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# The Rural Health Facilities of Lewis County, Missouri

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COLUMBIA, MISSOURI

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## TABLE OF CONTENTS

|   | Page |
|---|------|
| I. Introduction .....   | 3    |
| II. Health Agencies of Lewis County .....                                     | 5    |
| Public Health Nurse .....   | 5    |
| Practitioners .....   | 5    |
| Dentists .....  | 11   |
| Hospital .....  | 13   |
| Appraisal of Location .....   | 14   |
| III. The Use of Health Agencies by the Farm Families<br>of Lewis County ..... | 15   |
| Occurrence of Illness .....   | 15   |
| Practitioner Services .....   | 20   |
| Hospitalization .....   | 29   |
| Nursing .....   | 29   |
| Dental Services .....   | 29   |
| Optical Services .....  | 31   |
| Immunizations .....   | 32   |
| Drugs and Medicines .....   | 32   |
| Total Expenditure for Health Services .....                                   | 33   |

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## I. INTRODUCTION

One of the serious problems confronting rural populations, generally, is that of obtaining satisfactory medical service. This is particularly true of the farm population. The scattered distribution of the people, the comparative inaccessibility of many families, low incomes, and the fact that many essential health agencies and services, including hospitals, are centered in the larger towns, make adequate health service for the rural population usually difficult and sometimes impossible. The present survey of rural health facilities was undertaken for the purpose of determining the availability of medical and health agencies, the extent to which they are used by rural families, and the circumstances and conditions of their use. The survey of Lewis County, herein reported, represents the first of several surveys conducted in various sections of the State. The field work in Lewis County was done during the summer of 1939.

### Sources of Information

The data upon which this study is based were obtained by field interviews. All practitioners operating in Lewis County as well as the staff at the hospital were visited and interviewed regarding the scope and nature of their work. In addition, schedules were obtained from 317 families located in four sample areas selected in different sections of the county.

### County Backgrounds

Lewis County is located in northeast Missouri and borders on the Mississippi River. The land, originally wooded, was early cleared for farming purposes. It is mostly of a strongly rolling to hilly topography. The soil consists chiefly of Lindley and Putnam silt loams which under cultivation erodes and washes easily. Much of the land is now marginal for crops and should be gradually shifted to uses for which it is better adapted. A general type of farming prevails, with growing emphasis upon meat production. In 1935, farms averaged 162 acres in size with land and buildings averaging \$3759 in value, according to the Federal Census. By 1940, farms averaged 176 acres in size and had an average value

of \$4433. Less than half of the farms were operated by full-owners and the number of tenants was nearly equal to the number of full-owners.

With respect to growth, the population of Lewis County is regressive. Although in 1930 the number of children under 5 years of age indicated a stationary farm population, the nonfarm population showed a marked deficit of children. There are many old people but in recent years the increase in aged persons has not balanced the decline in number of children. The proportion of the population that may be regarded as dependent by virtue of age is smaller than is the case in most counties in Missouri. Educational standards in the county are relatively high. Farm incomes and the prevailing plane of living of farm families compare favorably with other counties of northeastern Missouri.

**Survey Areas**

Four areas were chosen as representative of the conditions in different parts of the county. The major factors considered were soil fertility, type and economic condition of agriculture, accessibility to health agencies, and general socio-economic conditions. The Reddish Area was located in the northwestern part of the county, the Dickerson Area in the central portion, the Union Area in the

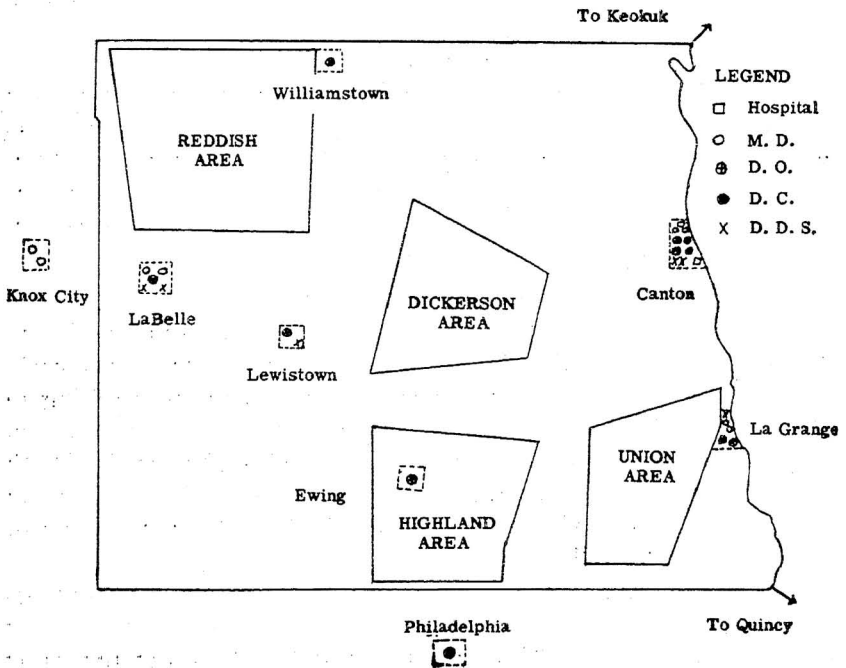


Chart I.—Lewis county showing location of sample areas and medical agencies.

southeastern part, and the Highland Area in the south-central part of the county.

## II. THE HEALTH AGENCIES OF LEWIS COUNTY

### Public Health Nurse

At the time of the survey, Lewis County supported a public health nursing service and employed a public health nurse. Operating under the jurisdiction of District #10 of the Missouri State Health Department, this nursing service was supported by the Lewis County Court, the school districts of the county, the Tuberculosis Association, the Lewis County Chapter of the American National Red Cross, and the State Health Department.

The program of this service included: (1) demonstration care for any sick person under a physician's care; (2) maternity nursing involving prenatal supervision, and postnatal demonstration care; and (3) health supervision given to child or adult where bedside nursing was not the problem. Emphasis was placed upon the third part of the program. Tuberculosis, syphilis, and communicable disease isolation, as well as work with crippled children, pre-school children, and children enrolled in school formed a major portion of the work. The work of the public health nurse was regarded as extremely important by both practitioners and laymen living in the county.

### Practitioners\*

At the time of the survey, Lewis County was served by seven doctors of medicine, nine osteopathic physicians, and one chiropractor resident in the county. One of the seven physicians also was an osteopath, while another limited most of his work to surgery. In addition to these 17 practitioners resident within the county, there were two doctors of medicine and one osteopathic physician with offices within 10 miles of the boundaries of the county who had an appreciable proportion of their practice among the open-country residents of Lewis County. Thus, there was a total of 20 practitioners serving the county. Two of the 20 practitioners were women:—one an osteopathic physician and the other a chiropractor. From a geographical point of view, 14 of the 17 practitioners resident in the county lived in villages located on the eastern and western boundaries of the county, while the other three were resident in the central section of the county from north to south. Of the three practitioners located outside the county,

\*The term "practitioner" is applied to any or all of the following: doctor of medicine (hereinafter called a "physician,") osteopathic physician (hereinafter called "osteopathic physician," and chiropractor.

two were residents of a village near the western boundary of the county and one resided in a village near the southern boundary. The people living in the central and southwest sections of the county were farthest from medical service of any kind.

The ages of these 20 practitioners ranged from 25 to 85 years. Two were less than 30 years of age; two from 30-39; five from 40-49; five from 50-59; two from 60-69; and four were 70 years of age or over. Eleven of the 20 were 50 years or over, and nine were under 50 years of age. Osteopathic physicians as a group were younger than doctors of medicine. Of the 10 osteopaths serving the county three were over 50 years of age and seven were less than 50. On the other hand only one of the nine physicians was less than 50 years of age and five were more than 60.

**Number and Distribution of Clients and Service Calls.**—Office calls and home calls were the two most important types of medical service offered by the practitioners serving the county. For most of the practitioners, office and home calls accounted for practically all of their professional work with the exception of some minor surgery. This minor surgery, however, was considered by many practitioners as being part of an office or home call.

Generally speaking, the greater proportion of home calls was made among village residents. On the other hand, the persons served at the office were more likely to be country people than villagers.

The proportion of home calls made by practitioners in the open-country ranged from none to 90 per cent. Seven of the 20 practitioners made less than one-fourth of their home visits to farm residences and 10 made less than one-half. See Table 1.

TABLE 1.—DISTRIBUTION OF PRACTITIONER SERVICES, BY VILLAGE AND OPEN-COUNTRY.

| Proportion of Service | Number of Practitioners |         |              |         |
|-----------------------|-------------------------|---------|--------------|---------|
|                       | Home Calls              |         | Office Calls |         |
|                       | Open Country            | Village | Open Country | Village |
| Total                 | 20                      | 20      | 20           | 20      |
| Under 25 per cent     | 7                       | 3       | 1            | 5       |
| 24 - 49 per cent      | 3                       | 2       | 3            | 4       |
| 50 per cent           | 3                       | 3       | 6            | 6       |
| 51 - 74 per cent      | 2                       | 3       | 4            | 3       |
| 75 per cent or over   | 3                       | 7       | 5            | 1       |
| Service not offered   | 1                       | 1       |              |         |
| Not reported          | 1                       | 1       | 1            | 1       |

On the other hand open-country residents supplied more than their proportionate number of office calls. Ten practitioners stated that from one-half to three-fourths of the persons coming to their

offices for professional services lived in the open-country, while five maintained that three-fourths or more of their office callers were farm people. Only four practitioners did a major part of their office practice among villagers.

Whether the open-country population received medical care in proportion to the village population is difficult to determine. More than one-half, 57.9 per cent, of the population of the county lived in the open-country in 1930. A comparison of this distribution of population with the proportion of home visits by practitioners in the open-country seems to indicate that the farm group did not receive a proportionate share of medical service. On the other hand, the large amount of office practice among farm people suggests that they received the greater proportion of this type of medical service. Hence, village residents seemed to fare better in terms of medical service in the home and farm residents better in terms of office practice. It must be kept in mind, however, that these comparisons do not include the intensity of practice by practitioners among the two groups.

The average number of home calls per week made by the practitioners serving the county varied from three to 50. The practitioner reporting an average of three home calls per week had been practicing only one month in his present location, while the practitioner reporting 50 home visits per week gave most of his professional medical service in this manner and was well established in the area he served. Eight practitioners averaged less than 20 home calls per week; four averaged 20 calls; four, 25 calls; one, 40 calls; and one, 50 calls. One practitioner did not report the number of home calls per week, and another did not offer this service.

The average number of office calls per week ranged from 10 to 150. The practitioner reporting 150 calls maintained office hours at all times, evenings and Sundays included. Two practitioners averaged less than 25 office calls per week, six had from 25 to 49 calls, nine from 50 to 99 calls, and two had 100 or more. One practitioner did not report on this item.

**Standard Rates for Home and Office Calls.**—For home calls made during the day, the basic rate (not including mileage costs) did not exceed \$2.00 and were never less than \$1.00. See Table 2. Three practitioners reported \$1.00 as the basic rate, four reported \$1.50, and 12 stated that \$2.00 was the basic charge for a home call made during the day. Night rates (not including mileage costs) were somewhat higher than the day rates, although a few prac-

titioners used the same scale. Three practitioners reported their basic night rate to be \$1.00; four, \$1.50; eight, \$2.00; one, \$2.50; two, \$3.00; and one, \$4.00. One practitioner did not provide home service.

