

MILLIMAN REPORT

Policy considerations for designing hospital payment systems for Medicaid programs

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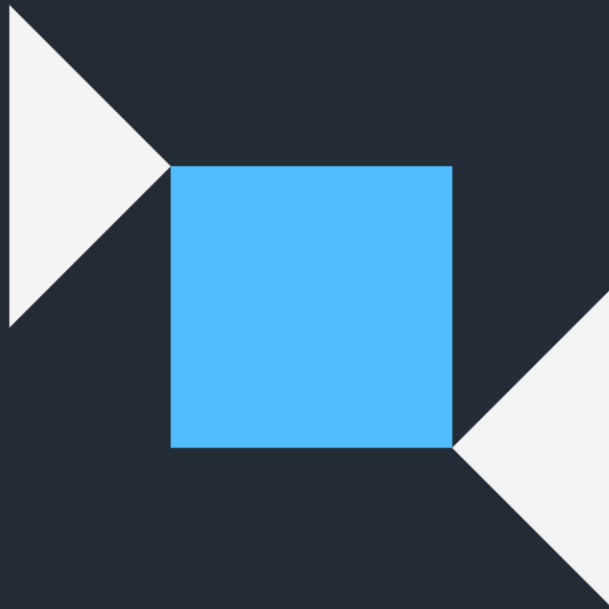


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Executive summary

In this paper, we present findings from analysis of care provided to Medicaid patients by hospitals in the United States, as well as analysis of the demographics of Medicaid patients who receive inpatient hospital care, the services that they receive, and the outcomes of their care.

Because Medicaid payment methodologies and rates can have significant implications for Medicaid recipients' access to high-quality hospital care, we also discuss potential related considerations for state policymakers when designing hospital payment systems for Medicaid programs. State policymakers should carefully evaluate payment policy for specific providers, populations, and services for which Medicaid comprises a disproportionate share, for which there may be other access concerns, or for which there may be other reasonable and measurable differences in the cost of care, among other policy considerations.

Based on our analysis of financial information reported by hospitals to the Centers for Medicare and Medicaid Services (CMS), we found that **Medicaid programs covered approximately 17.5% (just over one sixth) of all hospital services provided in the United States in 2021 and that Medicaid payments for these services covered approximately 92.2% of related hospital costs.** Both the percentage of hospital services covered by Medicaid programs and the percentage of related hospital costs covered by Medicaid payments were relatively similar in prior years analyzed, going back to 2016.

Further analyzing this financial data, we found that:

- **Supplemental payments represent a significant and growing share of total Medicaid payments to hospitals.** Supplemental payments increased from 15.5% to 20.4% of total reported Medicaid payments from 2016 to 2021.
- **Government-owned hospitals provided a higher proportion of their services to individuals with Medicaid coverage, as compared to private for-profit and non-profit hospitals. However, Medicaid payments to government hospitals covered a lower percentage of related hospital costs as compared to private for-profit hospitals.** In 2021, Medicaid covered 20.1% of services provided at government-owned hospitals, as compared to 17.2% at private for-profit hospitals and 17.0% at private non-profit hospitals. However, Medicaid payments covered approximately 95.4% of related hospital costs at government-owned hospitals, as compared to 99.1% at private for-profit hospitals and 90.0% at private non-profit hospitals.
- **Medicaid supplemental payments represented a higher share of total Medicaid payments for government-owned hospitals, as compared to private for-profit and non-profit hospitals.** In 2021, Medicaid supplemental payments represented 26.3% of total Medicaid payments for services provided at government-owned hospitals, as compared to 19.4% at private for-profit hospitals and 14.9% at private non-profit hospitals.
- **Hospitals with graduate medical education programs provided a higher proportion of their services to individuals with Medicaid coverage, as compared to hospitals that do not have graduate medical education programs. In addition, Medicaid payments were approximately 10% higher than related hospital costs at hospitals with graduate medical education programs, while Medicaid payments were approximately 10% lower than related hospital costs at hospitals without graduate medical education programs.** In 2021, Medicaid covered 22.2% of services provided at hospitals with graduate medical education programs, as compared to 17.1% at hospitals without graduate medical programs. Medicaid payments covered approximately 110.6% of related hospital costs at hospitals with graduate medical education programs, as compared to 90.5% at hospitals without graduate medical education programs.
- **Hospitals in large urban areas provided a higher proportion of their services to individuals with Medicaid coverage than hospitals in less populated (suburban and rural) areas. However, Medicaid payments to hospitals in large urban areas covered a lower percentage of related hospital costs as compared to hospitals in less populated areas.** In 2021, Medicaid covered 18.3% of services provided at hospitals in large urban areas, as compared to 16.6% at hospitals in less populated areas. Medicaid payments covered approximately 89.5% of related costs at hospitals in large urban areas, as compared to 96.2% at hospitals in less populated areas.

- **Hospitals with lower overall CMS hospital quality star ratings provided a significantly higher proportion of services to individuals with Medicaid coverage than hospitals with higher star ratings.** In 2021, Medicaid covered 25.6% of services provided at hospitals with the lowest (1-star) rating, compared to 19.2%, 18.2%, 15.9%, and 13.0% at hospitals with 2-, 3-, 4-, and 5-star ratings, respectively.

Based on our analysis of patients aged 0 to 64 who received inpatient hospital care in 2021, the services that they received, and the outcomes of their care, we found that:

- **A higher proportion of inpatient hospital patients aged 3 to 24 were covered by Medicaid as compared to other age groups.** In 2021, the percentage of patients covered by Medicaid was 45% for patients aged 0 to 2, 55% for patients aged 3 to 9, 51% for patients aged 10 to 17, 53% for patients aged 18 to 24, 39% for patients aged 25 to 34, 34% for patients aged 35 to 44, 29% for patients aged 45 to 54, and 23% for patients aged 55 to 64.
- **A higher proportion of Black, Hispanic, and Native American inpatient hospital patients were covered by Medicaid, as compared to Asian and white patients.** In 2021, 46% of Black, 51% of Hispanic, and 54% of Native American patients were covered by Medicaid. However, only 29% of Asian patients and 28% of white patients were covered by Medicaid.
- **Medicaid programs covered a disproportionate share of inpatient hospital treatment for HIV infections; alcohol/drug use and alcohol/drug induced organic mental disorders; mental diseases and disorders; burns; and injuries, poisonings, and toxic effects of drugs.** Among all inpatient hospital stays covered by either private insurance or Medicaid in 2021, Medicaid covered 46% of the stays. However, Medicaid programs covered 72% of hospital stays for HIV infections, 68% of hospital stays for alcohol/drug use and alcohol/drug induced organic mental disorders, 60% of hospital stays for burns, 59% of hospital stays for mental diseases and disorders, and 55% of hospital stays for injuries, poisonings, and toxic effects of drugs.
- **A disproportionate share of Medicaid patients were admitted to hospitals through the emergency department (ED) as compared to patients with private insurance coverage.** In 2021, 48% of admissions for Medicaid patients were through the ED, as compared to 42% of admissions for patients with private insurance coverage. Additionally, Medicaid patients were admitted through the ED approximately 40% more often than privately insured patients for maternal deliveries. The disproportionately high percentage of Medicaid patients admitted through the ED for maternal deliveries may be an indication of poor prenatal care.¹
- **Medicaid patients have longer inpatient lengths of stay and are more likely to leave an inpatient hospital stay against medical advice, as compared with patients with private insurance, after accounting for service mix and acuity differences.** In 2021, Medicaid patients had an average length of stay of 4.92 days, while privately insured patients would have had an average length of stay of 4.41 days assuming the same service and acuity mix. Medicaid patients left against medical advice in 3.3% of hospital stays, while private patients would have left against medical advice in 1.4% of hospital stays assuming the same service and acuity mix.
- **Patients with private insurance had a higher percentage of discharges with a COVID-19 diagnosis, while Medicaid and privately insured patients with a COVID-19 diagnosis had similar rates of death.** In 2021, 7.3% of patients covered by private insurance had a COVID-19 diagnosis, compared to 4.9% of patients covered by Medicaid programs. Of the patients with a COVID-19 diagnosis, 7.4% of Medicaid patients and 7.3% of private patients died during their hospital stay.

These findings along with the considerations for state policymakers are discussed in detail in the next sections of this report.

1. MACPAC. Access in brief: Pregnant women and Medicaid. Retrieved May 1, 2024, from <https://www.macpac.gov/wp-content/uploads/2018/11/Pregnant-Women-and-Medicaid.pdf>.

Introduction

Medicaid was authorized by Title XIX of the Social Security Act (SSA) Amendments of 1965 through a joint federal-state program structure. Through this program structure, each state has the flexibility to design and administer its own Medicaid program under a broad set of federal requirements and standards, with the programs being jointly financed by the federal government and the state.² Approximately 80 million individuals (nearly one quarter of the total United States population) were enrolled in Medicaid programs in June of 2024.^{3,4}

States generally administer their Medicaid programs through two different delivery models:

1. Fee-for-service (FFS), where the state pays providers directly for the healthcare services received by individuals enrolled in the Medicaid program, and
2. Managed care, where the state pays managed care plans a fixed amount per member per month (referred to as a “capitation rate”) for a defined set of benefits, and the plans then pay providers for the healthcare services received by the individuals enrolled with the plan

Many states administer both FFS and managed care programs, often with more vulnerable or higher-cost populations (e.g., aged, blind, and disabled individuals) or specialized services (e.g., long-term services and supports) covered under their FFS programs and other populations and services covered under their managed care programs. However, nationally, the majority of individuals enrolled in Medicaid programs are covered through managed care delivery models.⁵

In FFS programs, states have broad flexibility to establish their own payment methodologies and rates for the healthcare services received by the Medicaid-covered individuals. However, for provider payments to qualify for federal matching funds, states are required to:

- Document the policy and the methods used in setting payment rates for each type of service in a federally approved Medicaid State Plan
- Safeguard against unnecessary utilization
- Assure that payments are consistent with efficiency, economy, and quality of care, and that they are sufficient to enlist enough providers so that care and services are available under the plan at least to the extent that such care and services are available to the general population in the geographic area, and
- Ensure that payments do not exceed an upper payment limit, which for hospital services is equal to a reasonable estimate of the amount that would be paid for the services under Medicare payment principles⁶

In managed care programs, states are generally prohibited from making payments directly to providers or from directing how the managed care plans pay providers for services that the plans are contracted to cover, with limited exceptions described further in the next section.^{7,8} However, states are federally required to:

- Establish capitation rates that are actuarially sound to provide for all reasonable, appropriate, and attainable costs required to provide the healthcare services covered under the program
- Ensure that all services covered under their State Plan are also available and accessible to enrollees of their managed care programs in a timely manner
- Ensure that the managed care plans maintain provider networks that meet network adequacy standards

2. Social Security Administration. Social Security Act, Title XIX: Grants to States for Medical Assistance Programs. Retrieved April 13, 2024, from https://www.ssa.gov/OP_Home/ssact/title19/1900.htm.

3. Centers for Medicare and Medicaid Services. December 2023 Medicaid & CHIP Enrollment Data Highlights. Retrieved April 13, 2024, from <https://www.medicare.gov/medicaid-program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html>.

4. United States Census Bureau. U.S. Population Estimated at 335,893,238 on Jan. 1, 2024 (December 28, 2023). Retrieved April 13, 2024, from <https://www.census.gov/library/stories/2023/12/happy-new-year-2024.html>.

5. Kaiser Family Foundation. State Health Facts: Total Medicaid MCO Enrollment. Retrieved April 13, 2024, from <https://www.kff.org/other/state-indicator/total-medicare-mco-enrollment/>.

6. Code of Federal Regulations. Title 42, Part 447: Payments for Services. Retrieved April 13, 2024, from <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-C/part-447>.

7. Code of Federal Regulations. Title 42, Part 438, Subsection 438.6: Special contract provisions related to payment. Retrieved April 13, 2024, from <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-C/part-438/subpart-A/section-438.6>.

8. Code of Federal Regulations. Title 42, Part 438, Subsection 438.60: Prohibition of additional payments for services covered under MCO, PIHP or PAHP contracts. Retrieved April 13, 2024, from <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-C/part-438/subpart-B/section-438.60>.

- Ensure that managed care plans implement procedures to deliver care to and coordinate services for their enrollees appropriate to their enrollees' needs, and
- Ensure that their fixed per member per month payments to the managed care plans are adequate to meet their contractual requirements related to availability and accessibility of services, network adequacy, and coordination and continuity of care⁹

PAYMENT METHODOLOGIES AND RATES FOR HOSPITAL SERVICES

States are federally required to cover inpatient and outpatient hospital services in their Medicaid programs.¹⁰ There are a variety of different types of payments that are commonly used by states and their contracted managed care plans to pay hospitals for services provided to Medicaid patients. These types of payments commonly include FFS and managed care base payments, FFS supplemental payments, and managed care directed payments.

