

North Carolina Hospitals:
Utilization Trends by Urban-Rural Location and Size
1980 through 1989

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Executive Summary

This report, prepared by the North Carolina Rural Health Research Program, within the Cecil G. Sheps Center for Health Services Research, describes trends in the utilization of North Carolina hospitals by their rural-urban status and bed complement for the years 1980, 1985, and 1989. The purpose of this report is to present in an easy-to-read manner the salient trends in utilization in rural North Carolina hospitals. North Carolina's 118 general acute-care hospitals are fairly well dispersed, though metropolitan counties frequently have more than one facility and 18 nonmetropolitan counties have no hospital. Seventy-three general acute-care facilities are located in rural areas, which represent approximately 62 percent of all North Carolina hospitals. Less than 10 percent of rural hospitals in North Carolina are proprietary, with 49.3 percent owned by not-for-profit organizations, and 41 percent owned by some form of local government (county, township, district, or hospital authority).

This report focuses on the five measures of utilization: the occupancy rate, average length of stay, days of care, total discharges, and percent of total discharges represented by those 65 year and older. On most measures, North Carolina hospitals have seen a decline in use between 1980 and 1989 with the rural hospitals seeing an exaggeration of the trend. Findings include:

- In 1989, the average occupancy rate for North Carolina's smallest (less than 50 beds) rural hospitals was 47.0 percent, relative to an urban average occupancy rate of 74.2 percent. All hospitals experienced decreases in their occupancy, with the small, rural hospitals' rate dropping by 27 percent between 1980 and 1989.
- Across all size categories, North Carolina rural hospitals have lower average lengths of stay than urban hospitals. In 1989, the average rural and urban inpatient stays were 6.7 days and 7.3 days respectively.
- Small (less than 50 beds) rural hospitals provided approximately one-third fewer days of care in 1989 than in 1980; rural hospitals on average provided 18 percent fewer days of care.
- Across all categories of hospitals, North Carolina hospital discharges declined between 1980 and 1989, though by a substantially larger percentage in rural hospitals relative to urban hospitals. The smallest rural hospitals experienced the greatest decline: there were 29.9 percent fewer discharges in 1989 than in 1980.
- Over half of the discharges of small (less than 50 beds), rural North Carolina hospitals were 65 years or older in 1989. In 1989, 52.9 percent of small rural hospital's discharges were elderly, compared to 41 percent of the midsized (50-99 beds) rural hospital's discharges, and 34 percent of the large (100 beds and greater) rural hospitals' discharges.

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Introduction

This report describes trends in the utilization of North Carolina hospitals by their rural-urban status and size for the years 1980, 1985, and 1989. It focuses on the following utilization measures:

- Occupancy Rate
- Average Length of Stay
- Days of Care
- Total Discharges
- Percent of Discharges 65 Years and Older

After an overview of hospitals in North Carolina, a description of each of these measures and a summary of corresponding trends are given. These summaries are based on the tables which comprise the latter half of this report (see Appendices).

The purpose of this report is to present in an easy-to-read manner the salient trends in utilization in rural North Carolina hospitals. Given the mounting health problems of rural residents and the relative scarcity of resources to address those needs, information on the status of hospitals is critical. For example, hospital administrators can check the status of their own facilities against hospitals of similar size and characteristics for strategic planning purposes; policy makers can better identify those hospitals that are successful and those that may need assistance; and health planners can more effectively distribute health care resources to communities in need.

The data for this analysis come from the Center for Health & Environmental Statistics' Health Facilities Data Books. The two versions consulted were the Hospital Summary Report and the Patient Origin Report (Raleigh: Division of Statistics and Information Services, N.C. Department of Environment, Health and Natural Resources). These reports compile the self-reported data on the hospital license applications which are submitted annually. In some instances, multiple hospitals under the same ownership (ie. Blue Ridge Hospital System) aggregate the data from the different sites for reporting purposes; this leads to a slight underestimation of the number of North Carolina hospitals. Two hospitals which are currently closed—Blackwelder Memorial Hospital (Lenoir) and Robersonville Community Hospital (Martin)—were included in the calculation of the 1980 and 1985 averages and percent changes. Three other hospitals which closed subsequent to 1980—Warren County General Hospital, Gordon Crowell Hospital, and Huntersville Hospital—were excluded from the analysis.

The hospital were grouped according to rurality and bed size. For the purposes of this report, rurality is synonymous to nonmetropolitan—any county that is not part of a U.S. Office of Management and Budget, Metropolitan Statistical Area, or MSA. An MSA is defined as an integrated area with a central city of 50,000 or greater within an urbanized area of 100,000 or greater. Two of North Carolina's nonmetropolitan hospitals are not classified as rural—Betsy Johnson Memorial and Good Hope Hospital in Harnett County—because of their adjacency to a metropolitan area; only the 73 hospitals designated by the Health Care Financing Administration (HCFA)¹ as rural are considered in this analysis. Size is defined by the number of staffed beds, with “small” defined as fewer than 50 beds, “midsized” defined as between 50 and 99 beds, inclusive, and “large” defined as 100 or more beds. Because this report was compiled by the North Carolina Rural Health Research Program, the rural hospitals are the focus; thus, only the rural hospitals were classified according to size.

This report is one part of the effort of the North Carolina Rural Health Research Program in examining the delivery of health care to rural populations. In addition to conducting research and evaluation of rural health problems, services and policy, the Program has a commitment to address the information needs of North Carolinians. The North Carolina Rural Health Research Program is built on the twenty-year history of rural health services research at the University of North Carolina's Cecil G. Sheps Center for Health Services Research. It is funded by the Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Resources.

The data in this report formed the basis for the analysis of rural hospitals in North Carolina conducted by *Insight*, a quarterly journal published by the North Carolina Center for Public Policy Research. The Fall, 1991 issue of *Insight* is devoted to the health care in North Carolina.

¹N.C. Hospital Association. (1989). *Report on North Carolina's Rural Hospitals and Medicare Reimbursement* Raleigh: NCHA.

Overview of North Carolina Hospitals

North Carolina's complement of 118 general acute-care hospitals² is fairly well dispersed, though metropolitan counties frequently have more than one facility and 18 nonmetropolitan counties have no hospital (see Figure 1). All North Carolina Hospitals are within 35 miles of another hospital, which was made evident in the inability of any hospital in the State to qualify for the "Sole Community Hospital" designation under Federal reimbursement rules. Such a designation requires a minimum distance of 35 miles between hospitals and provides higher payment for services from Medicare. However, 14 North Carolina hospitals are reimbursed as "Rural Referral Centers", a federal program which adjusts the Medicare reimbursement rates for tertiary care rural hospitals that serve wide geographic areas.

Seventy-three general acute-care facilities are located in rural areas, which represents approximately 62 percent of all North Carolina hospitals.³ Nationwide, there are 2,497 nonmetropolitan hospitals (46 percent of all hospitals) relative to 2,958 metropolitan hospitals (54 percent of all hospitals)⁴. By size, there is a smaller percentage of hospitals with fewer than 50 beds in North Carolina than in the nation (12.7 percent versus 17.8 percent). However, there are more midsized to large hospitals as a proportion of all hospitals in North Carolina in comparison with the national average (see Figures 2 & 3). The average rural hospital in North Carolina had 109 staffed beds in 1989, compared to an urban average of 280 beds. Nationwide, nonmetropolitan hospitals had an average of 83 beds in 1989 relative to the metropolitan hospital average of 245 beds.⁵

Less than 10 percent of rural hospitals in North Carolina are proprietary, with 49.3 percent owned by not-for-profit organizations, and 41 percent owned by some form of local government (county, township, district, or hospital authority). This pattern of ownership is comparable to that of all nonmetropolitan, U.S. community hospitals, of which 10 percent were for-profit in 1987, 48 percent nonprofit, and 42 percent under government ownership.⁶

An important facet of the success of a hospitals is its financial condition. Hospitals, regardless of urban-rural location or size, faced problems such as higher debt burden, higher cost per

²This count of 118 hospitals reflects the number of hospitals reporting to the state for licensing; several of these are systems, with pairs of hospitals so this count of 118 is slightly conservative. In 1989, the N.C. Hospital Association reported approximately 129 hospitals in N.C.

³Seventy-five hospitals are located in nonmetropolitan areas; see *Introduction* for definitions.

⁴American Hospital Association. (1990). *AHA Hospital Statistics: A Comprehensive Summary of U.S. Hospitals, 1990-1991*. Chicago: AHA.

⁵AHA (1990), p. 150.

⁶U.S. Congress, p. 113.

discharges and a shortage of cash in the period following the 1983 change in Medicare reimbursement policies that implemented the DRG system. However, these trends may have disproportionately affected rural hospitals; over 10 percent of rural hospitals experienced negative operating margins during the first 5 years of the Prospective Payment System (1983-1988), relative to 3.2 percent of urban hospitals.⁷ North Carolina hospitals were not immune to these trends, and may have fared worse. The North Carolina Hospital Association reported that the average hospital wrote off as bad debt more than one-fourth of its Medicare charges in 1988; the rural hospitals wrote off approximately 36 percent of their Medicare charges as bad debt.⁸

The utilization of hospitals is also indicative of the health of a hospital. The past decade saw a nationwide decline in inpatient hospitalization, due to a confluence of factors. The Medicare Prospective Payment System (PPS) was introduced in 1983. PPS made it unprofitable to extend a patient's stay beyond the length of stay designated by the patient's diagnosis. Additionally, strong disincentives were placed on unnecessary admissions. The recession of the early eighties, cost containment programs, limitation of insurance benefits, and reduction of government spending on health also affected the rural hospital by causing patients to delay care or to seek care on an outpatient basis.

The typical patient seen in the rural hospital also changed during the eighties. Increasingly, there has been a decline in the total number of county residents using the local hospital, with the elderly and indigent becoming the major users of the nearest hospital.⁹ Rural hospitals, like urban hospitals, are treating more patients who cannot pay for their care; the amount of uncompensated care in all U.S. hospitals has increased, with nonmetropolitan hospitals treating 26 percent more medically indigent in 1987 than in 1984.¹⁰ However, tighter financial situations make it more difficult for rural hospitals to cost share or cross-subsidize to cover these costs. This has been accompanied by a tendency of the young and insured to leave their local communities to obtain services elsewhere. In the same way that rural residents travel to more urban areas for their work or shopping, health care "outshopping" implies that, except for emergency care, the rural resident uncouples the basic health needs from the local hospital, using it as a backup rather than as a primary source of care.

⁷U.S. Congress, 1990; p.132.

⁸Winston Salem Journal; 11/28/90; p. A14.

⁹U.S. Government Accounting Office. (1991). *Rural Hospitals: Federal Efforts Should Target Areas where Closure would Threaten Access*. Washington, D.C.: GAO; p. 43.

¹⁰U.S. Congress, p. 10.

Measure: Occupancy Rate

Interpretation: Occupancy rate is calculated by dividing the total days of care in a year, excluding newborns, by the number of staffed beds multiplied by 365. This estimates the percent of all staffed beds which were occupied over a year's time period. As such, it describes the extent to which the capacities of the hospital are utilized.

North Carolina Hospitals' Average Occupancy Rates: 1980 through 1989

Hospital Group	1980	1985	1989	1980-85	1985-89	1980-89
Small Rural: < 50 Beds	64.3%	42.8%	47.0%	-33.4%	9.9%	-26.8%
Midsized Rural: 50-99 Beds	63.3%	46.0%	57.9%	-27.3%	25.9%	-8.5%
Large Rural: ≥ 100 Beds	76.3%	61.5%	70.9%	-19.4%	15.3%	-7.2%
All Rural	72.3%	56.4%	66.1%	-22.0%	17.3%	-8.5%
Urban	80.2%	69.2%	74.2%	-13.7%	7.3%	-7.5%
North Carolina	77.0%	64.0%	71.1%	-16.9%	11.1%	-7.7%

North Carolina Trend: In 1989, North Carolina rural hospitals with fewer than 50 beds had an average occupancy rate of 47.0 percent. This was nearly 24 percentage points below that of rural hospitals with more than 100 beds, which had an occupancy rate of 70.9 percent. Since 1980, the average occupancy rate for all types of hospitals declined. This decrease in the rate occurred between 1980 and 1985, coinciding with the recession of the early 1980s and the introduction of the Prospective Payment System in 1983. Metropolitan and large rural hospitals saw their occupancy rates decrease by approximately 14 and 19 percent respectively between 1980 and 1985; the midsized rural hospital rate decreased by 27.3 percent during the same period, and the rural hospital with fewer than 50 beds experienced a 33.4 percent drop in occupancy rates. However, the trend reversed itself in the latter part of the decade, with all North Carolina hospitals seeing increases in occupancy. Though the early declines resulted in a net loss in the occupancy rate from 1980 to 1989, the most recent data point to an upward trend in occupancy.

National Trend: The nationwide nonmetropolitan hospital average occupancy was 56.5 percent in 1989, relative to a metropolitan hospital average of 69.9 percent and a nationwide average of 66.2 percent.¹⁰ Between 1984 and 1988, rural hospital occupancy rates declined at nearly twice the rate of urban hospitals, to a low of 55 percent.¹¹ The occupancy rates of small hospitals (both urban and rural) fell by 14 percentage points since 1978.¹²

¹⁰AHA (1990), p. 150.

¹¹U.S. Congress, 1990.

¹²AHA (1990), p. xxxviii.

Measure: Average Length of Stay

Interpretation: The average length of stay is the total patient days of care divided by the total discharges for a hospital, excluding newborns. The length of stay is usually indicative of the severity of the disease, with longer, more complex diseases requiring more days of care. A high average length of stay is often associated with a high elderly census in a hospital. However, a reimbursement mechanism which pays not by the day but by the case has provided strong incentive to reduce inpatient stays.

North Carolina Hospitals' Average Length of Stay: 1980 through 1989

Hospital Group	1980	1985	1989	1980-85	1985-89	1980-89
Small Rural: < 50 Beds	6.5	5.7	6.5	-12.5%	14.3%	0.1%
Midsized Rural: 50-99 Beds	6.3	5.6	6.2	-11.9%	12.0%	-1.3%
Large Rural: ≥ 100 Beds	6.9	6.2	6.9	-9.5%	10.4%	-0.1%
All Rural	6.7	6.1	6.7	-10.0%	10.9%	-0.2%
Urban	7.5	6.9	7.3	-8.7%	5.9%	-3.3%
North Carolina	7.2	6.5	7.1	-9.0%	7.8%	-1.9%

North Carolina Trend: Across all size categories, North Carolina rural hospitals have lower average lengths of stay than urban hospitals, with average stays of 6.7 days and 7.3 days respectively in 1989. This average length of stay is virtually unchanged from 1980, though by examining the changes between 1980 and 1985, it is evident that fluctuation occurred. For all hospitals, but particularly for rural hospitals, the average length of stay declined in the first part of the decade, and rose by an similar amount in the second part.

National Trend: Nationally, rural hospitals' patients had an average length of stay of 7.5 days and urban hospitals' patients had an average length of stay of 7.2 days.¹³ In 1984, the rural and urban length of stays were 6.9 and 7.4 days respectively; in 1988, they were 7.4 and 7.2 respectively.¹⁴

¹³AHA (1990, p. 150.

¹⁴U.S. Congress, 1990.

Measure: Days of Care

Interpretation: Days of care is a count of the total days of inpatient care provided by a hospital, excluding newborns. It is comparable to discharges as a measure of utilization, but reflects the amount of care delivered in terms of time and not people. One hospital may have high volume and low length of stay, another low volume and high length of stay. By examining both indicators, utilization can be more fully appreciated.