TABLE 2.—STANDARD RATES CHARGED BY PRACTITIONERS FOR HOME CALLS AND OFFICE CALLS, BY TIME OF SERVICE.

| Standard Rates      | Number of Practitioners |       |              |       |
|---------------------|-------------------------|-------|--------------|-------|
|                     | Home Calls              |       | Office Calls |       |
|                     | Day                     | Night | Day          | Night |
| Total               | 20                      | 20    | 20           | 20    |
| Under \$1.00        | 0                       | 0     | 5            | 4     |
| \$1.00 - \$1.99     | 7                       | 7     | 14           | 12    |
| \$2.00 - \$2.99     | 12                      | 9     | 1            | 3     |
| \$3.00 - \$3.99     | 0                       | 2     | 0            | 0     |
| \$4.00 - \$4.99     | 0                       | 1     | 0            | 0     |
| Service not offered | 1                       | 1     | 0            | 1     |

The standard rates for office calls were somewhat lower than the rates for home calls. For day time office calls, five practitioners reported the basic rate to be less than \$1.00 (usually 50c), 13 reported the rate as \$1.00, one reported \$1.25 and one reported \$2.00. Night rates were a little higher than day rates. Four practitioners reported the standard charge for such a call to be less than \$1.00; ten, \$1.00; two, \$1.50; and three reported the night rate at \$2.00. One practitioner did not provide office service at night. It should be noted here that the cost of a call, either home or office, included prescribed medicines. All practitioners dispensed their own medicines, unless unusual drugs were required.

In analyzing the factors causing variation in the standard rates, as given above, it is well to distinguish between factors which influence both office call and home call rates and those which influence only home call rates. Three important factors were reported by the practitioners as conditioning the ultimate charge for either home or office call. These were: (1) economic status of client; (2) knowledge of the character of the client; and (3) number of calls. Practically all practitioners admitted taking the economic status, i.e., the ability to pay, of the client into consideration in making charges for either office or home call. However, the extent of such consideration varied among practitioners. In not infrequent instances this consideration was carried to the point of not even submitting a charge for the service rendered. Other practitioners made an effort to scale their charges so that they could be met by the client, and if the occasion demanded, these charges were later rescaled.



Knowledge of the character of the client is closely related to ability to pay, yet is sufficiently dissimilar to deserve special mention. Many practitioners considered what might be termed the "moral worth" of the client in making their charges. Thus, a client of good character and known as "good pay," coming from a well-established family in the community might be given consideration and his bill kept within the limits of his ability to pay.

Most practitioners took the number of calls made, either home or office or both, into consideration in making their charges. That is to say, if the treatment of an illness or disability necessitated the making of several calls, the practitioner based his charges upon the whole treatment rather than upon the actual number of calls made. As far as could be determined, no practitioner who followed this procedure used a definite rate scale in making these adjustments.

For home calls, distance was an important factor in the determination of final charges to be made. Although the local medical society had agreed upon a definite mileage rate, most practitioners found it necessary to modify these rates when considerable distance was involved. Had they not done so, home calls would have been prohibitive to many country families.

Condition of the roads, season of the year, and weather were not reported by the practitioners serving the county as important factors affecting their charges for medical service.

**Surgery.**—Among the 20 practitioners serving the county only one did any major surgery, and one did no surgery whatsoever. The remaining 18 practitioners reported doing minor surgery of various types. Seventeen of the 18 claimed that the fees for the minor surgery performed varied by the type of work done and that in many cases the charges for this type of work was included in the cost of office or home call. One practitioner put a top limit on his charge for minor surgery, stating that it never exceeded 10 dollars.

The only surgeon practicing in the county at the time of the survey stated that it would be impossible to list standard rates for all types of major surgery. For the three types of surgery most frequently performed, standard rates were listed. These were: tonsillectomy, \$30; appendectomy, \$100, if paid in cash, and \$150 if placed on the book; and hernia, \$75 for a single type and \$125 for a double type. Some adjustment in these rates was made according to the economic standing and character of the patient.

**Obstetrics.**—Standard maternity fees ranged from \$15 to \$25. This fee usually included whatever pre-natal and post-natal care

the practitioner was accustomed to give. Four practitioners reported the charge for delivery of a baby to be \$15. For six practitioners, the fee was \$20 if the fee was paid in cash and \$25 if the charge was booked. One practitioner did no maternity work.

There was less tendency to vary maternity fees than charges for other medical services such as ordinary home and office calls. Most practitioners admitted that economic standing and knowledge of the character of the people concerned caused some variation in the total charges, the tendency being to lower the fees for "worthy" cases. On the other hand, if a delivery was extremely difficult, some increase in the fee was made providing the increase did not seriously conflict with the factors mentioned above. As far as could be determined, the time required for delivery played little part in causing variation in charges for obstetrical work.

**Seasonal Variation.**—As might be expected, practitioners maintained that their busiest times were during the winter months, from November through the middle of March, with emphasis upon December, January and February. This was the usual situation unless an epidemic appeared during other months of the year. Infectious and parasitic diseases, the common cold, influenza, and other diseases of the respiratory system tended to keep the practitioners busy during the winter months. In addition to these, diseases of the digestive system, chronic ailments such as those occurring in old age, and accidents were reported as the chief causes for calls by the practitioners serving the county. Most of them also agreed that epidemics frequently created serious problems for them to handle.

**Collections.**—A majority of the practitioners did most of their work on a charge basis rather than upon a cash basis. Of the 20 practitioners serving the county, 12 stated that less than one-half of their work was paid for at the time of performance. Seven reported the proportion of services rendered on a cash basis to be less than one-fourth. Only three practitioners did as much as three-fourths of their work on a cash basis.

Not all charge accounts were collectable. Apparently several factors entered into the collection of medical bills: economic standing of the client; amount of ready cash; the financial situation of the practitioner; and the amount of time and effort devoted to making collections. The per cent of work for which nothing could be collected, as reported by the practitioners, ranged from 3 to 65. Five practitioners did not report on this item. Seven reported less

than 20 per cent of their accounts to be noncollectable; three reported 20 per cent; three, 30 per cent; one, 50 per cent; and one, 65 per cent.

### Dentists

At the time of the survey, six practicing dentists were resident in the county. No dentists resident outside the county had any appreciable part of their patronage among the residents of Lewis County. In terms of geographical location in the county, all dentists except one were located in villages situated near the eastern and western boundaries of the county. Most of the open-country population had considerable distance to travel in order to obtain dental services. One dentist was less than 50 years of age; two were aged 50-60 years; and three were more than 60 years of age.

The usual types of service were offered by the dentists. Included were extractions, fillings, bridgework, crowns, false teeth, and prophylaxis (cleaning of teeth). Most of the dentists reported that extractions and fillings made up the bulk of their practice, particularly among their farmer clients.

**Distribution of Clients.**—Among the six resident dentists practicing in the county there was considerable variation as to the proportion of work done among village clients and the proportion of work done among open-country residents. One reported an equal distribution of his clients among village and open-country residents and two others stated that 70 per cent or more of their work was done among farm people. Three dentists did more than one-half of their work among villagers. The dentists located in the two largest villages of the county had the smallest proportion of their clients resident in the open-country. From the distribution of the practice of the dentists among village and farm residents it would seem that the farm population fared better than the village population. However, as in the case of the distribution of practitioners services, the intensity of practice was not shown.

**Number of Calls.**—The average number of calls per week handled by each dentist ranged from 20 to 60. One dentist stated that during an average week he serviced 20 persons, two reported servicing 25, one 45, one 55, and one reported 60 persons visited his office for some type of dental service during the average week.

**Standard Rates.**—Standard rates for most of the services listed above varied from dentist to dentist. All dentists reported their standard rate for extractions as one dollar per tooth. For fillings the situation was somewhat different. Some dentists had a stan-

standard rate, yet claimed that their charges for this type of service were dependent upon the amount of work entailed in the preparation of the tooth for filling, the type of material used for filling, and the size of cavity to be filled. Gold and silver were the two most widely used materials for fillings, with rare use of synthetic porcelain reported by one dentist. For gold fillings two dentists listed no standard rates, two reported the minimum cost as two dollars, and two reported the charge as three dollars. For silver fillings one dentist had no standard rate, three reported the minimum charge as one dollar, and two stated the basic charge as \$1.50.

Charges for bridgework ranged from five to nine dollars per tooth. One dentist reported no standard rate, one listed the charge as five dollars or more, two as \$7.50, one as eight dollars, and one as nine dollars.

The standard cost of crowns ranged from \$5 to \$10 per tooth. One dentist had no standard rate, one reported the charge as \$5, one as \$7.50, and three listed the basic cost of crowns as being \$8 per tooth.

The cost of a set of false teeth ranged from \$20 to \$50, with one dentist having no standard rate. One dentist listed \$20 as the standard rate, one \$25, one \$35, and two reported the minimum charge for false teeth as \$50 per set.

The standard charge for prophylaxis (cleaning of teeth) was \$1.00 for all dentists.

The above rates were standard rates for units of work done and not the ultimate charges made to the patient. As pointed out above in describing standard rates for fillings, several factors were involved which tended to increase the final cost of dental work. Differences in quality of materials and the amount of preparatory work affected the costs of other types of dental service as well as fillings.

On the other hand, there were factors which tended to make the cost of dental services lower than they would ordinarily be if based entirely on the standard rates per unit of work for the particular type of service involved. The total amount of work done was an important factor in determining the amount to be charged for dental services. As a rule the greater the amount of work done, the lower the unit cost of work. That is to say, a person having 5 teeth extracted was likely to be charged less than five times the standard charge for one tooth. Economic standing and knowledge of the character of the patient likewise entered into the picture. All six dentists practicing in the county listed one or more of

these factors as having some bearing upon the charges made to their patients for services rendered.

**Collections.**—The proportion of clients charging their dental bills and the proportion paying cash for services rendered varied from dentist to dentist. Three dentists claimed a greater proportion of their clients paid cash for services received. The other three stated that the greater proportion of the charges for their services were placed on the books. One dentist listed 10 per cent of his work as being on a cash basis and 90 per cent on a "charge" basis, while another reported that 90 per cent of his work was cash with only 10 per cent charged. The proportion of bills not collected ranged from five to 20 per cent. Two dentists stated that five per cent of their charges were non-collectable, three reported 10 per cent, and one dentist reported 20 per cent to be non-collectable.

**Seasonal Variations.**—Although season of the year did not affect dental practice as it did medical practice, most of the dentists claimed that the summer months were usually the duller months of the year, particularly for those doing an appreciable amount of their work among open-country residents. One possible explanation of this situation is that the summer months are the busiest months of the year for farm people; another is that money is short before the crop is made and sold.

### Hospital

At the time of the survey there was one general hospital located in the county. First organized in 1926, the hospital was at the time of the survey privately owned.

Accommodations were available for 12 persons in normal times, and in cases of emergency 14 persons could be admitted. As a rule the hospital was filled to approximately 50 per cent of capacity. Nursing services were provided by three regular nurses and one extra nurse on call. Two of the nurses were graduates, one was registered and one was a practical nurse.

Room rates ran from \$3.50 to \$4.50 per day and included ordinary nursing care and board. Operating room charges ranged from \$10 for a major operation to \$5 and \$7.50 for a minor operation. X-ray charges varied from \$3 to \$25. The hospital was completely equipped for all types of surgical work and treatment, and all the necessary laboratory facilities for a hospital of this size were available.

In addition to this general hospital within the county, general hospitals in Keokuk, Iowa; Quincy, Illinois; and Kirksville, Missouri were used by the residents of the county.

### Appraisal of Location

The effectiveness of the medical and dental service of an area is determined not only by such factors as the number and types of services offered to the population of the area, and the attitudes of the actual and potential clients toward these services and the practitioners offering them, but also by the attitudes of the practitioners, themselves, toward the location and the people they serve.

