

INTEGRATED EPIDEMIOLOGICAL SURVEYS

Rural Population of Hungary

THOMAS FÜLÖP

For more than ten years the Institute of Social Medicine has been engaged in integrated study of the rural population's state of health, the frequency with which the rural population makes use of medical services and the factors governing those situations. The Institute has analyzed the effect upon those phenomena of the socialist reorganization of agriculture, the social transformation that has taken place in the villages, general culture factors and distance factors and the decentralization of specialized care; it has also analyzed the findings on the application of methods to the kind of medical care given to the rural population, and on the structure of actual illnesses and of illnesses diagnosed by doctors in that population, the frequency with which those illnesses occur in different population groups and the factors involved. Thus, a study has been made of the frequency of illnesses in the rural population as a whole and in certain groups of it, and of the circumstances affecting that frequency. But findings obtained in different places at different times and by different methods did not give a homogeneous view of the phenomena investigated. It was necessary, therefore, to carry out research in one and the same place, at the same time, using uniform methods, on one particular population group.

Such research was also necessitated by the fact that, for planning purposes, data were required on the rural population's state of health and on the frequency with which it uses health establishments. Such is the background to the "Balmazújváros surveys"—the preparations for which were made in 1963 and carried out in 1964–1965 (the case-finding was done in 1965).

The surveys served a number of purposes. Their main object was to provide a credible scientific picture of the following in the rural population:

1. the conditions of actual and diagnosed morbidity;¹
2. the structure of morbidity;
3. the factors involved in the frequency of occurrence and diffusion of illnesses in the groups;
4. the frequency of use of health establishments and the factors involved.

Another object was to provide, with those data, a broader scientific basis for the organization of a health network to serve the rural population, including preventive and curative services. That was particularly important because 56 per cent of the population of Hungary lives in rural areas, and in all probability the rural population will remain about 40 per cent of the total population for the decade to come.

The information sought promised also to be of scientific value by bringing to light as yet undiscovered facts and relations. The value of the information could, in addition, be still further increased by the fact that an integrated survey of this kind carried out in a single group of the rural population seems to be without precedent either in Hungary or in the international literature.

Selection of the rural commune to be studied was determined by a number of criteria:

1. It had to be a rural area typical of the country, its population had to be representative of the Hungarian rural population in age and sex composition and the position of the agricultural workers had to be easily accessible to study.

2. Basic medical care had to be available, without restriction, to the population within the commune itself.
3. Consultation and hospital services had to be provided for the whole population by one and the same center.
4. The number of inhabitants had to be the minimum required for the survey (a minimum population of 10,000 is required for a population's component elements still to be represented, in sufficient numbers, when it is divided into groups) .
5. The commune's public health workers had to be willing to cooperate.
6. The commune had to be near to the University at Debrecen.

After exhaustive inquiry and lengthy consultations with various national and local bodies, it was decided that Balmazújváros best fitted those requirements. This commune is in northeast Hungary, in the County of Hódj-Bihar (Figure 1), 20 km northwest of Debrecen.² It is served by one railway line and the nearest center for specialized care (apart from the one at Debrecen) is on that line, at Füzesabony, 80 km away. This means that in practice the people in the commune do not go in any significant numbers to health establishments other than those at Debrecen.

The 16,000 members of the commune were representative, as regards the essential criteria, of the country's rural population. For example, their age composition (Table 1) was not basically different from that of the rural population of Hungary, of the County, or of Debrecen district; and the same applies to the other indices taken into account at censuses. Occupation was an exception (Table 2). The area is a typical rural one. Consequently the proportion of rural workers is high: not a great deal higher than the average for the County and the District, but above the average nevertheless. That did not count against it because the idea was to study, more specifically, the conditions of the rural population.

FIGURE 1. POSITION OF BALMAZÚJVÁROS IN HUNGARY

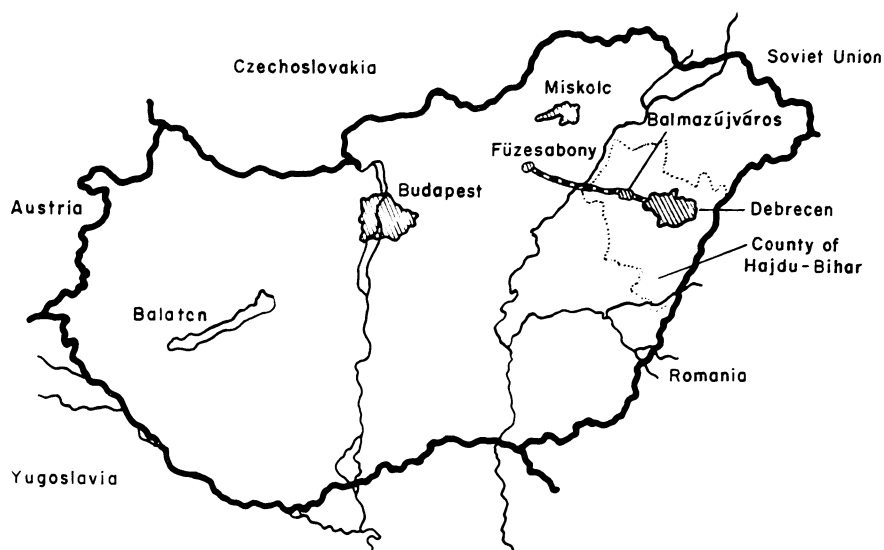


TABLE 1. AGE COMPOSITION OF THE POPULATION ON JANUARY 1, 1960

Unit	Age in Years				Total	
	0-14 %	15-39 %	40-59 %	60 %	Percentage	Number
Balmazújváros	30.9	38.5	19.4	11.2	100.0	18,795
Debrecen district	32.5	37.0	19.5	11.0	100.0	108,724
County of Hajdu-Bihar	30.3	35.9	21.3	12.5	100.0	392,953
Whole Province	27.4	36.0	23.0	13.6	100.0	6,002,637
Hungary	25.4	36.8	24.0	13.8	100.0	9,961,044

* Census data.

TABLE 2. WORKERS IN DIFFERENT SECTORS OF THE NATIONAL ECONOMY ON JANUARY 1, 1960

Unit	All workers*		Per Cent of Workers in*		
	Number	Percentage	Agriculture	Industry, Transport, Trade	Other Sectors
Balmazújváros	8,535	100.0	68.9	19.7	11.4
Debrecen district	51,050	100.0	68.2	21.1	10.7
County of Hajdu-Bihar	180,393	100.0	64.8	21.8	13.4
Whole Province	2,977,153	100.0	55.6	30.9	13.5
Hungary	5,312,831	100.0	35.2	43.1	21.7

* Census data.

At the time the survey was made, five general practitioners were working in the commune, with an administrator and a nurse each.³ The health team for the sector also included an MCH health visitor. A midwife was working for the five sectors. At the end of 1964 a maternity hospital opened under a sector doctor, but that happened too late to affect the survey. Also in the commune were a tuberculosis clinic, with a specialist and a nurse; a retired dentist, who provided stomatologic care for the school children; and a dental technician who came from Debrecen every day. The complement of health establishments was completed by two dispensaries. For any other care it was necessary to go to Debrecen, where all kinds of medical care were, in practice, available.

METHODOLOGY

The survey was preceded by six months' preparatory work. The scheme for the survey was worked out in the greatest detail, and the documentation was prepared drawing on the experience gained by the Institute during previous integrated surveys, on the literature and on experience obtained on study trips abroad. After the grids for the tables had been worked out, the registration lists were compiled (from a card used for the census, the cards filled in when the people of Balmazújváros made use of the public health service and cards on illnesses made out by the Institute). The registration lists were not printed until after a preliminary trial had been made.

The way in which the survey was to be carried out was discussed on a number of occasions with the several hundred health workers who were to take part in it; they were also informed about it in writing.

The survey started with a limited census showing the situation on January 1, 1964. The census was carried out by the local paramedical personnel. They made out cards—at people's homes, based on their identity cards—only for people living in the commune. In the case of persons who worked out-

side the commune a card was completed just for those who "came home to sleep every night." At the end of the year the names of people who had left the commune during the year were obtained from the registers of the Central Bureau of Statistics, and their cards were removed. People born and dying during the year of the survey were taken into account according to the number of months they had lived during that year. Immigrants were excluded. Thus, the material comprises data on 15,952 people (a figure arrived at after allowing for the number of months not lived by persons born and dying during the year).

