

9

Medical Care In Greene County

L:51,Y2-31.7321
H8
37595

L:51,Y2-31.7321
H8
037595



8-3-51

November, 1948

Bul. No. 363

Agricultural Experiment Station

North Carolina State College

Raleigh, N. C.

J. H. Hilton, Director

Bulletins of this station will be sent free to all citizens who request them.

Contents

	Page
Summary	4
Introduction	5
This is Greene County	7
Medical Services In Greene County, 1945	9
Use of Medical Facilities and Personnel	11
Hospitals—Who Used Them?	11
How Far Did They Travel?	13
How Long Did They Stay?	14
Why Were They Hospitalized?	15
How Much Did It Cost?	16
How Did They Pay?	17
Did They Have Hospital Insurance?	18
A Hospital In Greene County?	18
Doctors—An Urgent Need	20
Distance	20
Number of Calls	21
Cost of Physician Care	22
Additional Doctors Needed	23
Unmet Medical Care Needs	24
Indirect Measures of Inadequate Care	24
Symptoms Analysis—A Direct Measure	24
A Pattern Of Medical Care	27
Appendix A: The Sample	30
Appendix B: Supplementary Tables	31

Summary

1. Greene is one of twenty-six counties in North Carolina without hospital facilities.
2. In 1945 there were five doctors in the county to serve 18,548 people. This means 3,710 people per doctor as compared with approximately 800 per doctor for the United States as a whole.
3. Other medical care personnel consisted of one dentist, one pharmacist, two nurses, and five midwives. Public health personnel consisted of the health officer that served in the county two days per week, one nurse and a sanitarian.
4. One out of five (21.8 per cent) Greene County families received hospital care during the year as compared with approximately one out of every two families in the United States.
5. One out of every 21 individuals received hospital care as compared with one out of about ten in the United States.
6. The people of Greene County used hospitals at the rate of .53 days per capita per year as compared with .91 days for the United States as a whole.
7. White people received more hospital care than Negro people; females received more than males; non-agricultural people received more than agricultural people; and, members of farm owner families received more hospital care than members of farm tenant families.
8. More than half (56.7 per cent) of the hospitalized persons received surgical care.
9. Three per cent of the families carried health, hospital or accident insurance.
10. The amount of general practitioner care received per person decreased as the size of family increased.
11. Greene County had five doctors, but it needs eighteen on the basis of one effective physician per 1,000 people.
12. About half (48.4 per cent) of the Greene County people had medical care needs that were not being met.
13. About nine out of ten (87.2 per cent) of the family heads interviewed stated that they favored the principle of receiving medical care according to need and paying in proportion to ability.

Medical Care In Greene County

Selz C. Mayo*
and
Kie Sebastian Fullerton

Introduction

A man's health is his strength, his endurance, and his vitality. This is as true of the people in Greene County, North Carolina, as it is of the State or the Nation.

Two of the important things that determine the health of a people are the amount and kind of medical services that are available. Medical services include such things as doctors, nurses, hospitals, dentists, clinics, and pharmacists.

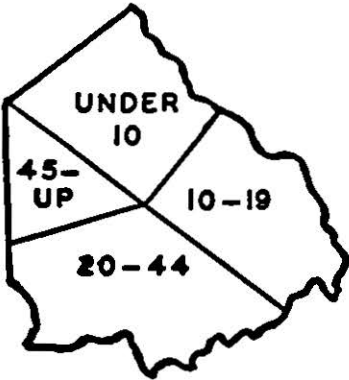
It is difficult to measure the quality of service received. For quality medical care the people must rely on the training schools and other institutions.

The amount of specific types of medical services needed can be estimated fairly accurately. On the basis of certain assumptions it is possible to determine the number of doctors, dentists, public health workers, and other technicians needed to serve a people. By comparing the birth and death rates and keeping track of the average number of sick people, it is possible to estimate the number of hospital beds needed.

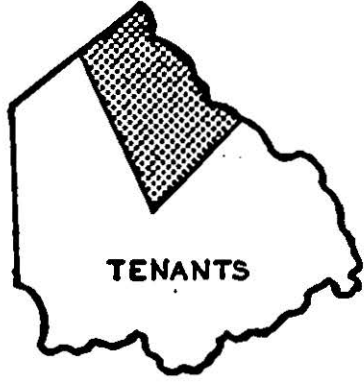
This bulletin reports the findings of a study in Greene County which was designed to determine: (1) the type and extent of medical personnel and facilities available to the people; (2) the extent to which the people use these facilities; and (3) the extent to which Greene County people are going without the medical attention they need.

* Associate Professor of Rural Sociology.

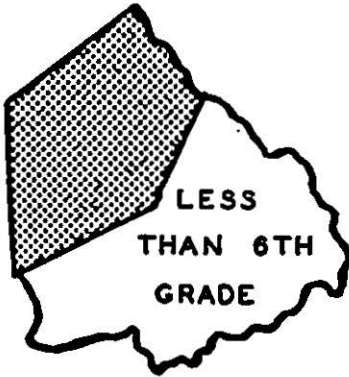
** Research Assistant in Rural Sociology.



AGE



FARM OPERATORS



EDUCATION



TENANT HOUSES



EMPLOYMENT



ELECTRICITY

This Is Greene County

Greene County is located in the central coastal plain of North Carolina. The main farming enterprises of this area are flue-cured tobacco, corn, and hogs. Tobacco accounted for 96 per cent of the value of all crops sold in Greene County during 1944. Almost all farms (94.6 per cent) produce tobacco.

In 1940 the population of Greene County was 18,548. Wartime estimates showed a drop to 16,140 in November, 1943. The return of servicemen and defense workers since the war has perhaps brought the population back to about the 1940 level.

There are only four incorporated centers. The largest of these, Snow Hill, the county seat, had only 928 people in 1940. Most of the people live on farms — 88.9 per cent.

In 1940, 43.6 per cent of the population was Negro, much higher than the State average of 27.5 per cent. The number of Negroes, however, is not out of line with the number in nearby counties.

As expected in an agricultural area, males outnumber females in both the farm and nonfarm populations. The ratio in 1940 was 102.1 men for every 100 women.

More than one-fourth of the population is under ten years of age and another one-fourth is between ten and twenty years of age. Persons sixty-five years of age and over make up only 3.4 per cent of the total. In 1940, 47.9 percent of the total population was of voting age.