In relation to the last of these factors, the 20 medical practitioners and six dentists serving the county were asked to express their views in two different ways toward their practice and the people they served. First, did they consider clients who were residents of the open-country "good pay" as a rule. Second, did they find their location satisfactory from a financial, social and educational point of view.

In answer to the question as to whether open-country residents were considered "good pay," the opinions as expressed by the practitioners and dentists ranged from a negative answer to an unqualified "yes" with varying opinions between these opposites. Expressions such as "average," "good if they have the money," "as good as any group," "poor," were reported. There was some indication that opinions expressed on this matter were affected by something more than the actual payment of medical and dental bills by open-country patients.

As to the satisfactions derived from their present location, most of the dentists and practitioners agreed that they were able to make a decent living. A few maintained that they had less practice than they wanted but that they were not complaining. In relation to this point, the opinion of the clients and non-clients served by these practitioners and dentists seemed to indicate that, on the whole, the practitioners and dentists were rather well-liked and that many of them were regarded as leaders in the communities in which they lived.

The dentists were also asked to express their opinions as to care of teeth by residents of the open-country. These opinions were almost as numerous as the dentists and ranged from one extreme to the other. One dentist claimed that farm people were tending to take less care of their teeth than formerly; another thought the care of teeth by this group was improving. No doubt training, length of time in practice, class of clients, and amount charged for various types of dental service influenced these opinions. Most dentists felt the need for an educational program to bring about better care of teeth by open-country residents.

### III. THE USE OF HEALTH AGENCIES BY THE FARM FAMILIES OF LEWIS COUNTY

#### Occurrence of Illness

In the preceding section, the various types of medical and health agencies serving the population of Lewis County have been located and described. It remains to show the extent to which the farm population of the county use these facilities and to set forth the factors that condition their use. To do that is the task of the remainder of this report.

During the 12 months prior to the survey, illness<sup>1</sup> occurred in a majority of the sample households. Of the 317 households, 240, or 76 per cent, had one or more members ill for some period of time. However, not all households<sup>2</sup> employed a medical agency to treat these disabled persons. Fifty-six families, or approximately one-fourth of the 240 reporting some illness, used no medical agency in the treatment of this condition.

In addition to the 184 households using medical service in the treatment of their ailing members, 49 other households had no members ill yet made some use of available health facilities. The health services employed by this group of families included dental and optical services, immunization, physical examination and consultation.

Twenty-eight households reported no illness and no use of any health service during the 12 months prior to the time of interview. By area, these households comprised 4 per cent of those in the Dickerson, 6 per cent of those in the Reddish, 12 per cent of those in the Union and 13 per cent of those in the Highland area.

Although some illness occurred in a majority of the households, less than one-half of the members of these households were ill. Of the 1121 individuals included in the survey, 509 or 45 per cent, were ill at some time during the year. In the treatment of their illnesses only 244 persons, or less than one-half of the total persons ill, used some type of medical service.

In addition to the 244 individuals using medical service in treatment of illness, 257 others who were not ill made some use of health facilities during the time of the survey. No illness and no use of any type of health service were reported for 355 persons.

**Distribution of Illness.**—Approximately three-fourths of the total number of households reported one or more members ill at some time during the year prior to the interview, but the proportion

<sup>1</sup>An illness was defined as a disability causing loss of time from usual activity.

<sup>2</sup>In this report the terms, "household" and "family" are used interchangeably.

varied considerably from area to area. In the Dickerson area, nine-tenths of the families reported some illness, but in the Highland area only 63 per cent of the families had illness. The Reddish and Union areas were intermediate with 80 per cent and 72 per cent, respectively.

The number of persons ill during the year ranged from one to ten per household. Most of the households with the exception of those in the Reddish area reported either one or two members ill at some time during the survey period. In the Dickerson and Reddish areas approximately one-third of the households reported that three or more members had been ill, while in the Union and Highland areas only 10 per cent were so reported.

Although less than one-half of the total number of individuals included in the survey had been ill, the proportion varied greatly from area to area. In the Dickerson and Reddish areas, a majority of the persons were ill at some time during the year, while in the Union and Highland areas approximately one-third had been ill. Of the 509 individuals so disabled, 91 had more than one illness during the survey period, seventy-nine reported two illnesses, 11 reported three, and one listed four illnesses. Thus, 45 per cent of all persons reported at least one illness during the year and 8 per cent reported more than one.

A mild epidemic of influenza in the Dickerson and Reddish areas accounted in part for: (1) the higher proportion of the households reporting some illness; (2) the relatively larger number of persons ill per household; (3) the larger proportion of individuals ill; and (4) the greater number of individuals having more than one illness in these areas as compared to the Union and Highland areas.

**Types of Illness:**—As pointed out above, 509 of the 1121 persons included in the survey had been ill during the year. However, since a number of persons in each area had two or more illnesses during the time period of the survey, a total of 600 different illnesses was reported.

In reporting the nature of an illness or complaint, the interviewee's name and description of the illness was accepted by the interviewer. This was necessary inasmuch as a large proportion of the cases reported did not receive medical attention and, hence, no professional diagnosis was possible. Where a professional diagnosis was made, the reporting of the nature of the illness was probably reasonably accurate.<sup>1</sup> Typical among the types of illness as re-

<sup>1</sup>Since this is not a study of types of morbidity, the accuracy of the reports concerning the nature of illness is not a matter for concern. Such field studies could not hope to approach clinical accuracy in this respect.



ported by the interviewees were: colds, chicken pox, malaria, flu, arthritis, sugar diabetes, ear trouble, nervous breakdown, paralysis, pneumonia, sinus infection, gallstones, kidney stones, stomach trouble, broken hip, cut foot, tonsil operation, appendectomy, cramps, and blood poison. In a few instances, an illness was reported as the result of two or more joint causes.

TABLE 3.—HOUSEHOLDS CLASSIFIED BY NUMBER OF PERSONS ILL, BY AREA.

| Number of Persons Ill | Number and Per Cent of Households |          |           |          |         |          |       |          |          |          |
|-----------------------|-----------------------------------|----------|-----------|----------|---------|----------|-------|----------|----------|----------|
|                       | Survey Area                       |          |           |          |         |          |       |          |          |          |
|                       | Total                             |          | Dickerson |          | Reddish |          | Union |          | Highland |          |
|                       | No.                               | Per Cent | No.       | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total                 | 317                               | 100.0    | 78        | 100.0    | 78      | 100.0    | 75    | 100.0    | 86       | 100.0    |
| None                  | 77                                | 24.3     | 8         | 10.3     | 16      | 20.5     | 21    | 28.0     | 32       | 37.1     |
| One                   | 97                                | 30.6     | 18        | 23.1     | 25      | 32.1     | 27    | 36.0     | 27       | 31.4     |
| Two                   | 73                                | 23.0     | 23        | 29.4     | 12      | 15.4     | 19    | 25.3     | 19       | 22.1     |
| Three                 | 46                                | 14.5     | 13        | 23.1     | 16      | 20.5     | 8     | 10.7     | 4        | 4.6      |
| Four                  | 10                                | 3.2      | 5         | 6.4      | 3       | 3.8      | 0     | 0.0      | 2        | 2.4      |
| Five or more          | 14                                | 4.4      | 6         | 7.7      | 6       | 7.7      | 0     | 0.0      | 2        | 2.4      |

Sixteen basic classifications of disease and disability were used to classify these reports of illness or complaint. In the main these classifications show the part of the body apparently affected. The classifications were based upon the diagnosis code used in tabulating morbidity statistics published by the Vital Statistics Division of the United States Bureau of the Census. The basic classifications include the following: (1) infectious and parasitic diseases; (2) neoplasms;<sup>1</sup> (3) reumatic fever, diseases of nutrition and of the endocrine glands and other general diseases; (4) diseases of the nervous system and sense organs; (5) diseases of the circulatory system; (6) influenza;<sup>2</sup> (7) other diseases of the respiratory system; (8) diseases of the digestive system; (9) diseases of the genito-urinary system; (10) diseases of the skin; (11) diseases of the bones and organs of movement; (12) general disability; (13) other diseases; (14) diseases ill defined or causes unknown; (15) accidents and external infections; and (16) operations.

Certain types of disease and disability were more frequently reported than others. Influenza was listed as the cause of illness in well over one-third of the 600 cases. This disease was also most frequently reported in all of the survey areas. For the total survey sample, the most important types of illness, ranked in order of fre-

<sup>1</sup>Cancer and other tumors.

<sup>2</sup>Influenza is usually classed as a disease of the respiratory system. Reported so frequently as a cause of illness, this disease was given separate classification.

quency were: (1) influenza; (2) other diseases of the respiratory system; (3) accidents and external infections; (4) diseases of the digestive system; and (5) diseases of the nervous system and sense organs. These five types of disease and disability accounted for seven-tenths of the total number of illnesses reported. Over one-half of the illnesses were apparently due either to influenza or to other diseases of the respiratory system.

From the point of view of the sample areas, it may be said, first, that in each of these areas influenza occurred most frequently. Second, that influenza and other diseases of the respiratory system together accounted for 40 to 60 per cent of the total cases of illness in each area. These diseases accounted for a higher proportion of cases in the Dickerson and Reddish areas than in the Union and Highland areas. Third, influenza, other diseases of the respiratory system, and diseases of the digestive system appeared among the five most frequently reported types of illness in each survey area. It may be inferred from this that greater knowledge of preventive medicine and of the preparation and preservation of foods might have reduced the frequency of these three types of illness. Fourth, accidents and external infections appeared among the first five causes of disability in all areas except Highland.

A majority of the illnesses were of relatively short duration.<sup>1</sup> Of the 600 illnesses or disabilities listed, 389 or approximately 65 per cent lasted less than two months, while over three-fourths lasted less than six months. Thirty-five cases lasted two years or more. See Table 4. The illnesses were of considerably shorter duration in the Dickerson area than in the other three areas. Those in the Union area were of shorter duration, on the average, than those in the Reddish area. In the Highland area the proportion of illnesses lasting less than two months was greater than in either the Union or Reddish areas, while in the Reddish and Union areas the proportion of less than 12 months duration was higher than in the Highland area. On the other hand, the proportion of illnesses lasting less than two years was greater in the Highland area than in the Reddish, but smaller than in the Union.

The figures lead to the inference that the distribution of length of illness in Lewis County is in accord with what is known of the incidence of morbidity, and suggests that most of the cases were of a mild and temporary nature. The cases of illness reported

<sup>1</sup>Length of illness or disability was estimated by the interviewee and subjected to careful check by the interviewer.

TABLE 4.—CASES OF ILLNESS CLASSIFIED BY DURATION OF CASE, BY AREA.

| Duration of Illness | Cases of Illness |          |           |          |         |          |       |          |          |          |
|---------------------|------------------|----------|-----------|----------|---------|----------|-------|----------|----------|----------|
|                     | Survey Area      |          |           |          |         |          |       |          |          |          |
|                     | Total            |          | Dickerson |          | Reddish |          | Union |          | Highland |          |
|                     | No.              | Per Cent | No.       | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total               | 600              | 100.0    | 228       | 100.0    | 164     | 100.0    | 97    | 100.0    | 111      | 100.0    |
| Under two months    | 389              | 64.8     | 160       | 70.2     | 98      | 59.8     | 60    | 61.9     | 71       | 64.0     |
| Under three months  | 429              | 71.5     | 179       | 78.5     | 108     | 65.9     | 66    | 68.1     | 76       | 68.5     |
| Under four months   | 441              | 73.5     | 184       | 80.7     | 111     | 67.7     | 69    | 71.2     | 77       | 69.4     |
| Under six months    | 464              | 77.3     | 194       | 85.1     | 117     | 71.4     | 72    | 74.3     | 81       | 73.0     |
| Under eight months  | 481              | 80.1     | 203       | 89.0     | 121     | 73.8     | 74    | 76.4     | 83       | 74.8     |
| Under ten months    | 492              | 82.0     | 207       | 90.7     | 124     | 75.6     | 76    | 78.5     | 85       | 76.6     |
| Under twelve months | 499              | 83.2     | 208       | 91.1     | 128     | 78.0     | 77    | 79.5     | 86       | 77.5     |
| Under two years     | 508              | 84.7     | 211       | 92.5     | 130     | 79.2     | 78    | 80.5     | 89       | 80.2     |
| Two years or more   | 543              | 90.5     | 214       | 93.9     | 144     | 87.8     | 87    | 89.7     | 98       | 88.3     |
| Not reported        | 57               | 9.5      | 14        | 6.1      | 20      | 12.2     | 10    | 10.3     | 13       | 11.7     |

in the Dickerson area were of shorter duration on the average than those of any other area, a condition explained in part by the high incidence of influenza occurring in that area. In the Reddish area cases were on the average of longer duration than those reported by any other area.