The principal method of recording the data was as follows. During 1964, when an inhabitant of Balmazújváros made use of any public health facility a card was made out at once. The survey was carried out in this way at nearly 130 points. The people working on it had been well prepared for their work by the Institute, which even signed a contract with them. (The registrars were paid the equivalent of about five US cents a card for making out cards.) The completed cards were collected daily. The collectors first checked with the consultation register, in which the clerks, at the Institute's request, entered the patients' addresses. After that cards were collected of the people whose names appeared on the register. The collectors accepted the "statistical cards" only after detailed cross-checking. At the few places at which medical attention was given where the card-index system had not yet been introduced the doctor's register provided the check. Apart from that, the Institute workers checked the entire system every month.

The cards reaching the Institute were analyzed as they came in. The consultation data on all people stating that they lived at Balmazújváros were entered, by month, in 12 tables. These tables were later corrected to eliminate all data except those on the 15,952 persons whose census cards were to be analyzed.

A total of 126,100 consultation (all types of visits) data were broken down by age, sex, occupation, place of consultation and reason for it and other indices (7.9 consultations per inhab-

itant). In the course of the processing any errors made during collection were detected and were then corrected by cross checking on the spot. When a month's material had been processed, the cards were attached to those filled in at the census, and to those made out day by day throughout the year for newborn children. Thus, at the end of the year a vital statistics card existed for each inhabitant and, attached to it, as many "statistical cards" as the number of occasions the person had used the National Health Service in the course of the year. The commencement of this part of the survey was preceded, at the end of 1963, by a fortnight's trial run.

Particulars of hospitalization were taken from the registers of all the hospitals in the county, and entered on index cards. Among the people of Balmazújváros, 1,506 cases of hospitalization occurred (9.4 cases per 100 inhabitants) during the year.

At the end of the year the Institute entered on index cards, based on the sickness benefit registers, particulars concerning people who had suffered disablement in the course of 1964. All cases of acute communicable disease appearing on the registers of the County Institute of Hygiene and Epidemiology were similarly recorded.

The methods so far described gave a picture of "diagnosed" morbidity, but not one of "actual" morbidity. To determine the latter, two methods were used: follow up and case finding.

In December, 1963, 2,000 people of Balmazújváros selected at random—though it was ascertained that the group was a representative one—were interviewed by four doctors completing their studies at the Debrecen University of Medicine (500 people per doctor). The physician noted the patient's particulars, his anamnesis and the chronic diseases he said he had. For a year the doctors made their rounds during the first ten days of each month and asked what illnesses had occurred during the previous month. The doctors doing this follow-up survey had received exact and detailed directions concerning the method of questioning and of recording complaints and the attendant circumstances. The object was to detect illnesses and complaints

for which people did not see a doctor or for which they went to a private doctor. Note was also made of the illnesses about which people said they had consulted a National Health Service doctor during the previous month. These illnesses were checked later on the registers, which was one of the available means of checking data collected during these surveys. The other means was case finding. A representative sample of the people interviewed throughout the year were invited to present themselves for case-finding, in the course of which the Institute checked whether the chronic diseases they said they had—not diagnosed by a doctor—really existed, and whether they had other diseases of which they were not aware. In the end, owing to wastage, the number of people interviewed was 1,903, and the number of people selected by the case-finding operation was 1,250. The object of the case-finding was thus on the one hand to detect illnesses of which the people and the National Health Service were not aware, and on the other to check the information obtained in the interview and in the entire survey.

The Institute also availed itself of the opportunity to check the case-finding method as follows: from each sector a random group of 320 people was selected (ten per cent representation) whose sector doctors had examined them in accordance with the Institute's instructions and had recorded their comments on case-finding cards. Subsequently, in November, 1965, after lengthy, careful and far-reaching preparations, the Institute spent a month in a case-finding operation with the help of representatives of ten specialities: internal pathology, pediatrics, gynecology (including cytologic examinations and examinations for trichomonas), surgery, orthopedics, otorhinolaryngology, stomatology, ophthalmology (including instrumental examination, for example ophthalmometry), dermatology, mycology (microscope, culture), laboratory urine tests, radiology of the thorax (findings of the most recent radiomicrophotography) and measurement of physical development (height, weight, chest measurement). The findings were entered on the Institute's case-finding cards. (A sound film was made of the

case-finding procedure.) The persons covered by this case-finding consisted of three groups: (1) those who had already been examined by the sector doctors (801 cases), (2) persons picked at random from among those whose cases had been followed up (1,137 persons other than those who were taken into account in the first group), and (3) other cases selected at random (by random numbers, 2,526 people). Altogether case-finding particulars of 4,464 persons were classified (91.6 per cent of the people invited to present themselves for case-finding did so). The case-finding was followed with particular interest by the community: it mobilized large sections of the population and hundreds of medical students. (The latter, spontaneously and without payment, helped the specialists engaged in the case-finding.) The local National Health Service workers, the mass and Party organizations and the local and county Red Cross organs, gave their cooperation in the organization of the work. The people taking part in the case-finding were not paid, so the only expense was the daily hire of a bus.

Among the methods used, time-study deserves mention. An analysis was made, in the commune, of the structure of the work of the sector doctors, the sector nurses, the MCH health visitors and the specialists who did the case-finding. In addition, the interview method was used, in which sick persons who had not been to a doctor during the year were asked why they had not.

Subsequently the Institute also ascertained, by the survey method and the interview method, with the help of the appropriate specialists, the frequency with which medical services were used in the case of certain illnesses and by certain sick persons, the quality of the medical service provided and how the time was used, suitably or unsuitably.

All the material was processed by punch card machine. At the end of the year a final check was made and the material was prepared for input: a team of five statisticians classified each person's census card, and, after both analyzing and interpreting the consultation cards and correcting the diagnoses, made out a registration card for each case of illness that had occurred and

classified that too. Thus, cards were made out on a total of 36,874 cases of illness, and in the end information was obtained, per 1,000 persons, on 2,311.6 cases of illness in which the persons had consulted a doctor during the year of the survey.

The consultation cards listed each diagnosis stated by the National Health Service physician at the time of the consultation. To eliminate duplication and to correct diagnoses, a time sequence of consultation cards was first established. Then the number of episodes of illnesses was hypothetically stated and checked. For example, if a person saw his sector doctor one day and chronic gastritis was the diagnosis listed on the consultation card and two days later the same person saw the internist who diagnosed after x-ray investigation, a gastric ulcer, the latter diagnosis was retained and the diagnosis of chronic gastritis dropped. If at the same time the same person had diabetes and hypertonia that were treated by the physicians, these were counted separately. Each chronic disease was, of course, counted only once during the year, no matter how many times the person had consultations concerning it. (The diagnoses were corrected and classified by Dr. József Horvath, assistant to the Director of the survey.)⁴ The mechanical processing of the material was done (with Hollerith punch cards) in the Mechanical Statistical Processing Section of the Central Bureau of Statistics. The case-finding material was also processed there. Preparation of that material for input was done by two statisticians, and cross-checking, correction and classifying of the disease, again, by Dr. József Horvath. In the mechanical processing, 224 statistical tables were made in the case of the material based on the use of medical services, and 49 statistical tables in that of the case-finding material. The case-finding material also includes the findings of a comparative analysis of the case-finding done by the sector doctors and the specialists, and of the case-finding of the follow-up survey. Processing of the sickness benefit data, and of the time-study data, was done by hand. A mathematical statistical analysis of the material was also made by computer.

During the processing, which took two years in all, the unusually large amount of material (nearly 300,000 cards and nearly 6,000,000 bits of data) presented the Institute with an enormous task.

On questions of method and the terms used, as well as on the results obtained, the Institute proposes to provide detailed information in a series of papers to follow the publication of the present document. It is for the moment confining itself to publishing its most important findings.

