

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE  
AGRICULTURAL EXPERIMENT STATION

J. H. LONGWELL, Director

# Extent of Illness and Use of Health Services in a South Missouri County

ROBERT L. MCNAMARA AND EDWARD W. HASSINGER



Series in Rural Health, #8

(Publication Authorized January 9, 1958)

COLUMBIA, MISSOURI

---

## PREFACE

Scientific investigations of the social conditions and situations associated with the health of rural people have been carried on at the Missouri Agricultural Experiment Station without interruption for the past 20 years. The studies have been conducted by the Department of Rural Sociology as official station projects and as such have been reported to the people of the state and elsewhere as a public service. A considerable mass of information has been collected, the pertinent results of which have been published as bulletins, journal articles, speeches, and pamphlets. In addition, much supplementary material has been accumulated and has been systematically arranged to provide a useful reference for use in advising official agencies and voluntary associations in the fields of health and welfare.

The early studies in rural health were, properly, concerned with inventories of health resources, plotting the location of personnel and institutions in relation to population distribution, the computation of population-health personnel ratios, and measures of the extent to which existing health facilities were used. It has been found useful to repeat these studies periodically. A next important step in rural health research was the development of a method of studying the incidence of rural morbidity by the use of small samples. More recently, the members of the research staff have come to believe that the next logical step involves intensive study of socio-economic factors influencing family and individual behavior with respect to health improvement and maintenance. Previous work in the Department of Rural Sociology has delineated areas of rural social homogeneity which have now been taken individually to form "locales" of study. It is hypothesized that (1) the provision of health services varies with the cultural areas of the state; and (2) the attitudes of acceptance or rejection of scientific medical services by rural people are related to their degree of isolation.

The present bulletin provides information on the use of health services and the extent of illness in a county of one cultural area. Along with others in the series, it is intended to build knowledge of health behavior which has been somewhat obscure.

C. E. LIVELY  
*Chairman*  
*Department of Rural Sociology*

## TABLE OF CONTENTS

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| Introduction .....                                                       | 4  |
| Definitions .....                                                        | 4  |
| Proportions of Ill People in the Population .....                        | 5  |
| Setting for the Study .....                                              | 6  |
| Results of Study .....                                                   | 8  |
| General Pattern of Extent of Illness and Use<br>of Health Services ..... | 8  |
| Age and Household Size as Factors in Illness and<br>Health Care .....    | 9  |
| Chronic Illness and the Use of Selected Health<br>Services .....         | 14 |
| Income in Relation to Chronic Illness .....                              | 14 |
| Level of Living Compared with Chronic Illness .....                      | 15 |
| Age in Relation to Chronic Illness .....                                 | 15 |
| Education in Relation to Chronic Illness .....                           | 16 |
| Proportion of the Total Illness .....                                    | 16 |
| Hospital Use by Laclede County People .....                              | 18 |
| The Clientele of the Hospital                                            |    |
| Residence .....                                                          | 19 |
| Age and Sex .....                                                        | 20 |
| Pattern and Volume of Service .....                                      | 21 |
| Meeting the Cost of Hospital Care .....                                  | 22 |
| Role of Insurance in Payment of Hospital Service .....                   | 24 |
| Appendix .....                                                           | 27 |
| Other Bulletins in the Rural Health Series .....                         | 32 |

## ACKNOWLEDGMENTS

The authors wish to acknowledge the important contribution of Mary R. Bonwell in this study. She assumed a major responsibility in the field phase and participated in the analysis of the data. This bulletin is a report on Department of Rural Sociology Project 201, Rural Health.

# Extent of Illness and Use of Health Services in a South Missouri County

ROBERT L. MCNAMARA AND EDWARD W. HASSINGER

## INTRODUCTION

This report deals with the extent of illness among rural people in a Missouri area and the volume of health services they receive. Other reports will follow on physician-public relationships, the cost of health services received, dental services, preventive measures, and health practices.

The research on which these reports are based provides portrayals of the rural health situations in different areas or cultural settings in the State. Laclede County was selected as representative of an area comprising 20 counties in west, south-central Missouri. The first series deals with this area. A second series of reports will follow this one, relating to a north Missouri county representative of a contrasting cultural area.

Health is a key to a happy and productive life. Effectiveness at work, at home, or in the discharge of community responsibilities is dependent on one's health.

We have come increasingly to think of the well-being of the whole person rather than to be engrossed with his specific illness. It is possible and necessary to regard the health of a community or given area in like manner. Thus we arrive at a consideration of health as an important part of social organization. What an area has in the way of organization for the maintenance of health, what the extent of illness is, and the use of professional health services and facilities are questions of importance. To reveal these clearly for the purpose of paving the way to social action is a research function and a principal objective of this report.

### Definitions

A person designated as *ill* in this report is one who is incapacitated and unable to perform his usual work for one or more days. This definition is synonymous with disabling illness and is intended to include persons who are "confined" or who are severely limited in their movements.

*Chronic illness* refers to a more generalized condition of disability and partial disability. Persons who are chronically ill may be intermittently ill and at times

may be well enough to carry on their usual work. Their impairments or deviations from normal are permanent and leave residual disabilities.<sup>1</sup> Physical defects, such as loss of limb, sight, and hearing, and mental defects were not considered as chronic illnesses. Persons reporting chronic illness, for example, asthma or rheumatism, may not be continuously ill and may be only occasionally hampered in their usual work. Therefore, some persons who report chronic illness may not be ill for a given period of observation.

### Proportions of Ill People in the Population

At any given time we have among us a rather stable proportion of persons who are unable to carry on their usual work because of illness. The proportion varies around the figure of 5 percent. The 5 percent who are sick today naturally does not represent the 5 percent who will be ill a month from now, or at any other time. Illness is a risk to which all are exposed, but the hazard is greater for some than for others.

Contributing to this variation are many factors including such obvious ones as age and sex. When we add to these, occupation, income, and other socio-economic considerations as well as different cultural notions on what constitutes health and how to maintain it, health conditions in a population, or a society, take on an infinite variety. But since health programs are normally designed to meet the needs of an area rather than of a nation, it is more realistic to inquire into the day-to-day illness record of a specific population selected for its representativeness of a larger area. In this report, the population studied is that of open-country people of a south Missouri county.

The extent to which illness strikes a rural population and the use country people make of organized medical services are items of information basic to appraisal of social organization for the maintenance of health. Certainly not all people are ill at a given time nor does everyone have occasion to see the doctor or seek hospital care. The patterns of reported illness do, however, point up the groupings within a population wherein health problems lie. Therefore, the investigators in analyzing the data available to them sought to find "clusters" of social and economic characteristics associated with illness.

Some reports of illness for which no professional care is received are to be expected, just as a physician's advice may be sought when illness is not believed to be present. Moreover, some illnesses are of a more serious nature than others, but we are dealing here, in effect, with people's own decisions as to when they are ill and whether a doctor should be called. Consequently, illnesses reported often are not verified by professional diagnosis. Nevertheless, these are significant responses because they effectively determine such family matters as the amount of time lost from usual work or employment, or whether a child will be kept in school. In short, illness may be solid reality to a family whether or not the nature of the condition is scientifically established. And beyond this are the considerations of how easily a physician's services may be obtained; the probable

<sup>1</sup>*Proceedings of the Conference on Preventive Aspects of Chronic Disease*. March 12-14, 1951. Baltimore. Commission on Chronic Illness, p. 14.

cost; misgivings of what will be learned about the illness; and the extent of belief in and reliance upon self-medication and folk practices. These are some of the factors at work in the complex of conditions affecting the reporting of illness and what is to be done about it.

### Setting for the Study

*Identification of the County:* Laclede County is in the south-central part of Missouri. It is in the area often referred to as the Ozark region. In 1950 the population of the county was approximately 19,000. About 6,000 lived in the one prominent center of the county; located in this center were the county government, the only hospital, and several industries which employed persons from other parts of the county. There were four other incorporated places none of which had as many as 1,000 persons. A transcontinental highway cut the county diagonally; three state highways and the St. Louis and San Francisco (Frisco) Railroad also served the county. Away from the main transportation arteries the roads ranged from good to poor. Some were hardly passable. Streams were forded at some points.

The area is characterized by light colored soils of relatively low productivity. The central and southwestern parts of the county are level and cleared while the eastern and northwestern parts are hilly and the soils stony. Livestock and livestock products account for more than 90 percent of the value of farm products sold. Average annual precipitation was 43.5 inches for the 1918-54 period and the growing season averages about 200 days. Part-time farming and "living in the country" are common practices in this county. The level of living index for the farm operator families in 1954 was 106, or 29 points below the average for the state,<sup>2</sup> as measured by the percentage of farms with electricity, telephones, automobiles, and average value of products marketed.

*Selection of the Sample:*<sup>3</sup> Households for study were selected by random sampling from a detailed listing of every apparently occupied open-country house-

<sup>2</sup>Hagood, Margaret J., Bowles, Gladys K., and Mount, Robert R., "Farm Operator Family Level-of-Living Indexes for Counties of the U. S. 1945, 1950, and 1954." U. S. Dept. of Agriculture, Agricultural Marketing Service, Statistical Bulletin 204, March, 1957.