**Age and Sex Variations.**—When the number of cases of illness or complaint was tabulated by broad age groups, it was found that persons aged 65 years or over had reported 63 cases for every 100 persons. Persons under 15 years had 62 cases per 100 persons. Those aged 25 to 44 years had 56 cases, those aged 45 to 64 years had 48 cases and those aged 15 to 24 years had 41 cases per 100 persons respectively.

Among males the number of cases was 56 per 100 persons and among females 51 cases per 100 persons.

**Seasonal Variation.**—As to the seasonal variation of illness among the population studied, it was found that a higher proportion of persons was reported ill during February than for any other month. March was second and July third, with June and January close behind. Fewest cases of illness occurred during August, September and October, in the order given. See Table 5.

Influenza and other diseases of the respiratory system accounted for the high proportion of persons ill during February and March. On the other hand, diseases of the digestive system and accidents and external infections incident to farm work explain in part the high proportion of cases occurring in June and July. It

TABLE 5.—NUMBER OF CASES OF ILLNESS REPORTED EACH MONTH, AUGUST 1938 TO JULY 1939, BY AREA.

| Month     | Cases of Illness |          |             |          |         |          |       |          |          |          |
|-----------|------------------|----------|-------------|----------|---------|----------|-------|----------|----------|----------|
|           | Total*           |          | Survey Area |          |         |          |       |          |          |          |
|           | No.              | Per Cent | Dickerson   |          | Reddish |          | Union |          | Highland |          |
|           | No.              | Per Cent | No.         | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total     | 1868             | 100.0    | 521         | 100.0    | 594     | 100.0    | 366   | 100.0    | 387      | 100.0    |
| August    | 93               | 5.0      | 20          | 3.8      | 32      | 5.4      | 20    | 5.4      | 21       | 5.4      |
| September | 100              | 5.4      | 20          | 3.8      | 34      | 5.7      | 23    | 6.3      | 23       | 5.9      |
| October   | 105              | 5.6      | 23          | 4.4      | 35      | 5.9      | 24    | 6.6      | 23       | 5.9      |
| November  | 119              | 6.4      | 29          | 5.6      | 36      | 6.1      | 24    | 6.6      | 30       | 7.8      |
| December  | 136              | 7.3      | 34          | 6.5      | 48      | 8.1      | 26    | 7.1      | 28       | 7.2      |
| January   | 161              | 8.6      | 49          | 9.4      | 49      | 8.3      | 26    | 7.1      | 37       | 9.6      |
| February  | 275              | 14.7     | 103         | 19.7     | 81      | 13.6     | 47    | 12.8     | 44       | 11.4     |
| March     | 204              | 10.9     | 54          | 10.4     | 60      | 10.1     | 43    | 11.7     | 47       | 12.1     |
| April     | 150              | 8.0      | 47          | 9.0      | 45      | 7.6      | 28    | 7.7      | 30       | 7.8      |
| May       | 151              | 8.1      | 43          | 8.3      | 46      | 7.7      | 32    | 8.7      | 30       | 7.8      |
| June      | 167              | 8.9      | 43          | 8.3      | 57      | 9.6      | 35    | 9.6      | 32       | 8.3      |
| July      | 187              | 10.0     | 51          | 9.8      | 63      | 10.6     | 37    | 10.1     | 36       | 9.3      |
| Unknown   | 20               | 1.1      | 5           | 1.0      | 8       | 1.3      | 1     | 0.3      | 6        | 1.6      |

\*The total number of different cases of illness reported was 600. In this table, cases occurring in more than one month are counted more than once.

is also significant to note in this connection that the late summer and early fall months were times of comparative freedom from illness. During this period, food stocks are ample (both as to quantity and variety) and the dry, sunny weather is favorable to good health.

**Termination of Illness.**—Most of the households having one or more members ill during the time covered by the survey reported that these persons had recovered by the end of the survey period. In several families, however, the member ill had died or was still ailing. In three-fifths of the households, all members reported ill had recovered. Of the 509 individuals who were ill at some time during the 12 months prior to the time of interview, 336, or approximately two-thirds, were reported to have recovered. Six had died and 167 were reported to be still ailing. Two of the six deaths occurred in the Dickerson Area, two in the Union Area, and one each in the Reddish and Highland Areas.

### Practitioner Services

In the treatment of illness many types of medical and health service are used by the families of Lewis County. During the survey year, visits were made to the offices of practitioners, practitioners were called to the home, surgical operations were performed, and hospital and nursing services were obtained. Where these organized facilities were not used, recourse was had frequently to patent remedies and home remedies. In some cases, the patient simply "wore it off."

**Office Calls.**—During the survey period, one or more members of 127 households made at least one call to the office of a practitioner. These 127 households comprised more than one-half of the 240 reporting illness and two-fifths of all households surveyed. The proportion of households having one or more office calls varied from 24 per cent in the Highland area to 51 per cent in the Dickerson area.

A small number of calls per household was the rule rather than the exception. See Table 6. One-fourth of the 127 households reported one visit, over one-half reported less than five visits, while less than 20 per cent reported 10 or more visits per household. In the Dickerson and Highland areas approximately two-thirds of the families reported less than five calls per household. On the other hand, slightly less than one-half of the households in the Reddish area and three-fifths in the Union area reported five or more calls per household. Seven households in these two areas (four in Reddish and three in Union) reported 25 or more calls. The median number of office calls per household for all families using a practitioner was 4.4; for the Dickerson area 3.3; for the Reddish area 4.7; for the Union area 7.5; and for the Highland area 3.3.

Visits to the office of a practitioner were made by 170 persons. This was one-third of the total number reported as ill at some

TABLE 6.—HOUSEHOLDS CLASSIFIED BY NUMBER OF CALLS MADE TO THE OFFICE OF A PRACTITIONER, BY AREA.

| Number of Office Calls                    | Number and Per Cent of Households Survey Area |          |           |          |         |          |       |          |          |          |
|---|---|----------|-----------|----------|---------|----------|-------|----------|----------|----------|
|   | Total   |          | Dickerson |          | Reddish |          | Union |          | Highland |          |
|   | No.   | Per Cent | No.       | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total                                     | 317   | 100.0    | 78        | 100.0    | 78      | 100.0    | 75    | 100.0    | 86       | 100.0    |
| Number households not making office calls | 190   | 59.9     | 38        | 48.7     | 40      | 51.3     | 47    | 62.7     | 65       | 75.6     |
| Number households making office calls     | 127   | 40.1     | 40        | 51.3     | 38      | 48.7     | 28    | 37.3     | 21       | 24.4     |
| Number households making office calls     | 127   | 100.0    | 40        | 100.0    | 38      | 100.0    | 28    | 100.0    | 21       | 100.0    |
| One                                       | 32  | 25.2     | 12        | 30.0     | 7       | 18.4     | 7     | 25.0     | 6        | 28.6     |
| Two                                       | 16  | 12.6     | 7         | 17.5     | 6       | 15.9     | 0     | 0.0      | 3        | 14.3     |
| 3-4                                       | 21  | 16.5     | 7         | 17.5     | 7       | 18.4     | 4     | 14.3     | 3        | 14.3     |
| 5-9                                       | 28  | 22.0     | 9         | 22.5     | 7       | 18.4     | 6     | 21.4     | 6        | 28.6     |
| 10-14                                     | 10  | 7.9      | 1         | 2.5      | 4       | 10.5     | 5     | 17.9     | 0        | 0.0      |
| 15-24                                     | 10  | 7.9      | 4         | 10.0     | 3       | 7.9      | 3     | 10.7     | 0        | 0.0      |
| 25 or over                                | 8   | 6.3      | 0         | 0.0      | 4       | 10.5     | 3     | 10.7     | 1        | 4.8      |
| Not reported                              | 2   | 1.6      | 0         | 0.0      | 0       | 0.0      | 0     | 0.0      | 2        | 9.4      |
| Median number of calls per household      | 4.4   |          | 3.3       |          | 4.7     |          | 7.5   |          | 3.3      |          |

time during the period of the survey. Approximately two-fifths of the persons reported ill in the Reddish and Union areas visited a practitioner's office as compared with three-tenths in the Dickerson area and one-fourth in the Highland area. Of the 170 individuals making office calls, 111, or two-thirds, made less than five calls and 55, or one-third, made five or more calls. The greatest number of calls per person was made by residents of the Union and Reddish areas and the smallest number by those in the Highland and Dickerson areas. In the Dickerson and Highland areas approximately three-fourths of the individuals made less than five calls per person. In the Union area approximately one-half made five or more office calls per person, while well over one-third of the individuals in the Reddish area came into this classification. For the 170 persons making office calls, the median number of calls per person was 3.3; for the Dickerson area 1.3; for the Reddish area 3.9; for the Union area 4.7; and for the Highland area 1.5.

It is significant to note that the Dickerson and Highland areas with the lowest average number of office calls both per household and per person were the areas located the greatest distance from a practitioner's office.<sup>1</sup> On the other hand, the Reddish and Union areas with practitioner services most readily available (from the standpoint of distance) had the highest average number of office calls per household and per person. Thus, distance to a practitioner's office was apparently related to the number of office visits. Added significance is given to this relationship when it is noted that in the Dickerson and Highland areas the households having office calls had the largest number of cases of illness per household, while the Union and Highland areas had the smallest number.

The total expenditure<sup>2</sup> for office calls was not high for most of the households obtaining this service. In the first place, office calls were the cheapest form of service offered by the practitioners serving the county; second, the average number of visits per household was relatively low for a majority of the households; and third, the number of office calls and the total cost of such calls were somewhat related.

Approximately one-half of the households making office calls expended less than five dollars for the service and one-third ex-

<sup>1</sup>During 11 of the 12 months covered by the survey, there was no practitioner resident in the Highland Area.

<sup>2</sup>The term "expenditure" as herein used refers to the bill the family received for services rendered. It was not feasible to obtain the percentage of this bill that had been paid at the time of the interview, or the percentage that might eventually go unpaid.

pended ten dollars or more. See Table 7. Three households were not charged for their office calls, and four were charged less than one dollar. At the other extreme, the expenditure for office calls was 25 dollars or more for the 15 households and 100 dollars or more for three. In the Dickerson and Reddish areas, the expenditure for office calls to one-half or more of the households using this service was less than five dollars while, in the Union area, the expenditure to approximately one-half of the households was 10 dollars or more. The median expenditure was \$5.09 per family having office calls; \$4.07 in the Dickerson area; \$4.76 in the Reddish area; \$8.00 in the Union area; and \$5.38 in the Highland area.