- **FFS and Managed Care base payments:** Base payments are made for specific services provided by the hospital, based on individual claims submitted by hospitals to Medicaid agencies or managed care plans. Base payments are commonly made for hospital services using prospective payment systems that make a pre-determined payment based on the clinical characteristics of patients and the healthcare services they receive. However, in some states, base payments are made based on reported costs for all or for select subsets of hospital services.^{11,12}
- **FFS supplemental payments:** FFS supplemental payments are separate from and are made in addition to base payments. The most common types of FFS supplemental payments are upper payment limit (UPL), disproportionate share hospital (DSH), and graduate medical education (GME) payments. Additionally, a limited number of states have received federal waivers under Section 1115 of the Social Security Act to make delivery system reform incentive payments (DSRIP) and uncompensated care payments (UCP).¹³
 - **UPL supplemental payments:** UPL payments are commonly used by states to pay all or a portion of the difference between base payments and the regulatory upper payment limit to help offset hospitals' uncompensated care costs.¹⁴
 - **DSH supplemental payments:** States are required under section 1923(d) of the SSA to make DSH payments to hospitals that serve a disproportionately high share of Medicaid and uninsured patients to help offset these hospitals' uncompensated care costs.¹⁵
 - **GME supplemental payments:** GME payments are commonly used by states to provide financial support for hospitals' GME programs. GME payments may be further categorized as direct graduate medical education (DGME) payments and indirect medical education (IME) payments. DGME payments are generally intended to pay a portion of hospitals' direct costs of operating an approved medical residency program, including resident stipends, supervisory physician salaries, and the direct administrative overhead expenses of the program.¹⁶ IME payments are generally intended to help offset teaching hospitals' higher costs of inpatient care that may not be directly attributed to operating an approved medical residency program.¹⁷

9. Code of Federal Regulations. Title 42, Part 438, Subpart D: MCO, PIHP and PAHP Standards. Retrieved April 13, 2024, from <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-C/part-438/subpart-D>.

10. Centers for Medicare and Medicaid Services. Mandatory & Optional Medicaid Benefits. Retrieved April 13, 2024, from <https://www.medicare.gov/medicaid/benefits/mandatory-optional-medicare-benefits/index.html>.

11. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Inpatient Hospital Services Fee-for-Service Payment Policy (December 2018). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2016/03/Medicaid-Inpatient-Hospital-Services-Fee-for-Service-Payment-Policy.pdf>.

12. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Outpatient Payment Policy (July 2016). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2016/07/Medicaid-Outpatient-Payment-Policies-Overview.pdf>.

13. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Base and Supplemental Payments to Hospitals (April 2024). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2024/05/Medicaid-Base-and-Supplemental-Payments-to-Hospitals.pdf>.

14. Medicaid and CHIP Payment and Access Commission. Issue Brief: Upper Payment Limit Supplemental Payments (November 2021). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2021/11/Upper-Payment-Limit-Supplemental-Payments.pdf>.

15. Social Security Administration. Social Security Act, Title XIX, Section 1923: Adjustment in payment for inpatient hospital services furnished by disproportionate share hospitals. Retrieved April 13, 2024, from https://www.ssa.gov/OP_Home/ssact/title19/1923.htm.

16. Centers for Medicare and Medicaid Services. Direct Graduate Medical Education (DGME). Available at: <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/DGME>. Accessed April 13, 2023.

17. Centers for Medicare and Medicaid Services. Indirect Medical Education (IME). Available at: <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Indirect-Medical-Education-IME>. Accessed April 13, 2023.

- **DSRIP and UCP supplemental payments:** Some states have received Section 1115 waivers to make additional DSRIP or UCP payments. DSRIP payments are generally used to support provider-led efforts to improve quality or access or to reduce costs through reforms to the healthcare delivery system. UCP payments have generally been used to preserve funding that was previously provided through UPL supplemental payments when states implemented or expanded their managed care programs (effectively receiving a federal waiver to the prohibition on making payments directly to providers for services that the managed care plans are contracted to cover).¹⁸
- **Managed Care directed payments:** Subject to design and other regulatory requirements defined in 42 CFR 438.6(c), states may direct managed care plans to adopt minimum or maximum fee schedules for their base payments, pay a uniform dollar or percentage increase above negotiated base payments, or participate in value-based purchasing (VBP) or delivery system reform initiatives. An analysis of directed payments approved by CMS from July 1, 2021, through February 1, 2023, found nine approvals for minimum or maximum fee schedules, 74 approvals for uniform dollar or percentage increases, and 13 approvals for VBP or delivery system reform initiatives for hospital services. This analysis also found that some states are using directed payments to require managed care plans to make large additional payments to hospitals similar in structure to FFS supplemental payments and often funded through provider taxes or IGTs.^{19,20}

According to a 2024 analysis by the Medicaid and CHIP Payment and Access Commission (MACPAC), Medicaid programs spent approximately \$262.6 billion on hospital services in fiscal year (FY) 2022. Additionally, MACPAC found that of the \$262.6 billion in Medicaid program expenditures for hospital services, 41% were managed care base payments, 20% were managed care directed payments, 19% were FFS base payments, and the remaining 20% were FFS supplemental payments. Of the 20% of expenditures that were FFS supplemental payments, 7% were UPL supplemental payments, 7% were DSH supplemental payments, 4% were DSRIP and UCP supplemental payments, and 2% were GME supplemental payments.²¹

POLICY CONSIDERATIONS FOR HOSPITAL PAYMENT SYSTEM DESIGN IN MEDICAID PROGRAMS

As with other aspects of Medicaid program design and administration, states and their contracted managed care plans have broad flexibility to establish the specific methodologies and rates used to pay for hospital services. Because managed care plan base payment methodologies and rates often align closely with those used in FFS programs and because many states make DSH and GME payments directly to hospitals for services provided in both their FFS and managed care programs, state policy decisions with respect to payment methodologies and rates have significant implications for overall Medicaid program funding for and access to hospital services.²²

As shown in the results of our analysis, Medicaid base payments are generally not enough to cover hospitals' reported costs of providing services to individuals enrolled in the Medicaid programs. Therefore, in establishing their payment methodologies and rates, state policymakers may increase base payments or provide additional FFS supplemental or managed care directed payments for specific providers, populations, and services for which Medicaid comprises a disproportionate share, for which there may be other access concerns, or for which there may be other reasonable and measurable differences in the cost of care, among other policy considerations.^{23,24}

18. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Base and Supplemental Payments to Hospitals (April 2024). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2024/05/Medicaid-Base-and-Supplemental-Payments-to-Hospitals.pdf>.

19. Code of Federal Regulations. Title 42, Part 438, Subsection 438.6: Special contract provisions related to payment. Retrieved April 13, 2024, from <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-C/part-438/subpart-A/section-438.6>.

20. Medicaid and CHIP Payment and Access Commission. Issue Brief: Directed Payments in Medicaid Managed Care (June 2023). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2023/06/Directed-Payments-in-Medicaid-Managed-Care.pdf>.

21. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Base and Supplemental Payments to Hospitals (April 2024). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2024/05/Medicaid-Base-and-Supplemental-Payments-to-Hospitals.pdf>.

22. Ibid.

23. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Inpatient Hospital Services Fee-for-Service Payment Policy (December 2018). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2016/03/Medicaid-Inpatient-Hospital-Services-Fee-for-Service-Payment-Policy.pdf>.

24. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Outpatient Payment Policy (July 2016). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2016/07/Medicaid-Outpatient-Payment-Policies-Overview.pdf>.

Examples of specific providers, populations, and services that it may be appropriate for state policymakers to consider when evaluating hospital payment policies include:

- **Maternity and neonatal services:** In 2022, approximately 41% of births in the United States were covered by Medicaid programs.²⁵ Nearly all births covered by Medicaid programs occur in a hospital setting.²⁶
- **Behavioral health services:** In 2020, Medicaid programs covered a disproportionate share of nonelderly adults with mental illness or substance use disorders, with approximately 39% of nonelderly individuals with Medicaid coverage having a mental illness and/or substance use disorder as compared to approximately 31% of nonelderly individuals with private insurance or without insurance.²⁷
- **Pediatric populations:** In 2022, approximately 39% of children aged 0 through 18 were covered by Medicaid programs.²⁸
- **Safety-net hospitals:** While there is not a single standard definition for safety-net hospitals, they are commonly identified as hospitals that have a disproportionate share of Medicaid, uninsured, and/or other vulnerable patients or that provide a disproportionate share of uncompensated care.²⁹
- **Rural hospitals:** Rural residents have worse health outcomes and tend to be older, poorer, and sicker than those in urban areas, and approximately a quarter of individuals under the age of 65 who live in rural areas are covered by Medicaid. In many states, Medicaid covers a higher proportion of residents in rural areas compared to other payors based on an analysis conducted by the Kaiser Family Foundation (KFF). Rural hospitals can provide an important source of care for rural residents, who otherwise face significant barriers to accessing care associated with provider shortages and long travel distances to receive needed care. However, rural hospitals often face financial pressures associated with low occupancy rates and high rates of uncompensated care, and as a result are generally less profitable and are at greater risk of closure than urban hospitals. Research has also found that the closure of rural hospitals can be associated with reduced access to primary and specialty (including obstetrician-gynecologist) physician care.^{30,31}
- **Children’s hospitals and/or hospitals with neonatal or pediatric intensive care units (NICUs and PICUs):** While there is not a single standard definition for children’s hospitals, they are commonly identified as hospitals that specialize in providing care to pediatric patients.³² Hospitals with specialized intensive care units incur significant additional fixed costs to maintain these units. For PICUs, these higher costs are generally attributable to higher patient severity of illness, longer stays, and patients requiring ventilation.³³ As noted previously, approximately 41% of births and 39% of children aged 0 through 18 were covered by Medicaid programs in 2022.

25. Kaiser Family Foundation. State Health Facts: Births Financed by Medicaid. Retrieved April 13, 2024, from <https://www.kff.org/medicaid/state-indicator/births-financed-by-medicaid/>.

26. Medicaid and CHIP Payment and Access Commission. Fact Sheet: Medicaid’s Role in Financing Maternity Care (January 2020). Retrieved April 13, 2024, from <https://www.macpac.gov/publication/financing-maternity-care-medicoids-role/>.

27. Kaiser Family Foundation. Demographics and Health Insurance Coverage of Nonelderly Adults With Mental Illness and Substance Use Disorders in 2020. Retrieved April 13, 2024, from <https://www.kff.org/medicaid/issue-brief/demographics-and-health-insurance-coverage-of-nonelderly-adults-with-mental-illness-and-substance-use-disorders-in-2020/>.

28. Kaiser Family Foundation. State Health Facts: Health Insurance Coverage of Children 0-18. Retrieved April 13, 2024, from <https://www.kff.org/other/state-indicator/children-0-18/>.

29. Hefner, Jennifer & Hogan, Tory & Opoku-Agyeman, William & Menachemi, Nir. (2021). Defining safety net hospitals in the health services research literature: a systematic review and critical appraisal. *BMC Health Services Research*. 21. 10.1186/s12913-021-06292-9.

30. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid and Rural Health (April 2021). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2021/04/Medicaid-and-Rural-Health.pdf>.

31. Kaiser Family Foundation. The Role of Medicaid in Rural America. Retrieved April 13, 2024, from <https://www.kff.org/medicaid/issue-brief/the-role-of-medicoid-in-rural-america/>.

32. Piper KN, Baxter KJ, McCarthy I, Raval MV. Distinguishing Children’s Hospitals from Non-Children’s Hospitals in Large Claims Data. *Hosp Pediatr*. 2020 Feb;10(2):123-128. doi: 10.1542/hpeds.2019-0218. Epub 2020 Jan 3. PMID: 31900261; PMCID: PMC6986900.

33. Kaur A, Jayashree M, Prinja S, Singh R, Baranwal AK. Cost analysis of pediatric intensive care: a low-middle income country perspective. *BMC Health Serv Res*. 2021 Feb 23;21(1):168. doi: 10.1186/s12913-021-06166-0. PMID: 33622310; PMCID: PMC7901186.

