APPENDIX C

HEALTH NEEDS IN RURAL POPULATIONS

The purpose of this Appendix is to examine the health services and needs of rural populations. Analysis of the health care needs of rural areas is difficult because of the lack of homogeneity among rural populations. Differences in economics, occupations, and **population density and** dispersal among rural areas limits the conclusions which can be drawn. Nevertheless, on an aggregate basis there are some "significant general differences between health "in rural and urban areas.

Available data on health characteristics suggest a number of important needs in rural areas including:

- need for increased primary health, medical specialist, and dental care;
- need for greater accessibility to medical facilities and services;
- need for increased emergency medical services; and
- need for continuing medical education for physicians, specialists, and other allied health manpower.

In the following pages, the various health conditions, resources, and services of rural areas are discussed. The factors and reasons for the existence of these health care needs are examined, and recent federal initiatives related to rural health services are highlighted.

Health Conditions in Rural Areas

Health conditions in rural areas can be identified from the rates of chronic diseases, mortality, and injury among rural populations. Comparisons are made with metropolitan rates to illustrate the differences of health conditions in rural populations.

Chronic medical conditions such as heart disease, diabetes and asthma are more prevalent in persons between the ages of 17 and 64 living outside metropolitan areas than in persons living in metropolitan areas. There is an even more dramatic difference in chronic illness for persons 65 and over. Approximately 50 percent of farm persons and 47 percent of non-farm persons over 65 from nonmetropolitan areas suffer from limitation of activity due to chronic illness compared to 39 percent of persons of similar age living in metropolitan areas (1-18). Several reasons which may account for this are the lack of availability of medical care to permit early detection of such conditions, lack of knowledge on the part of populations about the necessity for diagnosis and medical treatment and the distances which must be travelled to obtain medical care. Money necessary to pay for medication and medical service and sociological reasons, such as fear of separation from family, may also inhibit persons from obtaining medical treatment.

Two factors demonstrating health conditions are the rates of infant and maternal mortality. The data show that infant and maternal mortality rates are higher in nonmetropolitan areas than in metropolitan areas. There are 23.0 infant deaths per 1,000 live births in nonmetro areas compared to 21.1 in metro areas. There are 26.4 maternal deaths per 100,000 live births compared to 23.6 for metro areas (1-16). There is no definitive explanation for this difference, however more deliveries are

likely to occur in a nonmedical environment in rural areas due to the distances that must be travelled to receive medical assistance. This factor introduces a greater element of risk, particularly in complicated deliveries. In addition, lack of medical specialists for prenatal care in nonmetro areas may contribute to the higher incidence of infant and maternal mortality in those areas.

An unpublished HEW report showed that rural nonfarm residents had a higher injury rate than did either rural farm residents or metropolitan residents. Persons injured were defined as those needing medical attention or limited in activity for at least one day. In metropolitan areas approximately 247 persons per 1,000 were injured annually compared to 256 rural nonfarm persons per 1,000 and 225 rural farm persons per 1,000 (1-18ff.), The reasons for the higher injury rate among nonfarm rural people are unknown although some hazardous occupations such as mining are found in nonfarm rural areas. However, it appears unusual that farm residents showed the lowest injury rate considering the type of work they do. Farm work, the distance which must be travelled to obtain assistance, and the condition of the roads may result in a lowering of the reporting rate and therefore result in a statistically lower injury rate. According to an article published in Rural and Appalachian Health, "the West Virginia State Road Commission reported that in 1965 within an eight-county area only one-fifth of the road mileage met minimum specifications" (2-41).

Another factor indicating health conditions of rural populations is the rejection rate of persons for military service. Statistical evidence provided by USDA shows that rural residents between the ages of 27 and 34

had a rejection rate for the military service for physical and mental health conditions at least twice as high as those from metropolitan areas and residents from small cities and towns of 25,000 (1-18). This provides another indication of the health conditions of rural populations.

Health Resources of Rural Areas

Health resources in rural areas include health facilities, manpower, and emergency medical services. The degree of accessibility of those resources to rural residents is also important.

