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ABSTRACT

This bibliography lists and annotates books and articles published since 1960, which are concerned with the problems of rural health care and manpower. The bibliography is divided into three sections containing: (1) a subject listing of the books and articles, including such areas as manpower supply and distribution, need and demand for health services, factors affecting physician placement, experience of programs to attract physicians, and alternative approaches to the rural physician shortage, (2) an alphabetical listing of the references according to the author's name and including the title, publication information, and annotation, and (3) a table summarizing selected factors affecting physician location and factors related to rural living. (SB)

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AN ANNOTATED BIBLIOGRAPHY ON RURAL MEDICAL CARE

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PREFACE AND SUMMARY

This bibliography was compiled as part of an analysis of rural health care delivery, particularly the shortage of physicians in rural areas, and was sponsored by the Division of Health Evaluation, Office of the Assistant Secretary for Planning and Evaluation, Department of Health, Education, and Welfare. Since the bibliography provides an information base that may be useful to others interested in the health problems of rural America, it is being made available as a separate publication.

ACKNOWLEDGMENTS

This bibliography materially benefited from the assistance of three persons in the Office of the Assistant Secretary: Michael Samuels, M. Keith Weikel, and Duke McCloud. The authors are indebted to them for their contributions and encouragement.

CONTENTS

I. INTRODUCTION

This bibliography lists and annotates books and articles concerned with the problems of rural health care and manpower. Its purpose is to compile all recent references—virtually all citations date since 1960. However, in its attempt to be comprehensive and exhaustive, the bibliography includes some promising references that ultimately fail to offer anything new or useful. The annotations therefore serve as a screening device for those interested in both the problem area and selective reading.

The bibliography is divided into three sections. The first section is a subject listing of reviewed books and articles. All citations are categorized into one or more of the following subject areas:

- Manpower supply and distribution.
- Need and demand for health services.
- Factors affecting physician placement.
- Experience of programs to attract physicians.
- Alternative approaches to the rural physician shortage.
- Other related topics.

The list includes the titles of related citations, each preceded by a code number based on the work's position in the alphabetical listing.

In the second section, all references are grouped alphabetically according to the author's last name, and each is assigned the code number that identifies it in the subject listing. The last section is a table summarizing selected factors affecting physician location and factors related to rural living.

Sources for the works cited in this annotated bibliography include *Cumulated Index Medicus*, suggestions from associates working in the area of rural health, and the bibliographies of references thus found.

II. SUBJECT LISTING

Manpower supply and distribution

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An 16 — *Report of the National Advisory Commission on Health Manpower.*
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An 24 — Where the primary physicians are.
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G 2 — How the doctor shortage hurts while it lasts.
G — The medical manpower shortage.
G — We need better health care but *not* more doctors.
G — Alabama needs more physicians.
H 2 — The health professionals: cure or cause of the health crisis?
H 7 — *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S., 1968—Regional, State, County, Metropolitan Areas.*
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I 2 — Health manpower to meet rural-urban needs.
K 2 — Milestone 300,000: medical progress and doctors for all.
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K 7 — *Availability and Use of Health Services: Rural-Urban Comparison.*
M 1 — A study of Iowa physicians. 1. number and distribution of doctors of medicine
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P 4 — The rural doctor problem.
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An 9 — Main Street ponders doctor shortage: MDs missed, but are they needed?
An 11 — Need for physicians—numbers, redistribution, or better utilization?
An 21 — *The People Left Behind: A Report by the President's National Advisory Commission on Rural Poverty.*
An 23 — *Town and Community Digest.*
A 1 — *State Health Manpower Planning: A Policy Overview.*
A 2 — Chronic illness—fact of life for the rural poor.
B 11 — A rural editor looks at emergency medical service.
B 12 — The concept of need for health services.
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E 2 — The secret of caring for more patients.
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F 5 — *The Doctor Shortage: An Economic Diagnosis.*
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G 7 — Alabama needs more physicians.
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M 13 — Manpower shortage: number 1 health-planning challenge.
R 6 — Health needs and services of the rural poor.
S 1 — Are we prepared?
S 11 — Health in rural poverty: some lessons in theory and from experience.
S 13 — Poverty and public health—new outlooks. II. poverty as an obstacle to health progress in our rural areas.
U 1 — *Health Characteristics by Geographic Region, Large Metropolitan Areas, and other Places of Residence: U.S., July 1963-June 1965.*
W 1 — Help wanted: doctors needed in a real nice Iowa town with a brand-new hospital, fine schools, and a future.
W 8 — Emergency medical problems in rural areas.

Factors affecting physician placement

A 1 — *State Health Manpower Planning: A Policy Overview.*
B 4 — Physicians' views of medical practice in nonmetropolitan communities.
B 16 — Impact of medical school characteristics on location of physician practice.
C 3 — Physician behavior in southern Appalachia: some recruitment factors.
C 6 — The medical student: specialization and general practice.
C 8 — Reasons physicians leave primary practice.
D 2 — Physicians for rural areas: a factor in their procurement.
D 3 — *Rurality, Poverty, and Health—Medical Problems in Rural Areas.*
D 6 — Do new hospitals attract new doctors?
E 1 — A self-help plan for doctorless towns.
F 1 — Physician migration: a problem of the upper Midwest.
F 2 — Towns without physicians and towns with only one—a study of four states in the upper Midwest, 1965.
F 8 — Physicians and poverty programs: a study of physicians' expressed willingness to change positions.
G 5 — We need better health care but *not* more doctors.
H 4 — *Background and Community Orientation of Rural Physicians Compared with Metropolitan Physicians in Missouri.*
I 3 — Health practices of the poor.
J 2 — Medical manpower: a multivariate analysis of the distribution of physicians in urban United States.
L 1 — How I became a rural doctor in response to Chairman Mao's "June 26" directive.
L 2 — Some aspects of medical care in small communities.
M 3 — A demographic and ecological analysis of the distribution of physicians in metropolitan America, 1960.
M 4 — Principal components analysis of the distribution of physicians, dentists and osteopaths in a Midwestern state.
M 6 — Where graduates go: the University of Kansas School of Medicine—a study of the profile of 969 graduates and factors which influenced their geographic distribution.
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P 1 — Social, economic, and demographic factors affecting physician population in Upstate New York.
P 2 — The attitudes of physicians toward small-community practice.
P 8 — *A Comparison of Selected Professional and Social Characteristics of Urban and Rural Physicians in Iowa.*
P 10 — Eager communities and reluctant doctors.
R 4 — An economic interpretation of the spatial distribution of physicians in the U.S.
R 6 — Health needs and services of the rural poor.
S 6 — Economic models of physician supply.
S 7 — *Lifetime Earnings and Physicians' Choice of Specialty.*
W 3 — Trends in medical practice—an analysis of the distribution and characteristics of medical college graduates, 1915-1950.
W 5 — Attracting physicians to smaller communities.
Y 1 — *Satisfactions of Pennsylvania Physicians with Rural Medical Practice.*
Y 2 — *Analysis of Migration Patterns of Recent Medical School Graduates.*

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An 1 — Alabama's physician shortage grows more acute.
An 19 — The cheapest federal program on record.
An 23 — *Town and Community Digest.*
A 4 — *Health Care Delivery in Rural Areas: Selected Models.*
M 7 — Effectiveness of student aid programs tied to a service com
M 12 — The quest for rural medical care.
R 5 — The rural preceptorship: a ten year report on the Kansas U
S 5 — *Newsletter: Look before You Leap.*
W 1 — Help wanted: doctors needed in a real nice Iowa town with a b fine schools, and a future.
W 5 — Attracting physicians to smaller communities.

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An 2 — Clinic doctors aloft—they can help solve rural health crisis.
An 12 — Physicians for deprived areas.
An 14 — Providing work for rural practitioners.
An 17 — Rural practice incentives.
An 18 — The alternatives.
A 4 — *Health Care Delivery in Rural Areas: Selected Models.*
A 5 — How can we get top-notch health care to the crossroads?
A 6 — The Rural Health Program of Southern Monterey County.
A 7 — Chairman's address: 1985.
B 5 — Alaskan rural health programs—new directions.
B 6 — Are more doctors the only answer to rural health care?
B 9 — Mobile units: a solution to the rural health problem?
B 14 — Health care: what the poor people didn't get from Kentucky
B 17 — Frontier Nursing Service and its implications for other rura
C 1 — The present dilemma of rural health services.
C 2 — The organization of rural health services: an approach by th Valley Regional Health Agency.
D 5 — Physician productivity and medical care.
E 3 — Doctors for needy areas.
E 4 — The critical shortage—physicians and supporting personnel.
F 4 — An economist's view: medical manpower—a continuing crisi
F 5 — *The Doctor Shortage: An Economic Diagnosis.*
F 7 — Mae West and the doctor shortage.
G 1 — Missing MDs.
G 3 — The medical manpower shortage.
G 5 — We need better health care but *not* more doctors.
H 1 — Improving Canada's health manpower sources.
H 3 — Rural and small-town practice: future training and role of the
H 6 — Discussion of the "how" of community participation in deliv
H 11 — Adapting medical education to meet increasing manpower r
I 1 — Your patients—paramedics of the future?
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K 4 — Areawide planning for emergency care: a status report from
K 5 — Effective utilization: the critical factor in health manpower.
M 11 — Information technologies and health care. 2. the need for ne offset the shortage of physicians.

N 1 — Discussion of the "how" of community participation in delivering health care.
N 2 — Army aeromedical evacuation procedures in Vietnam: implications for rural America.
P 11 — Compulsory medical service.
R 1 — Rural health care.
R 2 — The university and rural health: a year in Mayo, Florida.
R 7 — Dr. Billy Jack Bass: he's helping to make medical history.
S 3 — Health care for the disadvantaged in the rural areas.
S 4 — *Some Radical New Approaches To Dealing with the Physician Shortage.*
S 8 — Meeting health manpower requirements through increased productivity.
V 1 — A mobile rural health services program in Central America and Panama.
W 8 — Emergency medical problems in rural areas.

Other related topics

An 6 — Family doctors making more, but working more.
An 7 — Family practice: G.P.s vs. medical men.
An 8 — For family docs, the ears, nose and throat have it.
An 10 — Medical service in the countryside.
An 13 — *Poverty and Health in the United States: A Bibliography with Abstracts.*
An 20 — The end for internists?
An 25 — Who goes where.
An 26 — Working conditions versus manpower.
An 27 — 25,538 doctors respond to *Modern Medicine* poll.
A 1 — *State Health Manpower Planning: A Policy Overview.*
A 3 — *Meeting the Challenge of Family Practice.*
B 1 — What do rural general practitioners in Missouri really do in their offices?
B 2 — Urban vs. rural sexual problems seen in medical practice.
B 3 — Information technology and manpower productivity.
B 7 — Systems analysis and health manpower.
B 10 — A new age.
B 11 — A rural editor looks at emergency medical service.
B 15 — Washington-Alaska: the rural area.
C 4 — Medical manpower needs in deprived areas.
C 7 — Health manpower: the problem and the national scene.
C 9 — Health manpower and the law: a cautious revolution.
D 4 — Appalachia: focus of health care.
G 6 — Health manpower.
G 8 — Comparison of the professional functions of rural and urban general practitioners.
H 5 — *Relationships of the Public to Physicians in Rural Setting.*
H 10 — Reflections of a country doctor, I.
H 12 — Comprehensive community health services: a challenge for rural communities.
I 4 — Training in rural medicine.
K 1 — Determination of health care priorities and expectations among rural consumers.
L 1 — How I became a rural doctor in response to Chairman Mao's "June 26" directive.
M 2 — *Rural Health: Selected Annotated References.*
M 5 — Time and distance—rural practice.
M 8 — What makes doctors want to switch careers.
M 13 — Manpower shortage: number 1 health-planning challenge.
O 1 — Health manpower: needed—a shake-up in the status quo.