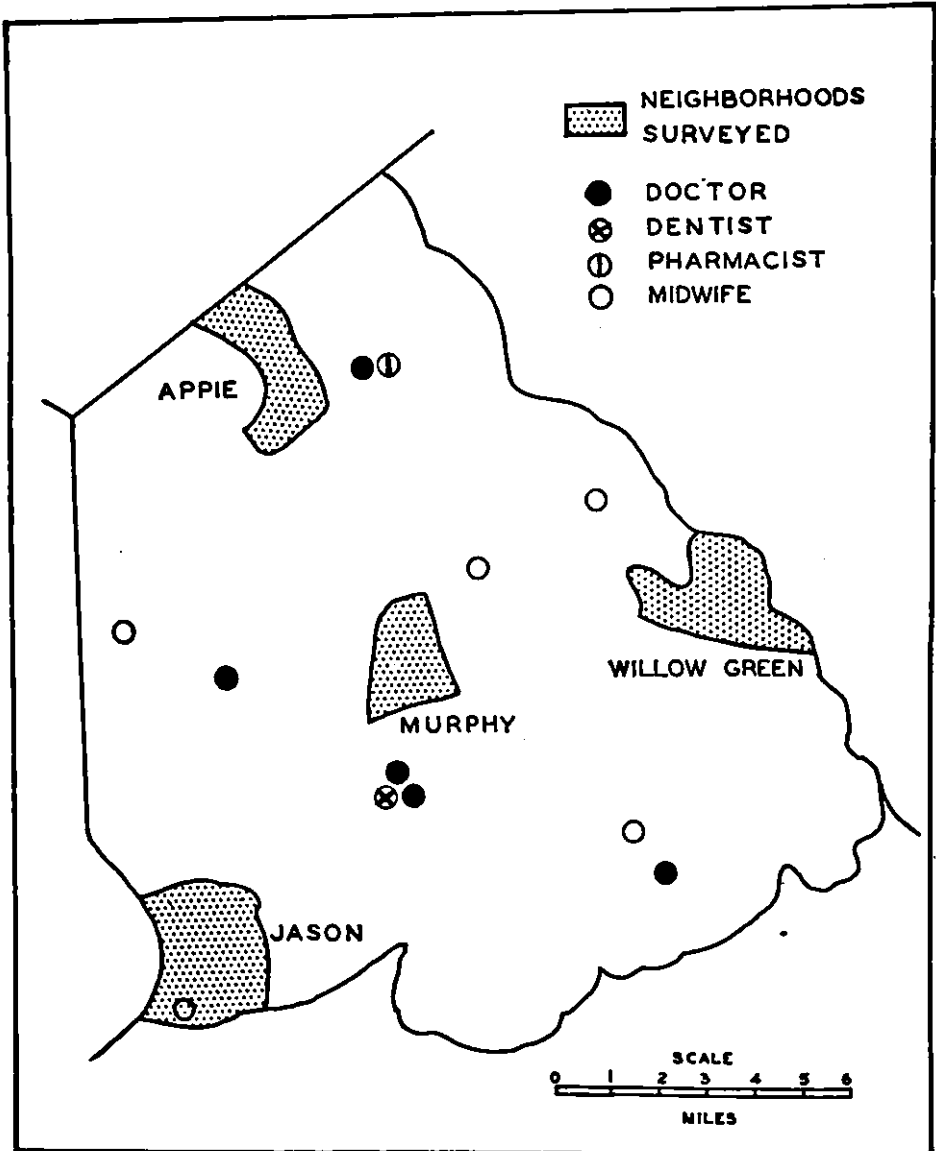
There were 5,302 employed persons in Greene County in 1940 and 85.2 per cent were engaged in agriculture. Most—94.6 per cent—of the farm residents were employed in agriculture. Of the nonfarm residents 16.6 per cent were engaged in agriculture.

Of the 2,937 farm operators in the county in 1945, 58.7 per cent were sharecroppers. Only 18 per cent of the operators were full owners. Among white operators sharecroppers were on 45.9 per cent of the farms and only 28 per cent were full owners. Three out of four (75.1 per cent) Negro operators were sharecroppers. Only 5.1 per cent of all Negro farm operators were full owners.

In 1940, 54.2 per cent of the owner-occupied farm houses were valued at less than \$1,000. At the same time, 49.3 per cent of the tenant-occupied farm houses were worth less than \$500. Owner-occupied rural-farm dwellings had an average value of \$935 and the corresponding figure for tenant-occupied was \$454.

In 1945, 6.3 per cent of the farms had running water and 51.2 per

cent had electricity. Many houses were in a poor state of repair. In 1940, 36.5 per cent were reported as needing major repairs. Less than 1 per cent of the farms had telephones in 1945. Radios were available to 54 per cent of the farm families, and 58.4 per cent had automobiles.



This chart shows the location of the neighborhoods that were surveyed. It also indicates the location of the doctors and other medical care personnel in Greene County (1945).

In 1940, 39.3 per cent of persons twenty-five years of age and over had completed more than six grades in school. The corresponding level for the State was 54.2. The average male adult had completed 5.4 years of school, the average female 6.6. The educational level of the farm population was lower than the nonfarm—5.7 and 10 years, respectively.

Data for 1939 show that the average farm worker in Greene County earned \$770 net income as compared with a State average of \$513. On the basis of cash net income per farm worker, Greene ranked second among the one hundred counties.

Medical Services In Greene County, 1945

Hospitals. Though there are no hospitals in Greene County, there are nine in the five adjoining or nearby counties. These hospitals have a total bed capacity of 491. Of these, 356 are for white and 135 for Negro patients.

Doctors. There were five (all white) practicing doctors in Greene County. Hence, there were 3,710 people per doctor, as compared with 800 people per doctor for the United States as a whole.

Dentist. There was one white dentist in the county, located at the county seat. He drew patients from all parts of the county and from both races. He had no regular rural route, but he made out-of-office calls in emergencies.

Nurses. Seven registered nurses (all white) lived in the county, but only two were employed in their profession. One was the public health nurse and the other was employed as an office nurse for one of the doctors. The other five were married and devoting full time to homemaking.

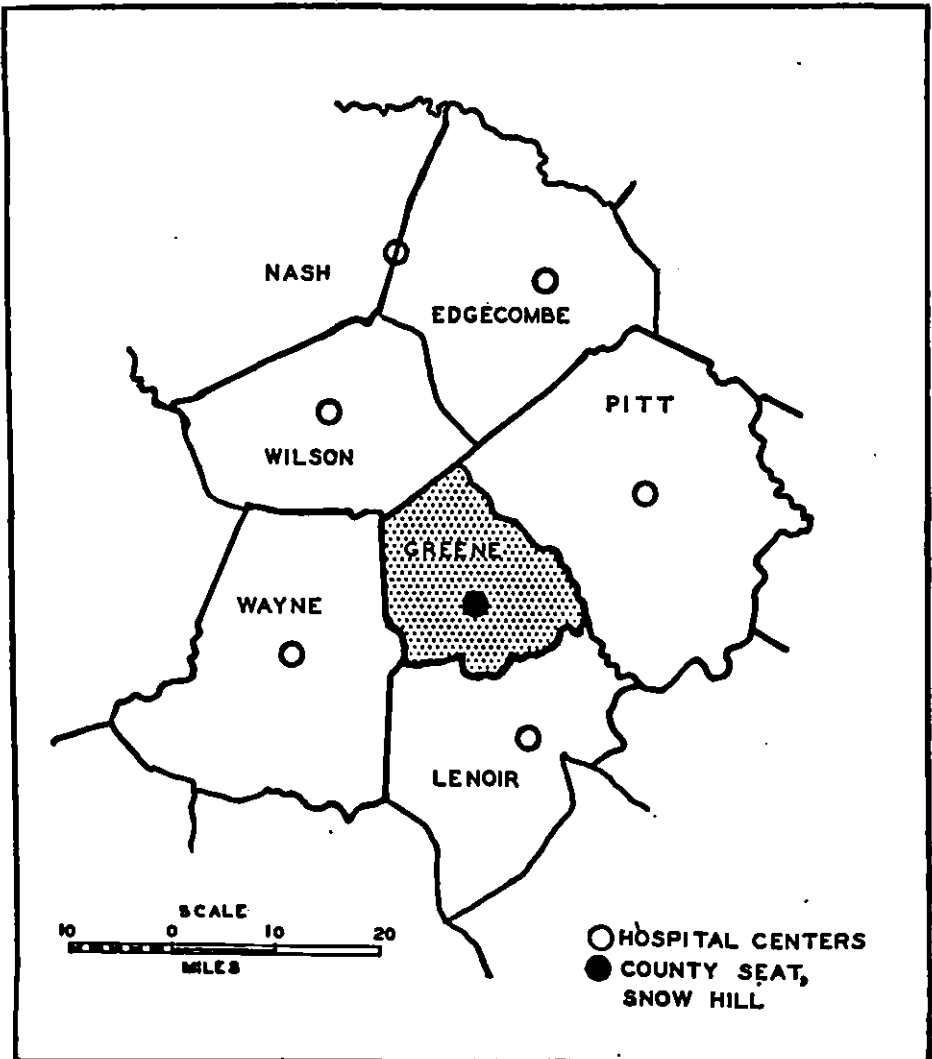
Pharmacist. The one pharmacist operated a small-town drug store in the northern part of the county. It is difficult to appraise his contribution to the health of the people since the doctors dispensed their own drugs.