TABLE 7.—HOUSEHOLDS CLASSIFIED BY TOTAL EXPENDITURE FOR CALLS TO OFFICE OF A PRACTITIONER, BY AREA.

| Total Expenditure                         | Number and Per Cent of Households |          |           |          |         |          |       |          |          |          |
|---|-----------------------------------|----------|-----------|----------|---------|----------|-------|----------|----------|----------|
|   | Survey Area                       |          |           |          |         |          |       |          |          |          |
|   | Total                             |          | Dickerson |          | Reddish |          | Union |          | Highland |          |
|   | No.                               | Per Cent | No.       | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total                                     | 317                               | 100.0    | 78        | 100.0    | 78      | 100.0    | 75    | 100.0    | 86       | 100.0    |
| Number households not making office calls | 190                               | 59.9     | 38        | 48.7     | 40      | 51.3     | 47    | 62.7     | 65       | 75.6     |
| Number households making office calls     | 127                               | 40.1     | 40        | 51.3     | 38      | 48.7     | 28    | 37.3     | 21       | 24.4     |
| Number households making office calls     | 127                               | 100.0    | 40        | 100.0    | 38      | 100.0    | 28    | 100.0    | 21       | 100.0    |
| No charge                                 | 3                                 | 2.4      | 2         | 5.0      | 0       | 0.0      | 0     | 0.0      | 1        | 4.8      |
| Under \$1.00                              | 4                                 | 3.1      | 1         | 2.5      | 2       | 5.3      | 1     | 3.6      | 0        | 0.0      |
| \$ 1.00 - \$ 1.99                         | 24                                | 18.9     | 8         | 20.0     | 5       | 13.2     | 4     | 14.3     | 7        | 33.3     |
| \$ 2.00 - \$ 4.99                         | 32                                | 25.2     | 13        | 32.5     | 13      | 34.1     | 4     | 14.3     | 2        | 9.5      |
| \$ 5.00 - \$ 7.99                         | 17                                | 13.4     | 5         | 12.5     | 3       | 7.9      | 5     | 17.9     | 4        | 19.0     |
| \$ 8.00 - \$ 9.99                         | 6                                 | 4.7      | 1         | 2.5      | 3       | 7.9      | 1     | 3.6      | 1        | 4.8      |
| \$10.00 - \$14.99                         | 14                                | 11.0     | 5         | 12.5     | 2       | 5.3      | 5     | 17.9     | 2        | 9.5      |
| \$15.00 - \$24.99                         | 12                                | 9.5      | 3         | 7.5      | 4       | 10.5     | 3     | 10.7     | 2        | 9.5      |
| \$25.00 - \$49.99                         | 7                                 | 5.5      | 1         | 2.5      | 2       | 5.3      | 3     | 10.7     | 1        | 4.8      |
| \$50.00 or over                           | 8                                 | 6.3      | 1         | 2.5      | 4       | 10.5     | 2     | 7.0      | 1        | 4.8      |
| Median expenditure per household          |                                   | \$5.09   |           | \$4.07   |         | \$4.76   |       | \$8.00   |          | \$5.38   |

**Home Calls.**—Home calls, i.e., calls made by the practitioner to the home of the patient, ranked next to office calls in frequency of occurrence. Considerably more expensive to the open-country client than office calls, this type of service was used by many only in cases of absolute necessity and was often regarded as a "medical luxury."

Of the 240 households having some illness, 105 reported at least one home visit by a practitioner during the year. These 105 households comprised one-third of all households and 44 per cent of all households having some illness. The proportion of all households having one or more home calls varied from 26 in the Highland

to 45 in the Dickerson area. With the exception of the Highland area, all areas had a smaller number of families reporting home calls than office calls, although in the Union area the difference was very small.

Since home calls were relatively expensive to the households, the number of such calls was at a minimum. Nearly two-fifths of the 105 families reported but one home call. See Table 8. In the Union area one-third of the households reported one call, and in the Highland area one-half reported one call. Three-fourths of the households listed less than five home calls each, and only 11 reported an average of 10 or more calls. The median number of calls per household for all families having home calls was 1.6; for the Dickerson area 1.8; for the Reddish area 1.5; for the Union area 2.9; and for the Highland area 1.0.

TABLE 8.—HOUSEHOLDS CLASSIFIED BY NUMBER OF HOME CALLS RECEIVED FROM A PRACTITIONER, BY AREA.

| Number of Home Calls                       | Number and Per Cent of Households |       |           |       |          |       |          |       |          |       |
|--|-----------------------------------|-------|-----------|-------|----------|-------|----------|-------|----------|-------|
|  | Survey Area                       |       |           |       |          |       |          |       |          |       |
|  | Total                             |       | Dickerson |       | Reddish  |       | Union    |       | Highland |       |
| No.  | Per Cent                          | No.   | Per Cent  | No.   | Per Cent | No.   | Per Cent | No.   | Per Cent |       |
| Total                                      | 317                               | 100.0 | 78        | 100.0 | 78       | 100.0 | 75       | 100.0 | 86       | 100.0 |
| Number households not receiving home calls | 212                               | 66.9  | 43        | 55.1  | 55       | 70.5  | 50       | 66.7  | 64       | 74.4  |
| Number households receiving home calls     | 105                               | 33.1  | 35        | 44.9  | 23       | 29.5  | 25       | 33.3  | 22       | 25.6  |
| Number households receiving home calls     | 105                               | 100.0 | 35        | 100.0 | 23       | 100.0 | 25       | 100.0 | 22       | 100.0 |
| One  | 40                                | 38.1  | 13        | 37.2  | 8        | 34.9  | 8        | 32.0  | 11       | 50.0  |
| Two  | 19                                | 18.1  | 6         | 17.1  | 5        | 21.7  | 5        | 20.0  | 3        | 13.6  |
| 3 - 4                                      | 20                                | 19.0  | 6         | 17.1  | 5        | 21.7  | 6        | 24.0  | 3        | 13.6  |
| 5 - 9                                      | 13                                | 12.4  | 7         | 20.0  | 2        | 8.7   | 1        | 4.0   | 3        | 13.6  |
| 10 - 14                                    | 5                                 | 4.8   | 0         | 0.0   | 0        | 0.0   | 3        | 12.0  | 2        | 9.2   |
| 15 - 24                                    | 4                                 | 3.8   | 2         | 5.7   | 0        | 0.0   | 2        | 8.0   | 0        | 0.0   |
| 25 or over                                 | 2                                 | 1.9   | 1         | 2.9   | 1        | 4.3   | 0        | 0.0   | 0        | 0.0   |
| Not reported                               | 2                                 | 1.9   | 0         | 0.0   | 2        | 8.7   | 0        | 0.0   | 0        | 0.0   |
| Median number of calls per household       | 1.6                               |       | 1.8       |       | 1.5      |       | 2.9      |       | 1.0      |       |

Approximately one-fourth of the 509 persons ill at some time during the year received at least one home visit from a practitioner. The largest proportion of ailing persons receiving calls lived in the Union area and the smallest proportion in the Reddish area. As a rule the number of home calls per person was small. Four-fifths of the individuals obtaining home calls reported less than five per person. The median number of home calls per person for all areas was 1.0; for the Dickerson area 1.0; for the



Reddish area 0.9; for the Union area 1.7; and for the Highland area 0.9.

With respect to cost, approximately one-third of the households obtaining home calls expended less than 5 dollars each for this purpose; one-third spent 5 to 10 dollars, and one-third 10 dollars or more. See Table 9. Total expenditure for home calls was below average in the Reddish and Highland areas and above aver-

TABLE 9.—HOUSEHOLDS CLASSIFIED BY TOTAL EXPENDITURE FOR HOME CALLS MADE BY PRACTITIONERS, BY AREA.

| Total Expenditure                          | Number and Per Cent of Households |          |           |          |         |          |        |          |          |          |
|--|-----------------------------------|----------|-----------|----------|---------|----------|--------|----------|----------|----------|
|  | Survey Area                       |          |           |          |         |          |        |          |          |          |
|  | Total                             |          | Dickerson |          | Reddish |          | Union  |          | Highland |          |
|  | No.                               | Per Cent | No.       | Per Cent | No.     | Per Cent | No.    | Per Cent | No.      | Per Cent |
| Total                                      | 317                               | 100.0    | 78        | 100.0    | 78      | 100.0    | 75     | 100.0    | 86       | 100.0    |
| Number households not receiving home calls | 212                               | 66.9     | 43        | 55.1     | 55      | 70.5     | 50     | 66.7     | 64       | 74.4     |
| Number households receiving home calls     | 105                               | 33.1     | 35        | 44.9     | 23      | 29.5     | 25     | 33.3     | 22       | 25.6     |
| Number households receiving home calls     | 105                               | 100.0    | 35        | 100.0    | 23      | 100.0    | 25     | 100.0    | 22       | 100.0    |
| No charge                                  | 1                                 | 1.0      | 0         | 0.0      | 1       | 4.3      | 0      | 0.0      | 0        | 0.0      |
| Under \$2.00                               | 3                                 | 2.9      | 2         | 5.7      | 0       | 0.0      | 0      | 0.0      | 1        | 4.5      |
| \$ 2.00 - \$ 4.99                          | 33                                | 31.3     | 6         | 17.1     | 10      | 43.6     | 8      | 32.0     | 9        | 41.0     |
| \$ 5.00 - \$ 7.99                          | 23                                | 21.8     | 11        | 31.4     | 4       | 17.5     | 5      | 20.0     | 3        | 13.7     |
| \$ 8.00 - \$ 9.99                          | 9                                 | 8.6      | 2         | 5.7      | 1       | 4.3      | 4      | 16.0     | 2        | 9.1      |
| \$10.00 - \$14.99                          | 5                                 | 4.8      | 2         | 5.7      | 1       | 4.3      | 1      | 4.0      | 1        | 4.5      |
| \$15.00 - \$24.99                          | 12                                | 11.4     | 5         | 14.3     | 1       | 4.3      | 2      | 8.0      | 4        | 18.2     |
| \$25.00 - \$49.99                          | 11                                | 10.5     | 3         | 8.6      | 2       | 8.7      | 5      | 20.0     | 1        | 4.5      |
| \$50.00 or over                            | 7                                 | 6.7      | 3         | 8.6      | 3       | 13.0     | 0      | 0.0      | 1        | 4.5      |
| Not reported                               | 1                                 | 1.0      | 1         | 2.9      | 0       | 0.0      | 0      | 0.0      | 0        | 0.0      |
| Median expenditure per household           | \$6.95                            |          | \$7.46    |          | \$5.38  |          | \$7.70 |          | \$6.00   |          |

age in the Union and Dickerson areas. In the Reddish area, nearly one-half of the households obtaining home calls expended less than 5 dollars for the service; in the Dickerson area the corresponding proportion was only 23 per cent. At the other extreme, only 18 per cent of these households paid \$25.00 or more for home calls. This proportion varied from 9 per cent in the Highland area to 22 per cent in the Reddish area. The median expenditure for home calls was \$6.95 per family for all areas; \$7.46 for the Dickerson area; \$5.38 for the Reddish area; \$7.70 for the Union area; and \$6.00 for the Highland area.

The distance the practitioner had to travel had an important bearing upon the charges made for home calls. Generally speaking, the greater the distance travelled the greater the charge. The average distance per home call for the entire sample was 8.5 miles. This average distance varied from 6.3 miles in the Union and

Reddish areas to 12.5 miles in the Highland area. More than nine-tenths of the home calls were made by practitioners resident in the county. For the Dickerson and Highland areas the proportion of home calls made by resident practitioners was under 90 per cent; for the Union and Reddish areas 95 per cent or more.

