

DOCUMENT RESUME

ED 084 441

CE 000 661

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TITLE Yellowstone County Health Manpower and Education Profile.
INSTITUTION Mountain States Regional Medical Program.
SPONS AGENCY Health Services and Mental Health Administration (DHEW), Bethesda, Md. Regional Medical Programs Service.
PUB DATE 72
NOTE 48p.; For related documents, see CE 000 658 through 660, and 662 through 664
EDRS PRICE MF-\$0.65 HC-\$3.29
DESCRIPTORS Census Figures; Health Facilities; *Health Occupations Education; *Health Personnel; Occupational Information; *Occupational Surveys; Population Distribution
IDENTIFIERS *Mountain States Health Manpower and Education

ABSTRACT

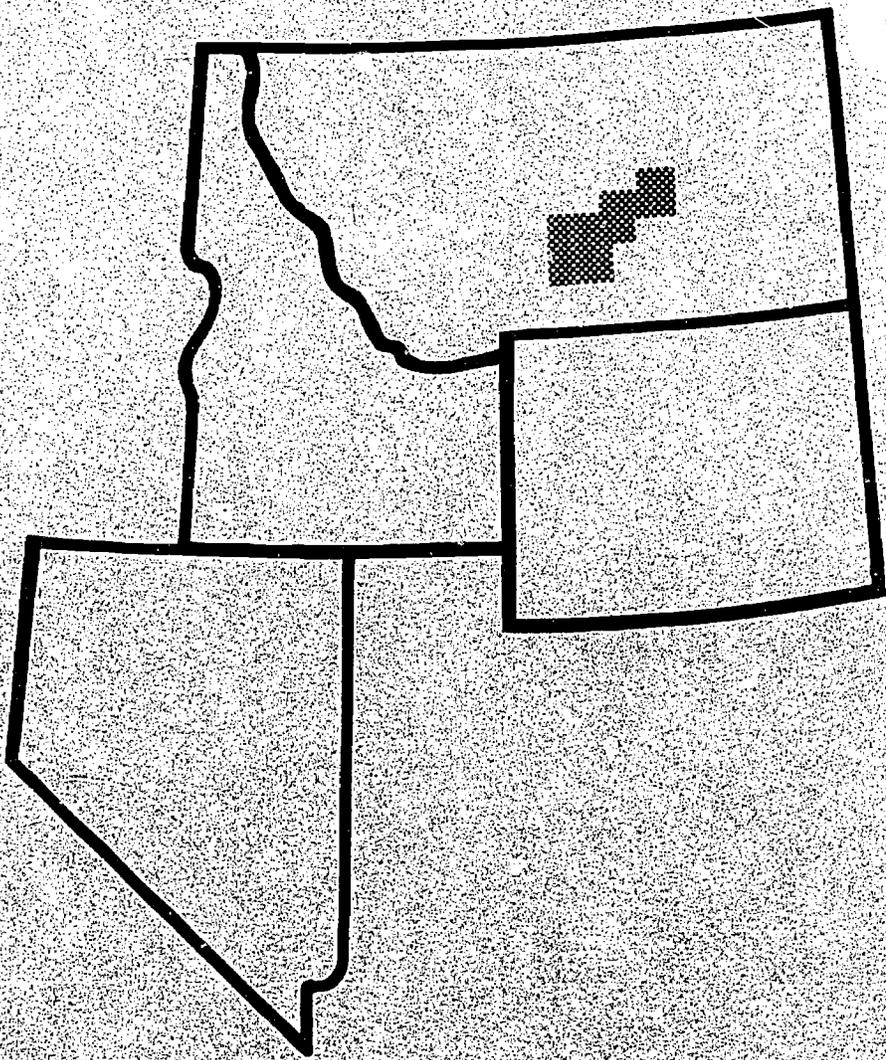
The profile is a concise description of the demographic and economic characteristics, existing health manpower employed, and health education programs for the Yellowstone County area of Montana, one of seven surveyed in the Mountain States region (Idaho, Montana, Wyoming, and Nevada). The first section of the profile provides general population information, income distributions, and occupational groups of employed persons in the area surveyed. The second section lists the number of people employed in 103 categories of health occupations. The third section lists health education institutions which offer degree or certificate programs in the health field. It includes information about libraries in health related fields and the availability of video-tape equipment. The fourth section is an enumeration of health facilities in the area surveyed. Comparisons are made within the four States and to the United States in toto. Other regions covered are: Carson-Washoe County (CE 000 658), Treasure Valley (CE 000 659), Albany-Laramie Counties (CE 000 660), Missoula County (CE 000 662), Clark County (CE 000 663), and Sheridan County (CE 000 664). (AG)

CE

YELLOWSTONE COUNTY HEALTH MANPOWER AND EDUCATION PROFILE

ED 064441

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COMMUNITY WELFARE
AND ASSISTANCE
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A Publication of the
MOUNTAIN STATES REGIONAL MEDICAL PROGRAM

CE 000 661

1972 EDITION

This publication was prepared by the Mountain States Regional Medical Program, one of 56 programs in the nation supported by the Regional Medical Program Service, a division of Health Services and Mental Health Administration of the U. S. Department of Health, Education and Welfare. The Mountain States Regional Medical Program encompasses Idaho, Montana, Nevada and Wyoming. The Western Interstate Commission for Higher Education (WICHE) serves as the grantee agency for the Mountain States Regional Medical Program.



ED 084441

A PUBLICATION OF THE MOUNTAIN STATES REGIONAL MEDICAL PROGRAM

YELLOWSTONE

HEALTH MANPOWER AND EDUCATION PROFILE

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PREFACE

The sparse population and the scattered population centers of the western states provide a unique set of problems in meeting the health needs of the people within this area. Further, three of the four states served by the Mountain States Regional Medical Program, Idaho, Montana, and Wyoming, do not have medical schools. The fourth state, Nevada, served by the Region has a two-year medical school.

During the summer of 1972, Mountain States RMP directed a concentrated effort toward describing in detail the numbers of health workers in seven community areas in the Region. Additionally, the numbers and kinds of health education occurring in the community were described, and a summary of economic and demographic characteristics of the areas was compiled. This firsthand, current assessment is necessary to plan effectively for programs which aim to increase needed health manpower supply and skill relevance at the community level. Numerous organizations, including the Mountain States Regional Medical Program in its "Health Training Network" activities, are currently approaching this complex problem. Essentially then, the profile is a concise description of the demographic and economic characteristics, existing health manpower employed, and health education programs for each of the seven community areas surveyed in the Mountain States region.

However, the information contained in this profile provides only the "what is" with regard to health manpower and education in the community area. To be used as an effective planning tool, the profile should be accompanied with statements of what "ought to be" with regard to the

distribution, supply, and skill relevance of the health manpower pool necessary to best serve the community area. Comparisons of the "real" and the "desirable" can provide a basis for planning increasingly relevant health education programs. This profile is intended, therefore, to be used by local groups concerned with health planning, by the Mountain States RMP, by educational institutions and state boards of education, by consumers, by health professionals and by other health organizations.