Midwives. In 1945, Greene County had five licensed midwives, all Negro women ranging in age from 58 to 67 years. Years of practice in midwifery ranged from 13 to 39. In 1937, the year the Public Health Department was organized, there were 19 midwives, indicating that this practice is on the decline.

The five midwives reported that during 1945 they delivered 104 babies, the number delivered by each ranging from 4 to 39. One hundred and one of these deliveries were Negro women and three

were white. The midwives charged \$10 for the delivery, plus an additional charge varying according to length of stay after the birth.

Public Health Personnel. Greene County's Health Officer, who is shared with an adjoining county, spends only two days per week in Greene. One public health nurse serves the entire county. A sanitarian was employed in February, 1946. The only other employee is a clerk who has been with the Department since it opened in 1937.



Greene County had no hospital of its own, but there were five in adjoining or nearby counties (1945).

Use of Medical Facilities and Personnel

Do rural people know their health needs? How much do they use the existing medical services? Do they know how to organize to get the additional services they need? And finally, can they pay for the additional facilities?

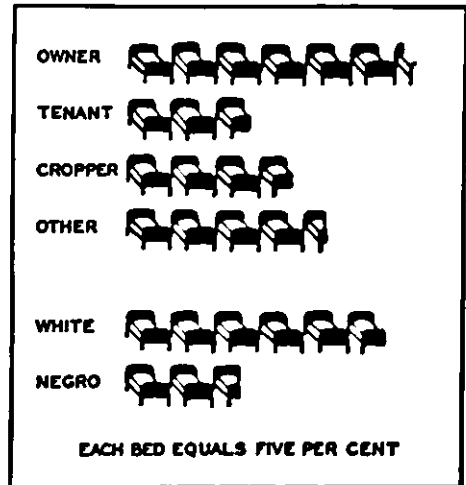
The Greene County study was set up to answer these questions. Four neighborhoods were selected to represent the county. A critical examination concerning the representativeness of the sample areas appears in the Appendix. Every family in each area was included in the survey.

Two well-trained interviewers visited the families and got the information through personal interview with the family head (female head in most cases). The sample thus taken includes 266 families containing 1,394 individuals.

Hospitals: Who Used Them?

Families. Normally, in one out of every two families, one or more members will need hospital care during a year. Since Greene County families are larger (5.24 in the 266 sample families) than the average of the Nation, one might expect the proportion needing hospital care to be more than one-half. The relatively young population in the county counterbalances this factor somewhat.

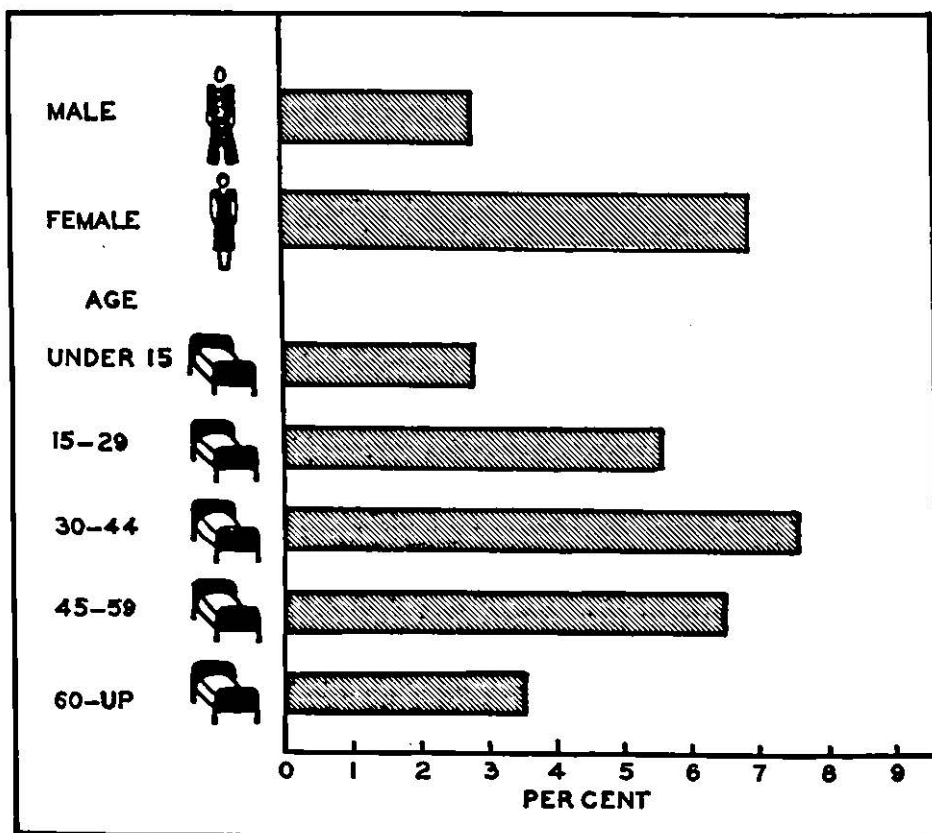
In 1945, only 21.8 per cent of the families had one or more members hospitalized. White families were hospitalized (one or more members of the family received hospital care during the period) at more than twice the rate of Negro families. This is true despite the fact that Negro families average more than one person larger than white families. Only 13.5 per cent of the Negro families received hospital care as compared with 29.3 per cent of the white families.



Both tenure and race have a lot to do with how much Greene County families used hospital facilities.

Farm owner families received more hospital care than other tenure groups. Farm owner families were hospitalized one and a half times more often than tenant families. White families in all tenure classes received more hospital care than any Negro class. Almost one-third (32.2 per cent) of the white farm owner families had some member hospitalized during 1945. Greene County people received less than half as much hospital care as normally expected. Inasmuch as the survey was conducted during a prosperous year for agriculture (1945), these data are even more significant.