The average cost per home call to the households obtaining this service was \$3.44. The cost per call ranged from \$2.74 in the Union area to \$4.59 in the Highland area. The cost per home call in the Reddish area was \$2.80 and in the Dickerson area \$3.81. The cost per mile averaged 41 cents for all areas. In the Dickerson area the cost per mile was 40 cents, in the Reddish area 45 cents, in the Union area 44 cents, and in the Highland area 37 cents. There was considerable difference in the per mile cost of home calls made by practitioners resident in the county and the per mile cost of calls made by practitioners resident outside the county. For the former, the cost per mile was 42 cents; for the latter, the cost per mile was 32 cents.

From an analysis of the above data, it is possible to draw several conclusions. Generally speaking, households located nearest to practitioners had more home calls during the year than households more remotely located. Second, households located the greatest distance from practitioners resident in the county made more use of practitioners located in adjoining counties and obtained visits at a lower cost per mile.

Third, the average cost per home call was lowest in the Union and Reddish areas where practitioner services were most readily accessible (from the standpoint of distance) and highest in the Dickerson and Highland areas in which the households were located the greatest distance from a practitioner. Fourth, the per mile charges for home calls made by practitioners resident in the county were highest in the survey areas to which the distance covered by the practitioner was shortest, and lowest in the areas to which the distance covered was greatest. Fifth, the per mile charges for home calls made by practitioners resident in adjacent counties were lowest for households having local practitioners close at hand and highest for households located furthest from local practitioners. Competition may have been a factor here.

**Surgery.**—Surgical services were used by one or more members of 27 households. In 26 of these households, one member underwent an operation; in one, two members had operations. Thus, 28 persons underwent operations during the time period of

the survey, giving a rate of 25 operations per 1000 persons. Area rates varied from 7 operations per 1000 persons in Highland to 48 per 1000 in Dickerson.

Surgical services were expensive as compared with other health facilities used. Only one household requiring surgery had an expenditure of less than 15 dollars. Seven households expended from 50 to 99 dollars, six from 100 to 199 dollars, and three expended 200 dollars or more. The median expenditure per household was 68 dollars.

**Physical Examinations.**—As reflected in the reports of the households surveyed, the curative functions of medical service received far greater emphasis than the preventive functions. One evidence of this was the slight use made of a practitioner for either physical examination or consultation. Less than one-third of the families reported using either of these services.

Physical examinations were reported by one or more members of 103 households. These households were well distributed among the survey areas. In the Dickerson area, 29.5 per cent of the households reported physical examinations; in the Reddish area, 39.7 per cent; in the Union area 33.3 per cent; and in the Highland area 28.0 per cent. Of the 1121 individuals included in the survey, 180 had some sort of physical examination during the survey period. This was approximately 16 per cent of the total number of persons, or 160 per 1000. These 180 persons were distributed among the survey areas at the rate of 170 per 1000 in the Dickerson area, 189 per 1000 in the Reddish area, 148 per 1000 in the Union, and 131 per 1000 in the Highland area.

Generally speaking, physical examinations were conducted free of charge by the practitioner. Often the examination was made in connection with an application for a life insurance policy, while at other times, the charge for the examination was absorbed in the charges for medical treatment which followed. Seventy-eight households expended nothing for physical examinations while fifteen households expended less than 10 dollars.

**Consultation.**—One or more members of 98 households consulted a practitioner for purposes other than the treatment of illness, or disability, or for physical examination during the 12 months preceding the time of interview. This was 31 per cent of all households surveyed. In the Dickerson area, 35 per cent, in the Reddish area 37 per cent, in the Union 24 per cent and in the Highland area 35 per cent of the surveyed households obtained some consultation. The total number of persons obtaining consul-

tation was 107. This was less than one-tenth of the total number of individuals included in the survey. The proportion of persons using this service among the four survey areas was as follows: Dickerson 7; Reddish 11; Union 8; and Highland 13.

Family expenditure for consultation was relatively small. For this, three explanations may be offered. First, the amount of the practitioner's time consumed during a consultation was about the same as that required for an ordinary office call. Second, the frequency of consultations for persons using this service was usually small. Third, practitioners may have added the cost of this service to their charges for other services following the consultation. Expenditures for consultation were less than five dollars per family for 70 per cent of the families concerned, and 10 dollars or more for only 15 families. Eleven households received consultation free of charge. The median expenditure for consultation was \$3.53 per household.

**Maternity Record.**—Nineteen births occurred in the survey households during the 12 months prior to visitation. All births were attended by a practitioner. The cost of practitioner services for delivery ranged from nothing (delivery by county doctor) to 26 dollars. For six births the cost of practitioner services was 20 dollars per birth and for seven births the charge was 25 dollars. Charges for maternity work varied by practitioner rather than by area or family income.

**Total Expenditure for Practitioner Services.**—The total expenditure for all practitioner services obtained by the survey families during the survey period was \$7,110. This was an average of \$22.43 per family. In the Dickerson area, expenditure for practitioner services was \$2,248, or \$28.82 per family; in the Reddish area \$2,172, or \$27.84 per family; in the Union area \$1,561, or \$20.81 per family; and in the Highland area approximately \$1,129, or \$13.12 per family. Over one-half (54.3 per cent) of the total expenditure for all health services and drugs went for practitioner services. The proportion ranged from 44.8 per cent in the Highland area to 60.3 per cent in the Reddish area. The proportion going for practitioner services in the Dickerson area was 55.9 per cent and in the Union area 52.9 per cent.

The amount expended for practitioner services per family was affected by a great variety of factors. Among them were: (1) type, length, and intensity of illness; (2) number of persons ill in the family; (3) type of practitioner service used; (4) unit cost of service obtained; (5) distance to practitioner; (6) income of fam-

ily; (7) attitude of practitioners toward clients; and (8) information of clients with respect to matters of health and disease. All these factors were capable of much variation from family to family.

### Hospitalization

Hospital services were used by one or more members of 37 households. In 34 of these households, one member was hospitalized and in three households two members were confined to a hospital.

Some expenditure for hospital service was reported by 36 of the 37 families. Three-fifths expended \$25 or more per household, and one household expended more than \$200. On the other hand, 4 households received hospitalization at no cost. In the main, expenditures for hospital service were higher per family in the Dickerson and Union areas than in the Highland and Reddish areas. Thus, expenditures for this purpose were higher in those areas having higher incomes and higher planes of living.

### Nursing

Nursing services were used by only two families in the treatment of illness during the period covered by the survey. One household in the Dickerson area employed a registered nurse, and one household in the Reddish area used two "practical" nurses. The former expended 24 dollars and the latter 115 dollars.

### Dental Services

Dental services included extractions, fillings, bridge work, false teeth and prophylaxis. Use of one or more of these dental services was reported by 149 households, or 47 per cent of the total number included in the survey. In the Reddish area, only, did more than one-half of the households use dental services during the 12 months prior to the time of interview. Three-fifths of the families had one member employing a dentist, 44 families had two, and 14 families reported three or more members as dental patients. See Table 10.

Some form of dental service was used by 228 persons or slightly more than one-fifth of the total number of individuals included in the survey. In the Dickerson area the proportion of all persons making use of dental services was a little less than one-fifth, while in the other areas the proportion was a little greater than one-fifth.

TABLE 10.—HOUSEHOLDS CLASSIFIED BY NUMBER OF PERSONS USING DENTAL SERVICES, BY AREA.

| Number of Persons                   | Number and Per Cent of Households |          |           |          |         |          |       |          |          |          |
|-------------------------------------|-----------------------------------|----------|-----------|----------|---------|----------|-------|----------|----------|----------|
|                                     | Survey Area                       |          |           |          |         |          |       |          |          |          |
|                                     | Total                             |          | Dickerson |          | Reddish |          | Union |          | Highland |          |
|                                     | No.                               | Per Cent | No.       | Per Cent | No.     | Per Cent | No.   | Per Cent | No.      | Per Cent |
| Total                               | 317                               | 100.0    | 78        | 100.0    | 78      | 100.0    | 75    | 100.0    | 86       | 100.0    |
| Households not using dental service | 168                               | 53.0     | 41        | 52.6     | 37      | 47.4     | 42    | 56.0     | 48       | 55.8     |
| Households using dental service     | 149                               | 47.0     | 37        | 47.7     | 41      | 52.6     | 33    | 44.0     | 38       | 44.2     |
| Households using dental service     | 149                               | 100.0    | 37        | 100.0    | 41      | 100.0    | 33    | 100.0    | 38       | 100.0    |
| One person                          | 91                                | 61.0     | 24        | 64.9     | 23      | 56.1     | 19    | 57.6     | 25       | 65.9     |
| Two persons                         | 44                                | 29.5     | 11        | 29.7     | 14      | 34.1     | 8     | 24.2     | 11       | 28.9     |
| Three persons                       | 8                                 | 5.4      | 2         | 5.4      | 2       | 4.9      | 4     | 12.1     | 0        | 0.0      |
| Four persons                        | 5                                 | 3.4      | 0         | 0.0      | 2       | 4.9      | 2     | 6.1      | 1        | 2.6      |
| Five persons                        | 1                                 | 0.7      | 0         | 0.0      | 0       | 0.0      | 0     | 0.0      | 1        | 2.6      |

More persons visited a dentist for the purpose of having teeth extracted than for any other type of service. Of the 1121 persons included in the survey, 145 used the dentist for extractions, 90 for having teeth filled, 23 for false teeth, 10 for prophylaxis, 4 for bridge work, and 20 for other types of service, which included examinations, inlays and dental surgery. The percentage of persons having extractions by area was as follows: all areas 13; Dickerson 10; Reddish 14; Union 14; Highland 14. The percentage of persons having fillings, by area, was as follows: all areas 8; Dickerson 6; Reddish 8; Union 9; Highland 10. It is significant to note the absence of any large number of individuals making use of prophylactic dental services. Evidently the importance of having the teeth cleaned and inspected by dentists at regular intervals was not too well understood.

Expenditure for dental service was, on the average, low. Seventy-nine, or more than one-half, of the 149 households expended less than \$5. See Table 11. In the Dickerson area three-fifths of the households expended less than \$5, and less than one-fourth \$10 or more. In the Reddish area approximately one-half of the households expended less than \$5, but to more than one-third the cost was \$10 or more. The cost of dental service was \$25 or more to one-fifth of the households in both the Reddish and Highland areas. Three households, one in the Dickerson area and two in the Reddish area received dental services free of charge, while one household in the Reddish area had a dental bill of more than \$100. The median expenditure for dental service was \$4.76 per household for all families obtaining such service; it was \$4.31 per household

TABLE 11.—HOUSEHOLDS CLASSIFIED BY TOTAL EXPENDITURE FOR DENTAL SERVICE, BY AREA.