The compilation of the data presented has depended upon the assistance and energies of many persons too numerous to list; however, special acknowledgement is due to Jim Toner, Comprehensive Health Planning, and to Mrs. June Geiger, Mrs. Martha Nichols and Mrs. Myrna Ferguson for their assistance in the preparation of this profile. Additional acknowledgement is due to the many persons who provided basic information for the profile; they are listed in Appendix 2.

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August 1972

INTRODUCTION

The data contained here are divided into four basic parts. First is the demographic data for the area with general population information, income distributions, and occupational groups of employed persons in the area surveyed. This information was obtained from the U.S. Bureau of the Census publications for the 1960 and the 1970 census.

In the second part, the number of persons working in health professions was tallied by the setting in which they are employed. Insomuch as there are some 103 categories of occupations of health workers listed, a set of brief occupational descriptions is given in the appendices to indicate what kinds of employment were included in a given category. Further, a listing of the specific institutions in which health personnel were surveyed is included; in this way, any discrepancies may be readily detected. The exception is private offices, the list of which is too lengthy to include. Importantly, only those health personnel who were employed were enumerated; thus, if a person is a medical technologist, for example, that person was counted only if he or she was currently practicing in the area. In this way a clear picture of the health manpower actually serving the area may be realized. In all cases, part-time employees counted as one-half; therefore, some numbers may have a "0.5" attached which accounts for part-time employees.

INTRODUCTION (Contd.)

Every attempt has been made to insure the accuracy of the data presented; it is conceivable, however, that some persons may not have been counted or that the information that we obtained was in error by passage of time or inaccurate records. Further, we attempted to gather as much information as possible by direct contact with the various work settings rather than through secondary sources. Thus, all data not directly annotated may be assumed to be primary data obtained by interview, telephone contact, questionnaire, etc. In a very few cases, an accurate count simply was not available within budget and time constraints. In these cases the quantity is clearly marked by an asterisk and noted to be an estimate, or was omitted.

The third section is a quantification and listing of the various health education resources and institutions within the area. This section lists the institutions which offer course work leading to a certificate or degree preparing graduates to practice in the health field. This section also contains information about libraries in health related fields and video-tape equipment available to health education and practicing personnel.

The fourth and final section is an enumeration of health facilities such as a number of hospitals, ambulances, pharmacies, and other facilities in the area surveyed.

The general order of presentation of any given set of data is one in which a brief introduction to the section is given describing the specific limitations and features of the data in that section; and a

INTRODUCTION (Contd.)

brief narrative description of the data is given in order to highlight the unusual quantities obtained in the survey. Secondly, a graphic comparison is made with the local quantities of the four state area of Idaho, Montana, Nevada, and Wyoming (Mountain States Region) and to the United States in toto, where such a visual demonstration of the information is deemed useful. Finally, the raw data for the given category is provided for those readers who wish a more detailed description.

Detailed information about procedures and raw data are available upon item-specific request made to:

Mountain States Regional Medical Program
Montana Division
1109 Sixth Avenue North
Great Falls, Montana 59401

SECTION I: POPULATION CHARACTERISTICS

A. INTRODUCTION

This section provides a statistical description of the general demographic characteristics including totals, densities, rural-urban distributions, and age distributions; the economic characteristics of the area in terms of the per capita and family median incomes; and the occupational characteristics of the area in terms of the numbers of persons employed in various selected occupational groups.

Included here are comparison graphs indicating how the Yellowstone County area compares with the Mountain States Region and the United States for given selected statistics from this section.

B. NARRATIVE SUMMARY

1. POPULATION DENSITY:

The population density of Yellowstone County is considerably higher than that of the Mountain States Region, with Billings as the major population center. It is markedly less than the National figure of some 57 persons per square mile, however. (see Figure 1)

2. GROWTH RATE:

The growth rate of Yellowstone County, over the last decade, has been somewhat less than that of either the Region or the Nation. This difference may not be statistically significant. (see Figure 2)

3. AGE DISTRIBUTION:

There seems to be no major deviation from the Regional or National distribution of the percent of persons in any given age range in Yellowstone County.

4. FAMILY MEDIAN INCOME

The per capita income differential between Yellowstone County and the National figure is approximately \$1000. This difference seems quite important in that this represents a variation of one-third less than the National per capita income. The median family income is also \$1000 less in Yellowstone County than the National figure. This may be less significant in that this represents only one-ninth of the Yellowstone figure. (see Figure 3)

5. OCCUPATIONAL CHARACTERISTICS:

Yellowstone County has nearly fifty percent less Medical, Dental, and Other Health Workers per one-thousand population than does the Nation taken as a whole. Perhaps more significant is the lower change rate of this ratio; Yellowstone County has exhibited an increase of less than one per thousand while the Nation has exhibited an increase of more than four per thousand. (see Figure 4)

C. DEMOGRAPHIC CHARACTERISTICS: STATISTICAL SUMMARY

Area Surveyed Yellowstone County

Population: 1960 79,016¹ 1970 87,367² Per Cent Change+ 10.6%

Geographic Area: 2,642 Square Miles²

Population Density: 33.1 Pers/Sq. Mi.²

*Rural Population: 1960 13,703¹ 1970 11,716²

Urban Population: 1960 65,313¹ 1970 75,651²

Age Distribution (1970):³

0-4	<u>7,068</u>	45-49	<u>5,100</u>
5-9	<u>8,964</u>	50-54	<u>4,830</u>
10-14	<u>10,143</u>	55-59	<u>3,992</u>
15-19	<u>9,080</u>	60-64	<u>3,333</u>
20-24	<u>7,068</u>	65-69	<u>2,381</u>
25-29	<u>5,621</u>	70-74	<u>1,733</u>
30-34	<u>4,861</u>	75-79	<u>1,343</u>
35-39	<u>4,900</u>	80-84	<u>943</u>
40-44	<u>5,343</u>	85+	<u>664</u>

