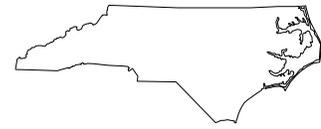


Statistical Brief

Prepared by the State Center for Health Statistics



For the Council on Health Policy Information

www.schs.state.nc.us/SCHS

July 1997

HEALTH COSTS IN NORTH CAROLINA – Recent Changes in Hospital Statistics

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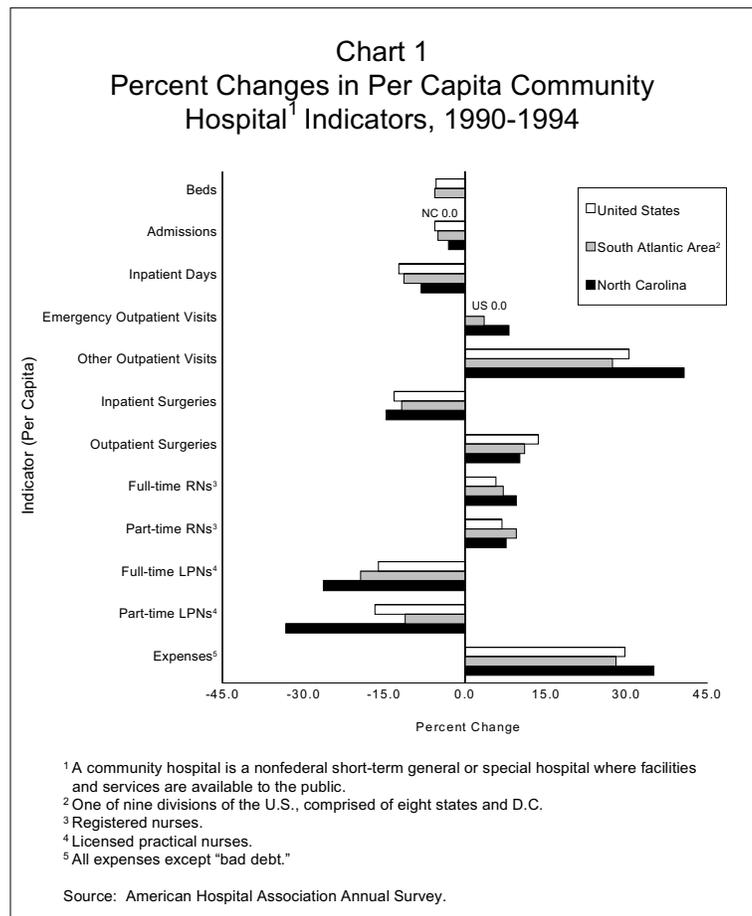
Cost containment has been cited by the U.S. public as the most necessary of all health system reforms.¹ In North Carolina, the final report of the Health Care Reform Commission identifies health care costs as “the number one issue for state residents.”² Thus, the state has a mandate to measure health costs in order to provide timely and relevant information to those concerned about making the health care system more cost-effective.

This report is the first of a planned series devoted to assessing health costs in North Carolina. Succeeding reports are being developed as relevant and recent data become available. They are expected to include analyses of: health insurance activity and costs, expenditures for health by North Carolina’s state and county governments, estimates of personal health care spending by type of service, and expenditures by the Medicare and Medicaid programs.

According to data from the Health Care Financing Administration, hospital expenditures account for about 43 percent of all personal health care spending in North Carolina. Thus, the tracking of relevant hospital data is important.

Community Hospital Indicators

Chart 1 shows recent changes in several indicators associated with hospital costs. Compared to the United States and the South Atlantic Area, North Carolina has had lower reductions in per capita beds, admissions, and inpatient days and higher reductions in per capita hospital LPNs. Increases in per capita outpatient visits, hospital RNs, and hospital expenses have been greater in North Carolina than elsewhere.³



Some of these differences probably reflect the aging factor; i.e., between 1990 and 1994, the percentage of the population 65 and older grew twice as fast in North Carolina as in the nation.^{4,5} According to Waldo,⁶ people 65 and older consume four times as much health care as those under age 65. Some of the differences may also reflect that managed care arrived here later than in some larger states.⁷