P 3 — Time study of general practitioners' office hours.
P 4 — The rural doctor problem.
P 5 — Regionalization: an integrated effort of medical school, community, and practicing physician.
R 3 — Raising the level of child health in a rural community: a model.
S 2 — Comprehensive health planning for rural areas.
S 9 — Practice in the rural community.
S 11 — Health in rural poverty: some lessons in theory and from experience.
W 2 — Health service delivery problems in northern Canada.
W 4 — General practice in the U.S.
W 6 — Health knowledge among residents of a rural Kentucky county.
W 7 — The changing work-load in a rural practice.

III. ALPHABETICAL LISTING

An 1 — Alabama's physician shortage grows more acute. *Journal of the Medical Association of Alabama, 36*(7):822-823, January 1967.

A brief discussion of the efforts of the Physicians' Placement Service to combat physician shortage by attempting to locate physicians for towns in need.

An 2 — Clinic doctors aloft—they can help solve rural health crisis. *Medical Group News, 4*(9):1, September 1971.

This article in a monthly newspaper for group physicians points out the advantages of providing rural physicians with airplanes. Planes can link group practitioners by air to both the metropolitan medical center and isolated rural areas and, perhaps most importantly, can end the feeling of isolation of the doctor *and* his family.

An 3 — Current trends in career choices among medical graduates. *Journal of Medical Education, 37* (3):239-240, March 1962.

For the years 1950 through 1961, graphs show a net increase of 15 percent in the number of students desiring to enter a specialty practice, and a net decrease of 15 percent in the number of those intending to enter general or family practice. However, of the 78 percent of students planning to specialize, 23 percent plan to study internal medicine; they therefore represent a "reservoir" of specialists who may devote their time to family practice. (Includes statistical data.)

An 4 — Estimating need for physicians: report by the Committee on Public Health, the New York Academy of Medicine. *Bulletin of the New York Academy of Medicine, 44*(8):1068-1083, August 1968.

Considering the amount and type of physician manpower needed, the Committee reviews projections of future shortages from the Bane Committee, the Bureau of Labor Statistics, Health Manpower Source Books, and the National Advisory Commission on Health Manpower. Most of these projections relied on physician/population ratios as an estimate of need. The Committee, while recognizing that an estimate of need is essential in planning the delivery of health services, recommends a different approach based on prevailing morbidity. Further, the Committee considers the roles of the general practitioner and the specialist. If most illnesses, according to the prevailing morbidity, could be adequately treated by general practitioners, then the GP is the type of physician needed; the trend toward his disappearance should be reversed and his education and training should receive new emphasis. Conversely, the trend toward overpopulation of specialists should be reversed.

An 5 — Europe's young physicians seek opportunities in U.S. *Journal of the Medical Association of Alabama, 36*(10):1274, April 1967.

This brief article summarizes the "brain drain" of professionals from Europe and offers economic opportunities, scientific climate, and freedom of choice of practice in the United States as reasons for the emigration.

An 6 — Family doctors making more, but working more. *American Family Physician, GP, 2*(3):154-155, September 1970.

A survey of family doctors, recording their earnings, working hours, and patient loads for different years, shows that the more hours a doctor works the more income he earns (though the increase in pay is not proportionate to the increase in hours). Also, it appears that rural and small-town doctors do not work

more hours than doctors in large communities. Evidence from the survey suggests that group practice may not offer the physician more free time. (Includes statistical data.)

An 7 — Family practice: G.P.s vs. medical men. *Medical Economics*, 15 April 1968, pp. 142-143.

A proposal for an internship and residency program to train physicians in both pediatrics and internal medicine is opposed by a past president of the American Academy of General Practice. His objection to the certification of these "primary physicians" is that it represents a challenge to the AAGP's attempts to develop a family practice specialist.

An 8 — For family docs, the ears, nose and throat have it. *Medical Times*, 99(1):52, January 1971.

Results of four consecutive surveys conducted by the Minnesota Academy of General Practice show that otolaryngological care accounted for the greatest workload of family physicians—22 percent in 1970. (Includes statistical data.)

An 9 — Main Street ponders doctor shortage: MDs missed, but are they needed? *Modern Medicine*, 27 September 1965, pp. 62-80.

This article suggests that the small-town problem of doctor shortages may be shifting to larger towns, for there are few areas where care is not available within a reasonable driving time. If this is so, the strain will then be placed on the central town, to which residents of smaller towns go for their needs.

An 10 — Medical service in the countryside. *Chinese Medical Journal*, 84:799-800, December 1965.

Discussion of Mao's emphasis on medical service to the more than 500 million peasants in China's villages. Through countryside efforts to train rural medical and public health workers, and through the cooperation of city hospitals and medical colleges, the medical needs of the peasants are being met.

An 11 — Need for physicians—numbers, redistribution, or better utilization? *Journal of Medical Education*, 44(4):307-309, April 1969.

This report of a panel discussion at the 79th Annual Meeting of the Association of American Medical Colleges presents Frank Sloan's economic approach to the study of the physician shortage and suggests an urban-rural network of medical care.

An 12 — Physicians for deprived areas. *Journal of Medical Education*, 44(4):300-301, April 1969.

Another report of a panel discussion at the 79th Annual Meeting of the Association of American Medical Colleges suggests reasons for the difficulty in establishing effective medical care for poor areas, such as size of city, number of hospital beds required, educational level of residents. Suggested solutions to this problem include a 50 percent increase in the number of physicians, required federal service in slums and rural areas, and the training of persons from poverty areas.

An 13 — *Poverty and Health in the United States: A Bibliography with Abstracts*, Medical and Health Research Association, New York, 1967.

A good, detailed annotated bibliography of references relating poverty and disease, poverty and children, poverty and the aged, etc. One chapter deals with rural poverty and health, and includes references on migrant workers and the American Indian.

An 14 — Providing work for rural practitioners. *Journal of the Indian Medical Association*, 52(4):184-185, 16 February 1969.

Suggesting the use of doctors part-time in rural health centers, this editorial concludes that group practice on a cooperative basis would operate more efficiently than any other type of practice in rural areas.

An 15 — Report of the Health Manpower Commission. *Journal of the American Medical Association*, 203(7):499-506, 12 February 1968.

Recommendations of the Commission are presented with accompanying comments from the AMA Committee on Health Manpower. Discussion includes the increase in manpower due to the growing number of medical schools, expansion of enrollments in medical schools because of federal funds, giving priority to programs for the disadvantaged, peer review to maintain high-quality care, and support of experimental projects for integrated health care systems.

An 16 — *Report of the National Advisory Commission on Health Manpower*, Vol. 1, Government Printing Office, Washington, D.C., 1967.

"There is a crisis in American health care .... The crisis, however, is not simply one of numbers." Despite trends of increased growth in health services, shortages of health personnel continue, partly because of the way personnel are organized to provide

medical care. The Commission recommends use of economic incentives to expand medical schools, improving the attractiveness of the nursing profession, experimentation with new categories of health professionals, giving high priority to care of the disadvantaged, and peer review to ensure high-quality care. (Includes statistical data.)

An 17 — Rural practice incentives *New Zealand Medical Journal*, *70*(451):420, December 1969.

The editorial posits multiple reasons for the shortage of rural doctors: increased tendency toward specialization, professional isolation, long travel time, reluctance to invest capital where the outlay may not be recovered, and lack of the ready assistance of a nurse. Financial incentives are recommended: low-interest financing, payment of nurses' salaries by the government, subsidies for travel to patients, and allowances for physicians' wives.

An 18 — The alternatives. *Hospitals*, *42*(11):61, 1 June 1968.

This editorial on the adaptation of rural hospitals to a system of comprehensive health care for their areas introduces an entire issue of *Hospitals* on the resources and limitations of smaller hospitals. In facing the problem of a drain of physicians to metropolitan centers, hospitals must provide areawide services through creative planning.

An 19 — The cheapest federal program on record. *Modern Medicine*, *38*(21):35, 19 October 1970.

The failure of the 1963 Public Health Service Act to produce more doctors was challenged by Representative Galifianakis of North Carolina. Due to insufficient incentives, student loan provisions to encourage work in areas of greatest need have helped only five persons. Pointing out the misallocation of physicians, especially between rural and urban areas, Representative Galifianakis has offered a new bill that would fully pay for a physician's education if he agrees to practice for 3 years in a medically deprived area.

An 20 — The end for internists? *Medical World News*, *12*(8):28I-28J, 26 February 1971.

A time-motion study of four Seattle internists in private practice revealed that these physicians were underutilizing their training and their nurses, and were providing chiefly primary care. Only 44 percent of the internists' time was spent in face-to-face patient contact. Because the internist's practice differs little from the GP's, the investigators predict that internal medicine as a specialty may "shortly cease to exist," to be replaced by subspecialists and family practitioners

An 21 — *The People Left Behind: A Report by the President's National Advisory Commission on Rural Poverty*, Government Printing Office, Washington, D.C., 1967.

A discussion of the problems of "14 million impoverished people left behind in rural America." Facts of rural poverty are detailed. Health status data include the following: (1) About 25 percent of rural residents are poor, while only 15 percent of urban residents are poor. (2) Rural residents are more likely to have disabling chronic health conditions than their urban counterparts. (3) Rural farm residents average fewer physician visits per person than rural nonfarm and urban residents. (4) The rate of insurance coverage is lowest for rural farm residents. (5) Per capita expenditures for health care diminish with decreasing population density. The Commission questions the wisdom of public efforts that have attempted to improve conditions of the urban poor while by-passing the rural poor. It makes a series of recommendations for a coordinated attack on poverty and specific recommendations for the abolition of rural poverty. (Includes statistical data.)

An 22 — The urban and rural distribution of medical manpower. *World Health Organization Chronicle*, *22*(3):100-105, March 1968.

The urban concentration of physicians is explained by specialized hospitals and health administration in the cities; greater willingness of the urban population to undergo treatment; a lack of loyalty to family doctors that allows for more specialist consultations; and the physician as a consumer of urban services and facilities. The article points out the wide range of physician/population ratios throughout the world and suggests that the availability of health care is inversely proportionate to the percent of the population engaged in agriculture.

An 23 — *Town and Community Digest* (1970 Edition), Omaha, Nebraska.

An appeal for small-town practice, with a listing of over 100 towns needing a doctor, with information on each town's location, population size, economy, predominant nationality, and recreational opportunities, as well as descriptive remarks about the community.

An 24 — Where the primary physicians are. *Hospital Physician*, 5(11):75-77, November 1969.

Maps compare each state's share of the national population with its share of the nation's doctors in internal medicine and general practice. They show that about one-third of the states have only a relatively small share of the nation's providers of primary care. (Includes statistical data.)

An 25 — Who goes where. *Lancet*, 1(7538):348, 17 February 1968.

Summarizing an article appearing in the same issue, the author decries the emigration from Britain of trained physicians to countries capable of producing their own.

An 26 — Working conditions versus manpower. *Delaware Medical Journal*, 40(3):88, March 1968.

The author sees low wages and poor working conditions complicating the problems of recruiting and retaining health manpower.

An 27 — 25,538 doctors respond to *Modern Medicine* poll. *Modern Medicine*, 39(16):29, 9 August 1971.

Results of a national survey of physicians about house calls. Of all physicians surveyed, 64 percent make house calls; proportionately more general practitioners make house calls (89 percent); rural physicians make proportionately more calls than their urban counterparts (93 percent versus 58 percent); the rate of house calls drops in direct relation to the size of the city. (Includes statistical data.)

A 1 — Acton, J. P., and R. A. Levine, *State Health Manpower Planning: A Policy Overview*, The Rand Corporation, R-724-RC, May 1971.

This study attempts to provide a context for the health manpower research and planning being done at Rand. Recognizing the difficulties and uncertainties in defining and forecasting needs for health care, the report focuses on planning and manipulating the supply of manpower within the context of an inability to estimate need and demand. "The key to planning must be flexibility with which to meet uncertainty." The authors discuss alternative approaches to the problem of increasing physician manpower and influencing distribution: increasing the number of medical school graduates, attracting and retaining additional physicians, and changing the length of clinical training. In all approaches, the authors conclude, one must take account of the complexity of factors involved. Dentists, nurses, and allied health professionals are also considered.