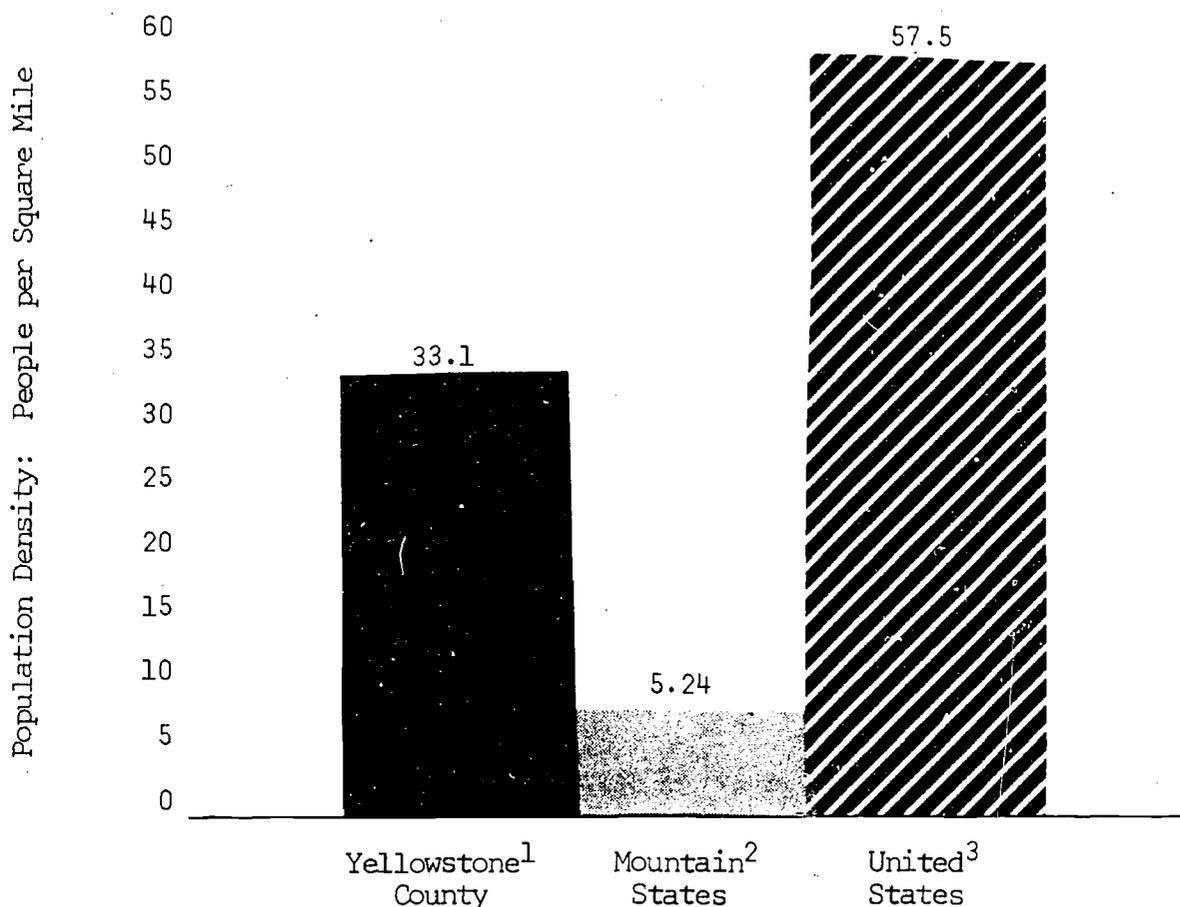
* Rural Population: Less than 2500
Urban Population: 2501 and over

¹ U.S. Bureau of Census. U.S. Census of Population: 1960. Number of Inhabitants. Final Report PC(1)-28A Montana. U.S. Government Printing Office, Washington, D.C., 1961. Table 6.

² U.S. Bureau of Census. U.S. Census of Population: 1970. Number of Inhabitants. Final Report PC(1)-28A Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 9.

³ U.S. Bureau of Census. U.S. Census of Population: 1970. General Population Characteristics. Final Report PC(1)-28B Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 35.

FIGURE 1: Population Density

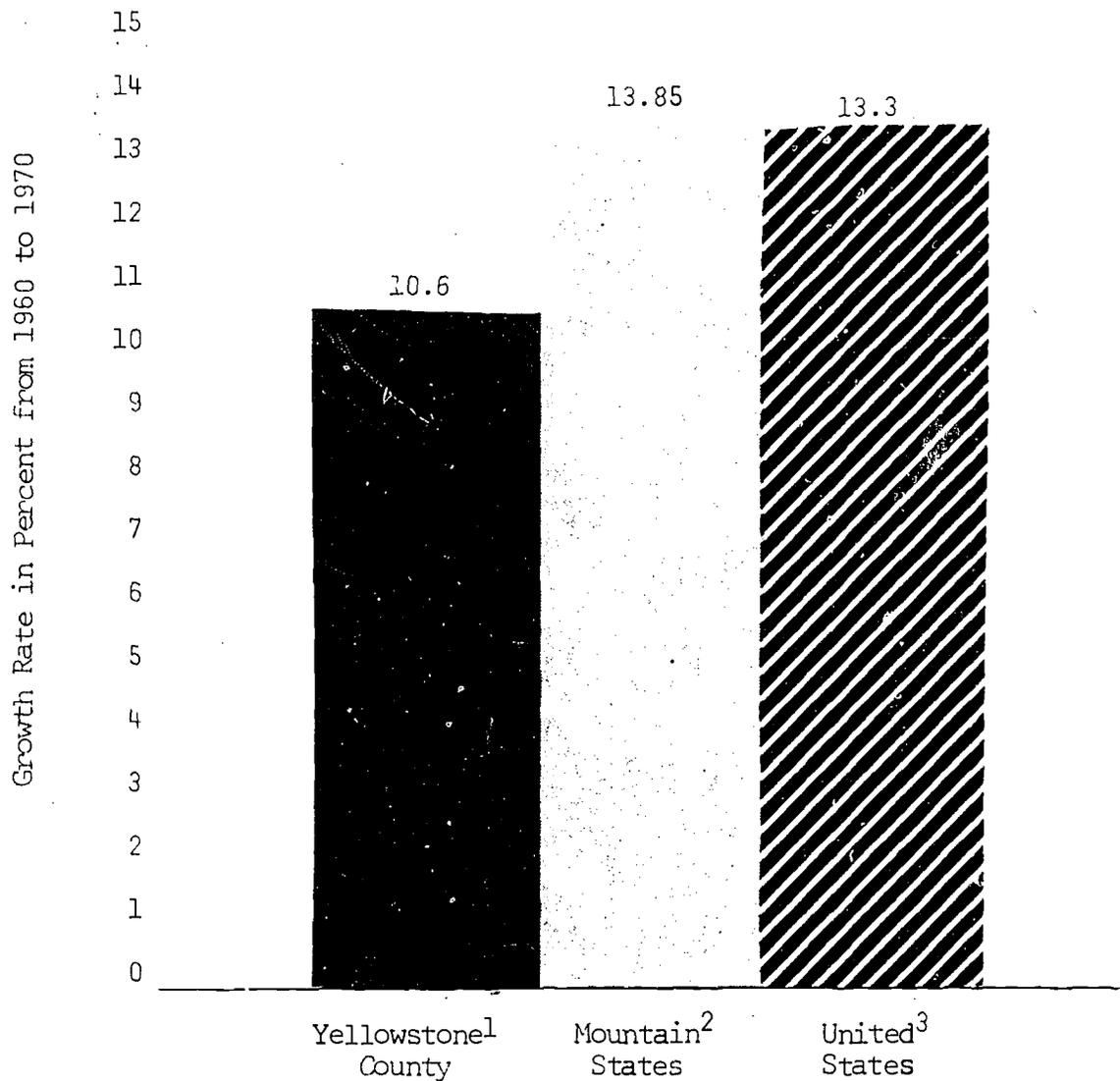


¹ U.S. Bureau of Census. U.S. Census of Population: 1970. Number of Inhabitants. Final Report PC(1)-28A Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 6.