Health manpower is traditionally concentrated in areas with greater concentrations of people (l-l). Rural populations have less than half as many doctors per capita as do urban areas. Of the doctors serving rural areas there are proportionately more general practitioners than there are specialists. In contrast, metropolitan areas have a greater number of specialists than general practitioners. According to the USDA report, in 1970 there were 16,457 general practitioners, 16,377 specialists, and 4,507 hospital-based, nonfederal physicians serving nonmetropolitan areas. There were 34,359 general practitioners, 121,731 specialists, and 61,596 hospital-based physicians serving metropolitan areas. The ratio of physicians per 100,000 population for nonmetropolitan areas was 30.4 for general practitioners, 30.3 for specialists, and 8.3 for hospital-based physicians. The ratio of physicians per 100,000 for metropolitan areas was 23.0 for general practitioners, 81.5 for specialists, and 41.2 for hospital-based physicians (1-7ff.), There are proportionately fewer dentists, pharmacists, and registered nurses serving rural areas compared to those serving urban areas. In 1966 and 1967, there were 54.7 pharmacists per 100,000 in metropolitan areas compared to 43.7 for nonmetropolitan areas; 332.1

registered nurses per 100,000 for metro areas compared to 223.0 for nonmetro areas; and 61.7 dentists per 100,000 for metro areas compared to 35.5 for nonmetro areas (l-9ff.).

A variety of reasons can be advanced to account for the phenomenon of a shortage and maldistribution of health manpower. In the case of physicians, there is evidence indicating that a rural background is a strong contributing factor in a physician's choice of a rural practice. Almost half of the physicians practicing in towns of 2,500 or less are from communities of similar size (3-llff.). Cooper states that "practice in a small community is more likely to be the choice of those who grew up in small communities than of those who did not" (4-940). In addition, factors of location of the medical school attended by the physician and the location of the internship and residency also tend to influence the choice of location or practice. According to an article published in the Journal of Medical Education:

> "Current medical education is not, for the most part, designed to train and encourage rural practitioners. Though there are welcome signs of change, medical students still receive most of their training in institutions which are oriented toward special practice and secondary and tertiary care of inpatients. Since students receive very little exposure to family practice in general, it is unrealistic to expect them to enter rural practice" (5-886).

Other reasons for the maldistribution of physicians and shortage of physicians in rural areas arise from some of the unique features of a rural practice for both the general practitioner and the specialists. In general, the rural physician is characterized as a person who is isolated from peer consultations and referrals. He or she is isolated from easily accessible information regarding new medical trends and procedures. The rural practitioner may have difficulty locating his or her practice close to

facilities which may be equipped with the latest medical instruments and technology. And, too, the rural physician is in a position which requires service to a greater number of people distributed over a larger land area. The generalist physician in a rural practice is confronted with cases requiring specialist attention. Yet the resources are often not available to the physician to effectively refer and assist patients in such situations. The specialist in rural practice finds that in order to make the practice economically feasible, a large portion of time must be spent on generalist cases thereby diminishing the prospects of furthering his or her development in the work for which training was received (10-55). Phillips and his colleagues have noted in a study that:

> "The social and economic nature of rural areas repel most young physicians, even those considering solo practice, as well as their families. None (of the physicians contacted) were particularly enchanted with the low economy, the poor school systems, sparse population, the paucity of cultural opportunities, the isolation from modern medical facilities and the round the clock practice, especially when these were compared with the advantages of urban life. Even the energetic outdoors man or the disenchanted city dweller seeking the bucolic country life found the small country community cramped, limited and confining" (6-1263ff.).

Another contributing factor to the shortage of physicians in rural areas is the increasing median age of rural doctors and the difficulties communities have in replacing physicians who leave, retire or die. A study of 20 rural counties in Missouri showed that between 1958 and 1973 there was a *33* percent attrition rate of MDs serving those areas. In 1958, there were 100 practicing physicians. The greatest losses were due to death and migration but retirement was also a factor. For the period between 1965 and 1973 the counties lost 22 MDs. Of those lost, ten moved, nine died and three retired (7-313ff.). Taylor and his colleagues have indicated that

"Whether caused by a national shortage of physicians, or by maldistribution, or both, younger physicians are failing to replace established practitioners who leave rural practices due to death, retirement, or overwork" (5-885).