A 2 — Alexander, B. H., Chronic illness—fact of life for the rural poor. *Hospitals*, 43(13):71-74, 1 July 1969.

The author asserts that the rural poor, because of major barriers to good health, live with the lowest standard of health care in the nation and accept chronic ill health and high mortality as facts of life. Some critical health problems and barriers to care are briefly explored.

A 3 — American Medical Association, Ad Hoc Committee on Education for Family Practice, *Meeting the Challenge of Family Practice*, American Medical Association, Chicago, September 1966.

The objective of this Committee report is to review AMA policy toward family practice and general practice and to determine whether this policy is being achieved. The Committee first defines the functions of the family physician, "who practices both scientific and humanistic medicine"; he is the patient's access to the whole health care system and ensures the continuity, integration, and comprehensiveness of the patient's care. The Committee then criticizes current medical school education, which emphasizes specialization and fragmentation. Outlining the necessarily flexible content of family practice education, the Committee discusses the importance of preceptorships, hospital privileges, and equality of status with specialists.

A 4 — American Medical Association, Council on Rural Health, *Health Care Delivery in Rural Areas: Selected Models*, American Medical Association, Chicago, September 1970.

Discussing the changing patterns of rural living, this pamphlet emphasizes the importance of suitable models for health care delivery to be adapted to individual community needs. Twelve such models, in planning and implementing stages across the country, are described: solo practice, Community Health Program, Oklahoma's Project Responsibility, Pilot Project in Rural Medical Care, Lawrence County Alabama Plan, Demonstration in Organization of Community Health Resources, Rural Health Project, MEDEX, Crossroads Medical Center, Maine Coast Regional Health Facilities Plan, Physician-Monitored Remote-Area Health Program, and the Iowa State-Wide Plan.

A 5 — Andrus, L. H., How can we get top-notch health care to the crossroads? *Medical Care*, 8(5):-350-352, September-October 1970.

The author considers the shortage of physicians in rural areas and suggests ways of bringing medical care to the rural population. Suggestions include the organization of networks linking rural group practices with a larger community's backup medical centers; offering a 40-hour week as well as the opportunity for study and training; and the possibility of remote television treatment of the patient by a physician, with the help of allied health personnel.

A 6 — Andrus, L. H., The Rural Health Program of Southern Monterey County. *California Medicine*, *108*(2):124-126, February 1968.

The author describes a demonstration project in Southern California sponsored by a medical society and conducted by a private group of physicians with funding from OEO. In operation only 4 months, the project provides comprehensive health services to a target population of 800 poor families and an unknown number of migrant farmworkers.

A 7 — Anlyan, W. G., Chairman's address: 1985. *Journal of Medical Education*, *46*(11):917-926, November 1971.

Text of the chairman's address to the 1971 meeting of the Association of American Medical Colleges. Recommendations for bringing the nation's health system to an optimal level by 1985 are offered and discussed. Not foreseeing a reversal of the rural-urban discrepancy in health manpower, the author proposes a "time availability" system of health care—the availability of primary medical care within a maximum of 1 hour for every American. Included in this system are educational programs for "self and buddy care" of emergencies within 15 minutes of need; the provision of rescue squads of allied health personnel and nurse practitioners for care within 30 minutes; primary medical care within 1 hour; secondary specialty care within 2 hours; and tertiary subspecialty care within 3 hours.

B 1 — Baker, A. S., H. M. Parrish, and F. M. Bishop, What do rural general practitioners in Missouri really do in their offices? *Missouri Medicine*, *64*(3):-213-217, March 1967.

Results of a study of the office practices of 25 rural general practitioners to determine the amount of time spent in various functional activities. The GPs, observed for one day by a student, spent 47 percent of their total office time in diagnosis and treatment. The next most time-consuming activities were health information and counseling (17 percent) and administration (16 percent). The author draws implications from these results for medical education and medical care. (Includes statistical data.)

B 2 — Banks, F. R., M. D. Keller, T. E. James, B. A. Pashkow, and V. W. Treat, Urban vs. rural sexual problems seen in medical practice. *Medical Aspects of Human Sexuality*, *5*(8):126-135, August 1971.

A survey was performed in two locations in Ohio, one urban and the other rural. General practitioners were asked about sexual problems of their patients. There was little qualitative difference in the kinds of problems found. However, physicians in urban areas deal with such problems more frequently.

B 3 — Barnett, G. O., et al., Information technology and manpower productivity. *Journal of the American Medical Association*, *209*(4):546-548, 28 July 1969.

In discussing the application of technology to patient care, the authors question whether technology has actually increased a physician's productivity or merely made his practice more complex.

B 4 — Bible, B. L., Physicians' views of medical practice in nonmetropolitan communities. *Public Health Reports*, *85*(1):11-17, January 1970.

The results of a survey of physicians in private practice in nonmetropolitan counties of the U.S conducted by the AMA Council on Rural Health. It was found that physicians who practice in small towns are more likely to have a rural background, suggesting the importance of recruiting men with rural backgrounds for medical careers. However, the lack of opportunities for professional growth and limited access to continuing medical education programs noted by rural respondents make such recruitment difficult. The respondents' reasons for satisfaction and dissatisfaction with rural practice are given

B 5 — Bicknell, W. J., Alaskan rural health programs —new directions. *Canadian Journal of Public Health*, *61*(6):497-502, November-December 1970

In a description of the OEO efforts in Alaska and of the creation of a unique health center, the author explains the necessary contribution of the health services to the economic and social redevelopment of the total community.

B 6 — [Blamphin, J.], Are more doctors the only answer to rural health care? *Medical World News, 12* (21):29-36, 28 May 1971.

Finding clear evidence of the disappearance of the country doctor, the author explores some alternatives to the solo practitioner in medically deprived rural areas. Use of a team of health workers, including medexes, surrounding the physician was the approach of Lawrence County, Alabama. A program in central Virginia was community-initiated and resulted in a health center for three counties housed in six mobile trailers. Other approaches include a computer link to a university center and a nurse practitioner as a provider of primary care. The author emphasizes the importance of the support the rural practitioner receives from major medical centers.

B 7 — Blumberg, M. S., Systems analysis and health manpower. *Journal of the American Medical Association, 201*(11):856-857, 11 September 1967.

The author suggests ways in which systems analysis, or cost-benefit analysis, can be applied in principle to the health manpower problem. The goal of analysis would be to make existing manpower more productive.

B 8 — Blumberg, M. S., *Trends and Projections of Physicians in the United States, 1967-2002*, Carnegie Commission on Higher Education, Berkeley, 1971.

Comprehensive and well-documented, this paper projects the future supply of physicians in the United States, based on "the probable influence of alternative plans for increasing the entering capacity of U.S. medical schools." Taking into consideration doctors of osteopathy and foreign medical graduates permanently in the United States, Blumberg is able to project the physician/population ratios between 1967 and 2002 according to eight alternative estimates of the size of classes entering U.S. medical schools. He concludes that the accelerated programs (3-year curricula) will meet most successfully the projected demand for health services estimated by Rashi Fein and by the Bureau of Labor Statistics.

B 9 — Boderheimer, T. S., Mobile units: a solution to the rural health problem? *Medical Care, 7*(2):144-154, March-April 1969.

An examination of the role of mobile health units in the context of the problem of rural medical care delivery. A review of the experience of Central American countries with various kinds of mobile units, with some guidelines for choosing between stationary and mobile facilities for certain situations. In choosing, three factors must be considered: the geographic-demographic situation; the type of health service desired (comprehensive, specialized, emergency); and cost-benefit data. Although mobile units have a great potential in rural areas, careful analysis must determine which system can accomplish the most.

B 10 — Bogdonoff, M. D., A new age. *Archives of Internal Medicine, 212*(1):101-103, January 1968.

In this editorial, the author predicts three types of physicians for the future: (1) the physical science physician, a specialist and researcher; (2) the community health/social science physician, an organizer and planner; and (3) the health care consultant physician, a provider of primary care with paramedical backup.

B 11 — Boughton, J., A rural editor looks at emergency medical service. *Michigan Medicine, 67*(9):627-635, May 1968.

The author looks at the problems of emergency care delivery unique to rural areas and notes some suggestions made by experts for improving rural emergency medical service. Although Michigan communities are making efforts to improve this service, the author points out that the problem affects urban residents also, for rural accidents do not happen to only rural inhabitants.

B 12 — Boulding, K., The concept of need for health services. *Milbank Memorial Fund Quarterly, 44*:202-223, October 1966.

A critique of the concept of need for health services and a plea for the study of social, biological, and physical aspects of health. Contrasting the concepts of need and demand, the author states that previous research has been concerned only with outlining the need for medical care. The result has been inflated conclusions that are too easily justified.

B 13 — Bowers, J. Z., and Professor Lord Rosenheim, Migration of medical manpower: summary report of a Macy conference. *Journal of the American Medical Association, 214*(11):2039, 14 December 1970.

The conference, sponsored by the Josiah Macy, Jr. Foundation, discussed the migration of medical graduates from developing to developed countries and the resulting overproduction of medical man-

power in "donor" countries and the underproduction in "recipient" countries. The conference recommended considering some compensation to the donor country if the physician remains with the recipient country

B 14 — Bozell, R. J., Health care: what the poor people didn't get from Kentucky project. *Science, 172* (3982):458-460, 30 April 1971.

Short review and editorial comment concerning OEO's Floyd County Project. The Project was originally funded in 1967. It was intentionally different from most OEO health projects in that it attempted to work within the existing system, rather than developing a new model of health care delivery. Local people were hired to bring poor patients to Floyd County practitioners Both transportation costs and physician fees were paid by OEO. In 1970, an OEO inspector reported irregularities, and several investigations followed. The author, citing the Floyd County example, concludes that "... in all the health options, particularly for poor people, more money will not necessarily bring better medical care."

B 15 — Bratrude, A. P., Washington-Alaska: the rural area. *Postgraduate Medicine, 48*(4):274-277, October 1970.

Describes how a rural area was able to improve community health care through local initiative and the help of the Washington-Alaska Regional Medical Program. Postgraduate preceptorships were developed to keep area doctors up with advances in medicine. A coronary care unit was established. Also, academic exchange was encouraged through communication and cooperation with a large medical center nearby.

B 16 — Breisch, W. F., Impact of medical school characteristics on location of physician practice. *Journal of Medical Education, 45*(12):1068-1070, December 1970.

The author puts forth two hypotheses on the impact of medical school characteristics on physician location: (1) High-quality medical schools (i.e., those with excellent facilities, outstanding faculties, latest equipment) are more likely to produce physicians who practice in large urban areas where advanced facilities are available. (2) If the environmental influence of the location of the school is urban, the graduate will more likely enter an urban practice. Both hypotheses are supported.

B 17 — Browne, H. E., Frontier Nursing Service and its implications for other rural areas, in *The Midwife in the U.S.*, Josiah Macy, Jr. Founda ion, New York, 1968, pp. 75-79.

The present director of the Frontier Nursing Service recounts a brief history of the Service, which began as a community project to eliminate typhoid and diphtheria and now, through community acceptance and cooperation, offers primary obstetrical care in remote mountain areas of eastern Kentucky.

B 18 — Bush, F., M.D. shortage is iatrogenic. *International Surgery, 47*(2):199-200, February 1967.

The author decries the inefficient use of manpower resulting from many physicians being kept out of accredited hospitals because they are not board-certified or board-eligible specialists. Family doctors are thus being "wasted." However, the development of a new "certified" GP may improve the situation.

C 1 — Castleton, K. B., The present dilemma of rural health services. *Rocky Mountain Medical Journal, 67* (1):29-34, January 1970.

"One thing seems certain—a doctor for every town, hamlet, and village has gone forever, but so has the need." Beginning with this conclusion, the author reviews the commonly acknowledged causes of problems in the delivery of health care in rural areas and suggests the use of allied health personnel to provide first aid and act as triage officers in small, doctorless towns. Citing outdated state licensure regulations as barriers to the migration of physicians to rural states, he proposes a nationally coordinated approach to the problem in rural areas.