Data on Use of Medical Services

In 1964, the 15,952 people observed, visits to hospital apart, used the public health service 126,100 times, or 7.9 times per person.⁵

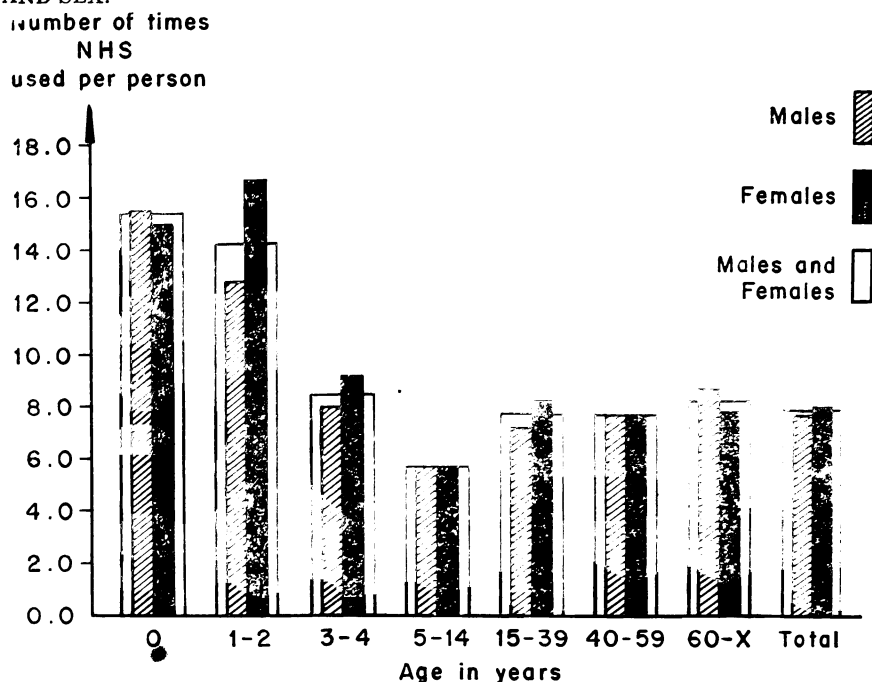
Twenty-one per cent of the people did not use the medical service at all during the year (Table 3); 16.3 per cent used it ten times or more. About half the population (48.4 per cent) used it from one to five times. The percentage not using the medical service at all is lowest among people from 5 to 14 years of age (8.5 per cent); above that age it increases, reaching 29.3 per cent in people aged 60 and over.

The number of times medical services were used per person (Figure 2) is highest among infants (15.4), and then declines; it is lowest among children from 10 to 14 years of age (5.6 times). After that it increases again, but even among people of

TABLE 3. FREQUENCY OF USE OF THE STATE PUBLIC HEALTH SERVICES BY THE PEOPLE OF BALMAZÚJVÁROS IN 1964, BY AGE AND SEX

<i>Number of Times Services Used</i>	<i>Age in Years</i>						<i>Males %</i>	<i>Females %</i>	<i>Total %</i>
	<i>0 %</i>	<i>1-4 %</i>	<i>5-14 %</i>	<i>15-39 %</i>	<i>40-59 %</i>	<i>60 %</i>			
0	12.9	16.3	8.5	22.0	29.2	29.3	20.6	21.3	21.0
1-5	26.9	53.9	70.2	44.7	40.6	39.2	50.1	46.9	48.4
6-9	21.3	18.1	14.1	15.3	12.4	11.4	13.5	15.1	14.3
10-29	36.8	11.2	7.1	16.5	15.0	16.2	13.9	15.1	14.6
30+	2.1	0.5	0.1	1.5	2.8	3.9	1.9	1.6	1.7
Total									
percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
number	568	1,094	3,281	5,624	3,274	2,111	7,628	8,324	15,952

FIGURE 2. FREQUENCY OF USE OF NATIONAL HEALTH SERVICES, BY AGE AND SEX.



70 and over it is hardly more than half the figure for infants under one year of age (8.0). No clearly marked difference was observed between the sexes: the small differences that occur give males a majority in some groups (0 years, and 60 years and over) and females in others.

Two-thirds of cases of use of medical services were accounted for by one or other of the five sector teams working in the village (Table 4). A further one-fifth took place in other local institutions in Balmazújváros. Only 12 per cent occurred outside the commune in the city of Debrecen.

One is immediately struck by the fact that, of the various types of specialist services, radiology, internal pathology, surgery and laboratory work are the four that are most frequently used. Nearly half the total number of cases is accounted for by those four. It is particularly striking that the average annual number of cases of use of medical services is 121.6 per 1,000 persons for

radiology (radiomicrophotography and radioscopy performed in the tuberculosis clinics are excluded from that figure) . Taking all radiologic consultations into account, 5,890 cases were seen during the year, or 369.2 per 1,000 (430.8 for males, 312.8 for females) ; two-thirds of the examinations (66.4 per cent) consisted of radiography of the thorax.

TABLE 4. BREAKDOWN OF USE OF MEDICAL SERVICES BY SEX OF PATIENT AND PLACE OF CONSULTATION

<i>Place of Consultation</i>	<i>Use of Medical Services Per 1,000 People</i>			<i>Per Cent</i>
	<i>Males</i>	<i>Females</i>	<i>Total</i>	
Sector team	5,148.5	5,294.1	5,224.5	66.2
NCH clinic	657.5	1,010.3	841.6	10.6
Stomatologic consultation in the village	489.4	606.3	550.4	7.0
TB clinic in the village	342.7	312.5	326.9	4.1
Polyclinic,* Debrecen including	1,035.8	755.1	889.4	11.2
radiology	167.0	79.9	121.6	13.7
internal pathology	129.9	89.9	109.0	12.3
surgery	147.1	65.7	104.6	11.8
laboratory work	124.0	65.1	93.3	10.5
ophthalmology	90.5	72.3	81.0	9.1
dermatology and venereal diseases	84.9	66.8	75.5	8.5
gynecology		83.0	43.3	4.9
pediatrics	32.6	43.1	38.1	1.3
Other	61.6	81.2	71.8	0.9
Total	7,735.5	8,059.5	7,904.6	100.0

* Including polyclinics operating at Debrecen.

TABLE 5. BREAKDOWN, BY TIME, PLACE AND PATIENT'S SEX, OF USE OF SECTOR TEAM'S SERVICES

<i>Time and Place of Use of Sector Team's Services</i>	<i>Per 100 Cases of Use</i>		
	<i>Males</i>	<i>Females</i>	<i>Males and Females</i>
During consulting hours at a surgery*			
morning	74.0	78.9	76.6
afternoon	17.9	11.5	14.5
At the doctor's house	0.2	0.3	0.3
At the patient's house			
8 am to 8 pm	3.8	6.0	4.9
8 pm to 8 am	0.1	0.3	0.2
On holidays			
at the surgery	3.9	2.8	3.3
at the patient's house	0.1	0.2	0.2
Total			
percentage	100.0	100.0	100.0
number	39,273	44,068	83,341

* The five sector teams all work at the sector doctors' surgeries health center.

In the sectors, it was possible for patients to make use of medical services outside consulting hours and outside surgeries (elsewhere those possibilities were virtually excluded). The breakdown of cases of use of medical services by hour of the day and place of consultation is shown in Table 5.

Over nine-tenths of cases of use of the sector team's services took place in consulting hours at a surgery. However, ten cases per 1,000 population required medical services in their homes between 8 pm and 8 am (an average of 32 cases per sector team per year). The number of cases of use of the team's services at the patient's house on holidays was 146. Thus, each sector team on an average worked on one holiday in two.

The data on use of medical services were also broken down by a number of other aspects (by occupation, month of the year, day of the week and so forth), but the findings and analyses will not be set out in this preliminary paper.

Use of hospital services in the commune more or less corresponds with the average for country districts in this province of Hungary⁵ (ten per cent). In the year of the survey the rate of hospitalization was 94.4 cases per 1,000 population (1,506 actual cases): 56.6 for males, and more than twice that, 125.3, for females. Subtracting the 273 cases represented by induced abortions⁶ (32.8 cases per 1,000 females) and the 331 additional cases represented by pregnancies and childbirth, the 439 cases remaining represent only 52.8 cases per 1,000 females, which is less than the rate for men.