- **Hospitals with specialized trauma units:** Trauma hospitals incur certain fixed costs to maintain infrastructure ensuring readiness to provide emergent trauma care.³⁴ In 2010, individuals with Medicaid coverage were less likely to have access to trauma care within an hour than compared to the general U.S. population. More broadly, populations without prompt access to trauma care were disproportionately lower income, more likely to live in poverty, and more likely to be uninsured.³⁵
- **Government-owned hospitals:** Historically, government hospitals have had higher rates of uncompensated care and are less likely to be profitable relative to nonprofit or for-profit hospitals. Additionally, a significantly higher portion of rural hospitals have been government-owned relative to urban or other hospitals.³⁶ Many states provide increases in base payments or additional FFS UPL supplemental, DSH supplemental, or managed care directed payments to government hospitals, which may be, in whole or in part, financed through IGTs provided by the hospitals.³⁷
- **Teaching hospitals:** Teaching hospitals incur significant additional direct and indirect costs associated with their residency training programs.³⁸ Many states provide increases in base payments or additional GME or IME supplemental payments to teaching hospitals, which may be, in whole or in part, financed through IGTs provided by government-owned teaching hospitals.³⁹

34. Ashley DW, Mullins RF, Dente CJ, Garlow L, Medeiros RS, Atkins EV, Solomon G, Abston D, Ferdinand CH. What Are the Costs of Trauma Center Readiness? Defining and Standardizing Readiness Costs for Trauma Centers Statewide. *Am Surg.* 2017 Sep 1;83(9):979-990. PMID: 28958278.

35. Carr BG, Bowman AJ, Wolff CS, Mullen MT, Holena DN, Branas CC, Wiebe DJ. Disparities in access to trauma care in the United States: A population-based analysis. *Injury.* 2017 Feb;48(2):332-338. doi: 10.1016/j.injury.2017.01.008. Epub 2017 Jan 3. PMID: 28069138; PMCID: PMC5292279.

36. Horwitz JR, Nichols A. Rural hospital ownership: medical service provision, market mix, and spillover effects. *Health Serv Res.* 2011 Oct;46(5):1452-72. doi: 10.1111/j.1475-6773.2011.01280.x. Epub 2011 Jun 3. PMID: 21639860; PMCID: PMC3207187.

37. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Base and Supplemental Payments to Hospitals (April 2024). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2024/05/Medicaid-Base-and-Supplemental-Payments-to-Hospitals.pdf>.

38. U.S. Department of Health and Human Services Health Resources and Services Administration. Report to Congress: Teaching Health Center Graduate Medical Education Direct and Indirect Training Expenses Report. Retrieved April 13, 2024, from <https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/about-us/reports-to-congress/report-to-congress-thcme-2019.pdf>.

39. Medicaid and CHIP Payment and Access Commission. Issue Brief: Medicaid Base and Supplemental Payments to Hospitals (April 2024). Retrieved April 13, 2024, from <https://www.macpac.gov/wp-content/uploads/2024/05/Medicaid-Base-and-Supplemental-Payments-to-Hospitals.pdf>.

Overview of primary data sources

In this section, we provide an overview of the two primary data sources that we relied on to perform our analyses. More detailed descriptions of these data sources and the methodologies employed to analyze them—including use of secondary data sources—are provided in Appendix A.

HEALTHCARE COST REPORT INFORMATION SYSTEM

The Healthcare Cost Report Information System (HCRIS) is a publicly available database of Medicare cost reports (MCRs) that is compiled and published by CMS. Medicare-certified institutional providers are required to submit MCRs to a Medicare Administrative Contractor (MAC) on an annual basis. The MCRs submitted by hospitals contain basic information about the hospital (e.g., location, number of beds, whether the hospital has an accredited teaching program), utilization data (e.g., number inpatient days and outpatient visits), and financial data including information about costs incurred and revenues received. CMS then compiles and publishes the information reported in the MCRs in the HCRIS. The HCRIS data contains information for providers across the United States and can therefore be used to analyze hospital utilization and financial information at a national level.⁴⁰

For the purposes of our analysis, we rely on cost reports for hospital fiscal years ending (FYE) 2016 through 2021, which were the most recent full years available at the time we performed our analysis.

NATIONAL INPATIENT SAMPLE

The National Inpatient Sample (NIS) is a publicly available database of inpatient hospital claims compiled and published by the Agency for Healthcare Research and Quality (AHRQ). It contains information on more than 7 million inpatient hospital stays in the United States, representing a 20% stratified sample of community hospital stays from all payers—including Medicare, Medicaid, private, and the uninsured. The NIS is designed to produce regional and national estimates of inpatient utilization, access, charges, quality, and outcomes. The NIS is updated annually and has discharge history for 1988 through 2021. The NIS does not include information about inpatient hospital stays at rehabilitation and long-term acute care hospitals.⁴¹

For purposes of this analysis, we relied upon calendar year 2021 data, which was the most recent data available at the time we performed our analysis. Because individuals aged 65 and over generally receive coverage for hospital services through the Medicare program, we have excluded them from our analysis.

40. More information about the HCRIS data is available at: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Cost-Reports/Hospital-2010-form>

41. More information about the NIS is available at: <https://hcup-us.ahrq.gov/nisoverview.jsp>

Results of analyses

OVERVIEW OF MEDICAID UTILIZATION AND COST COVERAGE OF MEDICAID PAYMENTS NATIONALLY

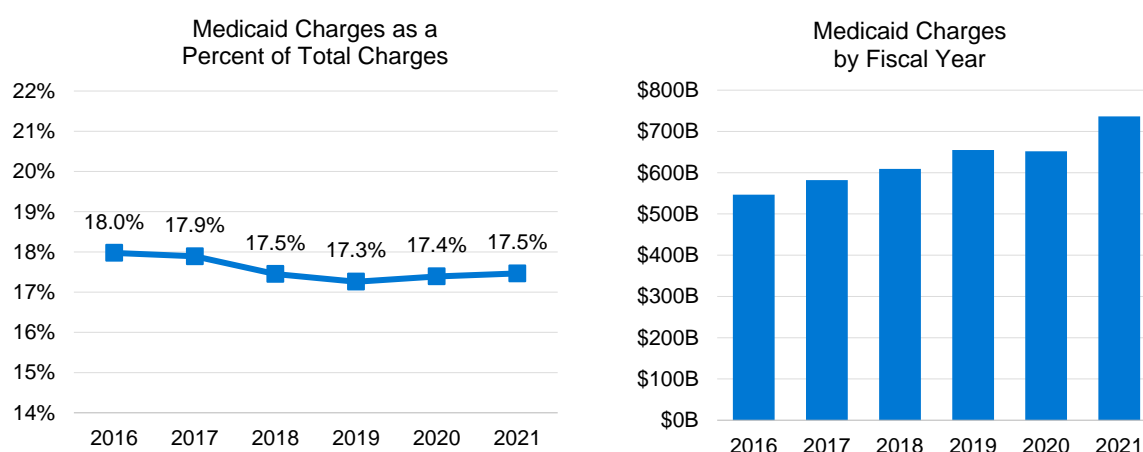
In this section of the report, we present findings from analysis of the proportion of hospital services provided to Medicaid patients and cost coverage of Medicaid payments at a national level, as well as variation of these metrics across hospital characteristics. We relied on MCR data submitted by hospitals and published in the HCRIS for the analyses described in this section of the report.

Medicaid share of hospital services nationally

To evaluate the proportion of hospital services provided to Medicaid patients, we relied on Medicaid billed charges as a percent of total billed charges. We found that in hospital fiscal years ending (FYE) 2021, Medicaid share of charges represented 17.5% of total charges nationally. This represents a slight increase relative to FYE 2019 and 2020, but a decrease in the proportion of hospital services provided to Medicaid patients relative to FYE 2016 and 2017. Reported Medicaid charges have generally been increasing since FYE 2016, and in FYE 2021 amounted to \$736.6 billion.

Figure 1 summarizes the total reported Medicaid charges in FYEs 2016 through 2021.

FIGURE 1: HOSPITAL CHARGES FOR MEDICAID PATIENTS, NATIONALLY



Cost coverage of Medicaid payments nationally

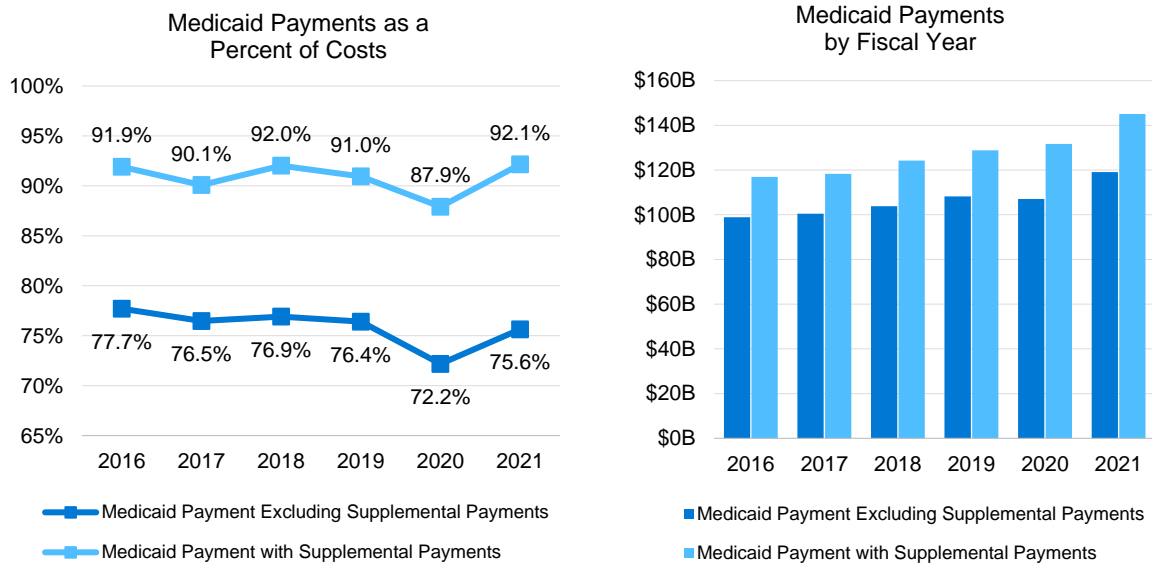
We evaluated the cost coverage of Medicaid payments based on Medicaid payments both including and excluding reported supplemental payments.⁴² In FYE 2021, the cost coverage of Medicaid payments excluding supplemental payments was 75.7%, and the cost coverage of Medicaid payments including supplemental payments was 88.9%. While the cost coverage of Medicaid payments excluding supplemental payments has generally been decreasing from FYE 2016 to 2021, supplemental payments represent a significant and growing share of total Medicaid payments to hospitals. As a result of an increase in supplemental payments from 14.2% of cost in FYE 2016 to 16.5% of cost in FYE 2021, the cost coverage of Medicaid payments including supplemental payments has been relatively stable from FYE 2016 to 2021.

42. We relied on the reported Medicaid payments and supplemental payments in the MCR data and have not attempted to make any adjustments. It may be possible some hospitals did not separately identify and report their supplemental payments.

The COVID-19 pandemic significantly disrupted hospital utilization, costs, and payments in FYE 2020. The significant drop in the cost coverage of Medicaid payments reported in FYE 2020 may be, in part, reflecting broader impacts of the COVID-19 pandemic on hospital utilization, costs, and payments. Results for FYE 2021 may be similarly, though potentially less significantly, impacted by the COVID-19 pandemic.

Figure 2 summarizes Medicaid payments to hospitals and the cost coverage of Medicaid payments from FYE 2016 to 2021.

FIGURE 2: MEDICAID PAYMENTS AND PAYMENT COST COVERAGE, NATIONALLY



Medicaid share and cost coverage of Medicaid payments by hospital ownership

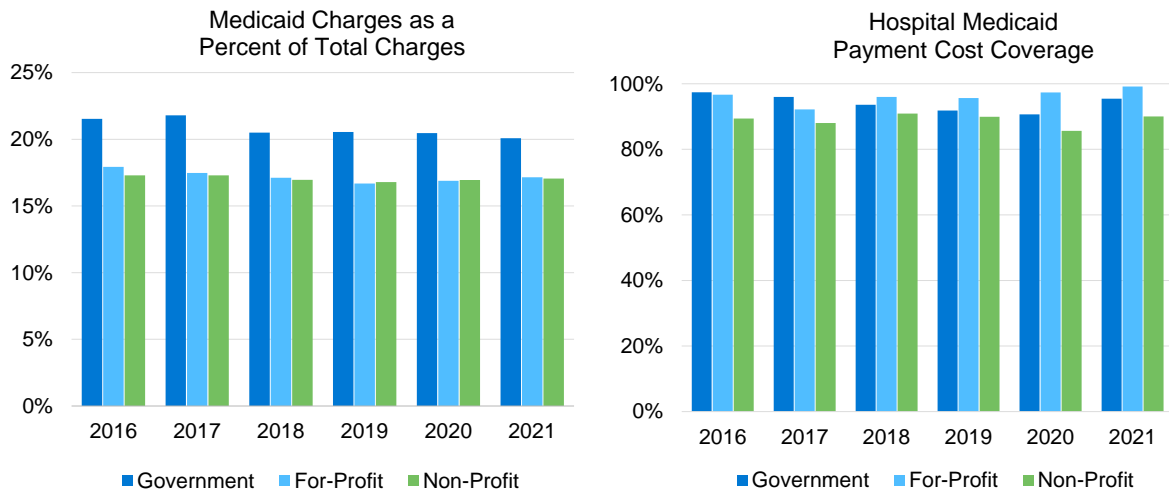
Using ownership information reported in HCRIS, we categorized hospitals as government, non-profit, and for-profit, and analyzed variations in the Medicaid share of services provided and cost coverage of Medicaid payments.⁴³ As shown in Figure 3, government hospitals have consistently had a higher share of Medicaid services compared to for-profit and non-profit hospitals for the period of FYE 2016 through 2021. In FYE 2021, the share of services for Medicaid patients rendered by government hospitals was 20.1%, as compared to 17.2% for for-profit hospitals and 17.0% for non-profit hospitals.