C 2 — Chamberlin, R. T., The organization of rural health services: an approach by the Upper Kennebec Valley Regional Health Agency. *Journal of the Maine Medical Association, 61*(2):27-29, February 1970.

The author uses a case-study style to present the "illness" of lack of an organized community health agency, particularly home health nursing, in a rural area and to recommend the course of treatment.

C 3 — Champion, D. J., and D. B. Olsen, Physician behavior in southern Appalachia: some recruitment factors. *Journal of Health and Social Behavior, 12* :245-252, September 1971.

This study attempts to identify certain social and geographical factors that would be helpful in differentiating between metropolitan and nonmetropolitan physicians. Surveying physicians from urban Tennessee and rural Appalachia, the authors found that (1) rural background was related to rural practice; (2) metropolitan and nonmetropolitan MDs did not differ in socioeconomic origins; (3) nonmetropolitan MDs were more concerned with income as a motivating factor; (4) the incomes of metropolitan and nonmetropolitan MDs were the same, but metropolitan MDs were unaware that nonmetropolitan MDs were paid that well; (5) metropolitan MDs placed greater value on prestige among colleagues; (6) facilities were cited by both metropolitan and nonmetropolitan MDs as the primary deterrent to Appalachian practice; and (7) one-fourth of the nonmetropolitan MDs would not choose a similar locality again, while only one-eighth of the metropolitan MDs would not. (Includes statistical data.)

C 4 — Cherkasky, M., Medical manpower needs in deprived areas. *Journal of Medical Education*, *44*(2):-126-131, February 1969.

Description of the experience of Montefiore Hospital in fulfilling the medical manpower needs of the ghetto. The author sees the role of medical schools and teaching hospitals as committed to all aspects of community medicine. He suggests changes in medical school curricula to include an appreciation of the interaction of health and community characteristics.

C 5 — Chick, E. W., et al., Health profiles of three hollows in West Virginia. *West Virginia Medical Journal*, 65:145-152, May 1967.

A 1964 study of three semi-isolated, rural, nonfarm, disadvantaged communities attempts to evaluate the health status of the residents through both a health survey and medical and dental examinations. Discrepancies were found between the two sources of health data. However, the overall disease patterns of the three communities were not strikingly different from those expected in everyday practice. (Includes statistical data.)

C 6 — Coker, R. D., Jr., et al., The medical student: specialization and general practice. *North Carolina Medical Journal*, *21*(3):96-101, March 1960.

Noting the decrease in the number of physicians entering general practice and the corresponding decrease in physicians deciding to practice in small towns and rural areas, the authors examine the trend in North Carolina toward specialization as an indication of physician distribution factors. They found two factors important in the decision to specialize: economic pressure and community background. Those with greater economic pressure (older; married, with children; owing more money to complete medical education; less affluent) were more likely to enter general practice. The importance of a small-town background in producing general practitioners was also found. The authors discovered that type, not location, of practice was an important factor in predicting job values; rural and urban GPs were more alike than rural GPs and rural specialists. (Includes statistical data.)

C 7 — Connelly, J. P., and A. Yankauer, Health manpower: the problem and the national scene. *Clinical Pediatrician*, *7*(5):254-257, May 1968.

The authors review factors contributing to the shortage of health manpower: population growth, increased use of health services, financial support through Medicare and Medicaid, and inefficient use of health workers. However, group practices, community health centers providing comprehensive care, and the reorganization of hospital care offer possible solutions to the problem.

C 8 — Crawford, R. L., and R. C. McCormack, Reasons physicians leave primary practice. *Journal of Medical Education*, *46*(4):263-268, April 1971.

The results of a survey of physicians previously in primary practice to identify reasons for their departures. Features of their practices found to be disagreeable or less attractive than expected were inadequate cultural and recreational resources in their communities; overwork; and concern for the quality of care they were able to give. The authors point out that primary physicians initially resort to self-defeating measures to build their practices (house calls, weekend and evening office hours) and conclude that attrition might be reduced if training in organizational and administrative aspects of practice were included in medical training. (Includes statistical data.)

C 9 — Curran, W. J., Health manpower and the law: a cautious revolution. *American Journal of Public Health*, *58*(7):1276-1277, July 1968.

The author discusses some legal aspects of the 1967 Report of the National Commission on Health Manpower. If accepted, the recommendations concerning medical licensure in the report "could revolutionize

current legal procedures and standards," especially in the areas of use of paramedics and peer review procedures.

D 1 — Darley, W., Physicians for the future. *Annals of the New York Academy of Science, 128*(2):589-598, 27 September 1965.

The author sees the lack of places for first-year medical students as the primary barrier to an increase in the number of graduates. In order to provide more new first-year places, the author discusses the possibilities of medical school expansion, school construction, means of reducing attrition, 2-year medical schools, and federal support.

D 2 — Diehl, H. S., Physicians for rural areas: a factor in their procurement. *Journal of the American Medical Association, 145*(2):1134, 14 April 1951.

A brief account of a study investigating the validity of a suggestion to increase the number of physicians in rural areas by giving special consideration to medical school applicants from rural areas. The distribution of Minnesota medical school graduates shows that physicians who grow up in small communities are more than twice as likely to practice in small communities than physicians who grow up in large cities. Therefore, the author concludes that the suggestion is valid. (Includes statistical data.)

D 3 — Doherty, N., *Rurality, Poverty, and Health—Medical Problems in Rural Areas*, Department of Agriculture, Economic Research Service, Agricultural Economic Report 172, 1970 (Government Printing Office, Washington, D.C.).

Examines the health needs of rural residents, exaggerated by pervasive poverty. Increased incidence of disabling chronic illness, decreased use of health services, increased accident fatality and disability rates, and decreased availability and adequacy of medical services are among the disadvantages of the rural poor. The author recommends public and private programs to ensure that all rural residents have prompt access to regular and emergency health care. (Includes statistical data.)

D 4 — Dow, W. W., Appalachia: focus of health care. *Science, 170*(3959):680, 13 November 1970.

In a brief letter to the editor, a member of the Student Health Coalition at Vanderbilt Medical School seeks to clarify the project's relationship with the school. Although it received support from many faculty members, the project failed to get the cooperation of the institutional framework. Faculty and students alike hoped that the university would play a greater role in meeting the needs for innovative research into urban and rural health care delivery.

D 5 — Drachman, R. H., and R. D. Cooke, Physician productivity and medical care. *Journal of Pediatrics, 77*(5):479-763, November 1970.

While focusing on the problem of the shortage of pediatric manpower, this article has obvious implications for the national health manpower problem. The authors are concerned with the provision of adequate care for all children, not just high-quality care for a few. With projections of increased demand for services, increased physician productivity is necessary to make care available to the rural and urban disadvantaged. The authors consider this approach more realistic than increasing manpower. Various measures of, means of implementing, and obstacles to increased physician productivity are discussed. The authors suggest the need for new organizational patterns to maximize physician productivity. The potential role of the pediatric assistant is emphasized.

D 6 — Durbin, R. L., Do new hospitals attract new doctors? *Modern Hospital, 100*(6):98-102, June 1963.

A critique of the assumption that hospital facilities alone can attract physicians to a rural area or keep them there (compare W 5). Six rural Illinois counties in which Hill-Burton hospitals have been erected were studied to determine the effect of construction of hospitals in rural areas on physician supply. Over the 10-year period during which the hospitals were constructed, the rural counties experienced a decrease in the absolute number of physicians and also a decrease on a per capita basis. (Includes statistical data).

E 1 — Earle, H., A self-help plan for doctorless towns. *Today's Health*, September 1963, pp. 34-39.

Emphasizing the importance of using the "right bait" to attract physicians to doctorless towns, the author explains a plan of action for a community participating in the Sears-Roebuck Foundation's former Community Medical Assistance Program. Willingness to build a medical center, ability to support a physician, and counseling from the Foundation were prerequisite to attracting a physician.

E 2 — Egger, R. L., The secret of caring for more patients. *Medical Economics*, 2 August 1971, pp. 81-85.

A family physician in Indiana states that the shortage of physicians would be resolved if each general practitioner and family practitioner would increase his patient load, but see each patient less often. This increased productivity would be the result of patient instruction in the diagnosis, course, and care of his illness. Teaching the patient to manage his own small illnesses is offered as a cure for excessive medical care.

E 3 — Eschen, T. B., Doctors for needy areas. *New England Journal of Medicine*, *284*(3):158-159, 21 January 1971.

In a letter to the editor, the author objects to a service requirement after internship to provide primary care for rural and ghetto areas, and offers alternatives for obtaining physicians for these areas.

E 4 — Estes, E. H., Jr., The critical shortage—physicians and supporting personnel. *Annals of Internal Medicine*, *69*(5):957-962, November 1968.

The author views the present manpower shortage as due to increased demand and changing patterns of practice rather than decreased numbers of physicians and services. Increased physician productivity, especially through the use of physicians' assistants, is therefore necessary.

F 1 — Fahs, I. J., K. Ingalls, and W. R. Miller, Physician migration: a problem of the upper Midwest. *Journal of Medical Education*, *43*(6):735-740, June 1968.

The physician problem of the upper Midwest is considered as dependent on the migration of physicians from outside areas. The area must be made more professionally attractive in order to draw and retain more medical students. Closer relations between graduate medical centers and practitioners would improve the area's desirability.

F 2 — Fahs, I. J., and O. L. Peterson, Towns without physicians and towns with only one—a study of four states in the upper Midwest, 1965. *American Journal of Public Health*, *58*(7):1200-1211, July 1968.

A study investigating the physician supply for 1600 towns in four states of the upper Midwest. Towns without a physician and towns with only one physician were identified and characterized. Most towns without a physician had slow or declining populations and economic growth rates. Towns with one physician usually had a moderate growth rate; however, those with a small population (less than 1000) and older physicians will probably become no-physician towns in the future. The authors recommend a study of local situations to determine the actual availability of medical services to rural populations. (Includes statistical data.)

F 3 — Fahs, I. J., et al., Indicators of need, alternative measures employed to determine need, and a suggested model. *Medical Care*, *9*(2):144-151, March-April 1971.

The appropriateness of various indicators commonly used to show need for health care personnel is discussed: the ratio of numbers of health personnel to number of people served, economic factors of probable demand and recommended service, and geographic distance. Though there are advantages and disadvantages to using each indicator, the authors suggest that there is greater reliability in using more than one indicator and offer a simple model of a health manpower system based on meeting the health needs of the population.

F 4 — Fein, R., An economist's view: medical manpower—a continuing crisis. *Journal of the American Medical Association*, *201*(11):840-851, 11 September 1967.

The author states the need to broaden the focus of the medical manpower problem from supply of manpower to the quality, quantity, and availability of services as well as the need to define levels of health care in relation to their impact on health. Reviewing the reasons for the future increase in demand for services, Fein concludes that the solution to this problem is increased physician productivity.

F 5 — Fein, R., *The Doctor Shortage: An Economic Diagnosis*, The Brookings Institution, Washington, D.C., 1967.

The foreword of this book succinctly summarizes its valuable contribution to the debate over the supply of physicians: "This volume assesses the 'doctor shortage.' It projects the future demand for physician services and the supply of physicians available to render these services. It assesses alternative ways of meeting the growth in demand and reminds us that increasing the number of physicians is but one of these ways. The author concludes that increases in effi-

ciency through new patterns of organization and development of new types of personnel may offer substantial returns. Potential sources of increases in physician productivity are considered and evaluated. The need for experimentation and demonstration programs and the direction that such programs might take are examined." (Includes statistical data.)

F 6 — Felton, R. L., What will they do in Vinton County without an M.D.? *Ohio State Medical Journal*, 67:253-254, March 1971.

The experience of a physician who, despite tiring working conditions, stayed on in Vinton County because without him the county would have no other MD, and who then left for an assignment elsewhere. The President of the Ohio State Medical Association pleads for young doctors to end the desertion of such communities.

F 7 — Findley, T., Mae West and the doctor shortage. *Annals of Internal Medicine*, 73(3):490, September 1970.