North Carolina Hospitals' Average Days of Care: 1980 through 1989

Hospital Group	1980	1985	1989	1980-85	1985-89	1980-89
Small Rural: < 50 Beds	9,567	6,179	6,709	-35.4%	8.6%	-29.9%
Midsized Rural: 50-99 Beds	18,813	13,329	14,501	-29.1%	8.8%	-22.9%
Large Rural: ≥ 100 Beds	55,875	44,542	46,254	-20.3%	3.8%	-17.2%
All Rural	32,036	24,610	26,384	-23.2%	7.2%	-17.6%
Urban	78,645	67,502	75,712	-14.2%	12.2%	-3.7%
North Carolina	50,454	41,559	45,196	-17.6%	8.8%	-10.4%

North Carolina Trend: Between 1980 and 1989, all groups of North Carolina hospitals experienced decreases in the number of days of patient care provided, at rates quite comparable to the decline in discharges. Small rural hospitals (< 50 beds) provided approximately one-third fewer days of care in 1989 than in 1980; rural hospitals on average provided 18 percent fewer days of care. Urban hospitals' days of care dropped at a rate slightly faster than that of discharges, though it is still substantially smaller than the rural decrease.

National Trend: Between 1979 and 1989, the average decline in days of care for all U.S. hospitals was 15 percent¹⁵

¹⁵AHA (1990), p. xxxvii.

Measure: Discharges

Interpretation: The total number of discharges excluding newborns is a more direct measure of volume than an occupancy rate. The number of discharges can give a sense of the hospital's productivity and viability. High volume will mean a greater base over which fixed costs can be spread. Small rural hospitals, for example, may have difficulty in allocating the high costs of technology and upgrading the equipment and facility based on a low patient volume.

North Carolina Hospitals' Average Discharges: 1980 through 1989

Hospital Group	1980	1985	1989	1980-85	1985-89	1980-89
Small Rural: < 50 Beds	1,464	1,081	1,026	-26.2%	-5.1%	-29.9%
Midsized Rural: 50-99 Beds	2,976	2,393	2,325	-19.6%	-2.8%	-21.9%
Large Rural: ≥ 100 Beds	8,105	7,142	6,716	-11.9%	-6.0%	-17.1%
All Rural	4,754	4,059	3,923	-14.6%	-3.3%	-17.5%
Urban	10,474	9,850	10,429	-6.0%	5.9%	-0.4%
North Carolina	7,014	6,347	6,404	-9.5%	0.9%	-8.7%

North Carolina Trend: Across all categories of hospitals, North Carolina hospital discharges declined, though by a substantially larger percentage in rural hospitals relative to urban hospitals. The smallest rural hospitals had the greatest decline: there were 29.9 percent fewer discharges in 1989 than in 1980, from an average of 1,464 to 1,026 discharges. On average, the discharges in rural hospitals declined by 17.5 percent relative to less than 1 percent in urban hospitals during this time period. As with the occupancy rate, the number of discharges fell off more steeply between 1980 and 1985 than between 1985 and 1989.

National Trend: Declines in admissions were experienced by both urban and rural hospitals, but the declines were greater in hospitals in rural areas. Rural hospital admissions dropped between 1984 and 1988 by nearly two and one-half times as much as admissions to urban hospitals. Nationally, the larger rural hospitals experienced greater percentage declines in admissions, which is contrary to the experience in North Carolina.¹⁶ Since 1979, all U.S. hospitals have experienced a decline in admissions of 11.3 percent.¹⁷

¹⁶U.S. Congress, 1990.

¹⁷AHA (1990), p. xxxvi.

Measure: Percent of Discharges 65 Years and Older

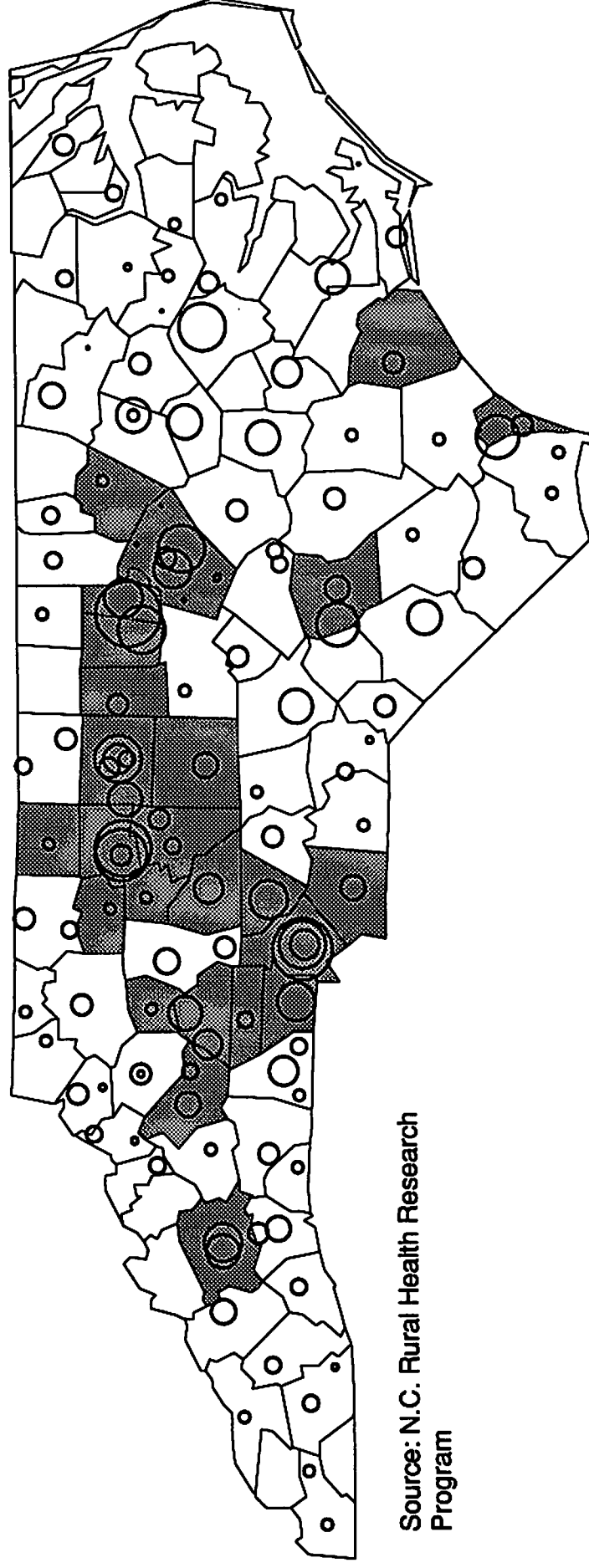
Interpretation: The percent of total discharges of patients 65 years or older is obtained by dividing the number of discharges of patients who are 65 years or older by the total number of discharges. It can indicate several underlying phenomena. First, it may reflect a higher than average elderly population in the community. Second, it may indicate that the younger people in the county are no longer using the local hospital, so that the remaining elderly population represents a stable portion of a declining patient base. In a third, more indirect way, it can give information about the financial condition and stability of the organization. The percent of elderly discharges can be viewed as a proxy for the Medicare income of the hospital. Commonly, heavy reliance on Medicare has been viewed as negative, particularly when differentials in payment in the Prospective Payment System were at their largest—immediately after the program's implementation in 1983.

North Carolina Hospitals' Percent of Discharges 65 Years and Older: 1980 through 1989

Hospital Group	1980	1985	1989	1980-85	1985-89	1980-89
Small Rural: < 50 Beds	38.6%	46.3%	52.9%	19.9%	14.3%	37.0%
Midsized Rural: 50-99 Beds	29.9%	35.2%	41.0%	17.7%	16.5%	37.1%
Large Rural: ≥ 100 Beds	25.9%	31.1%	34.1%	20.3%	9.7%	32.0%
All Rural	30.2%	36.0%	40.5%	19.2%	12.5%	34.2%
Urban	25.3%	30.7%	32.0%	21.4%	4.1%	26.3%
North Carolina	28.3%	33.9%	37.3%	20.0%	9.9%	31.8%

North Carolina Trend: In 1989, over half of the discharges of small (< 50 beds), rural North Carolina hospitals were of patients 65 years or older. In 1989, 52.9 percent of small rural hospital's discharges were elderly, compared to 41 percent of the midsized rural hospital's discharges, and 34 percent of the large rural hospital's discharges. All North Carolina hospitals saw the percent of their discharges comprised of those 65 years or older increase between 1980 and 1989. The rural hospitals saw that percent increase by about one-third, while the urban hospitals had their percent of elderly discharges rise by around one fourth. As in the other hospital trends, most of the change occurred in the first half of the eighties.

Figure 1.
North Carolina Hospitals by Rurality and Size, 1990

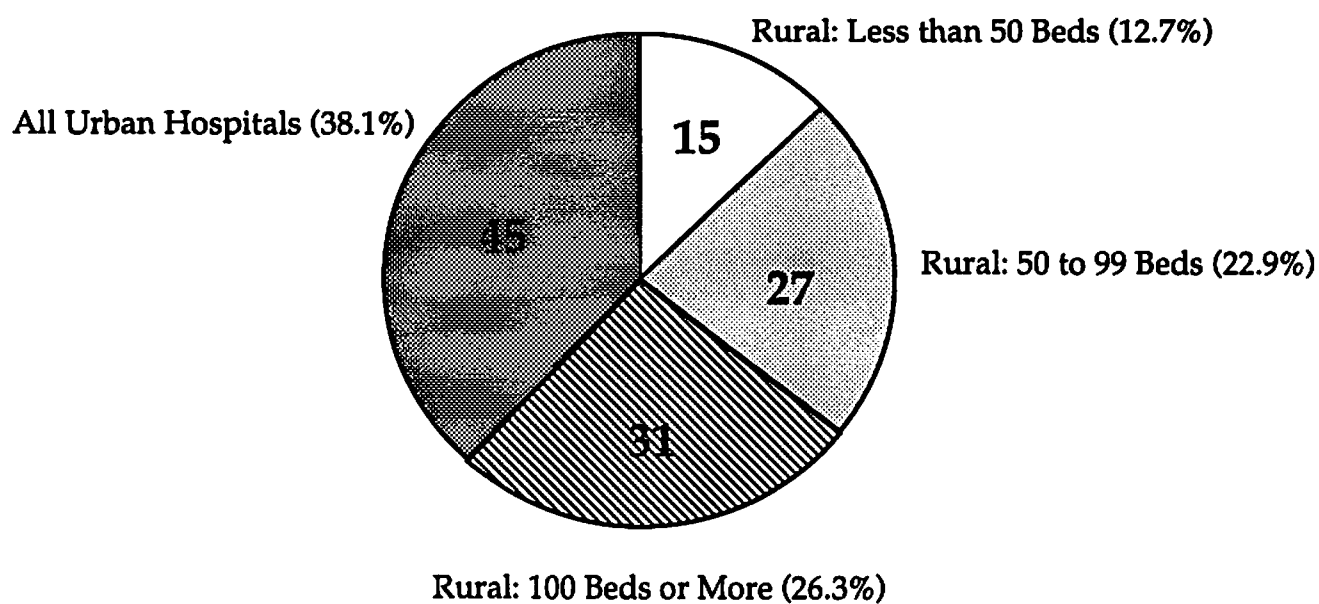


Source: N.C. Rural Health Research
Program

Gray counties are Metropolitan Statistical Areas
Circles represent the location of a hospital; the larger circles indicate larger hospitals

Figure 2.

Urban-Rural Distribution of North Carolina Hospitals, 1989

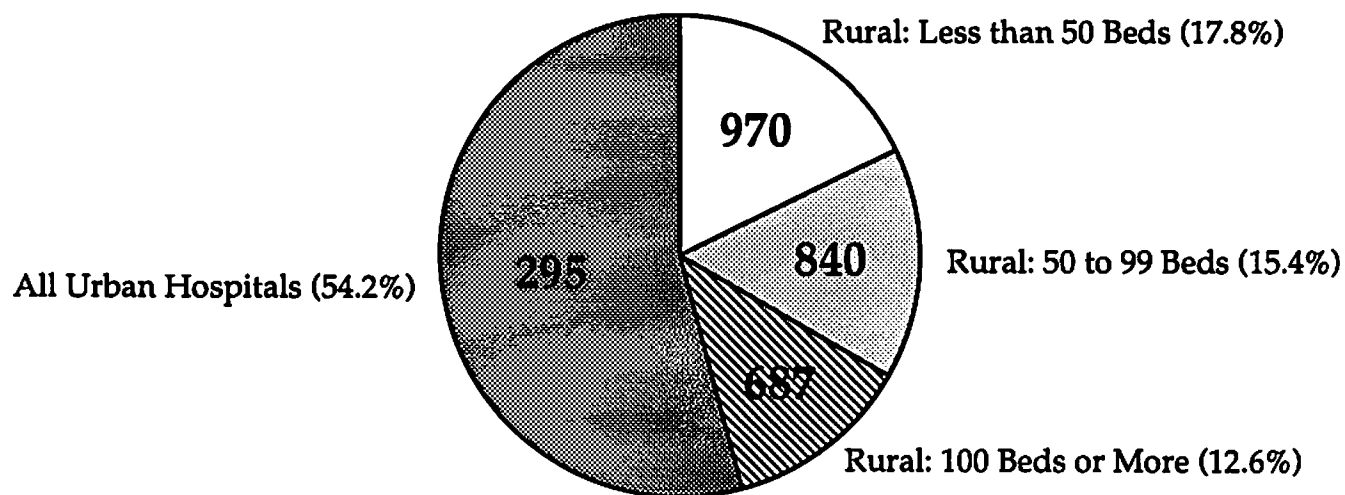


Note: Hospitals that are members of systems often are reported in aggregate rather than as individual hospitals; thus, this is a conservative count

Source: N.C. Center for Health & Environmental Statistics; Health Facilities Data Book: Hospital Summary Report, 1989

Prepared by N.C. Rural Health Research Program,
Cecil G. Sheps Center for Health Services Research, UNC-CH

Figure 3.
Urban-Rural Distribution of United States Community Hospitals, 1989



Source: American Hospital Association: AHA Hospital Statistics, 1990-1991. Chicago: AHA

Prepared by N.C. Rural Health Research Program,
Cecil G. Sheps Center for Health Services Research, UNC-CH

APPENDICES

Appendix A.