Individuals. One out of every nine or ten individuals receive hospital care each year in the United States as a whole. In Greene County, only one out of every twenty-one individuals received hospital care during 1945. One out of every fourteen white persons had hospital care as compared with only one out of every thirty-six Negroes. One out of every eleven persons in farm owner families



Women received more hospital care than men; the age group 30 to 45, more than other age groups.

was a hospital patient during the year, a much higher proportion than for other tenure classes.

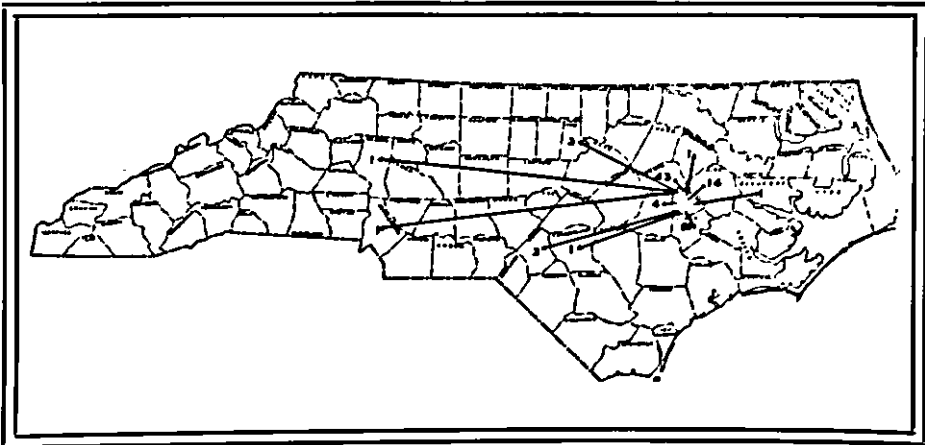
Females predominated in the hospitalized population. Seven out of every ten persons who received hospital care were females. The proportion female was the same for both white and Negroes—70.2 per cent and 70 per cent, respectively. The greatest sex difference exists in the age class 15-29, where 90 per cent were females.

The age group 30-44 was hospitalized to a much greater extent than other groups. As expected, the youngest group received the least hospital care. Unexpectedly, the oldest persons did not receive hospital care in as high proportion as some other ages. White females in the age group 15-44 were hospitalized at the highest rate. For this group, one out of every seven received hospital care. This is expected since these ages cover the childbearing period.

How Far Did They Travel?

Distance is one of the important things which determine how much a population will use hospital service. Rural people pay the added price of transportation in getting to hospitals. Differences in the distance Greene County families must travel to the nearest hospital are not great.

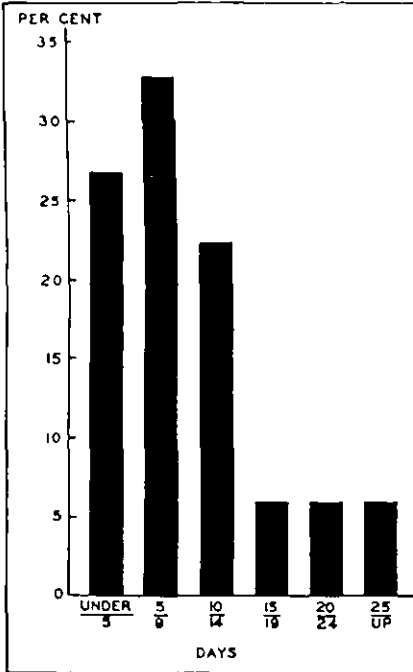
About one-fifth (22.9 per cent) of the sample families stated they lived ten to fifteen miles from a hospital. None of the families lived nearer than ten miles. More than half (57.8 per cent) of the families



There is no hospital in Greene County. This map shows where the people go for hospital care. Eighty-one of the 153 hospitalized births, deaths and stillbirths among Greene County residents in 1946 occurred in neighboring Lenoir County. Forty-three or 28.1 per cent occurred in Wilson County. The remaining cases were scattered over a wide area.

lived fifteen to twenty miles from a hospital, and for 18.8 per cent the nearest hospital was twenty to twenty-five miles away. The remaining 1.5% were more than twenty-five miles from a hospital.

How Long Did They Stay?



This chart shows that most of the people from Greene County who received hospitalization in 1945 remained at the hospital 14 days or less. Each bar represents that part of the total hospitalized persons remaining for the indicated length of stay.

Many authorities agree that the per capita needs for general hospital care are about 1.5 days per year. In 1944, the Nation as a whole actually used about one day per capita (.91). North Carolinians used about two-thirds of a day (.68) in the same year. Montana used more hospitalization than any other state — 1.51 days per capita. Mississippi was at the other end of the scale, the population in that state using .38 days per capita.

In 1945, the people of Greene County used hospitals at the rate of about one-half day per capita (.53). The white population received more than double (.76 days) that used by the Negro population (.32 days). Greene County females received .69 days of hospital care as compared with .37 days for males. White females received .90 days of hospitalization; white males, .62 days. Negro females received .50 days of care as

compared with only .16 days for Negro males.

Members of nonfarm households received 1.61 days of care and farm owner families received 1.03 days of care. Tenant and sharecropper families received .21 and .37 days, respectively. It appears that the medical needs of this latter group simply go unfilled, or are met only in dire emergencies.

The average patient at the hospital remained 11 days. On the average, Negroes stayed one day longer than white patients. This

suggests that their illnesses became more acute before hospitalization.

A distribution of persons hospitalized by number of days shows wide variation. More than a fourth (26.9 per cent) remained in the hospital less than five days. An additional third (32.8 per cent) stayed from five to nine days. Four persons (6.0 per cent) remained in the hospital for twenty-five or more days, and one white male stayed for more than one hundred days.

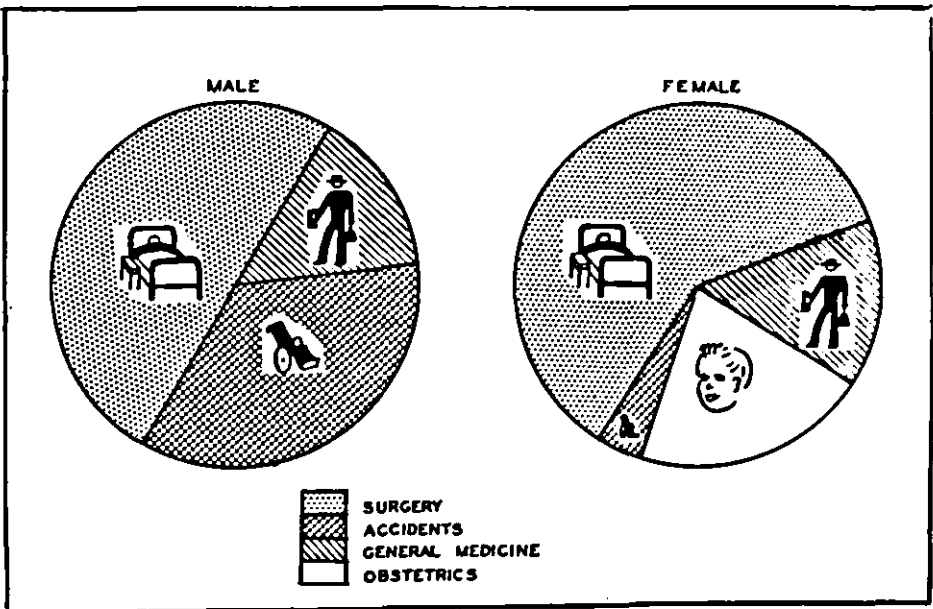
Table 1. Average Number of Days Hospitalized by Race and Sex, Greene County, North Carolina, 1945.