In a brief letter to the editor, the author recounts an anecdote about Mae West (her advice to a friend that instead of looking for a man with $10,000, she should look for 10,000 men, each with one dollar). The author draws from this a lesson on solving the doctor shortage: requirement of a 3-month rotation of senior medical students, interns, and residents in rural areas.

F 8 — Fredericks, M. A., et al., Physicians and poverty programs: a study of physicians' expressed willingness to change positions. *Hospital Progress*, 52(3):56-61, March 1971.

Results of a 1968 survey to determine physicians' willingness to leave their present positions in favor of teaching, research, or work in a poverty program. While 50 percent of the sample were willing to change positions, only 4 percent would accept a position in a neighborhood health center or in Appalachia as their only choices; 16 percent would accept such a position as a second alternative. Working in Appalachia was viewed as the least attractive opportunity. Physicians who had recently graduated and who were currently holding full-salaried positions without board certification were more likely to express willingness to work in a poverty program. (Includes statistical data.)

G 1 — Gannon, J. P., Missing MDs. *Wall Street Journal*, 27 October 1971, p. 1.

Anecdotal description of the Mountaineer Family Health Plan, near Beckley, West Virginia. The program, originally sponsored by OEO, is now funded by HEW. Funding will presumably diminish, probably causing a decrease in services. Currently, five MDs and four dentists are at a new central clinic; seven satellite clinics are staffed by nurses and aides. Teams from the satellites go by jeep to remote homes. The article also includes a brief discussion of the rural MD shortage in general, quoting AMA data.

G 2 — Gassett, J. W., How the doctor shortage hurts while it lasts. *Medical Economics*, 11 October 1971, p. 98.

Although Lansing, Michigan, has a favorable doctor/population ratio (151/100,000), a doctor shortage still exists. Patients have difficulties finding doctors, and doctors report seeing more patients than the national average. Also, most doctors turn away patients daily. Much of the excess demand is met by local emergency rooms, but at a significantly higher cost.

G 3 — Gerber, A., The medical manpower shortage. *Journal of Medical Education*, 42(4):306-319, April 1967.

Gerber considers three possible solutions to the medical manpower shortage: importing more foreign graduates, making more effective use of available manpower and facilities, and increasing the medical school output. He systematically rejects the first two alternatives and refutes the specious arguments against the last one. He recommends at least 45 new medical schools to "erase the stigma of our doctor debtor status" and an additional 25 schools to enable this country to export doctors to underdeveloped areas.

G 4 — Ginzberg, E., Physician shortage reconsidered. *New England Journal of Medicine*, 275(2):85-87, 14 July 1966.

A critical review of discussions at a 1966 conference on medical education, which recommended that the nation increase its supply of physicians by 4 percent per annum for 10 years. The author questions the value of physician/population ratios in estimating need or demand, and asserts that the effective use of physician manpower depends on a taut supply of physicians to prevent excessive medical care.

G 5 — Ginzberg, E., We need better health care but *not* more doctors. *Medical Economics*, 8 June 1970, p. 21.

The Columbia University economist, in an interview with the journal editor, argues that producing greater numbers of physicians will not make physicians practice in rural and ghetto areas. Moreover, it will result in excessive rather than better patient care. Shortages in specialties and in family practice, the brain drain of foreign physicians, compulsory rural medical service, and the role of computers in health care are among the other topics discussed.

G 6 — Goerke L. S., Health manpower. *American Journal of Public Health*, 56(8):1189-1191, August 1966.

Discussion of the report of the Task Force on Health Manpower of the Commission on Community Health Services. The author recommends it as a "blueprint for attack" on the manpower problem.

G 7 — Goldstein, G. S., Alabama needs more physicians. *Alabama Journal of Medical Science*, 3(2):211-217, April 1966.

A picture of need is drawn concerning Alabama's physician manpower: of over 60 counties in the state, only 7 could meet the national physician/population ratio in 1963; 102 Alabama towns are actively seeking a physician; in 1965, the state experienced a net gain of only 10 new physicians. The author recommends increasing the number of medical school graduates by 25 percent each year to alleviate this shortage. (Includes statistical data.)

G 8 — Greenhill, S., and H. J. Singh, Comparison of the professional functions of rural and urban general practitioners. *Journal of Medical Education*, 40(9):856-861, September 1965.

The study compares the roles of four rural and six urban general practitioners—their professional functions and the age groups and morbidity they see. The urban practitioner sees older patients and more respiratory diseases and accidents; the rural practitioner sees more gastrointestinal and parasitic diseases, diseases of infancy, and metabolic and nutritional diseases. (Includes statistical data.)

H 1 — Hacon, W. S., Improving Canada's health manpower sources. *Canadian Medical Association Journal*, 97(18):1104-1108, 28 October 1967.

Regarding Canada's health manpower problem optimistically, the author reviews the approaches of the Health Resources Program
shortages. The approaches
renovation of training fa
health manpower problem
vices in health manpower

H 2 — Hapgood, D., The he
cause of the health crisis?
November 1966.

A free-lance writer contend
is "artifically induced by th
try." He accuses health guil
ing people out of health pr
plomas and licenses.

H 3 — Harrell, G. T., Rural
future training and role of t
nal of the American Medic
401, 2 July 1969.

To meet the crisis in the de
rural areas, the author sug
the centralization of service
ing a large area, possible b
copter and ambulance tran
tion of mobile offices staffed
nel to serve those who ca
center. The author feels tha
of allied health workers is
the effectiveness of the ph
role of a family practitione
ning family practice educ
school.

H 4 — Hassinger, E. "
munity Orientation of Ru
with Metropolitan Physici
sity of Missouri, College
Bulletin 822, August 1963.

Through an interview of ph
ties in Missouri, the author
the background factors that
tion of practice and the rela
to the community in which
are compared to rural DOs
specialists. Signif ant findin
town" influence in choice of
stability in practice location
ral physicians; no apparen
physician; and deeper invol
the urban physician in comm
tistical data.)

H 5 — Hassinger, E. W., and R. L. McNamara, *Relationships of the Public to Physicians in Rural Setting*, University of Missouri, College of Agriculture, Research Bulletin 653, 1958.

The authors identify three types of public-physician relationships: (1) personal, or primary; (2) impersonal, or secondary; and (3) alienated. Where the first relationship exists, the household is most likely to have a family physician. The incidence of the last relationship was found concentrated in elderly households. (Includes statistical data.)

H 6 — Hatch, J. W., Discussion of the "how" of community participation in delivering health care. *Bulletin of the New York Academy of Medicine*, *46*(12):-1084-1090, December 1970.

Describes the development of the Tufts-Delta Health Center in Mound Bayou, Mississippi.

H 7 — Haug, J. N, et al. (eds.), *Distribution of Physicians, Hospitals. and Hospital Beds in the U.S., 1968 —Regional, State, County, Metropolitan Areas*, American Medical Association, Chicago, 1970.

Tables provide the information the title indicates. Of special interest are tables concerned with the distribution of physicians by demographic county classifications (a continuum of rural versus urban) and with counties lacking an active nonfederal physician. (Includes statistical data.)

H 8 — Havert, J. B., Distribution of physicians . .. dering pediatric care in Georgia. *Journal of the Medical Association of Georgia*, *59*5):169-172, May 1970.

Computer-generated maps relating the number of pediatricians to the number of children in Georgia, by census tract, county, and state, show a marked difference in availability of pediatricians for rural and urban areas. The author discusses various alternatives for correcting the shortages of pediatricians in many areas. (Includes statistical data.)

H 9 — Hayman, J. ., The rural hospital in today's health care scene. *Hospitals*, *42*(11):63-66, 1 June 1968.

An administrator of a rural Idaho hospital describes the urgent needs of rural hospitals for manpower, effective communication, adequate trans. rtation, good ambulance equipment and personnel, planning programs for providing health services, and convincing urban areas of the seriousness of rural problems.

H 10 — Hopkins, R. B., Reflections of a country doctor, I. *Delaware Medical Journal*, *38*(4):114-119, April 1966.

A country doctor sentimentally recounts his past education and practice, and reflects that "the country doctor's life, while it may be one of self-sacrifice and labor, it is not without its reward."

H 11 — Howard, R. B., Adapting medical education to meet increasing manpower requirements. *Journal of the American Medical Association*, *201*(11):858-860, 11 September 1967.

Attempting to define the role of the medical education community in resolving the physician shortage, the author recommends increasing the size of present medical schools, emphasizing the training of allied health personnel, and finding alternative means of health care delivery.

H 12 — Huntley, R. R., Comprehensive community health services: a challenge for rural communities. *West Virginia Medical Journal*, *63*210-212, July 1967.

A discussion of the recommendations of three reports of National Advisory Committees concerned with assuring delivery of good health services. The author emphasizes some principles of health services planning and development, giving special attention to a comprehensive range of services for rural areas.

I 1 — Ingegno, A. P., Your patients—paramedics of the future? *Medical Economics*, 15 April 1968, p. 235.

Patient self-examination and self-medication are suggested as means of ameliorating the shortages of health manpower. Increased participation of the informed patient in his own care could save doctor and patient time.

I 2 — Ingram, A. J., Health manpower to meet rural-urban needs. *Journal of the Tennessee Medical Association*, *60*(8):823-828, August 1967.

Review of factors contributing to the increasing demand for health care services and the inadequate supply of these services. The author recommends innovation, experimentation, and better definition of the roles, authority, and responsibility of various interest groups.

I 3 — Irelan, L. M., Health practices of the poor, in *Low-Income Life Styles*, U.S. Department of Health, Education, and Welfare, Social and Rehabilitation Service, Office of Research and Demonstration, Publication 175, 1967, pp. 51-65 (Government Printing Office, Washington, D.C.).

This chapter in a book concerning the characteristic behavior of the poor in certain important areas of life explores some sociocultural elements in health behavior. Comparatively high rates of degenerative diseases, chronic diseases, cancer, premature births and infant mortality, and schizophrenia are shown to be associated with low income. Lack of factual knowledge about disease, and its treatment and prevention, contributes to the poor's vulnerability to illness. Also contributing are the practice of self-medication, the provision of differential treatment related to class, the low priority placed on health for economic reasons, distrust of the socially distant physician, and isolation from the community. An important determinant of health care behavior in the poor is their outlook on life.

I 4 — Izanec, J. J., et al., Training in rural medicine. *New England Journal of Medicine*, 279(10):550-551, 5 September 1968.

In a letter to the editor, the authors heartily support a suggestion to expose medical students to the opportunities and advantages of a rural practice and to encourage them to practice in these "under-doctored" areas.

J 1 — Jeffers, J. R., et al., On the demand versus the need for medical services and the concept of "shortage." *American Journal of Public Health*, 61(1):46-63, January 1971.

Because the concepts of need and demand are often confusingly interchanged, the author attempts to differentiate the two concepts and to provide two interpretations of "shortage." While "need" is represented by an absolute quantity of services that experts think one ought to consume to be healthy, "demand" refers to no such unique quantity of services, but is functionally related to several determinants, such as prices, financial resources, population size, and personal preferences. "Market shortage" refers to the difference between the quantity of services demanded and the quantity supplied at a specific price and can be expected to work itself out through upward price adjustments. "Normative shortage" refers to the difference between the quantity demanded and the quantity needed at a specific price; this shortage cannot be removed by market forces, but requires market intervention.

J 2 — Joroff, S., and V. Navarro, Medical manpower: a multivariate analysis of the distribution of physicians in urban United States. *Medical Care*, 9(5):428-437, October 1971.

A multivariate analysis of physician distribution in the urban United States, examining the relationship between community characteristics in 299 Standard Metropolitan Statistical Areas and physician/population ratios by specialty. The analysis determined which community characteristics most improved the ability to predict the distribution of the different types of physicians analyzed. It was found that: (1) The best predictor of rates of general practitioners was the percentage of the population aged 65 and over. (2) Existence of a medical school in a community was the best predictor of medical specialty distribution. (3) The number of general hospital beds per 1000 population was the characteristic most strongly related to surgical specialty distribution. (4) Other specialties were most strongly related to median years of education in the community. (Includes statistical data.)