Summary: Trends in Utilization of North Carolina Hospitals by Urban-Rural Status and Size

Table A.1. Summary of North Carolina Hospital Utilization: 1980

Table A.2. Summary of North Carolina Hospital Utilization: 1985

Table A.3. Summary of North Carolina Hospital Utilization: 1989

Table A.4. Summary of Trends in North Carolina Hospital Utilization: 1980 through 1989

Table A.1. Summary of North Carolina Hospital Utilization: 1980

Hospital Group	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
MEAN: SMALL RURAL (<50 beds)	40.8	64.3%	6.5	9567.3	1464.0	38.6
SD: SMALL RURAL (<50 beds)	13.7	17.6	2.2	4697.4	732.2	9.8
MEAN: MIDSIZED RURAL (50-99 beds)	81.4	63.3%	6.3	18812.5	2976.1	29.9
SD: MIDSIZED RURAL (50-99 beds)	28.5	12.9	1.1	8406.4	1276.8	6.5
MEAN: LARGE RURAL (≥ 100 beds)	200.5	76.3%	6.9	55875.2	8105.4	25.9
SD: LARGE RURAL (≥ 100 beds)	85.3	11.2	0.7	28377.6	3686.9	4.3
MEAN: ALL RURAL HOSPITALS	121.4	72.3%	6.7	32036.2	4753.5	30.2
SD: ALL RURAL HOSPITALS	89.3	14.6	1.3	27819.4	3813.7	8.2
MEAN: ALL URBAN HOSPITALS	268.7	80.2%	7.5	78644.8	10473.8	25.3
SD: ALL URBAN HOSPITALS	226.8	9.8	1.1	70342.6	8372.4	7.0
NORTH CAROLINA HOSPITALS	179.6	77.0%	7.2	50454.1	7013.9	28.3
	173.5	13.6	1.3	54037.1	6632.5	8.1

Table A.2. Summary of North Carolina Hospital Utilization: 1985

Hospital Group	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
MEAN: SMALL RURAL (<50 beds)	39.5	42.8%	5.7	6178.8	1080.5	46.3
SD: SMALL RURAL (<50 beds)	14.6	14.4	2.0	3515.4	670.4	13.4
MEAN: MIDSIZED RURAL (50-99 beds)	79.4	46.0%	5.6	13329.3	2393.3	35.2
SD: MIDSIZED RURAL (50-99 beds)	26.9	11.1	1.5	5568.8	1065.4	6.6
MEAN: LARGE RURAL (≥ 100 beds)	198.5	61.5%	6.2	44541.6	7141.9	31.1
SD: LARGE RURAL (≥ 100 beds)	95.6	13.9	0.7	29009.1	3849.0	6.2
MEAN: ALL RURAL HOSPITALS	119.6	56.4%	6.1	24609.6	4058.5	36.0
SD: ALL RURAL HOSPITALS	93.1	15.0	1.4	25409.1	3678.8	10.2
MEAN: ALL URBAN HOSPITALS	262.0	69.2%	6.9	67502.0	9849.9	30.7
SD: ALL URBAN HOSPITALS	219.9	16.5	0.9	66462.7	8647.4	9.4
NORTH CAROLINA HOSPITALS	176.6	64.0%	6.5	41559.0	6347.0	33.9
	170.9	16.5	1.2	50552.4	6738.3	10.2

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table A.3. Summary of North Carolina Hospital Utilization: 1989

Hospital Group	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
MEAN: SMALL RURAL (<50 beds)	39.1	47.0%	6.5	6709.0	1025.9	52.9
SD: SMALL RURAL (<50 beds)	11.0	16.5	4.2	3314.3	552.3	13.4
MEAN: MIDSIZED RURAL (50-99 beds)	68.6	57.9%	6.2	14500.6	2325.2	41.0
SD: MIDSIZED RURAL (50-99 beds)	15.9	14.0	8.0	5583.5	1185.4	10.1
MEAN: LARGE RURAL (≥ 100 beds)	178.8	70.9%	6.9	46253.9	6716.3	34.1
SD: LARGE RURAL (≥ 100 beds)	88.3	14.1	1.2	32229.9	3725.7	6.7
MEAN: ALL RURAL HOSPITALS	109.3	66.1%	6.7	26383.9	3922.9	40.5
SD: ALL RURAL HOSPITALS	84.2	16.5	5.3	27382.6	3523.6	11.8
MEAN: ALL URBAN HOSPITALS	279.6	74.2%	7.3	75712.2	10428.8	32.0
SD: ALL URBAN HOSPITALS	237.5	14.4	1.5	75311.0	9055.2	9.0
NORTH CAROLINA HOSPITALS	174.3	71.1%	7.1	45195.5	6404.0	37.3
	180.2	16.0	4.2	56332.6	6967.6	11.6

Table A.4. Summary of Trends in North Carolina Hospital Utilization: 1980 through 1989

Hospital Group	Occupancy $\Delta 80-85$	Occupancy $\Delta 85-89$	Occupancy $\Delta 80-89$	Avg. Lgth. of Stay $\Delta 80-85$	Avg. Lgth. of Stay $\Delta 85-89$	Avg. Lgth. of Stay $\Delta 80-89$
MEAN: SMALL RURAL (<50 beds)	-33.4%	9.9%	-26.8%	-12.5%	14.4%	0.1%
SD: SMALL RURAL (<50 beds)	0.3	0.6	0.2	0.3	0.6	0.5
MEAN: MIDSIZED RURAL (50-99 beds)	-27.3%	25.9%	-8.5%	-11.9%	12.0%	-1.3%
SD: MIDSIZED RURAL (50-99 beds)	0.2	0.5	0.3	0.2	0.6	1.3
MEAN: LARGE RURAL (≥ 100 beds)	-19.4%	15.3%	-7.2%	-9.5%	10.4%	-0.1%
SD: LARGE RURAL (≥ 100 beds)	0.1	0.2	0.2	0.1	0.2	0.1
MEAN: ALL RURAL HOSPITALS	-22.0%	17.3%	-8.5%	-10.0%	10.9%	-0.2%
SD: ALL RURAL HOSPITALS	0.2	0.4	0.2	0.2	0.5	0.8
MEAN: ALL URBAN HOSPITALS	-13.7%	7.3%	-7.5%	-8.7%	5.9%	-3.3%
SD: ALL URBAN HOSPITALS	0.2	0.2	0.1	0.1	0.2	0.2
NORTH CAROLINA HOSPITALS	-16.9%	11.1%	-7.7%	-9.0%	7.8%	-1.9%
	0.2	0.4	0.2	0.2	0.4	0.7

Table A.4 cont': Summary of Trends in North Carolina Hospital Utilization: 1980 through 1989

Hospital Group	Days of Care Δ80-85	Days of Care Δ85-89	Days of Care Δ80-89	Discharges Δ80-85	Discharges Δ85-89	Discharges Δ80-89	Disch. ≥ 65 Δ80-85	Disch. ≥ 65 Δ85-89	Disch. ≥ 65 Δ80-89
MEAN: SMALL RURAL (<50 beds)	-35.4%	8.6%	-29.9%	-26.2%	-5.1%	-29.9%	19.9%	14.3%	37.0%
SD: SMALL RURAL (<50 beds)	0.3	0.6	0.3	0.2	0.2	0.2	0.2	0.1	0.2
MEAN: MIDSIZED RURAL (50-99 beds)	-29.1%	8.8%	-22.9%	-19.6%	-2.8%	-21.9%	17.7%	16.5%	37.1%
SD: MIDSIZED RURAL (50-99 beds)	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.2	0.6
MEAN: LARGE RURAL (≥ 100 beds)	-20.3%	3.8%	-17.2%	-11.9%	-6.0%	-17.1%	20.3%	9.7%	32.0%
SD: LARGE RURAL (≥ 100 beds)	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2
MEAN: ALL RURAL HOSPITALS	-23.2%	7.2%	-17.6%	-14.6%	-3.3%	-17.5%	19.2%	12.5%	34.2%
SD: ALL RURAL HOSPITALS	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.4
MEAN: ALL URBAN HOSPITALS	-14.2%	12.2%	-3.7%	-6.0%	5.9%	-0.4%	21.4%	4.1%	26.3%
SD: ALL URBAN HOSPITALS	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.2
NORTH CAROLINA HOSPITALS	-17.6%	8.8%	-10.4%	-9.5%	0.9%	-8.7%	20.0%	9.9%	31.8%
	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4

Appendix B.

Trends in Utilization of North Carolina Small (< 50 Beds) Rural Hospitals: 1980 through 1989

Table B.1. Utilization of North Carolina Small (<50 Beds) Rural Hospitals: 1980

Table B.2. Utilization of North Carolina Small (<50 Beds) Rural Hospitals: 1985

Table B.3. Utilization of North Carolina Small (<50 Beds) Rural Hospitals: 1989

**Table B.4. Trends in Utilization of North Carolina Small (<50 Beds) Rural Hospitals: 1980
through 1989**

Table B.1. Utilization of North Carolina Small Rural Hospitals: 1980

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alleghany County Memorial Hospital	Alleghany	46	45.97	5.58	7719	1384	44.58
Bertie Memorial Hospital	Bertie	50	61.49	7.96	11222	1409	30.16
Blackwelder Memorial Hospital	Caldwell	31	83	7.06	9391	1331	37.11
Bladen County Hospital	Bladen	62	91.63	7.07	20736	2933	34.16
Blowing Rock Hospital	Watauga	28	49.97	7.19	5107	710	42.39
Chatham Hospital	Chatham	57	71.64	7.1	14905	2099	37.59
Highlands-Cashiers Hospital	Macon	27	19.76	4.86	1947	401	59.1
J.Arthur Doshier Memorial Hospital	Brunswick	40	55.88	6.16	8158	1325	37.81
Martin General Hospital	Martin	50	70.38	6.14	12845	2091	28.55
Our Community Hospital	Halifax	20	37.74	7.7	2755	358	47.77
Pender Memorial Hospital	Pender	44	78.11	7.06	12545	1778	31.83
Pungo District Hospital	Beaufort	52	56.16	5.34	10659	1995	33.28
Robersonville Community Hospital	Martin	12	78.24	14.62	3435	235	60.85
Sea Level Hospital & Extended Care	Carteret	35	72.28	8.22	9234	1124	38.17
Sloop Memorial Hospital	Avery	38	64.14	5.24	8896	1699	31.25
Swain County Hospital	Swain	51	64.68	5.93	12041	2029	34.94
Washington County Hospital	Washington	50	60.54	5.56	11049	1987	26.52
MEAN: SMALL RURAL (<50 beds)		40.8	64.3%	6.5	9567.3	1464.0	38.6
SD: SMALL RURAL (<50 beds)		13.7	17.6	2.2	4697.4	732.2	9.8

Table B.2. Utilization of North Carolina Small Rural Hospitals: 1985

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alleghany County Memorial Hospital	Alleghany	46	45.81	6.47	7692	1188	51.26
Bertie Memorial Hospital	Bertie	36	50.36	12.75	6617	519	49.52
Blackwelder Memorial Hospital	Caldwell	31	21.1	6	2387	398	36.18
Bladen County Hospital	Bladen	62	55.51	5.07	12563	2477	29.03
Blowing Rock Hospital	Watauga	28	25.59	5.55	2615	471	61.36
Chatham Hospital	Chatham	68	47.33	6.24	11748	1884	40.71
Highlands-Cashiers Hospital	Macon	27	24.26	6.1	2391	392	63.52
J.Arthur Doshier Memorial Hospital	Brunswick	40	42.12	4.94	6150	1244	43.49
Martin General Hospital	Martin	49	30.58	4.08	5470	1341	26.99
Our Community Hospital	Halifax	20	27.48	8.96	2006	224	71.88
Pender Memorial Hospital	Pender	43	63.07	6.89	9899	1436	44.43
Pungo District Hospital	Beaufort	49	23.86	4.25	4267	1003	42.57
Robersonville Community Hospital	Martin	12	24.95	5.88	1093	186	66.67
Sea Level Hospital & Extended Care	Carteret	26	50.72	6.96	4813	692	51.59
Sloop Memorial Hospital	Avery	38	61.85	4.69	8579	1830	40.38
Swain County Hospital	Swain	48	55.35	5.67	9698	1711	35.3
Washington County Hospital	Washington	49	39.42	5.14	7051	1373	31.54
MEAN: SMALL RURAL (<50 beds)		39.5	42.8%	5.7	6178.8	1080.5	46.3
SD: SMALL RURAL (<50 beds)		14.6	14.4	2.0	3515.4	670.4	13.4

Table B.3. Utilization of North Carolina Small Rural Hospitals: 1989

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alleghany County Memorial Hospital	Alleghany	46	50.14	7.06	8419	1193	64.46
Bertie Memorial Hospital	Bertie	49	25.05	9.51	4481	471	50.11
Blackwelder Memorial Hospital	Caldwell						
Bladen County Hospital	Bladen	42	64.97	5.02	9960	1986	35.5
Blowing Rock Hospital	Watauga	28	50.06	13.12	5116	390	66.15
Chatham Hospital	Chatham	46	67.03	7.12	11254	1581	49.59
Highlands-Cashiers Hospital	Macon	27	14.03	4.08	1383	339	67.85
J.Arthur Doshier Memorial Hospital	Brunswick	40	35.76	4.64	5221	1126	41.12
Martin General Hospital	Martin	49	45.98	6.55	8223	1256	40.53
Our Community Hospital	Halifax	20	33.22	19.72	2425	123	82.11
Pender Memorial Hospital	Pender	43	56.58	6.32	8880	1406	52.06
Pungo District Hospital	Beaufort	47	72.42	10.66	12424	1166	54.12
Robersonville Community Hospital	Martin						
Sea Level Hospital & Extended Care	Carteret	16	36.15	5.47	2111	386	61.4
Sloop Memorial Hospital	Avery	38	57.72	5.03	8006	1592	42.71
Swain County Hospital	Swain	46	40.82	6.03	6853	1137	50.31
Washington County Hospital	Washington	49	32.87	4.76	5879	1236	35.03
MEAN: SMALL RURAL (<50 beds)		39.1	47.0%	6.5	6709.0	1025.9	52.9
SD: SMALL RURAL (<50 beds)		11.0	16.5	4.2	3314.3	552.3	13.4

Table B.4. Trends in Utilization of North Carolina Small Rural Hospitals: 1980 through 1989

Hospital Name	County	Occupancy	Occupancy	Occupancy	Avg. Lgth. of Stay	Avg. Lgth. of Stay	Avg. Lgth. of Stay
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Alleghany County Memorial Hospital	Alleghany	-0.3%	9.5%	9.1%	15.9%	9.1%	26.5%
Bertie Memorial Hospital	Bertie	-18.1%	-50.3%	-59.3%	60.2%	-25.4%	19.5%
Blackwelder Memorial Hospital	Caldwell	-74.6%			-15.0%		
Bladen County Hospital	Bladen	-39.4%	17.0%	-29.1%	-28.3%	-1.0%	-29.0%
Blowing Rock Hospital	Watauga	-48.8%	95.6%	0.2%	-22.8%	136.4%	82.5%
Chatham Hospital	Chatham	-33.9%	41.6%	-6.4%	-12.1%	14.1%	0.3%
Highlands-Cashiers Hospital	Macon	22.8%	-42.2%	-29.0%	25.5%	-33.1%	-16.0%
J.Arthur Doshier Memorial Hospital	Brunswick	-24.6%	-15.1%	-36.0%	-19.8%	-6.1%	-24.7%
Martin General Hospital	Martin	-56.6%	50.4%	-34.7%	-33.6%	60.5%	6.7%
Our Community Hospital	Halifax	-27.2%	20.9%	-12.0%	16.4%	120.1%	156.1%
Pender Memorial Hospital	Pender	-19.3%	-10.3%	-27.6%	-2.4%	-8.3%	-10.5%
Pungo District Hospital	Beaufort	-57.5%	203.5%	29.0%	-20.4%	150.8%	99.6%
Robersonville Community Hospital	Martin	-68.1%			-59.8%		
Sea Level Hospital & Extended Care	Carteret	-29.8%	-28.7%	-50.0%	-15.3%	-21.4%	-33.5%
Sloop Memorial Hospital	Avery	-3.6%	-6.7%	-10.0%	-10.5%	7.2%	-4.0%
Swain County Hospital	Swain	-14.4%	-26.3%	-36.9%	-4.4%	6.3%	1.7%
Washington County Hospital	Washington	-34.9%	-16.6%	-45.7%	-7.6%	-7.4%	-14.4%
MEAN: SMALL RURAL (<50 beds)		-33.4%	9.9%	-26.8%	-12.5%	14.4%	0.1%
SD: SMALL RURAL (<50 beds)		0.3	0.6	0.2	0.3	0.6	0.5

Table B.4. cont': Trends in Utilization of North Carolina Small Rural Hospitals: 1980 through 1989

Hospital Name	County	Days of Care	Days of Care	Days of Care	Discharges	Discharges	Discharges	Disch. ≥ 65	Disch. ≥ 65	Disch. ≥ 65
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Alleghany County Memorial Hospital	Alleghany	-0.3%	9.5%	9.1%	-14.2%	0.4%	-13.8%	15.0%	25.8%	44.6%
Bertie Memorial Hospital	Bertie	-41.0%	-32.3%	-60.1%	-63.2%	-9.2%	-66.6%	64.2%	1.2%	66.1%
Blackwelder Memorial Hospital	Caldwell	-74.6%		-100.0%	-70.1%			-2.5%		
Bladen County Hospital	Bladen	-39.4%	-20.7%	-52.0%	-15.5%	-19.8%	-32.3%	-15.0%	22.3%	3.9%
Blowing Rock Hospital	Watauga	-48.8%	95.6%	0.2%	-33.7%	-17.2%	-45.1%	44.8%	7.8%	56.1%
Chatham Hospital	Chatham	-21.2%	-4.2%	-24.5%	-10.2%	-16.1%	-24.7%	8.3%	21.8%	31.9%
Highlands-Cashiers Hospital	Macon	22.8%	-42.2%	-29.0%	-2.2%	-13.5%	-15.5%	7.5%	6.8%	14.8%
J.Arthur Doshier Memorial Hospital	Brunswick	-24.6%	-15.1%	-36.0%	-6.1%	-9.5%	-15.0%	15.0%	-5.4%	8.8%
Martin General Hospital	Martin	-57.4%	50.3%	-36.0%	-35.9%	-6.3%	-39.9%	-5.5%	50.2%	42.0%
Our Community Hospital	Halifax	-27.2%	20.9%	-12.0%	-37.4%	-45.1%	-65.6%	50.5%	14.2%	71.9%
Pender Memorial Hospital	Pender	-21.1%	-10.3%	-29.2%	-19.2%	-2.1%	-20.9%	39.6%	17.2%	63.6%
Pungo District Hospital	Beaufort	-60.0%	191.2%	16.6%	-49.7%	16.3%	-41.6%	27.9%	27.1%	62.6%
Robersonville Community Hospital	Martin	-68.2%			-20.9%			9.6%		
Sea Level Hospital & Extended Care	Carteret	-47.9%	-56.1%	-77.1%	-38.4%	-44.2%	-65.7%	35.2%	19.0%	60.9%
Sloop Memorial Hospital	Avery	-3.6%	-6.7%	-10.0%	7.7%	-13.0%	-6.3%	29.2%	5.8%	36.7%
Swain County Hospital	Swain	-19.5%	-29.3%	-43.1%	-15.7%	-33.5%	-44.0%	1.0%	42.5%	44.0%
Washington County Hospital	Washington	-36.2%	-16.6%	-46.8%	-30.9%	-10.0%	-37.8%	18.9%	11.1%	32.1%
MEAN: SMALL RURAL (<50 beds)		-35.4%	8.6%	-29.9%	-26.2%	-5.1%	-29.9%	19.9%	14.3%	37.0%
SD: SMALL RURAL (<50 beds)		0.3	0.6	0.3	0.2	0.2	0.2	0.2	0.1	0.2

Appendix C.