<sup>3</sup>The steps in household selection were as follows: (a) Beginning with the upper-right corner of a county highway map (furnished by the Missouri State Highway Department), each one-mile square section was numbered consecutively left to right by tiers. This procedure yielded sections numbered from 1 through 716. (b) Beginning with section 1 and proceeding in order, the households as plotted on the map were in turn numbered consecutively in left to right order. This step yielded households numbered from 1 through 2,783. (c) Each eighteenth household was selected for interview. Thus, the first household to fall in the sample was found to be located in section 13 and was the 18th dwelling in the total array; the second household was in section 19 and was the 36th dwelling of the entire listing; and so on until the 154th household drawn in the sample was located in section 710.

hold. Incorporated places and certain other concentrations of nonfarm residences were omitted.

The intent was to locate and obtain an interview from each of the sample selections. Where a selected house was found unoccupied, the rule was to obtain an interview from the nearest occupied dwelling. Interviews were conducted with a responsible adult, usually the homemaker. Interviewers were professional sociologists who had been in close collaboration with the project design and were to continue responsibility in analysis of project materials and writing of reports. They were in continuous consultation concerning interview techniques. Working as a team, they made a careful effort to conduct the interviews as similar as possible by means of agreement on how to introduce the purpose of the study to a household and to pose the necessary questions.

The schedule (see Appendix) included identifying information for each member of the household; descriptive items for the home, farm or other residence; and income and family living information. The principal part was devoted to the extent of illness; the volume of health services received; the cost and methods of paying for health services; health practices such as self-medication and reliance on folk medicine; the dietary situation; designation of a family doctor; and opinions held toward professional health personnel and health institutions. The schedule had been thoroughly pre-tested and revised before being put into use.

Interviews were completed with 152 households over a four-week period in the Fall of 1955. Two households out of 154 dwellings could not be sampled but no refusals were encountered. Twenty-eight dwellings were found unoccupied requiring substitution of the nearest occupied household.

A most important consideration in sample selection is the sample's similarity to the population from which it is drawn. There is no published census count of the open-country segment of the population to offer age-sex comparisons with the sample. The rural-farm and rural-nonfarm counts from the 1950 population for Laclede county are shown in Table 1 beside the sample as constituted by age

TABLE 1--AGE AND SEX OF THE RURAL POPULATION, 1950, AND OF THE STUDY SAMPLE, 1955

| Age and sex | Percent    |               |        |
|-------------|------------|---------------|--------|
|             | Rural-farm | Rural-nonfarm | Sample |
| All ages    | 100.0      | 100.0         | 100.0  |
| Male        | 52.3       | 49.4          | 51.1   |
| Female      | 47.7       | 50.6          | 48.9   |
| Under 15    | 31.6       | 30.5          | 29.9   |
| Male        | 16.1       | 16.2          | 16.7   |
| Female      | 15.5       | 14.3          | 13.2   |
| 15-64       | 59.1       | 55.8          | 58.8   |
| Male        | 30.8       | 26.5          | 29.1   |
| Female      | 28.3       | 29.3          | 29.7   |
| 65 and over | 9.3        | 13.7          | 11.3   |
| Male        | 5.4        | 6.7           | 5.3    |
| Female      | 3.9        | 7.0           | 6.0    |
| Number      | 9,314      | 2,888         | 532    |

and sex. The sample is neither strictly farm nor nonfarm but consists of both residence groups and so should fall somewhere between. The 1955 sample could not be expected to agree with the 1950 counts by residence, but it is important to note that there is reasonable correspondence. If anything, the sample includes somewhat too few young people, particularly young girls; and perhaps the sample is slightly over-represented by elderly women. However, farm population is declining rapidly in the county, and undoubtedly differential rates of change by age and sex are occurring. As a result, the passage of even five years time may have changed the 1950 population composition considerably.

Other characteristics of the population, shown below, indicate that in the ways available for comparison, the sample is a close representation of the open-country population.

| Item                                                  | Rural-farm <sup>1</sup> | Rural-nonfarm <sup>1</sup> | Sample |
|-------------------------------------------------------|-------------------------|----------------------------|--------|
| Median age (years)                                    | 31                      | 30                         | 34     |
| Percent high school graduates <sup>2</sup>            | 16.0                    | 17.3                       | 20.5   |
| Median school year completed <sup>2</sup>             | 8.5                     | 8.5                        | 8.6    |
| Percent of dwellings with:                            |                         |                            |        |
| 1-2 persons                                           | 37.2                    | 44.7                       | 42.7   |
| 3-5 persons                                           | 47.1                    | 45.2                       | 44.1   |
| 6 or more persons                                     | 15.8                    | 10.1                       | 13.2   |
| Percent dwellings with running water piped into house | 16.3                    | 35.8                       | 29.0   |

<sup>1</sup>1950 U. S. Census

<sup>2</sup>For persons 25 years of age and older

## RESULTS OF STUDY

### General Pattern of Extent of Illness and Use of Health Services

Reports were gathered from 152 households comprising 532 persons. A total of 1449 days of illness was reported for the three months preceding interview, and during the 12 months prior to interview there were 1849 doctor calls and 561 days of hospital care for the sample households (Table 2).

Extensive work with the Laclede County materials has revealed a great concentration of physician and hospital care and of disabling sickness in a very few households. For example, ten homes received more than one-third of the total doctor calls; five homes accounted for two-thirds of the hospital days reported; and 20 homes reported fully three-fourths of the illness. On the other hand, one-third of the homes received little or no physician's service; nearly nine of every ten people had not used the hospital; and two-thirds of the homes reported no sickness of a disabling nature.

The financial aspects of the health situation are equally striking in the tendency toward concentration. These open-country people spent about \$9,200 for physician's services in one year or an average of about \$60 per household. But 13 households (those with costs of \$200 or more) accounted for about one-



TABLE 2--ILLNESS AND USE OF SELECTED HEALTH SERVICES  
BY YOUNGER AND OLDER HOUSEHOLDS<sup>1</sup>

| Age of<br>house-<br>hold<br>head | House-<br>holds | Number of<br>persons | Days<br>ill <sup>2</sup> | Doctor<br>calls <sup>3</sup> | Annual rate per 1000 persons     |             |                 |                     |
|----------------------------------|-----------------|----------------------|--------------------------|------------------------------|----------------------------------|-------------|-----------------|---------------------|
|                                  |                 |                      |                          |                              | Days in<br>hospital <sup>3</sup> | Days<br>ill | Doctor<br>calls | Days in<br>hospital |
| Total                            | 152             | 532                  | 1,449                    | 1,849                        | 561                              | 10,895      | 3,476           | 1,055               |
| Younger                          | 82              | 354                  | 715                      | 1,057                        | 267                              | 8,079       | 2,986           | 754                 |
| Older                            | 70              | 178                  | 734                      | 792                          | 294                              | 16,494      | 4,449           | 1,652               |

<sup>1</sup>Younger households are those with head under 55 years of age; if no male head, then female head with same age limitation; older households are those with head 55 years of age or older; if no male head, then female head with same age limitation.

<sup>2</sup>For 3 months.

<sup>3</sup>For 12 months.

half of the total expenditures, and 34 households had no doctor bills. In the case of hospitalization, the total cost was about \$6,600 averaging about \$43 for each home. However, 11 households (those with costs of \$200 or more) accounted for about two-thirds of the hospital costs, while 111 households had no hospitalization during the year.

Illness, physician care, and hospital care supposedly tend to spread over a population in time so those who receive little care in a given year receive more services another year. But the extent to which illness and health can continue to concentrate because of the unique composition of relatively few households is important for the planning of health services. It could have direct effect on the need for specific types of physician services and of hospital beds.

Among the factors that influence the incidence of illness and the use of health services are age, education, income, and level of living. As people reach the older ages, sickness is more common among them; their use of health services is not dependent upon illness alone but also upon their recognition of the value of seeking professional advice and care along with the ability to purchase such services. Chronic illness, particularly, is more prevalent at the older ages. Such health conditions of a prolonged and persistent nature may be reflected in high illness rates but may not be closely associated with the use of health services.

All this is not meant to imply that only a minority of the population is involved in sickness. Each person is exposed to the risk of becoming ill, or of suffering accidents or other mishaps. Evidence is provided by the fact that of the 152 homes visited, 119 had used a doctor within the past year, an additional 21 had used a doctor within 5 years, and every household in the sample had used a doctor's services at one time or another.

### Age and Household Size as Factors in Illness and Health Care

*Age:* It is well known that age is associated with illness, physician care, and hospital service. The conditions reported and health services received were con-

sistently at higher rates for elderly people. The household reports have been separated into two groups to observe these differences: (1) those with male heads under 55, and (2) those with male heads at least 55 years old. Households without male heads were classified by the age of female heads. The number of households divides rather equally in this manner, although the younger households have a population double that of the older households. Numerically, days of illness and days of hospital use are about equal for the two groupings while physician calls are considerably more numerous among the younger than among the older households. However, when annual rates per 1000 persons are computed it can be seen that the load of sickness and the use of services is much higher among households with older heads.<sup>4</sup>

Persons in this sample reported an average of about 11 days illness annually per person. Young households averaged about eight days, and the older group over 16 days. Similarly, the annual rate of doctor calls was 49 percent higher for the older households, and their rate of hospital use was more than double that of the younger households (Table 2).