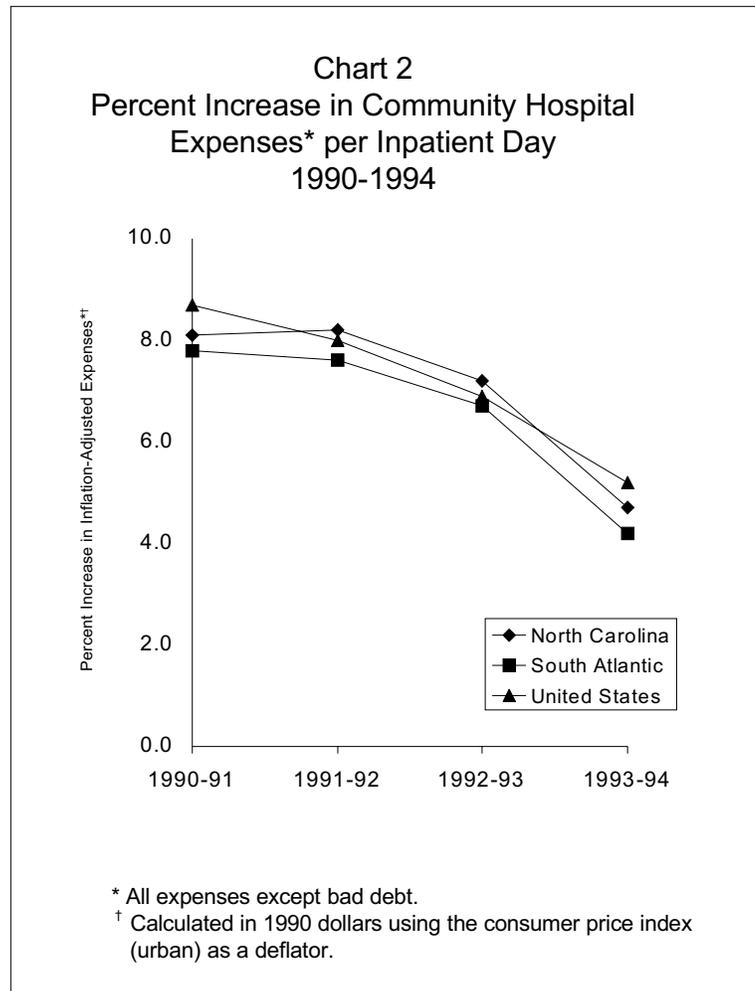
Other findings of interest –

- Between 1990 and 1994, hospital outpatient surgeries became more prevalent than inpatient surgeries, but both remain less prevalent in North Carolina than elsewhere.³
- Concerning the changing mix of hospital nurses, the increase in RNs and decrease in LPNs is consistent with changes in North Carolina’s nurse licensure patterns.⁸ In 1994, the percentage of hospital RNs employed full-time was 76.4 in North Carolina versus 66.0 in the nation.³

Concerning North Carolina’s above-average increase in per capita hospital expenses,³ a different picture emerges when inpatient days are used as the base; the North Carolina 4-year increase in expenses per patient day (46.8%) is about the same as the nation’s (47.7%). Adjusting for general inflation, the increases reduce to 37.5 percent (N.C.) and 38.3 percent (U.S.).

Chart 2 depicts the annual percent increases in hospital expenses per inpatient day, calculated in 1990 dollars. The calculations use the general consumer price index (urban) as a deflator. This convention has been used by the Center for Health Economics Research.⁹

The trends of Chart 2 show that the percent increase in North Carolina’s per day hospital expenses has recently been downward and was below the nation’s in



1994. These results suggest that cost-containing forces are at work in North Carolina hospitals.

Hospital Charges

In this section, data represent **resident** inpatients discharged from North Carolina hospitals during calendar years 1990 and 1995. About 150 acute care, psychiatric, substance abuse, and rehabilitation hospitals routinely submitted data to the North Carolina Medical Database Commission (MDC) prior to its demise on September 30, 1995. For data year 1995, 134 hospitals reported to the system through the MDC and a third-party data processor, HCIA, Inc.

Closings and acquisitions account for some of the decline in the number of hospitals. However, a number of existing hospitals did not report to the system in 1995. These include some private psychiatric hospitals and all of the state’s seven psychiatric hospitals and alcohol and drug abuse treatment centers. For this reason, data for the entire complex of mental disorders are inaccurate and are not shown separately in this report.

The charge data presented below are based on the amount the hospital **charged** each patient, before taking into account negotiated discounts, bad debt, and charity care. **Charges do not reflect what the care actually cost the hospital or what the hospital received in payment.** The charges reported are for all services provided (e.g., room, laboratory tests, medications) during the hospital stay. They do NOT include charges for physician or radiology services, which are billed directly by the physician or radiologist.

In the charts presented below, data are for total charges, which are subject to variations in patient counts and lengths of stay. Thus, in assessing changes over time, it is important to examine changes in number of discharges, average days per stay, and “charge per patient day.” Charge per patient day is total hospital charges divided by total days of care for all patients in a category. It is not the hospitals’ average daily room charge.