The cost coverage of Medicaid payments for government hospitals decreased every year from FYE 2016 through 2020, from 97.4% to 90.6%, but increased substantially in FYE 2021 to 95.4%. Between FYE 2016 and FYE 2021, the Medicaid payment cost coverage at for-profit hospitals increased from 96.7% to 99.1%. During this same period, the Medicaid payment cost coverage for non-profit hospitals increased from 89.4% to 90.0%.

While government hospitals had the highest Medicaid share every year from FYE 2016 through 2021, the cost coverage of Medicaid payments has been lower for government hospitals as compared to for-profit hospitals since FYE 2018.

43. Note that we were not able to determine the ownership type for some hospitals. These hospitals have been excluded for the purposes of this comparison.

FIGURE 3: MEDICAID VOLUME AND PAYMENT COST COVERAGE BY HOSPITAL OWNERSHIP TYPE

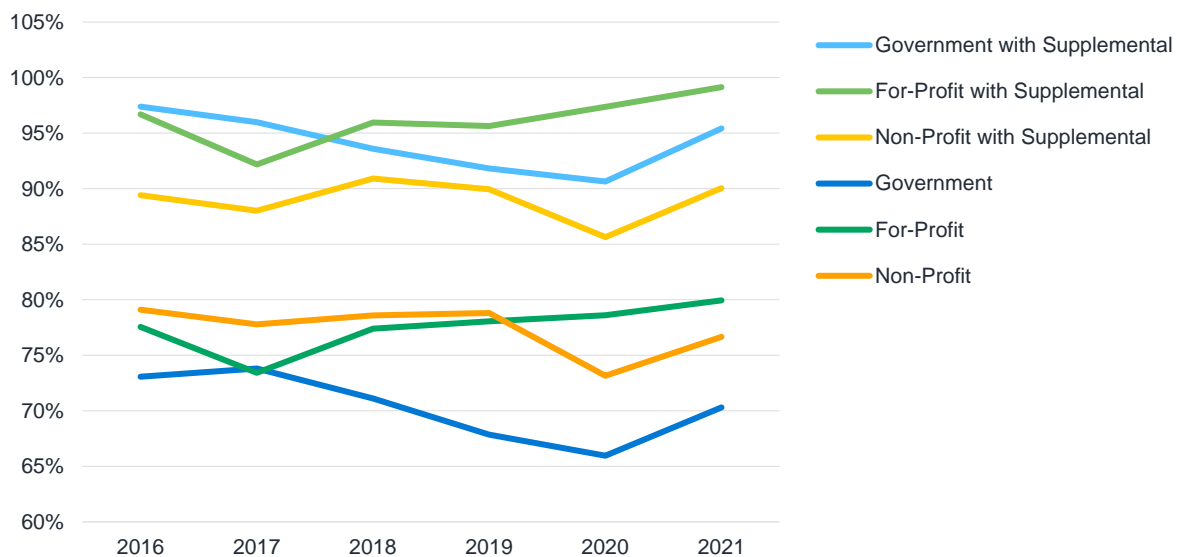


The hospital Medicaid payment cost coverage amounts presented in Figure 3 include supplemental payments. Because of the significant impact of the supplemental payments, we also analyzed Medicaid base payments (excluding supplemental payments) by hospital ownership type. The results are displayed in Figure 4.

Across the FYE 2016 to FYE 2021 period analyzed, Medicaid base payments covered a lower portion of related hospital costs for government-owned hospitals, as compared to both for-profit and non-profit privately-owned hospitals. Additionally, from FYE 2016 to FYE 2020, Medicaid base payments covered a declining portion of related hospital costs for government-owned hospitals, with an increase in FYE 2021 that offset some of the prior years' reductions. However, supplemental payments have increased as a share of total Medicaid payments for government-owned hospitals during this same period. From FYE 2016 to FYE 2021, Medicaid supplemental payments have increased from 25.0% to 26.3% of total Medicaid payments for government-owned hospitals. The relatively large share of supplemental payments for government-owned hospitals may be related to their ability to support the funding of Medicaid supplemental payments through certified public expenditures (CPEs) and intergovernmental transfers (IGTs).

Additionally, while Medicaid supplemental payments represent a lower share of total Medicaid payments for private non-profit hospitals, supplemental payments have increased substantially from FYE 2016 to FY 2021 for these hospitals, from 11.5% to 14.9% of total Medicaid payments.

FIGURE 4: MEDICAID PAYMENT COST COVERAGE BY HOSPITAL OWNERSHIP TYPE



Medicaid utilization and payment cost coverage at teaching hospitals

We evaluated Medicaid utilization and Medicaid payment cost coverage across hospitals based on the teaching status of the hospitals. Our goal in reviewing utilization and payment cost coverage for teaching hospitals is to determine the potential impact of GME and other supplemental payments on these hospitals. We classified hospitals as either having a graduate teaching program, a major or limited (non-graduate) teaching program, or no teaching program.

Based on data reported in the MCRs, hospitals with graduate teaching programs had a higher proportion of services provided to Medicaid populations as compared to hospitals that do not have graduate teaching programs. In FYE 2021, approximately 22.2% of charges for hospitals with graduate teaching programs were for Medicaid populations, compared to approximately 19.8% of charges for hospitals with major (non-graduate) teaching programs, 15.9% for hospitals with limited (non-graduate) teaching programs, and 15.6% for hospitals with no teaching program. In FYE 2021, hospitals with graduate teaching programs had Medicaid payment cost coverage of 110.6%, as compared to 90.5% for all hospitals without graduate teaching programs. The results for FYE 2021 are displayed in Figure 5.

FIGURE 5: MEDICAID VOLUME AND PAYMENT COST COVERAGE BY TEACHING HOSPITAL STATUS

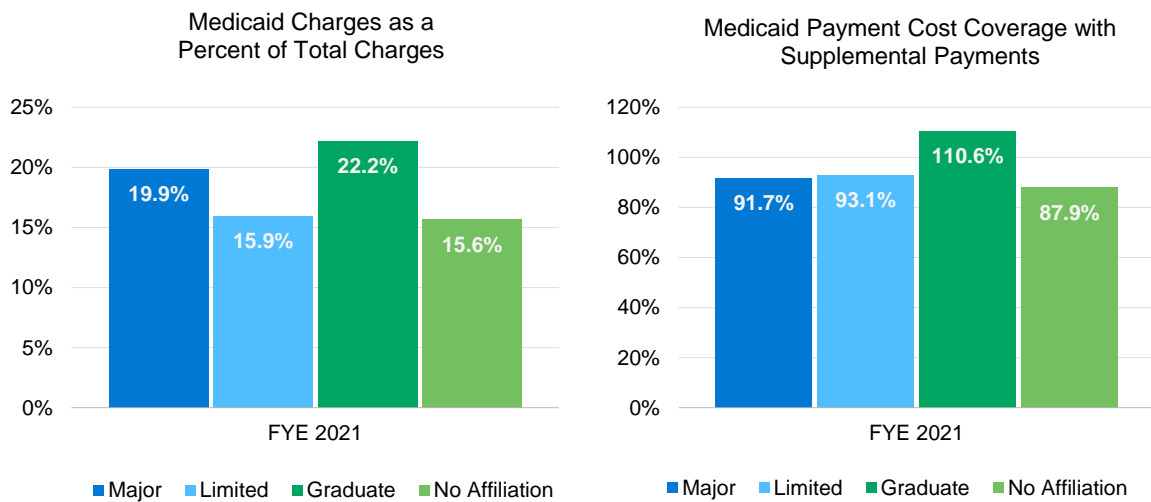
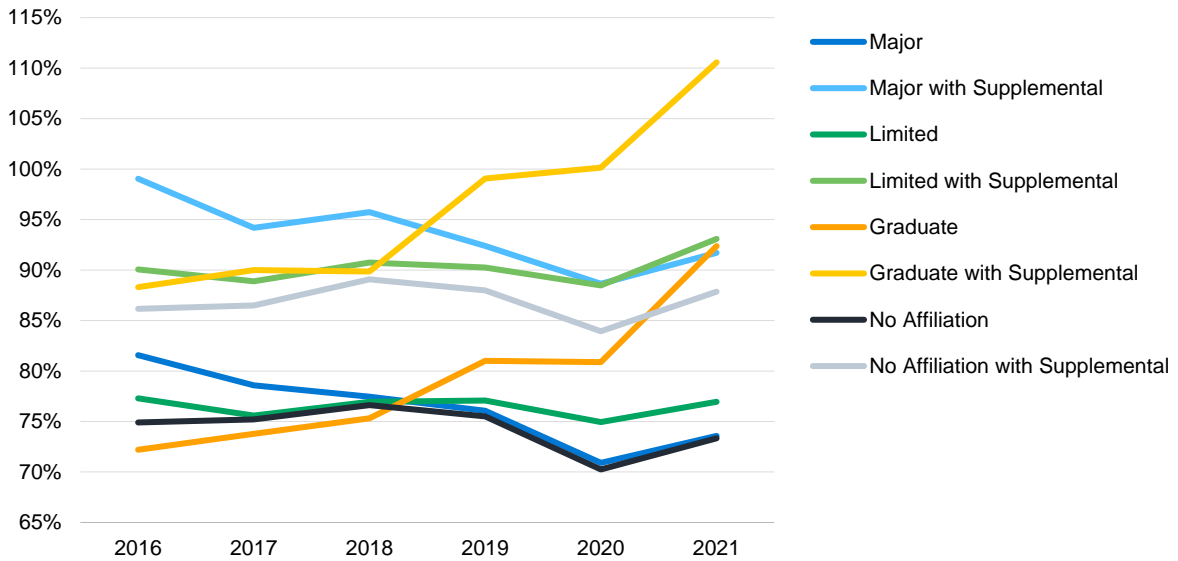


Figure 6 provides more detail behind the payment cost coverage with and without supplemental payments for the period of FYE 2016 through FYE 2021. Between FYE 2016 and FYE 2021, Medicaid payments for hospitals with graduate teaching programs increased substantially, from 88.3% of related hospital costs in FYE 2016 to 110.6% of related hospital costs in FYE 2021. During this same period, Medicaid payments for hospitals with major (non-graduate) teaching programs decreased from 99.0% of related hospital costs in FYE 2016 to 91.7% of related hospital costs in FYE 2021.

FIGURE 6: MEDICAID PAYMENT COST COVERAGE BY TEACHING HOSPITAL STATUS BY YEAR



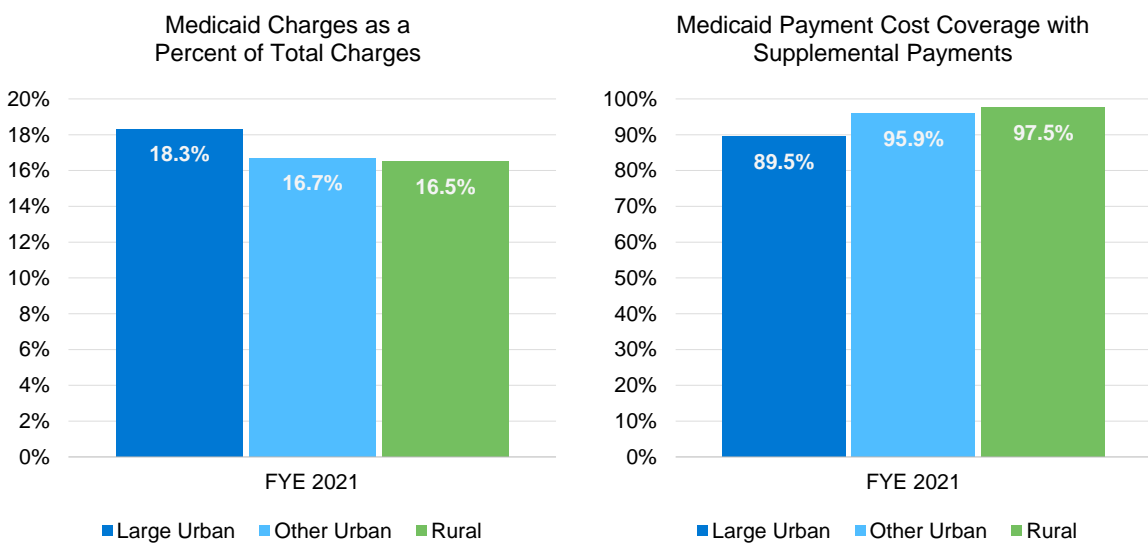
Medicaid utilization and payment cost coverage by urban versus rural hospitals

We reviewed Medicaid utilization and Medicaid payment cost coverage by large urban, other urban, and rural areas. Each of these areas are defined as follows (see Appendix A for more information):

- Large urban areas have populations greater than 1,000,000 people.
- Other urban areas have populations greater than 50,000 people but less than 1,000,000 people.
- Rural areas have fewer than 50,000 people.