Another arrangement of the reports demonstrated the relationship between age and health in a more striking way (Table 3). In this case, only the youngest

TABLE 3--ANNUAL RATES OF ILLNESS AND USE OF HEALTH SERVICES  
BY SELECTED TYPES OF HOUSEHOLDS

| Age of head* | Households | Persons represented | Annual rate per 1000 persons |              |               |
|--------------|------------|---------------------|------------------------------|--------------|---------------|
|              |            |                     | Days ill                     | Doctor calls | Hospital days |
| Under 45     | 49         | 227                 | 7,595                        | 2,982        | 824           |
| 65 & over    | 27         | 61                  | 27,344                       | 5,524        | 2,656         |

\*Age of male head of household; in households with no male head, the age of female head was used.

and oldest households were considered; the young group constitutes households with a male head under 45 years of age while an older group comprises only those households with a head at least 65 years of age. The two groups provided by this procedure are in sharp contrast. The young households are large and include many young children while the others are small in size and have a preponderance of elderly people.

The oldest households had a ratio of five days of illness for each doctor call and the youngest about 2.5 to 1 or about one-half as much. A number of factors could influence this difference. Sickness in the oldest households is more often of a chronic nature, involving long-continued illness with origins dating back years before; illness of young people is more likely of an acute nature and of short

<sup>4</sup>Days of illness were reported by informants for the three-month period preceding interview. Annual rates have been computed on the basis of a three-month record covering, generally speaking, the late summer and fall months. The annual rates obtained must be considered a low or conservative measure of the illness actually sustained since the months for which illness is reported represent a period during which illness is at a relatively low level.

duration. The relatively close agreement of days of illness with doctor calls in the case of young households reflects the concern our society feels for the health of its youth—a concern that apparently is not deemed so urgent for the health of older people. The “aches and pains” of older people are commonly taken for granted as a natural consequence of advancing years. In contrast the sudden appearance of high fever in a child may cause a quick call for professional advice and care.

The oldest households generally possessed low incomes. Fifteen out of the 27 had less than \$1,000 income during the year preceding interview, and only four had incomes of as much as \$3,000. Obviously, these incomes do not permit extensive purchase of physician care and hospital service; in the absence of a systematic program for the medical care of indigents, many of these older people must go without such care. Their need for medical care is greater because illness is more common among them, the annual average being nearly 30 days per person. In this sample, the older households with an annual income of at least \$3,000 used the doctor at a rate of about 7 calls per person annually; the corresponding rate for those with lowest incomes was only four calls annually.

Use of a doctor followed income in the younger households too, although the contrast in the various income groupings was not as sharp (Table 4). Doctor

TABLE 4--ILLNESS AND USE OF DOCTOR AMONG YOUNGER HOUSEHOLDS  
BY INCOME AND EDUCATION<sup>1</sup>

| Age and education<br>of head | Low income |                          |                 | High income |                          |                 |
|------------------------------|------------|--------------------------|-----------------|-------------|--------------------------|-----------------|
|                              | Persons    | Days<br>ill <sup>2</sup> | Doctor<br>calls | Persons     | Days<br>ill <sup>2</sup> | Doctor<br>calls |
| Under 45                     | 109        | 724                      | 205             | 110         | 980                      | 439             |
| Low education                | 55         | 440                      | 67              | 44          | 560                      | 157             |
| High education               | 54         | 284                      | 138             | 66          | 420                      | 282             |

<sup>1</sup>Households whose male head is under 45 years of age. Education refers to grade completed by female head; low education includes those completing eight grades or less; high education includes those completing nine or more grades. Income of under \$3,000 during the past year is termed “low” while incomes \$3,000 and over are termed “high”. Table excludes three households for whom education of female head was not obtained.

<sup>2</sup>Illness records were obtained for a three-month period, the quarterly volume of ill days is here placed on an annual basis.

calls were at an annual per person rate of four for the high and two for the low income groupings. These rates of doctor use, though lower than in the oldest households, were occurring in homes where the annual number of sick days was only about seven days per person.

The younger households were further divided on the basis of the education of the female head. This was not done for the elderly households since the educational attainment of the heads of these households was uniformly low.

Note that whether income is high or low, homes with a female head (usually the mother) who has limited education have illness records that are relatively

high; also that doctor calls are about twice as numerous in the homes of higher income, even though the illness rates are lower, and tend to be most frequent among the homes where the education of the mother is highest. Taking account of the slightly different number of persons in each classification of Table 4, these associations can be stated in the following fashion:

Of every 100 doctor calls made for members of younger households—

- 44 are in high education, high income homes.
- 25 are in low education, high income homes.
- 21 are in high education, low income homes.
- 10 are in low education, low incomes homes.

Stating the case for illness, for each 100 days of illness reported for members of younger households—

- 33 are in low education, high income homes.
- 26 are in low education, low income homes.
- 24 are in high education, high income homes.
- 17 are in high education, low income homes.

The characteristic common to the homes with higher doctor call rates is high income, while the characteristic common to the homes with higher illness records is low education.

*Size of Household:* Portraying the data by household size is another way of demonstrating the influence of age on illness and use of health services. Thus, as seen in Table 5, the one- and two-person households comprise about 40 percent of the total and include 123 persons of whom more than 30 percent are older people, at least 65 years of age. At the other extreme, in the largest households with seven or more members each, only about 3 percent are older people. The median ages of the various sizes of households also show striking differences; the smallest households have a median age of 58, while the largest households have a median age of only 13 years.

During the year preceding interviews, physicians made more than 1800 calls on the 532 persons in the sample households for a physician call rate of 3,476 per 1000 persons. Physician call rates per person residing in households of various sizes range from a high of nearly six for the smallest family groups to a low of two for members of the largest family groups. Arranging the material in another way, a rate of nearly six calls for the one- and two-person households, where the aged comprise nearly one-third of the household population, contrasts with about three calls for members of all other households, where older members constitute only about 5 percent of the household population.

The rate of hospital usage also is concentrated among older persons in the very small households. The overall rate of about one day per capita annually or 1,094 per 1000 population varies from double that figure for the elderly households to less than one day per person in all other households (Table 5).

Informants were asked to report the number of days that household mem-

TABLE 5--USE OF SPECIFIED HEALTH PERSONNEL AND SERVICES AND AMOUNT OF ILLNESS BY HOUSEHOLDS OF VARIOUS SIZE

| Size of household (persons) | No. of households | Persons in household | Median age (years) | Age of persons in households (percent) |                |             |             |             |           | Annual rate per 1000 persons |            |          |
|-----------------------------|-------------------|----------------------|--------------------|----------------------------------------|----------------|-------------|-------------|-------------|-----------|------------------------------|------------|----------|
|                             |                   |                      |                    | Total                                  | Under 15 years | 15-24 years | 25-44 years | 45-64 years | 65+ years | Doctor calls                 | Hosp. days | Days ill |
| Total                       | 152               | 532                  | 34                 | 100.0                                  | 29.6           | 10.0        | 23.9        | 25.2        | 11.3      | 3,476                        | 1,055      | 10,895   |
| 1-2                         | 65                | 123                  | 58                 | 100.0                                  | -              | 1.6         | 14.6        | 52.8        | 31.0      | 5,659                        | 2,211      | 26,732   |
| 3-4                         | 43                | 148                  | 35                 | 100.0                                  | 24.3           | 11.5        | 28.4        | 31.1        | 4.7       | 3,189                        | 628        | 6,811    |
| 5-6                         | 32                | 168                  | 30                 | 100.0                                  | 40.5           | 13.1        | 29.2        | 10.1        | 7.1       | 2,881                        | 964        | 5,476    |
| 7+                          | 12                | 93                   | 13                 | 100.0                                  | 57.7           | 13.1        | 19.5        | 6.5         | 3.2       | 2,118                        | 366        | 6,237    |

bers were unable to do their usual work or attend school because of disabling illness during three months preceding interview. As was true of physician and hospital use, illness was heavily concentrated in the one- and 2-person households. On a rate basis, illness occurred at a rate about four times higher in the smallest households than in other households (Table 5).

The concentration of services received and of sickness sustained can be shown in another way. The predominantly elderly persons in small households constitute 23 percent of all persons in the sample. But these people received 37 percent of the physician calls and 49 percent of the hospital days and accounted for 57 percent of the days of illness (Table 6).

TABLE 6--VOLUME OF SERVICES AND ILLNESS REPORTED  
BY HOUSEHOLD SIZE

| Size of household | Persons represented |           | Doctor calls |           | Hospital days |           | Days ill |           |
|-------------------|---------------------|-----------|--------------|-----------|---------------|-----------|----------|-----------|
|                   | Number              | Per- cent | Number       | Per- cent | Number        | Per- cent | Number   | Per- cent |
| Total             | 532                 | 100.0     | 1,849        | 100.0     | 561           | 100.0     | 1,449    | 100.0     |
| 1-2               | 123                 | 23.1      | 696          | 37.6      | 272           | 48.5      | 822      | 56.7      |
| 3-4               | 148                 | 27.8      | 472          | 25.5      | 93            | 16.6      | 252      | 17.4      |
| 5-6               | 168                 | 31.6      | 484          | 26.2      | 162           | 28.8      | 230      | 15.9      |
| 7 and over        | 93                  | 17.5      | 197          | 10.7      | 34            | 6.1       | 145      | 10.0      |

### Chronic Illness and the Use of Selected Health Services

Aging of the population and the known increase of illness with advancing age are important factors in the growing amount of long-term or chronic illness. Long, continued inability or unwillingness to obtain needed and proper health care also may contribute to chronic illness at the older ages; this can be true among young people, too. More than one-half (83) of the households reported one or more members chronically ill.