Of the disease groups given as the principal reason for admission to hospitals—cases of induced abortions excluded—diseases of the respiratory system are the most numerous (182 cases), diseases of the digestive system are second (121 cases), infective and parasitic diseases third (92 cases), accidents, poisonings and violence fourth (89 cases), diseases of the genitourinary system fifth (77 cases) and diseases of the nervous system and sense organs sixth (69 cases). These six major groups taken together, excluding the female cases referred to, account for about three-quarters of cases (72.3 per cent). The

other major groups account for 7 to 45 cases. The Institute next proceeded to analyze the cases of use of hospitals from a number of aspects to ascertain the factors involved. The 1,506 cases of treatment represented 18,491 days of treatment. The average duration of treatment of one case was therefore 12.5 days, well below the average of the country for the year concerned (16.1 days). Thus, 11,630 days of treatment were recorded per 10,000 people, which means that the entire population of the commune occupied five hospital beds during the year, or 35 beds per 10,000 people.⁷

Data on Cases of Illness

Turning to illnesses, it was found that 27 per cent of the population had not had any illness diagnosed by a doctor throughout the year (Table 6). One-fifth of the population had had one illness, and one-sixth had two in the course of the year. Taking those two groups together, hardly more than one-third of the population (35.8 per cent) had had one or two cases of illness diagnosed by a doctor in the course of the year. Nearly two-fifths (37.2 per cent) had had three or more, and 1.4 per cent ten or more (the maximum was 23 cases of illness in one person). The situation of age-groups and, within age-groups, the situation of sex groups will be examined when the proportional figures are considered. The proportion of those who

TABLE 6. BREAKDOWN OF INHABITANTS BY AGE, SEX AND THE NUMBER OF ILLNESSES

Number of Cases of Illness	Per 100 People						
	Age in Years				Males	Females	Total
	0-14	15-39	40-59	60+			
0	18.4	29.4	32.3	32.1	28.4	25.7	27.0
1	19.4	21.2	20.1	17.4	21.6	18.3	19.9
2	16.9	16.9	14.3	13.1	16.0	15.8	15.9
3-5	33.1	24.4	23.1	27.3	25.5	28.8	27.2
6-9	10.6	6.9	8.5	8.4	7.4	9.7	8.6
10+	1.6	1.2	1.7	1.7	1.1	1.7	1.4
Total							
percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0
number	4,943	5,624	3,274	2,111	7,628	8,324	15,952

TABLE 7. BREAKDOWN OF ILLNESSES BY MAJOR DISEASE GROUP

Major Disease Group*	Number		Percentage		Per 1,000	
	Males	Females	Total	Males	Females	Total
I. Infective and parasitic diseases	947	855	1,802	5.8	4.2	102.7
II. Neoplasms	55	107	162	0.3	0.5	12.9
III. Allergic, endocrine system, metabolic and nutritional diseases	190	250	440	1.2	1.2	30.0
IV. Diseases of the blood and blood-forming organs	190	390	580	1.2	1.9	46.9
V. Mental, psychoneurotic and personality disorders	328	885	1,213	2.0	4.3	106.3
VI. Diseases of the nervous system and sense organs	1,105	1,108	2,213	6.8	5.4	133.1
VII. Diseases of the circulatory system	961	1,510	2,471	5.9	7.3	181.4
VIII. Diseases of the respiratory system	4,435	4,440	8,875	27.2	21.6	533.4
IX. Diseases of the digestive system	4,297	5,235	9,532	26.3	25.5	628.9
X. Diseases of the genitourinary system	96	942	1,038	0.6	4.6	113.2
XI. Deliveries and complications of pregnancy, childbirth and the puerperium	1,000	1,000	2,000	4.9	4.9	120.1
XII. Diseases of the skin and cellular tissue	1,206	1,122	2,328	7.4	5.5	158.1
XIII. Diseases of the bones and organs of movement	827	1,047	1,874	5.0	5.1	125.8
XIV. Congenital malformations	21	43	64	0.1	0.2	2.8
XV. Certain diseases of early infancy	74	51	125	0.5	0.3	6.1
XVI. Symptoms, senility and ill-defined conditions	417	891	1,308	2.5	4.3	107.0
XVII. Accidents, poisoning and violence	1,178	671	1,849	7.2	3.2	154.4
Total	16,327	20,547	36,874	100.0	100.0	2,408.4
						2,311.6

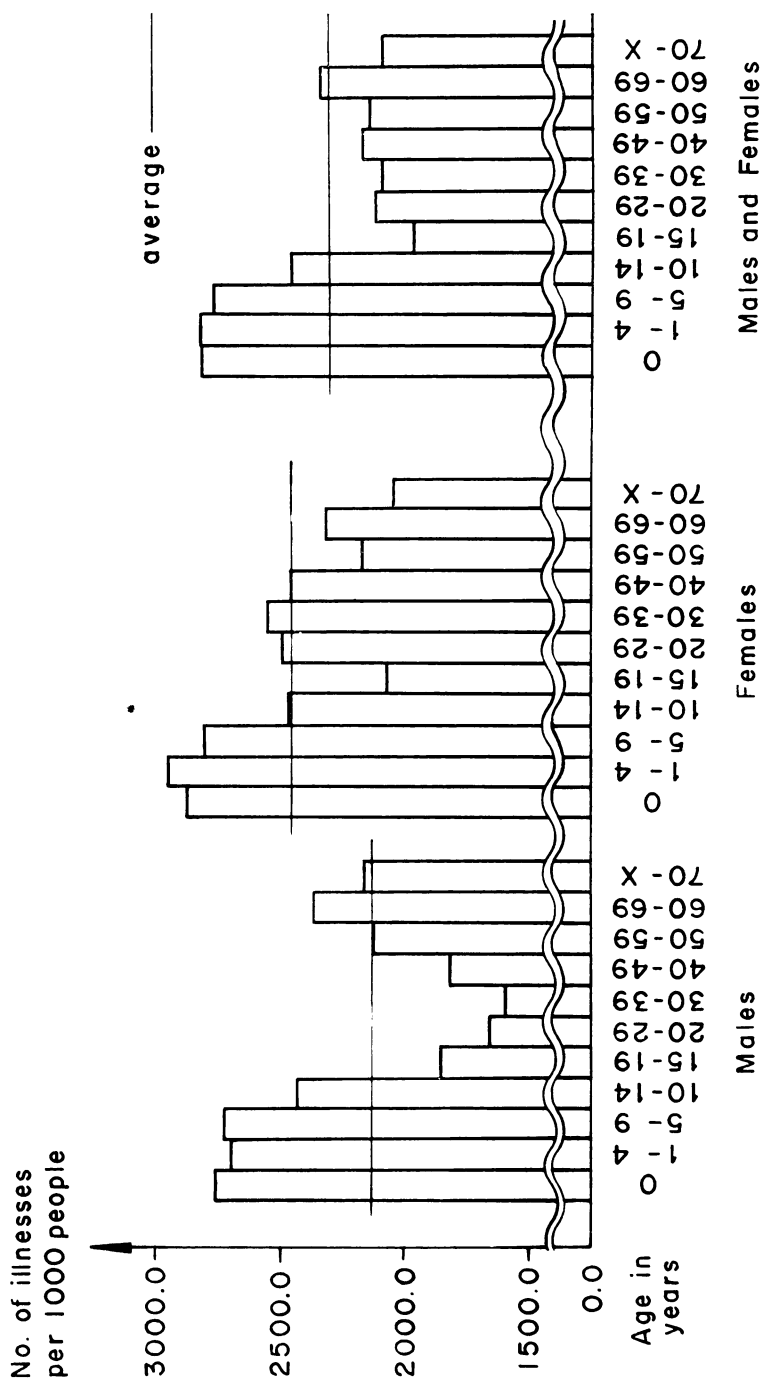
* Based on the *International Classification of Diseases*, Seventh revision.

passed the year without an illness diagnosed by a doctor is lowest (18.4 per cent) in the 0–14 year age group, and highest in the 40–59 year age group (32.3 per cent).

On the other hand, the proportion of those who had ten or more cases of illness is the same in all age groups with the exception of the 15–39 year group (1.6 or 1.7 per cent). The number of diseases diagnosed per 1,000 people was somewhat high in this study. The Institute's previous surveys, and those made in the Soviet Union, Bulgaria, Romania and Czechoslovakia, yielded a figure of 800–1,200, maximum 1,600, cases of illness per 1,000 population. The Danish surveys, similarly, gave a rate below 1,000. Surveys made in the United States (by questioning, not on a basis of medical consultations) gave a rate of about 2,000. Thus the 2,311.6 cases per 1,000 persons found by the Institute is a very high figure (Table 7). It is likely to be accounted for by the rigorous and soundly based organization and checking of the survey; and the Institute believes that this finding approximates most closely to the facts. (This is supported by the still unpublished results of the surveys organized by the Ministry of Health and the Institute of Social Medicine of the Szeged University of Medicine at Balasagyarmat—2,976.8 cases per 1,000 persons—and of those organized at Dorog⁸ by Hahn—2,397.6 cases per 1,000 persons). Manyi, of the Debrecen Institute of Social Medicine, also obtained a figure of over 2,000 in a small commune. The number is probably even higher if account is taken of "actual" morbidity—as distinct from, in the present terminology, "diagnosed" morbidity—which also includes illnesses for which the patient has not consulted a doctor and of which he may not even be aware.