² U.S. Bureau of the Census. U.S. Census of Population: 1970. Number of Inhabitants. (Combined data for Idaho, Montana, Nevada and Wyoming).

³ U.S. Bureau of Census. Statistical Abstract of the United States: 1971. U.S. Government Printing Office, Washington, D.C., 1971. p. 13.

FIGURE 2: Growth Rate



¹ U.S. Bureau of Census. U.S. Census of Population: 1970. Number of Inhabitants. Final Report PC(1)-28A Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 9.

² U.S. Bureau of Census. U.S. Census of Population: 1970. Number of Inhabitants, (Combined data from Idaho, Montana, Nevada and Wyoming). U.S. Government Printing Office, Washington, D.C., 1971.

³ U.S. Bureau of Census. Statistical Abstract of the United States: 1960 and 1971 (Combined Data). U.S. Government Printing Office, Washington, D.C.

D. ECONOMIC CHARACTERISTICS: STATISTICAL SUMMARY

Area Surveyed Yellowstone County

County	Per Capita Income		Family Median Income	
	1960 ¹	1970 ²	1960 ¹	1970 ²
Yellowstone	\$1,945	\$2,855	\$6,150	\$8,966
Missoula*	1,818	2,999	5,769	9,066
.....				
				3
Mountain States	2,084	3,375	5,628	8,943
United States	2,217	3,910	5,651	9,867

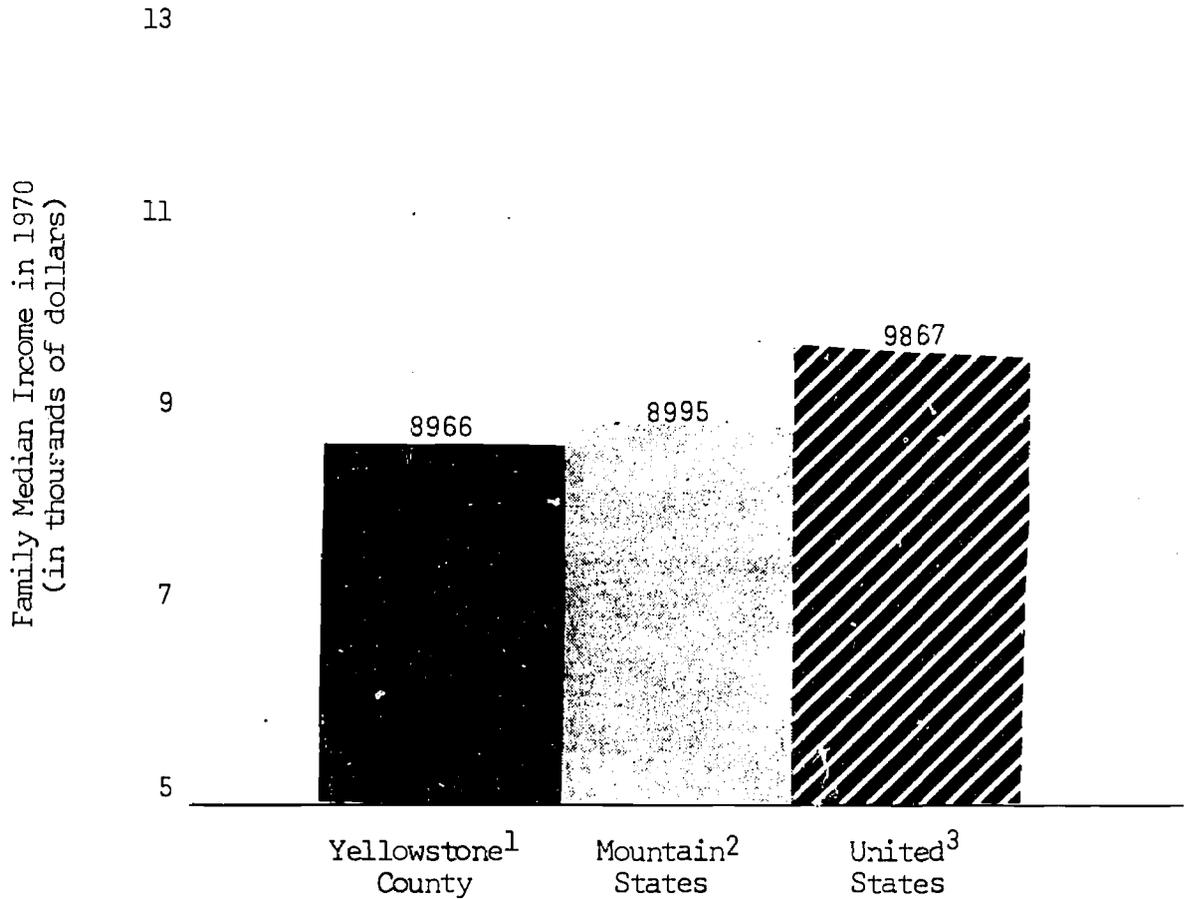
*Included to offer comparison of another Montana county

¹ U.S. Bureau of Census. Per Capita and Median Family Money Income in 1959 for States, SMA's and Counties. PC(S1)-48. U.S. Government Printing Office, Washington, D.C., 1960. p. 40.

² U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics. Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 124.

³ All United States and Mountain States data were obtained from the 1966 and 1971 Statistical Abstracts for the U.S. U.S. Government Printing Office, Washington, D.C.

FIGURE 3: Family Median Income



- ¹ U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics. Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 124.
- ² U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics, (Combined data from Idaho, Montana, Nevada, and Wyoming). U.S. Government Printing Office, Washington, D.C., 1971.
- ³ U.S. Bureau of Census. Current Population Reports, Consumer Income. Series P-60, No. 78. U.S. Government Printing Office, Washington, D.C., 1971. p. 4.