Sex	Total	White	Negro
Total	11.0	10.7	11.7
Male	13.3	14.5*	10.3
Female	10.0	9.1	12.3

* About one-half of the total days used by one person.

Why Were They Hospitalized?

The causes of hospitalization point the way in planning new or additional facilities and in figuring costs. More than half (56.7 per



Surgery was the reason most often given for hospitalization by both male and female patients.

cent) of the persons hospitalized from Greene County received surgical care. General medicine was the reason given for 14.9 per cent of the patients, and 14.9 per cent were obstetrical cases. Accidents accounted for the remaining 13.4 per cent.

Surgery was a more important cause of hospitalization among females than males, both white and Negro. Three-fourths (75.7 per cent) of the females entered hospitals for surgery (obstetrical cases omitted), whereas this reason was given by only half of the male patients. Accidents as a cause of hospitalization was very important for males (35 per cent) but was of minor significance for females (4.3 per cent). There was little difference between the proportion of white and Negro males hospitalized because of accidents.

A larger proportion of Negro infants were born outside a hospital than white. However, of Negro females hospitalized, 21.4 per cent were there for obstetrics, the same proportion as for white females.

How Much Did It Cost?

The average Greene County family receiving hospitalization got a bill amounting to \$167. This included everything except doctor's care before going to the hospital and after returning home. The average bill for white families was \$170 and that for Negro families was \$160. However, public agencies as well as charities and philanthropic organizations paid all or a part of many of these bills.

The average bill for each individual hospitalized was \$143. Though Negro patients stayed in the hospital longer than white patients, their average bill per patient was lower. The somewhat cheaper facilities available to Negroes perhaps accounts for this.

The hospital and surgical bill incurred by males was lower than for females. The average cost per hospitalized white male was \$137 as compared with \$150 for white females. The corresponding charge for Negro males was \$127 and \$138 for Negro females.

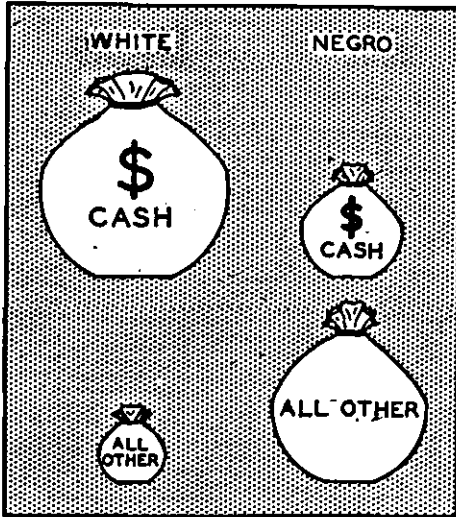
The average annual cost for hospital and surgical care per family in Greene County was \$33.21.

Nearly one-fifth (19 per cent) of the bills incurred by Greene County residents were for less than \$50, and 41.3 per cent were under \$100. On the other hand, 12.7 per cent of the bills were for \$250 or more.

A larger proportion of the males incurred bills for \$250 or more than females, but the bills for females were highly concentrated in the \$150-\$200 class. This is accounted for, in part, by the obstetrics

cases that fell in this class. A higher proportion of the bills for white patients were in the high class—\$250 or over—than the bills for Negroes; but, bills for Negroes were twice as heavily concentrated in the \$150-\$200 class as whites.

How Did They Pay?



A much larger proportion of the white patients paid their bills in cash than did negro patients.

Less than two-thirds (62.7 per cent) of the patients or their families had sufficient cash on hand with which to pay their hospital and surgical bills even in a year as prosperous as 1945. A much larger proportion of the white patients, 72.3 per cent, paid their bills in cash than the Negro patients, and only 40 per cent of these paid cash.

Various methods were used by patients or their families to settle hospital and surgical bills. Many families either could not or did not care to settle their bills by credit, but chose instead to borrow the money and be indebted to a third person or agency. This

Table 2. Methods Used by Patients or Their Families to Pay Hospital and Surgical Bills, by Race, Greene County, North Carolina, 1945.

Method of payment	Total	White	Negro
Total	67	47	20
Cash	42	34	8
Charity	3	2	1
Credit	2	0	2
Cash borrowed	10	6	4
Cash borrowed and credit	4	1	3
Cash and credit	3	2	1
Cash and charity	2	1	1
Other	1	1	0

perhaps is a reflection of the annual "furnish" system existing between landlords and sharecroppers.

The bills incurred by those patients who paid in cash were larger than those of patients who settled by other methods. The bills incurred by white patients averaged \$134 if cash payment was made, but the bills settled by other methods averaged \$206. The bills paid in cash by Negro patients averaged \$111 as compared with \$151 for those settled by other means.

Did They Have Hospital Insurance?

Only 3 per cent of the families carried any type of health, hospital or accident insurance. Five of the eight carried such insurance as a result of being low income families and got the insurance at reduced cost through a governmental agency. Of interest, too, is the fact that none of these five families received hospital care during 1945.

The families of Greene County were asked why they did not carry hospital insurance. Nearly three-fourths (73.3 per cent) stated that they had no knowledge concerning hospital insurance.

The second most important reason given for not having hospital insurance was that the families felt that they could not pay the premiums. This reason was given by 15.7 per cent of the white and 20.2 per cent of the Negro families.

A Hospital In Greene County?

A well organized hospital, staffed with competent personnel, is a source of pride to any community. There are methods for determining the need for constructing a hospital in any community. The following recounts some significant problems Greene County citizens must face before reaching a final decision.

Assume, first, that there is to be a hospital located in Greene County, either in the county seat or at the geographical center of the county. Then the question arises, "What are the community limits on how many people would be included in the hospital area?" At the time of this survey, the county line was practically the half-way mark between existing hospital facilities and the county seat or center of the county. Therefore, the 18,548 people (1940) in Greene County may be considered as the community to be served by any hospital constructed.

Since Greene County has a low crude death rate, its hospitalization needs can be met by 2.8 occupied hospital beds per 1,000 population. On the basis of the present population, 52 occupied beds

would be the total needed. Assuming these are in one hospital, 81 beds would have to be made available.¹

On the other hand, the population is not now receiving this much hospital care. On the basis of present usage, only 27 beds would be occupied, requiring a hospital of 48 beds. It might be assumed that the people would increase their use of hospitals if the facilities were nearer to their homes. But this is doubtful unless some form of hospital insurance is adopted by large segments of the population.

It should be remembered that such a hospital would not furnish hospital care for all the patients in the area. Many cases would go to hospitals with special equipment and to teaching hospitals. At least 40 per cent of the hospitalization would be cared for outside the area. Thus, on the basis of present consumption, 16 occupied beds would be needed, or a 32-bed hospital. Most authorities do not recommend building hospitals this small.