| Total Expenditure                   | Number and Per Cent of Households |          |           |          |         |          |        |          |          |          |
|-------------------------------------|-----------------------------------|----------|-----------|----------|---------|----------|--------|----------|----------|----------|
|                                     | Survey Area                       |          |           |          |         |          |        |          |          |          |
|                                     | Total                             |          | Dickerson |          | Reddish |          | Union  |          | Highland |          |
|                                     | No.                               | Per Cent | No.       | Per Cent | No.     | Per Cent | No.    | Per Cent | No.      | Per Cent |
| Total                               | 347                               | 100.0    | 78        | 100.0    | 78      | 100.0    | 75     | 100.0    | 86       | 100.0    |
| Households not using dental service | 168                               | 53.0     | 41        | 52.6     | 37      | 47.4     | 42     | 56.0     | 48       | 55.8     |
| Households using dental service     | 149                               | 47.0     | 37        | 47.4     | 41      | 52.6     | 33     | 44.0     | 38       | 44.2     |
| Households using dental service     | 149                               | 100.0    | 37        | 100.0    | 41      | 100.0    | 33     | 100.0    | 38       | 100.0    |
| No charge                           | 3                                 | 2.0      | 1         | 2.7      | 2       | 4.9      | 0      | 0.0      | 0        | 0.0      |
| Under \$1.00                        | 1                                 | 0.7      | 1         | 2.7      | 0       | 0.0      | 0      | 0.0      | 0        | 0.0      |
| \$ 1.00 - \$ 1.99                   | 20                                | 13.4     | 5         | 13.5     | 8       | 19.5     | 5      | 15.1     | 2        | 5.3      |
| \$ 2.00 - \$ 4.99                   | 55                                | 36.9     | 15        | 40.6     | 11      | 26.8     | 13     | 39.5     | 16       | 42.1     |
| \$ 5.00 - \$ 7.99                   | 22                                | 14.7     | 6         | 16.2     | 4       | 9.8      | 5      | 15.1     | 7        | 18.5     |
| \$ 8.00 - \$ 9.99                   | 7                                 | 4.7      | 0         | 0.0      | 2       | 4.9      | 2      | 6.1      | 3        | 7.9      |
| \$10.00 - \$14.99                   | 4                                 | 2.7      | 1         | 2.7      | 2       | 4.9      | 0      | 0.0      | 1        | 2.6      |
| \$15.00 - \$24.99                   | 111                               | 7.4      | 2         | 5.4      | 3       | 7.3      | 5      | 15.1     | 1        | 2.6      |
| \$25.00 - \$49.99                   | 14                                | 9.4      | 2         | 5.4      | 6       | 14.6     | 2      | 6.1      | 4        | 10.5     |
| \$50.00 and over                    | 12                                | 8.1      | 4         | 10.8     | 3       | 7.3      | 1      | 3.0      | 4        | 10.5     |
| Median expenditure per household    | \$4.76                            |          | \$4.31    |          | \$4.86  |          | \$4.64 |          | \$5.42   |          |

for the Dickerson area, \$4.86 for the Reddish area, \$4.64 for the Union area, and \$5.42 per household for the Highland area.

### Optical Services

Optical services obtained by the families surveyed included examination of eyes and purchase of glasses, singly or both together. A total of 79 households, or one-fourth of the total number, obtained some optical service during the 12 months prior to the time of interview. The percentage of households obtaining some optical service by area was as follows: Dickerson 28; Reddish 24; Union 16; and Highland 14. In 65 of the 79 households, two or more members had their eyes examined, or purchased glasses, or both. Of the 1121 persons included in the survey, only 83 or 7.4 per cent had an examination of their eyes. These were distributed somewhat proportionately among the survey areas. An even smaller number were fitted with eye glasses during this time. Inasmuch as many of the individuals having eye examinations were also fitted with glasses, only 102 different persons were reported as using optical services. This was 7.4 per cent of the total number of persons included in the survey.

Optical services were rendered free of charge to 11 households and for less than \$5 to 33 households. Thirty-six households expended from \$5 to \$15, and two expended more than \$25. Optical costs per household were highest in the Union area and lowest in

the Highland area. More than one-half of the households in the Union area expended \$10 or more, while in the Highland area, more than one-half expended less than \$5 for optical services.

### Immunizations<sup>1</sup>

A total of 43 households, or 13.6 per cent of the total number surveyed, reported one or more members immunized during the time period of the survey. They were well distributed among the survey areas.

Immunizations and vaccinations were reported for 84 individuals. This was 7.5 per cent of all persons in the survey households. This proportion varied from 5 per cent in the Highland area to 10 per cent in the Dickerson area. During the year, 4.4 per cent of all persons were vaccinated against smallpox and 5.9 per cent were immunized against diphtheria. Only two persons were immunized against typhoid fever.

Generally speaking, expenditure for immunization was relatively low. The total cost of this service did not exceed \$10 for any household. Three-fourths of the households expended less than two dollars. In only three households did expenditure for this service exceed 5 dollars.

### Drugs and Medicines

Few households reported spending any money for prescribed drugs and medicines during the period of the survey owing to the fact that it was the custom for all practitioners serving the county to dispense the necessary drugs (except rare and special medicines) needed by their patients. Of the 317 households, only 27, or less than one-tenth of the total number, reported expenditures for prescribed drugs. Of these nearly three-fourths were located in the Dickerson area. On the other hand, 310 households reported expenditures for unprescribed drugs. This is chiefly a reflection of the wide use of patent medicines.

Expenditure for all drugs and medicines was relatively low. Seventy per cent of the families reported spending less than \$5 per family, and only 7 per cent spent more than \$25 each. The median expenditure per family for all drugs was \$3.71 for the entire sample; \$3.35 for the Dickerson and Reddish areas; \$4.10 for the Union area; and \$3.92 for the Highland area. It is to be noted that the average expenditure for drugs was highest in the areas (Union, and Highland) in which the households were located near-

<sup>1</sup>Inasmuch as the interviewee was frequently unable to report whether the immunization was performed by a practitioner or a nurse, this type of service is presented separately.



est to a drug store. Compared to other areas, the Highland had lowest average income and most extensive use of home remedies.

**Home Remedies.**—In the treatment of disease and disability considerable use was made of home remedies. Cheaper and readily available at the time needed, these remedies were relied upon to restore health and physical well-being to the sick and disabled.

Of the 317 households surveyed, more than one-half reported using home remedies in the treatment of physical ailments. Home remedies were most widely used in the Highland area and least widely used in the Dickerson area. In the former area, 70 per cent of the families used home remedies as compared with 30 per cent in the latter area. Three-fifths of the households in the Reddish area and one-half of those in the Union area used these remedies. It is to be noted that the areas having the highest proportion of families using home remedies ranked lowest in income and plane of living.

Typical among the home remedies used by the survey households were onion poultice, turpentine, mustard poultice, kerosene, hot packs, skunk grease, goose grease, turpentine and lard, soda and soda water, camphor, sulphur and molasses, and sugar.

**Patent Medicines.**—In contrast to home remedies which were used by a little more than one-half of the households, patent medicines of some sort were used by practically all of the households surveyed. Only four households of the 317 in the total sample reported making no use of such remedies. Among the wide variety of patent medicines used were various brands of laxatives, antiseptics, cold remedies, lotions, and salves. In some instances the complete line of a particular patent medicine company was available in the home.

#### Total Expenditure for Health Services

The total expenditure for all medical and health services used by the 317 households for the 12-month period covered by the survey was \$13,091. This was an average of \$41.30 per household. See Table 12. Included were practitioner services, dental services, hospital services, nursing services, optical services and glasses purchased, immunizations, and expenditures for drugs and medicines both prescribed and unprescribed. Practitioner services accounted for the largest item of expenditure, followed by dental services, hospital services, drugs, optical services, and other health services, in that order. Expenditure for practitioner services comprised more than one-half of the total, while expenditures for dental and practitioner services, the two most extensively used health

TABLE 12.—TOTAL EXPENDITURE FOR MEDICAL AND HEALTH SERVICES BY 317 HOUSEHOLDS SURVEYED, FOR THE TWELVE MONTHS ENDING JULY 31, 1939, CLASSIFIED BY TYPE OF SERVICE, BY AREA.

| Type of Service | Total      |          |           | Survey Area |          |           |            |          |           |            |          |           |            |          |           |
|-----------------|------------|----------|-----------|-------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|
|                 | Total Amt. | Per Cent | Per Hsld. | Dickerson   |          |           | Reddish    |          |           | Union      |          |           | Highland   |          |           |
|                 |            |          |           | Total Amt.  | Per Cent | Per Hsld. | Total Amt. | Per Cent | Per Hsld. | Total Amt. | Per Cent | Per Hsld. | Total Amt. | Per Cent | Per Hsld. |
| Total           | \$13,091   | 100.0    | \$41.30   | \$4,022     | 100.0    | \$51.57   | \$3,600    | 100.0    | \$46.15   | \$2,950    | 100.0    | \$39.33   | \$2,518    | 100.0    | \$29.28   |
| Practitioner    | \$ 7,110   | 54.3     | \$22.43   | \$2,248     | 55.9     | \$28.82   | \$2,172    | 60.3     | \$27.85   | \$1,561    | 52.9     | \$20.81   | \$1,129    | 44.8     | \$13.12   |
| Hospital        | 1,951      | 14.9     | 6.15      | 960         | 23.9     | 12.31     | 328        | 9.1      | 4.21      | 352        | 11.9     | 4.69      | 311        | 12.3     | 3.62      |
| Dental          | 1,996      | 15.3     | 6.30      | 485         | 12.1     | 6.22      | 648        | 18.0     | 8.31      | 309        | 10.5     | 4.12      | 553        | 22.0     | 6.44      |
| Optical         | 552        | 4.2      | 1.74      | 130         | 3.2      | 1.67      | 155        | 4.3      | 1.99      | 172        | 5.8      | 2.30      | 95         | 3.8      | 1.10      |
| Drugs           | 1,123      | 8.6      | 3.54      | 139         | 3.4      | 1.78      | 169        | 4.7      | 2.16      | 447        | 15.2     | 5.95      | 369        | 14.7     | 4.29      |
| Other           | 359        | 2.7      | 1.13      | 60          | 1.5      | 0.77      | 128        | 3.6      | 1.65      | 109        | 3.7      | 1.45      | 61         | 2.4      | 0.72      |

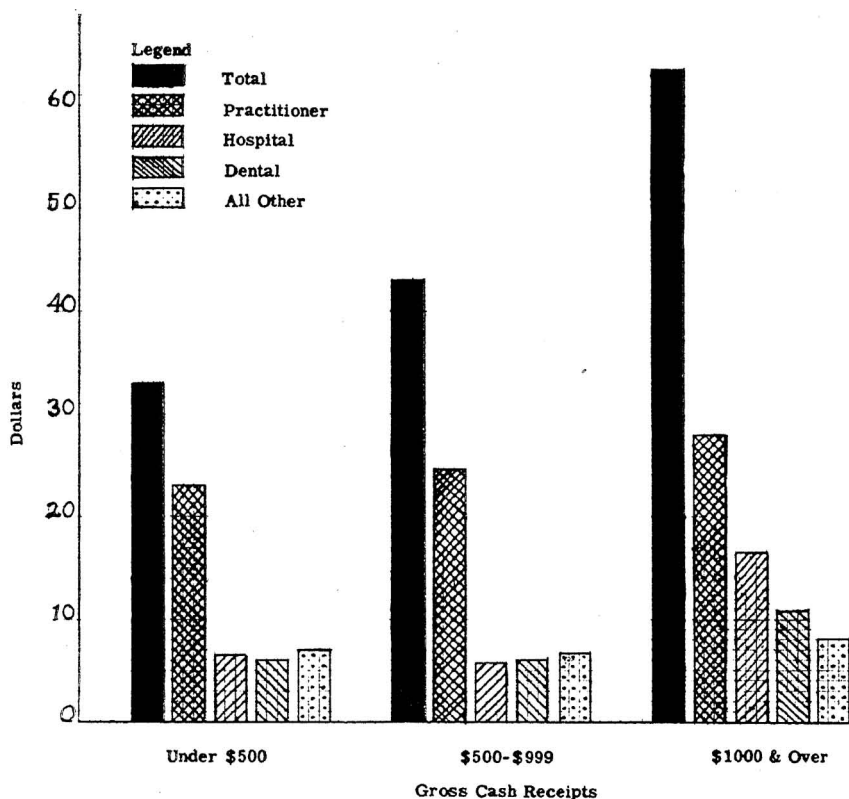


Chart II.—Average expenditure for household for specified types of medical and health service by broad income groups.

services, made up 70 per cent of the total. Expenditure for drugs, the largest part of which went for unprescribed drugs in the form of patent medicines, accounted for 8.6 per cent of the total. Practitioner charges averaged \$22.43 per family. This was more than three times the average cost for dental services or for hospital services. The average expenditure for drugs was \$3.54 per family and for optical services \$1.74 per family.