Reasons for the disproportionate distribution of dentists, and other categories of health manpower may also be attributed to factors similar to those for physicians. For dentists, metropolitan areas are more appealing due to the larger number of persons to be served per unit area and the greater access to the equipment, facilities and support staff necessary for a practice. In the case of nurses and pharmacists, these fields have been linked traditionally to primary health service facilities and manpower in the role of support staff. As such, choice of location in a rural area would seem less likely for those in the field. Concurrently, the economic advantages, advancement possibilities and continuing education incentives for those in nursing and pharmacy are greater in the more densely populated areas.

Another factor related to health resources for rural populations is the availability of health facilities. Statistics show that there are proportionately more hospital beds per capita for rural areas than for metropolitan areas. The USDA report states that there were 7,123 hospitals in the U.S. in 1970. Of that number, 82% or approximately 5,800 were community hospitals. Overall, there were 977.3 hospital beds per 100,000 in rural areas compared to 719.2 beds for urban areas. Further analysis of hospital facilities in metro and nonmetro areas showed that nonmetro areas had both proportionately more long term hospital beds for psychiatric care and more community hospital beds for short term care than did metro areas. There were 370.6 psychiatric beds per 100,000 in nonmetro areas compared to 207.2 psychiatric beds in

metro areas. There were 497.6 community hospital beds per 100,000 for nonmetro areas compared to 394.1 for metro areas (1-12ff).

These facts present an interesting disparity in the distribution of physical and mental health facilities among metro and nonmetro areas. In the categories of hospitals, rural areas have relatively more facilities. The reasons for the existence of more hospitals can partially be explained by the federal monies provided for construction of medical facilities in the Hill-Burton Act based in part on the philosophy that the introduction of facilities to underserved areas would attract more health manpower to those areas. This is hypothesis was essentially disproved by the programs which built a number of community health clinics or hospitals for the purpose of attracting health manpower and increasing health services to certain rural areas. Communities continued to experience difficulty in attracting and keeping physicians and other allied health manpower despite the new buildings and equipment (2-38ff.).

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The reasons for the disparity in mental health facilities between metro and nonmetro areas are unclear. However, traditionally state and private mental institutions have been placed away from large concentrations of people, and hence have been located in rural areas. Another pertinent and unanswered question related to the location of mental health facilities is: are the patients in these rural institutions from rural or from urban areas?

The correlation of inadequate manpower, distribution of facilities, and the extent to which the facilities can be furnished with modern equipment directly affects the quality of health resources for rural populations. It appears that the existence of a greater proportion of hospital facilities

in rural areas does not necessarily compensate for the health problems which rural people face.

Accessibility of health resources is a key aspect of health care for rural populations. One type of accessibility is physical and is related to the distances which people must travel to health resources and the transportation systems available to them. Despite the fact that there are more hospital beds for rural populations, rural people must still travel considerably more distance to receive health care or emergency medical services. Statements made in Rural and Appalachian Health give a revealing picture of rural Appalachian health manpower and facilities problems.

> ..."In a county where about half of the families earn less than $3,000 annually and the proportion of welfare cases is higher than the state norm, travel is too expensive for the majority. The county desperately needs transportation to out-of-county hospitals, as well as local emergency care and local practitioners. . . There are many such areas in the Appalachian region. . . where because of a lack of personal resources, inadequate public support of essential services, and unavailability of health care, significant proportions of the population have gone without any expert crisis medical care for many years. In these areas Hill-Burton built hospitals are understaffed and underused. In some of these hospitals entire wings are closed due to a shortage of physicians and nurses" (2-38ff.).

Rural persons not living in close access to health facilities or service areas have more difficulty obtaining primary health care or emergency medical service. Because the most common mode of transportation for people in rural areas is the automobile, those persons who do not have access to a car can have great difficulty in obtaining medical assistance. In addition, the roads and highway systems in some rural areas are at times impassable, making routine and emergency health care impossible. In addition to Appalachian areas these problems are also readily apparent in the northern regions of this country in areas such as Alaska, Maine and the Northern mid-west states.

