HOW MUCH WORK CAN A RURAL PUBLIC HEALTH NURSE DO?[1]

by MARIAN G. RANDALL, R.N.

THE growing interest in rural health administration and practice brings the specific problem of planning for the type and number of personnel needed to carry out a county or rural health district program. One phase of this problem is concerned with the size of the staff needed to extend the activities of the health program to the people in the area who need these services. It becomes a matter of knowing the amount of work that can reasonably be expected from the individual worker who carries out the standards of a program under given conditions. This knowledge is limited, but some information is available from eight counties in the United States which may indicate, in a general way, an answer to the problem. In this paper an attempt is made to use these records of experience.

It has frequently been pointed out that the professional qualifications of rural health workers are of primary importance. The quality of the personnel largely determines the quality and standard of the work performed. The standards set up for qualifications for health department personnel vary considerably in different localities, however, partly because the nature of the problems and the stage of development of health work differ and partly because differences exist in rates of pay, permanence in tenure, and facilities for training and supervision. Little or no information on this phase of personnel practices in county health departments exists and further study is needed. Our discussion here is perforce confined to the numerical ratio of public health nurses to the population, the evidence available of the volume of services rendered by the public health nurse alone or as assistant in the clinic or school, and an estimate of the extent to which any services are

[1] From the Milbank Memorial Fund.

given to those who may need service, under given conditions in the eight counties.

While we are here concerned only with the work of the public health nurse, it must be recognized that her activities are only a part of the total health program and that they are determined largely by the policies and program of the health department and depend upon the stage of development of the various phases of health work in the area. This integration of the nurse in the program as a whole is shown quite clearly in the following illustrations of the amount of home visiting, clinic work, and school work which comprise the year's work of a nurse in different counties. If the county health department program is developed to include clinics and school work, the nurse has less time to spend in home visiting. The nurse is an agent of the health department and her work is necessarily governed by the scope and character of the total program.

THE COUNTIES STUDIED

It must be pointed out in the beginning that the data are limited, and it was necessary to make a few estimates from the available figures. The areas selected for study were limited by the amount of information available. They are: Cattaraugus County, New York; Rutherford County, Tennessee; Brunswick-Greensville, the Bi-County Health Unit in Virginia; Wexford County, Michigan; Scott County, Kentucky; Crawford County, Ohio; Greenwood County, Kansas; and Limestone County, Alabama.[2] In all of these

[2] The sources of information are: for Cattaraugus County, the Annual Reports and special studies made by the Milbank Memorial Fund; for Rutherford County, CROSS SECTIONS OF RURAL HEALTH PROGRESS, by H. S. Mustard, M.D., The Commonwealth Fund, New York, New York; for Brunswick-Greensville, special articles prepared by Pearl McIver, R.N., from studies made by the United States Public Health Service and published in the *Public Health Reports;* and for the other counties, A STUDY OF RURAL PUBLIC HEALTH SERVICE, edited by A. W. Freeman, M.D., for the Committee on Administrative Practice of the American Public Health Association, published by The Commonwealth Fund, New York, New York. While all these sources are based on reports of a few years ago, they were used because of the need for comparable information. More recent reports from some of the counties show very little change in the health programs, and very little change in the volume of work included in the nurses' activities.

counties there was some home visiting by the public health nurse, some clinic service in all but Limestone County, and routine medical examinations of school children in all but the Brunswick-Greensville area and Greenwood County. While the types of services rendered make these areas fairly comparable for study, differences exist in the amount of work done in each type of service and in each county. One reason for this is the emphasis which a particular county may put upon one phase of its program. Another reason is the difference in the number of nurses on the staff of the health departments.

POPULATION PER NURSE

It has been recommended that there should be one public health nurse to every 2,000 population.[3] Thus the number of people in the district served by a public health nurse may be used as a unit for measuring the adequacy of public health services. This is shown in Table 1 for the eight counties studied. Since we are primarily interested here in the activities per nurse, only the population per nurse is given. It should be recognized, however, that where there is only one nurse in a county, as is true in all but three of the counties studied, certain administrative duties must be carried on by her which in the more highly organized counties are taken care of by the director or supervisor.