Trends in Utilization of North Carolina Midsized (50-99 Beds) Rural Hospitals: 1980, 1985 & 1989

Table C.1. Utilization of North Carolina Midsized (50-99 Beds) Rural Hospitals: 1980

Table C.2. Utilization of North Carolina Midsized (50-99Beds) Rural Hospitals: 1985

Table C.3. Utilization of North Carolina Midsized (50-99 Beds) Rural Hospitals: 1989

**Table C.4. Trends in Utilization of North Carolina Midsized (50-99 Beds) Rural Hospitals:
1980 through 1989**

Table C.1. Utilization of North Carolina Midsized Rural Hospitals: 1980

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Angel Community Hospital	Macon	84	66.7	7.25	20451	2821	35.41
Annie Penn Memorial Hospital	Rockingham	152	75.67	7.58	41983	5540	32.51
Anson County Hospital & Skilled Nurs.	Anson	52	81.04	6.74	15382	2282	29.84
Ashe Memorial Hospital	Ashe	76	63.75	6.09	17685	2904	38.22
Blue Ridge Hospital System	Mitchell	92	56.81	5.52	19076	3456	34.43
Brunswick Hospital	Brunswick	60	39.4	4.7	8628	1835	42.62
C.J.Harris Community Hospital	Jackson	80	71.38	4.67	20842	4460	28.54
Caldwell Memorial Hospital	Caldwell	130	74.36	6.46	35283	5462	25.17
Charles A. Cannon Jr. Memorial Hospital	Avery	92	54.06	7.34	18154	2474	28.46
Chowan Hospital	Chowan	61	91.63	7.39	20402	2762	30.99
Community Hospital of Rocky Mount	Nash	50	54.37	8.6	9922	1154	9.27
Crawley Memorial Hospital	Cleveland	60	52.54	6.32	11507	1822	31.89
District Memorial Hospital of SW N.C.	Cherokee	61	40.5	5.39	9017	1672	34.69
Duplin General Hospital	Duplin	90	60.18	6.74	19768	2931	32.41
Granville Medical Center	Granville	68	58.96	7.97	14635	1837	34.13
Hamlet Hospital	Richmond	42	38.94	5.85	5969	1021	31.73
Hugh Chatham Memorial Hospital	Surry	100	55.46	6.15	20242	3290	31.4
Kings Mountain Hospital	Cleveland	102	78.19	7.73	29109	3768	22.93
Maria Parham Hospital	Vance	100	65.99	5.64	24085	4274	30.95
McDowell Hospital	McDowell	62	71	4.94	16068	3251	27.96
Montgomery Memorial Hospital	Montgomery	90	64.66	6.67	21242	3185	23.45
Morehead Memorial Hospital	Rockingham	133	63.03	6.4	30596	4784	26.4
Murphy Medical Center	Cherokee	50	52.6	5.36	9600	1790	22.51
Person County Memorial Hospital	Person	51	77.9	7.12	14501	2037	29.01
Richmond Memorial Hospital	Richmond	122	58.06	5.11	25855	5055	25.62
St. Luke's Hospital	Polk	74	56.09	7.62	15150	1989	39.82
Transylvania Community Hospital	Transylvania	64	54.73	5.12	12785	2498	27.14
MEAN: MIDSIZED RURAL (50-99 beds)		81.4	63.3%	6.3	18812.5	2976.1	29.9
SD: MIDSIZED RURAL (50-99 beds)		28.5	12.9	1.1	8406.4	1276.8	6.5

Table C.2. Utilization of North Carolina Midsized Rural Hospitals: 1985

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Angel Community Hospital	Macon	81	54.86	5.66	16218	2864	39.73
Annie Penn Memorial Hospital	Rockingham	152	44.88	6.32	24898	3937	31.37
Anson County Hospital & Skilled Nurs.	Anson	52	55.28	5.76	10493	1823	31.49
Ashe Memorial Hospital	Ashe	76	33.8	5.1	9375	1840	46.79
Blue Ridge Hospital System	Mitchell	92	40.26	4.91	13519	2753	39.7
Brunswick Hospital	Brunswick	60	23.54	4.3	5156	1198	30.3
C.J.Harris Community Hospital	Jackson	80	56.48	4.55	16491	3623	30.53
Caldwell Memorial Hospital	Caldwell	128	59.36	5.2	27732	5338	27.67
Charles A. Cannon Jr. Memorial Hospital	Avery	79	41.02	7.07	11829	1674	31
Chowan Hospital	Chowan	70	50.18	5.88	12822	2181	37.14
Community Hospital of Rocky Mount	Nash	48	52.97	6.47	9280	1435	25.64
Crawley Memorial Hospital	Cleveland	51	34.26	12.01	6378	531	43.88
District Memorial Hospital of SW N.C.	Cherokee	61	25.67	5.28	5715	1082	46.49
Duplin General Hospital	Duplin	80	48.75	6.02	14234	2364	35.03
Granville Medical Center	Granville	66	41.34	5.81	9958	1715	38.13
Hamlet Hospital	Richmond	56	49.7	6.05	10158	1679	31.45
Hugh Chatham Memorial Hospital	Surry	96	44.21	5.21	15492	2974	38.47
Kings Mountain Hospital	Cleveland	102	39.64	6.13	14757	2408	28.57
Maria Parham Hospital	Vance	100	42.88	4.63	15652	3382	30.69
McDowell Hospital	McDowell	65	70.36	4.79	16693	3486	33.91
Montgomery Memorial Hospital	Montgomery	57	64.09	5.77	13334	2310	33.46
Morehead Memorial Hospital	Rockingham	133	42.51	5.63	20637	3668	36.4
Murphy Medical Center	Cherokee	50	38.24	3.8	6978	1835	35.53
Person County Memorial Hospital	Person	54	38.51	5.28	7591	1438	36.65
Richmond Memorial Hospital	Richmond	76	57.75	5.1	16021	3143	26.57
St. Luke's Hospital	Polk	74	34.26	6.53	9253	1418	52.75
Transylvania Community Hospital	Transylvania	104	50.65	7.63	19226	2521	30.74
MEAN: MIDSIZED RURAL (50-99 beds)		79.4	46.0%	5.6	13329.3	2393.3	35.2
SD: MIDSIZED RURAL (50-99 beds)		26.9	11.1	1.5	5568.8	1065.4	6.6

Table C.3. Utilization of North Carolina Midsized Rural Hospitals: 1989

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Angel Community Hospital	Macon	81	57.15	5.68	16895	2975	45.65
Annie Penn Memorial Hospital	Rockingham	90	81.05	7.6	26624	3503	39.54
Anson County Hospital & Skilled Nurs.	Anson	52	43.32	5.61	8222	1466	34.58
Ashe Memorial Hospital	Ashe	57	41.49	5.65	8632	1527	54.81
Blue Ridge Hospital System	Mitchell	70	54.86	5.89	14018	2379	47.67
Brunswick Hospital	Brunswick	60	38.82	5.35	8502	1588	41.37
C.J.Harris Community Hospital	Jackson	86	61.91	4.28	19434	4545	30.39
Caldwell Memorial Hospital	Caldwell	97	73.65	5.28	26077	4936	33.75
Charles A. Cannon Jr. Memorial Hospital	Avery	79	45.05	7.73	12990	1681	38.01
Chowan Hospital	Chowan	70	46.98	5.75	12004	2086	36.34
Community Hospital of Rocky Mount	Nash	50	54.89	6.88	10018	1457	38.64
Crawley Memorial Hospital	Cleveland	51	66.01	46.9	12288	262	66.03
District Memorial Hospital of SW N.C.	Cherokee	52	66.31	12.69	12586	992	49.8
Duplin General Hospital	Duplin	60	64.7	6.79	14169	2086	32.02
Granville Medical Center	Granville	66	48.59	5.44	11705	2150	36.79
Hamlet Hospital	Richmond	64	43.82	6.24	10237	1640	34.27
Hugh Chatham Memorial Hospital	Surry	58	66.27	5.18	14030	2707	45.62
Kings Mountain Hospital	Cleveland	92	40.5	7.4	13601	1837	41.43
Maria Parham Hospital	Vance	78	73.96	5.26	21055	4006	31.75
McDowell Hospital	McDowell	65	74.54	5.56	17684	3183	38.45
Montgomery Memorial Hospital	Montgomery	50	46.32	5.25	8453	1611	33.64
Morehead Memorial Hospital	Rockingham	85	76.79	5.32	23824	4482	33.96
Murphy Medical Center	Cherokee	50	40.97	4.09	7477	1828	44.15
Person County Memorial Hospital	Person	54	36.41	7.1	7176	1010	58.02
Richmond Memorial Hospital	Richmond	88	60.96	5.81	19579	3368	26.37
St. Luke's Hospital	Polk	52	81.02	11.8	15378	1303	62.7
Transylvania Community Hospital	Transylvania	94	54.96	8.68	18857	2173	31.34
MEAN: MIDSIZED RURAL (50-99 beds)		68.6	57.9%	6.2	14500.6	2325.2	41.0
SD: MIDSIZED RURAL (50-99 beds)		15.9	14.0	8.0	5583.5	1185.4	10.1

Table C.4. Trends in Utilization of North Carolina Midsized Rural Hospitals: 1980 through 1989

Hospital Name	County	Occupancy	Occupancy	Occupancy	Avg. Lgth. of Stay	Avg. Lgth. of Stay	Avg. Lgth. of Stay
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Angel Community Hospital	Macon	-17.8%	4.2%	-14.3%	-21.9%	0.4%	-21.7%
Annie Penn Memorial Hospital	Rockingham	-40.7%	80.6%	7.1%	-16.6%	20.3%	0.3%
Anson County Hospital & Skilled Nurs.	Anson	-31.8%	-21.6%	-46.5%	-14.5%	-2.6%	-16.8%
Ashe Memorial Hospital	Ashe	-47.0%	22.8%	-34.9%	-16.3%	10.8%	-7.2%
Blue Ridge Hospital System	Mitchell	-29.1%	36.3%	-3.4%	-11.1%	20.0%	6.7%
Brunswick Hospital	Brunswick	-40.3%	64.9%	-1.5%	-8.5%	24.4%	13.8%
C.J.Harris Community Hospital	Jackson	-20.9%	9.6%	-13.3%	-2.6%	-5.9%	-8.4%
Caldwell Memorial Hospital	Caldwell	-20.2%	24.1%	-1.0%	-19.5%	1.5%	-18.3%
Charles A. Cannon Jr. Memorial Hospital	Avery	-24.1%	9.8%	-16.7%	-3.7%	9.3%	5.3%
Chowan Hospital	Chowan	-45.2%	-6.4%	-48.7%	-20.4%	-2.2%	-22.2%
Community Hospital of Rocky Mount	Nash	-2.6%	3.6%	1.0%	-24.8%	6.3%	-20.0%
Crawley Memorial Hospital	Cleveland	-34.8%	92.7%	25.6%	90.0%	290.5%	642.1%
District Memorial Hospital of SW N.C.	Cherokee	-36.6%	158.3%	63.7%	-2.0%	140.3%	135.4%
Duplin General Hospital	Duplin	-19.0%	32.7%	7.5%	-10.7%	12.8%	0.7%
Granville Medical Center	Granville	-29.9%	17.5%	-17.6%	-27.1%	-6.4%	-31.7%
Hamlet Hospital	Richmond	27.6%	-11.8%	12.5%	3.4%	3.1%	6.7%
Hugh Chatham Memorial Hospital	Surry	-20.3%	49.9%	19.5%	-15.3%	-0.6%	-15.8%
Kings Mountain Hospital	Cleveland	-49.3%	2.2%	-48.2%	-20.7%	20.7%	-4.3%
Maria Parham Hospital	Vance	-35.0%	72.5%	12.1%	-17.9%	13.6%	-6.7%
McDowell Hospital	McDowell	-0.9%	5.9%	5.0%	-3.0%	16.1%	12.6%
Montgomery Memorial Hospital	Montgomery	-0.9%	-27.7%	-28.4%	-13.5%	-9.0%	-21.3%
Morehead Memorial Hospital	Rockingham	-32.6%	80.6%	21.8%	-12.0%	-5.5%	-16.9%
Murphy Medical Center	Cherokee	-27.3%	7.1%	-22.1%	-29.1%	7.6%	-23.7%
Person County Memorial Hospital	Person	-50.6%	-5.5%	-53.3%	-25.8%	34.5%	-0.3%
Richmond Memorial Hospital	Richmond	-0.5%	5.6%	5.0%	-0.2%	13.9%	13.7%
St. Luke's Hospital	Polk	-38.9%	136.5%	44.4%	-14.3%	80.7%	54.9%
Transylvania Community Hospital	Transylvania	-7.5%	8.5%	0.4%	49.0%	13.8%	69.5%
MEAN: MIDSIZED RURAL (50-99 beds)		-27.3%	25.9%	-8.5%	-11.9%	12.0%	-1.3%
SD: MIDSIZED RURAL (50-99 beds)		0.2	0.5	0.3	0.2	0.6	1.3

Table C.4. cont': Trends in Utilization of North Carolina Midsized Rural Hospitals: 1980 through 1989