Households with chronic illness are typically older than others and have limited financial resources to pay for needed care, fewer persons in the working force, and a lower living level. Members of these households have less education. As a group, they run the gamut of social and economic disadvantage. Their relative disadvantage becomes sharp and clear when it is shown that the chronically ill use a disproportionate share of physicians' services and hospital care and sustain an undue proportion of ill days.

*Income in Relation to Chronic Illness:* The ability to purchase health services is an important factor in the maintenance of health, particularly in rural areas where public health services and social service organizations are less developed than in urban places (Table 7). In the case of chronic illness where medical costs are likely to be continuous rather than periodic, income takes on a special significance. Note that households with chronic illness reported generally lower incomes than those without chronic illness.

TABLE 7--HOUSEHOLDS WITH OR WITHOUT CHRONIC ILLNESS  
CLASSIFIED BY INCOME

| Income group    | With chronic illness |         | Without chronic illness |         |
|-----------------|----------------------|---------|-------------------------|---------|
|                 | Number               | Percent | Number                  | Percent |
| Total           | 83                   | 100.0   | 69                      | 100.0   |
| Under \$1,000   | 27                   | 32.5    | 9                       | 13.0    |
| \$1,000 - 3,000 | 38                   | 45.8    | 30                      | 43.5    |
| \$3,000 or more | 18                   | 21.7    | 30                      | 43.5    |

*Level of Living Compared with Chronic Illness:* A somewhat similar measure, the level of living, was used for comparison in Table 8. The "level of living," was based on possession of such items as refrigerators, cooking equipment, and automobiles. On this basis, the homes were grouped into "lower" and "higher" level of living situations.<sup>5</sup> No great differences appear in Table 8, though there is a tendency for households with chronic illness to be concentrated in the lower level of living group.

TABLE 8--HOUSEHOLDS WITH OR WITHOUT CHRONIC ILLNESS  
CLASSIFIED BY LEVEL OF LIVING

| Level of living | Total  |         | With chronic illness |         | Without chronic illness |         |
|-----------------|--------|---------|----------------------|---------|-------------------------|---------|
|                 | Number | Percent | Number               | Percent | Number                  | Percent |
| Total           | 152    | 100.0   | 83                   | 100.0   | 69                      | 100.0   |
| Lower           | 82     | 52.9    | 48                   | 57.8    | 34                      | 49.3    |
| Higher          | 70     | 46.1    | 35                   | 42.2    | 35                      | 50.7    |

*Age in Relation to Chronic Illness:* Chances of being chronically ill are high in the later years of life, Table 9 points out. For example, the households studied included 135 persons who were at least 55 years of age and 43 percent of them were chronically ill. Only about 13 percent of the 397 younger persons were reported chronically ill. Looking at it another way, 52 percent of the chronically ill persons were at least 55 years of age, but less than 20 percent of the remainder of the population was that old. Of course, several of the chronically ill were living in the homes of their children or other relatives, but of the 83 households

TABLE 9--PERSONS WITH OR WITHOUT CHRONIC ILLNESS  
CLASSIFIED BY AGE

| Age                | All persons |         | Chronically ill persons |         | Persons not chronically ill |         |
|--------------------|-------------|---------|-------------------------|---------|-----------------------------|---------|
|                    | Number      | Percent | Number                  | Percent | Number                      | Percent |
| Total              | 532         | 100.0   | 111                     | 20.9    | 421                         | 79.1    |
| Under 55 years     | 397         | 100.0   | 53                      | 13.4    | 344                         | 86.6    |
| 55 years and older | 135         | 100.0   | 58                      | 43.0    | 77                          | 57.0    |

<sup>5</sup>From a list of conveniences and facilities with a total score of 21, households scoring 14 or more were termed "high" while those with scores of 13 or less were termed "low" level of living households (see schedule in appendix for level of living items).

in which some person had chronic illness, 36 were homes in which a person lived alone or in which there was but one other person.

*Education in Relation to Chronic Illness:* Since households reporting chronic illness were older than the average, it is not surprising that their heads had received less schooling than heads of households without chronic illness. Table 10 shows this educational comparison for male heads. Female heads, though they possessed somewhat higher educational attainment, exhibited about the same pattern.

TABLE 10--HOUSEHOLDS WITH OR WITHOUT CHRONIC ILLNESS BY EDUCATION OF MALE HEADS<sup>1</sup>

| Highest grade completed       | With chronic illness |         | Without chronic illness |         |
|-------------------------------|----------------------|---------|-------------------------|---------|
|                               | Number               | Percent | Number                  | Percent |
| Total                         | 81                   | 100.0   | 65                      | 100.0   |
| Less than 8 grades            | 32                   | 39.5    | 15                      | 23.1    |
| 8-11 grades                   | 37                   | 45.7    | 36                      | 55.4    |
| High school graduates or more | 12                   | 14.8    | 14                      | 21.5    |

<sup>1</sup>Exclusive of 6 homes without male heads.

*Proportion of the Total Illness:* Having described the chronically ill with respect to their age, income, and education, their importance is now discussed as a consumer of health service. By definition the chronically ill would be expected to accumulate a relatively large proportion of the total illness. During the three months preceding interviews, a total of 1449 days of illness were reported for the 532 persons. About 70 percent of the days of illness were reported for the chronically ill, who comprised only 20 percent of the sample population. As stated, these are people who live for the most part in the older households; of the 111, nearly one out of every four (27) is at least 65 years old. They are nearly evenly divided by sex. Illness reported for the chronically ill is shown to be nine times greater than for the remainder of the population. On an annual basis, persons with chronic illness averaged five weeks of sickness while others sustained an average of about four days (Table 11).

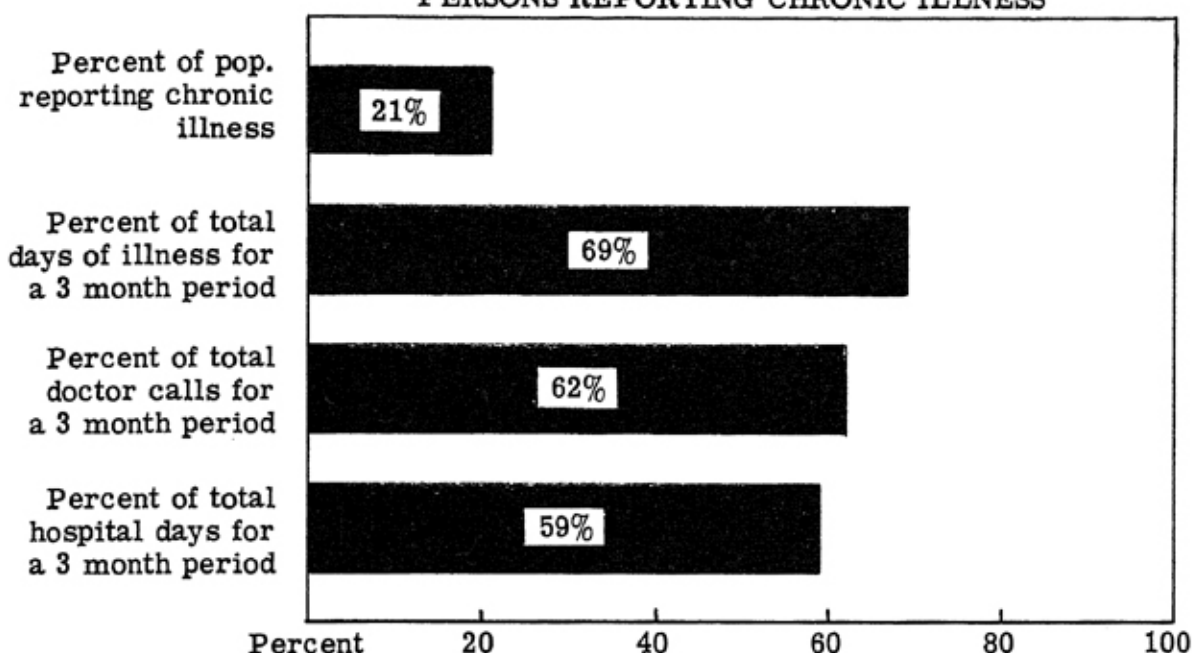
TABLE 11--PERSONS WITH OR WITHOUT CHRONIC ILLNESS BY VOLUME OF ILLNESS AND ANNUAL RATES

|                                 | Number of persons |         | Days of illness last 3 months |         | Days of illness per person annually |
|---------------------------------|-------------------|---------|-------------------------------|---------|-------------------------------------|
|                                 | Number            | Percent | Number                        | Percent |                                     |
| Total                           | 532               | 100.0   | 1,449                         | 100.0   | 10.9                                |
| Persons with chronic illness    | 111               | 20.9    | 997                           | 68.8    | 35.9                                |
| Persons without chronic illness | 421               | 79.1    | 452                           | 31.2    | 4.3                                 |

With sickness so prevalent among the chronically ill, the matter of professional health care and hospitalization for them is important. During the year preceding the study, doctors made 1849 calls for the 532 persons in the sample.