In the Institute's data, morbidity was found to be higher in females (2,468.4 as against 2,140.4 in males). Regarding individual illnesses, diseases of the digestive system and of the respiratory system (25.8 and 24.1 per cent) come first, accounting for one half of cases. They are followed by major groups VII, XII, VI, XIII and I, in that order, with from five to seven

FIGURE 3. FREQUENCY OF CASES OF ILLNESS, BY AGE AND SEX



per cent. Thus seven major groups together account for four-fifths of the total number of illnesses. A substantial difference was found between the sexes in major groups II, IV, V, VII, X and XVI, where males have lower rates, and in group XVII, where females do. (A certain male preponderance is also found in major groups VI, VIII, XII and XV.) Excluding major groups X and XI (the female preponderance only in the case of group X: 100.6), the difference between the sexes falls to

TABLE 8. BREAKDOWN OF ILLNESSES BY DISEASE GROUP AND AGE

<i>Disease Group¹</i>	<i>Number of Illnesses Per 1,000 People Aged in Years</i>				
	<i>0-14</i>	<i>15-39</i>	<i>40-69</i>	<i>60+</i>	<i>Total</i>
I. Infective and parasitic diseases	131.5	68.8	130.4	160.1	113.0
II. Neoplasms	1.0	6.0	20.5	26.5	10.2
III. Allergic, endocrine system, metabolic and nutritional diseases	30.8	22.0	29.3	32.2	27.6
IV. Diseases of the blood and blood-forming organs	58.3	21.5	29.9	34.6	36.4
V. Mental, psychoneurotic and personality disorders	32.2	104.9	108.4	51.6	76.0
VI. Diseases of the nervous system and sense organs	125.8	114.7	180.5	168.2	138.7
VII. Diseases of the circulatory system	23.9	82.5	226.0	544.3	154.9
VIII. Diseases of the respiratory system including	984.4	393.1	320.1	355.3	556.4
acute upper respiratory infections, influenza and bronchitis, excluding pharyngitis and tonsillitis (470, 471, 474, 483, 500)	561.8	212.7	177.2	169.1	307.8
pharyngitis, tonsillitis and other diseases of the tonsils (472, 473, 510, 511)	377.3	157.6	72.7	33.2	191.7
IX. Diseases of the digestive system including	911.1	497.2	455.4	351.0	597.5
diseases of the teeth	804.8	369.8	284.7	148.7	457.9
X. Diseases of the genitourinary system	9.1	91.0	120.7	40.7	65.1
XI. Deliveries and complications of pregnancy, childbirth and the puerperium		173.7	7.0		62.7
XII. Diseases of the skin and cellular tissue	186.7	157.6	108.6	85.3	145.9
XIII. Diseases of the bones and organs of movement	19.8	123.8	212.3	182.4	117.5
XIV. Congenital malformations	34.4	2.5	1.5		11.8
XV. Certain diseases of early infancy					
XVI. Symptoms, senility and ill-defined conditions	25.3	84.6	126.2	139.3	82.0
XVII. Accidents, poisoning and violence	117.3	138.2	97.1	82.4	115.9
Total	2,691.6	2,082.1	2,168.9	2,253.9	2,311.6

¹ Illnesses given separately within the major groups are those that account for over five per cent of the total figure for all the disease groups. Disease groups are based on the *International Classification of Diseases*, Seventh Revision.

107.3 per 1,000 persons, which represents a preponderance of only 6.8 per cent instead of 11.4 per cent.

Among males the smallest number of illnesses occurs in the 30-39 year age group (1,600.6 per 1,000), and in females in the 15-19 group (2,084.5 per 1,000) (Figure 3). The largest occurs among males, in the 0 age group (2,771.5 per 1,000 persons), and in females in the 1-4 year age group (2,967.0 per 1,000). The figures for females under 60 are higher than those for males in every age group; the difference is particularly large between 20 and 49 years of age (between 30 and 39, for example, the difference is 1,600.6, the figure for females being 2,566.0 per 1,000). Over 60 years, the figure is higher for males. It is noteworthy, however, that, contrary to what one would expect, in the age group 70 years and over the figure for recorded illnesses is not as high as in the preceding age group, despite the fact that the figure steadily increases up to that age, from 30 to 39 onwards in males, for example. This picture is clearly not a true one, and must be attributed to a certain negligence on the part of elderly people, or rather on that of the people with whom they live.

As to the frequency of illnesses of different diseases in the various age groups (Table 8), the order and size of the major

TABLE 9. ORDER OF FREQUENCY OF ILLNESSES BELONGING TO THE VARIOUS DISEASE GROUPS, IN DIFFERENT AGE GROUPS

Order	Age Groups (Years)*				Total
	0-14	15-39	40-59	60+	
1	VIII (984.4)	IX (497.2)	IX (445.4)	VII (544.3)	IX (597.5)
2	IX (911.1)	VIII (393.1)	VIII (320.1)	VIII (355.3)	VIII (556.4)
3	XII (186.7)	XI (173.7)	VII (226.0)	IX (351.0)	VII (154.9)
4		XVII (138.2)	XIII (212.3)	XIII (182.4)	XII (145.9)
5			VI (180.5)	VI (168.2)	
Total per cent	77.4	57.7	64.3	71.0	62.9

* The figures in brackets are the figures for 1,000 people; the percentages are percentages of the total number of illnesses for the age group.

groups vary from one age group to another, but disease groups VIII and IX always come first, second or third (Table 9).

Three-quarters of the illnesses (457.9 per 1,000 persons) in the major group of diseases of the digestive system are accounted for by diseases of teeth. Nearly three-fifths of diseases of the respiratory system (307.8 per 1,000 persons) consist, in their turn, of catarrhs of the upper respiratory tract or ordinary influenzas (no epidemic occurred that year!).

Of the 800 three-digit categories given in the Seventh Revision of the International Classification, 493 were found in the commune. In this preliminary paper, no account will be given of the detailed processing by age and sex of the 70 reductions of the groups or of the analysis of the findings. Nor will the results obtained from analysis of the factors involved be discussed. All that will be given is, by way of example, some data on educational level.

Regarding educational level, it may be seen even from the very simple data given here, without mathematical statistical analysis (regression), that the number of illnesses per 1,000 persons increases, in the main, in proportion to the amount of education (Table 10). The number of diseases diagnosed by the doctor is 2,901.9 per 1,000 persons among those who had had 13 years or more of education, but only 1,992.2 per 1,000 among illiterates. A similar or even more marked increasing trend is found in diseases of major groups III, VI, IX and XIII. (For example, the frequency of occurrence of diseases of major group XII among illiterates is only 97.4 per 1,000, but 542.3 among people with 13 years or more of education. The divergence is also significant at the one per thousand level.⁹) Major disease group I shows an opposite trend. Without analyzing further, it may simply be remarked that the differences found are no doubt to be explained, up to a point, by differences in patients' readiness to consult a doctor; but after that point they will be the result of real differences in morbidity.

The remainder of the analyses and the results of study of

TABLE 10. BREAKDOWN OF CASES OF ILLNESS BY DISEASE GROUP AND EDUCATION

Disease Group	Illiterates	Number* of Cases of Illness Per 1,000 People Years of Education				Total
		1-4	5-6	7-8	9+	
I. Infective and parasitic diseases	99.5	112.9	108.1	91.8	46.2	104.6
II. Neoplasms	16.9	14.8	13.7	4.5	17.4	14.3
III. Allergic, endocrine system, metabolic and nutritional diseases	13.1	27.5	22.2	34.3	30.2	26.2
IV. Diseases of the blood and blood-forming organs	33.4	23.7	23.4	26.8	62.3	26.5
V. Mental, psychoneurotic and personality disorders	111.9	94.5	96.4	91.0	119.1	95.7
VI. Diseases of the nervous system and sense organs	114.0	142.2	143.5	146.1	221.1	144.5
VII. Diseases of the circulatory system	245.8	221.9	205.0	207.9	228.6	213.7
VIII. Diseases of the respiratory systems	380.9	374.5	318.1	368.3	483.0	364.2
IX. Diseases of the digestive system	369.8	439.9	450.3	465.3	431.2	456.7
X. Diseases of the genitourinary system	70.0	72.8	99.4	80.0	142.8	90.3
XI. Deliveries and complications of pregnancy, childbirth and the puerperium	74.8	99.1	77.7	110.0	93.1	90.8
XII. Diseases of the skin and cellular tissues	97.4	128.3	112.1	147.1	150.2	127.6
XIII. Diseases of the bones and organs of movement	140.0	181.7	151.7	145.2	149.4	161.3
XIV. Congenital malformations	}	1.2	2.4	1.2	0.8	1.7
XV. Certain diseases of early infancy						
XVI. Symptoms, senility and ill-defined conditions	134.5	108.3	104.8	108.7	148.8	107.5
XVII. Accidents, poisoning and violence	86.2	128.6	105.5	125.8	114.1	115.3
Total	1,994.2	2,171.9	2,034.3	2,154.0	2,438.3	2,140.9

* Data standardized for age, from 15 years onward only; standard: age distribution of population over 15.

other factors will not be set out here. The findings of the additional analyses will however, be given.