As shown in Figure 7, for FYE 2021, hospitals in large urban areas had higher Medicaid utilization than hospitals in less populated areas. However, Medicaid payment cost coverage for hospitals in large urban areas was lower than the cost coverage for hospitals in less populated areas. As a comparison, hospitals in large urban areas experienced a Medicaid utilization rate of 18.3% and a Medicaid payment cost coverage of 89.5% while those in rural areas experienced a Medicaid utilization rate of 16.5% and a Medicaid cost coverage of 97.5%.

FIGURE 7: MEDICAID VOLUME AND PAYMENT COST COVERAGE BY URBAN VERSUS RURAL LOCATION

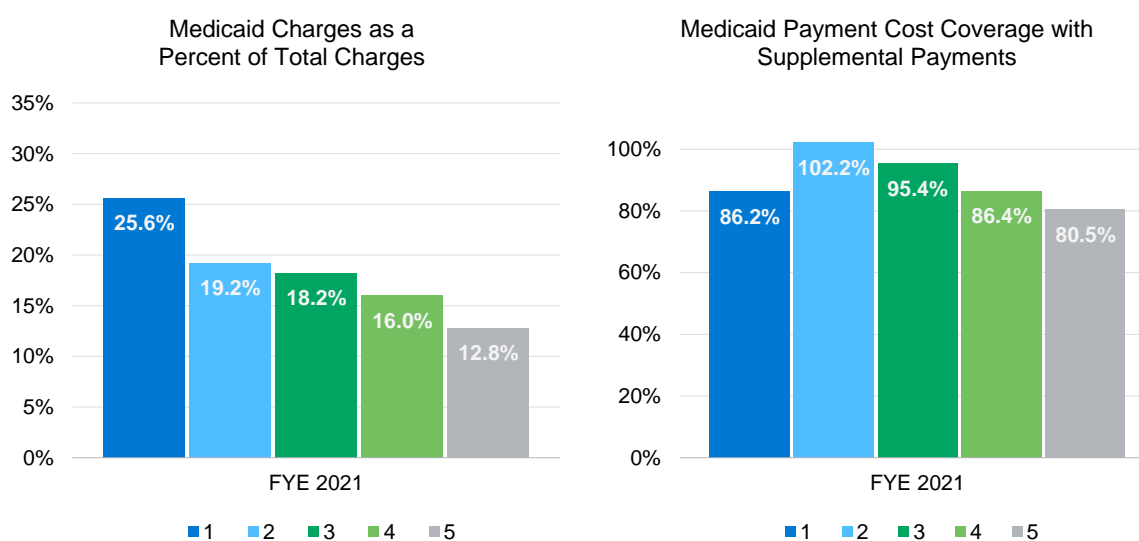


Medicaid utilization and payment cost coverage by CMS star rating

We relied on publicly available information from the CMS Hospital Compare website to determine the CMS overall hospital quality star rating for each hospital. The CMS overall hospital quality star rating reflects how each hospital performed relative to other hospitals on a series of quality measures that evaluate patient mortality, safety of care, readmissions, patient experience, and timely and effective care.

After determining each hospital's overall star rating, we evaluated how Medicaid utilization and payment cost coverage vary by hospital star rating, as summarized in Figure 8. We observe that hospitals rated as 1 star (the lowest rating) had a significantly higher share of Medicaid patients as compared to hospitals with higher star ratings. In FYE 2021, 25.6% of charges for 1-star hospitals were for Medicaid populations, while successively lower percentages of charges were for Medicaid populations for 2-, 3-, 4-, and 5-star hospitals, with only 12.8% of charges at 5-star hospitals being for Medicaid populations.

FIGURE 8: MEDICAID CHARGES AND PAYMENT COST COVERAGE BY OVERALL HOSPITAL STAR RATING FOR FYE 2021



A comparison of the HCRIS and NIS data sources

As described in the section above, the information available in HCRIS along with supplemental data sources is useful for analyzing costs in the aggregate, by location, or by other hospital characteristics (e.g., by urban/rural, ownership type, or overall hospital quality star rating). However, the HCRIS data does not contain information about the populations receiving care, their medical conditions, or the outcomes of their care. Therefore, to develop a deeper understanding about the Medicaid populations who receive hospital care, we analyzed data from the 2021 NIS dataset that provides more detailed information regarding each hospital visit.

There are a few notable differences between these two data sources:

1. HCRIS includes both inpatient and outpatient services, while the NIS includes only inpatient services.
2. Using HCRIS, we analyzed costs for the Medicaid population; using the NIS, we analyzed charges for the Medicaid population. The NIS data does not contain paid amounts.
3. The NIS excluded rehabilitation and long-term acute care hospitals, while the HCRIS included these hospital types.

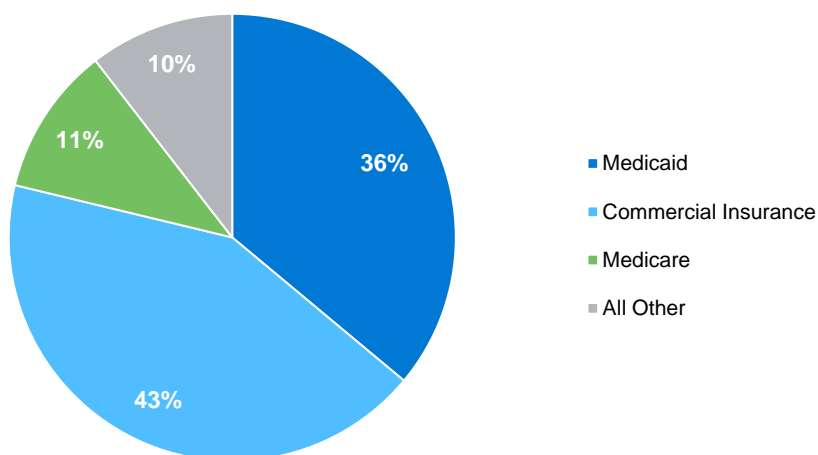
DETAILED PROFILE OF INPATIENT HOSPITAL SERVICES FOR MEDICAID PATIENTS

Overview of NIS data patient characteristics

In this section, we used the 2021 NIS dataset to provide insight into the Medicaid populations receiving care at inpatient hospitals and compared their characteristics with privately insured populations and all other populations (primarily those with Medicare coverage and the uninsured). We analyzed the demographic characteristic, medical conditions, and outcomes of care for patients aged 0 to 64.

In Figure 9, we show the distribution of sources of primary coverage type in the NIS dataset. Patients with primary coverage through private insurance had the highest proportion of discharges (43%), followed by Medicaid (36%), Medicare (11%),⁴⁴ and all other (10%). Note that in subsequent analyses, we collapse Medicare coverage into the “All Other” category.

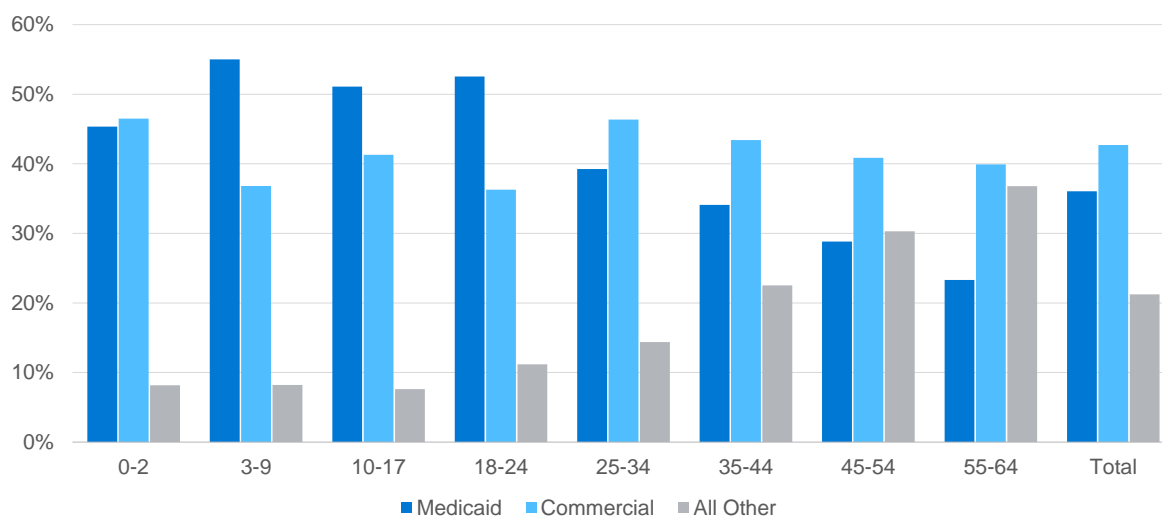
FIGURE 9: DISTRIBUTION OF HOSPITAL DISCHARGES ACROSS SOURCES OF COVERAGE FOR CY 2021



In Figure 10, we analyze the distribution of healthcare coverage across patient age cohorts. For patients aged 0 to 2 years, there was an approximately equal distribution of Medicaid and private coverage. Patients aged 3 to 24 had a higher proportion of Medicaid coverage as compared to private coverage. Patients aged 25 to 64 had a higher proportion of private coverage, with the gap between private and Medicaid coverage widening in higher aged cohorts.

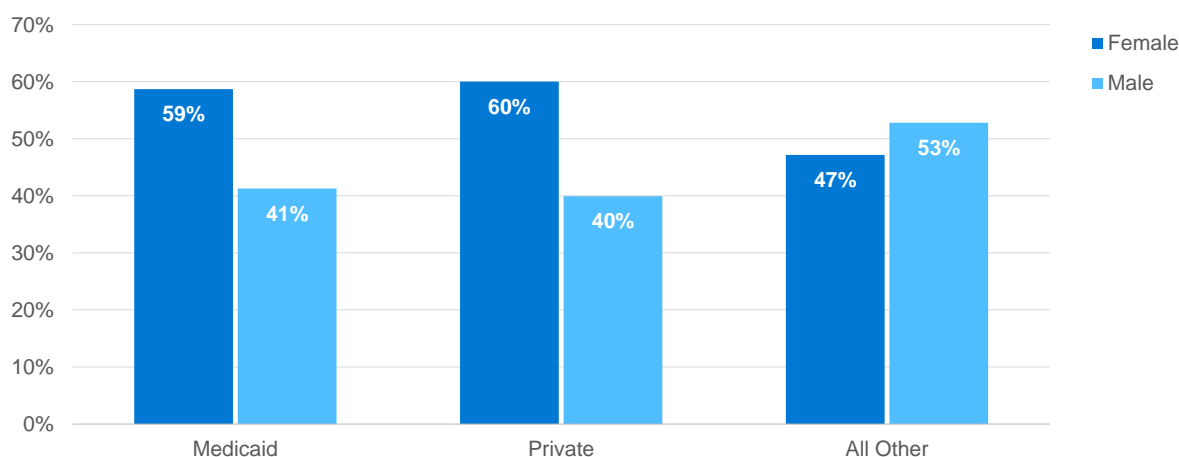
44. Some patients younger than 65 are covered by Medicare if they have certain disabilities, end-stage renal disease, or amyotrophic lateral sclerosis (ALS).

