VARIATION IN NURSING SERVICE WITH FAMILY INCOME AND SIZE OF CITY

BASED ON RECORDS FOR 9,000 FAMILIES IN EIGHTEEN STATES VISITED PERIODICALLY FOR TWELVE MONTHS, 1928-1931[1]

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THERE is an acute shortage of adequately trained nursing personnel. When the needs of the Armed Forces are satisfied, the remaining nurses can meet urgent civilian needs only if their services are distributed among the various elements of the population on the basis of need for care.

Full-time private nursing service is now distributed among the different economic levels like a luxury; the higher income brackets get the most care and the poor get very little. However, visiting nursing goes largely to low-income levels. The situation with respect to all nursing is not unlike that of hospital care—the rich and poor get more nursing than the middle-income groups. This paper presents some quantitative data on the distribution of nursing service of the several kinds among families of different economic levels in urban and rural areas.

SOURCE AND CHARACTER OF DATA

In the study of illness in a group of families in eighteen States

[1] From General Morbidity Studies, Division of Public Health Methods, National Institute of Health.

This is the twenty-first of a series of papers on sickness and medical care in this group of families (1-20). The survey of these families was organized and conducted by the Committee on the Costs of Medical Care; the tabulation was done under a cooperative arrangement between the Committee and the Public Health Service. Committee publications based on the results deal primarily with costs and Public Health Service publications primarily with the incidence of illness and the extent and kind of medical care, without regard to costs. As costs are meaningless without some knowledge of the extent and nature of the service received, there is inevitably some overlapping. The Committee staff, particularly Dr. I. S. Falk and Miss Margaret Klem, cooperated in the tabulation of the data.

Special thanks are due to Dr. Mary Gover and Miss Clara E. Councell who assisted in the analysis, and to Mrs. Lily Vanzee Welch and Mrs. Dorothy Oliver who were in charge of tabulating the data.

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that was made by the Committee on the Costs of Medical Care (21) and the United States Public Health Service,[3] the record for each illness included a statement of the nursing days and visits received within the twelve-month study period.

The composition and characteristics of the group of 8,758 white families which were kept under observation for twelve consecutive months in the years 1928-1931 have been considered in some detail in the first report in the series (1). These families, including a total of 39,185 individuals, resided in 130 localities in eighteen States representing all geographic sections. Every size of community was included, from metropolitan districts to small industrial and agricultural towns and rural unincorporated areas.[4] With respect to income, the distribution was reasonably similar to the estimated distribution of the general population of the United States at the time of the survey.

Each family was visited at intervals of two to four months for a period long enough to obtain a sickness record for twelve consecutive months. On the first call a record was made of the number of members of the household, together with sex, age, and other facts about each person. On succeeding visits the canvasser recorded all illness that had occurred since the preceding call, with such pertinent facts about each case as the date of onset; total duration of symptoms, of disability, of confinement to bed and to a hospital; whether attended by a doctor; and the nature and extent of nursing service received. Records for persons who were still sick at the preceding visit were brought up to date and when completed the termination of the case was entered. Thus there are available for an

[3] The eighteen States sampled and the number of canvassed families were as follows: California (890), Colorado (386), Connecticut (100), District of Columbia (99), Georgia (544), Illinois (463), Indiana (494), Kansas (301), Massachusetts (287), Michigan (329), Minnesota (224), New York (1,710), Ohio (1,148), Tennessee (212), Virginia (412), Washington (551), West Virginia (318), Wisconsin (290). Further details about the distribution of the canvassed population are included in a preceding paper (1).

[4] Every community that was included in the study had either a local health department or some other organization employing a visiting nurse or both; therefore, the most rural areas with no organized community services are not represented.

observed population, which may be classified by family income and size of city of residence, the number and proportion of illnesses that had nursing service and the days and visits received.

Definition of Illness and Diagnosis Classification. An illness, for the purpose of this study, was defined as any symptom, disorder, or affection which persisted for one or more days or for which medical service[5] was received or medicine purchased. Illness included the results of both disease and injury. What was actually included as illness, however, was necessarily influenced not only by the informant's conception of sickness but also by her memory. With visits as infrequent as two to four months, it was inevitable that many of the unattended nondisabling illnesses would be terminated and forgotten before the next visit of the enumerator.

The diagnosis as reported by the family informant was submitted to the attending physician for confirmation or correction and his diagnosis substituted for the one given by the family. While reports could not be obtained from all attending physicians, the replies indicated that the housewife usually reported with reasonable accuracy the diagnosis which the physician had given to the family.[6]

Considering an illness in the sense of a continuous period of sickness, only 4.3 per cent were designated as due to more than one cause. In general, the more important or more serious cause was assigned as primary, except where a disease like pneumonia is commonly recognized as following measles or influenza, in which case the antecedent condition was taken as primary.[7] In the present paper only five important diagnoses are shown separately and they refer always to the sole or primary diagnosis of the illness.

Definition of Nursing Service. Nursing service included all care of illness by *private* graduate and practical nurses within or outside

[5] Exclusive of dental services, eye refractions, immunizations, and health examinations rendered when no symptoms were present.

[6] See comparison of diagnoses reported by families and by physicians in the Health Survey of 1935-36 (24, Table 2).

[7] Further details on the method of classifying the causes of illness are included in the first report in the series (1).

of hospitals, and also care by visiting nurses from all types of organizations such as health departments, industrial establishments, and insurance companies. It was assumed that private or special nursing in hospitals was all done by trained nurses designated here as graduate. With the exception of the table in footnote 14, nursing by general duty hospital nurses is not included in any nursing category used in this paper. The services of maids and other servants are not counted as nursing even when procured because of the illness.

Patients in institutions for the chronically sick have little *private* nursing. Moreover, many such patients have ceased to be considered as members of the family from which they came, so are unreported in family surveys. Since the completeness of such reporting[8] may vary with income and city size, the data in this paper are exclusive of cases in institutions for mental diseases, tuberculosis, and the resident care of other chronic diseases for part or all of the study year.[9] Thus the present study is limited to nursing in the home and *private* nursing in such hospitals as general, women's, children's, eye-ear-nose-throat, and communicable or isolation.

Of more importance than nursing in institutions for tuberculosis and for mental and other chronic diseases is the exclusion of eight nursing cases with so many days of care (each with the equivalent of eight months or more of the study year) as to raise doubt as to whether all of the service should be classified as nursing.[10] While the eight cases constituted less than 1 per cent of all private nursing

[8] See preceding papers (18, 14) for discussion of family sickness surveys in relation to patients in resident institutions.

[9] Of the total of 907 private duty nursing cases with 15,898 nursing days, there were six cases with 111 private nursing days rendered within such institutions. Of the total of 1,213 visiting nurse cases, twenty-one were institutional patients visited either before or after the period of hospitalization.

[10] See preceding paper (20) for detailed statement on each of the eight long cases. These eight cases with 2,541 nursing days (shifts) were distributed by family income as follows: $2,000-3,000, one case, 364 days; $3,000-5,000, three cases, 770 days; $5,000 and over, four cases, 1,407 days. With respect to size of community they were distributed as follows: towns under 5,000, four cases, 1,204 days; cities 5,000-100,000, one case, 336 days; cities over 100,000, three cases, 1,001 days.

cases, they were responsible for 16 per cent of the nursing days. These eight cases are excluded from all rates and averages involving days but are included in all case rates and percentages that are based on cases.

A day of nursing care refers to the service of one nurse during one shift or period of nursing; thus a case with both a day and a night nurse would count as two days of nursing for each calendar day that such service was continued. On the other hand, if only one nurse was employed, the calendar day was counted as only one day of nursing even though the hours were exceptionally long. The data were not recorded so that exact hours could be counted.