The specialists' case finding—though total actual morbidity could not be determined without a blood examination or a more thorough laboratory analysis, for example—nevertheless established the existence, among the 4,464 persons examined,¹⁰ of 14,728 chronic illnesses not diagnosed earlier by the doctor and existing in 1964, which would have required medical attention, observation or medical care (acute illnesses, chronic illnesses diagnosed by the doctor earlier and conditions not needing medical attention are not included in the figure). This is a rate of 3,299 illnesses per 1,000 persons examined. Adding these to the illnesses found in the people observed throughout the year, a figure is obtained of 5,616.9 illnesses per 1,000 inhabitants. However, account should also be taken of illnesses not seen by a doctor, but requiring medical care and that the inhabitants reported at the outset, i.e. during the follow-up survey, and existed at the beginning of 1964 or developed during that year: 680.7 of these were reported per 1,000 inhabitants.¹¹

Overall, 6,291.5 cases were found of recent and already existing illnesses per 1,000 people and the National Health Service was unaware of nearly two-thirds of them. Actual morbidity is no doubt even higher than that figure; i.e., over 6.3 per person.

Among the cases covered by the case-finding operation, the proportion in whom the team of specialists did not find any illness of which the doctors were unaware was only 9.7 per cent (Table 11). This proportion rapidly declines with age, and in every age group—infants excluded—it is lower in females than in males. In nearly three-quarters (73.5 per cent) of people aged 70 and over, however, five or more cases of illness were found. The specific number of illnesses (per person) increases in both sexes parallel with age, and in each age group except the 0–14 age group is higher in females.

The illnesses detected in the case-finding operation are given

TABLE 11. BREAKDOWN OF POPULATION BY AGE, SEX AND NUMBER OF ILLNESSES OF WHICH DOCTORS WERE NOT AWARE DETECTED IN SPECIALISTS' CASE-FINDING OPERATION

Number of Illnesses Detected During Case Finding	Per 100 People									
	Male		Female		Total		Male		Female	
	Age in Years		Age in Years		Age in Years		Age in Years		Age in Years	
	0-14		15-39		40-59		60+		Total	
0	16.2	35.7	26.2	8.4	5.2	6.6	4.8	0.2	2.2	0.3
1	44.7	37.2	40.9	24.5	13.6	18.5	10.0	1.7	5.5	2.9
2-3	37.7	25.3	31.3	50.1	42.7	45.9	45.5	13.2	27.7	17.4
4-6	1.4	1.8	1.6	16.8	32.2	25.3	34.4	53.3	44.8	50.3
7-11				0.2	6.3	3.7	5.3	31.6	19.8	29.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of illnesses per person covered by case finding of the ages and sexes indicated	1.36	1.11	1.18	2.21	3.22	2.76	3.33	5.51	4.51	5.34
Number of people covered by case finding	570	605	1,175	681	854	1,535	488	593	1,081	340
								333	673	2,079
										2,385
										4,464

TABLE 12. BREAKDOWN BY SEX AND DISEASE GROUP OF ILLNESSES OF WHICH DOCTORS WERE NOT AWARE DETECTED IN SPECIALISTS' CASE-FINDING OPERATION

Disease Group	Number of Illnesses					
	Males		Females		Per 1,000	
	Males and Females		Males and Females		Males and Females	
I. Infective and parasitic diseases including dermatophytosis (131)	372	257	629	178.9	107.7	140.9
II. Neoplasms including malignant neoplasms (140-207)	365	252	617	175.6	105.7	138.2
V. Mental, psychoneurotic and personality disorders including psychoneurotic disorders (310-318)	84	268	352	40.4	112.4	78.9
VI. Diseases of the nervous system and sense organs including refractive errors (380) deafness (398)	3	3	6	1.4	1.3	1.3
	52	67	119	25.0	28.1	26.6
	43	62	105	20.7	26.0	23.5
	915	900	1,815	440.1	377.4	406.6
	535	509	1,044	257.3	238.6	247.3
	76	31	107	36.6	13.0	24.0

TABLE 12. (CONTINUED)

<i>Disease Group</i>	<i>Number of Illnesses</i>				<i>Per 1,000</i>	
	<i>Males</i>	<i>Females</i>	<i>Males and Females</i>	<i>Males</i>	<i>Females</i>	<i>Males and Females</i>
VII. Diseases of the circulatory system including myocardial degeneration (422) hypertensive disease (other) (447) general arteriosclerosis (450) varicose veins of lower extremities (460) hemorrhoids (461)	932 94 96 133 325 167	1,289 66 138 68 671 170	2,221 160 234 201 996 337	448.3 45.2 46.2 64.0 156.3 80.3	540.5 27.7 57.9 28.5 281.3 71.3	497.5 35.8 52.4 45.0 223.1 75.5
VIII. Diseases of the respiratory system including hypertrophy of tonsils (510) empysema (527)	530 140 191	328 124 127	858 264 318	254.9 67.3 91.9	137.5 52.0 53.2	192.2 59.1 71.2
IX. Diseases of the digestive system including dental caries (530) hernia of abdominal cavity (560)	858 315 163	816 386 80	1,674 701 243	412.7 151.5 78.4	342.1 161.8 33.5	375.0 157.0 54.4
X. Diseases of the genitourinary system including infective diseases of uterus, vagina and vulva (630) uterovaginal prolapse (631)	37 98	1,976 530 403	2,013 530 403	17.8 47.1	828.5 222.2 169.0	450.9 118.7 90.3
XII. Diseases of the skin and cellular tissue	98	150	248	47.1	62.9	55.6
XIII. Diseases of the bones and organs of movement including scoliosis (745) flat foot (746) hallux valgus and varus (747)	1,658 93 996 92 188	2,742 84 1,547 537 211	4,400 177 2,543 629 399	797.6 44.7 479.1 44.3 90.4	1,149.7 35.2 648.6 225.2 88.5	985.7 39.7 569.7 140.9 89.4
Other	5,724	9,004	14,728	2,753.2	3,775.3	3,299.3
Total	724	1,720	2,444	348.2	721.2	547.5
Required surgical operation ¹						

¹ There was absolute indication in 114 cases who were for the most part speedily operated upon.

TABLE 13. BREAKDOWN OF POPULATION BY SEX AND BY THE NUMBER OF ILLNESSES* OF WHICH DOCTORS WERE NOT AWARE REPORTED IN FOLLOW-UP SURVEY

Number of Illnesses	Males	Females Number	Males and Females		Males and Females	
			Males	Females	Per Cent	Females
0	155	115	270	16.2	12.2	14.1
1	205	116	321	21.3	12.2	16.9
2	179	167	346	18.7	17.6	18.2
3	146	161	307	15.2	17.1	16.3
4-6	221	281	502	23.2	29.9	26.3
7-9	42	90	132	4.4	9.5	6.9
10-14	11	14	25	1.0	1.5	1.3
Total	959	944	1,903	100.0	100.0	100.0

* Illnesses reported as *status praesens* at the beginning of the survey, and illnesses that doctors were not aware of that developed during the year, that in the opinion of the doctors who carried out the survey, ought to have had medical attention.

TABLE 14. FIGURES OBTAINED IN THE FOLLOW-UP SURVEY

	Males	Females	Total
Number of people followed up	959	944	1,903
Illnesses of which doctors were not aware found in the follow-up survey			
number	812	1,018	1,830
per 1,000 persons followed up	846.7	1,078.3	961.6
including chronic illnesses reported at the beginning of the survey			
number	284	433	717
per 1,000 persons followed up	296.1	458.7	376.8

in broad outline (Table 12), but will not be analyzed here. It will simply be mentioned that the number of cases requiring surgical operation was 2,444 of which 114 (for example operable malignant neoplasms, cataract and advanced hyperplasia of the prostate) were urgent.