The distribution of the total expenditure for all medical and health services, by type of service, varied from area to area. In all areas the largest proportion of the total expenditure for all medical and health services went for practitioner services, the percentage varying from 44.8 in the Highland to 60.3 in the Reddish area. Hospital services which accounted for 14.9 per cent of all expenditure varied from 9.1 per cent in the Reddish to 23.9 per cent in the Dickerson area. Expenditure for dental services varied from

Dollars

2.5

2.0

1.5

1.0

.5

0

Practitioner

Hospital

Dental

Optical

Drugs

Other

Chart III.—Average expenditure per household for health purposes.

10.5 per cent in the Union area to 22 per cent in the Highland area. Expenditure for drugs varied from 3.4 per cent of the total in the Dickerson area to 15.2 per cent in the Union area where it exceeded the amount spent for either hospital or dental services.

The total expenditure for all services per household averaged \$41.30 for all households. This average varied from \$29.28 per household in the Highland area to \$51.57 per household in the Dickerson area. The average household expenditure for practitioner services varied from \$13.12 in the Highland area to \$28.82 in the Dickerson area with a county average of \$22.43. Hospital services cost the average household \$6.15, but this figure varied from \$3.62 in the Highland area to \$12.31 in the Dickerson area. Dental services averaged \$6.30 per household but varied from \$4.12 in the Union area to \$8.31 in the Reddish area. Drugs which cost the average household \$3.54 varied from \$1.78 in the Dickerson area to \$5.95 in the Union area.

**Concentration of Costs.**—It is a well-established fact that for any short period of time, such as a year, the burden of expense for medical and health services in any given segment of the general population falls upon a relatively few families or individuals. This is a reflection of the fact that during a short period only a percentage of a given population is likely to feel the need of such facilities. The felt need for medical and health services varies from family to family and is conditioned by a number of important factors, such as: the physical condition of members of the family; the health standards and intelligence of the family; the health standards of the community; access to medical and health facilities; ability to pay for medical and health services; and attitudes of patients toward practitioners and other health agencies.

Because of the known tendency toward concentration of costs, it is not surprising to find that the \$13,091 expended for medical and health services by the 317 Lewis county households during the year covered by this study was very unequally distributed. Actually, eight households (2.6 per cent of the total) incurred 26.5 per cent of the total expenditure. The average expenditure of these eight households was \$434 per household. The concentration of expenditures for medical and health services was greatest in the Dickerson and Reddish areas and least in the Union and Highland areas. In the Reddish area, one family paid one-fifth of the total cost of all medical and health services supplied to the 78 families in the area. Approximately one-half of the total expenditure for all such services to the Dickerson area was borne by five households. In the Union area, one-half of the total was charged to 11 households, and in the Highland area, one-half was charged to nine households. In the Dickerson and Reddish areas less than one-fifth of the households bore three-fourths of the total cost of all medical and health service, while in the Union and Highland areas slightly less than two-fifths bore 75 per cent of the total cost of such service. In the Dickerson area, the average expenditure of two households bearing approximately one-fourth of the total cost was \$485. One household in the Reddish area was charged \$774 for services rendered during the year of the survey. Five households in the Dickerson area, bearing approximately one-half of the total cost, were charged \$396 per household.

During the 12-month period of the survey, the 317 surveyed households expended approximately \$7,110 for practitioner services of all types, including office calls, home calls, surgical operations and treatment, physical examinations, consultations and delivery

of babies. Six of the families paid \$1,849, or 26 per cent, of the total cost of these services. These six families represented approximately two per cent of the total sample. In the Reddish area, 35 per cent of the total cost of practitioner services fell upon one family, while in the Union area four households paid approximately 30 per cent of the total. For the entire sample slightly more than one-half of the total expenditure for practitioner services was paid by 10 per cent of the families, and three-fourths by 25 per cent of the families. All expenditure for practitioner services was paid by 70 per cent of the households. In other words, 3 of every 10 families surveyed either did not use a practitioner during the period covered by the survey, or received such service free of charge.

Analyzing the concentration of the cost of practitioner services on a per family basis, it was found that the average expenditure per family for the six families bearing one-fourth of the total was \$308. In the Reddish area, the average cost to one household bearing 35 per cent of the total was \$760, while to four households in the Union area bearing approximately 30 per cent of the total the average expenditure was \$114. For two households in the Dickerson area bearing 26 per cent of the total cost, the average was \$266 per household. In the Highland area for two households bearing approximately 30 per cent of the total cost for the area, the average was \$166 per household. Thus, the average cost of practitioner services fell heavily upon the few families finding it necessary to make considerable use of practitioners during the year.

The pattern of the concentration of costs for practitioner services and the pattern of concentration of costs of all medical and health services were much the same. The greatest concentration of costs occurred in the Dickerson and Reddish areas and the greatest spread of costs in the Union and Highland areas.

**Relationship of Expenditure to Family Income.**—A direct relationship existed between the expenditure per family for all medical and health services and the reported estimates of gross cash receipts based upon broad income groups. See Table 13. The larger the estimated gross cash receipts, the higher the average amount expended for all medical and health services per family. The same general relationship also held for the expenditure per family for practitioner service, hospital service, dental service and optical service when considered separately. The relationship did not hold for the expenditure for drugs. Probably because of the relatively small number of households in each sample area, the

relationship was not evident in the respective survey areas when considered separately.

Using the average expenditure per household as a base, Table 13 shows by means of an index number how the average expenditure per household varied by income groups. Households with

TABLE 13.—AVERAGE EXPENDITURE PER HOUSEHOLD FOR SPECIFIED TYPES OF MEDICAL AND HEALTH SERVICES, BY BROAD INCOME GROUPS.

| Type of Service       | Gross Cash Receipts* |       |             |       |             |       |               |       |
|-----------------------|----------------------|-------|-------------|-------|-------------|-------|---------------|-------|
|                       | Total                |       | Under \$500 |       | \$500-\$999 |       | \$1000 & over |       |
|                       | Per Hsld.            | Index | Per Hsld.   | Index | Per Hsld.   | Index | Per Hsld.     | Index |
| All Services          | \$42.16              | 100   | \$33.15     | 79    | \$43.12     | 102   | \$63.50       | 151   |
| Practitioner Services | 22.70                | 100   | 19.19       | 85    | 24.74       | 109   | 28.07         | 124   |
| Hospital Services     | 6.53                 | 100   | 3.06        | 47    | 5.81        | 89    | 16.66         | 255   |
| Dental Services       | 5.85                 | 100   | 3.83        | 65    | 5.98        | 102   | 10.77         | 184   |
| Optical Services      | 1.74                 | 100   | 1.52        | 87    | 1.84        | 105   | 2.11          | 121   |
| Drugs                 | 4.46                 | 100   | 4.63        | 104   | 3.99        | 89    | 4.88          | 109   |
| Other                 | 0.89                 | 100   | 0.92        | 103   | 0.77        | 87    | 1.02          | 115   |
| Number of Households  | 297                  | ..    | 143         | ..    | 98          | ..    | 56            | ..    |

\*Estimated.

gross cash incomes of less than \$500 spent only 79 per cent as much as the average for the entire group. Households with incomes of \$500-\$999 were average, but households with incomes of \$1000 or over spent 50 per cent more than the middle group and nearly twice as much as the lowest income group. The contrast among income groups was greatest in the case of hospital expenditure where the low (under \$500) income group index stood at 47 and the high (\$1000 & over) income group index stood at 255. The contrast was at a minimum in the case of expenditure for drugs and medicines. The differences in expenditure by income groups probably do not reflect similar differences in need. More likely they reflect differences in standards and differences in ability to obtain and pay for the services desired.

## SUMMARY

This bulletin summarizes the findings of a survey of medical and health facilities and the extent to which they are used. The survey was made in Lewis County, Missouri, during the summer of 1939, and covered the experience of 317 open-country households for the 12-month period immediately preceding August 1, 1939. The block sample was used. Four sub-samples were taken, each from a different socio-economic area of the county. The information collected included the nature of the medical and health services offered to the people of the county, the amount of illness occurring in the sample households, and the extent to which medical, dental, hospital, optical and nursing services were employed to alleviate such illness.

There were seven licensed physicians, nine osteopathic physicians and one chiropractor practicing in Lewis County at the time of the survey. Three other practitioners residing outside the County also practiced somewhat in the county. In addition to office calls and home calls, most practitioners performed minor surgery. Only one did major surgery and one performed no surgery whatsoever. Obstetrical services were offered by all but one practitioner. All dispensed their own medicines. In addition to practitioners, the county was served by six dentists, a privately owned hospital with accommodations for 12 patients, and a full-time public health nurse employed by the County.

Of the 317 households surveyed 76 per cent had one or more persons ill or disabled from normal activity at some time during the year. This was 45 per cent of the 1121 persons constituting the families. The most frequently reported cause of illness was influenza which accounted for over one-third of the total of 600 cases. Other diseases of the respiratory system, accidents and external infections, and diseases of the digestive system followed in frequency of occurrence. On the average, these ailments were of a relatively short duration. Of the 600 cases listed 65 per cent lasted less than two months. Only one-fourth lasted longer than 6 months.

Fifty-six households, or approximately one-fourth of the 240 reporting illness, made no use of available medical facilities. An additional 49 households reporting no illness, or 43 per cent of the non-ailing persons, made use of some health service which included optical services, immunizations, physical examinations and consultations.



Visits to the office of some practitioner were made during the year by 170 persons representing 127 households. One or more home visits were made by practitioners to 105 households. Practitioners agreed that farmers usually made office calls; villagers more often asked for home calls.

Surgery was employed by one or more persons in 27 households. A total of 28 operations was performed on members of these households during the year.

The 20 practitioners serving the county rendered obstetrical care to 19 mothers during the time covered by the survey. Nursing services were used by two families. Optical services, including examination of eyes and purchase of glasses, were obtained by 79, or one-fourth of the total number, of the households surveyed.

More people visited the dentist for the purpose of having teeth extracted than for any other reason. Of the 1121 persons included in the survey, 145 used the dentist for extraction of teeth, 90 for having teeth filled, 23 for dentures, 10 for prophylaxis, and 4 for bridge work and other types of service, including examinations, inlays and dental surgery.

That the curative aspects of medical service received far greater emphasis than the preventive aspects is indicated by the infrequent use of practitioners either for physical examinations or for consultations. Less than a third of the families used either of these services. Fourteen per cent of the households reported some immunization or vaccination during the year.

Factors that appeared to condition the use of available health facilities were income and distance from such facilities. The use of all types of medical service, especially hospital and dental services, was more frequent among high income families than among low income families. Families near to medical facilities tended to make more frequent use of them than those more remotely located. The felt need for medical and health services, health standards and education of the people, the health standards of the community, and the attitude of the patients toward practitioners also appeared to be important conditioning factors.

The total expenditure for all medical and health services used by the 317 households during the 12-months period covered by the survey was \$13,091. Practitioners' services accounted for the largest item of expenditure (54 per cent), followed in order by dental and hospital services (15 per cent), drugs (9 per cent),

optical services, and other health services. The average cost of these services per household was \$41.30. This was divided as follows: \$22.43 for practitioner services, \$6.30 for dental, \$6.15 for hospital and \$1.74 for optical services, \$3.54 for drugs and medicines and \$1.13 for other purposes.