In computing nursing cases per 1,000 population for the year, illnesses that originated prior to but had nursing service within the study year are included, along with nursing cases which had their onset within the period of observation; the inclusion of illnesses with prior onset seemed necessary to give proper representation to chronic ailments. The only date of onset available was that of symptoms (nondisabling or disabling); therefore, prior onset of a case does not necessarily mean that the nursing service began prior to the study year. Seven per cent of the attacks of illness had their onset of symptoms prior to the study year but the percentage in which the nurse began her work prior to the year of observation was presumably smaller.

In computing private duty and visiting nursing rates and percentages, a case with both types of nurses is counted in both categories, but it is counted only once in computing rates for nurse of any kind.[11]

[11] Throughout this paper nursing case and day rates for all causes of illness are adjusted to the age distribution of the white population of the United States in 1930. The *indirect* method of adjustment which was used is described in a footnote to Table 3. One of the disadvantages of this method is that adjusted rates for two or more subcategories do not necessarily add to the adjusted rate for the total. However, to avoid inconsistencies as well as additional labor, the following procedures were used: (a) Since surgical and nonsurgical cases add to the total, the age adjustment was made for the total and nonsurgical rates only, surgical being obtained by subtraction. (b) Age adjustments were made for rates for "all private nursing" and "graduate nurse" but "practical nurse only" was obtained

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Nursing days and visits refer in all instances to those *within the twelve-month study period.* In computing averages per case, both complete and incomplete cases are included as cases but the days and visits refer to those within the study year only. Nursing cases with an unknown number of nursing days or visits were put in at the average per case of the same diagnosis.

Nursing for Illness From All Causes

Nursing care is not generally considered a necessity except in the most severe illnesses. Partly because of this fact there is no feeling on the part of any section of the general public that a nurse has any obligation to serve those who are unable to pay. Since the services of a full-time professional nurse are rather expensive, it might be expected that such nursing would be largely concentrated in the upper income groups.

Family Income. Figure 1 shows for five income groups private duty nursing rates per 1,000 population in terms of cases and days of nursing care, together with the percentage of all illnesses that had a private nurse (Table 1). All three of these measures indicate much more nursing in the higher income groups than in the lower. In nursing cases the rate for the highest group ($5,000 and over) is more than seven times that for the lowest (under $1,200); in nursing days per 1,000 population the rate for the highest group is more than thirteen times that for the lowest. However, in nursing

by subtraction. (c) Cases with private nurse and with visiting nurse add to the total with "nurse of any kind" only when no case had both types of nurses. When there were no such duplicates, the adjusted rate for "nurse of any kind" was obtained by the addition of the adjusted rates for the two types of nurses. Where there were cases with both types of nurses, all three rates were adjusted independently, but it was assumed that the sum of the adjusted rates for private duty and visiting nursing should be equal to or exceed the adjusted rate for "nurse of any kind," as would be true of crude rates. Minor changes in the rates for "nurse of any kind" to comply with this assumption were made in seven of the total of forty-two adjusted rates for nurse of any kind; in six of the seven instances the change was less than unity, and in no case was the general picture of nursing in the different income or urban-rural classes modified in any way.

No adjustment for age differences has been made in rates for specific diagnoses.

Percentages of cases and nursing days per case are based on actual cases and days with no adjustment for age. In some preceding papers "adjusted" percentages were computed by relating two adjusted rates instead of using actual numbers of cases, and "adjusted" days per case by relating adjusted rates for days and cases.

Table 1. Nursing service for all causes of illness among canvassed white families of different income levels in eighteen States during twelve consecutive months, 1928-1931.

Annual Family Income and Kind of Nurse	Number of Cases or Days		Adjusted[3] Rate			Under 20		20–44		45 and Over	
	Surgical	Non-surgical	Total	Surgical	Non-surgical	Surgical	Non-surgical	Surgical	Non-surgical	Surgical	Non-surgical
			NURSING CASES PER 1,000 POPULATION DURING YEAR								
Private Duty[3]											
Under $1,200	14	37	10.1	2.7	7.4	1.6	1.9	2.8	11.9	4.5	11.2
$1,200 but Under $2,000	69	129	17.0	5.8	11.2	1.9	3.6	8.3	18.6	9.4	8.1
$2,000 but Under $3,000	70	116	22.3	8.1	14.2	3.9	3.9	10.7	23.2	10.8	12.3
$3,000 but Under $5,000	60	77	30.5	13.0	17.5	8.9	8.0	17.4	21.1	9.4	23.4
$5,000 and Over	145	175	73.8	32.1	41.7	33.5	34.6	30.5	38.9	26.0	40.7
Visiting											
Under $1,200	37	267	51.2	6.1	45.1	7.3	36.6	7.4	76.8	1.1	19.0
$1,200 but Under $2,000	40	457	35.0	2.8	32.2	3.0	31.3	3.5	44.4	1.3	15.0
$2,000 but Under $3,000	26	213	24.3	2.6	21.7	2.4	23.1	3.1	24.9	3.1	13.9
$3,000 but Under $5,000	10	66	15.4	2.0	13.4	.9	13.1	3.2	14.3	2.3	12.9
$5,000 and Over	4	51	12.4	.9	11.5	—	6.6	1.2	10.8	1.7	18.2
Nurse of Any Kind											
Under $1,200	50	298	61.3	8.8	52.5	8.9	38.2	9.7	85.9	5.6	30.2
$1,200 but Under $2,000	105	553	50.1	8.6	41.5	4.9	34.3	11.3	57.4	10.0	21.9
$2,000 but Under $3,000	88	302	42.5	9.9	32.6	6.3	26.6	12.4	41.8	11.5	23.9
$3,000 but Under $5,000	64	135	41.9	13.5	28.4	8.9	20.6	19.0	33.3	10.5	32.7
$5,000 and Over	147	219	83.1	32.9	50.2	33.5	41.2	30.5	47.3	27.7	56.3
			PERCENTAGE OF ALL CASES[4] THAT HAD NURSE OF SPECIFIED KIND								
Private Duty[3]											
Under $1,200	298	4,287	1.1	4.7	.9	2.7	.3	6.3	1.7	11.1	1.3
$1,200 but Under $2,000	733	9,961	1.9	9.4	1.3	3.2	.5	15.1	2.7	27.8	1.2
$2,000 but Under $3,000	651	7,160	2.4	10.8	1.6	5.2	.5	16.2	3.5	21.2	1.8
$3,000 but Under $5,000	314	3,998	3.2	19.1	1.9	12.3	.9	25.6	2.9	25.8	3.0
$5,000 and Over	416	4,464	6.6	34.9	3.9	29.9	3.0	38.1	4.7	41.1	4.7
Visiting											
Under $1,200	298	4,287	6.6	12.4	6.2	12.6	5.0	16.5	11.1	2.8	2.2
$1,200 but Under $2,000	733	9,961	4.6	5.5	4.6	5.1	3.9	6.4	6.4	3.7	2.3
$2,000 but Under $3,000	651	7,160	3.1	4.0	3.0	3.1	2.8	4.7	3.7	6.1	2.0
$3,000 but Under $5,000	314	3,998	1.8	3.2	1.7	1.3	1.5	4.7	2.0	6.5	1.6
$5,000 and Over	416	4,464	1.1	1.0	1.1	—	.6	1.5	1.3	2.7	2.1
Nurse of Any Kind											
Under $1,200	298	4,287	7.6	16.8	7.0	15.3	5.2	21.5	12.4	13.9	3.5
$1,200 but Under $2,000	733	9,961	6.2	14.3	5.6	8.3	4.3	20.4	8.3	29.6	3.3
$2,000 but Under $3,000	651	7,160	5.0	13.5	4.2	8.3	3.2	18.7	6.2	22.7	3.4
$3,000 but Under $5,000	314	3,998	4.6	20.4	3.4	12.3	2.3	27.9	4.6	29.0	4.2
$5,000 and Over	416	4,464	7.5	35.3	4.9	29.9	3.6	38.1	5.8	43.8	6.5
			PERCENTAGE OF DISABLING CASES[4] THAT HAD NURSE OF SPECIFIED KIND								