K 1 — Kane, R. L., Determination of health care priorities and expectations among rural consumers. *Health Services Research*, 4(2):142-151, Summer 1969.

Rural Kentucky residents were interviewed to determine the need for and most desirable characteristics of a new health facility to replace a recently closed hospital. Utilization patterns described by the sample and by traffic flow, retail trade, and marketing studies showed that the town was oriented in a direction quite different from the area where the new medical center was planned. The results emphasized the importance of learning the needs and behavior of a community before making plans concerning it.

K 2 — Kennedy, R. B., Milestone 300,000: medical progress and doctors for all. *Journal of the Mississippi Medical Association*, 7(6):287-292, June 1966.

Applauding the medical profession and the nation's medical schools for assuring a sufficient supply of physicians, the author states in this editorial that "there is not a shortage of physicians or medical services, and every day, the possibility of such an eventuality becomes less and less."

K 3 — Kenny, M., Mountain health care: politics, power and profits. *Mountain Life and Work*, 47(4):-14-17, April 1971.

Representing the views of the Eastern Kentucky

Welfare Rights Organization. the author decries the abuse of public funds in the Floyd County OEO Comprehensive Health Center and demands public accountability. The article includes the EKWRO Health Bill of Rights demanding the right to health care and a consumer voice in the delivery of care.

K 4 — Kimball, K. F., Areawide planning for emergency care: a status report from Nebraska. *Hospitals*, *42*(11):99-102, 1 June 1968.

Examples of the experimental efforts of smaller community hospitals to improve their emergency facilities, including a radio network linking ambulance, physician, hospital, and police; the training of ambulance drivers in first aid; and the evaluation of helicopter evacuation for highway emergencies.

K 5 — Kissick, W. L., Effective utilization: the critical factor in health manpower. *American Journal of Public Health*, *58*(1):23-29, January 1968.

The author views physicians as only one component of the manpower needed for the basic health care system and sees the need for better organization and utilization of health personnel to raise the level of output of health services. To improve utilization, he recommends a downward transfer of functions to auxiliary personnel; educational programs stressing the interrelationships of disciplines; career mobility; and application of technology.

K 6 — Kissick, W. L., Forecasting health manpower needs: the "numbers game" is obsolete. *Hospitals*, *41* (18):47-51, 16 September 1967.

Reviewing past and present methods of forecasting future manpower requirements, the author criticizes their emphasis on increasing numbers, for that approach ignores the possibility of applying scientific knowledge to the delivery of health services. The goal of the medical profession should be the more effective use of the physician and all other medical resources for maximum efficiency in services.

K 7 — Krakowski, M., M. Werboff, and B. Hoffnar, *Availability and Use of Health Services: Rural-Urban Comparison*, Department of Agriculture, Agricultural Economic Report 138, 1968 (Government Printing Office, Washington, D.C.).

"Health is an important economic variable influencing business activity and growth in rural areas." In this context, the authors explore statistics comparing rural and urban areas. They find that: (1) The supply of health personnel is lower on a per capita basis in rural than in urban areas. (2) Family outlays for medical expenditures tend to rise as income and education increase, and are greater in urban than in rural families both absolutely and as a percentage of their total spending. (3) There is a greater use of specialists in urban areas—with the exception of chiropractors, whose use increases with increasing rurality. (Includes statistical data.)

L 1 — Liu, H. F., How I became a rural doctor in response to Chairman Mao's "June 26" directive. *China's Medicine*, *8*:479-482, August 1968.

Mao's directive calling on the people of China to "put the emphasis on the rural areas in medical and health work" inspired this doctor to settle in the countryside to serve the poor and lower-middle-class peasants. Socialist education had finally corrected his bourgeois attitude toward work in the countryside and he became a true revolutionary serving the masses.

L 2 — Lucas, R. A., and A. Himmelfarb, Some aspects of medical care in small communities. *Canadian Journal of Public Health*, *62*(1):6-16, January-February 1971.

An analysis of medical services over an 11-year period in 240 isolated single-industry communities in Ontario with populations of less than 30,000. Four distinct community profiles are drawn, each providing the nature and distribution of current and past medical services and the turnover rate of doctors: (1) communities without a doctor, (2) communities with only one doctor, (3) communities with an incomplete medical team, and (4) communities with a fairly complete medical team. Doctor-patient relationships characteristic of the various communities are examined. (Includes statistical data.)

M 1 — MacQueen, J. C., A study of Iowa physicians. 1. number and distribution of doctors of medicine. *Journal of the Iowa Medical Society*, *58*(11):1129-1135, November 1968.

The study shows inequities in the distribution of physicians practicing in Iowa. Though the state's population growth is minimal, there has been a dramatic decrease in the number of physicians. The attrition of the rural general practitioner is anticipated, and projections of physician/population ratios in Iowa's counties suggest that most medical care in 1975 will be provided in larger population centers. (Includes statistical data.)

M 2 — Manny, E. S., W. G. Yanniello, and H. L. Johnston, *Rural Health: Selected Annotated References*, Department of Agriculture, Economic Research Service, Washington, D.C., 1961.

An annotated bibliography of references relating to national and state rural health. This compilation of the significant literature between 1945 and 1960 is of limited value to present researchers, especially in such areas as health status of rural residents and their use of health services.

M 3 — Marden, P. G., A demographic and ecological analysis of the distribution of physicians in metropolitan America, 1960. *American Journal of Sociology*, *72*(3):290-300, November 1966.

Using multiple correlation analysis in a study of physicians in metropolitan areas, the author hypothesizes the association between the availability of physician services and the population differences that support them. Results of the analysis show the relationship between population size and the number of physicians serving the population. The increased availability of general practitioners was related to an increased percentage of the population that was white and an increased percentage of those 0-5 years and 65 years and older. The availability of specialists was directly related to the educational level of the population and the number of supporting institutions. (Includes statistical data.)

M 4 — Marshall, C. L., et al., Principal components analysis of the distribution of physicians, dentists and osteopaths in a Midwestern state. *American Journal of Public Health*, *61*(8):1556-1564, August 1971.

A study of the 105 counties in Kansas, this paper uses 1960 data to identify specific demographic variables characteristic of urban and rural counties that tend to attract or repel physicians. Factor analysis was performed on 18 variables and yielded two factors accounting for most of the variance. These two factors described rural counties differing greatly in income, but nevertheless having serious shortages of physicians. However, poorer rural counties had older physicians and a greater deficit of physicians. The study concluded that an area's affluence alone has little attraction for physicians; urbanization seems to be the single most attractive factor. (Includes statistical data.)

M 5 — Marshall, C. L., et al., Time and distance—rural practice. *Journal of the Kansas Medical Society*, *70*(3):93-96, March 1969.

An interview of rural consumers revealed that dissatisfaction with the travel distance and travel time to a doctor was associated with their community's rurality and population loss. Surprisingly, 30 percent of those consumers living in towns with a physician chose to go out of town to seek care, and most expressed dissstisfaction with this voluntary travel. (Includes statistical data.)

M 6 — Martin, E. D., et al., Where graduates go: the University of Kansas School of Medicine—a study of the profile of 959 graduates and factors which influenced their geographic distribution. *Journal of the Kansas Medical Society*, *69*(3):84-89, March 1968.

Questionnaires sent to a sample group of physicians from a 10-year span of graduating classes (1951-1960) attempt to correlate geographic location of practice with type of practice, prior residence, place of internship and residency, and attitudes. Responses show a decrease in the percentage of graduates entering general practice over the 10-year period; a shift of practice to larger communities; a direct relationship between size of city of prior residence and size of city of practice; a relationship between internship and residency training in a state to practice in that state; the importance of a wife's influence in the choice of location of practice; and the importance of climate and recreational facilities to those leaving a state. (Includes statistical data.)

M 7 — Mason, H. R., Effectiveness of student aid programs tied to a service commitment. *Journal of Medical Education*, *46*(7):575-583, July 1971.

A study of the effectiveness of 22 state financial aid programs for medical students involving an agreement to practice in rural areas. In the 17 states currently having such a forgiveness program, the author found that an average of 60 percent of the borrowing physicians follow through with the commitment by practicing in rural areas of their states. Of the five state programs no longer in existence, one was so successful that the state no longer needed the program. The author suggests ways of maximizing the success of such programs. (Includes statistical data.)

M 8 — Mathis, J. L., What makes doctors want to switch careers. *Hospital Physician*, *5*(12):73-76, December 1969.

The author, a psychiatrist, analyzes the experiences of physicians who have switched careers and finds that dissatisfaction and unrest are the basic causes. Analysis and interaction with colleagues may provide the physician with insight into what is depriving him of satisfaction from medicine.

M 9 — Meerman, J. P., Some comments on the predicted future shortage of physicians. *Journal of the American Medical Association*, *177*(11):793-799, 16 September 1961.

A critique of the use of the physician/population ratio as an indicator and predictor of demand for health services. The author stresses the crucial factor of physician productivity in meeting health needs.

M 10 — Miller, J. D., and B. Ferber, Health manpower in the 1960s. *Hospitals*, *45*(4):66-71, 16 February 1971.

Reviewing the nature of the concern over health manpower in the 1960s, i.e., graduation of too few physicians to meet the need and a shift of emphasis from numbers to productivity, the author presents data suggesting that shortages in nursing and allied health manpower have been reduced in recent years. Therefore, "the crisis . . . seems to have been abated." (Includes statistical data.)

M 11 — Moore, F. J., Information technologies and health care. 2. the need for new technologies to offset the shortage of physicians. *Archives of Internal Medicine*, *125*:351-355, February 1970.

The discussion suggests the difficulties in providing an adequate number of practicing physicians by merely graduating more physicians. The author's solution is the use of paramedical personnel who can be supplied more rapidly and in larger numbers than physicians.

M 12 — Moser, G. J., The quest for rural medical care. *General Practitioner*, *31*(1):179-185, January 1965.

Postulating the desperate need of rural communities for medical care, the author summarizes the role of the Sears-Roebuck Foundation's former Community Medical Assistance Plan in helping a community attract a physician. The three facets of the plan were an economic survey of the community, the construction of a medical center, and business and financial counseling from the Foundation.

M 13 — Murphree, J. T., Manpower shortage: number 1 health-planning challenge. *Journal of the Medical Association of Alabama*, *39*:51-52, July 1969.

A brief report from Alabama's Department of Public Health states its priorities for comprehensive health planning; foremost is the manpower shortage.

N 1 — Neal, O., Jr., Discussion of the "how" of community participation in delivering health care. *Bulletin of the New York Academy of Medicine*, *46*(12):-1091-1098, December 1970.

Description of the development of the Lee County Cooperative Clinic in Arkansas.

N 2 — Neel, S., Army aeromedical evacuation procedures in Vietnam: implications for rural America. *Journal of the American Medical Association*, *204* (4):309-313, 22 April 1968.

The author summarizes the Army experience with helicopter evacuation in battle and during peacetime operations, and discusses the potential use of these air-ambulances to improve emergency medical care of accident victims in rural areas.

O 1 — Olson, E. V., Health manpower: needed—a shake-up in the status quo. *American Journal of Nursing*, *68*(7):1491-1495, July 1968.

Although there is one nurse to every 425 persons in the United States, the author maintains that the need for nurses is still acute. She recommends increased nurse participation in patient care.

P 1 — Parker, R. C., R. A. Rix, and T. G. Tuxill, Social, economic, and demographic factors affecting physician population in Upstate New York. *New York State Journal of Medicine*, *69*(5):706-712, 1 March 1969.

The authors investigate factors accounting for the decrease in the number of physicians in the rural counties of Upstate New York from 1905 to 1960. They relate the density of the physician population to economic and population factors for towns and hospital service areas that have lost or gained physicians. Results show that towns with a relatively high percentage of the population in agriculture, low median school years completed, a low median income, low mobility, and a low percentage of high school graduates are in an unfavorable position for attracting or retaining physicians. These relationships were confirmed when service areas were compared. Recommendations for attracting physicians and other medical personnel to rural areas are made. (Includes statistical data.)