What are the initial costs involved? Assume that the initial construction cost is \$10,000 per bed. A 32-bed hospital would cost \$320,000. Equipment and furnishings would cost an additional 15 or 20 per cent of the construction costs.²

Assume further that the North Carolina Medical Care Commission approved the construction of a hospital for Greene County. The project would then be eligible for State and Federal funds, but the county would still have to raise 29.2 per cent of the initial cost. On this basis, the county would have to raise \$236,520 for a hospital with 81 beds; \$140,160 for 48 beds; and \$93,440 for 32 beds.

The question of operating costs must also be faced. One estimate places these at 28 per cent of the combined costs of construction, equipment, and furnishings.³ Greene County citizens are now spending about \$118,000 per year for hospital and surgical care. Unfortunately, it is not possible to segregate the charges into categories of cost.

A final major factor must be faced by the citizens of Greene County—where is the new and additional personnel to come from? The shortage of medical personnel is as acute in many and perhaps most other rural areas as in Greene. It is doubtful that enough

¹ For a detailed discussion of the method used in arriving at these requirements see: Commission on Hospital Care, *Hospital Care in the United States* (New York: The Commonwealth Fund, 1947), pp. 300 and 280-281. The 1939-40 crude birth rate was 27.8 and the crude death rate was 6.7 in 1941-45.

² *Ibid.*, p. 411.

³ *Ibid.*

doctors, nurses, and allied personnel can be obtained in the near future.

These are the major issues involved in the search for a final answer to the following question: Shall a hospital be constructed in Greene County?

Doctors: An Urgent Need

"The shortage of physicians in North Carolina is alarming. Even before the war worsened the situation in 1940, the State had only 2,298 physicians. To provide the recommended minimum of one physician for each 1,000 people, 1,300 additional physicians are needed. Nearly all of these physicians are needed in rural areas."⁴ Rural people need and want qualified general practitioners close to them, but the trend is in the opposite direction—away from rural people.

To what extent do the people of Greene County use doctors? Another way to ask the question is: How much service is the limited supply of doctors able to give the people in the county?

Distance

The location of physicians in relation to the sample families is shown in Figure 2. About one-fifth (19.5 per cent) of the families were within four miles of a doctor; about two-thirds of the families were from four to eight miles from a doctor; and the remaining 13.6 per cent were eight or more miles from a doctor.

These data may not present an accurate picture of the situation in Greene County because of the difference in effectiveness of the various physicians. Several of the doctors have limited their practice.

⁴*Hospital and Medical Care for All Our People*. Reports of Chairman and Sub-committees of North Carolina Hospital and Medical Care Commission—1944-45. (Data revised February, 1947).

Table 3. Number and Percentage Distribution of 266 Rural Families by Distance to Nearest Doctor, Greene County, North Carolina, 1945.

Distance in miles	Number	Per cent
Total	266	100.0
Under 4	52	19.5
4.0—5.9	95	35.7
6.0—7.9	83	31.2
8.0—9.9	27	10.2
10.0—up	9	3.4

The nearest doctor for a particular need may have been quite different from the nearest doctor from a geographical standpoint. Data on the doctor actually employed by the families were not obtained in this study.

Number Of Calls

The people of Greene County received general practitioner care to the extent of 2.1 office calls per person per year. White persons made about two and a half times as many visits to a doctor as Negro persons. Doctors made an average of 0.3 calls per person per year to the homes of patients. Hence, the ratio of office calls to home calls was about seven to one.

Each family in Greene County made an average of 10.9 office calls. And, the doctor was called to the patient's home on the average of 1.6 times per family.

Table 4. Average Number of Office and Home Calls Per Person and Per Family and Race, Greene County, North Carolina, 1945.

Type of call and race		Average per:	
		Person	Family
Office calls:	Total	2.1	10.9
	White	3.1	14.4
	Negro	1.2	7.0
Home calls:	Total	0.3	1.6
	White	0.5	2.2
	Negro	0.1	0.9

Some families do not receive general practitioner care during a given year. During 1945, 5 per cent of the white families and 18.3 per cent of the Negro families in Greene County had no office calls. At the same time, 56.4 per cent of the white and 65.9 per cent of the Negro families had no home calls.

A large part of the families made a very limited number of office calls. In fact, 30.1 per cent of the white as compared with 60.5 per cent of the Negro families had less than five visits (including those that made no office calls) to the doctor per year. In Greene County, 18.7 per cent of the white and 8.1 per cent of the Negro families made 25 or more office calls per year. The situation with respect to home visits was much the same—a large part of the families had few home visits but a small proportion had a large number of visits.

Table 5. Average Number of Office and Home Calls Per Person by Size of Family and Race, Greene County, North Carolina, 1945.

Number of persons in family	Office calls		Home calls	
	White	Negro	White	Negro
1-3	5.3	2.1	0.5	0.2
4-6	3.0	1.2	0.7	0.1
7-up	1.8	1.0	0.1	0.1

As the size of family increased, the average number of calls per person per year decreased.

Cost Of Physician Care

The cost of general physician care usually amounts to a large part of the total medical care bill of a population. The median charge for an office call was just over \$2.50.

This charge should not be compared with data from other populations, since Greene County doctors dispensed their own drugs. Charges, therefore, include both the cost of professional service and the cost of drugs.

Table 6. Distribution of Rural Families by Charge for Office Visit by Doctor and Race, Greene County, North Carolina, 1945.

Charge	White		Negro	
	Number	Per cent	Number	Per cent
Total	140	100.0	126	100.0
Under \$2.50	60	42.9	45	35.7
\$2.50 - \$3.49	58	41.4	47	37.3
\$3.50 - up	5	3.6	6	4.8
Unknown*	17	12.1	28	22.2

* Includes those families that made no visits as well as those interviewees who did not know the charge.

The charge made by the doctor for visiting the patient in his home usually was directly related to distance.

Two other variations in cost must also be considered. Night calls were nearly always more expensive than day calls. The second variation, very prevalent in rural areas, is one in which the doctor is called to attend one patient but visits one or more other patients on the same trip. Succeeding visits to the same patient usually were not charged for at the same rate as the initial visit.

The modal charge in Greene County for a day visit was from \$4.50 to \$5.49—44.3 per cent of the families reported that they were charged this amount. A fifth (20.5 per cent) of the families reported that they were charged \$7.50 or more per day visit. Night visits were much more expensive. A fifth (19.8 per cent) of the night calls entailed charges of \$11.50 or more.

A large part of the families (60.9 per cent) reported no home visits either day or night because of the twin difficulties of getting a doctor and the expense involved. Doctors made no visits, day or night, to the homes of 56.4 per cent of the white families and 65.9 per cent of the Negro families.

A summary of the charges as presented above indicates that the cost of professional physician care plus the drugs they dispensed was about \$37 per family per year for Greene County, or about \$132,000 per year.

Greene County families incurred bills amounting to an average of more than \$70 for hospital, surgical, and general practitioner care (including drugs dispensed by physicians) in 1945.