FIGURE 10: SUMMARY OF INPATIENT DISCHARGES BY AGE BAND AND PAYER FOR CY2021



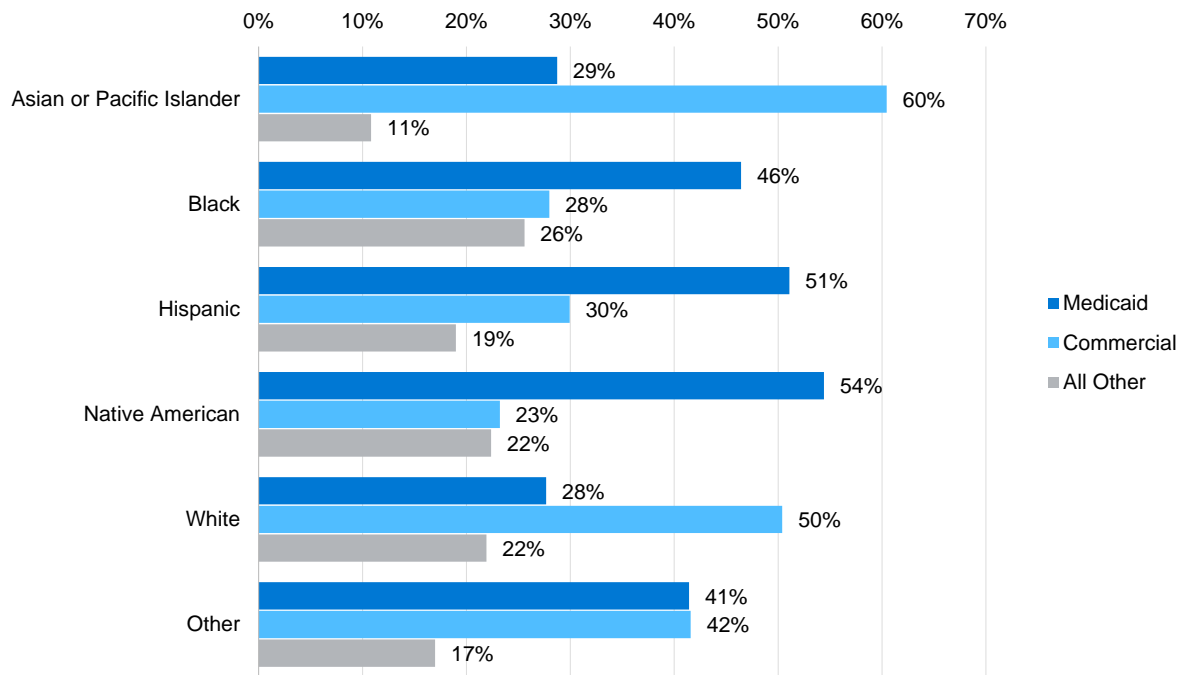
In Figure 11, we compare the distribution of gender by payer type. Note that the NIS data source does not identify non-binary patients. Females had higher portions of Medicaid and private coverage (59% for Medicaid and 60% for private), while males had higher portions of all other coverage (53%), which includes those uninsured.

FIGURE 11: SUMMARY OF INPATIENT DISCHARGES BY GENDER AND PAYER FOR 2021



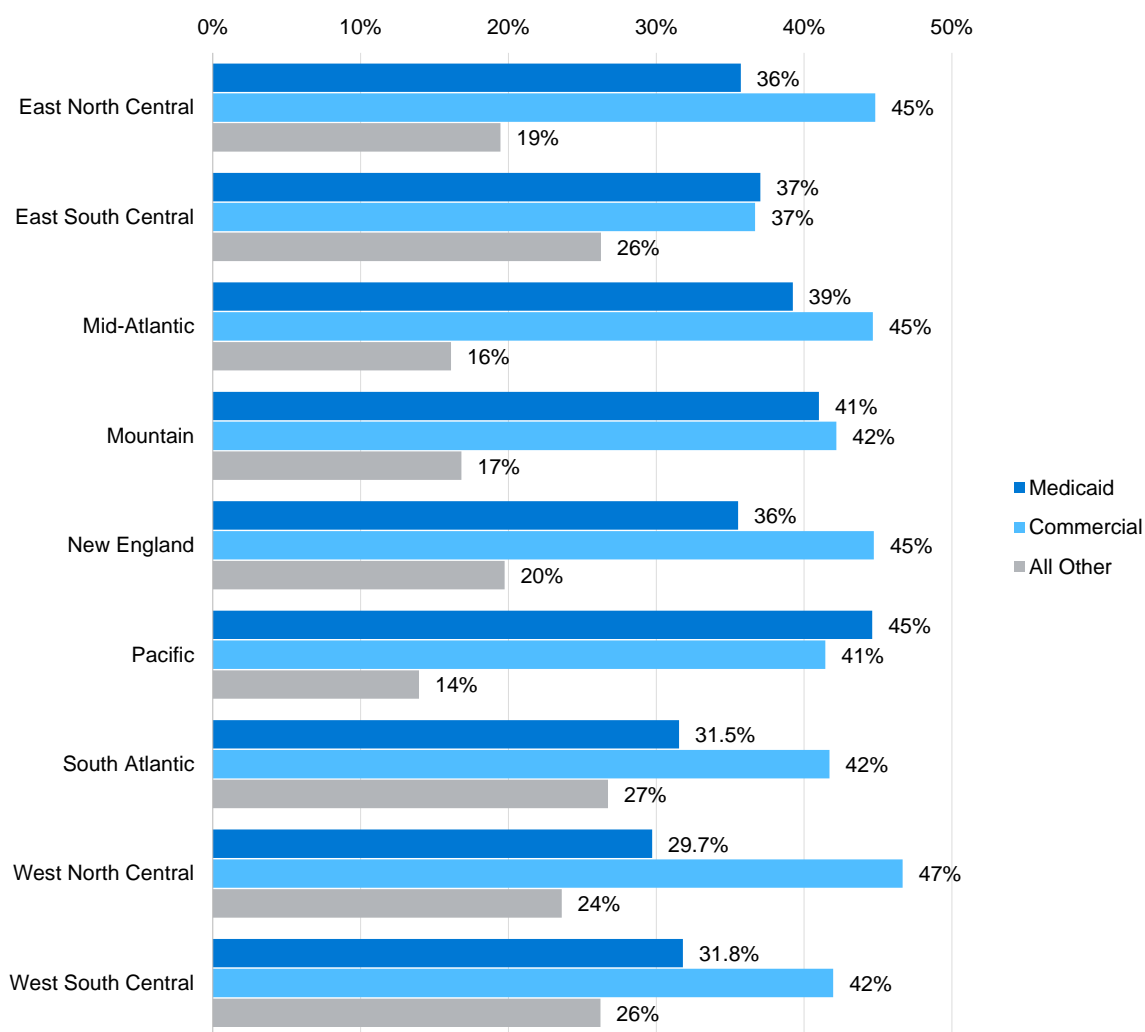
In Figure 12, we compare the distribution of payer type by race/ethnicity. Black, Hispanic, and Native American populations had higher proportions of Medicaid coverage than private or all other coverage (Black: 46% for Medicaid versus 28% for private; Hispanic: 51% for Medicaid versus 30% for private; Native American: 54% for Medicaid versus 23% for private), while Asian or Pacific Islander and white populations had higher proportions of private coverage (Asian: 29% for Medicaid versus 60% for private; white: 28% for Medicaid versus 50% for private).

FIGURE 12: SUMMARY OF INPATIENT DISCHARGES BY RACE AND PAYER FOR 2021



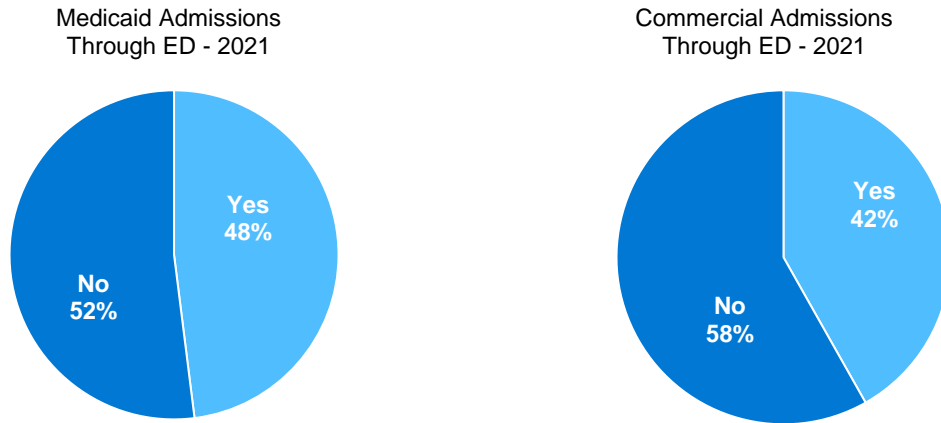
In Figure 13, we analyze coverage distributions by geographic region (see Appendix B for more information). The regions with the highest proportions of inpatient discharges covered by Medicaid were the Pacific region (45%; states include Alaska, Washington, Oregon, California, and Hawaii) and Mountain region (41%; states include Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico). The regions with the lowest proportions of inpatient discharges covered by Medicaid were the West North Central region (30%; states included Missouri, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, and Iowa), West South Central region (32%; states included Oklahoma, Texas, Arkansas, and Louisiana), and South Atlantic region (32%; states included Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida).

FIGURE 13: SUMMARY OF INPATIENT DISCHARGES BY NIS REGION AND PAYER FOR 2021



In Figure 14, we compare the proportion of discharges with admission through the emergency department (ED) between Medicaid and private patients. Medicaid discharges had a higher portion with admissions through the ED (48%) compared to privately insured discharges (42%).

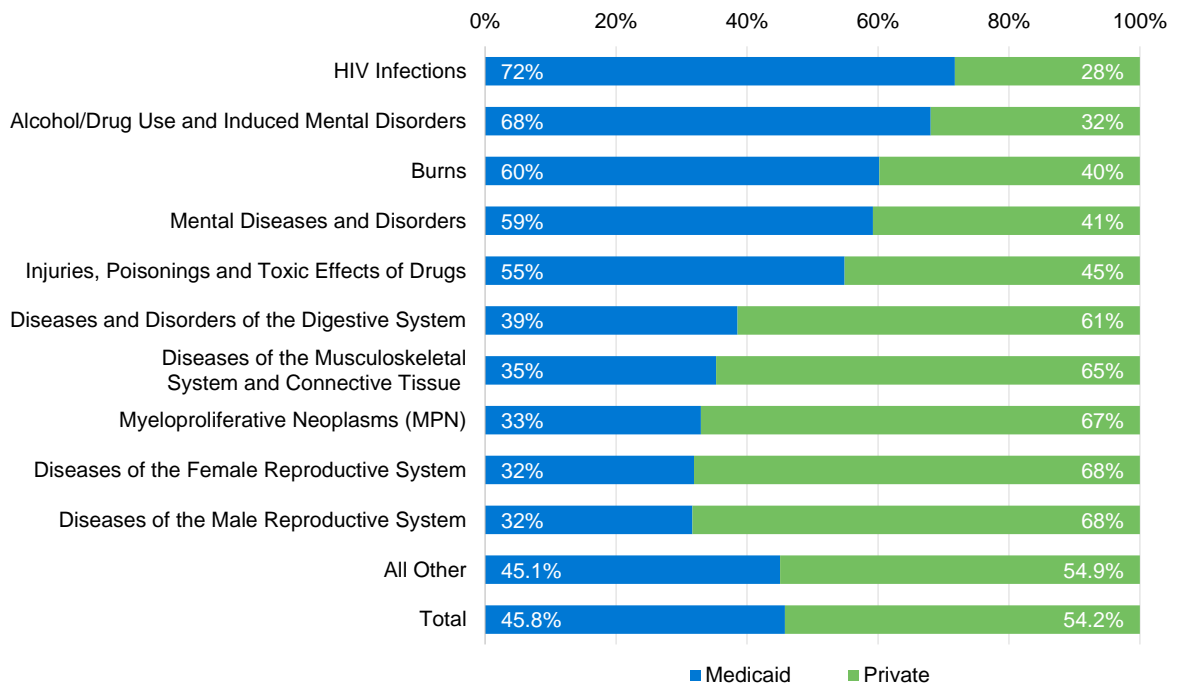
FIGURE 14: SUMMARY OF INPATIENT ADMISSIONS THROUGH ED FOR MEDICAID AND PRIVATE PAYERS FOR 2021



Comparison of top services based on clinical classifications for Medicaid discharges versus privately insured discharges - 2021

Figure 15 shows the Major Diagnostic Category (MDC) service types with the largest percentage differences between Medicaid and privately insured hospital discharges. For the Medicaid and private data, Medicaid discharges represented 46% of all discharges relative to private discharges (54%). However, Medicaid patients represented a disproportionate share of the MDC service types of HIV infections (72%), alcohol/drug use and induced mental disorders (68%), burns (60%), mental diseases and disorders (59%), and injuries, poisonings and toxic effects of drugs (55%). Privately insured patients represented a disproportionate share of the MDC service types of diseases of the male reproductive system (68%), diseases of the female reproductive system (68%), myeloproliferative neoplasms (67%), diseases of the musculoskeletal system and connective tissue (65%), and diseases and disorders of the digestive system (61%). For all other MDC service types, Medicaid coverage represented 45% of the discharges, in line with the total Medicaid discharge percentage of 46%.