P 2 — Parker, R. C., and T. G. Tuxill, The attitudes of physicians toward small-community practice. *Journal of Medical Education*, *42*(4):327-344, April 1967.

The study surveyed physicians in Upstate New York to determine their attitudes toward small-community practice, as well as the factors that motivate those attitudes. The significant factors influencing the small-community physician to practice in his community were the idea of small-community living and the likelihood of developing a busy practice earlier. Among factors deterring a large-community physician from locating in a small community were the idea of living in an urban area, the incompatibility of a small community and a specialty practice, and lack of available clinical support. From written comments from the physicians, the authors inferred the importance of wives and teachers as deterrents to small-community practice. (Includes statistical data.)

P 3 — Parrish, H. M., F. M. Bishop, and A. S. Baker, Time study of general practitioners' office hours. *Archives of Environmental Health, 14*(6):892-898, June 1967.

Data identical to that in Baker, et al. (B 1) are presented. (Includes statistical data.)

P 4 — Patkin, M., The rural doctor problem. *Medical Journal of Australia, 2*(5):243-244, 3 August 1968.

A rural physician defends the meaningfulness of country practice. He contends that the physician distribution problem is one of understanding; thus, intelligent student training and guidance are needed.

P 5 -- Pellegrino, E. D., Regionalization: an integrated effort of medical school, community, and practicing physician. *Bulletin of the New York Academy of Medicine, 42*(12):1193-2000, December 1966.

The author recommends the regional integration of the practicing physician with the educational institutions of the medical care system for the benefit of the patient.

P 6 — Pennell, M. Y., Career patterns in medicine. *Public Health Reports, 80*(2):155-162, February 1965.

Using 1962 AMA information on type of practice, specialization, and certification of physicians graduating between 1948 and 1961, the author determines patterns in physicians' careers during the first 14 years after graduation. Most physicians serve their internships in hospitals during the first year after graduation. By the second year, two-thirds of the graduates have chosen specialties. By the fourteenth year, 80 percent of the physicians indicate specialization; two-thirds of these are board-certified. (Includes statistical data.)

P 7 — Penrod, R. D., Physician manpower: "telling it like it is." *Journal of the Indiana Medical Association, 62*:905-909, 9 August 1969.

The author discusses in general terms the physician shortage and maldistribution, the declining number of general practitioners, student attrition, and minorities in medicine.

P 8 — Peterson, G. R., *A Comparison of Selected Professional and Social Characteristics of Urban and Rural Physicians in Iowa*, University of Iowa, Health Care Research Series 8, 1968.

After a review of the present manpower situations, with special attention to rural-urban differences in the distribution and functions of physicians, the author describes his research methodology. In order to understand the physician distribution problem, he conducted a survey of Iowa physicians to identify the characteristics of modern urban and rural practitioners. The responses to his questionnaire showed: (1) The selection of practice location is a complex process, but family ties seem to be a significant influence. (2) There are two types of rural practitioners—one content with his rural community and personal relations and another seeking to move to a more urban area and life style. (3) A larger percentage of younger doctors locates in urban areas. (4) The rural physician participates to a greater degree in social or community-oriented organizations. (Includes statistical data.)

P 9 — Peterson, P. Q., and M. Y. Pennell, Physician-population projections, 1961-1975: their causes and implications. *American Journal of Public Health, 53*(2):163-172, February 1963.

A decline of the physician/population ratio from present levels is projected for 1975, despite the construction of additional medical schools and the emigration of foreign-educated physicians. The authors feel that increased physician productivity will be inadequate to meet growing health service needs and that the declining ratio will result in reduced quality or quantity of health services. (Includes statistical data.)

P 10 — Phillips, M. L., J. H. Mabry, and C. S. Houston, Eager communities and reluctant doctors. *New England Journal of Medicine, 278*(23):1263-1268, June 1968.

An examination of the efforts of the Rural Medical Needs Program of northern New England to help provide medical care for small communities. A survey of communities requesting help revealed that, not lack of care, but lack of an immediate response to medical demands was the cause of rural residents' dissatisfaction. Several of these communities were advised to build health centers to attract physicians. A composite history of the communities' response to this advice and their success or failure in obtaining physicians is recounted.

P 11 — Posner, J., Compulsory medical service. *New England Journal of Medicine, 284*(20):1160, 20 May 1971.

In this brief letter to the editor, the author supports the concept of compulsory service of physicians to provide needed primary care.

R 1 — Ramsey, J. E., Rural health care. *Nebraska State Medical Journal, 55*(3):158-159, March 1970.

Facing the problem of providing physicians for rural Nebraska, the author briefly discusses preceptor programs, programs of family medicine, involvement of hospitals, and improving community attractiveness.

R 2 — Reynolds, R. C., The university and rural health: a year in Mayo, Florida. *Journal of the American Medical Association, 214*(3):540-544, 19 October 1970.

Description of a small rural health center in Mayo, Florida, that provides ambulatory care in an isolated rural area.

R 3 — Rice, T. J., et al., Raising the level of child health in a rural community: a model. *American Journal of Public Health, 60*(12):2284-2288, December 1970.

A model health care delivery system was designed and tested in the 1967-1968 school year in an isolated Virginia community. The model was based on a series of hypotheses that suggest that increased communication between health personnel and health and related agencies will reduce the amount of untreated illness. Evaluation of the model is not completed.

R 4 — Rimlinger, G. V., and H. B. Steele, An economic interpretation of the spatial distribution of physicians in the U.S. *The Southern Economic Journal, 30*(1):1-12, July 1963.

The authors present both a theoretical interpretation and an empirical analysis of determinants of physician distribution. Noting the relationship of the physician/population ratio to the regional per capita income, they investigate such factors as income maximization, mobility, leisure, demand for health services, and physician fees to explain the distribution. The results indicate that the prevailing price practices (based on per capita income rather than supply and demand) contribute to the observed differences in physician/population ratios among areas of different income and between urban and rural areas. (Includes statistical data.)

R 5 — Rising, J. D., The rural preceptorship: a ten year report on the Kansas University program. *Journal of the Kansas Medical Society, 63*:81, March 1962.

A retrospective evaluation of Kansas University's preceptor program was conducted through questionnaires sent to graduates of the 10-year-old program. The preceptorship was overwhelmingly considered a valuable experience and one that should be continued. (Includes statistical data.)

R 6 — Roemer, M. I., Health needs and services of the rural poor, in *Rural Poverty in the U.S.: A Report by the President's National Advisory Commission on Rural Poverty*, Government Printing Office, Washington, D.C., 1968.

This paper, prepared for the National Advisory Commission on Rural Poverty, reviews available data highlighting the health needs of the rural poor in regard to their health status and available medical personnel, facilities, and services. The author examines the principal organized programs attempting to meet the health needs of the rural poor, but still falling short. A three-level approach to the solution of rural health problems is suggested. (Includes statistical data.)

R 7 — Rogers, J. C., Dr. Billy Jack Bass: he's helping to make medical history. *Washington Post* (Sunday Supplement "Parade Magazine"), 11 July 1971, pp. 6-7.

This short article describes an experimental project developed by the Missouri Regional Medical Program to guarantee better medical treatment for people in rural areas. Dr. Bass, an "automated" country doctor in the Ozarks, has a direct link to computers and specialists at the University of Missouri.

S 1 — Saltzman, B. N., Are we prepared? *Journal of the Arkansas Medical Society, 67*(5):162-165, October 1970.

The author questions the readiness of response to rural medical emergencies and makes some recommendations.

S 2 — Saltzman, B. N., Comprehensive health planning for rural areas. *Journal of the Tennessee Medical Association, 62*(7):622-626, July 1969.

A review of the recent history of comprehensive health planning and its necessity in the delivery of adequate health care. Rural areas especially deserve the consideration of planners; however, rural leadership should be represented on planning councils to ensure that rural residents have a voice in planning good health care programs for their communities.

S 3 — Saltzman, B. N., Health care for the disadvantaged in the rural areas. *Journal of the Arkansas Medical Society, 67*(10):319-321, March 1971.

Outlining the living situation of the rural poor and the shortage of physicians, other medical personnel, and health services and facilities in rural areas, the author supports the recommendations of the National Advisory Commission on Health Manpower and of the AMA Council on Rural Health for alleviating the health problems of the rural disadvantaged.

S 4 — Schwartz, W. B., *Some Radical New Approaches To Dealing with the Physician Shortage*, The Rand Corporation, P-4698, September 1971.

This paper is a slightly edited version of testimony given before the Subcommittee on Health of the Senate Committee on Labor and Public Welfare, 10 May 1971. The author believes that current strategies for dealing with the medical manpower shortage are not sufficient; radical new approaches are needed, based on exploitation of the new technology and on a redefinition of the physician's role in the delivery system. Instead of dispersing physicians to small towns, a new primary care system based on computer-aided physician substitutes supervised by a physician could be organized to assure high-quality primary care for nonmetropolitan areas.

S 5 — Sears-Roebuck Foundation, Medical Advisory Board, *Newsletter: Look before You Leap*, Sears-Roebuck Foundation, Chicago, October 1965.

This newsletter for physicians seeking a practice location explains the role of the Sears-Roebuck Foundation's former Community Medical Assistance Program in rural areas. It includes a list of some "available" communities that have passed the economic screening test of the Program.

S 6 — Sloan, F. A., Economic models of physician supply, Ph.D. Thesis, Harvard University, Department of Economics, 1968.

Using a detailed model of physician location, Sloan's analysis "suggests an income elasticity of supply of physicians for a state of around 0.29; that is, a 1 percent increase in [physician] earnings will result in a 0.29 percent increase in the number of physicians—all other things remaining the same. . . . Another particularly interesting (and statistically significant) income effect found by Sloan . . . is that physicians tend to locate where there is less cyclical variation in income levels." (Acton and Levine, A 1)

S 7 — Sloan, F. A., *Lifetime Earnings and Physicians' Choice of Specialty*, The Rand Corporation, P-4068-1, December 1969.

The objective of the study was to determine whether lifetime earnings in various specialties influence a physician's choice of field, i.e., to investigate the feasibility of income incentives for the disappearing family physician. Calculations were made of the present values and internal rates of return to specialty training, based on lifetime earnings differences between specialties and general practice. No relationship was found between decisions of recent medical school graduates against careers in general practice and the earnings differences between specialties and general practice. However, the author suggests that the graduate may see reasons for a future decline in relative earnings not reflected by the past and current income data considered in this study. Moreover, the paper concentrates on investment aspects in specialty decisions, while consumption benefits, such as intellectual stimulation and prestige, may have an important influence. (Includes statistical data.)

S 8 — Somers, A. R., Meeting health manpower requirements through increased productivity. *Hospitals, 42*(6):43-48, 16 March 1968.

Noting the increase in the health services economy, the author states that lack of productivity, not lack of money, is the chief obstruction to the delivery of adequate health services.

S 9 — Stadler, E. T., Practice in the rural community. *New England Journal of Medicine, 279*(6):330, 8 August 1968.

This letter to the editor expresses the satisfaction of one general practitioner in a rural Maine community with his practice. The challenges of modern general practice are explained.

S 10 — Star, J., Where have our doctors gone? *Look Magazine, 35*(13):15-17, 29 June 1971.

A layman gives a personalized and pessimistic report of the national shortage of practicing physicians, especially general practitioners.

S 11 — Steinman, D., Health in rural poverty: some lessons in theory and from experience. *American Journal of Public Health, 60*(9):1813-1823, September 1970.

The author relates his experiences with the rural poor in eastern Kentucky and examines the effects of rural poverty on health and health attitudes. He emphasizes the importance of understanding the relationships between health status and social level, as well as the attitudinal and organizational barriers between the poor and the health care providers.

S 12 — Stewart, W. H., and M. Y. Pennell, *Health Manpower Source Book* (Section 10): *Physicians' Age, Type of Practice, and Location*, U.S. Department of Health, Education, and Welfare, Public Health Service Publication 263, 1960 (Government Printing Office, Washington, D.C.).