Private Duty[3]											
Under $1,200	256	2,463	1.9	5.5	1.5	3.4	.4	6.3	3.0	13.8	2.5
$1,200 but Under $2,000	622	6,090	2.9	11.1	2.1	3.8	.7	17.3	4.5	34.1	2.3
$2,000 but Under $3,000	540	4,241	3.9	13.0	2.7	6.4	.7	18.4	6.2	27.5	3.5
$3,000 but Under $5,000	275	2,328	5.3	21.8	3.3	13.8	1.4	29.7	5.4	30.8	5.8
$5,000 and Over	345	2,412	11.6	42.0	7.3	35.7	4.8	45.5	10.4	51.7	10.0
Visiting											
Under $1,200	256	2,463	8.9	14.1	8.3	15.5	5.6	15.2	17.1	3.4	2.5
$1,200 but Under $2,000	622	6,090	6.2	5.8	6.2	5.2	4.6	6.9	10.0	4.5	3.2
$2,000 but Under $3,000	540	4,241	4.3	4.4	4.2	3.6	3.3	4.8	6.4	7.8	3.1
$3,000 but Under $5,000	275	2,328	2.4	3.6	2.3	1.4	1.8	5.4	3.0	7.7	2.6
$5,000 and Over	345	2,412	1.5	1.2	1.5	—	.7	1.8	2.1	3.4	3.2
Nurse of Any Kind											
Under $1,200	256	2,463	10.5	19.1	9.6	18.9	6.0	20.3	19.4	17.2	5.0
$1,200 but Under $2,000	622	6,090	8.6	16.2	7.8	9.0	5.2	22.9	13.2	36.4	5.2
$2,000 but Under $3,000	540	4,241	7.4	15.9	6.3	10.0	4.0	20.8	10.7	29.4	6.0
$3,000 but Under $5,000	275	2,328	7.0	23.3	5.1	13.8	3.0	32.4	7.8	34.6	6.9
$5,000 and Over	345	2,412	12.5	42.6	8.3	35.7	5.5	45.5	11.3	55.1	11.9
			ANNUAL DAYS (SHIFTS) OF PRIVATE DUTY NURSING PER 1,000 POPULATION[2]								
Under $1,200	141	369	88	24	64	10	17	41	81	42	144
$1,200 but Under $2,000	671	1,774	182	50	132	8	44	75	218	158	231
$2,000 but Under $3,000	862	1,299	228	91	137	34	30	134	260	179	183
$3,000 but Under $5,000	775	1,142	390	158	232	42	66	235	342	282	415
$5,000 and Over	2,432	3,593	1,285	519	766	390	413	530	840	711	1,245
			NURSING DAYS (SHIFTS) PER PRIVATE DUTY NURSING CASE								
Under $1,200	14	37	10.0	10.1	10.0	6.2	9.0	14.4	6.8	9.5	12.9
$1,200 but Under $2,000	69	129	12.3	9.7	13.8	4.2	12.3	9.0	11.8	16.8	28.3
$2,000 but Under $3,000	70	115	11.7	12.3	11.3	8.7	7.8	12.5	11.4	16.6	14.9
$3,000 but Under $5,000	60	74	14.3	12.9	15.4	4.7	9.3	13.5	16.2	30.1	18.7
$5,000 and Over	145	171	19.1	16.8	21.0	11.7	12.0	17.4	21.6	27.3	33.4
			POPULATION (YEARS OF LIFE)								
Under $1,200				5,820		3,145		1,758		896	
$1,200 but Under $2,000				13,419		6,989		4,792		1,596	
$2,000 but Under $3,000				9,491		4,625		3,537		1,299	
$3,000 but Under $5,000				4,911		2,132		1,893		855	
$5,000 and Over				4,689		1,823		1,670		1,154	

[1] All ages includes a few of unknown age.

[2] Case rates per 1,000 population are adjusted by the *indirect* method as described in note 2 to Table 3. Nursing days per 1,000 population, days per case, and percentages of cases are not adjusted in any way. Adjusted rates for total nursing days per 1,000 population were: under $1,200, 107; $1,200–2,000,241; $2,000–3,000, 295; $3,000–5,000, 463; $5,000 and over, 1,442.

[3] Private duty includes full-time graduate or practical *private* nurse in or outside of a hospital except six cases in resident institutions. Rates and averages involving nursing days also exclude eight cases with 252 or more nursing days (shifts) during the study year. For further details, see text footnote 10.

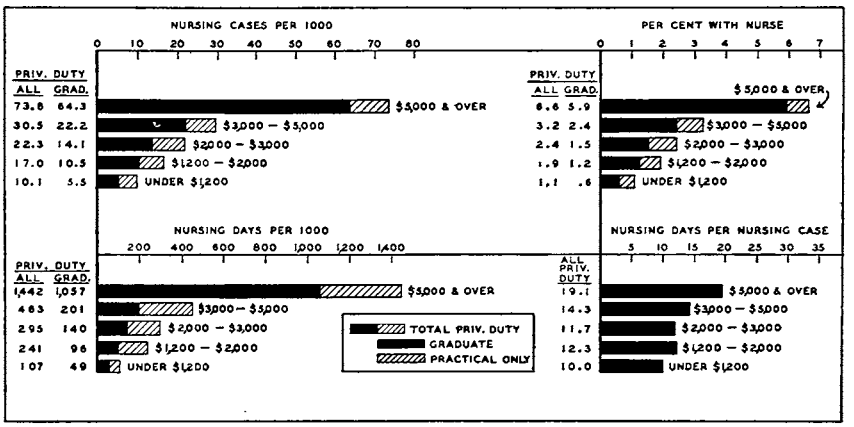


Fig. 1. Annual frequency of graduate and practical private nursing cases and days among persons of all ages in families of different income levels in eighteen States during twelve consecutive months, 1928-1931 (age adjusted rates per 1,000 population and percentages of all cases that had a nurse.)

days per case the average for the highest income is less than twice that for the lowest group. The percentage of the total cases in the highest income group that had a full-time private duty nurse was six times that in the lowest; this ratio was approximately the same for the percentage of disabling and also of hospital cases that had a private nurse.[12]

The bars in Figure 1 are hatched in a way to show separately the data for graduate and practical nurses. The great majority of the nursing was done by trained or graduate nurses. The relative differences between the income groups were considerably greater for graduate than for practical nurses. However, even practical nursing increased with income. In graduate cases per 1,000 population the rate for the highest income group was nearly twelve times that for the lowest; the rate for practical nursing cases for the highest income level was about twice that for the lowest.

As might be expected, the percentage of nursing cases and days that were graduate increased considerably with income (Table 2). Of all private nursing cases 75 per cent had a graduate nurse; this

[12] The percentages of hospital cases that had a private nurse in the hospital were: under $1,200, 6.9; $1,200-2,000, 13.0; $2,000-3,000, 15.9; $3,000-5,000, 25.3; $5,000 and over, 47.5 per cent.

Annual Family Income	Percentage Done by Graduate Nurse						Total Number of Cases With Private Nurse	
	Private Nursing Cases				Nursing Days			
	All Causes			Deliveries and Abortions	All Causes	Deliveries and Abortions		
	Total	Surgical	Non-surgical				All Causes	Deliveries and Abortions
All Incomes[1]	75	98	59	43	62	40	901	226
Under $1,200	57	100	41	26	48	10	51	19
$1,200 but Under $2,000	63	100	43	28	44	18	198	75
$2,000 but Under $3,000	65	96	47	35	53	16	186	65
$3,000 but Under $5,000	74	90	62	61	47	48	137	33
$5,000 and Over	90	100	82	84	79	87	320	32

[1] All incomes includes a few of unknown income.