E. OCCUPATIONAL CHARACTERISTICS: STATISTICAL SUMMARY

Selected Occupational Group of Employed Persons

Area Surveyed Yellowstone County

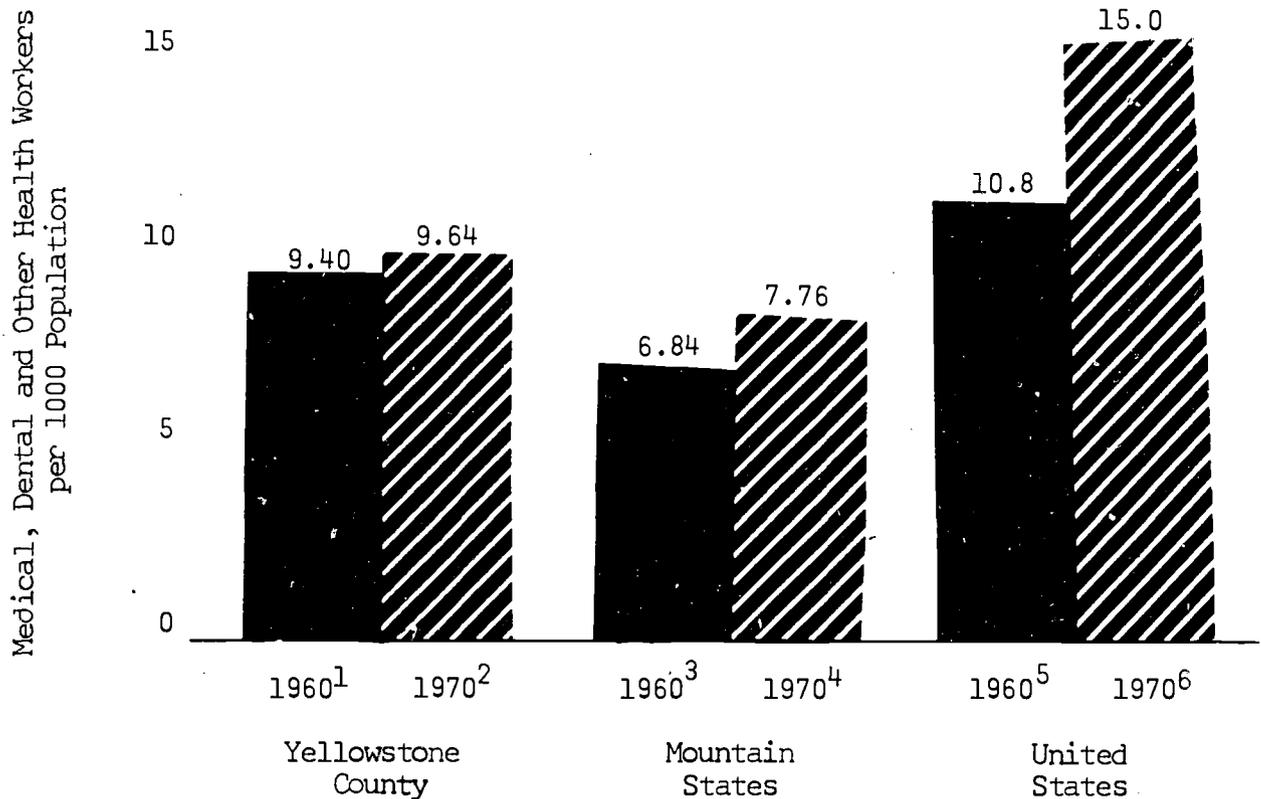
	1960 ²	1970 ³
1. TOTAL Professional, Technical and Kindred Workers	<u>3,588</u>	<u>4,727</u>
a. Medical, Dental and Other Health Workers	<u>743</u>	<u>842</u>
b. Salaried Medical and Health Workers (1960 only)	<u>521</u>	
c. Self-employed Medical and Health Workers (1960 only)	<u>222</u>	
2. Farmers and Farm Managers	<u>1,159</u>	<u>787</u>
3. Manager, Officials, Proprietors	<u>3,569</u>	<u>4,020</u>
4. Clerical, Kindred Sales	<u>7,390</u>	<u>8,990</u>
5. Craftsmen; Foremen and Kindred Workers	<u>3,840</u>	<u>4,170</u>
6. Operative and Kindred Workers including Transport	<u>3,349</u>	<u>3,698</u>
7. Service Workers	<u>2,783</u>	<u>4,349</u>
8. Farm Laborers and Foremen	<u>575</u>	<u>386</u>
9. Laborers except Farm	<u>1,254</u>	<u>1,439</u>

¹ This is not intended as a complete enumeration of the labor force in Yellowstone County.

² U.S. Bureau of Census. U.S. Census of Population: 1960. General Social and Economic Characteristics. Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1961. Table 84.

³ U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics. Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 122.

FIGURE 4: Medical, Dental, and Other Health Workers



¹ U.S. Bureau of Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1961. Table 84.

² U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics, Final Report PC(1)-28C Montana. U.S. Government Printing Office, Washington, D.C., 1971. Table 122.

³ U.S. Bureau of Census. U.S. Census of Population: 1960. General Social and Economic Characteristics (Combined data of Idaho, Montana, Nevada and Wyoming). U.S. Government Printing Office, Washington, D.C., 1961.

⁴ U.S. Bureau of Census. U.S. Census of Population: 1970. General Social and Economic Characteristics (Combined data of Idaho, Montana, Nevada and Wyoming). U.S. Government Printing Office, Washington, D.C., 1971.

⁵ U.S. Bureau of Census. Statistical Abstract of the United States: 1962. U.S. Government Printing Office, Washington, D.C., 1962. p. 823.

⁶ U.S. Bureau of Census. Statistical Abstract of the United States: 1971. U.S. Government Printing Office, Washington, D.C., 1971. Table 90.

SECTION II: HEALTH MANPOWER

A. INTRODUCTION

This section deals with the number of persons employed in Yellowstone County in the health professions. In our search of the literature, we found no current enumeration of health professionals in Yellowstone County; consequently, the following data was obtained from primary sources by means of interview, questionnaire, etc., except where noted otherwise.

It is our intent here to provide the reader with a current and accurate statistical picture of the health manpower situation in Yellowstone County. Thus, the raw data is ordered in a rather cumbersome, but necessary, nineteen by one-hundred-and-three matrix. The horizontal axis provides the work setting in which the health professionals in Yellowstone County are employed; the vertical axis indicates the various health occupations which were surveyed. (For the working definitions of these health occupations, see Appendix I.)

The reader will note that many of the occupational categories in various work settings are blank. Rather than omit these, the research team felt that noting the absence of certain categories of health professionals was perhaps an important set of information for the reader.