Table 1. Population per nurse in eight counties of the United States having organized county health departments.

County Number[1]	Name of County	Thousands of Population per Nurse
I	Cattaraugus, New York	5
II	Rutherford, Tennessee	6
III	Wexford, Michigan	6
IV	[2]Scott, Kentucky	14
V	[2]Brunswick-Greensville, Virginia	17
VI	[2]Crawford, Ohio	18
VII	[2]Greenwood, Kansas	19
VIII	[2]Limestone, Alabama	36

[1] These numbers will be used to designate the counties in the remainder of the discussion.

[2] There is only one nurse in each of these counties.

[3] Hiscock, I. V.: COMMUNITY HEALTH ORGANIZATION. New York, The Commonwealth Fund, 1932, p. 155.

As Table 1 shows, there is considerable variation in the size of the units of population served by a nurse. By comparison with the general practice throughout the country, there is for most of the areas less than the average unit of population per nurse.[4] But the limitations in meeting the known needs of these counties studied are even more significant when it is recognized that they are counties having more than the average amount of public health nursing service.

VOLUME OF WORK PER NURSE

The most commonly used method of reporting upon the activities of the public health nurse is to give the number of home visits made, the number of clinic visits made by the patients, and the number of medical examinations given to school children. The home visits are made by the nurse alone, while the clinic and school services are activities in which she assists the physician and renders her own special services in the form of health teaching. The volume of these three services per nurse per year in each of the counties studied is shown in Table 2.

Even with all the differences in various factors inherent in the problems of each county, considerable similarity in the volume of work per nurse is evident. In County I, the nurse made fewer

Table 2. Volume of work per nurse per year in eight counties.

County	Total Home Visits	Total Clinic Visits	Total Examinations of School Children
I	1,588	89	948
II	1,711	243	491
III	1,455	301	1,157
IV	1,835	139	2,871
V	991	197	—
VI	1,085	172	800
VII	1,186	328	—
VIII	1,175	—	2,822

[4] According to the study of rural health work made under the auspices of the Committee on Administrative Practice of the American Public Health Association, which is used as a source of information in this paper, there is an average of one nurse to every 20,000 population in the counties having organized county health departments, but only about one-sixth of the counties of the United States have county health departments.

home visits than in County II, but she assists with more than twice as many examinations of school children. In County VII, she makes practically the same number of home visits as in County VIII, but she gives service for over 300 clinic visits and no school service, instead of a large number of school examinations and no clinic service. Thus, even when allowing for variations in size of territory and traveling conditions, the health program undertaken, standards or quality of service, and differences in size of population served, records of experience may be used in estimating the approximate volume of activity of a rural public health nurse. It is suggested, therefore, that approximately 1,400 home visits, 200 clinic visits, and 1,000 school examinations per nurse per year may be used as an index of volume until more definite information is made available.

EXTENT OF SERVICE

Only an approximation of the extent to which a given amount of service reaches the people in a rural area can be estimated from the information available. The usual method of reporting the nurses' visits and the cases visited *for a calendar year* tells the amount of work done but does not give the basic data to determine the number of individuals with a specific health problem, such as pregnancy, or the number of individuals of a given age group, such as infants, which at some time had continued supervision over a period of time unrelated to the calendar year. If the extent of service is computed on this basis, the results, in terms of the proportion of the people served, may be in considerable error, especially if it happens that some old cases received continued service during part of the specified calendar year studied. Since records are not available from most areas for cases who received any service from the first to the last of the specific health problem involved, such as the prenatal period, the first year of the infant's life, and the like, estimates are made for illustrations of relative differences, with recognition of their limitations.

Maternity and Infant Service. No prenatal clinics were provided in any of the counties studied.

The reported births for a year have been used to represent the total maternity and infant problem. Table 3 shows an estimate of the per cent of the maternity and infant cases who received home visits from a county nurse. (See footnote 1 under Table 3). Considerable variation is indicated in the eight counties. In County III, the figures suggest that this part of the program was emphasized in an unusual degree; two-thirds of the cases received services during the prenatal period, with an average of three visits per case visited; nearly one-half of the cases received visits from the nurse in the postpartum period; and two-fifths of the infants received an average of six visits per case. In County IV, it is estimated that not more than 18 per cent of the cases received nursing services in any of the three periods, although in the prenatal

Table 3. Home visits per nurse per year to maternity and infant cases in eight counties.