Table 2. Percentage of private duty nursing that was done by graduate nurses among canvassed white families of different income levels during twelve consecutive months, 1928-1931.

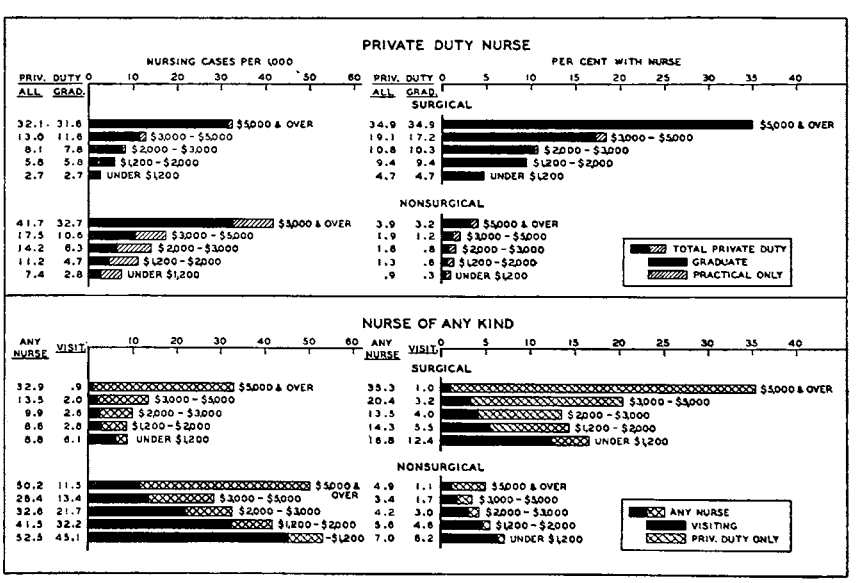
percentage increased from 57 for the lowest income group (under $1,200) to 90 for the highest ($5,000 and over). Corresponding proportions of private nursing days that were graduate ranged from 48 per cent for the lowest to 79 for the highest income group. Nearly all of the surgical private nursing cases had a graduate nurse but for nonsurgical cases with a private nurse, the proportions that had a graduate nurse ranged from 41 per cent for the lowest to 82 per cent for the highest income group. Deliveries, which accounted for a considerable part of private nursing, showed great variation in the proportions of nursing cases that were graduate, ranging from 26 for the lowest to 84 per cent for the highest income group; corresponding percentages for nursing days that were graduate ranged for deliveries from 10 per cent for the lowest to 87 for the highest income group.

Visiting nursing is about as largely confined to the low-income groups as private nursing is confined to the higher incomes (Table 1). The visiting nurse case rate for the lowest income level is about four times that for the highest. When all nursing is considered to-

gether (private duty and visiting), the lowest and highest income groups have more nursing than intervening groups. Nursing in the high-income group is largely private duty and that in the lowest group is largely visiting. The intervening groups, particularly $2,000 to $5,000 in annual family income, have the lowest nursing case rates. The same general situation is indicated by the percentage of all and of disabling cases which were attended by a nurse of any kind.

Figure 2 shows by income data for surgical and nonsurgical cases separately. On the left of the figure are nursing cases per 1,000 population and on the right the percentage of cases that had a nurse of the given kind. The bars for private duty nursing are hatched in a way to show graduate nursing as a separate category. For full-time private nursing the rates for surgical cases are of the same order of magnitude as for nonsurgical, although the latter are somewhat higher in every income group. In percentages, however,

Fig. 2. Annual frequency of various kinds of nursing for surgical and nonsurgical cases among persons of all ages in families of different income levels in eighteen States during twelve consecutive months, 1928-1931 (age adjusted rates per 1,000 population and percentages of all cases that had a nurse.)



the surgical cases have the attendance of a nurse in a much larger proportion of cases than is true of nonsurgical. In both case rates and percentages with a private nurse there are consistent and large increases in nursing as family income increases. In surgical cases nursing by a practical nurse is almost negligible but for the nonsurgical cases which include the great majority of deliveries, practical nursing is more frequent; in the three lowest income groups practical nursing cases constitute more than half of the total private nursing cases.

The bars for all nursing in Figure 2 are hatched in a way to show visiting nursing as a separate category. Visiting nurse case rates are much smaller for surgical than nonsurgical cases. In the proportion of cases attended, however, surgical cases have higher percentages in four of the five income groups. In all instances for both surgical and nonsurgical cases, visiting nursing is definitely higher in the lower income groups.

It was seen above that for all cases (surgical plus nonsurgical) rates for nurse of any kind and the percentage of cases with a nurse of any kind were greater in the highest and lowest income groups than in intervening classes. However, surgical nursing cases per 1,000 population for nurse of any kind increase rather consistently with income; since most of the nursing on surgical cases is done by private nurses, the small addition of visiting nursing leaves the picture largely the same as the private nursing situation. In terms of the proportion of cases that had a nurse, however, the under $1,200 income group had a higher percentage than the two groups with $1,200 to $3,000 annual income.[13]

[13] Tabulations were also made of illnesses because of which maids and other servants were employed by the family. Among persons under 20 years old, the number of illnesses per 1,000 population of those ages because of which "other help" was employed increased from 0.6 in the under $1,200 class to 4.9 in the $5,000 and over group. The percentage of illnesses on account of which "other help" was employed also increased consistently with income. For the ages 20-44 years the trend was just as definite but in the opposite direction; rates per 1,000 for illnesses with "other help" decreased consistently from 27.9 for the under $1,200 group to 10.8 for the $5,000 and over class. This represented a regular decrease in the percentage of disabling illnesses with "other help" from 6.3 in the lowest

(Continued on page 202)

Table 3. Nursing service for all causes of illness in cities of different cities and in rural areas—8,758 canvassed white families in eighteen States during twelve consecutive months, 1928-1931.

Size of City and Kind of Nurse	All Ages[1]					Age					
	Number of Cases or Days		Adjusted[2] Rate			Under 20		20–44		45 and Over	
	Surgical	Non-surgical	Total	Surgical	Non-surgical	Surgical	Non-surgical	Surgical	Non-surgical	Surgical	Non-surgical
			NURSING CASES PER 1,000 POPULATION DURING YEAR								
Private Duty[3]											
Cities of 100,000 or Over	163	191	27.2	12.4	14.8	7.0	8.5	15.0	16.4	14.4	20.4
Cities 5,000–100,000	116	166	33.7	13.5	20.2	9.6	9.0	13.6	25.8	16.2	25.4
Towns Under 5,000	43	116	23.8	6.2	17.6	2.9	5.0	9.7	29.4	6.1	16.5
Rural Areas	41	65	17.8	6.5	11.3	4.2	2.8	5.7	20.4	11.5	9.9
Visiting											
Cities of 100,000 or Over	51	384	29.1	3.4	25.7	2.6	24.2	4.5	31.6	4.2	23.2
Cities 5,000–100,000	40	299	33.7	3.9	29.8	4.5	29.3	4.6	39.4	1.5	14.6
Towns Under 5,000	23	228	32.3	2.9	29.4	4.2	26.5	2.7	43.3	—	12.2
Rural Areas	5	162	24.8	.7	24.1	1.1	24.5	.5	31.3	—	7.4
Nurse of Any Kind											
Cities of 100,000 or Over	202	547	53.0	14.7	38.3	9.3	32.3	18.4	44.8	16.7	40.4
Cities 5,000–100,000	148	448	63.8	16.4	47.4	14.1	38.0	16.2	61.2	16.9	38.5
Towns Under 5,000	65	316	51.8	9.1	42.7	7.1	30.7	12.0	64.2	6.1	26.1
Rural Areas	46	217	41.0	7.2	33.8	5.3	27.1	6.2	47.4	11.5	17.3
			PERCENTAGE OF ALL CASES[4] THAT HAD NURSE OF SPECIFIED KIND								
Private Duty[3]											
Cities of 100,000 or Over	1,014	10,482	3.1	16.1	1.8	8.9	1.1	22.0	2.6	27.2	2.8
Cities 5,000–100,000	665	8,049	3.2	17.4	2.1	12.4	1.0	21.0	3.3	35.6	3.2
Towns Under 5,000	428	6,671	2.2	10.0	1.7	4.6	.5	17.0	3.6	15.9	1.9
Rural Areas	332	5,022	2.0	12.4	1.3	8.2	.4	11.7	3.1	30.4	1.3
Visiting											
Cities of 100,000 or Over	1,014	10,482	3.8	5.0	3.7	3.3	3.0	6.6	4.9	7.9	3.1
Cities 5,000–100,000	665	8,049	3.9	6.0	3.7	5.8	3.3	7.1	5.0	3.4	1.9
Towns Under 5,000	428	6,671	3.5	5.4	3.4	6.8	2.8	4.8	5.3	—	1.4
Rural Areas	332	5,022	3.1	1.5	3.2	2.2	3.2	1.0	4.7	—	1.0

