Louisiana	149,968	670,729	820,697	512,800	122,300
Maine	29,712	175,128	204,840	182,200	62,900
Maryland	135,454	490,009	625,463	559,400	86,300

State	FY 2013 Enrollment Data				
	Number of Children in CHIP ^{a,b}	Number of Children in Medicaid ^{a,b}	Number of Children in CHIP and Medicaid ^{a,b}	Number of Adults Aged 19–64 Years in Medicaid ^{c,d}	Number of Adults Aged 65+ Years in Medicaid ^{c,d}
Massachusetts	148,719	524,333	673,052	827,800	188,000
Michigan	89,670	1,195,649	1,285,319	1,013,900	156,100
Minnesota	3,835	505,264	509,099	587,100	102,200
Mississippi	93,120	467,918	561,038	273,000	92,900
Missouri	92,918	559,265	652,183	451,300	92,200
Montana	44,661	83,447	128,108	47,800	13,700
Nebraska	55,783	165,038	220,821	88,600	25,200
Nevada	28,626	256,109	284,735	126,600	34,500
New Hampshire	18,392	81,815	100,207	59,500	17,300
New Jersey	206,761	662,198	868,959	403,400	157,600
New Mexico	9,368	380,290	389,658	257,000	46,800
New York	671,707	2,143,167	2,814,874	3,255,400	683,400
North Carolina	260,964	1,162,098	1,423,062	739,900	190,300
North Dakota	11,281	50,957	62,238	30,700	9,500
Ohio	194,013	1,209,817	1,403,830	1,288,400	202,900
Oklahoma	147,911	558,262	706,173	380,700	68,200
Oregon	128,061	401,721	529,782	317,900	69,700
Pennsylvania	267,073	1,309,862	1,576,935	1,145,500	261,300
Rhode Island	26,577	112,002	138,579	82,500	24,700
South Carolina	76,191	582,293	658,484	409,800	87,400
South Dakota	17,632	46,948	64,580	41,600	12,900
Tennessee	106,473	790,923	897,396	638,800	152,200
Texas	1,034,613	3,504,386	4,538,999	1,318,200	489,400
Utah	63,001	283,213	346,214	139,400	17,700

State	FY 2013 Enrollment Data				
	Number of Children in CHIP ^{a,b}	Number of Children in Medicaid ^{a,b}	Number of Children in CHIP and Medicaid ^{a,b}	Number of Adults Aged 19–64 Years in Medicaid ^{c,d}	Number of Adults Aged 65+ Years in Medicaid ^{c,d}
Vermont	7,393	72,512	79,905	114,200	22,700
Virginia	196,911	648,173	845,084	407,700	116,500
Washington	44,073	768,387	812,460	520,500	108,300
West Virginia	37,065	260,326	297,391	179,900	44,100
Wisconsin	175,152	542,731	717,883	613,100	144,600
Wyoming	8,815	58,644	67,459	26,300	6,400

Abbreviations: CHIP, Children's Health Insurance Program; FY, fiscal year

^a Source: Medicaid.gov. FY 2014 Unduplicated Number of Children Ever Enrolled in Medicaid and CHIP. www.medicaid.gov/chip/downloads/fy-2014-childrens-enrollment-report.pdf.

^b See original source data for detailed guidance on interpreting data from each State.

^c Source: Kaiser Family Foundation State Health Facts. FY 2013 Medicaid Enrollment by Age. www.kff.org/medicaid/state-indicator/medicaid-enrollment-by-age.

^d Because 2013 data were unavailable, 2012 data were used for North Carolina, Kansas, and Rhode Island. 2011 data were used for Colorado.

APPENDIX D. HCUP PARTNERS

HCUP would not be possible without the contributions of the following data collection Partners from across the United States. An asterisk denotes Partner organizations that participated in the State Inpatient Databases (SID) in 2012 and 2013. These States were included in the enrollment data comparison analyses reported above.

Alaska Department of Health and Social Services
Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services*
Arkansas Department of Health*
California Office of Statewide Health Planning and Development*
Colorado Hospital Association*
Connecticut Hospital Association*
Delaware Division of Public Health
District of Columbia Hospital Association
Florida Agency for Health Care Administration*
Georgia Hospital Association*
Hawaii Health Information Corporation*
Illinois Department of Public Health*
Indiana Hospital Association*
Iowa Hospital Association*
Kansas Hospital Association*
Kentucky Cabinet for Health and Family Services*
Louisiana Department of Health*
Maine Health Data Organization*
Maryland Health Services Cost Review Commission*
Massachusetts Center for Health Information and Analysis*
Michigan Health & Hospital Association*
Minnesota Hospital Association*
Mississippi State Department of Health
Missouri Hospital Industry Data Institute*
Montana Hospital Association*
Nebraska Hospital Association*
Nevada Department of Health and Human Services*
New Hampshire Department of Health & Human Services
New Jersey Department of Health*
New Mexico Department of Health*
New York State Department of Health*
North Carolina Department of Health and Human Services*
North Dakota (data provided by the Minnesota Hospital Association)*
Ohio Hospital Association*
Oklahoma State Department of Health*
Oregon Association of Hospitals and Health Systems*
Oregon Office of Health Analytics*
Pennsylvania Health Care Cost Containment Council*
Rhode Island Department of Health*

South Carolina Revenue and Fiscal Affairs Office*
South Dakota Association of Healthcare Organizations*
Tennessee Hospital Association*
Texas Department of State Health Services*
Utah Department of Health*
Vermont Association of Hospitals and Health Systems*
Virginia Health Information*
Washington State Department of Health*
West Virginia Department of Health and Human Resources, West Virginia Health Care Authority*
Wisconsin Department of Health Services*
Wyoming Hospital Association*