FIGURE 1--ILLNESS AND HEALTH SERVICES AMONG PERSONS REPORTING CHRONIC ILLNESS



Two-thirds of these were made for persons living in homes in which there were chronically ill persons. Since the study materials do not permit us to assign these annual calls to specific persons, it is necessary to use data on the calls for the three-month period preceding interview. During the three months, doctors made 289 professional calls; 180 of these were calls on the 111 people who reported chronic illness.

Similarly, out of 101 days of hospitalization during the three-month period, 60 were reported for the 111 persons who were chronically ill. Thus the chronically ill clearly account for a much larger share of the doctors' calls and hospital days than their proportion of the population would indicate; but even so their use of doctor and hospital is still moderate considering their volume of illness (Figure 1). The relatively low incomes, levels of living, and educational achievements of these people apparently are associated with higher illness rates but these traits do not contribute to the receipt of health services. The study materials show that persons of higher income purchase health insurance which would permit budgeting for the procurement of certain health services, particularly hospital care. But the households having chronically ill persons were not nearly so likely to have health insurance. Of the 83 households with chronic illness present, only 30 percent had a health insurance policy in force; nearly one-half (48 percent) of the 69 other homes had health insurance.

There is little doubt that chronically ill persons constituted a considerable part of the "health problem" in the rural area studied. The interviewers observed many difficult family situations, such as: older people living alone, needing medical care, and either not receiving it or obtaining a minimum of such service due to their very limited means; homes with young children where life must

also be made tolerable for a chronically ill, senile person; and, above all, the lack of a systematic public health policy to care for the indigent sick.

### Hospital Use by Laclede County People

An important adjunct to the health resources of the rural area studied was the hospital<sup>6</sup> located centrally, at Lebanon, the county seat. During the field study, attention of the research staff was directed repeatedly to this hospital. For example, it was almost the sole source of hospital service reported by county people.

The hospital was small; in 1955 it had only 70 beds. Hospital facilities in adjacent counties also were limited, although a larger city with a concentration of health personnel and facilities was located 50 miles away. The experience of a county-centered hospital appeared to offer a useful addition to the reports gathered from rural households. Permission was obtained to study hospital discharges over a 3-month period, partly as a check on the sample design followed in the field study and partly to obtain information not readily obtained from family informants or not always known by them. Selected data on consecutive discharges were obtained for the three-month period, October 1 through December 31, 1955. Information was gathered on residence, age, sex, type of service, duration of stay, and payment of bill for each discharge.

There was a time perhaps when the layman thought of the hospital as a place where people go to die, where the food was terrible and the nurses were cold and unconcerned about the welfare of the sick. Such an attitude, probably never quite true, has been largely dispelled. The hospital now takes an honorable place among the vital social institutions of the community.

Contrasted with an earlier time when hospital use was a relatively rare and a dreaded occurrence, it is now a service institution that touches the lives of virtually everyone in the community. When a random sample of rural people in the county were asked about their feeling toward hospitals, nearly four out of every five replied that they had no feeling of fear; rather, use of the hospital gave them a feeling of security.

A familiar illustration of this change is provided by official birth statistics. Of all the births to Laclede county mothers, about 90 percent occurred in a hospital; ten years ago only about one-half of the births occurred in hospitals; and a generation ago the proportion was only about one in ten. Word of the hospital was bound to be passed on by the 400 to 500 women admitted to this institution for maternity service annually. Altogether about 2,000 residents of Laclede County are hospitalized each year. When the families of the patients are added to that number, we may conclude that at least half the people of the county have almost intimate knowledge of the hospital in any given year. In many cases these are not casual contacts with the hospital but very often become deep emotional relationships as patients and their families interact with each other and with

<sup>6</sup>Louise G. Wallace Hospital, Lebanon, Missouri.

physicians, nurses, and others in the crisis situations of death, birth, and serious illness.

A hospital is an important economic asset in the community though it is a non-profit enterprise. The hospital in this study provided approximately \$40,000 worth of service in a three-month period or an equivalent of well over \$400 a day. This indicates that the hospital was a sizable business operation, important to the community as a purchaser of supplies and as an employer.

A word should be said of the hospital as a county-centered social institution. Somewhat unlike the large city hospital which, in a sense, competes with many others for the business available, the county-centered hospital stands as a bulwark in the struggle against illness and the maintenance of health for the people in a natural trading area. It is the only institution of its kind readily available to the people of the community. Staffed to a considerable extent with local people, it provides an atmosphere of familiarity and personal, friendly concern. These are important attributes in an age of growing formal and impersonal relationships between the people and their service institutions.

### The Clientele of the Hospital

During the three-month period of study there were 555 discharges. This represented a somewhat smaller load than would have been found during any of the other quarters of the year but there is nothing to indicate that the characteristics of the discharges studied were substantially different from those taken for any other period of time. These discharges were almost all separate people; few duplications occurred. Apparently, if the number of discharges of Laclede County residents were to be expanded to a yearly total, the rate of hospitalization would be about 10 percent. This is another way of saying that about one of every ten persons is hospitalized annually, a ratio which is very similar to the average for general hospitals in the U.S. reported by the American Medical Association. Moreover, this hospital apparently provides the great bulk of hospital service received by Laclede County people. Exhaustive checks were not made but, for the same period of time, two of the largest Springfield<sup>7</sup> hospitals received few Laclede County cases, and at least half of these were for surgery.<sup>8</sup> The field study also indicates that little use was made of hospitals outside the county.

*Residence:* Of the 555 discharges studied, 449 or more than 80 percent were Laclede County residents; an additional 14 percent were from adjoining counties so all but about 5 percent of the patients were from this county or from the immediate trade area (Table 12). Many of the patients from adjoining counties had post office addresses in Laclede County. Of those from outside the county, about 80 percent were within what might be termed the Lebanon hospital area.

Patients from Lebanon and those from the rest of the county were divided about equally in number. This indicates a much heavier rate of hospital use by Lebanon people than by those outside the city, which may be due to the differ-

<sup>7</sup>Refers to Springfield, Missouri, a nearby city of about 75,000 population.

<sup>8</sup>Mr. Neil Wortley, administrator of Burge Hospital, Springfield, Missouri, estimates about 20 Laclede County patients monthly are admitted to Springfield hospitals.

TABLE 12--HOSPITAL DISCHARGES BY PLACE OF RESIDENCE

| Discharges | Total | Place of residence |                   |                        |
|------------|-------|--------------------|-------------------|------------------------|
|            |       | Laclede County     |                   | Outside Laclede County |
| Number     |       | City               | Balance of county |                        |
| Number     | 555   | 228                | 221               | 106                    |
| Percent    | 100.0 | 41.1               | 39.8              | 19.1                   |

ent population structure in the city. It may also reflect a greater willingness and ability to use professional medical care on the part of city people.

*Age and Sex:* Females outnumber males by about two to one as hospital patients and remain in a considerable majority even when maternity cases are omitted. Compared with the general population of the county, the "hospital population" is greatly under-represented in the early years of life and over-represented during the child-bearing years and the older years.

A few other interesting observations may be made about the age-sex distribution of hospital patients. More than one-half of the female patients were in the child-bearing years; about one-third of the male patients were past 55 years of age, but relatively few older females were hospitalized (Table 13). Two age

TABLE 13--HOSPITAL DISCHARGES BY AGE AND SEX

| Age              | Total  |         | Male   |         | Female |         |
|------------------|--------|---------|--------|---------|--------|---------|
|                  | Number | Percent | Number | Percent | Number | Percent |
| All ages         | 555    | 100.0   | 193    | 100.0   | 362    | 100.0   |
| -15 years        | 73     | 13.1    | 37     | 19.1    | 36     | 9.9     |
| 15-19 years      | 72     | 13.0    | 20     | 10.4    | 52     | 14.4    |
| 20-24 years      | 76     | 13.7    | 13     | 6.7     | 63     | 17.4    |
| 25-29 years      | 55     | 9.9     | 11     | 5.7     | 44     | 12.2    |
| 30-34 years      | 42     | 7.6     | 10     | 5.2     | 32     | 8.8     |
| 35-44 years      | 56     | 10.1    | 11     | 5.7     | 45     | 12.4    |
| 45-54 years      | 61     | 11.0    | 31     | 16.1    | 30     | 8.3     |
| 55-64 years      | 51     | 9.2     | 29     | 15.0    | 22     | 6.1     |
| 65-74 years      | 35     | 6.3     | 20     | 10.4    | 15     | 4.1     |
| 75 years or over | 34     | 6.1     | 11     | 5.7     | 23     | 6.4     |

periods appear particularly high in hospital usage: one is from age 15 to about age 30, largely due to maternity cases; the other is during the late middle years, particularly among males. These two periods taken together account for about 60 percent of the discharges though they make up only about 40 percent of the people.

Table 14 shows the hospital discharges arranged in broad age groups, by sex. This tabulation yields information on the relative needs the hospital must

TABLE 14--HOSPITAL DISCHARGES BY SEX AND BROAD AGE GROUPS

| Age (years) | Percent    |      |        |
|-------------|------------|------|--------|
|             | Both sexes | Male | Female |
| Total       | 100        | 100  | 100    |
| Under 15    | 13         | 19   | 10     |
| 15-29       | 37         | 23   | 44     |
| 30-54       | 28         | 27   | 30     |
| 55 and over | 22         | 31   | 16     |

prepare for with respect to the different age and sex groups. It will be shown later that these proportions do not furnish a basis for bed requirements, however, since the pattern and duration of service is quite different for the various age-sex categories. Nor should one presume a picture from this of the prevalence of illness in the community served by the hospital. Much illness does not receive hospital care and 122 maternity cases are included in the proportions shown. If maternity cases are excluded, it can be shown that the period of youth and early married life is relatively free from hospital care.