Nurse of Any Kind										
Cities of 100,000 or Over	1,014	10,482	6.5	19.9	5.2	11.8	4.0	27.1	7.0	31.6	5.5
Cities 5,000–100,000	665	8,049	6.8	22.3	5.6	18.2	4.3	25.0	7.8	37.3	4.9
Towns Under 5,000	428	6,671	5.4	15.2	4.7	11.4	3.3	21.1	7.9	15.9	3.1
Rural Areas	332	5,022	4.9	13.9	4.3	10.4	3.6	12.7	7.1	30.4	2.3
			PERCENTAGE OF DISABLING CASES[4] THAT HAD NURSE OF SPECIFIED KIND								
Private Duty[3]											
Cities of 100,000 or Over	872	6,201	5.0	18.7	3.1	10.6	1.6	24.5	4.7	33.7	5.5
Cities 5,000–100,000	537	4,769	5.3	21.6	3.5	15.5	1.6	25.5	5.7	45.7	6.5
Towns Under 5,000	362	3,904	3.7	11.9	3.0	5.7	.9	18.9	6.5	19.4	3.9
Rural Areas	292	2,861	3.4	14.0	2.3	9.3	.6	12.9	5.7	37.8	2.6
Visiting											
Cities of 100,000 or Over	872	6,201	5.2	5.6	5.2	3.7	3.4	7.1	8.5	9.8	4.9
Cities 5,000–100,000	537	4,769	5.4	6.9	5.2	6.3	4.2	8.7	7.8	4.3	2.6
Towns Under 5,000	362	3,904	4.6	5.8	4.5	8.2	3.0	3.8	8.2	—	1.8
Rural Areas	292	2,861	4.1	1.7	4.3	2.5	3.5	1.1	8.0	—	1.3
Nurse of Any Kind											
Cities of 100,000 or Over	872	6,201	9.6	22.9	7.8	13.8	4.9	29.8	12.2	39.1	9.3
Cities 5,000–100,000	537	4,769	10.1	27.0	8.2	21.8	5.8	30.4	12.5	47.8	7.9
Towns Under 5,000	362	3,904	7.6	17.4	6.7	13.9	3.8	22.0	12.8	19.4	5.1
Rural Areas	292	2,861	7.1	15.7	6.3	11.8	4.1	14.0	12.5	37.8	3.9
			POPULATION (YEARS OF LIFE)								
Cities of 100,000 or Over				14,351		6,572		5,540		2,155	
Cities 5,000–100,000				9,694		4,916		3,449		1,298	
Towns Under 5,000				7,585		3,812		2,589		1,151	
Rural Areas				6,914		3,546		2,111		1,218	

[1] All ages includes a few of unknown age.

[2] All rates per 1,000 population of all ages are adjusted by the *indirect* method to the age distribution of the white population of the registration States in 1930. Briefly this method involves the following steps: age specific rates like those in Table 1 of a preceding paper (20) for the whole canvassed population are used as "standard rates" and multiplied by the canvassed population of specific ages for a given subgroup (for example, cities over 100,000) to obtain expected numbers of cases for the computation of an expected rate for all ages; when this rate is related to the corresponding adjusted rate for the whole canvassed group (adjustment there was by direct method), one obtains an "adjustment factor" which is of the nature of a percentage correction for differences in age distribution. This adjustment or correction factor is applied to the crude rate in the particular subgroup (for example, cities over 100,000) to obtain the adjusted rate. The details of the process are given under the heading "standardized death rates" in Pearl (23, pp. 265-269).

Percentages of cases are not adjusted in any way.

[3] Private duty includes full-time graduate or practical *private* nurse in or outside of a hospital except six cases in resident institutions. Days of private duty nursing on all types of cases per 1,000 population (age adjusted) were: cities 100,000 or over, 534; cities 5,000-100,000, 517; towns under 5,000, 363; and rural areas, 194. These nursing day rates exclude eight cases with 252 or more nursing days (shifts) during the study year. For further details, see text footnote 10.

[4] All cases include those with symptoms lasting one day or longer (disabling and nondisabling). Disabling cases refer to those causing inability to work,

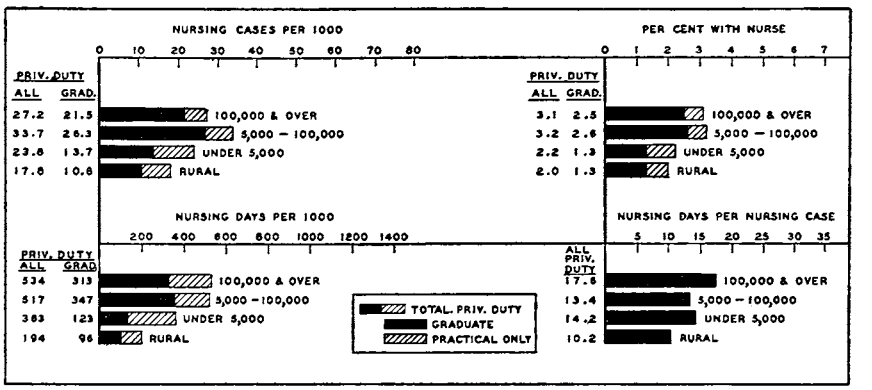


Fig. 3. Annual frequency of graduate and practical private nursing cases and days among persons of all ages in cities of different sizes and in rural areas—8,758 canvassed white families in eighteen States during twelve consecutive months, 1928-1931 (age adjusted rates per 1,000 population and percentages of all cases that had a nurse.)

Size of City. Figure 3 shows data on private nursing in rural areas and in cities of different sizes (Table 3). Although these nursing rates tend to be higher in the cities the differences are so much smaller than those between income groups that they seem insignificant. For example, private nursing case rates per 1,000 population for cities are only about one and a half to two times those for rural unincorporated areas; the same is true of the percentage of all cases that had a private nurse. Nevertheless these relative excesses in nursing rates in cities over those for rural areas approximate those found for hospitalization in a preceding paper (19), but the increase with size of city is not as consistent. The finding of less private nursing in cities over 100,000 than in smaller cities may be related to the high hospital rates in these large cities, for hospital service may take the place of private nursing care.[14]

to 2.4 in the highest income group. Thus at the ages of the active housewife, "other help" was more frequently obtained in the low-income levels where there were more young children to be cared for and fewer regular servants to do the work; in some families "other help" may have been a substitute for a nurse. In the ages above 45 years, the trend is like that under 20 years—toward more "other help" in the higher income levels, but the changes with income were less consistent.