Hospital Name	County	Days of Care	Days of Care	Days of Care	Discharges	Discharges	Discharges	Disch. ≥ 65	Disch. ≥ 65	Disch. ≥ 65
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Angel Community Hospital	Macon	-20.7%	4.2%	-17.4%	1.5%	3.9%	5.5%	12.2%	14.9%	28.9%
Annie Penn Memorial Hospital	Rockingham	-40.7%	6.9%	-36.6%	-28.9%	-11.0%	-36.8%	-3.5%	26.0%	21.6%
Anson County Hospital & Skilled Nurs.	Anson	-31.8%	-21.6%	-46.5%	-20.1%	-19.6%	-35.8%	5.5%	9.8%	15.9%
Ashe Memorial Hospital	Ashe	-47.0%	-7.9%	-51.2%	-36.6%	-17.0%	-47.4%	22.4%	17.1%	43.4%
Blue Ridge Hospital System	Mitchell	-29.1%	3.7%	-26.5%	-20.3%	-13.6%	-31.2%	15.3%	20.1%	38.5%
Brunswick Hospital	Brunswick	-40.2%	64.9%	-1.5%	-34.7%	32.6%	-13.5%	-28.9%	36.5%	-2.9%
C.J.Harris Community Hospital	Jackson	-20.9%	17.8%	-6.8%	-18.8%	25.4%	1.9%	7.0%	-0.5%	6.5%
Caldwell Memorial Hospital	Caldwell	-21.4%	-6.0%	-26.1%	-2.3%	-7.5%	-9.6%	9.9%	22.0%	34.1%
Charles A. Cannon Jr. Memorial Hospital	Avery	-34.8%	9.8%	-28.4%	-32.3%	0.4%	-32.1%	8.9%	22.6%	33.6%
Chowan Hospital	Chowan	-37.2%	-6.4%	-41.2%	-21.0%	-4.4%	-24.5%	19.8%	-2.2%	17.3%
Community Hospital of Rocky Mount	Nash	-6.5%	8.0%	1.0%	24.4%	1.5%	26.3%	176.6%	50.7%	316.8%
Crawley Memorial Hospital	Cleveland	-44.6%	92.7%	6.8%	-70.9%	-50.7%	-85.6%	37.6%	50.5%	107.1%
District Memorial Hospital of SW N.C.	Cherokee	-36.6%	120.2%	39.6%	-35.3%	-8.3%	-40.7%	34.0%	7.1%	43.6%
Duplin General Hospital	Duplin	-28.0%	-0.5%	-28.3%	-19.3%	-11.8%	-28.8%	8.1%	-8.6%	-1.2%
Granville Medical Center	Granville	-32.0%	17.5%	-20.0%	-6.6%	25.4%	17.0%	11.7%	-3.5%	7.8%
Hamlet Hospital	Richmond	70.2%	0.8%	71.5%	64.4%	-2.3%	60.6%	-0.9%	9.0%	8.0%
Hugh Chatham Memorial Hospital	Surry	-23.5%	-9.4%	-30.7%	-9.6%	-9.0%	-17.7%	22.5%	18.6%	45.3%
Kings Mountain Hospital	Cleveland	-49.3%	-7.8%	-53.3%	-36.1%	-23.7%	-51.2%	24.6%	45.0%	80.7%
Maria Parham Hospital	Vance	-35.0%	34.5%	-12.6%	-20.9%	18.5%	-6.3%	-0.8%	3.5%	2.6%
McDowell Hospital	McDowell	3.9%	5.9%	10.1%	7.2%	-8.7%	-2.1%	21.3%	13.4%	37.5%
Montgomery Memorial Hospital	Montgomery	-37.2%	-36.6%	-60.2%	-27.5%	-30.3%	-49.4%	42.7%	0.5%	43.5%
Morehead Memorial Hospital	Rockingham	-32.6%	15.4%	-22.1%	-23.3%	22.2%	-6.3%	37.9%	-6.7%	28.6%
Murphy Medical Center	Cherokee	-27.3%	7.2%	-22.1%	2.5%	-0.4%	2.1%	57.8%	24.3%	96.1%
Person County Memorial Hospital	Person	-47.7%	-5.5%	-50.5%	-29.4%	-29.8%	-50.4%	26.3%	58.3%	100.0%
Richmond Memorial Hospital	Richmond	-38.0%	22.2%	-24.3%	-37.8%	7.2%	-33.4%	3.7%	-0.8%	2.9%
St. Luke's Hospital	Polk	-38.9%	66.2%	1.5%	-28.7%	-8.1%	-34.5%	32.5%	18.9%	57.5%
Transylvania Community Hospital	Transylvania	50.4%	-1.9%	47.5%	0.9%	-13.8%	-13.0%	13.3%	2.0%	15.5%
MEAN: MIDSIZED RURAL (50-99 beds)		-29.1%	8.8%	-22.9%	-19.6%	-2.8%	-21.9%	17.7%	16.5%	37.1%
SD: MIDSIZED RURAL (50-99 beds)		0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.2	0.6

Appendix D.

Trends in Utilization of North Carolina Large (≥ 100 Beds) Rural Hospitals: 1980, 1985 & 1989

Table D.1. Utilization of North Carolina Large (≥ 100 Beds) Rural Hospitals: 1980

Table D.2. Utilization of North Carolina Large (≥ 100 Beds) Rural Hospitals: 1985

Table D.3. Utilization of North Carolina Large (≥ 100 Beds) Rural Hospitals: 1989

**Table D.4. Trends in Utilization of North Carolina Large (≥ 100 Beds) Rural Hospitals:
1980 through 1989**

Table D.1. Utilization of North Carolina Large Rural Hospitals: 1980

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Albemarle Hospital	Pasquotank	206	68.94	7.44	51838	6966	30.45
Beaufort County Hospital Association	Beaufort	151	69.32	6.52	38207	5856	29.94
Carteret County General Hospital	Carteret	116	75.49	6.07	31962	5262	21.89
Central Carolina Hospital	Lee	142	59.92	6.99	31057	4443	24.4
Cleveland Memorial Hospital	Cleveland	300	74.77	6.14	81869	13339	22.69
Columbus County Hospital	Columbus	166	87.47	6.8	52998	7791	26.36
Craven County Hospital	Craven	248	91.95	7.04	83232	11817	25.81
Davis Community Hospital	Iredell	156	70.5	6.58	40140	6103	26.9
Halifax Memorial Hospital	Halifax	190	84.75	6.97	58775	8437	29.62
Haywood County Hospital	Haywood	200	61.16	6.47	44649	6899	30.47
Heritage Hospital	Edgecombe	127	59.87	7.49	27755	3707	26.57
Iredell Memorial Hospital	Iredell	182	84.11	6.85	55876	8154	24.64
Johnston Memorial Hospital	Johnston	180	66.86	7	43929	6276	21.14
Lake Norman Regional Medical Center	Iredell	109	76.57	6.95	30462	4381	28.62
Lenoir Memorial Hospital	Lenoir	281	85.19	7.19	87374	12145	22.85
Margaret R. Pardee Memorial Hospital	Henderson	233	71.79	6.67	61051	9156	35.39
Moore Regional Hospital	Moore	309	85	6.92	95866	13856	25.54
Nash General Hospital	Nash	272	88.4	8.41	87765	10433	26.69
Northern Hospital of Surry County	Surry	97	95.96	6.62	33974	5130	31.17
Park Ridge Hospital	Henderson	103	65.62	6.93	24668	3558	28.86
Pitt County Memorial Hospital	Pitt	421	84.13	7.93	129286	16301	19.83
Roanoke-Chowan Hospital	Hertford	140	81.73	6.66	41764	6272	27.81
Rutherford Hospital	Rutherford	168	72.25	7.13	44301	6215	33.82
Sampson County Memorial Hospital	Sampson	145	76.52	7.12	40499	5686	27.37
Scotland Memorial Hospital	Scotland	170	50.68	5.18	31445	6075	17.09
Southeastern General Hospital	Robeson	272	77.48	6.66	76923	11543	20.61
Stanly Memorial Hospital	Stanly	130	67.17	6.64	31870	4797	27.04
Watauga County Hospital	Watauga	141	52.26	5.41	26897	4971	24.22
Wayne Memorial Hospital	Wayne	341	73.08	7.14	90960	12739	22.4
Wilkes General Hospital	Wilkes	133	72.1	5.41	35000	6471	18.59
Wilson Memorial Hospital	Wilson	388	84.55	7.26	119740	16489	23.02
MEAN: LARGE RURAL (≥ 100 beds)		200.5	76.3%	6.9	55875.2	8105.4	25.9
SD: LARGE RURAL (≥ 100 beds)		85.3	11.2	0.7	28377.6	3686.9	4.3

Table D.2. Utilization of North Carolina Large Rural Hospitals: 1985

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Albemarle Hospital	Pasquotank	205	50.6	6.7	37862	5649	35.35
Beaufort County Hospital Association	Beaufort	151	38.31	6.07	21117	3481	41.71
Carteret County General Hospital	Carteret	117	66.35	5.87	28334	4831	28.21
Central Carolina Hospital	Lee	142	44.88	4.99	23260	4661	28.9
Cleveland Memorial Hospital	Cleveland	300	57.27	5.77	62707	10871	26.36
Columbus County Hospital	Columbus	166	76.34	6.03	46253	7666	27.13
Craven County Hospital	Craven	238	74.53	6.26	64743	10346	29.36
Davis Community Hospital	Iredell	149	56.68	6.85	30823	4501	26.77
Halifax Memorial Hospital	Halifax	190	71.95	6.59	49895	7574	29.8
Haywood County Hospital	Haywood	200	54.65	5.76	39893	6927	39.14
Heritage Hospital	Edgecombe	127	48.25	6.19	22365	3613	27.15
Iredell Memorial Hospital	Iredell	182	67.1	5.99	44573	7438	30.13
Johnston Memorial Hospital	Johnston	180	41.74	6.03	27423	4550	26.77
Lake Norman Regional Medical Center	Iredell	121	31.29	6.49	13821	2128	41.31
Lenoir Memorial Hospital	Lenoir	247	75.99	6.42	68513	10668	29.81
Margaret R. Pardee Memorial Hospital	Henderson	233	49.1	5.66	41761	7376	41.91
Moore Regional Hospital	Moore	302	78.99	6.68	87072	13036	30.06
Nash General Hospital	Nash	282	76.09	7.56	78320	10358	30.15
Northern Hospital of Surry County	Surry	108	67.62	5.01	26657	5323	36.71
Park Ridge Hospital	Henderson	103	31.37	5.35	11795	2203	40.22
Pitt County Memorial Hospital	Pitt	560	74.97	7.67	153242	19991	22.35
Roanoke-Chowan Hospital	Hertford	100	69.21	5.23	25261	4830	30.79
Rutherford Hospital	Rutherford	165	56.39	5.76	33958	5892	40.19
Sampson County Memorial Hospital	Sampson	146	48.02	5.92	25589	4324	34.34
Scotland Memorial Hospital	Scotland	125	53.93	5	24604	4920	16.71
Southeastern General Hospital	Robeson	299	63.37	6.61	69157	10458	23.62
Stanly Memorial Hospital	Stanly	130	46	5.55	21827	3934	35.46
Watauga County Hospital	Watauga	141	47.71	5.37	24544	4571	32.16
Wayne Memorial Hospital	Wayne	333	56.2	6.19	68309	11041	27.4
Wilkes General Hospital	Wilkes	133	64.28	5.25	31207	5943	25.63
Wilson Memorial Hospital	Wilson	277	75.08	6.17	75905	12296	29.17
MEAN: LARGE RURAL (≥ 100 beds)		198.5	61.5%	6.2	44541.6	7141.9	31.1
SD: LARGE RURAL (≥ 100 beds)		95.6	13.9	0.7	29009.1	3849.0	6.2

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table D.3. Utilization of North Carolina Large Rural Hospitals: 1989

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Albemarle Hospital	Pasquotank	137	80.06	7.6	40032	5267	40.74
Beaufort County Hospital Association	Beaufort	117	48.18	5.62	20576	3658	44.15
Carteret County General Hospital	Carteret	117	67.57	5.77	28857	5003	31.62
Central Carolina Hospital	Lee	137	54.99	5.44	27498	5055	31.53
Cleveland Memorial Hospital	Cleveland	239	65.64	7.22	57258	7925	33.63
Columbus County Hospital	Columbus	136	79.99	6.39	39706	6215	32.08
Craven County Hospital	Craven	276	78.73	7.51	79317	10555	34.91
Davis Community Hospital	Iredell	149	44.08	6.48	23975	3702	22.91
Halifax Memorial Hospital	Halifax	171	87.25	7.38	54457	7377	34.53
Haywood County Hospital	Haywood	152	61.82	6.23	34298	5509	46.02
Heritage Hospital	Edgecombe	127	49.09	6.96	22754	3269	28.88
Iredell Memorial Hospital	Iredell	183	80.49	7.23	53761	7438	33.13
Johnston Memorial Hospital	Johnston	114	70.6	6.31	29378	4654	33.07
Lake Norman Regional Medical Center	Iredell	113	34.78	5.05	14346	2843	42.56
Lenoir Memorial Hospital	Lenoir	226	75.98	6.94	62672	9030	34.41
Margaret R. Pardee Memorial Hospital	Henderson	155	65.21	5.75	36892	6420	48.33
Moore Regional Hospital	Moore	312	85.62	7.44	97504	13098	34.79
Nash General Hospital	Nash	282	76.5	8.02	78743	9820	32.95
Northern Hospital of Surry County	Surry	116	61.04	5.07	25845	5100	38.18
Park Ridge Hospital	Henderson	103	63.01	10.29	23688	2303	37.69
Pitt County Memorial Hospital	Pitt	501	94.72	8.3	173215	20858	24.3
Roanoke-Chowan Hospital	Hertford	100	75.56	6.22	27581	4433	35.24
Rutherford Hospital	Rutherford	145	52.35	6.01	27708	4611	38.86
Sampson County Memorial Hospital	Sampson	116	60.28	6.77	25523	3769	40.2
Scotland Memorial Hospital	Scotland	124	53.9	4.87	24395	5008	17.03
Southeastern General Hospital	Robeson	281	70.07	7.54	71872	9527	27.29
Stanly Memorial Hospital	Stanly	124	56.8	5.89	25707	4367	37.07
Watauga County Hospital	Watauga	141	51.35	5.19	26427	5090	33.36
Wayne Memorial Hospital	Wayne	261	76.88	7.16	73241	10225	28.2
Wilkes General Hospital	Wilkes	111	77.79	5.35	31516	5893	28.98
Wilson Memorial Hospital	Wilson	277	74.31	7.38	75130	10183	31.75
MEAN: LARGE RURAL (≥ 100 beds)		178.8	70.9%	6.9	46253.9	6716.3	34.1
SD: LARGE RURAL (≥ 100 beds)		88.3	14.1	1.2	32229.9	3725.7	6.7

Table D.4. Trends in Utilization of North Carolina Large Rural Hospitals: 1980 through 1989