FIGURE 15: SUMMARY OF INPATIENT DISCHARGES BY MDC FOR 2021



Comparison of top services based on MS-DRG classifications for Medicaid discharges versus privately insured discharges – 2021

Of the top 25 most frequent Medicare Severity Diagnosis-Related Groups (MS DRGs) for patients with Medicaid or private insurance, Medicaid patients had materially higher prevalences of certain MS-DRGs. These include MS-DRG 897 (alcohol/drug abuse or dependence), 291 (heart failure and shock), and 885 (psychoses). In Figure 16, we show the MS-DRGs with a higher prevalence among Medicaid patients relative to privately insured patients:

FIGURE 16: SUMMARY OF MEDICAID MS-DRGS WITH LARGEST DIFFERENCES FROM PRIVATE INSURANCE FOR FYE 2021

MS-DRG	DRG DESCRIPTION	MEDICAID	PRIVATE
897	Alcohol/drug abuse or dependence w/o rehabilitation therapy w/o MCC	66.8%	33.2%
291	Heart failure & shock w MCC	63.1%	36.9%
885	Psychoses	60.8%	39.2%
189	Pulmonary edema & respiratory failure	60.5%	39.5%
638	Diabetes w CC	57.5%	42.5%
603	Cellulitis w/o MCC	57.1%	42.9%
101	Seizures w/o MCC	54.8%	45.2%
790	Extreme immaturity or respiratory distress syndrome, neonate	53.5%	46.5%
792	Prematurity w/o major problems	53.2%	46.8%
793	Full term neonate w major problems	51.1%	48.9%
	Remaining top 25 MS-DRGs	43.1%	56.9%
	All other discharges	45.2%	54.8%
Total Discharges		45.8%	54.2%

Of the top 25 most frequent DRGs for patients with Medicaid or private insurance, Medicaid patients were admitted through the ED 35% to 188% more frequently than privately insured patients for MS-DRG 621 (operating room procedures for obesity), 470 (major hip and knee joint replacement or reattachment of the lower extremity), and birth- and newborn-related MS-DRGs (785-788, 795, and 805-807). The high percentage of birth and newborn admissions through the ED suggests that Medicaid patients are in general not receiving good prenatal care, which is consistent with other research.⁴⁵ In Figure 17, we show the MS-DRGs with the highest proportion of Medicaid admissions through the ED relative to privately insured patients:

45. MACPAC. Access in brief: Pregnant women and Medicaid. Retrieved May 1, 2024, from <https://www.macpac.gov/wp-content/uploads/2018/11/Pregnant-Women-and-Medicaid.pdf>.

FIGURE 17: MS DRGS WITH HIGHEST PROPORTION OF ADMISSIONS THROUGH THE ED (MEDICAID VS PRIVATE INSURANCE)

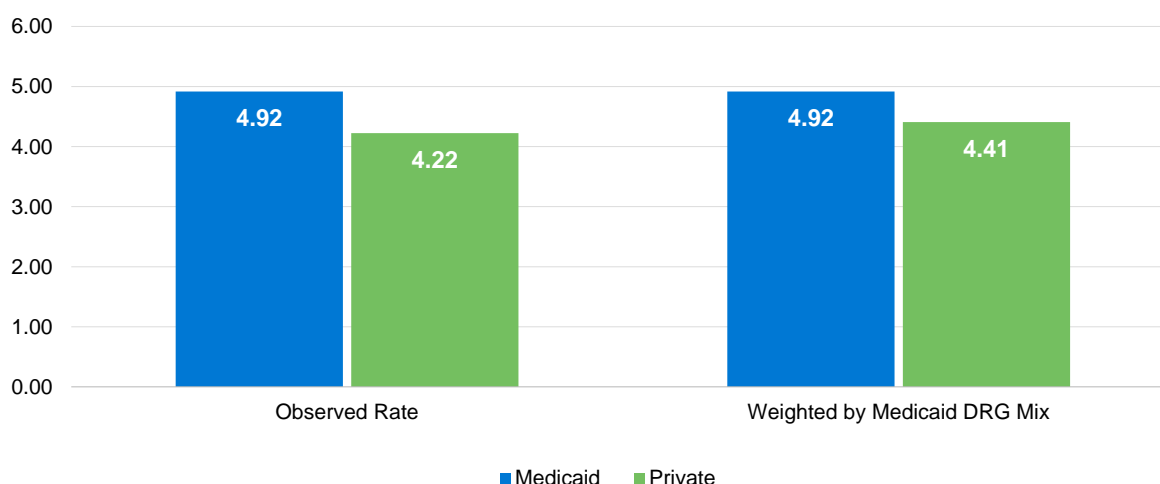
MS-DRG	DRG DESCRIPTION	% ADMITTED THRU ED		MEDICAID / PRIVATE RATIO
		MEDICAID	PRIVATE	
621	O.R. procedures for obesity w/o CC/MCC	1.2%	0.4%	187.5%
470	Major hip & knee joint replacement or reattachment of lower extremity w/o MCC	2.5%	1.1%	129.5%
787	Cesarean section w/o sterilization w CC	15.8%	10.9%	44.9%
806	Vaginal delivery w/o sterilization/D&C w CC	19.7%	13.8%	42.6%
785	Cesarean section w sterilization w/o CC/MCC	10.1%	7.1%	42.4%
788	Cesarean section w/o sterilization w/o CC/MCC	12.6%	9.0%	40.1%
807	Vaginal delivery w/o sterilization/D&C w/o CC/MCC	18.5%	13.3%	39.7%
795	Normal newborn	0.5%	0.4%	37.1%
786	Cesarean section w/o sterilization w MCC	21.6%	15.9%	35.7%
805	Vaginal delivery w/o sterilization/D&C w MCC	21.0%	15.6%	35.2%
	Remaining top 25 MS DRGs	51.7%	53.4%	-3.3%
	All other discharges	70.0%	60.4%	15.9%
Total Discharges		48.0%	41.8%	14.8%

Comparison of patient outcomes

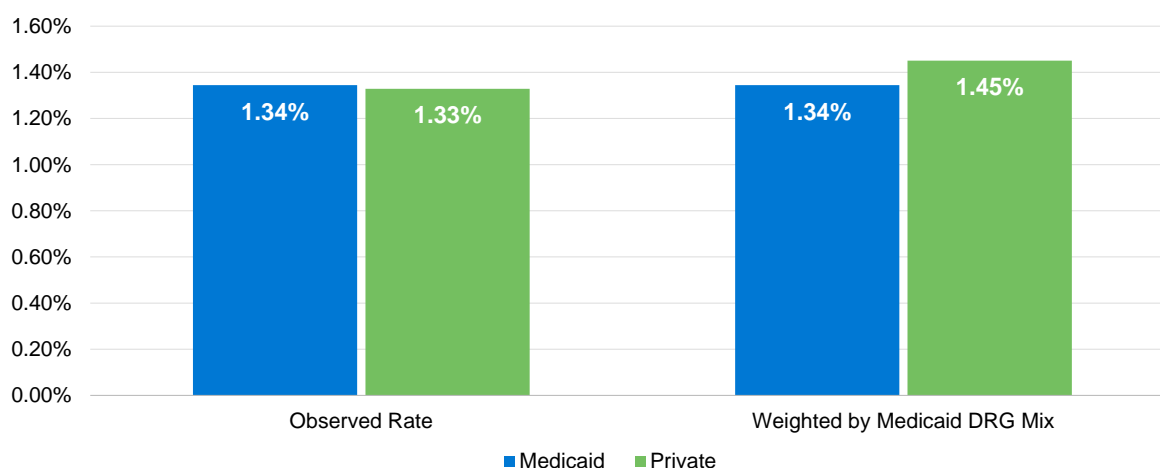
We analyzed the average lengths of stay, mortality rates, and proportion of discharges due to patients leaving against medical advice (LAMA) in 2021. In Figures 18 through 20, we show results before and after re-weighting by the distribution of MS-DRGs for Medicaid patients. The purpose of re-weighting is to adjust for differences in service mix and acuity between the two populations.

We observe that Medicaid patients had longer average lengths of stay than privately insured populations, both before and after adjusting for differences in service and acuity mix. The average lengths of stay were 4.92 days for Medicaid discharges and 4.22 days for private discharges (or 4.41 days after adjustment).

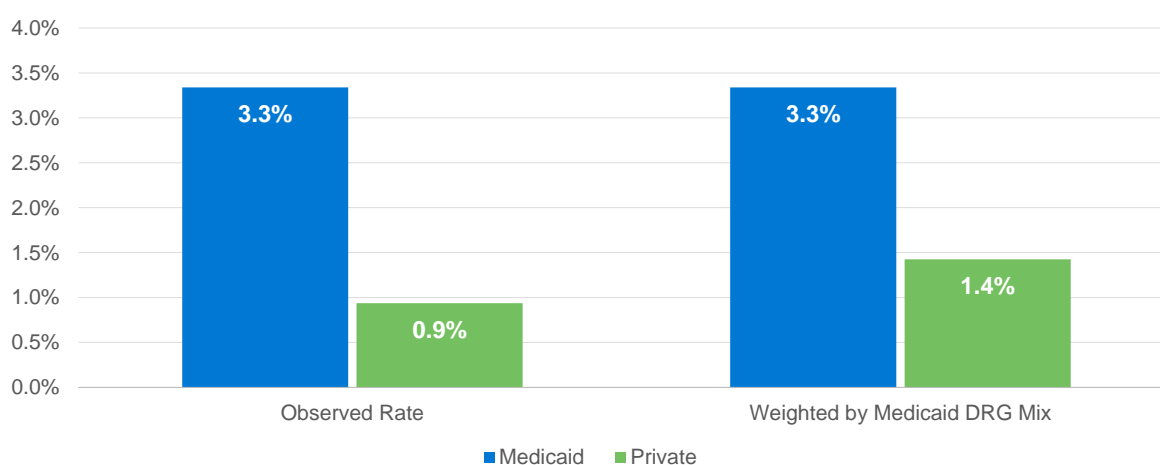
FIGURE 18: AVERAGE LENGTH OF STAY FOR FYE 2021



We observe that Medicaid patients had similar mortality rates as privately insured patients before and after adjusting for differences in severity and acuity mix. The mortality rates were 1.34% for Medicaid discharges and 1.33% for private discharges (or 1.45% after adjustment for private discharges). While we have accounted for service and acuity mix in our adjustment, we have not accounted for age differences. The higher mortality rate for the private population may be related to their higher average age.

FIGURE 19: MORTALITY BY PAYER FOR FYE 2021

Medicaid patients left against medical advice far more frequently than privately insured patients. In Figure 20, we summarize the rates of Medicaid and privately insured patients leaving before the healthcare team recommended a discharge from the hospital. Before adjusting for service and acuity mix, Medicaid patients were three-and-a-half times more likely to leave the hospital prematurely (3.3% of discharges) than privately insured patients (0.9% of discharges). After adjusting for service and acuity mix, the difference between the two patient types was still fairly large, with 3.3% of Medicaid patients leaving against medical advice versus 1.4% of privately insured patients. This is consistent with other research on Medicaid patients.⁴⁶

FIGURE 20: SUMMARY OF PATIENTS LEAVING AGAINST MEDICAL ADVICE BY PAYER FOR FYE 2021

Comparison of COVID-19 patients

Patients with private coverage had the highest proportion of inpatient discharges with COVID-19 diagnoses (ICD-10 diagnosis code U071), at 7.3%. Patients with Medicaid coverage had COVID-19 diagnoses in 4.9% of the discharges, and all other patients had COVID-19 diagnoses in 6.5% of the discharges. However, Medicaid and privately insured patients with COVID-19 diagnoses had similar mortality rates, while all other patients with COVID-19 diagnoses (which includes the uninsured) had the highest mortality rates. These results are displayed in Figures 21 and 22.

46. Werner B, Lee SW. Who left the hospital against medical advice during the early COVID-19 pandemic? HCA Healthc J Med. 2023; 4(4): 291-296. Retrieved April 29, 2024, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10519635/>.