B. NARRATIVE SUMMARY

The most noticeable deviation from the Regional and National norm for selected health personnel is in the category of registered nurses. Yellowstone County has a considerably higher ratio of registered nurses per thousand population than does either of the two comparison territories. The other deviations are worth noting on the graphic display, but not nearly so striking. (see Figure 5)

C. HEALTH MANPOWER: STATISTICAL SUMMARY

Employment Settings *

	1	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
1. Administration																				
a. Hospital Administration					4															4
b. Nursing Home Administration												5								5
2. Dentistry	51																			51
a. Dentists																				
1) Endodontists																				
2) Oral Pathologists																				
3) Oral Surgeons	2																			2
4) Orthodontists	5																			5
5) Pedodontists	2																			2
6) Periodontists																				
7) Prosthodontists																				
8) Public Health Dentists																				
9) General Dentistry	42																			42
b. Dental Hygienists	8.5																			8.5
c. Dental Laboratory Technicians																				

*Legend

- | | | |
|--------------------------------|-----------------------------|---|
| 1 -Private Office | 4a-Community Health Service | 7 -Business and Industry |
| 2a-Diagnostic Clinic | 4b-County Health Service | 8a-Educational Institution: Practicing |
| 2b-Treatment Clinic | 4c-State Health Service | 8b-Educational Institution: Teaching |
| 2c-Diagnostic/Treatment Clinic | 4d-Federal Health Service | 8c-Educational Institution: Teaching and Practicing |
| 3a-Community Hospital | 5 -Nursing Home | 9 -Health Planning and Development Organizations |
| 3b-V.A. Hospital | 6a-Mental Hospital | |
| 3c-Military Installation | 6b-Mental Health Center | |

Employment Settings:

	1	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
3. <u>Dietetic and Nutritional Services</u>																				
a. <u>Dietitians</u>	1				6											2				9
b. <u>Nutritionists</u>																				
4. <u>Emergency Health Services</u>																				
a. <u>Emergency/Ambulance Attendants</u>	6				21															27
5. <u>Environmental Health Services</u>																				
a. <u>Health Physicists</u>																				
b. <u>Industrial Hygienists</u>																				
c. <u>Environmental Scientists</u>																				
d. <u>Sanitarians</u>																				
e. <u>Public Health Engineers</u>																				
6. <u>Health Education</u>																				
a. <u>Public Health Educators</u>																				
b. <u>School Health Educators</u>																				
c. <u>Health Science Educators</u>																				
7. <u>Health Planning</u>																				
a. <u>Patient Care Analysts</u>																				
b. <u>Health Care Planners</u>																			1	1
c. <u>Bio-statisticians</u>																				
8. <u>Medical Librarians</u>																				

*Legend: Refer to first page of this summary.

Employment Settings*

	1	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
9. Medical Records Services																				
a. Medical Record Librarians					3	2						1								6
b. Record Technicians																				
c. Record Clerks						12														12
10. Medical Technology																				
a. Medical Technologists				5	18															23
b. Medical Technicians	2			2	6															10
c. Certified Lab Technicians	3				2															5
d. Cytology/Tissue Technicians																				
e. Laboratory Assistants																				
11. Medicine and Osteopathy																				
a. Physicians	85			32																117
Allergist				1																1
Anesthesiologist	7																			7
Aviation Medicine Spec.																				
Cardiovascular Dis. Spec.				1																1
Colon-Rectal Surg. (Proc.)																				
Dermatologist	1			2																3
Emergency Specialist					2															2
Endocrinologist																				
Gastroenterologist																				
General Practitioner	9															1				11
Gynecologist/Obstetrician	3			3																6
Internist	11			8																19
Manipulative Therapy Spec.																				
Neurological Surgeon	2			1																3
Neurologist	1																			1
Occupational Med. Spec.																				
Ophthalmologist	9			1																10
Orthopedic Surgeon	8			2																10

*Legend: Refer to first page of this summary.

Employment Settings*

	1	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
a. Physicians (continued)																				
<u>Otolaryngologist</u>	2			1																3
<u>Pathologist</u>				2																2
<u>Pediatrician</u>	5			3																8
<u>Physiatrist</u>																				
<u>Plastic Surgeon</u>	1																			1
<u>Preventive Med. Spec.</u>																				
<u>Psychiatrist</u>	2														1					3
<u>Public Health Physician</u>																				
<u>Pulmonary Disease Spec.</u>																				
<u>Radiologist</u>	8																			8
<u>Surgeon</u>	11			4																15
<u>Thoracic Surgeon</u>	2																			2
<u>Urologist</u>	3			3																6
<u>Intern</u>																				
<u>Resident</u>																				
b. Osteopathic Physicians	3																			3
12. Nursing and Related Services																				
a. Registered Nurses	36			29	264				2	1		29.5	1		11					373.5
b. Licensed Practical Nurses	1				62							24.5								87.5
c. Nurse Aides/Orderlies					222							154								376
d. Ward Clerks					29															29
e. Surgical Technicians																				
13. Pharmacy																				
a. Pharmacists	35.5				7							1								43.5
b. Pharmacy Aides					4															4
c. Pharmacy Interns																				

*Legend: Refer to first page of this summary.

Employment Settings*

	1	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
14. <u>Chiropractors</u>	13																			13
15. <u>Radiologic Technology</u>																				
a. <u>Technologists</u>				2																2
b. <u>Technicians</u>	8			6	8															22
16. <u>Medical Secretarial/Office Personnel</u>	73			51	25							9.5	3.5							162
17. <u>Psycho-Social Health Services</u>																				
a. <u>Psychologists (MA & PhD)</u>									1				3.5							4.5
b. <u>Social Service Workers</u>					2								3							5
c. <u>Vocational Rehabilitation Counseling</u>									4											4
18. <u>Therapists</u>																				
a. <u>Speech Pathology Therapists</u>									1											1
b. <u>Audiologists</u>									1											1
c. <u>Physical Therapists</u>				.5	4				1											5.5
d. <u>Occupational Therapists</u>									1				.5							1.5
e. <u>Inhalation Therapists</u>					1															1
f. <u>Orthotists-Prosthetists</u>																				
g. <u>Manual Arts Therapists</u>																				
h. <u>Recreational Therapists</u>																				
19. <u>Veterinarians</u>	16																			16