### Pattern and Volume of Service

Service provided for patients is classified by the hospital as maternity, surgical, and medical. More than half of the discharged patients had received medical service, and the remainder were equally divided as maternity and surgical patients. It is interesting to note that 110 births to Laclede County mothers were reported during the study period and 102 of them occurred in the hospital.

Many general hospitals are confronting the problem of care of the elderly chronic and are faced with providing more or less routine bed care over long periods of time. Laclede County, like most other counties of Missouri, has experienced a heavy increase of older people. Persons 65 years of age and older increased by 25 percent in the ten-year period, 1940-1950. It is not possible to determine from the data whether hospital use by older people increased correspondingly, but the proportion of elderly persons discharged was not much higher than their numbers in the general population would lead one to expect. Nor were their stays in the hospital much different from those of patients of other ages. In the oldest group of medical discharges, (those 75 years of age and older) were 33 cases, all from Laclede County, amounting to only about 6 percent of the total load and about 8 percent of the total bed days. This was not greatly in excess of what might be expected of the oldest ages. In no case had an elderly person remained in the hospital for medical service for as long as one month. Apparently, the hospital did not have an unduly large proportion of its available beds occupied by older persons who required prolonged care.

With respect to the 114 persons discharged from surgical service in the hospital, 39 or about one of every three were children under 15 years of age. Many of these were probably tonsillectomy or minor accident cases since most of them were in the hospital for only one day. As a matter of fact, minor surgery and emergency service appears to be relatively heavy since one-half of all surgical cases were in the hospital for only one day.

The increased importance of chronic illness in the U. S. has increased the load of long term hospital patients. The average stay of patients in general hospitals is upwards of ten days. However, in the Lebanon hospital studied, the average stay was only 4.7 days and ranged from about three and one-half days for maternity service to about five days for surgical and medical cases (Table 15).

TABLE 15--HOSPITAL DISCHARGES BY DURATION OF STAY AND TYPE OF SERVICE

|                     | Total | Maternity | Surgery | Medical |
|---------------------|-------|-----------|---------|---------|
| Days of care        | 2,592 | 412       | 566     | 1,614   |
| Discharges          | 553   | 122       | 114     | 317     |
| Average stay (days) | 4.7   | 3.4       | 5.0     | 5.1     |

Note: Exclusive of 2 discharges for whom type of service was not reported.

The average stay as pictured in Table 15 is weighted by those who are in the hospital for relatively long periods. The high incidence of short stays may be seen more clearly if discharges are examined without accumulating days of service. From this viewpoint, 300 of the 555 discharges (over one-half) were in the hospital three days or less. This held true whether the service was maternity, surgery, or medical. Nearly an even half of the surgical cases were discharged after only one day of service. All but a very few maternity cases were out of the hospital in less than a week. The longest stays tended to accumulate in the medical cases, but, as has been pointed out, even those were not excessively long.

It is possible that the method used may have missed a few cases. For example, a patient could have been in the hospital for the entire three months or could have been admitted after October 1 and not discharged during the period of study. But the effect of these sources of error is not great, for the report of patient days released by the hospital for the three-month period is in very close agreement with the total days accumulated by the 555 discharges being discussed.<sup>9</sup>

### Meeting the Cost of Hospital Care

According to the data, the hospital provided more than \$40,000 of service to discharged patients in the three-months under observation. This means that the average hospital bill was in the neighborhood of \$75 (Table 16). Excluded is the additional cost, undetermined here, of professional services by physicians. It is against the hospital cost that large numbers of people are persuaded to insure.

TABLE 16--VOLUME OF HOSPITAL CARE AND COSTS BY TYPE OF SERVICE

|                                        | All services | Maternity | Surgery | Medical |
|----------------------------------------|--------------|-----------|---------|---------|
| Total bills (dollars)                  | 40,070       | 6,790     | 8,980   | 24,300  |
| Patients discharged                    | 553          | 122       | 114     | 317     |
| Patient days (est.)                    | 2,592        | 412       | 566     | 1,614   |
| Average cost per patient (dollars)     | 72           | 55        | 79      | 77      |
| Average cost per patient day (dollars) | 16           | 16        | 16      | 16      |

Note: Exclusive of 2 cases for which type of service not reported.

<sup>9</sup>There were only 4 cases with hospital stays of one month or more; two of these were surgical and two were medical patients. Three of them were older people, and one was a young person. The average hospital bill for these "long stays" was about \$600. The record of payment showed that two paid in full, one paid half the bill, and one, the youngest patient, had made only a token payment 3 months after discharge.

Hospital records showed the institution provided about 12,000 patient days of care annually. This would amount to about one-half day per capita for the population served in this area. Therefore, a family of five persons would expect in the long run to require about two and one-half days of hospital care annually at an estimated cost of about \$40. This would be a minimum guess, for not all hospital service received by people in the county was delivered by this hospital, and some services might have been billed separately from the hospital bill. For some families the expected cost would be much higher and for others much lower, depending on the age structure of the family group, their occupational risk, and other factors. The idea of hospital insurance is to spread the risk and share the cost, and the wide acceptance of this notion over the nation in the past two decades of time is impressive.

Before discussing the use of insurance by patients, parts of the financial data should be examined. As stated, the average hospital bill was around \$75; maternity cases averaged \$55 and surgical and medical cases, \$80 (Table 16).

In obtaining financial data, each discharge record was examined three months after discharge on the assumption that, although some bills would be paid on discharge, a period of three months would be a reasonable time to allow for payment. Example: A discharge of October 1, 1955, was given until January 1, 1956, before a record of payment was entered; likewise, a discharge November 15, 1955, was reexamined February 15, 1956, for payment record. Following this method the 555 consecutive discharges, October through December, 1955, were each checked exactly three months later, January through March, 1956. Table 17 summarizes the findings.

TABLE 17--PAYMENT OF HOSPITAL SERVICES BY TYPE OF SERVICE

|                                      | Total  | Maternity | Surgery | Medical |
|--------------------------------------|--------|-----------|---------|---------|
| Patients discharged                  | 553    | 122       | 114     | 317     |
| Total amount of bill<br>(dollars)    | 40,070 | 6,790     | 8,980   | 24,300  |
| Amount paid in 3 months<br>(dollars) | 34,742 | 5,601     | 8,018   | 21,123  |
| Percent paid in 3 months             | 86.7   | 82.5      | 89.3    | 86.9    |

Note: Exclusive of 2 discharges for whom type of service not reported.

Of the total amount for which patients were billed, between \$5000 and \$6000 remained unpaid after a three-month waiting period. Percentage-wise, about 87 percent of the bills were paid within three months, and there was very little variation as to type of service (Table 17). Presumably additional amounts may be paid, so not all of the unpaid balances shown here should be regarded as bad debts. Some of the amounts paid represent bills paid in full within three months and part of the total paid represents partial payment. In this connection 178 discharged patients or about 30 percent paid their bills in full at discharge; an additional 50 percent paid within 3 months; 10 percent more had made some payment; and 10 percent had made no payment. Altogether, 100 discharged

patients still owed money at the end of the so-called credit period and their average obligation was about \$50 (Table 18).

TABLE 18--HOSPITAL DISCHARGES BY EXTENT OF PAYMENT OF BILL

|                           | Discharges | Percent      | Amount paid<br>(dollars) | Amount unpaid<br>(dollars) |
|---------------------------|------------|--------------|--------------------------|----------------------------|
| Full payment on discharge | 178        | 32.0         | 11,610                   | -                          |
| Full payment in 3 months  | 277        | 50.0         | 20,390                   | -                          |
| Part payment in 3 months  | 54         | 9.7          | 2,838                    | 3,147                      |
| No payment                | 46         | 8.3          | -                        | 2,265                      |
| <b>Total</b>              | <b>555</b> | <b>100.0</b> | <b>34,838</b>            | <b>5,412</b>               |

There is some evidence that smaller bills are paid in full on discharge and that the larger bills require time for full payment, but the difference is not striking. It is noteworthy that the bills remaining partially unpaid and those on which no payment had been made were below the average in size.

It was pointed out earlier that a sizeable part of the hospital service was provided for people of the county outside Lebanon. These people, largely open-country residents, comprised about 40 percent of the discharges. The pattern of service received by them is not greatly different from that received by city people. However, these rural people do not have quite as good a record for payment of bills; nearly a fourth of them still owed money to the hospital three months after leaving the hospital. More than one-half of the bills on which no payment had been made were owed by residents of the county outside of Lebanon. Money income is higher for city people; this, combined with the agricultural distress of recent years, may help to account for the relative lag in payment of bills by rural people. People who lived outside Laclede County numbered about one-fifth of the hospital discharges and had the best payment record. It may be that a more intensive effort was made to collect at the time of hospitalization for the non-resident patients.