In the urban-rural picture, there was some tendency toward more "other help" in cities than in rural areas but the differences were not consistent.

[14] Considering all localities together, the number of cases with a *private* nurse in or outside of a hospital was only about half the number of cases in a hospital without a private

(Continued on page 203)

	Percentage Done by Graduate Nurse						Total Number of Cases With Private Nurse	
	Private Nursing Cases				Nursing Days			
	All Causes			Deliveries and Abortions	All Causes	Deliveries and Abortions	All Causes	Deliveries and Abortions
	Total	Surgical	Non-surgical					
Urban[1]	80	98	67	55	68	54	636	130
Rural	61	96	44	27	42	15	265	96

[1] Urban includes cities of 5,000 or more population; rural includes towns under 5,000 and rural areas.

Table 4. Percentage of private duty nursing that was done by graduate nurses among canvassed white urban and rural families during twelve consecutive months, 1928-1931.

In small towns and rural areas a considerable proportion of the private duty nursing was done by practical nurses (Table 4). Of all private nursing cases in cities of 5,000 or over, 80 per cent had a graduate nurse, as compared with 61 per cent for towns and rural areas.[15] Of all private nursing days in cities over 5,000, 68 per cent were graduate days as compared with 42 per cent for small towns and rural areas. In both urban and rural areas, nearly all surgical cases with a private nurse were graduate cases. However, in nursing on nonsurgical cases and particularly on delivery, which represents the most important diagnosis in private nursing, large urban-rural differences appear. In urban places 55 per cent of the nursing

nurse, but with the usual services of the general duty hospital nurse. Data in the following table of nursing case rates and percentages are *exclusive of the services of visiting nurses.*

	Cities of 100,000 or Over	Cities 5,000-100,000	Towns Under 5,000	Rural Areas
Nursing Cases per 1,000 Population (Crude):				
Private Nurse In or Outside of Hospital	24.7	29.1	21.0	15.3
General Duty Hospital Nurse Only	55.5	50.3	42.7	35.1
Private Nurse or General Duty Hospital Nurse	80.2	79.4	63.7	50.4
Per Cent of Disabling Cases with Nurse:				
Private Nurse In or Outside of Hospital	5.0	5.3	3.7	3.4
General Duty Hospital Nurse Only	11.3	9.2	7.6	7.7
Private Nurse or General Duty Hospital Nurse	16.3	14.5	11.3	11.1

[15] In the urban group the percentages for large and small cities were roughly the same and in the rural group those for small towns and rural areas also approximated each other.

cases on deliveries had a graduate nurse, as compared with 27 per cent in rural areas; corresponding percentages for deliveries for private nursing days that were graduate were 54 for urban and 15 per cent for rural areas.

Private nursing rates per 1,000 population for surgical cases in cities were about twice what they were in small towns and rural areas (Table 3). Nursing rates for nonsurgical cases, however, do not show any very consistent trend with size of city, although there is a tendency toward more nursing in cities than in rural unincorporated areas.

Likewise, visiting nursing does not show consistent urban-rural variation, although there is a tendency toward lower rates in rural areas, particularly for surgical cases. Family income seems to be a far more important factor in nursing care than the urban-rural situation; however, it should be noted that all or practically all of the rural areas and small towns included in this study had a visiting nurse and usually a county health department, so they do not represent the most rural sections with no health services.

Table 5 shows nursing rates for all illnesses for two broad urban-rural categories in four geographic sections. Rates and percentages for private duty and for any nurse are nearly all higher for urban than for rural areas, but visiting nursing shows less consistent differences.

Family Income and Size of City. Table 6 shows nursing case rates for five income groups in metropolitan, urban, and rural areas separately. A regular increase with income occurs in private nursing in each of the three city-sizes except for the highest income in rural areas. In surgical cases even the rural category shows a regular increase with income. Comparison of the three city-size categories for given income levels does not show consistent variation with size of city. In the three income groups from $1,200 to $5,000, private nursing case rates for all and for nonsurgical cases increase slightly but rather consistently as size of city decreases. Visiting nursing, on

Table 5. Nursing service for all causes of illness among persons of all ages in urban[1] and rural parts of four geographic[2] sections—8,758 canvassed white families in eighteen States during twelve consecutive months, 1928-1931.

Urban-Rural Status and Type of Nurse	All Sections	North-east	North-Central	South	West	All Sections	North-east	North-Central	South	West
	Nursing cases of specified kind per 1,000 population during year (age adjusted)[3]					Percentage of disabling[4] cases that had a nurse of specified kind				
Private Duty[5] Nurse										
Total										
Urban[1]	29.8	42.5	20.1	30.0	39.7	5.1	6.6	3.9	4.5	6.8
Rural	21.0	27.2	14.7	16.0	23.4	3.6	5.2	2.5	2.9	3.5
Surgical										
Urban[1]	12.9	17.7	9.4	11.8	17.2	19.8	30.6	15.3	15.5	24.7
Rural	6.3	7.5	5.1	5.1	7.2	12.8	16.5	9.8	14.0	11.7
Nonsurgical										
Urban[1]	16.9	24.8	10.7	18.2	22.5	3.3	4.1	2.4	3.1	4.4
Rural	14.7	19.7	9.6	10.9	16.2	2.7	4.1	1.7	2.0	2.6
Visiting Nurse										
Urban[1]	31.0	41.2	23.9	46.0	18.8	5.3	5.5	5.0	7.3	3.0
Rural	28.8	31.5	24.0	14.7	42.0	4.4	5.2	3.6	2.6	5.4
Nurse of Any Kind										
Urban[1]	57.3	79.8	41.7	70.6	56.6	9.8	11.5	8.5	10.8	9.5
Rural	46.8	52.9	37.4	28.2	64.1	7.4	9.3	5.8	5.1	8.5
	Annual nursing days (shifts) per 1,000 population (age adjusted)[3]					Nursing days (shifts) per nursing case				
Private Duty[5] Nurse										
Urban[1]	527	773	343	567	649	15.8	16.2	14.8	16.3	16.0
Rural	282	452	143	172	275	12.6	16.8	8.6	9.6	10.6
	Population (years of life)					Total number of disabling[4] cases				
Urban[1]	24,045	4,762	10,502	4,914	3,867	12,379	2,645	4,748	2,842	2,144
Rural	14,499	4,281	3,911	2,827	3,480	7,419	2,095	1,954	1,325	2,045

[1] Urban includes cities of 5,000 or more population; rural includes towns under 5,000 and rural areas.

[2] States included in the survey were as follows: *Northeast*—New York, Massachusetts, Connecticut. *North Central*—Illinois, Ohio, Michigan, Indiana, Wisconsin, Minnesota, Kansas. *South*—District of Columbia, Virginia, West Virginia, Tennessee, Georgia. *West*—Washington, California, Colorado.

[3] All rates per 1,000 population are adjusted by the *indirect* method as described in note 2 to Table 3. Days per case and percentages of cases are not adjusted in any way.

[4] Disabling cases refer to those causing inability to work, attend school, care for the home, or pursue other usual activities for one day or longer, regardless of age or employment status.

[5] Private duty includes full-time graduate or practical *private* nurse in or outside of a hospital except six cases in resident institutions. Rates and averages involving nursing days also exclude eight cases with 252 or more nursing days (shifts) during the study year. For further details, see text footnote 10.

Table 6. Nursing service for all causes of illness among persons of all ages in families of various income levels in cities of different sizes—8,758 canvassed white families in eighteen States during twelve consecutive months, 1928-1931.

