

RUPRI Center for Rural Health Policy Analysis

Rural Policy Brief

Brief No. 2011-4

August 2011

www.public-health.uiowa.edu/rupri

Rural Hospital Charges Due to Ambulatory Care Sensitive Conditions in the United States, by Insurance Type, 2000 to 2004

Wanqing Zhang, MD, MEd; Li-Wu Chen, MHSA, PhD; Tao Li, MD; Keith Mueller, PhD

Introduction

In this policy brief, we estimate and document rural hospital charges due to ambulatory care sensitive conditions (ACSCs) in the United States, by insurance type, from 2000 to 2004. ACSCs are specific adverse health conditions that can be managed in an ambulatory setting and should not require hospitalization. Hospital charges due to ACSCs are reported by region and payment source (private insurance, Medicare, Medicaid, uninsured). Community hospitals are important safety-net providers, and ACSC-related hospital expenditures in those hospitals could reflect the consequences of uninsurance and underinsurance (inhibiting access to ambulatory services). Research about the trends of ACSC-related hospitalizations can contribute to the assessment of the access to and quality of primary health care systems across US regions over time. Our study used nationwide hospital inpatient discharge data to examine the trends and regional variations of rural hospital charges due to ACSCs.

Methods

Data were from the 2000 to 2004 Nationwide Inpatient Sample (NIS) of the Healthcare Cost and Utilization Project (HCUP), made available by the Agency for Healthcare Research and Quality (AHRQ). In this analysis, a 20% subsample of hospital discharges from each year of the NIS data set was used. ACSCs were defined based on AHRQ's Prevention Quality Indicators (PQIs), listed in Appendix A. PQI software was reviewed and modified to allow for the generation of national estimates using a weighted NIS. HCUP data were prepared to ensure consistency over time and account for longitudinal changes in ICD-9 codes. The ACSC indicators include 14 conditions for adults (18 years and older) and 5 conditions for children (0-17 years) (Appendix A).¹



**Rural Health Research
& Policy Centers**

Funded by the Federal Office of Rural Health Policy
www.ruralhealthresearch.org

Funded by the Federal Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services (Grant # U1C RH20419)

RUPRI Center for Rural Health Policy Analysis, University of Iowa College of Public Health, Department of Health Management and Policy, 105 River Street, N200 CPHB, Iowa City, IA 52242, (319) 384-3830
<http://www.public-health.uiowa.edu/rupri>
E-mail: cph-rupri-inquiries@uiowa.edu

Key Findings

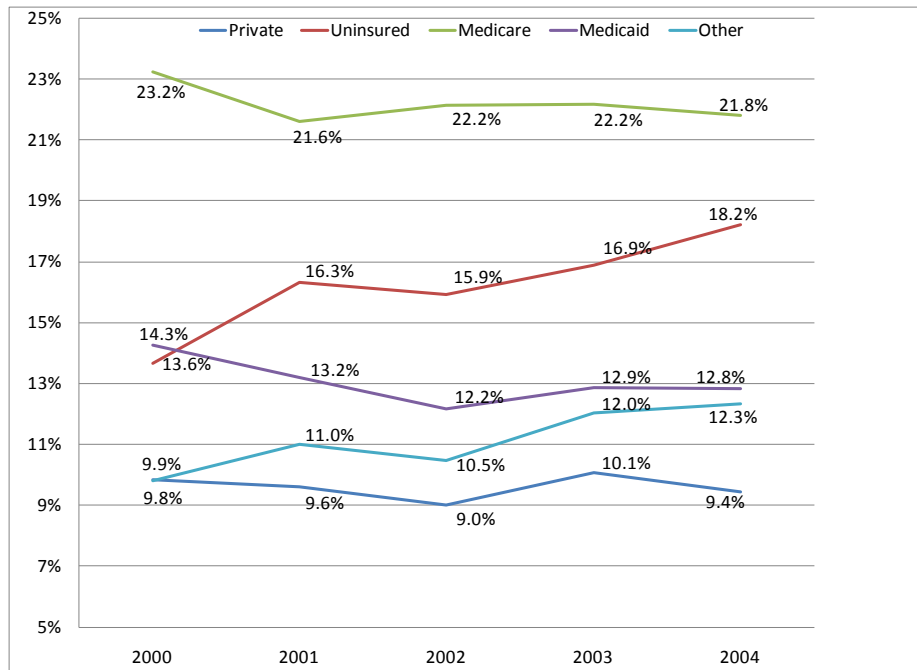
- As a share of all charges for rural hospital stays among the uninsured, the percentage of charges due to ACSCs increased from 13.7% in 2000 to 18.2% in 2004 (Figure 1).
- The trend of ACSC-related charges in rural hospitals for the uninsured and Medicaid patients also reflected regional differences. From 2000 to 2004, the percentage of rural hospital charges due to ACSCs among uninsured and Medicaid patients increased from 14.4% to 17.7% in the South; however, the pattern was not obvious in other US regions (Figure 2).

Complete Results

The percentage of rural hospital charges due to ACSCs for uninsured patients rose from 2000 to 2004. In rural hospitals, ACSC-related charges as a percentage of all charges decreased by 4.5% from 2000 to 2004 (18.2% in 2000 to 17.4% in 2004), while the percentage of ACSC-related charges for uninsured and Medicaid patients as a percentage of total ACSC charges increased by nearly 20%, from 12.5% in 2000 to 15.0% in 2004.

As seen in Figure 1, between 2000 and 2004, the percentage of rural hospital charges each year due to ACSCs was highest for Medicare patients, followed by uninsured patients (except in 2000), and patients with private insurance. During those years, the most dramatic increase in ACSC charges as a percentage of all charges was among the uninsured. The trend in Medicaid was in the opposite direction.