County	Nursing Services for Prenatal Cases			Nursing Services for Postpartum Cases			Nursing Services for Infants		
	No. of Cases Visited	Average Visits Per Case	Per Cent of Births Visited	No. of Cases Visited	Average Visits Per Case	Per Cent of Births Visited	No. of Cases Visited	Average Visits Per Case	Per Cent of Births Visited[1]
I	27	3.0	29.3	23	3.2	25.0	68	5.0	38.8
II	38	3.6	33.3	42	2.6	37.8	97	3.2	41.7
III	87	3.3	66.5	63	3.0	48.1	49[2]	6.0	37.9
IV	57	8.0	17.2	50	1.5	15.1	58[2]	1.3	17.5
V	95	1.5	18.3	48	1.4	9.3	86	1.4	11.1
VI	5	1.4	1.7	289	1.0	95.7	40[2]	5.9	13.2
VII	49	2.0	10.6	—	—	—	12[2]	3.7	2.6
VIII	39	2.1	4.0	53[3]	1.0	5.4	71[2]	3.8	7.2

[1] Records of infants visited are usually not kept in such a way that the number of infants who had any service from birth to one year of age can be reported or accurately computed. The ratio of the number of infants visited in a calendar year to the number of births registered gives only a rough approximation of the per cent of the infant population which was visited. The ratio so obtained is a maximum. The extent of the error is greater the more continued and regular the service is throughout the period of infancy, since the more frequent the service the greater the opportunity of including service to old cases under exposure for a short period in the specific calendar year.

The same principle is involved in estimating the per cent of cases receiving prenatal services, but the probable error is reduced by the shorter period for which most prenatal cases are carried.

[2] Estimated from information given in Dr. Freeman's Study of Rural Public Health, p. 160, which states visits per 1,000 births and average visits per infant visited.

[3] An additional 15 cases were registered but not visited in the home.

period the cases visited received an average of eight visits per case. In County VI, however, only 2 per cent of the prenatal cases received any services, averaging 1.4 visits per case, while 96 per cent of the postpartum cases received one visit each.

To the extent that the number of visits indicates better or continued supervision, the average visits per case may be used to express the quality of service given. When the amount of service is limited there is always a problem of visiting fewer cases and giving continued supervision or extending services to a greater number even though the amount of service is limited. In a tax-supported service the nurse is obliged to assume certain responsibilities regardless of other conditions. The nurse is often obliged to give limited services, such as represented by one home visit to maternity cases, to as many as possible in a large population, and the effectiveness of the results often may be of doubtful value. It is suggested that the reason is not inherent in the practice of attempting to give as many cases as possible at least some supervision, but in the more fundamental practice of assigning a nurse to a unit of population far too large for her to serve adequately.

Infant and Preschool Clinic Service. Another illustration of the amount and extent of nursing service for a particular activity is

Table 4. Child health conference services per nurse per year for infants and preschool children in eight counties.

County	Clinic Registrants	Average Visits per Child	Per Cent of Infants and Preschool Population Attending Conferences[1]
I	51	1.4	8.8
II	118	1.7	21.8
III	86	2.6	15.3
IV	—	—	—
V	14	1.0	0.5
VI	48	3.0	3.3
VII	312	1.0	15.0
VIII	122	—	2.5

[1] Infant and preschool population here estimated from reported births and from the 1930 Federal Census.

shown by the services given in child health conferences for infants and preschool children. All but County IV have some conference service for young children, but, as Table 4 shows, there is wide variation in the amount of service given. Only in one county is there more than 20 per cent of the infant and preschool population who receive the medical examination and health conference facilities of the county. In five of the counties less than 5 per cent of the young children receive any clinic services.

Total Services. In Table 5, a summary of the estimated total services per nurse per year is shown for each county. From the sources of information previously quoted, it was possible to include in this summary nurses' home visits for prenatal and postpartum maternity services, for infant, preschool and school services, for adult health supervision, and for tuberculosis services and other communicable disease services.[5] The total clinic services

Table 5. Summary of services per nurse per year in eight counties.