Naturally, hospital charges and lengths of stay are subject to variations in patient mix. For example, an older group of patients would be subject to more severe illness and therefore longer stays and higher charges.

Hospital Charges by Payer Class

Among reporting hospitals, charges for 852,818 discharges in CY 1995 totaled \$7.41 billion. Medicare and private insurance accounted for more than three-fourths of total charges (Chart 3.a) with high Medicare charges being associated with long lengths of stay. Private insurance was associated with the lowest average length of stay.

Between 1990 and 1995, the reported number of hospital discharges rose 3.6 percent. Average days per hospital stay dropped 29 percent while average charge per patient day doubled. Adjusting for general inflation, the rise in average charge per day was about 76 percent.

The Medicaid program experienced significant changes between 1990 and 1995. The discharge count rose more than a one-third, while average days per stay dropped by one-third. The average charge per patient day rose 123 percent, well above

the increase for non-Medicaid patients. Overall, the total charge for Medicaid patients in 1995 was twice that in 1990 (Chart 3.b). The discharge counts for “other government” and “other” payers dropped by more than one-fourth.

In 1995, Health Maintenance Organization (HMO) patients accounted for 17.6 percent of private patients, up from 6.1 percent in 1990. Comparisons of the 1995 data for HMO and other private patients reveal shorter hospital stays and lower charges among HMO patients:

	HMO Patients	Other Private Patients
Average Days Stay	3.8	4.2
Average Charge per Day	\$1,678	\$1,781
Average Charge per Stay	\$6,433	\$7,431

Future analyses of the hospitalization data should examine patient mix among the two groups of private patients. Are HMO patients younger and therefore subject to less severe illness? To the extent that the HMO numbers permit, comparisons should be specific for age, diagnosis, and procedure.

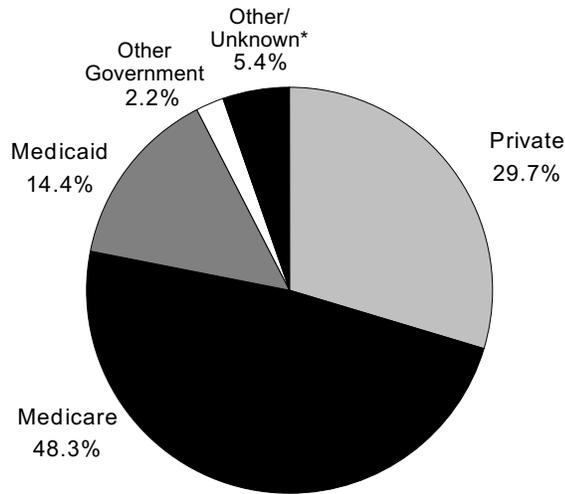
Hospital Charges by Diagnosis

Among leading principal diagnoses in 1995, heart disease was associated with the highest total charge (Chart 4.a) and average charge per patient day. Injury/poisoning cases ranked second and cancer was third on both of those measures.

Between 1990 and 1995, total charges increased 174 percent for chronic obstructive pulmonary disease (COPD), followed by heart disease (67%), and pneumonia/influenza (66%). See Chart 4.b. The COPD increase was associated with an 89 percent increase in discharges. The other major increases also reflect an increase in discharges but reduced lengths of stay.

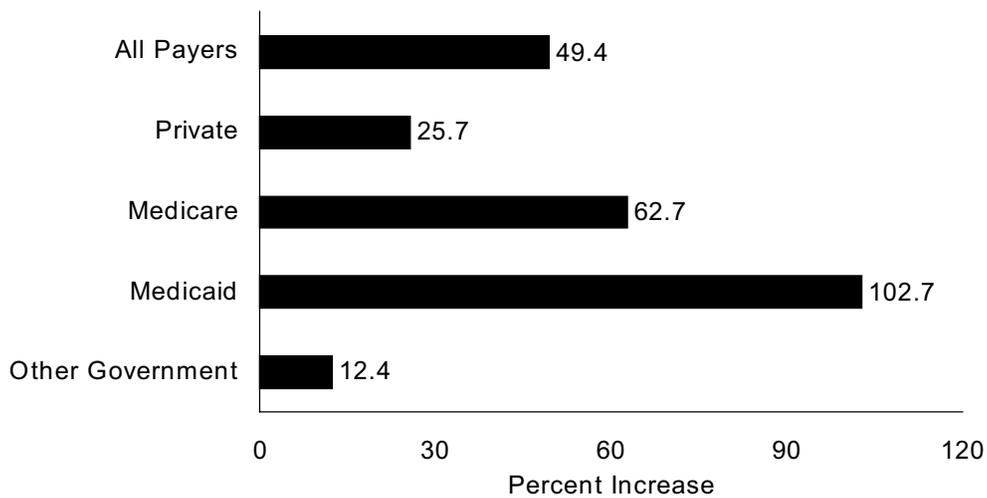
Among injury/poisoning cases, lower limb fractures are frequent and often preventable. Hip fractures and other lower limb fractures were associated with increases of 91 and 105 percent respectively in average charge per patient day.