The other type of accessibility is financial and is related to the costs of health care and provisions to pay for it. The cost of health care for many rural people is a limiting factor in terms of health resources accessibility. The economic characteristics of rural areas show that 14 percent of rural people are below the poverty level compared to 9.7 percent of metropolitan populations (8-16). In addition, the non-poverty level incomes are also lower in rural areas. Concurrently, statistics show that rural residents have a *lower* rate of hospital and surgical insurance than do urban residents. The percentage of metropolitan residents not covered with hospital insurance was 17.5 compared to 24.2 for rural nonfarm residents and 36.8 for rural farm residents. The percentage of metropolitan residents not covered with surgical insurance was 18.9 compared to 25.5 for rural nonfarm residents and 38.8 rural farm residents (l-23).

The reasons for the greater insurance coverage of metropolitan residents may be explained largely by the group insurance available through company employment plans. Another reason for the difference may be a lack of knowledge on the part of rural residents about insurance coverage, and economic ability to pay for coverage -- particularly in the group just above the poverty level.

One final health resource which should be examined for rural areas is the availability of emergency medical services. A great portion of the grants made possible by the Emergency Medical Services Act have been directed toward nonmetropolitan areas. However, the implications for rural populations of transportation, distance to health facilities, and health manpower shortages, render a rather bleak picture for those who require emergency health care.

Utilization of Health Services in Rural Areas

The extent to which rural populations utilize the health resources available to them may be related to the health conditions of those populations.

Utilization can be determined by several factors such as frequency of visits to physicians and the rate of hospitalization for rural populations.

Generally rural nonfarm residents used physician and dental services with slightly less frequency than metro populations. However, rural farm residents showed a sharply lower frequency of physician visits. In addition, statistics show a dramatic difference in the number of visits to specialists by rural residents compared to urban residents (1-11). These differences in rural areas reflect the manpower shortage, a lack of knowledge of the available services, the lack of funds necessary to pay for health care, and transportation difficulties. The differences also suggest inadequate reporting may be one reason for the lower incidence figures.

The hospitalization rate of rural nonfarm residents is higher than that of persons living in metropolitan areas. The rural farm rate is lower except for persons over 65. According to the USDA report for all age groups, approximately 93 persons per 1,000 in metro areas were hospitalized in 1968 compared with 103 per 1,000 from rural nonfarms and 88 per 1,000 from rural farms. For persons over 65, 143 per 1,000 from metro areas were hospitalized compared with 171 from rural nonfarms and 195 from rural farms (1-20).

One hypothesis which could be advanced from greater hospitalization rates among nonfarm rural residents may be attributed to the lack of enough physicians and the type of facilities which provide outpatient care. Another is that hospital costs have not risen so high as to force a change to out-patient treatment where possible. The high hospitalization rates of the elderly in rural farm and nonfarm environments may be attributed to the inade-quacy of health services for those populations, the lack of physicians, the

inability of families to provide the type of care necessary for the elderly suffering from chronic or immediate illness, and the apparent lack of nursing homes and other alternative care facilities. In addition, the lack of earlier health care may contribute to greater hospitalization rates.

Federal Efforts Related to Health Care Delivery in Rural America

The federal efforts impacting rural health care have increased considerably over the last two decades. However, these initiatives have largely been directed toward the general population rather than rural populations. Governmental programs have addressed specific problems such as health care financing, organization, manpower education, research and development, or health services and quality of care. A few, however, have been directed toward a very specific population such as indians or migrant workers.

One new important effort being made at the Federal level is the Rural Health Initiative being conducted by the Public Health Service. This effort began in July 1975 and is a program designed "to coordinate existing federal resources administratively in order to encourage residents in natural medical trade areas irrespective of geopolitical boundaries to take an integrated and holistic view of health care system requirements and priorities." As a part of the initiative more than 100 developmental grants will be awarded in FY 1976 to encourage formation and integration of rural health system.

Another recent effort which potentially impacts rural health care systems is the National Health Planning and Resources Development Act of *1974*.