### Role of Insurance in Payment of Hospital Service

As stated earlier, an important factor affecting the payment of hospital bills is the extent to which people budget for this financial risk. Hospital insurance may be regarded as one way to budget for these costs. A great many voluntary prepayment plans are now available, but for our purpose we may classify them as Blue Cross plans and commercial plans. In either case, they are based on the principle of pooling risks of illness and of spreading the costs of hospitalization over a large group of families by paying the bills from a common fund to which all subscribers prepay on a fixed and regular basis. In this study a separate analysis is made for Blue Cross and of people insured by other types of insurance. A main distinction between these two is that Blue Cross makes payment directly to the hospital, called service benefits; while commercial insurance companies commonly make cash payments directly to the insured according to a set schedule of benefits.



About one-half of the patients of this hospital over a 3-month period were insured to some degree against hospitalization costs. About one-fourth carried Blue Cross, while another fourth had some other kind of insurance. Discharged patients from Lebanon were more likely to have insurance than were rural people of the county or patients from outside the county. About two-thirds of the Lebanon patients carried hospital insurance, compared with 49 percent for out-county people and only 43 percent for rural people in the county (Table 19).

TABLE 19--HOSPITAL DISCHARGES BY INSURANCE STATUS AND RESIDENCE

| Insurance status | Laclede County |           |                |           |             |           |                        |           |     |           |
|------------------|----------------|-----------|----------------|-----------|-------------|-----------|------------------------|-----------|-----|-----------|
|                  | All patients   |           | Laclede County |           |             |           | Outside Laclede County |           |     |           |
|                  | No.            | Per- cent | Total No.      | Per- cent | Lebanon No. | Per- cent | Balance of county No.  | Per- cent | No. | Per- cent |
| Total            | 555            | 100.0     | 449            | 100.0     | 228         | 100.0     | 221                    | 100.0     | 106 | 100.0     |
| Blue Cross       | 136            | 24.5      | 117            | 26.1      | 74          | 32.5      | 43                     | 19.5      | 19  | 17.9      |
| Other ins.       | 156            | 28.1      | 123            | 27.4      | 71          | 31.1      | 52                     | 23.5      | 33  | 31.1      |
| No ins.          | 263            | 47.4      | 209            | 46.5      | 83          | 36.4      | 126                    | 57.0      | 54  | 51.0      |

Experience from other places indicates that city people are more likely to be insured because of the relative ease of enrolling them in groups at their places of employment; they receive their income at regular intervals in the form of cash wages; health programs including insurance may even be one of the conditions of employment and classified as a "fringe benefit" in addition to wages.

Patients who had received surgical care or medical service were much more likely to have hospital insurance than was true of maternity patients. Less than one-third of the maternity patients carried insurance, a proportion which was nearly doubled for the other types of service. There was a particularly small proportion of Blue Cross insurance among maternity cases. Perhaps the relatively low cost of the maternity service was not considered to warrant insurance. On the other hand, maternity service is a normal expectation of certain ages and is planned for to a degree in our society.

Hospital bills were more likely to be paid promptly if covered by insurance. Practically all the Blue Cross cases were paid in full shortly after discharge. Not a single Blue Cross case remained unpaid 3 months after discharge. Discharged patients who had other forms of insurance protection had a record almost as good; 96 percent were fully or partially paid within 3 months time. Nearly one-half of the discharged patients did not have hospital insurance, and among these there were many unpaid bills. Of the 46 patients whose bills were completely unpaid, 40 were without insurance and 32 other uninsured patients still owed money on their bills (Table 20).

It was shown earlier that three months after discharge a total of \$5,412 was still owed to the hospital. Two-thirds of this amount was owed by persons who did not carry hospital insurance. Of this, \$2,265 was owed by discharged patients

TABLE 20--HOSPITAL DISCHARGES BY PAYMENT OF BILL AND INSURANCE STATUS

| Insurance status | Paid in 3 months |         | Partial payment |         | No payment |         |     |         |
|------------------|------------------|---------|-----------------|---------|------------|---------|-----|---------|
|                  | No.              | Percent | No.             | Percent | No.        | Percent | No. | Percent |
| Total            | 555              | 100.0   | 455             | 82.0    | 54         | 9.7     | 46  | 8.3     |
| Blue Cross       | 136              | 100.0   | 132             | 97.1    | 4          | 2.9     | -   | -       |
| Other ins.       | 156              | 100.0   | 132             | 84.6    | 18         | 11.5    | 6   | 3.9     |
| No ins.          | 263              | 100.0   | 191             | 72.6    | 32         | 12.2    | 40  | 15.2    |

who had made no payment and 80 percent of this amount was owed by 40 patients carrying no insurance. Although these patients represented only 7 percent of the total discharges, they accounted for 80 percent of the entirely delinquent bills and were largely rural people from within Laclede County. More than one-half of them were young people under 25 years of age. Maternity cases were disproportionately numerous among them. Most of them were in the hospital for only one or two days, and the average size of their hospital bill was under \$50.

The Lebanon hospital is a county-centered institution. From small beginnings it has reached a stage of acceptance where it is now widely used. It furnishes sizeable amounts of service of a variety of types: practically all of the babies of the county are born there, surgical procedures average more than one a day, and at least 1,200 patients receive general medical care annually. No doubt health insurance has made possible wider use of the hospital and has improved its fiscal position. Finding ways and means of extending the coverage of health insurance, particularly among rural people, apparently would bring further increase in use of the hospital and ease the burden of paying for hospital care.

Appendix

Following is a list of questions included in the field schedule. Spacing for answers has been reduced.

Rural Health Practice and Opinion Questionnaire  
(All answers will be held in strict confidence)

Date \_\_\_ County \_\_\_ Open-country \_\_\_ Village \_\_\_ Interviewer \_\_\_ Sample number \_\_\_

A. Family composition (Members of household during last year)

| Person no.<br>(Circle person interviewed) | Relation to head | Age | Sex | Education<br>(If in school, circle highest grade completed) | Work status<br>(Give specific job and amount time) |
|-------------------------------------------|------------------|-----|-----|-------------------------------------------------------------|----------------------------------------------------|
|                                           |                  |     |     |                                                             |                                                    |

B. Illness record and use of health services

1. Illness last three months:

| Person no. | Cause of illness | No. days ill with this illness last 3 months | No. doctor calls this illness | No. days in hospital this illness |
|------------|------------------|----------------------------------------------|-------------------------------|-----------------------------------|
|            |                  |                                              |                               |                                   |

2. Is anyone in the family ill at the present time? Yes \_\_\_ No \_\_\_

Specify person and if confining \_\_\_

3. Does anyone have a chronic illness such as heart trouble, asthma, etc. (Specify person, disease and if confining) \_\_\_

4. Does anyone have a physical defect such as loss of hearing, blindness or serious sight loss, loss of limb or other crippling. (Specify person and condition) \_\_\_

C. Cost of doctor and hospital service last year

1. How many doctor calls were made last year (September 1, 1954-September 1, 1955) at office (number) \_\_\_; at home (number) \_\_\_

2. What was the total cost of doctor bills last year \_\_\_  
Payment (fill in amount) \_\_\_ Insurance \_\_\_ Savings and current income \_\_\_  
Installments \_\_\_ Borrowed \_\_\_ Public agency \_\_\_ Other (specify) \_\_\_ Unpaid \_\_\_

3. How many days were spent in the hospital last year by member of the family? \_\_\_

What was the total cost \_\_\_. Payment (fill in amount) \_\_\_ Insurance \_\_\_  
Savings and current income \_\_\_ Installments \_\_\_ Borrowed \_\_\_ Public agency \_\_\_  
Other (specify) \_\_\_ Unpaid \_\_\_

4. If there were no doctor or hospital calls in the past year, when was last time used--indicate person and for what: Doctor \_\_\_ Hospital \_\_\_

5. How do you feel about:

a. Doctors' charges \_\_\_

b. Hospital charges \_\_\_

c. Drug and medicine charges \_\_\_

6. (a) What should a person do who needs medical care and can't pay for it? \_\_\_

(b) What do you think doctors and hospitals should do about such a problem? \_\_\_

D. Physician

1. Do you have a doctor you call your "family doctor"? Yes \_\_\_; is he an MD \_\_\_;

DO \_\_\_ Other \_\_\_; where is he located \_\_\_ (miles) \_\_\_

How long has this man been your family doctor? \_\_\_

Do you ever talk over problems other than health problems with your family doctor? \_\_\_\_\_

If no family doctor, where would you go for medical attention? \_\_\_\_\_ (miles) \_\_\_\_\_

2. Does it make any difference to you whether a doctor is an MD or DO? Yes \_\_\_\_\_; no \_\_\_\_\_; no opinion \_\_\_\_\_. If yes, what reason \_\_\_\_\_
3. What would you say stands in the way of most people getting the medical care they need? Cost \_\_\_\_\_ Distance \_\_\_\_\_ Other \_\_\_\_\_
4. On the whole, have you been satisfied or dissatisfied with the help you have received from doctors? Satisfied \_\_\_\_\_; dissatisfied \_\_\_\_\_; uncertain \_\_\_\_\_; no answer \_\_\_\_\_. If not satisfied, what sort of things aren't you satisfied with? \_\_\_\_\_
5. How widespread is the practice of calling the doctor when he is not really needed? Not widespread \_\_\_\_\_; fairly so \_\_\_\_\_; happens often \_\_\_\_\_
6. Have there been times, say in the past 6 months, that you felt you or your family needed medical care but didn't get it? Yes \_\_\_\_\_; no \_\_\_\_\_. What was the occasion \_\_\_\_\_; reason for not getting it \_\_\_\_\_.
7. Have there been times in the past 6 months when you were undecided whether or not to have yourself or family see a doctor? Yes \_\_\_\_\_; no \_\_\_\_\_. If yes, did you see him? Yes \_\_\_\_\_; no \_\_\_\_\_. If no, what decided you against seeing him? \_\_\_\_\_