Tables give information on physicians' ages, types of practice, and ratios to the population, by state and by region. County group breakdowns provide information on rural-urban differences. (Includes statistical data.)

S 13 — Straus, R., Poverty and public health—new outlooks. II. poverty as an obstacle to health progress in our rural areas. *American Journal of Public Health, 55*(11):1772-1779, November 1965.

Discusses the impact of poverty and isolation on health status, and the impact of organization and communication barriers to delivery of care.

T 1 — Trabue, C. C., and R. Sacks, The crisis in physician distribution in Tennessee. *Journal of the Tennessee Medical Association, 63*(4):287-290, April 1970.

Reviewing the manpower situation in Tennessee, the author states that, although the physician/population ratio has improved in larger cities and in towns with medical schools, the ratio in rural areas has disproportionately declined.

U 1 — U.S. Department of Health, Education, and Welfare, *Health Characteristics by Geographic Region, Large Metropolitan Areas, and Other Places of Residence: U.S., July 1963-June 1965*, National Center for Health Statistics, Series 10, Number 36, 1967 (Government Printing Office, Washington, D.C.).

A compilation of statistics based on data collected in health interviews on the extent of illness and disability, by geographic region and place of residence. Statistics are also presented on the use of three types of medical services: brief hospital sojourns, physician visits, and dental visits. The tables point out several characteristics of residents outside a Standard Metropolitan Statistical Area: highest percentages of population with one or more chronic conditions, highest rates of bed-ridden days, lowest rates of injury and acute illness, lowest rates of physician and dental visits per year.

U 2 — U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book* (Section 18): *Manpower in the 1960's*, Public Health Service Publication 263, 1964 (Government Printing Office, Washington, D.C.).

This book provides graphs and tables that quantify certain characteristics of health manpower, with an emphasis on physicians, dentists, and nurses. Of special interest are the regional and urban-rural differences in the distribution of manpower. (Includes statistical data.)

U 3 — U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book* (Section 20): *Manpower Supply and Educational Statistics for Selected Health Occupations*, Public Health Service Publication 263, 1968 (Government Printing Office, Washington, D.C.).

A compilation of statistics on manpower supply and education in selected health occupations. The data presented include trends in the number of persons in the professions and occupations; ratios of health personnel to the national, state, and metropolitan populations; geographic distribution of manpower; and projections of supply. The data on physicians point to

the decrease in family physician potential; the unequal distribution of physicians, especially the inadequate number in southern and mountain states; and the increase of physicians in metropolitan counties, while nonmetropolitan counties maintain a low physician/population ratio.

U 4 — U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower and Health Facilities, 1970*, Public Health Service Publication 1509, 1970 (Government Printing Office, Washington, D.C.).

A compilation of statistics on health manpower, classified by occupation. Statistical tables relate to such factors as education, licensure, certification, places of employment, and personal characteristics.

U 5 — U.S. Department of Health, Education, and Welfare, Surgeon General's Consultant Group on Medical Education, *Physicians for a Growing America*, Public Health Service Publication 709, October 1959 (Government Printing Office, Washington, D.C.).

The so-called Bane Report recommends means of supplying the United States with adequate numbers of well-qualified physicians. To determine the minimum number essential to protect the nation's health, the Consultant Group set as the criterion of adequate supply the maintenance through 1975 of the 1959 physician/population ratio. To achieve this minimum goal, measures should include an increase to 11,000 in the annual graduation of students of medicine and osteopathy, the expansion and construction of medical school facilities, and financial support of medical schools and students. (Includes statistical data.)

V 1 — Vintinner, F. J., A mobile rural health services program in Central America and Panama, *American Journal of Public Health*, *58*(5):907-914, May 1968.

Mobile health units, emphasizing preventive medicine and self-help activities for community development, make weekly visits to rural communities in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Pan .ma.

W 1 — Wainwright, L., Help wanted: doctors needed in a real nice Iowa town with a brand-new hospital, fine schools, and a future. *Life Magazine*, 29 May 1970, pp. 49-53.

The plight of Dyersville, Iowa, with a new hospital but only one exhausted doctor, is a study of a town's agonizing 10-year campaign for a doctor and a hospital.

W 2 — Weibe, J. H., Health service delivery problems in northern Canada. *Canadian Journal of Public Health*, *61*(6):481-487, November-December 1970.

The author describes the difficulties encountered in operating a health delivery system in northern Canada—weather and rugged terrain, transportation, shortage of staff, and cultural barriers. He offers no solutions.

W 3 — Weiskotten, H. G., et al., Trends in medical practice—an analysis of the distribution and characteristics of medical college graduates, 1915-1950. *Journal of Medical Education*, *35*(12):1071-1121, December 1960.

This analysis is the sixth in a series of reports based on surveys of graduates of U.S. medical colleges at varying intervals after graduation. Results show that the per capita income of states seems to be an important factor in the distribution of medical graduates in private practice; the places of residency training, prior residence, internship, and medical college are important in that order in determining location of practice; the proportion of graduates limiting their practices to specialties decreases with increased age at graduation; and specialists are evenly distributed among all but the smallest communities. (Includes statistical data.)

W 4 — White, K. L., General practice in the U.S. *Journal of Medical Education*, *39*(4):333-345, April 1964.

Describing the current status of general practice in the United States, the author attempts to explain the declining ratio of general practitioners (including internists and pediatricians) to the population and to other specialties. He points to the failure of medical schools to interest students in primary care. Even efforts to establish internships in family practice are meeting with little enthusiasm. (Includes statistical data.)

W 5 — Williams, R. C., and W. E. Uzzell, Attracting physicians to smaller communities. *Hospitals*, *34*(14):-49-51, 16 July 1960.

A study of 42 Georgia hospitals built under the Hill-Burton Program was conducted to determine their effect on the abilities of communities of various sizes

to attract physicians. Results show that whereas larger communities attracted numerically more physicians, smaller communities were relatively more successful in proportion to population size. Also, in proportion to hospital size (number of beds), smaller communities were more successful in attracting physicians. A follow-up study showed that the increases in number of physicians were permanent. (Includes statistical data.)

W 6 — Wilson, E. A., and R. L. Kane, Health knowledge among residents of a rural Kentucky county. *Journal of the Kentucky Medical Association, 67*(2):-113-114, February 1969.

A random sample of residents of a rural Kentucky county was administered a multiple-choice health knowledge quiz. Although no one answered all the questions correctly (average was 53 percent correct), the results compare favorably with previous studies of urban populations. (Includes statistical data.)

W 7 — Wilson, J. B., The changing work-load in a rural practice. *Lancet, 1*(7701):695, 3 April 1971.

A British general practitioner notes changes in the pattern of his practice over a 7-year period. Figures show a decrease in the number of patients being seen at home and an increase in workload. (Includes statistical data.)

W 8 — Wohlauer, V., Emergency medical problems in rural areas. *Rocky Mountain Medical Journal, 64* (8):43-48, August 1967.

Asserting the high priority of health mobilization for "disaster" preparedness in rural areas, the author recounts Colorado's initiative in the area: (1) medical self-help programs to prepare people to cope with emergencies; (2) packaged disaster hospitals positioned in rural areas; (3) training of personnel for rural areas; (4) ambulance service; (5) broad replacement capabilities; (6) poison control; and (7) accident prevention through education.

Y 1 — Yamamoto, K., Satisfaction of Pennsylvania physicians with rural medical practice, M.S. Thesis, Pennsylvania State University, Department of Agricultural Economics and Rural Sociology, 1957.

Through a series of questionnaires given to active private practitioners in rural Pennsylvania, the author tested his hypothesis that physicians reared in rural areas have greater satisfaction with rural practice than physicians reared in urban areas. Comparison of variables measuring aspects of rural and urban community life and practice showed few significant differences. The general conclusion was that a physician's place of rearing does not materially affect his satisfactory adjustment to rural life and practice.

Y 2 — Yett, D. E., and F. A. Sloan, Analysis of migration patterns of recent medical school graduates, Health Services Research Conference on Factors in Health Manpower Performance and the Delivery of Health Care, Chicago, 9 December 1971 (mimeographed).

Concerned with the maldistribution of physicians, the authors explore factors affecting the location decisions of recent medical school graduates. Statistics support their hypothesis that physicians having considerable contact with a particular state (i.e., birthplace, medical school, internship, and/or residency training) are more likely to establish first practices in the state than are physicians with little or no previous contact. Also, the more recent the contact, the greater the influence on initial location choices. Other factors, such as income potential variables and general environmental conditions, are found to exert a significant influence on physician location decisions. Policy implications are considered. (Includes statistical data.)

IV. SUMMARY OF DATA ON PHYSICIAN LOCATION AND RURALITY

Of special interest in this study are factors that influence physician location. All factors found in the literature review are summarized in the following table. The factor studied is listed as the *independent variable*. The parameter with which it is associated is the *dependent variable*, and the kind of association is the *relationship*. Thus, the "failure rate of licensing examination" was found to have both a positive and a negative association with the "number of physicians in (the) state," and the references are listed in the bibliography as items A 1, S 6, and Y2.

Some variables associated with rurality are listed in Part B of this table, using the same format.

Dependent Variable	Relationship	Independent Variable	Reference
A. Factors Affecting Physician Location			
Number of physicians in state	+/–	Failure rate of licensing examination	A 1, S 6, Y 2
Number of physicians in state	+/–	Physician income in state	S 6, Y 2
Number of physicians in state	+	Per capita income in state	W 3
Number of physicians in state	+	State educational expenditures	S 6
Number of physicians in state	–	Cyclic variations in income levels in state	S 6
Number of physicians in state	–	Lack of recreational facilities	M 6
Number of physicians in county	+	Per capita income in county	R 4
Number of physicians in county group	+	Physicians' price practices, based on per capita income of county group	R 4
Number of physicians in rural county	–	Construction of hospital in county	D 6

Dependent Variable	Relationship	Independent Variable	Reference
Number of physicians in community	+	Construction of hospital in community	W 5
Number of physicians in community	+	Median income in community	P 1
Number of physicians in metropolitan area	+	Population size of area	M 3
Number of physicians in primary practice	–	Inadequate cultural and recreational resources in community	C 8
Number of general practitioners	+	Percent of population white	M 3
Number of general practitioners	+	Percent of population 0-5 years old and 65+ years old	J 2, M 3
Number of specialists	+	Educational level of population	J 2, M 3
Number of specialists	+	Number of supportive institutions	M 3
Number of surgical specialists	+	Number of general hospital beds per 1000 population	J 2
Number of medical specialists	+	Medical school in community	J 2
Practice in urban area	+	Graduation from high-quality medical school	B 16
Practice in urban area	+	Graduation from urban medical school	B 16
Practice in small town or rural area	+	Rural background	B 4, C 3, C 6, D 2, H 4, M 6
Practice in small town or rural area	+	Participation in loan forgiveness program	M 7
Practice in same state	+	Internship and residency training in state	M 6, W 3, Y 2
Entrance into general practice	+	Economic pressure on medical student	C 6
Entrance into general practice	+	Age at graduation	C 6, W 3
Choice against career in general practice	0	Earnings differences between specialties and general practice	S 7
Ability to attract physicians	–	Percent of population in agriculture	P 1
Ability to attract physicians	+	Mobility of community residents	P 1
Ability to attract physicians	+	Educational level of population	P 1
Presence of physician	+	Economic growth rate of town	F 2

Dependent Variable	Relationship	Independent Variable
B. Factors Related to Rurality		
Percent of population poor	+	Rurality
Incidence of chronic illness	+	Rurality
Physician visits per person per year	–	Rurality
Insurance coverage	–	Rurality
Per capita expenditures for health care	–	Rurality
Accident fatality and disability rates	+	Rurality
Physicians/population	–	Rurality
GPs/population	0	Rurality
Specialists/population	–	Rurality
Dentists/population	–	Rurality
Percent of young physicians	+	Urbanization
Reported working hours	0	Rurality of practice
Rate of house calls	+	Rurality of practice
Professional isolation	0	Rurality of practice