This act is designed to provide a comprehensive means for addressing equal access to quality health care a reasonable cost. The legislation provides the mechanism for establishing systems for planning, implementation and evaluation of health care delivery in this country. In addition, the legislation sets as a national priority improved health service and care for rural and underserved populations (Public Law 93-641). Therefore, the implications if this act for resolving some of the health care problems of rural areas are significant.

Findings for Health Needs of Rural Areas

In conclusion, an examination of the health conditions, resources and services of rural areas indicates that the health care problems and needs of those populations are significant. Comparative analysis of the health conditions of rural versus urban populations has shown higher infant and maternal mortality rates and greater incidence of chronic conditions in rural populations. Rural nonfarm residents have greater injury rates and a greater percentage of medical disqualifications for military duty than do their urban counterparts.

The health resource information for rural areas indicates a shortage and maldistribution of physicians (particularly specialists), dentists and allied health manpower in rural compared to urban areas. Statistics show a greater number of community and psychiatric hospital beds per capita for rual populations compared to urban populations. However, the accessibility of these facilities in terms of location, available transportation systems and costs for utilizing the facility services present severe problems for many individuals residing in rural areas. In addition, the emergency medical services for rural populations appears inadequate.

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Finally, information on the extent of utilization of health services by rural populations shows that those populations tend to visit physicians, specialists and dentists with less frequency than urban residents. However, the hospitalization rates for rural non-farm residents and rural farms residents over 65 are proportionately greater than those of metropolitan populations.

The information concerning health conditions, resources and services points to the following health care needs for rural populations:

- need for increased primary health care specialists and dental services based on the inadequate number of physicians, higher hospitalization rates, greater incidence of infant and maternal mortality, and higher incidence of medical disqualification for military duty;

- need for greater economic and physical accessibility *to* medical facilities and services due to maldistribution of facilities and physicians, the distances rural people must travel, inadequate transportation services or alternatives, and lower insurance subscribership and economic deprivation of some rural populations;

- need for emergency medical services due to chronic illness conditions, injury rat, and distances to facilities; and

- need for continuing medical education for physician, specialists and allied health manpower based on physician isolation, physician (specialist) shortages, lack of accessibility to medical peer consultations and referrals.

In light of these needs and the recent federal legislation relevant to the health care problems of rural areas, it is important to evaluate existing communications experiments as a health service delivery tool for rural populations.

References

1. USDA, Rural Devleopment Service and Economic Research Service Agriculture Information Bulletin No. 362. "Health Services in Rural America".

2. Nolan, Robert L. and Jerome L. Schwartz, eds., Rural and Appalachian Health, Charles C. Thomas, Publisher; 1973.

3. Bible, B. L., "Physicians' Views of Medical Practice in Nonmetropolitan Communities", Public Health Reports, Vol. 85, 1970.

4. Cooper, James K., Karen Heald, and Michael Samuels. "The Decision for Rural Practice", Journal of Medical Education; Vol. 47, No. 12, December, 1972.

5. Taylor, Mark, William Dickman, and Robert Kane, "Medical Students' Attitudes Toward Rural Practice", Journal of Medical Education, Vol. 48, No. 10, October, 1973.

6. Phillips, M. L., J. H. Maybry, and C. S. Houston, "Eager Communities and Reluctant Doctors", New England Journal of Medicine, 278, 1968.

7. Hassinger, Edward, Billy L. Hu, Donald Aastings, and Robert L. NcNamara, "Changes in Number and Location of Health Practitioners in a 20-County Rural Area of Missouri", Public Health Reports, Vol. 90, July-August, 1975.

8. "Social and Econmic Characteristics of the Metropolitan and Nonmetropolitan Population: 1974 and 1970", Current Population Reports, Series P-23, No. 55), September, 1975.

9. Public Law 93-641. National Health Planning and Resources Development Act of 1974.

10. "Rural Health and.Telemedicine: A Study of a Rural Health Care System and Interactive Television,Interim Report", Volume 1, prepared for the National Science Foundation, No. GI-41770, June 1975.

11. Martin, Edward D. "The Federal Initiative in Rural Health," Public Health Reports, Vol. 90, Number 4, July-August, 1975.