E. Hospital

1. Distance to nearest general hospital (miles) \_\_\_\_\_. Would you normally use this hospital? Yes \_\_\_\_\_; no \_\_\_\_\_. If not, where would you go? \_\_\_\_\_
2. How do you feel about hospitals?
  - a. I'm suspicious of hospitals and would go to one only in extreme illness.
  - b. No particular feeling one way or the other.
  - c. No fear, they give me a feeling of security.
  - d. Feel that usually sick people can be cared for as well at home.
  - e. Other \_\_\_\_\_

F. Physical examinations

1. How often do you think people should see a doctor? Every six months \_\_\_\_\_; once a year \_\_\_\_\_; only when needed \_\_\_\_\_; don't know \_\_\_\_\_.
2. How often do you think people should see a dentist? Every six months \_\_\_\_\_; once a year \_\_\_\_\_; only when needed \_\_\_\_\_; don't know \_\_\_\_\_.
3. When was the last time you and others in the family have had a physical examination (place "R" for routine, "S" for symptomatic)?  
Self \_\_\_\_\_ Head \_\_\_\_\_ Others \_\_\_\_\_
4. Do you have routine physical examinations for your family? \_\_\_\_\_
5. Why do people fail to have regular physical examinations? \_\_\_\_\_

G. Dental care and immunizations

1. When was the last time you and your family visited the dentist?

|        | Date | What for |
|--------|------|----------|
| Self   |      |          |
| Head   |      |          |
| Others |      |          |

2. In general, what do you think of vaccinations and inoculations for prevention of disease? \_\_\_\_\_

3. How do you think immunization should be done? Individually in a doctor's office \_\_\_\_\_; through the schools \_\_\_\_\_; other \_\_\_\_\_.
4. Immunization record (check if have had)

|          | Self (1) | Head (2) | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------|----------|----------|---|---|---|---|---|---|---|----|----|----|
| Smallpox |          |          |   |   |   |   |   |   |   |    |    |    |
| Typhoid  |          |          |   |   |   |   |   |   |   |    |    |    |

5. a. If you had a child, would you want him to receive polio shots? \_\_\_\_\_  
 b. Have you changed your mind on this since the vaccine first came out? \_\_\_\_\_

i. Financing health needs

- Do you have health insurance? Yes \_\_\_\_\_; no \_\_\_\_\_. Is it an individual policy or with a group? Individual \_\_\_\_\_; group \_\_\_\_\_. Is it non-profit, such as Blue Cross or is it commercial (get name of company, if possible)? Non-profit \_\_\_\_\_; commercial \_\_\_\_\_. How many years have you carried health insurance of some kind? \_\_\_\_\_
- What expenses does it cover? Hospital \_\_\_\_\_; medical only \_\_\_\_\_; hospital and medical \_\_\_\_\_; accident only \_\_\_\_\_.
- Do you know what payments are made for hospitalization? \_\_\_\_\_  
For a doctor's care \_\_\_\_\_
- How did you come to buy health insurance? Where did you get the idea and information about it? \_\_\_\_\_
- Have you ever used your policy? Yes \_\_\_\_\_; no \_\_\_\_\_. Have you been satisfied with it? Yes \_\_\_\_\_; no \_\_\_\_\_. In what way? \_\_\_\_\_
- Have you ever had health insurance and dropped it? Yes \_\_\_\_\_; no \_\_\_\_\_. If yes, why? \_\_\_\_\_
- Without insurance, how would you pay a hospital or doctor bill of: about \$100 \_\_\_\_\_; about \$500 \_\_\_\_\_; about \$1000 \_\_\_\_\_.  
(Key--(a) savings or current income, (b) installments, (c) borrow, (d) couldn't possibly.)

I. Attitude toward doctors (Indicate agree or disagree plus a narrative of response.)

- I wouldn't leave my doctor for another doctor even though the other man might have more scientific knowledge \_\_\_\_\_
- I think that a person should visit with his doctor about other matters than health especially about personal and family problems \_\_\_\_\_
- I don't care so much about a doctor's manner with his patients as long as he is a skillful doctor \_\_\_\_\_
- If I were ill, I would first go to my doctor and expect him to find the best doctor for my ailment \_\_\_\_\_
- I think a doctor's job is something like a minister's and that it has a spiritual side to it \_\_\_\_\_
- I don't care so much what a doctor's personal life is like as long as he is a skillful doctor \_\_\_\_\_
- If I had trouble in my family (not illness) I would be apt to talk it over with my doctor \_\_\_\_\_

J. Nutrition

- Can you list what your family had for breakfast this morning? \_\_\_\_\_
- Do your children participate in the hot lunch program? Yes \_\_\_\_\_; no \_\_\_\_\_; N.A. \_\_\_\_\_. Do you know what kinds of meals they have? \_\_\_\_\_

3. How much milk does your family use daily (include home and school)? \_\_\_\_\_  
Is it pasteurized? \_\_\_\_\_
4. Has anyone in the family tried to diet? Who \_\_\_\_\_ Was it directed by doctor or self? \_\_\_\_\_ Reason for diet \_\_\_\_\_ Where did you get the diet plan? \_\_\_\_\_
5. During the past year have you or family used tonics or vitamins? \_\_\_\_\_  
What used \_\_\_\_\_ Why used \_\_\_\_\_ How did you come to use this \_\_\_\_\_

K. Family health practices

1. We know that you feel that health is important for you and your family.  
Could you tell us then, how you go about keeping your family in good health? \_\_\_\_\_
2. (a) Do you have any home remedies that you use when members of the family are ill? Please tell me about them. \_\_\_\_\_  
(b) Are there medicines such as laxatives or tonics, salves, liniments, or pills that you always try to keep on hand (list)? \_\_\_\_\_  
(c) What do you do for a cold? \_\_\_\_\_
3. At what point do you call a doctor for illness in your family? \_\_\_\_\_
4. Do you have a thermometer? \_\_\_\_\_ Medicine chest or shelf? \_\_\_\_\_ Do you have sterile gauze and tape available? \_\_\_\_\_ Doctor book \_\_\_\_\_ Antiseptic \_\_\_\_\_

L. Socio-economic information

1. How many acres do you operate? \_\_\_\_\_
2. Tenure \_\_\_\_\_
3. (Level of living scores were obtained from the indicated scoring ( ) of the following items.)
 

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>a. Construction of house<br/>               (2) brick, stucco, painted frame<br/>               (1) unpainted frame, cement block,<br/>                   tar paper, etc.</li> <li>b. Water piped into house<br/>               (2) Yes<br/>               (1) No</li> <li>c. Deep freeze--locker<br/>               (2) deep freeze<br/>               (2) locker in town<br/>               (1) neither</li> <li>d. Washer<br/>               (2) automatic<br/>               (2) mechanical<br/>               (1) hand</li> <li>e. Automobile<br/>               (3) 1952 or later<br/>               (2) earlier model<br/>               (1) none</li> </ol> | <ol style="list-style-type: none"> <li>f. Pick-up truck or Jeep<br/>               (2) 1952 or later<br/>               (1) earlier model<br/>               (0) none</li> <li>g. Daily paper<br/>               (2) Yes<br/>               (1) No</li> <li>h. Hot water heater<br/>               (2) Yes<br/>               (1) No</li> <li>i. Cooking range<br/>               (2) electric or gas<br/>               (1) wood, coal, coal oil</li> <li>j. Heating system<br/>               (2) central<br/>               (2) gas or oil stove<br/>               (1) coal or wood stove</li> </ol> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Income groups

A, B, C, D, E.

- A = Under 1000
- B = 1000-2999
- C = 3000-4999
- D = 5000-9999
- E = 10,000 and over

## OTHER BULLETINS IN RURAL HEALTH SERIES

1. The Rural Health Facilities of Lewis County, Missouri,  
Res. Bul. 365, 1943.  
Almack, Ronald B.
2. Family Health Practices in Dallas County, Missouri.  
Res. Bul. 369, 1943.  
Meier, Iola, and C. E. Lively
3. Illness in Rural Missouri.  
Res. Bul. 391, 1945.  
Kaufman, Harold and Warren W. Morse
4. Use of Medical Services in Rural Missouri.  
Res. Bul. 400, 1946.  
Kaufman, Harold F.
5. The Health of Low-Income Farm Families in Southeast Missouri.  
Res. Bul. 410, 1947.  
Gregory, C. L., Zetta E. Bankert, Aleta McDowell and C. E. Lively
6. Illness in the Farm Population of Two Homogeneous Areas of Missouri.  
Res. Bul. 504, 1952.  
McNamara, Robert L.
7. Supply of Physicians in Rural Missouri.  
Sta. Bul. 651, 1955.  
McNamara, Robert L., Edward W. Hassinger, John B. Mitchell