Hospital Name	County	Occupancy	Occupancy	Occupancy	Avg. Lgth. of Stay	Avg. Lgth. of Stay	Avg. Lgth. of Stay
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Albemarle Hospital	Pasquotank	-26.6%	58.2%	16.1%	-9.9%	13.4%	2.2%
Beaufort County Hospital Association	Beaufort	-44.7%	25.8%	-30.5%	-6.9%	-7.4%	-13.8%
Carteret County General Hospital	Carteret	-12.1%	1.8%	-10.5%	-3.3%	-1.7%	-4.9%
Central Carolina Hospital	Lee	-25.1%	22.5%	-8.2%	-28.6%	9.0%	-22.2%
Cleveland Memorial Hospital	Cleveland	-23.4%	14.6%	-12.2%	-6.0%	25.1%	17.6%
Columbus County Hospital	Columbus	-12.7%	4.8%	-8.6%	-11.3%	6.0%	-6.0%
Craven County Hospital	Craven	-18.9%	5.6%	-14.4%	-11.1%	20.0%	6.7%
Davis Community Hospital	Iredell	-19.6%	-22.2%	-37.5%	4.1%	-5.4%	-1.5%
Halifax Memorial Hospital	Halifax	-15.1%	21.3%	2.9%	-5.5%	12.0%	5.9%
Haywood County Hospital	Haywood	-10.6%	13.1%	1.1%	-11.0%	8.2%	-3.7%
Heritage Hospital	Edgecombe	-19.4%	1.7%	-18.0%	-17.4%	12.4%	-7.1%
Iredell Memorial Hospital	Iredell	-20.2%	20.0%	-4.3%	-12.6%	20.7%	5.5%
Johnston Memorial Hospital	Johnston	-37.6%	69.1%	5.6%	-13.9%	4.6%	-9.9%
Lake Norman Regional Medical Center	Iredell	-59.1%	11.2%	-54.6%	-6.6%	-22.2%	-27.3%
Lenoir Memorial Hospital	Lenoir	-10.8%	0.0%	-10.8%	-10.7%	8.1%	-3.5%
Margaret R. Pardee Memorial Hospital	Henderson	-31.6%	32.8%	-9.2%	-15.1%	1.6%	-13.8%
Moore Regional Hospital	Moore	-7.1%	8.4%	0.7%	-3.5%	11.4%	7.5%
Nash General Hospital	Nash	-13.9%	0.5%	-13.5%	-10.1%	6.1%	-4.6%
Northern Hospital of Surry County	Surry	-29.5%	-9.7%	-36.4%	-24.3%	1.2%	-23.4%
Park Ridge Hospital	Henderson	-52.2%	100.9%	-4.0%	-22.8%	92.3%	48.5%
Pitt County Memorial Hospital	Pitt	-10.9%	26.3%	12.6%	-3.3%	8.2%	4.7%
Roanoke-Chowan Hospital	Hertford	-15.3%	9.2%	-7.5%	-21.5%	18.9%	-6.6%
Rutherford Hospital	Rutherford	-22.0%	-7.2%	-27.5%	-19.2%	4.3%	-15.7%
Sampson County Memorial Hospital	Sampson	-37.2%	25.5%	-21.2%	-16.9%	14.4%	-4.9%
Scotland Memorial Hospital	Scotland	6.4%	-0.1%	6.4%	-3.5%	-2.6%	-6.0%
Southeastern General Hospital	Robeson	-18.2%	10.6%	-9.6%	-0.8%	14.1%	13.2%
Stanly Memorial Hospital	Stanly	-31.5%	23.5%	-15.4%	-16.4%	6.1%	-11.3%
Watauga County Hospital	Watauga	-8.7%	7.6%	-1.7%	-0.7%	-3.4%	-4.1%
Wayne Memorial Hospital	Wayne	-23.1%	36.8%	5.2%	-13.3%	15.7%	0.3%
Wilkes General Hospital	Wilkes	-10.8%	21.0%	7.9%	-3.0%	1.9%	-1.1%
Wilson Memorial Hospital	Wilson	-11.2%	-1.0%	-12.1%	-15.0%	19.6%	1.7%
MEAN: LARGE RURAL (≥ 100 beds)		-19.4%	15.3%	-7.2%	-9.5%	10.4%	-0.1%
SD: LARGE RURAL (≥ 100 beds)		0.1	0.2	0.2	0.1	0.2	0.1

Table D.4. cont': Trends in Utilization of North Carolina Large Rural Hospitals: 1980 through 1989

Hospital Name	County	Days of Care	Days of Care	Days of Care	Discharges	Discharges	Discharges	Disch. ≥ 65	Disch. ≥ 65	Disch. ≥ 65
		Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89	Δ80-85	Δ85-89	Δ80-89
Albemarle Hospital	Pasquotank	-27.0%	5.7%	-22.8%	-18.9%	-6.8%	-24.4%	16.1%	15.2%	33.8%
Beaufort County Hospital Association	Beaufort	-44.7%	-2.6%	-46.1%	-40.6%	5.1%	-37.5%	39.3%	5.8%	47.5%
Carteret County General Hospital	Carteret	-11.4%	1.8%	-9.7%	-8.2%	3.6%	-4.9%	28.9%	12.1%	44.4%
Central Carolina Hospital	Lee	-25.1%	18.2%	-11.5%	4.9%	8.5%	13.8%	18.4%	9.1%	29.2%
Cleveland Memorial Hospital	Cleveland	-23.4%	-8.7%	-30.1%	-18.5%	-27.1%	-40.6%	16.2%	27.6%	48.2%
Columbus County Hospital	Columbus	-12.7%	-14.2%	-25.1%	-1.6%	-18.9%	-20.2%	2.9%	18.2%	21.7%
Craven County Hospital	Craven	-22.2%	22.5%	-4.7%	-12.4%	2.0%	-10.7%	13.8%	18.9%	35.3%
Davis Community Hospital	Iredell	-23.2%	-22.2%	-40.3%	-26.2%	-17.8%	-39.3%	-0.5%	-14.4%	-14.8%
Halifax Memorial Hospital	Halifax	-15.1%	9.1%	-7.3%	-10.2%	-2.6%	-12.6%	0.6%	15.9%	16.6%
Haywood County Hospital	Haywood	-10.7%	-14.0%	-23.2%	0.4%	-20.5%	-20.1%	28.5%	17.6%	51.0%
Heritage Hospital	Edgecombe	-19.4%	1.7%	-18.0%	-2.5%	-9.5%	-11.8%	2.2%	6.4%	8.7%
Iredell Memorial Hospital	Iredell	-20.2%	20.6%	-3.8%	-8.8%	0.0%	-8.8%	22.3%	10.0%	34.5%
Johnston Memorial Hospital	Johnston	-37.6%	7.1%	-33.1%	-27.5%	2.3%	-25.8%	26.6%	23.5%	56.4%
Lake Norman Regional Medical Center	Iredell	-54.6%	3.8%	-52.9%	-51.4%	33.6%	-35.1%	44.3%	3.0%	48.7%
Lenoir Memorial Hospital	Lenoir	-21.6%	-8.5%	-28.3%	-12.2%	-15.4%	-25.6%	30.5%	15.4%	50.6%
Margaret R. Pardee Memorial Hospital	Henderson	-31.6%	-11.7%	-39.6%	-19.4%	-13.0%	-29.9%	18.4%	15.3%	36.6%
Moore Regional Hospital	Moore	-9.2%	12.0%	1.7%	-5.9%	0.5%	-5.5%	17.7%	15.7%	36.2%
Nash General Hospital	Nash	-10.8%	0.5%	-10.3%	-0.7%	-5.2%	-5.9%	13.0%	9.3%	23.5%
Northern Hospital of Surry County	Surry	-21.5%	-3.0%	-23.9%	3.8%	-4.2%	-0.6%	17.8%	4.0%	22.5%
Park Ridge Hospital	Henderson	-52.2%	100.8%	-4.0%	-38.1%	4.5%	-35.3%	39.4%	-6.3%	30.6%
Pitt County Memorial Hospital	Pitt	18.5%	13.0%	34.0%	22.6%	4.3%	28.0%	12.7%	8.7%	22.5%
Roanoke-Chowan Hospital	Hertford	-39.5%	9.2%	-34.0%	-23.0%	-8.2%	-29.3%	10.7%	14.5%	26.7%
Rutherford Hospital	Rutherford	-23.3%	-18.4%	-37.5%	-5.2%	-21.7%	-25.8%	18.8%	-3.3%	14.9%
Sampson County Memorial Hospital	Sampson	-36.8%	-0.3%	-37.0%	-24.0%	-12.8%	-33.7%	25.5%	17.1%	46.9%
Scotland Memorial Hospital	Scotland	-21.8%	-0.8%	-22.4%	-19.0%	1.8%	-17.6%	-2.2%	1.9%	-0.4%
Southeastern General Hospital	Robeson	-10.1%	3.9%	-6.6%	-9.4%	-8.9%	-17.5%	14.6%	15.5%	32.4%
Stanly Memorial Hospital	Stanly	-31.5%	17.8%	-19.3%	-18.0%	11.0%	-9.0%	31.1%	4.5%	37.1%
Watauga County Hospital	Watauga	-8.7%	7.7%	-1.7%	-8.0%	11.4%	2.4%	32.8%	3.7%	37.7%
Wayne Memorial Hospital	Wayne	-24.9%	7.2%	-19.5%	-13.3%	-7.4%	-19.7%	22.3%	2.9%	25.9%
Wilkes General Hospital	Wilkes	-10.8%	1.0%	-10.0%	-8.2%	-0.8%	-8.9%	37.9%	13.1%	55.9%
Wilson Memorial Hospital	Wilson	-36.6%	-1.0%	-37.3%	-25.4%	-17.2%	-38.2%	26.7%	8.8%	37.9%
MEAN: LARGE RURAL (≥ 100 beds)		-20.3%	3.8%	-17.2%	-11.9%	-6.0%	-17.1%	20.3%	9.7%	32.0%
SD: LARGE RURAL (≥ 100 beds)		0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2

Appendix E.

Trends in Utilization of North Carolina Urban Hospitals: 1980, 1985 & 1989

Table E.1. Utilization of North Carolina Urban Hospitals: 1980

Table E.2. Utilization of North Carolina Urban Hospitals: 1985

Table E.3. Utilization of North Carolina Urban Hospitals: 1989

Table E.4. Trends in Utilization of North Carolina Urban Hospitals: 1980 through 1989

Table E.1. Utilization of North Carolina Urban Hospitals: 1980

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alamance County Hospital	Alamance	141	59.98	6.19	30869	4985	29.01
Alamance Memorial Hospital	Alamance	139	75.72	6.73	38419	5708	25.58
Alexander County Hospital	Alexander	62	59.92	6.94	13560	1953	28.11
Betsy Johnson Memorial Hospital	Harnett	117	69.43	6.36	29649	4665	26.8
Cabarrus Memorial Hospital	Cabarrus	439	87.31	7.02	139897	19931	25.52
Cape Fear Memorial Hospital	New Hanover	110	68.41	6.68	27468	4113	30.22
Cape Fear Valley Medical Center	Cumberland	488	81.43	6.8	145035	21337	13.08
Catawba Memorial Hospital	Catawba	231	67.94	6.96	57284	8226	17.1
Charlotte Memorial Hospital	Mecklenburg	853	72.4	8.56	225429	26336	19.02
Community General Hospital of Thomas	Davidson	154	78.95	8.06	44376	5506	23.08
Davie County Hospital	Davie	75	62.79	7	17190	2455	28.19
Duke University Hospital	Durham	888	89.55	10.04	290248	28902	17.6
Durham County General Hospital	Durham	483	71.52	8.34	126089	15127	26.65
Eastern Wake Hospital	Wake	20	60.81	6.94	4439	640	36.09
Forsyth Memorial Hospital	Forsyth	724	88.81	7.87	234697	29831	22.68
Franklin Memorial Hospital	Franklin	76	75.09	7.51	20831	2773	42.45
Frye Regional Medical Center	Catawba	217	68.56	6.14	54304	8844	19.29
Gaston Memorial Hospital	Gaston	431	82.82	7.45	130284	17489	20.72
Good Hope Hospital	Harnett	55	93.72	8.01	18814	2349	38.74
Grace Hospital	Burke	161	81.62	5.69	47963	8434	20.94
High Point Regional Hospital	Guilford	324	75.82	6.66	89665	13454	22.85
Highsmith-Rainey Memorial Hospital	Cumberland	95	69.12	6.73	23968	3560	28.48
Hoots Memorial Hospital	Yadkin	72	54.36	7.16	14285	1996	28.01
Humana Hospital-Greensboro	Guilford	100	78.23	6.13	28553	4659	27.07
L.Richardson Memorial Hospital	Guilford	130	80.8	11.22	38340	3417	19.43
Lexington Memorial Hospital	Davidson	94	66.35	5.32	22765	4277	22.09
Lincoln County Hospital	Lincoln	99	78.74	6.9	28454	4124	22.33
Medical Park Hospital	Forsyth	136	68.42	4.76	33966	7137	16.09
Memorial Mission Hospital	Buncombe	381	84.65	7.02	117719	16772	23.8
Mercy Hospital	Mecklenburg	427	77.3	7.75	120476	15554	26.62
Moses H. Cone Memorial Hospital	Guilford	445	82.76	8.06	134423	16676	20.74
NC Baptist Hospitals	Forsyth	672	80.9	8.55	198428	23211	21.91
New Hanover Memorial Hospital	New Hanover	474	86.39	6.56	149470	22784	18.59
Northern Wake Hospital	Wake	20	62.78	7.53	4583	609	38.26
Onslow Memorial Hospital	Onslow	150	85.85	5.56	47003	8452	17.48
Raleigh Community Hospital	Wake	140	85.47	6.58	43675	6635	20.92
Randolph Hospital	Randolph	145	70.16	5.87	37134	6324	25.32
Rex Hospital	Wake	394	80.42	7.59	115656	15228	25.62
Rowan Memorial Hospital	Rowan	324	75.08	6.52	88788	13611	24.84
Southern Wake Hospital	Wake	20	71.66	6.51	5231	803	42.96
St. Joseph's Hospital	Buncombe	283	93.83	7.6	96924	12748	30.71

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table E.1. Utilization of North Carolina Urban Hospitals: 1980

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Stokes-Reynolds Memorial Hospital	Stokes	60	76.52	7.74	16757	2164	39.42
The Presbyterian Hospital	Mecklenburg	550	89.94	6.9	180563	26183	20.7
UNC Hospitals	Orange	544	91.72	9.28	182121	19632	18.02
Union Memorial Hospital	Union	114	83.94	6.8	34928	5134	25.44
University Memorial Hospital	Mecklenburg						
Valdese General Hospital	Burke	172	70.91	7.07	44517	6294	24.45
Wake County Hospital System	Wake	576	74.05	8.47	155674	18379	15.92
Wesley Long Community Hospital	Guilford	341	78.94	7.43	98251	13221	26.7
Western Wake Hospital	Wake	20	60.75	7.7	4435	576	34.2
MEAN: ALL URBAN HOSPITALS		268.7	80.2%	7.5	78644.8	10473.8	25.3
SD: ALL URBAN HOSPITALS		226.8	9.8	1.1	70342.6	8372.4	7.0

Table E.2. Utilization of North Carolina Urban Hospitals: 1985

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alamance County Hospital	Alamance	147	45.12	5.8	24210	4176	35.32
Alamance Memorial Hospital	Alamance	139	51.33	6.66	26041	3909	23.46
Alexander County Hospital	Alexander	62	43.4	5.96	9821	1649	35.6
Betsy Johnson Memorial Hospital	Harnett	117	46.63	5.2	19915	3832	23.84
Cabarrus Memorial Hospital	Cabarrus	457	51.15	5.86	85323	14569	29.56
Cape Fear Memorial Hospital	New Hanover	137	44.53	5.98	22268	3726	36.29
Cape Fear Valley Medical Center	Cumberland	492	71.56	6.99	128506	18380	16.45
Catawba Memorial Hospital	Catawba	260	51.9	6.28	49251	7846	23.76
Charlotte Memorial Hospital	Mecklenburg	777	72.01	7.74	204225	26397	20.96
Community General Hospital of Thomas	Davidson	129	65.48	6.59	30833	4678	26.17
Davie County Hospital	Davie	66	49.05	5.34	11817	2213	37.46
Duke University Hospital	Durham	959	79.93	8.65	279777	32327	20.56
Durham County General Hospital	Durham	481	62.84	7.03	110327	15691	30.46
Eastern Wake Hospital	Wake	20	27.27	5.61	1991	355	44.23
Forsyth Memorial Hospital	Forsyth	695	85.69	7.11	217374	30574	27.37
Franklin Memorial Hospital	Franklin	54	62.4	7.08	12299	1736	52.13
Frye Regional Medical Center	Catawba	260	54.09	6.59	51333	7788	24.09
Gaston Memorial Hospital	Gaston	340	84.9	6.32	105358	16659	24.38
Good Hope Hospital	Harnett	72	69.65	6.5	18304	2817	34.01
Grace Hospital	Burke	161	62.79	5.58	36896	6609	25.95
High Point Regional Hospital	Guilford	318	68.6	6.17	79627	12900	25.81
Highsmith-Rainey Memorial Hospital	Cumberland	150	68.22	7.25	37353	5151	35.24
Hoots Memorial Hospital	Yadkin	72	33.79	6.33	8880	1402	44.37
Humana Hospital-Greensboro	Guilford	103	45.08	5.92	16947	2865	25.41
L.Richardson Memorial Hospital	Guilford	68	70.71	8.2	17549	2139	24.92
Lexington Memorial Hospital	Davidson	94	65.6	5.46	22508	4119	28.14
Lincoln County Hospital	Lincoln	110	46.85	4.99	18812	3772	28.34
Medical Park Hospital	Forsyth	136	55.52	4.54	27558	6065	21.58
Memorial Mission Hospital	Buncombe	392	82.27	6.24	117708	18850	27.22
Mercy Hospital	Mecklenburg	371	48.68	6.63	65916	9945	30.74
Moses H. Cone Memorial Hospital	Guilford	468	86.68	7.61	148075	19466	23.63
NC Baptist Hospitals	Forsyth	642	80.86	8.28	189483	22875	23.98
New Hanover Memorial Hospital	New Hanover	420	79.8	6.57	122327	18616	24.34
Northern Wake Hospital	Wake	20	35.84	5.75	2616	455	45.05
Onslow Memorial Hospital	Onslow	150	85.76	5.99	46951	7843	21.6
Raleigh Community Hospital	Wake	140	66.82	5.62	34144	6077	27.69
Randolph Hospital	Randolph	145	60.47	5.91	32002	5417	35.19
Rex Hospital	Wake	394	80.97	6.57	116440	17725	28.03
Rowan Memorial Hospital	Rowan	315	57.78	6.25	66432	10624	33
Southern Wake Hospital	Wake	28	40.18	7.18	4106	572	60.66
St. Joseph's Hospital	Buncombe	283	84.05	6.61	86817	13126	37.93