Of the 1,903 people observed in the follow-up survey, 270 (14.1 per cent) did not at any time during the year report an illness of which the doctors were unaware. Over one-third (34.5 per cent) reported four or more (Table 13). In those 1,903 people (representative selection), the Institute found a total of 1,830 illnesses of which the doctors were unaware, or 961.6 illnesses per 1,000 persons (Table 14). Of these, 376.8 were illnesses reported as chronic illnesses existing at the beginning

of the follow-up survey. During the specialists' case-finding operation, 1,250 of the 1,903 subjects were examined. Of the 367 illnesses these people said they had had, the specialists confirmed 154 (42.0 per cent). However, they diagnosed 4,076 illnesses that had not been mentioned to the interviewers (3,260.8 illnesses per 1,000 persons) though the persons had been aware of 1,999 of them, or of nearly half the illnesses not reported. This shows the shortcomings and limitations of the follow-up method, and how far it is possible to assess, from these data, the real situation with regard to morbidity. One further point: 2,859 cases of illness were found in 970 people (294.7 per 100 people) who had not, at the beginning of the follow-up survey, reported any chronic illness. This means that persons who say they are well have as a rule had three illnesses per person, or roughly the same as the average (3.3 per person).

The nature of the illnesses not reported, although the patients were aware of them, and the nature of the diseases that were reported, but could not be confirmed are shown in Table 15. It will be seen that the greater part of illnesses known but not reported (63.4 per cent) fell in major groups VII, IX and XIII, and that one-third are varicose veins, caries and flat feet. Most of the illnesses reported but not confirmed (61.4 per cent) fell in the same three major groups. "Imaginary invalids" imagine in two-fifths of cases hypertension, diseases of the duodenum and stomach, gall stone and rheumatism. The more detailed analysis of the case finding and follow-up data (by sex, age, occupation, amount of education, disease group and so forth), and the cross-checking of the results of the sector doctors' and the specialists' case finding, will not be reported in this paper.

Reverting to the frequency of use of medical services, but in the present instance just to the frequency of use of a doctor's services in connection with a diagnosed illness (excluding cases of hospitalization), it was found that the number of cases of such use was 2,391.3 per 1,000 illnesses (Table 16). It is surprising that the specific number of cases of use was more than

150 lower in females (2,322.3 per 1,000 persons versus 2,477.9 in males). After 15 years of age a lower rate is seen in each age group in females.

Regarding age, the frequency of use of a doctor's services per 1,000 illnesses declines up to the age of five—it was lowest in the 5–14 year age group—and increases after 14. In the 15–19 year age group it is already greater than in the 0 age-group.

TABLE 15. BREAKDOWN BY DISEASE GROUP OF THE ILLNESSES DISCOVERED IN THE SPECIALISTS' CASE-FINDING OPERATION NOT REPORTED TO THE INTERVIEWERS THOUGH KNOWN BY THE PERSONS QUESTIONED, AND OF THE ILLNESSES REPORTED THEN THAT WERE NOT CONFIRMED BY THE CASE-FINDING

Disease Group	Illnesses			
	Not Reported but Found		Reported but Not Confirmed	
	Number	Percentage	Number	Per Cent
I. Infective and parasitic diseases	133	6.6	4	2.1
including dermatophytosis (131–134)	131	6.6		
II. Neoplasms	78*	3.9	3	1.6
VI. Diseases of the nervous system and sense organs	194	9.7	5	2.6
including refractive errors (380)	93	4.7	1	0.5
deafness (398)	32	1.6	2	1.0
VII. Diseases of the circulatory system	368	18.4	39	20.1
including hypertension (447)	32	1.6	14	7.2
varicose veins of the lower extremities (460)	216	10.9	5	2.6
haemorrhoids (461)	69	3.5	5	2.6
eIII. Diseases of the respiratory system	99	5.0	21**	10.8
including hypertrophy of tonsils (510)	64	3.2	3	1.6
IX. Diseases of the digestive system	422	21.2	53†	27.2
including dental caries (530)	216	10.9		
other diseases of teeth and supporting structure (535)	113	5.7		
hernia of abdominal cavity (560)	26	1.3	3	1.6
X. Diseases of the genitourinary system	79	4.0	6	3.1
XII. Diseases of the skin and cellular tissue	42	2.1	3	1.6
XIII. Diseases of the bones and organs of movement	477	23.8	28††	14.3
including flat foot (746)	232	11.6	2	1.1
hallux valgus and varus (747)	85	4.3		
Other	107	5.3	33	16.6
Total	1,999	100.0	195	100.0

* Benign only.

** Including 14 cases of bronchitis (502).

† Including 32 cases of disease of stomach and duodenum (540–545) and nine cases of cholelithiasis (584).

†† Including 25 cases of rheumatism (722–727).

TABLE 16. BREAKDOWN, BY AGE AND SEX, OF FREQUENCY OF USE OF MEDICAL SERVICES IN CONNECTION WITH ILLNESSES DIAGNOSED BY DOCTORS

<i>Age in Years</i>	<i>Number of Times* Use Made of Medical Services Per 1,000 Illnesses Diagnosed</i>		
	<i>Males</i>	<i>Females</i>	<i>Males and Females</i>
0	1,626.0	1,720.3	1,677.8
1-4	1,596.4	1,636.1	1,616.0
5-14	1,452.4	1,475.7	1,464.0
15-19	2,587.1	2,081.8	2,311.2
20-29	2,856.4	2,387.2	2,551.9
30-39	3,094.6	2,511.3	2,727.5
40-49	2,902.4	2,629.6	2,729.9
50-59	3,422.9	2,985.3	3,175.4
60-69	3,657.5	3,448.9	3,552.6
70+	3,632.6	3,317.6	3,455.1
Total	2,477.9	2,322.3	2,391.3

* Hospitalization excluded.

After 60 the average is 3.5 instances of use of a doctor's services per illness.

Table 17 gives the number of times a doctor's services were used in connection with the various disease groups; the individual illnesses and groups of illnesses quoted inside the major groups represent 73 per cent of the total number of illnesses. Table 17 shows, among other things, that the rates are in excess of ten in the case of certain groups of illnesses (asthma, diabetes, ulcer). In that of diseases of the circulatory system the rates are much lower (the figure for hypertension is 4.5 times per illness). The Institute's data also appear to conflict with the widely held but subjective idea that it is neurotics who "bother" the doctor most frequently. The Institute's data indicate a total of 3.4 cases of use of doctor's services per illness of that type.

TABLE 17. BREAKDOWN, BY SEX AND DISEASE GROUP, OF FREQUENCY OF USE OF MEDICAL SERVICES IN CASES OF ILLNESS DIAGNOSED BY DOCTORS

Disease Group	Number of Times Use Made of Medical Services* Per 1,000 Illnesses			Number of Illnesses Per 1,000 People
	Males	Females	Males and Females	
I. Infective and parasitic diseases	2,221.1	1,974.2	2,103.9	113.0
including tuberculosis (001-019)	5,252.4	4,053.7	4,683.7	12.4
dermatophytosis (131)	1,842.7	1,641.9	1,747.0	10.7
II. Neoplasms	9,800.0	6,635.4	7,719.2	10.2
III. Allergic, endocrine system, metabolic and nutritional diseases	6,289.5	3,356.0	4,622.7	27.6
including bronchial asthma (241)	21,547.6	11,647.0	18,694.9	3.7
urticaria (243)	1,401.6	1,324.8	1,358.4	17.5
diabetes mellitus (260)	10,500.0	13,142.8	12,812.5	1.0
IV. Diseases of the blood and blood-forming organs	2,310.5	2,664.1	2,548.3	36.4
V. Mental, psychoneurotic and personality disorders	3,259.1	3,512.9	3,444.3	76.0
including psychoneurotic disorders (310-318)	3,213.5	3,420.5	3,369.4	71.3
VI. Diseases of the nervous system and sense organs	2,475.1	2,359.2	2,417.0	138.7
including vascular lesions affecting:the cen- tral nervous system (330-334)	10,588.2	7,272.7	9,285.7	1.8
diseases:of nerves and peripheral ganglia (360-369)	5,397.0	4,072.9	4,621.9	10.3
inflammatory diseases of eye (370-372)	1,401.5	1,420.4	1,410.0	46.3
refractive errors (380)	1,819.6	1,801.4	1,808.9	29.5
VII. Diseases of the circulatory system	4,509.9	3,721.2	4,027.9	154.9
including rheumatic fever, chronic rheumatic heart disease and other diseases of heart (400-402, 410-416, 430-434)	12,061.2	8,717.9	10,579.5	5.5
arteriosclerotic coronary disease and myocardial degeneration (420-422)	6,134.3	4,546.6	5,267.8	18.5
hypertensive disease (440-447)	4,306.4	3,935.7	4,049.7	60.6
general arteriosclerosis (450)	4,809.5	4,127.4	4,448.9	25.1
VIII. Diseases of the respiratory system	1,897.1	1,634.6	1,765.7	556.4
including acute upper respiratory infec- tions, influenza, acute bronchitis (470-475, 480-483, 500)	1,496.0	1,367.8	1,430.8	484.3
pneumonia (490-493)	5,328.6	3,802.6	4,534.2	9.1
chronic bronchitis (502)	3,953.6	3,755.9	3,868.1	31.0
hypertrophy of tonsils (510)	4,424.5	3,753.8	4,055.0	14.8
IX. Diseases of the digestive system	1,842.2	1,810.0	1,824.5	597.5
including dental caries (530)	1,257.7	1,373.6	1,320.5	397.7
other diseases of buccal cavity (531-538)	2,361.9	2,418.4	2,394.9	66.5
ulcer (540-542)	12,966.7	8,500.0	11,545.4	2.8
other diseases of stomach and duodenum (543-545)	3,648.8	2,911.4	3,271.7	52.7