Additional Doctors Needed

Greene County needs additional doctors, but the specific number needed depends upon many factors. The number needed is very large if a program of medical care is envisioned whereby everyone receives service on the basis of need. Also, it has been shown that under a medical insurance plan, the proportion of patients who visit the office rather than calling the doctor to the home increases. To be considered, also, is the possibility of coordinating preventive along with therapeutic medicine. Under present arrangements, the demand for medical services depends on general economic conditions.

In 1943, there was approximately one active physician for each 800 people in the United States. On this basis, Greene County needs 23 doctors. On the basis of conditions in North Carolina in 1943, Greene County needs 14 doctors. If a ratio of one effective doctor per 1,000 people is taken as an acceptable standard, then Greene County needs 18 doctors. The health of any community is considered by many to be in grave danger if there are more than 1,500 people per physician. The ratio in Greene County is four times that high on the basis of effective physicians.

Unmet Medical Care Needs

The data in the preceding sections show that Greene County is deficient in doctors as well as other types of medical and health education personnel. It was shown that the people do not receive adequate hospital care. These facts are important within themselves, but they will be more significant if it is demonstrated that there are effects which can be traced to inadequate medical care.

Indirect Measures Of Inadequate Care

The average crude death rate during the period 1941-45 was 6.7 in Greene County as compared with 8.9 for the State.⁵ This low crude rate is a reflection of the age composition of the population. Greene County has a large proportion of its population in the younger ages.

In 1940, 44.1 per cent of the deaths in the white population were preventable and in this respect Greene County ranked 48 among the 100 counties. At the same time, 48.2 per cent of the deaths in the Negro population were preventable.⁶

The proportion of births that occur in hospitals is often used as a measure of the adequacy of medical care. In 1945, only 19.6 per cent of the births to Greene County residents occurred in hospitals as compared with 53.5 per cent for the State. At the same time, 13.8 per cent of the births were attended by midwives.

The proportion of the men examined who were rejected for military service during the recent war has been used as a measure of unmet medical care needs. One out of four (25.7 per cent) white men were rejected as compared with more than half (55.7 per cent) of the Negro men.⁷

These are some of the more important indirect measures that have been used to show the results of inadequate medical care. Because of the inadequacy of these methods a new technique has been devised to show more directly the amount of unmet medical care needs in the population.

Symptoms Analysis--A Direct Measure

The essential elements of the method designed to determine unmet need for medical attention among rural families may be stated as follows:

⁵ *Hospital and Medical Care for All Our People*, op. cit., p. 37.

⁶ For a definition of this concept see: Selz C. Mayo, *Preventable Deaths In North Carolina*, NCAES, Progress Report No. Rs-6, September, 1945.

⁷ *Hospital and Medical Care for All Our People*, op. cit., p. 47.

1. It is a list of questions on the presence or absence of certain symptoms, ailments, or conditions, based on the questions ordinarily used by doctors in taking a patient's medical history.

2. The questions are of sufficient medical importance that if any one is reported positive for a family member, that person is regarded as having a need for medical attention, at least to the extent of consulting a physician and perhaps obtaining a thorough examination.⁸

The procedure for getting the necessary data is simple. One member of the family, usually the housewife, is asked to give information for herself and other family members relative to the presence or absence of certain symptoms as well as the intensity of the condition. For each positive symptom, the interviewee is asked if the condition is being treated or if a physician has been consulted.

If a symptom is positive and if a doctor has not been consulted, this condition is then recorded as an unmet need for medical attention. This procedure is followed for each member of the family. Thus, it is possible to appraise the proportion of a population that should be consulting a physician for one or more reasons, but who are not now doing so.⁹

Such an instrument was used in this study of Greene County. Information was obtained for every individual in the 266 families. The results were not checked by a physician because "correspondence between the data obtained with the Medical Needs Schedule and the medical examination and laboratory tests is so close that the schedule can be used to establish a reasonably reliable measure of unmet needs for medical attention among farm families."¹⁰

About half (48.4 per cent) of the Greene County people had medical care needs that were not being met. A greater proportion of the females than males had unmet needs. More than half (53.2 per cent) of the females had positive symptoms for which they were not con-

⁸ Charles R. Hoffer, Edgar A. Schuler, *et. al.*, "Determination of Unmet Need for Medical Attention Among Michigan Farm Families," *The Journal of the Michigan Medical Society*, XXXVI, (April, 1947), 443-446. See also: Edgar A. Schuler, Selz C. Mayo, and Henry B. Makover, "Measuring Unmet Needs for Medical Care: An Experiment in Method," *Rural Sociology*, XI, (June, 1946), 152-158; Charles R. Hoffer, "Medical Needs of the Rural Population in Michigan," *Rural Sociology*, XII, (June, 1947) 162-168.

⁹ "It should be pointed out at the beginning that the proposal is not intended to be a substitute for a physical examination or to provide a diagnosis of particular ailments. Diagnosis is a function of the physician. The function of the method here presented is to measure for a given community or population group the relative frequency of need for medical care." Charles R. Hoffer, Edgar A. Schuler, *et. al.*, *ibid.*, p. 1 of reprint.

¹⁰ *Ibid.*

sulting a doctor. The corresponding figure for males was 43.8 per cent. In fact, 73 per cent of the families contained one or more males who had unmet needs. And, one or more females had unmet needs in 81 per cent of the families.

The proportion of the population with unmet needs for medical attention increased with age in Greene County. In the population under 15 years of age, 36.8 per cent needed medical care that they were not getting. The proportion increased to 50.4 per cent in the age class 15-44 years. Of the population 45 years of age and over 75.3 per cent had unmet needs.

The proportion of the white population with unmet needs was greater than for the Negro population. The explanation for this is not a simple one, but is probably underrepresentation of positive symptoms in the Negro population. This in part is due to the "pain endurance" attitude developed by the Negro. The bare necessities of food, clothing, and shelter place such a strain on low incomes that "grin and bear it" attitudes are developed. Consequently, the answers given by the Negro interviewees tend to reflect those attitudes.

Table 7. Percentage of Population with Unmet Need for Medical Care by Race, Sex, and Age, Greene County, North Carolina, 1945.

Sex and age	White	Negro
Total	50.5	46.4
Male	48.0	40.2
Female	53.1	53.3
Under 15 years	38.6	35.3
15-44	51.3	49.5
45-up	77.2	73.1

There is yet another piece of evidence in this chain of unmet needs for medical care. Many persons know that they need specific types of medical attention but because of inadequate income or other reasons, the service is not obtained. Private practitioners or personnel in public clinics have made the diagnosis and recommended specific treatment. In fact, 23.3 per cent of the Greene County families contain such persons—6 per cent of the total population. Tonsillectomy and appendectomy, rupture and tumor, dental work and eye care, and a host of other unmet needs were known to the people. The questions still remain—when, how, under what conditions are the needs to be met?

A Pattern Of Medical Care

About a third (32.7 per cent) of the Greene County people realized that residents of their own community failed to receive adequate medical care. An additional 23.3 per cent of those interviewed had formulated no opinion on the question. This means, of course, that 44 per cent indicated that they believed the people did receive adequate medical attention.

A much larger proportion of the white than Negro residents believed medical services were adequate. This is to be expected in view of, the greater amount of service actually received by the white population. Also, the racial groups undoubtedly answered the question with their own group in mind. The high proportion of both groups, and especially the Negroes, who had formulated no opinion on this matter, indicates the need for an educational program on all phases of health and medical care.