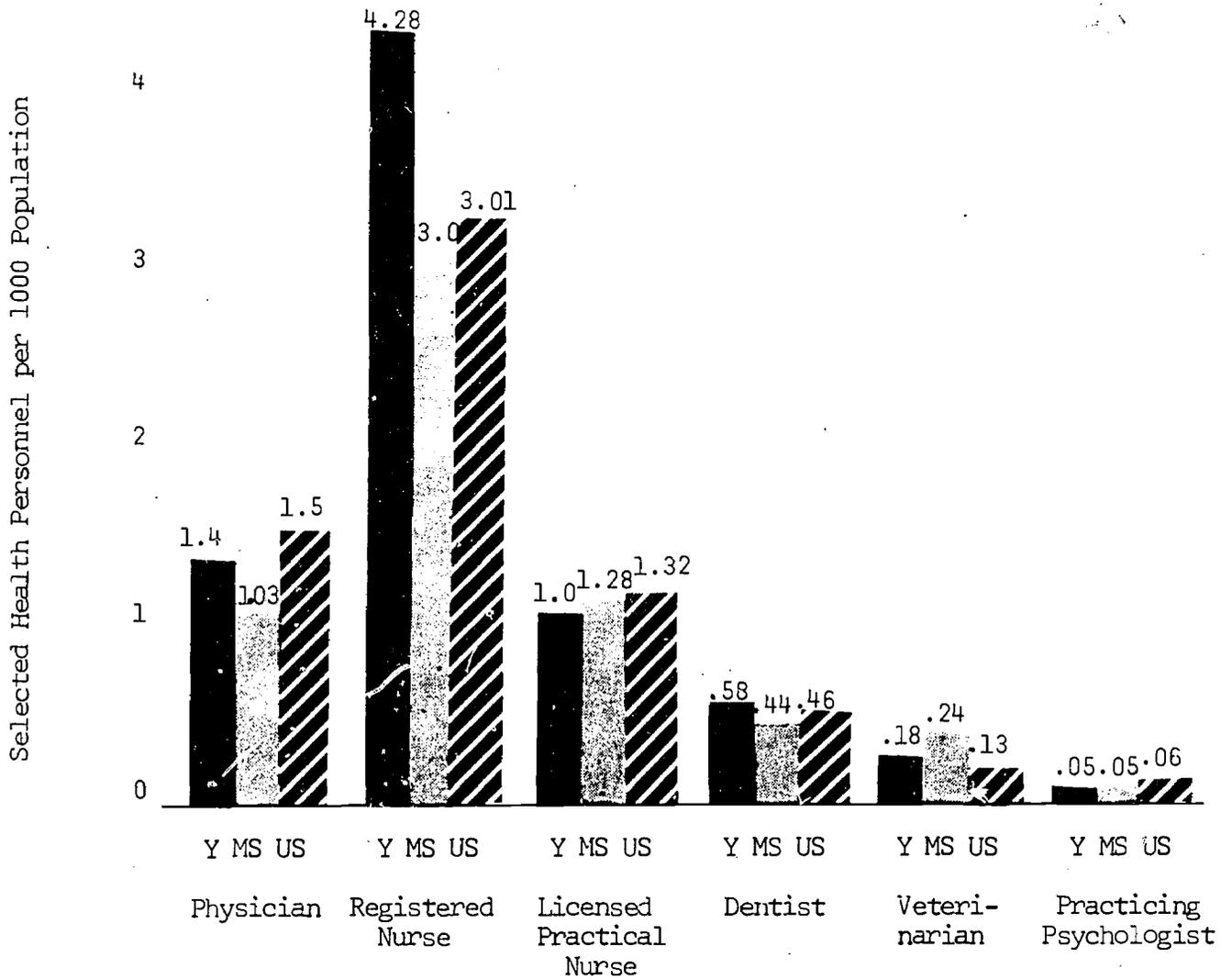
*Legend: Refer to first page of this summary.

Employment Settings*

	11	2a	2b	2c	3a	3b	3c	4a	4b	4c	4d	5	6a	6b	7	8a	8b	8c	9	Total
20. Physician Support Personnel																				
a. Physician's Assistants																				
b. Nurse Clinicians																				
c. Nurse Anesthetists	5																			5
21. Other																				
a. Bio-Engineering																				
b. ECG Technicians				2																2
c. EEG Technicians																				
d. Optometrists	11																			11
e. Orthoptists																				
f. Podiatrists	3																			3

*Legend: Refer to first page of this summary.

FIGURE 5: Selected Health Personnel



Y = Yellowstone County
 MS = Mountain States
 US = United States

¹ All Mountain States and U.S. data from: USDHEW. Health Resources Statistics: 1971 Edition. Publication No. (HSM) 72-1509. U.S. Government Printing Office, Washington, D.C., 1972.

SECTION III: EDUCATION OF HEALTH MANPOWER

A. INTRODUCTION

This section is divided into three sets of information concerning the educational facilities which train persons to work in the health professions. The first portion of this section is a listing of the various institutions, and programs within those institutions, which provide original training for the health professions in Yellowstone County. This listing includes the time required for certification for a given program as well as the number of persons who have been enrolled and who have graduated in the last three years, where such information was available. A blank space in the "enrollee-graduate" section indicates that this information was not available at the time of this publication or that the program was not operative at that time.

The second portion lists all the other institutions, and programs within those institutions which train health professionals in the State of Montana outside of Yellowstone County. Here only a simple listing of such programs is given without the inclusion of training time or enrollee-graduate information.

The third portion of this section is an itemization of "health facility libraries" including the number of books and periodicals in those libraries in the Yellowstone County area; and the location and type of video-tape equipment on hand in health facilities in Yellowstone County.

The research team has not provided comparison data here for the relative ratios of graduates in the health professions for two major

reasons. First, the location of training institutions would provide an obviously higher concentration of graduates to population than would be expected over a normal distribution including areas which do not have training programs for health professionals. Secondly, the number of graduates in a given health training program seems not to be an accurate indicator of the availability of these newly trained health workers for that area; e.g., the fact that St. Vincent's Hospital produced 21 graduates in their nursing program in 1972 does not necessarily mean that there are 21 newly trained nurses available to work in the Billings area this year. Some of these persons will obviously seek work elsewhere; others will not be employed, etc. Consequently, we felt that such comparison data to Regional or National ratios would be more misleading than helpful.

B. EDUCATION OF HEALTH MANPOWER: ORIGINAL EDUCATION PROGRAMS

Area Surveyed Yellowstone County

Institutions Certifying Health Personnel

1. Hospitals

A. St. Vincent's Hospital
(Name)

1) Nursing (phased out in 1973) 3 Years
(Type of Program) (Time for Certification)

	1970	1971	1972
a. Enrollees*	<u>4</u>	<u>0</u>	<u>0</u>
b. Graduates**	<u>35</u>	<u>27</u>	<u>21</u>

2) X-ray Technician 2 Years
(Type of Program) (Time for Certification)

	1970	1971	1972
a. Enrollees	<u>6</u>	<u>6</u>	<u>6</u>
b. Graduates	<u>5</u>	<u>5</u>	<u>5</u>

B. Deaconess Hospital
(Name)

1) X-ray Technician 2 1/2 Years
(Type of Program) (Time for Certification)

	1970	1971	1972
a. Enrollees	<u>8</u>	<u>7</u>	<u>7</u>
b. Graduates	<u>6</u>	<u>4</u>	<u>3</u>

* Data for "Enrollees" is for September of that year

**Data for "Graduates" is for June of that year

2. Universities

A. Eastern Montana College
(Name)

1) Medical Technologist
(Type of Program)

4 Years
(Time for Certification)

	1970	1971	1972
a. Enrollees	<u>12</u>	<u>12</u>	<u>12</u>
a. Graduates	<u>5</u>	<u>4</u>	<u>3</u>

C. HEALTH EDUCATION PROGRAMS: ORIGINAL EDUCATION OUTSIDE AREA AND IN-STATE

Area Surveyed Montana

Original Education Centers (Name and Location)	Personnel Categories Trained
Bozeman Vo-Tech Center Bozeman, Montana	Licensed Practical Nurse
Butte Business College Butte, Montana	Dental Assistant, Medical Secretary
Butte Vo-Tech Center Butte, Montana	Licensed Practical Nurse
Carrol College Helena, Montana	Medical Technologist, Nursing (Baccalaureate Degree), Medical Records Librarian
College of Great Falls Great Falls, Montana	Medical Technician
Columbus Hospital Great Falls, Montana	Medical Technician, Radiologic Technician
Community Memorial Hospital Sidney, Montana	Licensed Practical Nurse
Flathead Valley Community College Kalispell, Montana	Licensed Practical Nurse
Great Falls Vo-Tech Center Great Falls, Montana	Licensed Practical Nurse, Dental Assistant, Medical Secretary
Helena Vo-Tech School Helena, Montana	Licensed Practical Nurse

HEALTH EDUCATION PROGRAMS: ORIGINAL EDUCATION OUTSIDE AREA AND IN-STATE (Contd.)