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table E.2. Utilization of North Carolina Urban Hospitals: 1985

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Stokes-Reynolds Memorial Hospital	Stokes	60	40.92	6.06	8962	1478	47.23
The Presbyterian Hospital	Mecklenburg	524	76.06	5.77	145469	25212	23.89
UNC Hospitals	Orange	576	81.55	8.49	171458	20187	19.36
Union Memorial Hospital	Union	160	49.56	5.59	28941	5179	27.86
University Memorial Hospital	Mecklenburg	130					
Valdese General Hospital	Burke	134	39.19	6.47	19170	2961	35.8
Wake County Hospital System	Wake	513	80.73	7.36	151166	20538	20.67
Wesley Long Community Hospital	Guilford	341	57.31	6.62	71334	10768	35.32
Western Wake Hospital	Wake	20	40.82	7.72	2980	386	49.74
MEAN: ALL URBAN HOSPITALS		262.0	69.2%	6.9	67502.0	9849.9	30.7
SD: ALL URBAN HOSPITALS		219.9	16.5	0.9	66462.7	8647.4	9.4

Table E.3. Utilization of North Carolina Urban Hospitals: 1989

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Alamance County Hospital	Alamance	120	55.46	6.11	24292	3979	41.42
Alamance Memorial Hospital	Alamance	139	59.74	7.15	30310	4238	35.1
Alexander County Hospital	Alexander	62	52.81	9.55	11950	1251	50.6
Betsy Johnson Memorial Hospital	Harnett	77	68.27	5.89	19186	3257	31.87
Cabarrus Memorial Hospital	Cabarrus	362	65.84	6.69	86993	13009	33.1
Cape Fear Memorial Hospital	New Hanover	81	63.32	5.78	18721	3237	33.67
Cape Fear Valley Medical Center	Cumberland	424	80.45	7.65	124499	16281	14.66
Catawba Memorial Hospital	Catawba	204	54.58	5.87	40643	6923	24.63
Charlotte Memorial Hospital	Mecklenburg	843	77.19	8.65	237501	27460	19.39
Community General Hospital of Thomas	Davidson	119	63.04	6.44	27382	4255	31.61
Davie County Hospital	Davie	46	56.77	5.64	9531	1689	48.96
Duke University Hospital	Durham	1011	85.49	9.34	315486	33789	21.56
Durham County General Hospital	Durham	393	70.43	6.6	101029	15299	29.68
Eastern Wake Hospital	Wake						
Forsyth Memorial Hospital	Forsyth	753	86.29	7.61	237172	31172	28.67
Franklin Memorial Hospital	Franklin	67	54.66	7.49	13368	1785	58.49
Frye Regional Medical Center	Catawba	275	54.9	6.5	55108	8478	25.57
Gaston Memorial Hospital	Gaston	382	84.65	9.04	118024	13050	28.9
Good Hope Hospital	Harnett	72	67.79	10.64	17814	1674	27.06
Grace Hospital	Burke	161	48.37	5.5	28427	5169	27.18
High Point Regional Hospital	Guilford	306	72.29	6.42	80736	12575	30.89
Highsmith-Rainey Memorial Hospital	Cumberland	150	78.6	7.54	43034	5706	39.85
Hoots Memorial Hospital	Yadkin	46	34.91	4.3	5861	1362	45.15
Humana Hospital-Greensboro	Guilford						
L.Richardson Memorial Hospital	Guilford	59	54.12	9.22	11654	1264	38.05
Lexington Memorial Hospital	Davidson	94	63.97	5.41	21947	4059	34.91
Lincoln County Hospital	Lincoln	68	60.07	4.55	14910	3275	24.27
Medical Park Hospital	Forsyth	109	51.22	4.45	20379	4583	30.81
Memorial Mission Hospital	Buncombe	362	83.54	6.37	110378	17321	26.8
Mercy Hospital	Mecklenburg	266	69.04	7.19	67035	9327	34.46
Moses H. Cone Memorial Hospital	Guilford	576	83.65	7.38	175869	23818	24.69
NC Baptist Hospitals	Forsyth	693	78.37	9.3	198235	21319	27.8
New Hanover Memorial Hospital	New Hanover	482	78.72	7.79	138486	17772	29.48
Northern Wake Hospital	Wake						
Onslow Memorial Hospital	Onslow	133	69.98	4.76	33974	7137	20.11
Raleigh Community Hospital	Wake	226	40.51	6.39	33413	5231	33
Randolph Hospital	Randolph	145	48.16	5.71	25488	4467	39.96
Rex Hospital	Wake	394	84.56	5.88	121600	20667	26.94
Rowan Memorial Hospital	Rowan	249	61.09	5.58	55520	9945	32.01
Southern Wake Hospital	Wake						
St. Joseph's Hospital	Buncombe	285	75.82	6.31	78869	12490	41.67

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table E.3. Utilization of North Carolina Urban Hospitals: 1989

Hospital Name	County	Staffed Beds	Occupancy Rate	Avg. Length of Stay	Days of Care	Total Discharges	Discharges ≥ 65 Years
Stokes-Reynolds Memorial Hospital	Stokes	53	53.4	8.28	10331	1247	47.23
The Presbyterian Hospital	Mecklenburg	589	86.65	6.45	186291	28880	25.2
UNC Hospitals	Orange	552	84.62	8.79	170489	19398	19.44
Union Memorial Hospital	Union	160	46.58	6.24	27205	4357	30.98
University Memorial Hospital	Mecklenburg	104	35.93	4.99	13638	2735	22.34
Valdese General Hospital	Burke	82	55.23	5.56	16531	2974	32.55
Wake County Hospital System	Wake	582	77.5	7.49	164634	21972	26.9
Wesley Long Community Hospital	Guilford	227	76.17	6.7	63107	9419	40.8
Western Wake Hospital	Wake						
MEAN: ALL URBAN HOSPITALS		279.6	74.2%	7.3	75712.2	10428.8	32.0
SD: ALL URBAN HOSPITALS		237.5	14.4	1.5	75311.0	9055.2	9.0

Table E.4. Trends in Utilization of North Carolina Urban Hospitals: 1980 through 1989

Hospital Name	County	Occupancy Δ80-85	Occupancy Δ85-89	Occupancy Δ80-89	Avg. Lgth. of Stay Δ80-85	Avg. Lgth. of Stay Δ85-89	Avg. Lgth. of Stay Δ80-89
Alamance County Hospital	Alamance	-24.8%	22.9%	-7.5%	-6.3%	5.3%	-1.3%
Alamance Memorial Hospital	Alamance	-32.2%	16.4%	-21.1%	-1.0%	7.4%	6.2%
Alexander County Hospital	Alexander	-27.6%	21.7%	-11.9%	-14.1%	60.2%	37.6%
Betsy Johnson Memorial Hospital	Harnett	-32.8%	46.4%	-1.7%	-18.2%	13.3%	-7.4%
Cabarrus Memorial Hospital	Cabarrus	-41.4%	28.7%	-24.6%	-16.5%	14.2%	-4.7%
Cape Fear Memorial Hospital	New Hanover	-34.9%	42.2%	-7.4%	-10.5%	-3.3%	-13.5%
Cape Fear Valley Medical Center	Cumberland	-12.1%	12.4%	-1.2%	2.8%	9.4%	12.5%
Catawba Memorial Hospital	Catawba	-23.6%	5.2%	-19.7%	-9.8%	-6.5%	-15.7%
Charlotte Memorial Hospital	Mecklenburg	-0.5%	7.2%	6.6%	-9.6%	11.8%	1.1%
Community General Hospital of Thoma	Davidson	-17.1%	-3.7%	-20.2%	-18.2%	-2.3%	-20.1%
Davie County Hospital	Davie	-21.9%	15.7%	-9.6%	-23.7%	5.6%	-19.4%
Duke University Hospital	Durham	-10.7%	7.0%	-4.5%	-13.8%	8.0%	-7.0%
Durham County General Hospital	Durham	-12.1%	12.1%	-1.5%	-15.7%	-6.1%	-20.9%
Eastern Wake Hospital	Wake	-55.2%			-19.2%		
Forsyth Memorial Hospital	Forsyth	-3.5%	0.7%	-2.8%	-9.7%	7.0%	-3.3%
Franklin Memorial Hospital	Franklin	-16.9%	-12.4%	-27.2%	-5.7%	5.8%	-0.3%
Frye Regional Medical Center	Catawba	-21.1%	1.5%	-19.9%	7.3%	-1.4%	5.9%
Gaston Memorial Hospital	Gaston	2.5%	-0.3%	2.2%	-15.2%	43.0%	21.3%
Good Hope Hospital	Harnett	-25.7%	-2.7%	-27.7%	-18.9%	63.7%	32.8%
Grace Hospital	Burke	-23.1%	-23.0%	-40.7%	-1.9%	-1.4%	-3.3%
High Point Regional Hospital	Guilford	-9.5%	5.4%	-4.7%	-7.4%	4.1%	-3.6%
Highsmith-Rainey Memorial Hospital	Cumberland	-1.3%	15.2%	13.7%	7.7%	4.0%	12.0%
Hoots Memorial Hospital	Yadkin	-37.8%	3.3%	-35.8%	-11.6%	-32.1%	-39.9%
Humana Hospital-Greensboro	Guilford	-42.4%			-3.4%		
L.Richardson Memorial Hospital	Guilford	-12.5%	-23.5%	-33.0%	-26.9%	12.4%	-17.8%
Lexington Memorial Hospital	Davidson	-1.1%	-2.5%	-3.6%	2.6%	-0.9%	1.7%
Lincoln County Hospital	Lincoln	-40.5%	28.2%	-23.7%	-27.7%	-8.8%	-34.1%
Medical Park Hospital	Forsyth	-18.9%	-7.7%	-25.1%	-4.6%	-2.0%	-6.5%
Memorial Mission Hospital	Buncombe	-2.8%	1.5%	-1.3%	-11.1%	2.1%	-9.3%
Mercy Hospital	Mecklenburg	-37.0%	41.8%	-10.7%	-14.5%	8.4%	-7.2%
Moses H. Cone Memorial Hospital	Guilford	4.7%	-3.5%	1.1%	-5.6%	-3.0%	-8.4%
NC Baptist Hospitals	Forsyth	0.0%	-3.1%	-3.1%	-3.2%	12.3%	8.8%
New Hanover Memorial Hospital	New Hanover	-7.6%	-1.4%	-8.9%	0.2%	18.6%	18.8%
Northern Wake Hospital	Wake	-42.9%			-23.6%		
Onslow Memorial Hospital	Onslow	-0.1%	-18.4%	-18.5%	7.7%	-20.5%	-14.4%
Raleigh Community Hospital	Wake	-21.8%	-39.4%	-52.6%	-14.6%	13.7%	-2.9%
Randolph Hospital	Randolph	-13.8%	-20.4%	-31.4%	0.7%	-3.4%	-2.7%
Rex Hospital	Wake	0.7%	4.4%	5.1%	-13.4%	-10.5%	-22.5%
Rowan Memorial Hospital	Rowan	-23.0%	5.7%	-18.6%	-4.1%	-10.7%	-14.4%
Southern Wake Hospital	Wake	-43.9%			10.3%		
St. Joseph's Hospital	Buncombe	-10.4%	-9.8%	-19.2%	-13.0%	-4.5%	-17.0%

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table E.4. Trends in Utilization of North Carolina Urban Hospitals: 1980 through 1989

Hospital Name	County	Occupancy Δ80-85	Occupancy Δ85-89	Occupancy Δ80-89	Avg. Lgth. of Stay Δ80-85	Avg. Lgth. of Stay Δ85-89	Avg. Lgth. of Stay Δ80-89
Stokes-Reynolds Memorial Hospital	Stokes	-46.5%	30.5%	-30.2%	-21.7%	36.6%	7.0%
The Presbyterian Hospital	Mecklenburg	-15.4%	13.9%	-3.7%	-16.4%	11.8%	-6.5%
UNC Hospitals	Orange	-11.1%	3.8%	-7.7%	-8.5%	3.5%	-5.3%
Union Memorial Hospital	Union	-41.0%	-6.0%	-44.5%	-17.8%	11.6%	-8.2%
University Memorial Hospital	Mecklenburg						
Valdese General Hospital	Burke	-44.7%	40.9%	-22.1%	-8.5%	-14.1%	-21.4%
Wake County Hospital System	Wake	-16.9%	-4.0%	4.7%	-9.0%	1.8%	-11.6%
Wesley Long Community Hospital	Guilford	-27.4%	32.9%	-3.5%	-10.9%	1.2%	-9.8%
Western Wake Hospital	Wake	-32.8%			0.3%		
MEAN: ALL URBAN HOSPITALS		-13.7%	7.3%	-7.5%	-8.7%	5.9%	-3.3%
SD: ALL URBAN HOSPITALS		0.2	0.2	0.1	0.1	0.2	0.2

Table E.4. cont': Trends in Utilization of North Carolina Urban Hospitals: 1980 through 1989