Chart 3.a
Distribution of Hospital Charges by Payer Class
North Carolina 1995



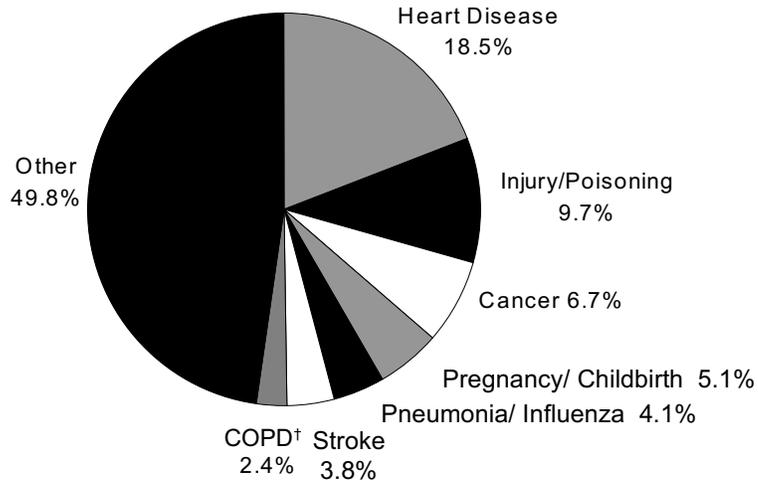
* Includes "self-pay," "indigent care," and "charity" cases as well as cases with missing or invalid codes.

Chart 3.b
Percent Increase in Hospital Charges by Payer Class
North Carolina 1990 to 1995



Note: Other/Unknown not shown because cases with missing or invalid payer class codes were not included in the 1990 file from the Medical Database Commission.

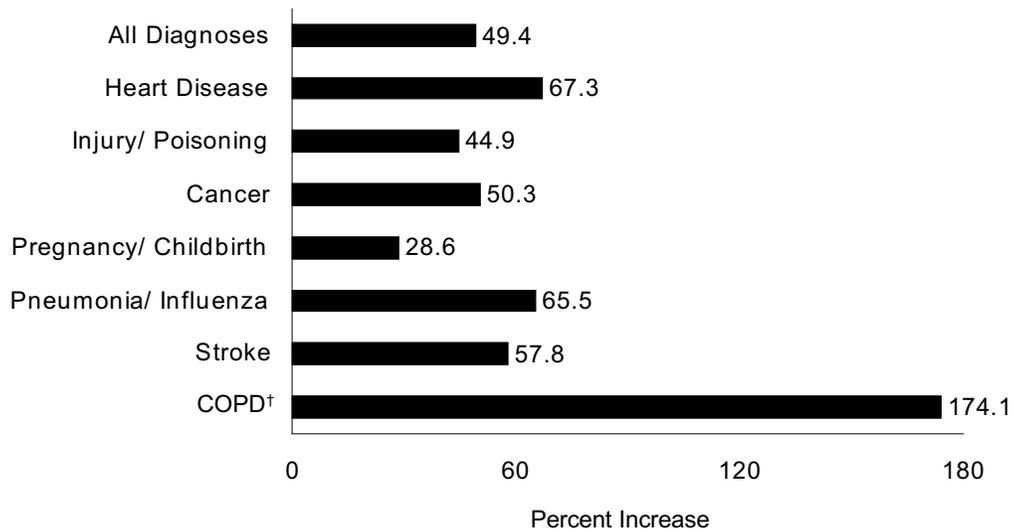
Chart 4.a
Distribution of Hospital Charges by Principal Diagnosis*
North Carolina 1995



*Except mental disorders.

†Chronic Obstructive Pulmonary Disease.

Chart 4.b
Percent Increase in Hospital Charges by Principal Diagnosis*
North Carolina 1990 to 1995



*Except mental disorders.

†Chronic Obstructive Pulmonary Disease.

