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Effects of Medicaid expansion on disparities in trauma care and outcomes in young adults

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ABSTRACT

Background: Racial/ethnic and socioeconomic disparities in trauma care and outcomes among young adults are well documented. As the Patient Protection and Affordable Care Act Medicaid expansion has increased insurance coverage among young adults, we aimed to investigate its impact on disparities in insurance coverage and outcomes among hospitalized young adult trauma patients.

Materials and methods: We used the healthcare cost and utilization project state inpatient databases to examine changes in insurance coverage and risk-adjusted outcomes from before (2012-2013) to after (2014) Medicaid expansion among young adults (age 19-44) hospitalized for injury across 11 Medicaid expansion states. Changes were compared across racial/ethnic and community-level income groups. We also compared changes in disparities between three expansion and three nonexpansion states in the US south.

Results: In the first year of Medicaid expansion, non-Hispanic black trauma patients experienced a large decrease in uninsurance (34.3%-14.2%, $P < 0.01$), reducing the disparity in uninsurance between non-Hispanic black and non-Hispanic white patients ($P < 0.05$). There were no differences across racial/ethnic groups in changes in in-hospital mortality, failure to rescue, discharge to rehabilitation, or 30-d unplanned readmissions. Socioeconomic disparities in discharge to rehabilitation decreased (1.63% *versus* 0.06% increase among patients from the lowest and highest income communities, $P < 0.05$). In contrast, in the selected southern states, Medicaid expansion was associated with the introduction of a disparity in discharge to inpatient rehabilitation between Hispanics and non-Hispanic whites.

Conclusions: Medicaid expansion, in its first year, decreased racial and socioeconomic disparities in uninsurance and socioeconomic disparities in access to rehabilitation.

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Introduction

Over the last 10 y, numerous studies have described the racial and socioeconomic disparities that exist in both trauma care and outcomes.[1-3] Among young adults, for whom trauma is the leading cause of death and disability, there are higher risk-adjusted rates of in-hospital mortality following traumatic injury in those who are uninsured, reside in lower income areas, or are black.[4-11] Although the mechanisms underlying socioeconomic and racial/ethnic disparities in trauma outcomes are complex, there is evidence that differences in insurance coverage play a role. Mortality rates after trauma or emergency surgery are similar or even lower among black and Hispanic patients in populations with universal insurance coverage such as military families and the elderly.[3,8,12] Several studies of the broader US population, however, have found that racial disparities in trauma mortality are statistically independent of insurance status, with black race an independent predictor of higher mortality.[4,8] Studies of disparities in mortality between Hispanic and non-Hispanic white patients have been less consistent, with some reporting increased in-hospital mortality among Hispanics and others reporting no disparity.[5,7,9,10,12,13] Beyond mortality, disparities in access to rehabilitation after injury are also well documented, with several studies reporting that uninsured patients, and black and Hispanic patients regardless of their insurance status, are less likely to receive rehabilitative care after serious injury.[14-19] This racial/ethnic disparity appears to be reduced, however, among insured patients.[14]

The patient protection and Affordable Care Act (ACA) allowed states, beginning in January 2014, to expand Medicaid eligibility to all nondisabled adults aged 19-64 y with incomes up to 138% of the federal poverty level.[20] The intention was that increased insurance coverage would improve access to care and thereby improve health outcomes. Several single-center studies and one state-wide study have reported that ACA Medicaid expansion has led to a substantial decrease in uninsured trauma patients and has improved trauma-related outcomes such as in-hospital mortality and access to rehabilitation.[21-24] However, it remains unclear whether these gains translate to a reduction in racial/ethnic and socioeconomic disparities in trauma care and outcomes. We aimed to evaluate the effect of ACA Medicaid expansion, in its first year of implementation, on racial/ethnic and socioeconomic disparities in care and outcomes among hospitalized young adult trauma patients across a large number of geographically and demographically diverse US states.

Methods

Data source

We used 2012-2014 data from the state inpatient databases (SID) of 14 US states. The SID are part of the healthcare cost and utilization project sponsored by the agency for healthcare research and quality (AHRQ). Data are derived from hospital discharge summaries used for billing. State data organizations collect the data and provide their state-wide databases to AHRQ. These databases contain the universe of a state's community hospital inpatient discharge records.[25] We studied 11 states that expanded Medicaid (Iowa, Maryland, Washington, Kentucky, New Jersey, Oregon, Colorado, Nevada, Arkansas, New Mexico, and Rhode Island) and three that did not (North Carolina, Georgia, and Florida). We selected these states because they make their data sets available centrally from AHRQ, did not implement state-wide Medicaid expansion prior to 2014 or delay implementation of ACA Medicaid expansion, and had reliable data on patient race/ethnicity. As population characteristics and access to health care differ in states that did and did not expand Medicaid, we first examined changes in disparities in insurance coverage and outcomes in just the selected Medicaid expansion states.[26,27] We then compared changes between three selected southern states that expanded Medicaid (Arkansas, Kentucky, and Maryland) and three southern states that did not (Georgia, Florida, and North Carolina). Between these sets of states, differences in population demographic and economic characteristics were smaller than those that exist between all Medicaid expansion and non-expansion states. For example, in 2013, the percentages of nonelderly adults of non-Hispanic white race/ethnicity in the selected southern Medicaid expansion and nonexpansion states were 68% and 57%, respectively. Similarly, the poverty rates in 2013 among nonelderly adults in the selected southern Medicaid expansion and nonexpansion states were 14% and 17%, respectively.[28]

This study was considered exempt by the institutional review board at our institution, and we received approval to use the SID through a data-use agreement with AHRQ.

Study population

We studied young adults (age 19-44 y) hospitalized for traumatic injury. We included patients with the International Classification of Diseases, ninth revision, clinical modification diagnosis code in the range 800 × to 959 ×. Patients with only superficial injuries, late effects of injury, or foreign bodies were excluded. The transferring hospital records of patients transferred to other short-term hospitals were excluded. Admissions with a primary diagnosis in the range V50-V58 (elective surgeries and aftercare) or V67 (follow-up examinations) were also excluded. To include only patients subject to the Medicaid expansion policy of the state in which they were hospitalized, patients hospitalized outside of their home state were excluded. Finally, patients with missing discharge disposition, gender, or primary payer (<200 patients) were also excluded.

Outcomes and covariates

The outcomes evaluated were in-hospital mortality, failure to rescue,[29] discharge to any rehabilitation, discharge to specific types of rehabilitation (inpatient rehabilitation facility [IRF], skilled nursing facility, home health care), and unplanned readmission within 30 d of discharge. Planned "V-code" readmissions and patients discharged/readmitted within the same day were not considered unplanned