County	1,000 Population per Nurse	Nurses' Visits to Homes			Clinic Services			Physician's Examinations of School Children	
		No. of Cases Visited[1]	Average Visits Per Case	Per Cent of Population Visited	No. of Cases Attending Clinics	Average Visits Per Case	Per Cent of Population Receiving Clinic Service	No. of Children Examined	Per Cent of School Population Examined
I	5	535	3.0	11.9	66	1.3	1.5	948	100.0
II	6	712	2.4	12.9	149	1.6	2.7	491	38.6
III	6	433	3.4	7.7	157	1.9	2.8	1,157	100.0
IV	14	765	2.4	5.3	74	1.9	0.5	2,871	90.8
V	17	640	1.5	3.8	136	1.5	0.8	—	—
VI	18	734	1.5	4.1	78	2.2	4.4	800	29.5
VII	19	609	1.9	3.2	328	1.0	1.7	—	—
VIII	36	575	2.0	1.6	—	—	—	2,822	59.8

[1] Prenatal and postpartum counted as separate cases since it was not possible for all but three counties to show number of cases receiving each of these services; communicable disease cases also counted as separate cases since information was lacking for number of cases which also received health supervision services. The material has been made comparable for each of the counties included.

[5] In counting the number of cases for this summary, prenatal and postpartum were counted as separate cases since it was not possible for all but three places to show the exact number of cases receiving each of these services. Communicable disease cases are also counted as separate cases since it was not possible from the information available to show which of the communicable disease cases also had health supervision services. The statistics are comparable for all eight counties.

are largely comprised of child health conferences and tuberculosis diagnostic clinics. Since the conference services varied somewhat in respect to the provision of services for children of different age groups, and comparable figures for the total number of reported cases of tuberculosis in each county were not available, the total population figures were used to illustrate a rough estimate of the extent of clinic services.

School examinations, as here used, are only those in which a physician has made the examinations. It is known, however, that in County V, where no school examinations are reported, the nurse makes frequent school inspections and sends children to a physician if conditions warrant it. This may also be true in County VII. It is undoubtedly true that in all eight counties the nurse makes frequent visits to the schools which are not shown in this summary of services. Other activities, such as teaching mothers' clubs, instructing classes in home hygiene and care of the sick, inspection of midwives, and the like, are not included in this summary.

The population per nurse is expressed in units of 1,000. As the population per nurse increases, the per cent of the population receiving home visits decreases. This would be expected. And if the program includes medical examinations of a large per cent of the school children, a relatively small amount of clinic services are included in the nurse's work. This would also be expected. Some evidence bearing on this point is presented in Table 5. It appears that, if a county nurse is serving a population of five or six thousand, the records of experience show that she can make home visits to between 8 and 13 per cent of the population. If a higher quality of service is given, as shown by repeated visits, the service is extended to fewer people. A nurse in County III visits 8 per cent of the population but gives them an average of 3.4 visits per case. In County I a nurse visits 12 per cent of the population, with an average of 2.8 visits per case. If the nurse is

assigned to serve a population of 14,000 or more, she will probably visit in the homes of only 5 per cent or less of this population. In County VIII, where the nurse serves a population of 36,000, she visits only 1.6 per cent of the population, gives no clinic service, and assists with the examination of 60 per cent of the school children.

Similar facts are shown for clinic and school services. In only one county is there more than three per cent of the population given clinic supervision. While three of the counties give medical examinations to 90 per cent of the school children, two of the counties give none, and two give them to less than forty per cent of the children.

Summarizing the three types of service, it will be noted that if a relatively high per cent of service is given in one type of health supervision, there is a relatively small per cent of service given in one or both of the other two types of service. For example, in County IV, the nurse makes more than the usual total number of home visits, but there is no clinic service required of her. Only just so much work can be covered with a limited health personnel, and the program is often largely confined to one phase of health service, as here illustrated.

Even with the limited information available, it is evident that until an adequate number of rural public health nurses are provided, the services of the county health departments can be given to only a small per cent of the people of the county. Is it true economy in county health administration to continue to give limited health services to only a few of the families in rural areas?