Hospital Name	County	Days of Care Δ80-85	Days of Care Δ85-89	Days of Care Δ80-89	Discharges Δ80-85	Discharges Δ85-89	Discharges Δ80-89	Disch. ≥ 65 Δ80-85	Disch. ≥ 65 Δ85-89	Disch. ≥ 65 Δ80-89
Alamance County Hospital	Alamance	-21.6%	0.3%	-21.3%	-16.2%	-4.7%	-20.2%	21.8%	17.3%	42.8%
Alamance Memorial Hospital	Alamance	-32.2%	16.4%	-21.1%	-31.5%	8.4%	-25.8%	-8.3%	49.6%	37.2%
Alexander County Hospital	Alexander	-27.6%	21.7%	-11.9%	-15.6%	-24.1%	-35.9%	26.6%	42.1%	80.0%
Betsy Johnson Memorial Hospital	Harnett	-32.8%	-3.7%	-35.3%	-17.9%	-15.0%	-30.2%	-11.0%	33.7%	18.9%
Cabarrus Memorial Hospital	Cabarrus	-39.0%	2.0%	-37.8%	-26.9%	-10.7%	-34.7%	15.8%	12.0%	29.7%
Cape Fear Memorial Hospital	New Hanover	-18.9%	-15.9%	-31.8%	-9.4%	-13.1%	-21.3%	20.1%	-7.2%	11.4%
Cape Fear Valley Medical Center	Cumberland	-11.4%	-3.1%	-14.2%	-13.9%	-11.4%	-23.7%	25.8%	-10.9%	12.1%
Catawba Memorial Hospital	Catawba	-14.0%	-17.5%	-29.0%	-4.6%	-11.8%	-15.8%	38.9%	3.7%	44.0%
Charlotte Memorial Hospital	Mecklenburg	-9.4%	16.3%	5.4%	0.2%	4.0%	4.3%	10.2%	-7.5%	1.9%
Community General Hospital of Thoma	Davidson	-30.5%	-11.2%	-38.3%	-15.0%	-9.0%	-22.7%	13.4%	20.8%	37.0%
Davie County Hospital	Davie	-31.3%	-19.3%	-44.6%	-9.9%	-23.7%	-31.2%	32.9%	30.7%	73.7%
Duke University Hospital	Durham	-3.6%	12.8%	8.7%	11.9%	4.5%	16.9%	16.8%	4.9%	22.5%
Durham County General Hospital	Durham	-12.5%	-8.4%	-19.9%	3.7%	-2.5%	1.1%	14.3%	-2.6%	11.4%
Eastern Wake Hospital	Wake	-55.1%			-44.5%			22.6%		
Forsyth Memorial Hospital	Forsyth	-7.4%	9.1%	1.1%	2.5%	2.0%	4.5%	20.7%	4.7%	26.4%
Franklin Memorial Hospital	Franklin	-41.0%	8.7%	-35.8%	-37.4%	2.8%	-35.6%	22.8%	12.2%	37.8%
Frye Regional Medical Center	Catawba	-5.5%	7.4%	1.5%	-11.9%	8.9%	-4.1%	24.9%	6.1%	32.6%
Gaston Memorial Hospital	Gaston	-19.1%	12.0%	-9.4%	-4.7%	-21.7%	-25.4%	17.7%	18.5%	39.5%
Good Hope Hospital	Harnett	-2.7%	-2.7%	-5.3%	19.9%	-40.6%	-28.7%	-12.2%	-20.4%	-30.1%
Grace Hospital	Burke	-23.1%	-23.0%	-40.7%	-21.6%	-21.8%	-38.7%	23.9%	4.7%	29.8%
High Point Regional Hospital	Guilford	-11.2%	1.4%	-10.0%	-4.1%	-2.5%	-6.5%	13.0%	19.7%	35.2%
Highsmith-Rainey Memorial Hospital	Cumberland	55.8%	15.2%	79.5%	44.7%	10.8%	60.3%	23.7%	13.1%	39.9%
Hoots Memorial Hospital	Yadkin	-37.8%	-34.0%	-59.0%	-29.8%	-2.9%	-31.8%	58.4%	1.8%	61.2%
Humana Hospital-Greensboro	Guilford	-40.6%			-38.5%			-6.1%		
L.Richardson Memorial Hospital	Guilford	-54.2%	-33.6%	-69.6%	-37.4%	-40.9%	-63.0%	28.3%	52.7%	95.8%
Lexington Memorial Hospital	Davidson	-1.1%	-2.5%	-3.6%	-3.7%	-1.5%	-5.1%	27.4%	24.1%	58.0%
Lincoln County Hospital	Lincoln	-33.9%	-20.7%	-47.6%	-8.5%	-13.2%	-20.6%	26.9%	-14.4%	8.7%
Medical Park Hospital	Forsyth	-18.9%	-26.1%	-40.0%	-15.0%	-24.4%	-35.8%	34.1%	42.8%	91.5%
Memorial Mission Hospital	Buncombe	0.0%	-6.2%	-6.2%	12.4%	-8.1%	3.3%	14.4%	-1.5%	12.6%
Mercy Hospital	Mecklenburg	-45.3%	1.7%	-44.4%	-36.1%	-6.2%	-40.0%	15.5%	12.1%	29.5%
Moses H. Cone Memorial Hospital	Guilford	10.2%	18.8%	30.8%	16.7%	22.4%	42.8%	13.9%	4.5%	19.0%
NC Baptist Hospitals	Forsyth	-4.5%	4.6%	-0.1%	-1.4%	-6.8%	-8.2%	9.4%	15.9%	26.9%
New Hanover Memorial Hospital	New Hanover	-18.2%	13.2%	-7.3%	-18.3%	-4.5%	-22.0%	30.9%	21.1%	58.6%
Northern Wake Hospital	Wake	-42.9%			-25.3%			17.7%		
Onslow Memorial Hospital	Onslow	-0.1%	-27.6%	-27.7%	-7.2%	-9.0%	-15.6%	23.6%	-6.9%	15.0%
Raleigh Community Hospital	Wake	-21.8%	-2.1%	-23.5%	-8.4%	-13.9%	-21.2%	32.4%	19.2%	57.7%
Randolph Hospital	Randolph	-13.8%	-20.4%	-31.4%	-14.3%	-17.5%	-29.4%	39.0%	13.6%	57.8%
Rex Hospital	Wake	0.7%	4.4%	5.1%	16.4%	16.6%	35.7%	9.4%	-3.9%	5.2%
Rowan Memorial Hospital	Rowan	-25.2%	-16.4%	-37.5%	-21.9%	-6.4%	-26.9%	32.9%	-3.0%	28.9%
Southern Wake Hospital	Wake	-21.5%			-28.8%			41.2%		
St. Joseph's Hospital	Buncombe	-10.4%	-9.2%	-18.6%	3.0%	-4.8%	-2.0%	23.5%	9.9%	35.7%
Stokes-Reynolds Memorial Hospital	Stokes	-46.5%	15.3%	-38.3%	-31.7%	-15.6%	-42.4%	19.8%	0.0%	19.8%
The Presbyterian Hospital	Mecklenburg	-19.4%	28.1%	3.2%	-3.7%	14.5%	10.3%	15.4%	5.5%	21.7%
UNC Hospitals	Orange	-5.9%	-0.6%	-6.4%	2.8%	-3.9%	-1.2%	7.4%	0.4%	7.9%
Union Memorial Hospital	Union	-17.1%	-6.0%	-22.1%	0.9%	-15.9%	-15.1%	9.5%	11.2%	21.8%

Data: N.C. Center for Health and Environmental Statistics, DEHNR; Prepared by the N.C. Rural Health Research Program, Sheps Center, UNC-CH

Table E.4 cont': Trends in Utilization of North Carolina Urban Hospitals: 1980 through 1989

Hospital Name	County	Days of Care Δ80-85	Days of Care Δ85-89	Days of Care Δ80-89	Discharges Δ80-85	Discharges Δ85-89	Discharges Δ80-89	Disch. ≥ 65 Δ80-85	Disch. ≥ 65 Δ85-89	Disch. ≥ 65 Δ80-89
Albemarle Hospital	Pasquotank	-27.0%	5.7%	-22.8%	-18.9%	-6.8%	-24.4%	16.1%	15.2%	33.8%
Beaufort County Hospital Association	Beaufort	-44.7%	-2.6%	-46.1%	-40.6%	5.1%	-37.5%	39.3%	5.8%	47.5%
Carteret County General Hospital	Carteret	-11.4%	1.8%	-9.7%	-8.2%	3.6%	-4.9%	28.9%	12.1%	44.4%
Central Carolina Hospital	Lee	-25.1%	18.2%	-11.5%	4.9%	8.5%	13.8%	18.4%	9.1%	29.2%
Cleveland Memorial Hospital	Cleveland	-23.4%	-8.7%	-30.1%	-18.5%	-27.1%	-40.6%	16.2%	27.6%	48.2%
Columbus County Hospital	Columbus	-12.7%	-14.2%	-25.1%	-1.6%	-18.9%	-20.2%	2.9%	18.2%	21.7%
Craven County Hospital	Craven	-22.2%	22.5%	-4.7%	-12.4%	2.0%	-10.7%	13.8%	18.9%	35.3%
Davis Community Hospital	Iredell	-23.2%	-22.2%	-40.3%	-26.2%	-17.8%	-39.3%	-0.5%	-14.4%	-14.8%
Halifax Memorial Hospital	Halifax	-15.1%	9.1%	-7.3%	-10.2%	-2.6%	-12.6%	0.6%	15.9%	16.6%
Haywood County Hospital	Haywood	-10.7%	-14.0%	-23.2%	0.4%	-20.5%	-20.1%	28.5%	17.6%	51.0%
Heritage Hospital	Edgecombe	-19.4%	1.7%	-18.0%	-2.5%	-9.5%	-11.8%	2.2%	6.4%	8.7%
Iredell Memorial Hospital	Iredell	-20.2%	20.6%	-3.8%	-8.8%	0.0%	-8.8%	22.3%	10.0%	34.5%
Johnston Memorial Hospital	Johnston	-37.6%	7.1%	-33.1%	-27.5%	2.3%	-25.8%	26.6%	23.5%	56.4%
Lake Norman Regional Medical Center	Iredell	-54.6%	3.8%	-52.9%	-51.4%	33.6%	-35.1%	44.3%	3.0%	48.7%
Lenoir Memorial Hospital	Lenoir	-21.6%	-8.5%	-28.3%	-12.2%	-15.4%	-25.6%	30.5%	15.4%	50.6%
Margaret R. Pardee Memorial Hospital	Henderson	-31.6%	-11.7%	-39.6%	-19.4%	-13.0%	-29.9%	18.4%	15.3%	36.6%
Moore Regional Hospital	Moore	-9.2%	12.0%	1.7%	-5.9%	0.5%	-5.5%	17.7%	15.7%	36.2%
Nash General Hospital	Nash	-10.8%	0.5%	-10.3%	-0.7%	-5.2%	-5.9%	13.0%	9.3%	23.5%
Northern Hospital of Surry County	Surry	-21.5%	-3.0%	-23.9%	3.8%	-4.2%	-0.6%	17.8%	4.0%	22.5%
Park Ridge Hospital	Henderson	-52.2%	100.8%	-4.0%	-38.1%	4.5%	-35.3%	39.4%	-6.3%	30.6%
Pitt County Memorial Hospital	Pitt	18.5%	13.0%	34.0%	22.6%	4.3%	28.0%	12.7%	8.7%	22.5%
Roanoke-Chowan Hospital	Hertford	-39.5%	9.2%	-34.0%	-23.0%	-8.2%	-29.3%	10.7%	14.5%	26.7%
Rutherford Hospital	Rutherford	-23.3%	-18.4%	-37.5%	-5.2%	-21.7%	-25.8%	18.8%	-3.3%	14.9%
Sampson County Memorial Hospital	Sampson	-36.8%	-0.3%	-37.0%	-24.0%	-12.8%	-33.7%	25.5%	17.1%	46.9%
Scotland Memorial Hospital	Scotland	-21.8%	-0.8%	-22.4%	-19.0%	1.8%	-17.6%	-2.2%	1.9%	-0.4%
Southeastern General Hospital	Robeson	-10.1%	3.9%	-6.6%	-9.4%	-8.9%	-17.5%	14.6%	15.5%	32.4%
Stanly Memorial Hospital	Stanly	-31.5%	17.8%	-19.3%	-18.0%	11.0%	-9.0%	31.1%	4.5%	37.1%
Watauga County Hospital	Watauga	-8.7%	7.7%	-1.7%	-8.0%	11.4%	2.4%	32.8%	3.7%	37.7%
Wayne Memorial Hospital	Wayne	-24.9%	7.2%	-19.5%	-13.3%	-7.4%	-19.7%	22.3%	2.9%	25.9%
Wilkes General Hospital	Wilkes	-10.8%	1.0%	-10.0%	-8.2%	-0.8%	-8.9%	37.9%	13.1%	55.9%
Wilson Memorial Hospital	Wilson	-36.6%	-1.0%	-37.3%	-25.4%	-17.2%	-38.2%	26.7%	8.8%	37.9%
MEAN: LARGE RURAL (≥ 100 beds)		-20.3%	3.8%	-17.2%	-11.9%	-6.0%	-17.1%	20.3%	9.7%	32.0%
SD: LARGE RURAL (≥ 100 beds)		0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2

Technical Notes

The data for this analysis come from the Center for Health & Environmental Statistics' Health Facilities Data Books for the years 1980, 1985, and 1989. The two versions consulted were the Hospital Summary Report and the Patient Origin Report (Raleigh: Division of Statistics and Information Services, N.C. Department of Environment, Health and Natural Resources). These reports compile the self-reported data on the hospital license renewal applications which are submitted annually; the data cover the period October 1 through September 30. In some instances, multiple hospitals under the same ownership (ie. Blue Ridge Hospital System) aggregate the data from the different sites for reporting purposes; this leads to a slight underestimation of the number of North Carolina hospitals. Two hospitals which are currently closed—Blackwelder Memorial Hospital (Lenoir) and Robersonville Community Hospital (Martin)—were included in the calculation of the 1980 and 1985 averages and percent changes between those years. Three other hospitals which closed subsequent to 1980—Warren County General Hospital, Gordon Crowell Hospital, and Huntersville Hospital—were excluded from the analysis. University Memorial Hospital (Mecklenberg) only reported partial statistics for 1985, so only its 1989 data are used.

For this report, the hospitals were grouped according to rurality and bed size. Rurality is synonymous to nonmetropolitan, e.g., any county that is not part of a U.S. Office of Management and Budget Metropolitan Statistical Area, or MSA. An MSA is defined as an integrated area with a central city of 50,000 or greater within an urbanized area of 100,000 or greater. Two of North Carolina's nonmetropolitan hospitals are not classified as rural—Betsy Johnson Memorial and Good Hope Hospital in Harnett County—because of their adjacency to a metropolitan area; only the 73 hospitals designated by the Health Care Financing Administration (HCFA)¹⁹ as rural are considered in this analysis. Size is defined by the number of staffed beds, as opposed to the number of licensed beds, with "small" defined as fewer than 50 beds, "midsized" defined as between 50 and 99 beds, inclusive, and "large" defined as 100 or more beds. Because this report was compiled by the North Carolina Rural Health Research Program, the rural hospitals are the focus; thus, only the rural hospitals were classified according to size.

¹⁹N.C. Hospital Association. (1989). *Report on North Carolina's Rural Hospitals and Medicare Reimbursement* Raleigh: NCHA.

To calculate the averages for the hospital group by size and rurality, two methods were employed. The average number of beds in use, discharges, days of care, percent discharges of people 65 years or older, and percent of total county discharges were calculated as follows:

$$\text{Average Group Measure} = \frac{\sum^n (\text{Individual measure})}{(\text{number of hospitals in the group})}.$$

A second method was used for the occupancy rate and the average length of stay, since those two measures can be calculated using the other measures for the group, as follows:

$$\begin{aligned}\text{Average Group Occupancy Rate} &= \frac{\sum^n (\text{Days of Care})}{\sum^n (\text{Days of Care}) + [\sum^n (\text{Staffed Beds}) \times 365]} \\ \text{Average Group Length of Stay} &= \frac{\sum^n (\text{Days of Care})}{\sum^n (\text{Days of Care}) + \sum^n (\text{Discharges})}.\end{aligned}$$

To calculate the percent change for the different time periods, the following formula was used:

$$\text{Average Group Percent Change} = \frac{(\text{Avg. Group measure})_{t2} - (\text{Avg. Group measure})_{t1}}{(\text{Avg. Group measure})_{t1}}$$

where t1 is the earlier time point and t2 is the later time point

The average changes were calculated using the two digits after the decimal point and displayed using only one digit after the decimal point. Thus, there are slight discrepancies in the percent change in the tables and those that can be calculated using the displayed yearly averages on the one-page summaries of the indicators.

The standard deviation is a measure of the dispersion of the values in the group relative to the group's mean. It is calculated by taking the average of the squared deviations from the group mean, as follows:

$$\text{Standard Deviation} = (\sum (\text{group mean} - \text{individual value})^2 / n)^{1/2}$$