Annual Family Income and Kind of Nurse	Cities of 100,000 or Over	Cities 5,000–100,000	Towns Under 5,000 and Rural	Cities of 100,000 or Over	Cities 5,000–100,000	Towns Under 5,000 and Rural	Cities of 100,000 or Over	Cities 5,000–100,000	Towns Under 5,000 and Rural
	Nursing cases per 1,000 population during year (age adjusted)[1]			Percentage of all cases[2] that had nurse of specified kind			Number of nursing cases of specified kind		
Private Duty[3]									
Total Cases									
Under $1,200	11.1	7.0	10.7	1.2	.8	1.2	8	7	36
$1,200 but Under $2,000	12.1	17.2	20.9	1.5	1.7	2.2	50	42	106
$2,000 but Under $3,000	18.2	24.0	26.9	2.2	2.5	2.6	67	53	66
$3,000 but Under $5,000	28.0	31.3	34.5	3.3	2.9	3.3	62	36	39
$5,000 and Over	72.3	87.2	31.9	6.8	7.7	2.7	165	141	14
Surgical Cases									
Under $1,200	5.5	.9	2.5	7.1	1.3	5.5	4	1	9
$1,200 but Under $2,000	5.8	4.9	6.2	8.6	7.3	11.5	24	12	33
$2,000 but Under $3,000	8.8	8.5	6.7	11.0	11.4	9.8	33	19	18
$3,000 but Under $5,000	14.8	8.9	13.6	23.2	12.1	19.8	33	11	16
$5,000 and Over	28.9	41.1	15.2	29.1	45.8	24.1	68	70	7
Nonsurgical Cases									
Under $1,200	5.6	6.1	8.2	.7	.7	.9	4	6	27
$1,200 but Under $2,000	6.3	12.3	14.7	.8	1.3	1.6	26	30	73
$2,000 but Under $3,000	9.4	15.5	20.2	1.2	1.7	2.0	34	34	48
$3,000 but Under $5,000	13.2	22.4	20.9	1.7	2.2	2.1	29	25	23
$5,000 and Over	43.4	46.1	16.7	4.5	4.3	1.4	97	71	7
Visiting Nurse									
Under $1,200	51.0	97.3	35.2	6.2	14.0	4.5	40	129	135
$1,200 but Under $2,000	37.2	36.1	32.5	5.6	4.6	4.0	189	114	194
$2,000 but Under $3,000	28.5	20.2	21.9	4.0	2.5	2.4	124	54	61
$3,000 but Under $5,000	18.0	14.6	11.3	2.3	1.6	1.2	43	19	14
$5,000 and Over	15.4	9.2	8.6	1.5	.8	.8	36	15	4
Nurse of Any Kind									
Under $1,200	62.1	104.3	45.2	7.4	14.6	5.5	48	135	165
$1,200 but Under $2,000	49.3	50.9	49.9	6.9	5.9	5.8	233	145	280
$2,000 but Under $3,000	43.3	39.2	44.1	5.7	4.5	4.5	176	97	117
$3,000 but Under $5,000	40.2	45.9	42.6	5.0	4.5	4.3	93	55	51
$5,000 and Over	84.2	93.7	40.5	8.1	8.4	3.5	195	153	18
	Annual days (shifts) of private duty nursing[3] per 1,000 population (age adjusted)[1]			Nursing days (shifts) per private duty nursing case[3]			Population (years of life)		
Under $1,200	179	68	101	16.3	8.0	9.0	772	1,236	3,812
$1,200 but Under $2,000	167	191	321	11.8	9.1	13.9	4,675	2,873	5,871
$2,000 but Under $3,000	308	246	321	14.6	8.9	10.9	4,166	2,490	2,835
$3,000 but Under $5,000	446	450	511	15.0	12.9	14.5	2,334	1,314	1,263
$5,000 and Over	1,580	1,497	508	21.0	17.1	16.4	2,389	1,805	495

[1] All rates per 1,000 population are adjusted by the *indirect* method as described in note 2 to Table 3. Days per case and percentages of cases are not adjusted in any way.

[2] All cases include those with symptoms lasting one day or longer (disabling and nondisabling).

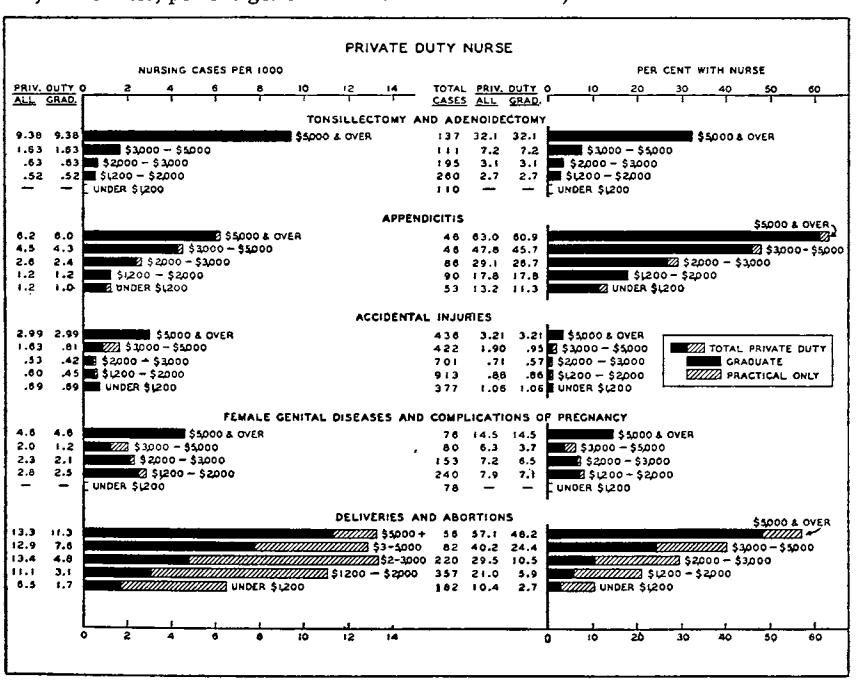
[3] Private duty includes full-time graduate or practical *private* nurse in or outside of a hospital except six cases in resident institutions. Rates and averages involving nursing days also exclude eight cases with 252 or more nursing days (shifts) during the study year. For further details, see text footnote 10.

the other hand, shows some tendency to increase with size of city among families of given income levels. With respect to variation with income, visiting nursing rates are consistently larger for the lower income groups in each city-size category. When all types of nursing are considered together there are no striking variations with income in the rural group, but in the two city categories the low and high income levels have higher rates than the intervening classes.[18]

Nursing for Illness From Important Diagnoses

Figure 4 shows by income for five diagnoses that are important in nursing care (a) private duty nursing cases per 1,000 population,

Fig. 4. Annual frequency of graduate and practical private nursing cases for certain diagnoses among persons of all ages in families of different income levels in eighteen States during twelve consecutive months, 1928-1931. (Sole or primary causes only. Rates for deliveries and female genital diseases are expressed as per 1,000 females; percentages of all cases that had a nurse.)



[18] Data on the percentage of families having expenditures for private nursing care are given by detailed incomes and for five urban-rural categories by Klem (22).

and (b) percentage of cases attended by a private nurse. Deliveries with any private nurse per 1,000 females increase with income only up to $3,000, but those with a graduate nurse increase regularly throughout the income range. However, the percentage of deliveries attended by any private nurse and by a graduate nurse both show large and consistent increases with income. In the three lowest income groups, roughly two-thirds to three-fourths of the private nurses on maternity cases were practical nurses, as compared with one-sixth in the highest income group.

All of the private nursing on tonsillectomies and nearly all of that on appendicitis cases was graduate. For both diagnoses, private duty nursing increased definitely with income; there were no cases with a private nurse among 110 tonsillectomies in the under $1,200 income class, but in the $5,000 and over group, nearly one-third of the tonsillectomy cases had a private nurse. Accidents and female genital diseases[17] tended toward higher private nursing rates in the higher income levels, but the increases were not consistent.