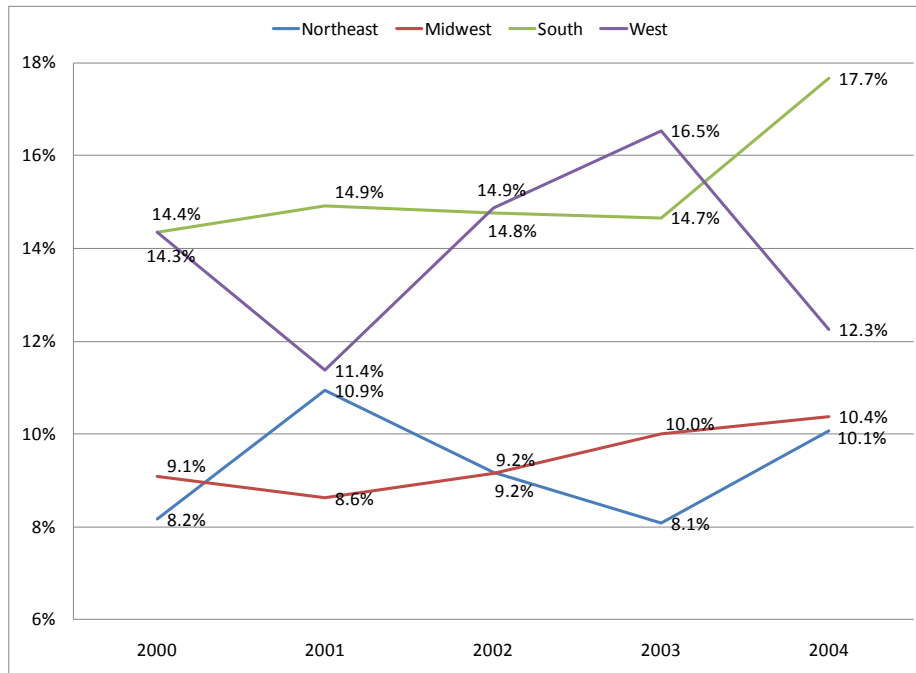
Figure 1. Percentage of Hospital Charges Due to ACSCs by Insurance Type in Rural Hospitals, 2000 to 2004



Source: Nationwide Inpatient Sample, 2000 to 2004.

Charges due to ACSCs for Medicaid and uninsured patients are of particular concern to public safety-net hospitals, as they represent potential savings to publicly supported services. As seen in Figure 2, the South and West regions (see Appendix B for lists of states in each region) experienced the highest percentage of ACSC charges as compared to all charges. The consistent trend among the four regions was a slight increase of ACSC charges as a percentage of all charges.

Figure 2. Percentage of Rural Hospital Charges Due to ACSCs by Region, Self-pay/Medicaid Payer, 2000 to 2004



Source: Nationwide Inpatient Sample, 2000 to 2004.

Conclusions

Studies of ACSCs have used them as indicators of inadequate use of primary care, ambulatory services to manage chronic conditions.^{2,3,4} Changes in the percentage of hospital charges generated by ACSCs may, therefore, indicate opportunities for cost savings through use of care management. The data presented in this policy brief indicate potential benefit from targeting resources designed to support ambulatory primary care, for example investing in the South and West regions. Moving people out of uninsured status to private insurance (through purchases made in health benefit exchanges starting in 2014) may significantly change the prevalence of ACSCs for hospitals. The inclusion of hospitals in systems of providers, combined with changes in payment that create incentives to provide care in the most appropriate setting (such as shared savings programs or special payment for care management), may also drive down the prevalence of ACSC admissions.

Appendix A: Prevention Quality Indicators (PQIs)

| PQIs for Adults (aged 18 years and older) | |
|--|---|
| 1 | Uncontrolled diabetes without complications |
| 2 | Short-term diabetes complications |
| 3 | Long-term diabetes complications |
| 4 | Lower-extremity amputation among patients with diabetes |
| 5 | Congestive heart failure |
| 6 | Hypertension |
| 7 | Angina without a procedure |
| 8 | Adult asthma |
| 9 | Chronic obstructive pulmonary disease |
| 10 | Bacterial pneumonia |
| 11 | Dehydration |
| 12 | Urinary tract infection |
| 13 | Perforated appendix |
| 14 | Low birth weight |

| PQIs for Children (aged 0-17 years) | |
|--|---------------------------|
| 1 | Pediatric asthma |
| 2 | Pediatric gastroenteritis |
| 3 | Diabetes |
| 4 | Perforated appendix |
| 5 | Urinary tract infection |

Source: Agency for Healthcare Research and Quality, Prevention Quality Indicators.

Appendix B: Definitions of US Regions

| Region | States |
|---------------|--|
| Northeast | Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont |
| Midwest | Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin |
| South | Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia |
| West | Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming |

Sources: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project; US Census Bureau.

¹In order to examine the ACSC-related hospital expenditures by patient insurance coverage, we used the insurance variables defined by AHRQ.

²Bindman AB, Grumbach K, Osmond D, et al. Preventable hospitalizations and access to health care. *JAMA*. 1995;274(4):305-311.

³Weissman JS, Gatsonis C, Epstein AM. Rates of avoidable hospitalization by insurance status in Massachusetts and Maryland. *JAMA*. 1992;268(17):2388-2394.

⁴Gusmano, MK, Rodwin, VG, Weisz, D. A new way to compare health systems: avoidable hospital conditions in Manhattan and Paris. *Health Aff (Millwood)*. 2006;25(2):510-520.