Table 8. Distribution of 266 Rural Families by Answers to the Following Question: "Do the People of this Community Receive all the Medical and Hospital Care they Need?" and Race, Greene County, North Carolina, 1945.

Answer	White		Negro	
	Number	Per cent	Number	Per cent
Total	140	100.0	126	100.0
Yes	77	55.0	40	31.7
No	38	27.1	49	38.9
Opinion not formulated ...	25	17.9	37	29.4

Many people in Greene County were not satisfied with the quality of hospital and general medical care received. In fact, only 60.2 per cent stated that they were satisfied. Nearly a fourth (24.1 per cent) had formulated no opinion on the subject. The remaining 15.8 per cent indicated that they definitely were dissatisfied with the quality of service. The reasons for dissatisfaction as well as factors making for satisfaction are outside the scope of this analysis.

People in Greene County favored a system of public medical care whereby everyone would receive all the medical care that they need and would pay in proportion to their ability. In fact, 87.2 per cent answered this question in the affirmative.

The principle of equalization of medical care services within the State and among the states was favored by most of the people in Greene County. The State government should aid the poorer coun-

Table 9. Distribution of 266 Rural Families by Answers to the Following Question: "Is the Quality of Medical Care Received by the People in this Community what you Think it Should be?" and Race, Greene County, North Carolina, 1945.

Answer	White		Negro	
	Number	Per cent	Number	Per cent
Total	140	100.0	126	100.0
Yes	93	66.4	67	54.2
No	18	12.9	24	19.0
Opinion not formulated ...	29	20.7	35	27.8

ties in providing medical care services, said 85.3 per cent. Less than two per cent were opposed to this principle. No opinion was held by 12.8 per cent of the people.

Three-fourths (75.2 per cent) of the people in Greene County favored the use of Federal funds in aiding the poorer states to pro-

Table 10. Distribution of 266 Rural Families by Answers to the Following Question: "Should the State Government Help Poorer Counties Provide Medical Care?" and Race, Greene County, North Carolina, 1945.

Answer	White		Negro	
	Number	Per cent	Number	Per cent
Total	140	100.0	126	100.0
Yes	119	85.0	108	85.7
No	4	2.9	1	0.8
Opinion not formulated ...	17	12.1	17	13.5

Table 11. Distribution of 266 Rural Families by Answers to the Following Question: "Should the Federal Government Help the Poorer States Provide Adequate Medical Care?" and Race, Greene County, North Carolina, 1945.

Answer	White		Negro	
	Number	Per cent	Number	Per cent
Total	140	100.0	126	100.0
Yes	107	76.4	93	73.8
No	3	2.2	4	3.2
Opinion not formulated ...	30	21.4	29	23.0

vide better medical care services. Only 2.6 per cent were opposed to the principle, and 22.2 per cent had no opinion.

The principle of equalization of access to hospital facilities has already been translated into policy at both the National and State levels. The Congress of the United States allocated funds under the Hill-Burton Hospital Construction Act to the states on the basis of need. The policy goes even further in that rural areas are to be given priority since the rural people are in greatest need of hospital facilities.

The North Carolina Medical Care Commission has accepted the principle of equalization of access to hospital facilities. The funds appropriated by the 1947 State Legislature for hospital construction are to be allocated to each project on the basis of the ability of the people to pay for needed facilities. Many other public funds for medical care are allocated on the basis of this principle.

Appendix A: The Sample

The four neighborhoods surveyed were selected in the following manner: (1) four communities, consisting of a cluster of neighborhoods, were selected to insure geographical coverage of the county; and, (2) one neighborhood from each community was selected at random.

Every household in the four neighborhoods was visited and a record obtained. The interviewing was done during the early months of 1946. The medical care data obtained were for the 1945 calendar year.

The 266 records represented a 7.5 per cent sample of the occupied households in 1940.

Comparison of the Sample Households with the 1940 Population and 1945 Agricultural Census, Greene County, North Carolina.

Item	Sample	1940 Census
Persons per occupied household	5.24	5.22
White	4.74	4.91
Negro	5.79	5.67
Percentage distribution by sex (male)	51.2	50.5
White (male)	49.5	49.9
Negro (male)	52.7	51.2
Percentage distribution by age		
Under 20 years	50.5	49.9
20-44 years	35.6	35.8
45 years and over	13.8	14.2
Percentage Negro households ..	47.4*	40.1
Percentage distribution of farm operators**		
Owners	26.3	18.9
Tenants	11.3	22.4
Croppers	62.3	58.7
Percentage of white farm operators**	53.0	56.2

* This may not have been an overenumeration as Negro sharecroppers increased by 427 or 79.4 per cent from 1940 to 1945; and, Negro tenants increased by 112 or 83 per cent.

** 1945 Agricultural Census.

Appendix B: Supplementary Tables

Table 1. Distribution of Total Families and Individuals and Hospitalized Families and Individuals by Race and Occupation, Greene County, North Carolina, 1945.

Occupation	Total			Hospitalized		
	Total	White	Negro	Total	White	Negro
	Families					
Total	266	140	126	58	41	17
Owner*	65	59	6	20	19	1
Tenant	28	17	11	4	4	0
Cropper	154	55	99	30	16	14
Other**	19	9	10	4	2	2
	Individuals					
Total	1,394	664	730	67	47	20
Owner*	265	245	20	24	23	1
Tenant	182	99	83	5	5	0
Cropper	886	289	597	34	17	17
Other**	61	31	30	4	2	2

* Includes full owners, part owners, and managers.

** Includes farm laborers and nonagricultural workers.

Table 2. Distribution of Total Population and Hospitalized Population by Race, Sex, and Age, Greene County, North Carolina, 1945.

Age	Total		White			Negro			
	Total	Male	Female	Total	Male	Female	Total	Male	Female
	Total Population								
Total	1,394	714	680	664	329	335	730	385	345
Under 15	563	302	261	251	126	125	312	176	136
15-29	359	164	195	160	70	90	199	94	105
30-44	278	153	125	152	84	68	126	69	57
45-59	107	52	55	59	29	30	48	23	25
60-up	85	41	44	42	20	22	43	21	22
Unknown	2	2	0	0	0	0	2	2	0
	Hospitalized Population								
Total	67	20	47	47	14	33	20	6	14
Under 15	16	7	9	12	5	7	4	2	2
15-29	20	2	18	15	2	13	5	0	5
30-44	21	6	15	13	3	10	8	3	5
45-59	7	3	4	6	3	3	1	0	1
60-up	3	2	1	1	1	0	2	1	1

Table 3. Distribution of Hospitalized Individuals by Length of Stay, Race, and Sex, Greene County, North Carolina, 1945.

Number of days hospitalized	Total		White			Negro			
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	67	20	47	47	14	33	20	6	14
Under 5	18	5	13	14	4	10	4	1	3
5-9	22	9	13	18	7	11	4	2	2
10-14	15	3	12	9	1	8	6	2	4
15-19	4	0	4	2	0	2	2	0	2
20-24	4	1	3	1	0	1	3	1	2
25-up	4	2	2	3	2	1	1	0	1