In Figure 5 visiting nursing case rates and percentages are shown as a subgroup of all nursing. Tonsillectomy and delivery (including pre and postnatal care) show definitely more visiting nursing in the lower income levels, and accidents show a tendency in the same direction. Visiting nursing for appendicitis and female genital diseases shows no consistent relationship to income.

Deliveries with a nurse of any kind (including pre and postnatal visits) per 1,000 females increase as income decreases (Figure 5). In percentages of cases with a nurse of any kind there is no large variation with income, but the $2,000 to $5,000 income levels have somewhat smaller percentages than the lowest and highest levels. Appendicitis shows a definite increase with income and female genital diseases show the same tendency. The other two diagnoses, tonsillectomy and accidents, show more nursing in the high and

[17] Throughout this paper benign tumors of the female genital organs and breast and other diseases of the female breast are included in the group of female genital diseases.

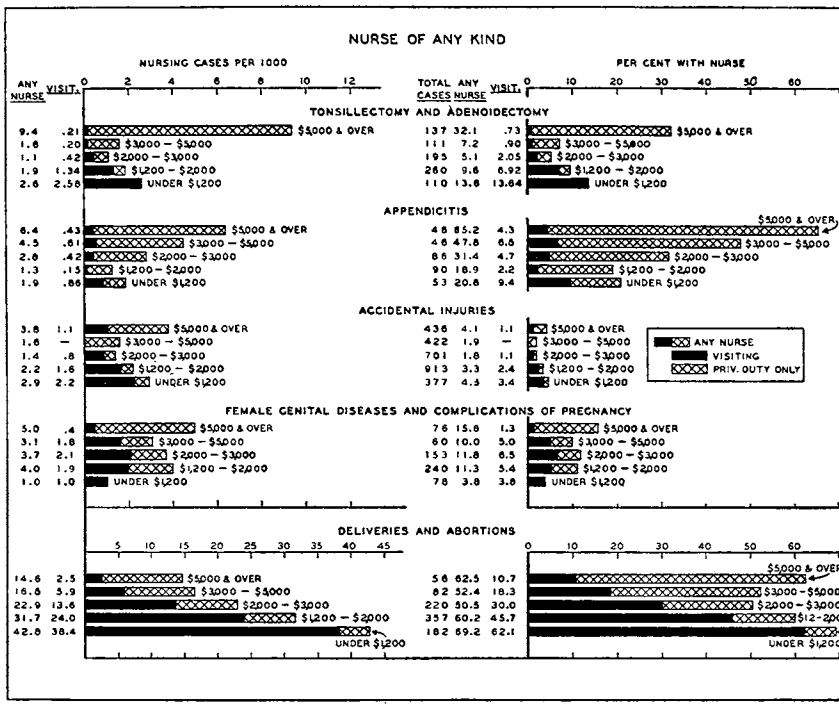


Fig. 5. Annual frequency of visiting and of all nursing for certain diagnoses among persons of all ages in families of different income levels in eighteen States during twelve consecutive months, 1928-1931. (Sole or primary causes only. Rates for deliveries and female genital diseases are expressed as per 1,000 females; percentages of all cases that had a nurse.)

low-income levels than in intermediate groups. It must be remembered in this connection that nursing in the lower income levels consists largely of visits while that in the higher levels consists largely of full-time care, usually by a graduate nurse.

Table 7 is arranged to compare nursing in urban and rural areas for the same five diagnoses. Although the differences are small, nursing cases per 1,000 population and the percentage of cases with a nurse are consistently less in rural areas for tonsillectomy, appendicitis, and accidents for a nurse of any kind and for a graduate nurse. A nurse of any kind for deliveries is about the same in urban and rural areas, but graduate nursing is higher in urban and practical nursing is higher in rural areas.

Kind of Nurse	Tonsillectomy and Adenoidectomy		Appendicitis		Accidental Injuries		Deliveries and Abortions[3]		Female Genital Diseases and Pregnancy Complications[3]	
	Urban[1]	Rural	Urban[1]	Rural	Urban[1]	Rural	Urban[1]	Rural	Urban[1]	Rural
	NURSING CASES[2] PER 1,000 POPULATION DURING YEAR									
Private Duty[3]										
Graduate	2.45	.62	2.91	1.66	.91	.69	5.75	3.57	2.03	2.20
Practical Only	—	—	.13	.13	.17	.21	4.78	9.61	.08	.55
Visiting	.96	1.24	.50	.28	1.37	1.03	19.12	18.26	1.86	1.10
Nurse of Any Kind	3.33	1.86	3.24	2.00	2.41	1.93	27.14	27.74	3.48	3.43
	PERCENTAGE OF ALL CASES[4] THAT HAD A NURSE OF SPECIFIED KIND									
Private Duty[3]										
Graduate	10.3	3.5	34.0	20.5	1.2	.9	12.4	7.8	6.3	6.8
Practical Only	—	—	1.5	1.7	.2	.3	10.3	20.9	.3	1.7
Visiting	4.0	7.1	5.8	3.4	1.9	1.4	41.3	39.7	5.8	3.4
Nurse of Any Kind	14.0	10.6	37.9	24.8	3.3	2.6	58.7	60.3	10.8	10.5
	PERCENTAGE OF PRIVATE DUTY[3] NURSING CASES THAT HAD A GRADUATE NURSE									
Graduate Nurse	100	100	96	92	85	77	55	27	96	80
	NUMBER OF NURSING CASES OF THE SPECIFIED KIND									
Private Duty[3]										
Graduate	59	9	70	24	22	10	71	26	25	16
Practical Only	—	—	3	2	4	3	59	70	1	4
Visiting	23	18	12	4	33	15	236	133	23	8
Nurse of Any Kind	80	27	78	29	58	28	335	202	43	25

[1] Urban includes cities of 5,000 or more population; rural includes towns under 5,000 and rural areas.
[2] Case rates for deliveries and female genital diseases are computed as per 1,000 females. Rates are not adjusted for age differences.
[3] Private duty includes full-time graduate or practical *private* nurse in or outside of a hospital.
[4] All cases include those with symptoms lasting one day or longer (disabling and non-disabling).

Table 7. Nursing service in connection with cases of certain diagnoses in urban[1] and rural areas—8,758 canvassed white families in eighteen States during twelve consecutive months, 1928-1931. (Sole or primary diagnoses only.)

Summary

Data on the frequency of illness and nursing care were recorded for a twelve-month period between 1928 and 1931 by periodic canvasses of 8,758 white families in 130 localities in eighteen States.

The surveyed families include representation from nearly all geographic sections, from rural, urban, and metropolitan areas, from all income classes and of both native and foreign-born persons. Visits were made at intervals of two to four months. Illnesses causing symptoms for one day or longer were recorded, together with the number of cases with a private duty or visiting nurse and the days and visits within the study year.

Private nursing service showed greater concentration in the higher income levels than any other type of medical care except certain types of dental service. Nursing cases and days per 1,000 population and the percentage of cases with a private nurse all showed large excesses in the higher income levels. The percentages of both cases and days of private nursing that were done by practical nurses were definitely higher in the low-income groups, particularly for maternity cases.

Visiting nursing showed a high concentration in the low-income levels. Nursing of any kind (private or visiting) therefore showed greater frequency in high and low-income groups than in the middle-income levels.

Urban areas showed some excess over rural areas in nursing service. Urban-rural variation in nursing service was of the same order of magnitude as the same type of variation in hospital care, but was somewhat less consistent; income differences in nursing care were much greater than urban-rural variation, but the opposite was true of hospital care.

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