TABLE 17. (CONTINUED)

<i>Disease Group</i>	<i>Number of Times Use Made of Medical Services* Per 1,000 Illnesses</i>		<i>Number of Illnesses Per 1,000 People</i>	
	<i>Males</i>	<i>Females</i>	<i>Males and Females</i>	
intestinal catarrh (571-572)	1,784.1	1,422.9	1,606.4	38.9
diseases of gall bladder (584-586)	4,076.9	3,632.3	3,688.1	19.5
X. Diseases of the genitourinary system	4,666.7	2,594.7	2,786.7	65.1
including disorders of menstruation and climacteric symptoms (634-635)		3,685.7	3,685.7	19.8
XI. Deliveries and complications of pregnancy, childbirth and the puerperium		3,434.0	3,434.0	62.7
including induced abortion (650)		2,403.6	2,403.6	17.3
normal pregnancy (Y06)		6,054.1	6,054.1	20.1
XII. Diseases of the skin and cellular tissue	2,069.9	1,841.3	1,959.6	145.9
including infections of skin and sub- cutaneous tissue (690-698)	2,059.9	1,714.9	1,914.9	72.2
other diseases of skin, dermati- tis, seborrheic (700-703)	2,151.9	2,016.1	2,079.9	43.9
XIII. Diseases of the bones and organs of movement	3,216.4	2,716.0	2,936.9	117.5
including arthritis (720-725)	4,880.0	4,237.8	4,508.4	22.4
rheumatism, lumbago (726-727)	2,535.5	2,357.0	2,441.9	72.3
XIV. Congenital malformations	2,463.1	3,659.6	3,058.2	11.8
XV. Certain diseases of early infancy				
XVI. Symptoms, senility and ill-defined conditions	3,546.7	2,903.5	3,108.5	82.0
including headache (791)	3,974.5	3,246.0	3,420.0	41.2
XVII. Accidents, poisoning, violence	3,761.2	2,546.9	3,320.3	115.9
including fracture (N800-829)	9,584.7	8,593.2	9,254.2	11.1
Total	2,477.9	2,322.3	2,391.3	2,311.6

* Hospitalization excluded.

SUMMARY

The remainder of the account of the Institute's data and of the analysis of the data, the mathematical statistical analysis (computation of significance and of confidence limits, analysis of regression and of correlation of several variables, analysis of variance), together with the account of its findings and their cross-checking against those in the literature, will be the subject of a series of future papers. The purpose of the present paper is simply to give an idea of the way in which the survey was made and of its most significant overall data. A more detailed analysis will not only give a more complete picture of the rural population's general morbidity and of the frequency

of its use of the health services, but also in a measure help to make possible scientifically sound forecasting, based on the integrated analysis of the influence of the factors involved. By means of it, knowing the population's parameters of age, sex, occupation, amount of education and so forth, it will be possible to make more realistic computations of future morbidity conditions and future conditions of the use of medical services. All that represents an essential item in the fund of scientific knowledge, one essential for planning the running of public health services and their structure.

From what has been set out in the present preliminary paper alone, it may be stated that:

1. Given proper preparation and organization, it is possible to make a scientific survey that gives accurate and reasonably trustworthy information about the actual epidemiologic conditions of a population group, the frequency with which it uses the health services and the factors involved.
2. Surveys of this kind bristle with difficulties, starting with selection of the sample, ranging through the problems of organizing an integrated survey and the great difficulties of definition, to the difficulties of processing and of analysis.
3. Such surveys require a great deal of work at each stage, from the planning to completion of the analysis, and at some stages a great deal of money as well.
4. The presence of the conditions mentioned, and the use of computers, are required to obtain information, over and above the usual age, sex and disease group analyses, on the subjects above and new scientific conclusions and findings.
5. The data obtained are not only of scientific interest; they also make it possible to provide a firmer scientific basis than existed before for planning the organization and the work of a health service and preventive activities.

6. It is clear even from the data set out in a preliminary paper that the conditions of the population's actual morbidity differ from those hitherto generally reported in the literature: for example, the number of illnesses requiring use of a doctor's services is not one to three, but more than six and about two-thirds of those illnesses are ones of which the public health services are at present unaware.

It seems imperative that the findings of the surveys that have been made should subsequently be checked, with cross checking and use of methodologic tests; also the surveys should be extended to smaller representative groups to obtain more detailed information about the factors involved, above all the social and psychological factors, taking into account the social background (with the help of hygienists, clinicians, psychologists, sociologists and mathematicians).

REFERENCES

¹ For present purposes diagnosed morbidity means morbidity recognized by physicians of the National Health Services. It is not the same thing as actual morbidity because people who need to do so do not always go to a doctor.

² Debrecen is a university town with a population of 150,000; formerly an agricultural center, it is fast becoming industrialized.

³ To understand what follows it is necessary to be familiar with the system of medical care provided for the rural population in Hungary. Virtually the entire population is insured: it receives all kinds of care free of charge and pays only for medicines, 15 per cent of their cost. All the health care is provided by the National Health Services (NHS) and all health personnel are employed and paid by the State. The communes themselves are divided into sectors, averaging 3,000 persons, and a sector doctor works in each sector. The sector nurse helps the doctor at the surgery and on his rounds. At the surgery the administrative work is done by a health administrator. The doctor is alone with the patient while the history is taken and during the medical examination. Three times a week the sector doctor sees pregnant women, mothers and infants at another MCH surgery. There he is assisted by an MCH health visitor, who in addition visits the pregnant women, mothers and infants at home. When necessary the sector doctor refers patients to a polyclinic where specialists of all kinds and the necessary equipment are available. From there the patient is, if need be, sent to hospital. (In an emergency the sector doctor can send a patient to hospital himself.) Some chronic diseases are treated in clinics (tuberculosis, cancer and venereal diseases). The patient is reimbursed travel expenses incurred in connection with the illness.

⁴ *The International Classification of Diseases, (Seventh Revision)* was used for classifying them and dividing them into groups.

⁵ For present purposes the use of medical services means use of the services of any NHS establishment (hospitals excepted) or any NHS worker. If a person uses the services of the same establishment or worker several times on the same day, that is counted as several cases of use of medical services. As will have been seen earlier in this paper, neither financial considerations nor considerations of distance restricted use of medical services.

⁶ Induced abortion is performed in Hungary at the woman's request in an Institution.

⁷ The number of beds per 10,000 people in the country was 75.3 at the end of 1964.

⁸ The population of Balassagyarmat is 12,000, and that of Dorog 10,000; the surveys were made in 1964-1965.

⁹ The significance of the difference was checked by χ^2 test.

¹⁰ The methods of selection were explained in detail earlier.

¹¹ This figure is arrived at by counting, among the chronic illnesses of which the doctors were unaware but that required medical care and which patients reported at the outset, only such as were confirmed by the specialists' case finding (42 per cent of the illnesses reported); also, to avoid counting the same cases twice over, those found during the case finding and consequently included in the case-finding figures have, of course, been deducted.

¹² Recent illness: illness developing during the year (the ratio of this to the number of the population is incidence). Already existing illness: condition already existing at the beginning of the year (the ratio of this to the number of the population is prevalence). Incidence and prevalence, together, are contingency.

ACKNOWLEDGMENT

The author acknowledges with gratitude that the staff of the Division of Research in Epidemiology and Communications Science, World Health Organization, translated this paper from French into English.