Examining 1990 to 1995 changes for leading cancer sites, the greatest increase in total charges were for leukemia (114%) and brain cancer (59%). The leukemia increase reflects a six percent reduction in average days per stay but a 108 percent increase in average charge per patient day. The advent of bone marrow transplants may be a factor. The brain cancer increase also reflects a large increase (96%) in charge per patient day. Charge per day increases were also elevated for prostate cancer (107%) and breast cancer (98%). These compare to a 78 percent increase in charge per day for all cancer.

Other 1990 and 1995 details by diagnosis are available from the State Center. The data are also available separately for Medicare and Medicaid patients.

High-Cost Procedures

According to a prior State Center study,¹⁰ Medicare hospitalization rates for coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty (PTCA) increased 20 and 40 percent respectively between 1990 and 1992. Nationally, it has been suggested that many of the procedures performed are not medically necessary.¹¹

A recent Duke study found that, compared to whites, blacks with heart disease were 32 percent less likely to undergo bypass surgery and 13 percent less likely to receive angioplasty. The study ruled out insurance coverage, severity of disease, complicating illnesses, and access to specialists as causes of the care gap. Lead researcher, Dr. Eric Peterson, concluded that bypass surgery and angioplasty are “underused in treating blacks.”¹² To what extent are such racial disparities observed for other procedures?

Beginning in 1995, the state’s hospital discharge file includes patient’s race and procedure-specific charges. Although beyond the scope of this report, the data for selected high-cost procedures should be examined and monitored.

Comment

The tracking of hospital charges is critically important to an overall assessment of health costs in North Carolina; therefore, the State Center plans to monitor the data now available from third-party data processors. Meanwhile, it is imperative that each and every hospital operating in North Carolina report to the system. Otherwise, we will have inaccurate data, such as that presently observed for mental disorders. This in turn distorts the picture for the overall hospital experience.

According to information provided by HCIA Inc., eight private hospitals (including four psychiatric hospitals) and seven state psychiatric facilities did not report their CY 1995 discharges. Some of the private hospitals did report FFY 1996 data, and the state’s Central Billing Office has agreed to report data for the seven state facilities as soon as they implement a new information system. To date, however, no data have been reported, and the underlying legislation (G.S. 131E-214) actually does not require the state facilities to participate in the hospital discharge reporting system.

Other data are also needed. Prior to its elimination, the Medical Database Commission had planned to establish a statewide clearinghouse to collect medical claims data on all types of health services including hospital outpatient and nonhospital health services. To date, only hospital inpatient and ambulatory surgery data are being collected. We encourage the new data processors to examine the data collection plans of the former MDC and to move in the direction of expanded data collection as soon as possible.

References

- ¹Katharine R. Levit et al. “State Health Expenditure Accounts: Building Blocks for State Health Spending Analysis,” *Health Care Financing Review* 17 (1), Fall 1995.
- ²North Carolina Health Care Commission, *The Final Report: The Recommendations*, Volume 1. Raleigh, December 31, 1996.
- ³American Hospital Association, Health Statistics Group. *Selected Hospital Statistics by State and U.S. Census Division 1990-1994*. Selected pages faxed by Jim Hauge (North Carolina Hospital Association) to Kathryn Surles, August 21, 1996.
- ⁴U.S. Department of Commerce, Bureau of the Census. *1990 Census of Population: General Population Characteristics – North Carolina*. Washington, DC, 1992.
- ⁵U.S. Department of Commerce, Bureau of the Census. *Statistical Abstract of the United States 1995* (115th edition). Washington, DC, 1995.
- ⁶D.R. Waldo et al. “Health Expenditures by Age Group, 1977 and 1987,” *Health Care Financing Review* 10 (4), Summer 1989.
- ⁷Jim Hauge, North Carolina Hospital Association. Letter to Kathryn Surles, dated October 4, 1996.
- ⁸The Cecil G. Sheps Center for Health Services Research of the University of North Carolina at Chapel Hill. *North Carolina Health Manpower Data Book*. Chapel Hill, 1990-1994.
- ⁹Center for Health Economics Research. *The Nation’s Health Care Bill: Who Bears the Burden?* Cambridge, Massachusetts, July 1994.
- ¹⁰North Carolina Department of Environment, Health, and Natural Resources, State Center for Health Statistics, for The Council on Health Policy Information. *Access to Health Care in North Carolina: Indicators and Baseline Data 1996*. Raleigh, May 1996.
- ¹¹Center for Health Economics Research for The Robert Wood Johnson Foundation. *Access to Health Care: Key Indicators for Policy*. Princeton, New Jersey, November 1993.
- ¹²Tinker Ready, “Duke Study Affirms Racial Gap in Cardiac Care,” *The Raleigh (N.C.) News and Observer*, Section A, p. A1, cols. 2-5, February 13, 1997.

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