FIGURE 21: COVID-19 DISCHARGES BY PAYER FOR FYE 2021

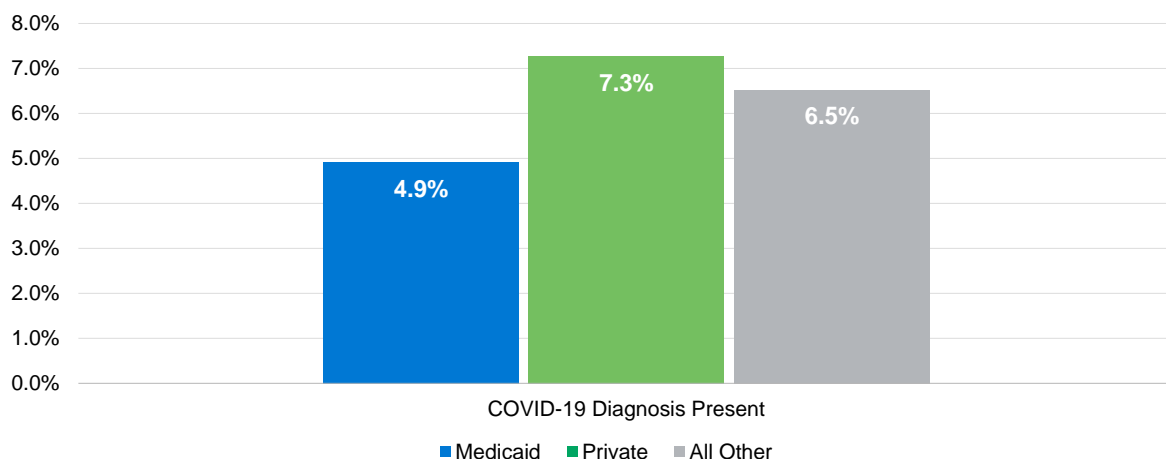
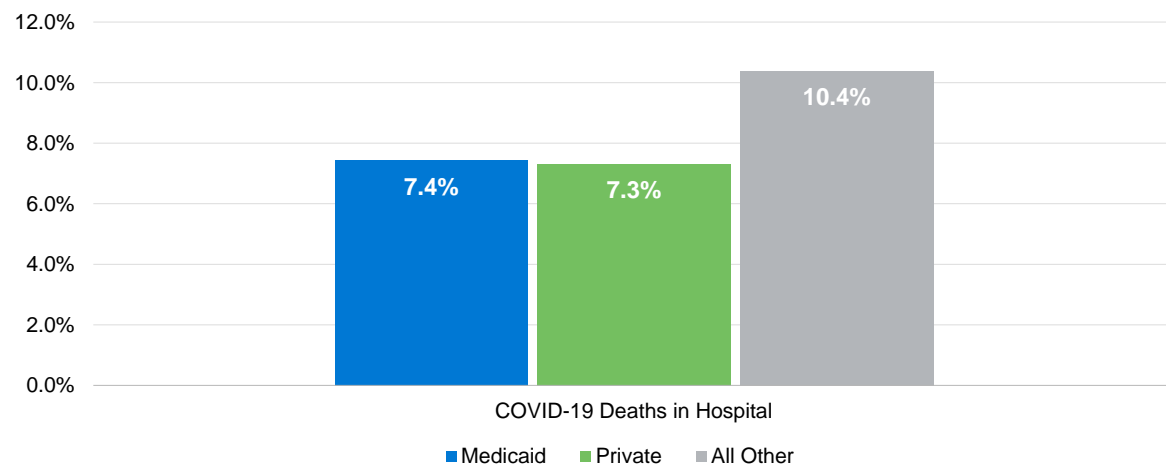
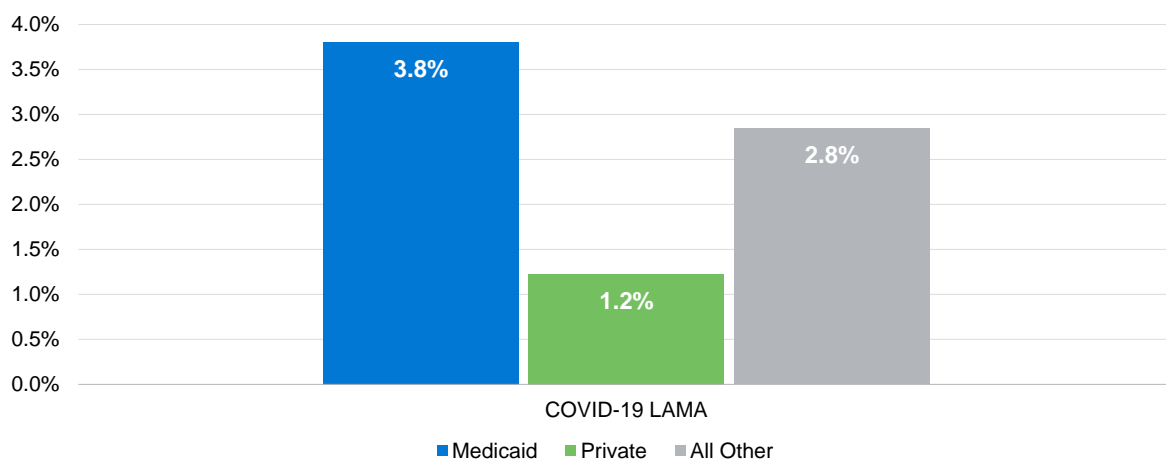


FIGURE 22: COVID-19 DEATHS BY PAYER FOR FYE 2021



A key finding is that while Medicaid patients with COVID-19 diagnoses had similar mortality rates as privately insured patients, Medicaid patients with COVID-19 left against medical advice more than three times as often as privately insured patients. Figure 23 we summarized the rates at which patients left against medical advice by payer.

FIGURE 23: COVID-19 PATIENTS LEAVING AGAINST MEDICAL ADVICE BY PAYER FOR FYE 2021



Conclusions

In 2021, Medicaid payments covered approximately 92.2% of related hospital costs, and supplemental payments represent a significant share (20.4%) of total payments to hospitals. Government-owned hospitals, hospitals with graduate teaching programs, and hospitals in large urban areas provided the highest proportions of services to individuals with Medicaid coverage relative to other types of hospitals. Hospitals with graduate teaching programs were paid in excess of their costs (by approximately 10%), while government-owned hospitals and hospitals in large urban areas were paid approximately 95.4% and 89.5% of related hospital costs, respectively. Hospitals with lower overall hospital quality star ratings from CMS provided a significantly higher proportion of services to Medicaid populations than hospitals with higher star ratings.

Based on an analysis of the 2021 National Inpatient Sample data from AHRQ, a significantly higher proportion of patients aged 3 to 24 were covered by Medicaid than by other coverage types. In addition, a higher proportion of Black, Hispanic, and Native American inpatient hospital patients were covered by Medicaid, as compared with Asian and white patients. Relative to privately insured patients, Medicaid programs covered a disproportionate share of inpatient hospital treatment for HIV infections; alcohol/drug use and alcohol/drug induced organic mental disorders; mental diseases and disorders; burns; and injuries, poisonings, and toxic effects of drugs. Medicaid patients were admitted to the hospital through the ED more often than privately insured patients (48% of admissions versus 42%, respectively). In addition, after adjusting for differences in service mix and acuity, Medicaid patients experienced longer inpatient hospital stays and had a higher likelihood of leaving the hospital against medical advice compared to patients with private insurance. Last, while patients with private insurance had a higher percentage of the discharges with a COVID-19 diagnosis, Medicaid and privately insured patients with a COVID-19 diagnosis had similar rates of death.

Acknowledgements

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<https://www.milliman.com/en/insight/hospital-care-for-the-uninsured-in-the-united-states-an-analysis-of-national-data-sources>

Limitations

In performing this analysis, we relied on publicly available resources and research. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency, and we have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our analysis.

The authors Mitch Johnson and Sam Heil are members of the American Academy of Actuaries and meet the qualification standards for performing the analyses presented in this report.

Appendix A: Additional data analysis details

HCRIS ANALYSIS ASSUMPTIONS, METHODOLOGIES, AND LIMITATIONS

For the purposes of our analyses, we relied upon several worksheets from the MCR. First, we relied on information from worksheet S-10 of the MCR, which reports information about Medicaid charges, Medicaid costs, Medicaid revenues, and Medicaid supplemental payments. We also relied upon worksheet C Part I of the MCR for each hospital's total charges and costs across all payers.

Note that while the HCRIS contained some FYE 2022 cost reports, cost reports for hospital FYE 2022 were not yet complete at the time we performed our analysis. Therefore, we did not rely on hospital FYE 2022 cost reports.

Below are several limitations associated with the MCR data that may affect the results represented in this report:

- Hospitals generally submit their MCR based on their hospital's fiscal year. For example, one provider's fiscal year may begin on January 1 of a specific year and end on December 31 of that year, while another provider's fiscal year may begin on July 1 of a specific year and end on June 30 of the following year. As a result, the data available does not align to the same dates. Due to this limitation, in our analysis of the HCRIS data we aggregate the data based on each cost report's end date (generally the same as the fiscal year end date, or FYE, of the hospital). For example, our FYE 2021 analyses will include any MCRs that have a reported FYE date in calendar year 2021.
- The S-10 worksheet of the MCR data does not contain information about the types of procedures received by those eligible for Medicaid. Therefore, based on the information available in the HCRIS, it is not known what types of services were provided to Medicaid recipients.
- Providers may submit revised MCRs to CMS. Therefore, it is possible that the data for any individual provider available to us at the time this report was completed may vary if the same analysis is performed at a later date based on the data available in the HCRIS.

Further, for the purposes of our analyses we excluded MCRs for any of the following reasons:

- MCRs associated with hospitals located in U.S. territories
- MCRs with total charges or Medicaid charges of \$0
- MCRs which report Medicaid revenues but no Medicaid costs and vice versa
- MCRs with Medicaid costs that exceed Medicaid charges by a factor of 20 or more
- MCRs where Medicaid charges exceed total reported charges
- MCRs with a potential misreporting of Medicaid costs and revenues

Based on these exclusion criteria, we excluded approximately 7% of reported total hospital charges for hospital FYE 2021 MCRs.

Hospitals in urban and rural areas

To identify urban versus rural providers, we relied upon the information published by CMS in the FY 2020 Inpatient Prospective Payment System (IPPS) provider file. In the IPPS file, CMS identifies each hospital as either large urban, other urban, or rural.^{47,48} We mapped this information onto the HCRIS data based on each hospital's Medicare ID.

Hospital ownership types

To identify the ownership type of each hospital, we used information provided in the Medicare cost reports. Using the information provided in the cost reports, we classified each hospital as either for profit, nonprofit, government, or other. Our categorization of the information provided in the cost reports to these four categorizations is summarized in Figure 24.

47. Centers for Medicare and Medicaid Services (September 2020). Medicare Claims Processing Manual. Retrieved from <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c03.pdf>

48. Office of Management and Budget (December 2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas. Federal Register. Retrieved from <https://www.federalregister.gov/documents/2000/12/27/00-32997/standards-for-defining-metropolitan-and-micropolitan-statistical-areas>

FIGURE 24: CATEGORIZATION OF HOSPITAL OWNERSHIP TYPE IN MCR

OWNERSHIP TYPE REPORTED IN MCR	MILLIMAN OWNERSHIP CLASSIFICATION
Church	Nonprofit
Private (not for profit)	Nonprofit
Private (for profit)	For profit
Federal	Government
State	Government
Local	Government
Hospital district or authority	Government
Physician ownership	Other
Other	Other

Hospital CMS overall star ratings

To identify the CMS overall star rating for each hospital, we relied upon information published in the most recent Hospital Compare dataset. The measures used to determine the overall rating are categorized in seven different categories. These categories include mortality, safety of care, readmissions, patient experience, effectiveness of care, and timeliness of care. There are multiple measures within each of these seven categories. It should be noted that at minimum a hospital must report at least three measures in at least three of the seven categories for an overall star rating to be generated. As a result, not all hospitals have an overall star rating. Further, it is possible that the measures used to generate an overall star rating vary across the different hospitals.

For our analysis we relied upon the published star ratings data as of March 8, 2023. An overall star rating was not available for every hospital in the MCR data; therefore, only hospitals with available ratings were included in our analysis of charity care costs for the uninsured by star rating.

Teaching hospital status

For the analysis of teaching hospitals, we relied on information published in the CMS Provider of Services (POS) file. The POS file indicates the status of each hospital based on the type of affiliation the hospital has to a medical school. The POS file classifies hospitals as major, limited, graduate, or no affiliation.

Appendix B: NIS geographic regions

This report contains regional information to evaluate to what extent costs and utilization may vary nationally. The NIS data identifies the hospital's census region. We relied on the region definitions in the NIS data for our analysis, which are summarized in Figure 25.

FIGURE 25: SUMMARY OF NIS GEOGRAPHIC REGIONS

GEOGRAPHIC REGION	STATES ASSIGNED TO THE REGION
New England	ME, NH, VT, MA, RI, CT
Middle Atlantic	NY, PA, NJ
East North Central	WI, MI, IL, IN, OH
West North Central	MO, ND, SD, NE, KS, MN, IA
South Atlantic	DE, MD, DC, VA, WV, NC, SC, GA, FL
East South Central	KY, TN, MS, AL
West South Central	OK, TX, AR, LA
Mountain	ID, MT, WY, NV, UT, CO AZ, NM
Pacific	AK, WA, OR, CA, HI

Source: Agency for Healthcare Research and Quality. NIS Description of Data Elements: Census Division of Hospital

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