Original Education Centers (Name and Location)	Personnel Categories Trained
Miles City Community College Miles City, Montana	Nursing (Associate Degree)
Montana Deaconess Hospital Great Falls, Montana	Radiological Technician
Montana State University Bozeman, Montana	Dietitian, Pre-Veterinary Medicine, Sanitarian, Nursing (Baccalaureate Degree), Physical Therapy
Northern Montana College Havre, Montana	Nursing (Associate Degree), Medical Secretary, Licensed Practical Nurse

D. HEALTH EDUCATION RESOURCES

Area Surveyed Yellowstone County

1. Video-Tape Capability

Location

Eastern Montana College

Brand	Quantity	Size
Sony	17	1/2" Porta Pak
Sony, recorders (2 are ELAJ)	11	1/2"
Ampex, recorder	1	1"
Ampex, recorder	1	2"
IVC, recorder	2	1"
Also, Monitors	47	

SECTION IV: HEALTH FACILITIES

A. INTRODUCTION

This fourth and final section contains a listing of the numbers of hospitals, nursing homes, medical clinics, dental facilities, clinical laboratories, mental health centers, pharmacies, and ambulances. Simply, this listing is intended to give a statistical picture of structural direct-care capability of the area without regard to the health professionals required to man these facilities.

The research team has provided graphic comparisons for the ratio of hospital beds, nursing home beds, pharmacists, and ambulances per thousand population to the Mountain States Region and to the United States in order to give the reader a basis for judging the relative concentration of these facilities in this particular area.

B. NARRATIVE SUMMARY

The ratio of hospital beds per thousand population is markedly lower than either the Regional or National ratio. The ratio of nursing home beds to population does not seem to vary significantly. (see Figure 6)

The ratio of pharmacists to population is approximately thirty-five percent lower in Yellowstone County than for the Mountain States Region; in comparison to the Nation, Yellowstone County exhibits approximately twenty percent less pharmacists per thousand population. The ratio of ambulances to population is less than half that of the National figure. No comparison data was available for the Region. (see Figure 7)

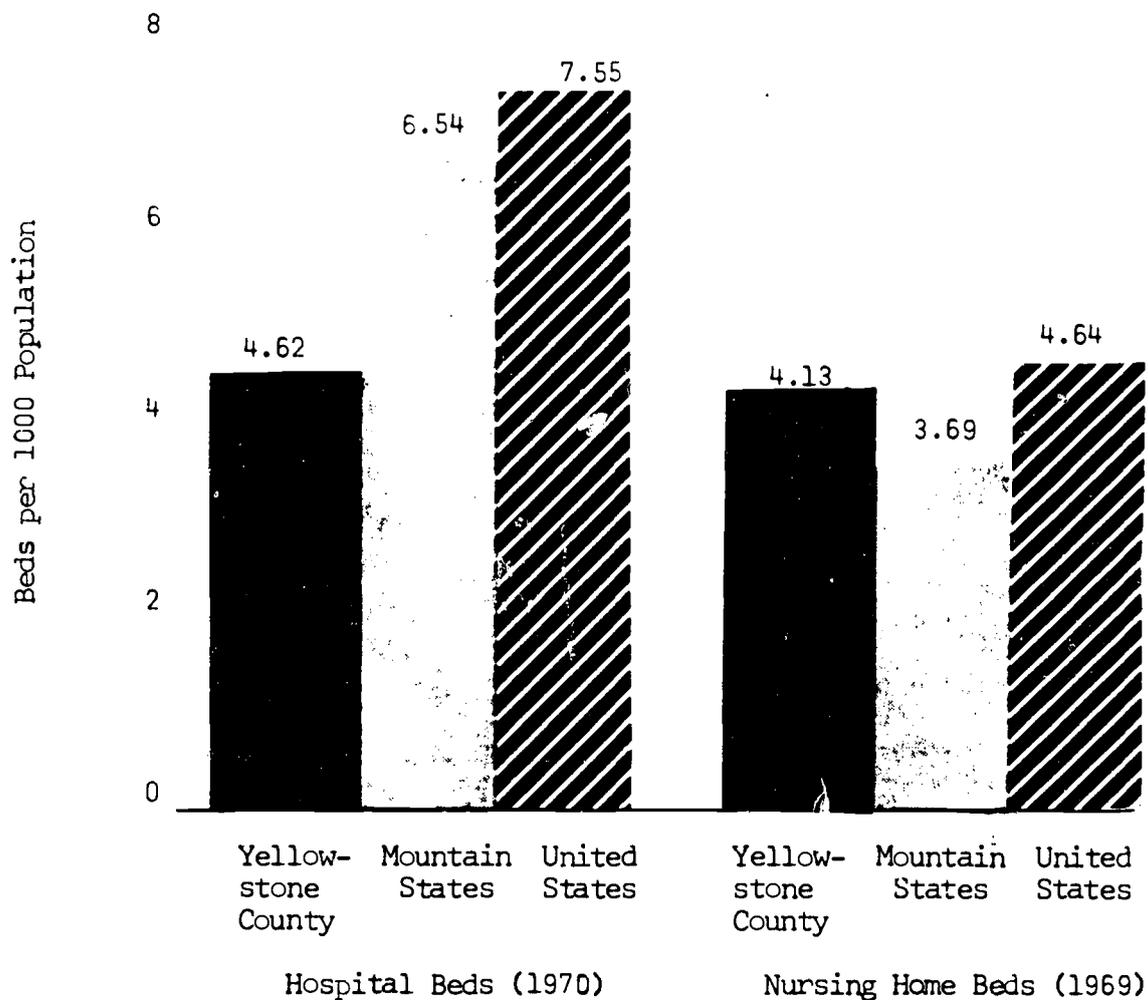
C. HEALTH FACILITIES: DATA SUMMARY

Area Surveyed Yellowstone County

INSTITUTIONS

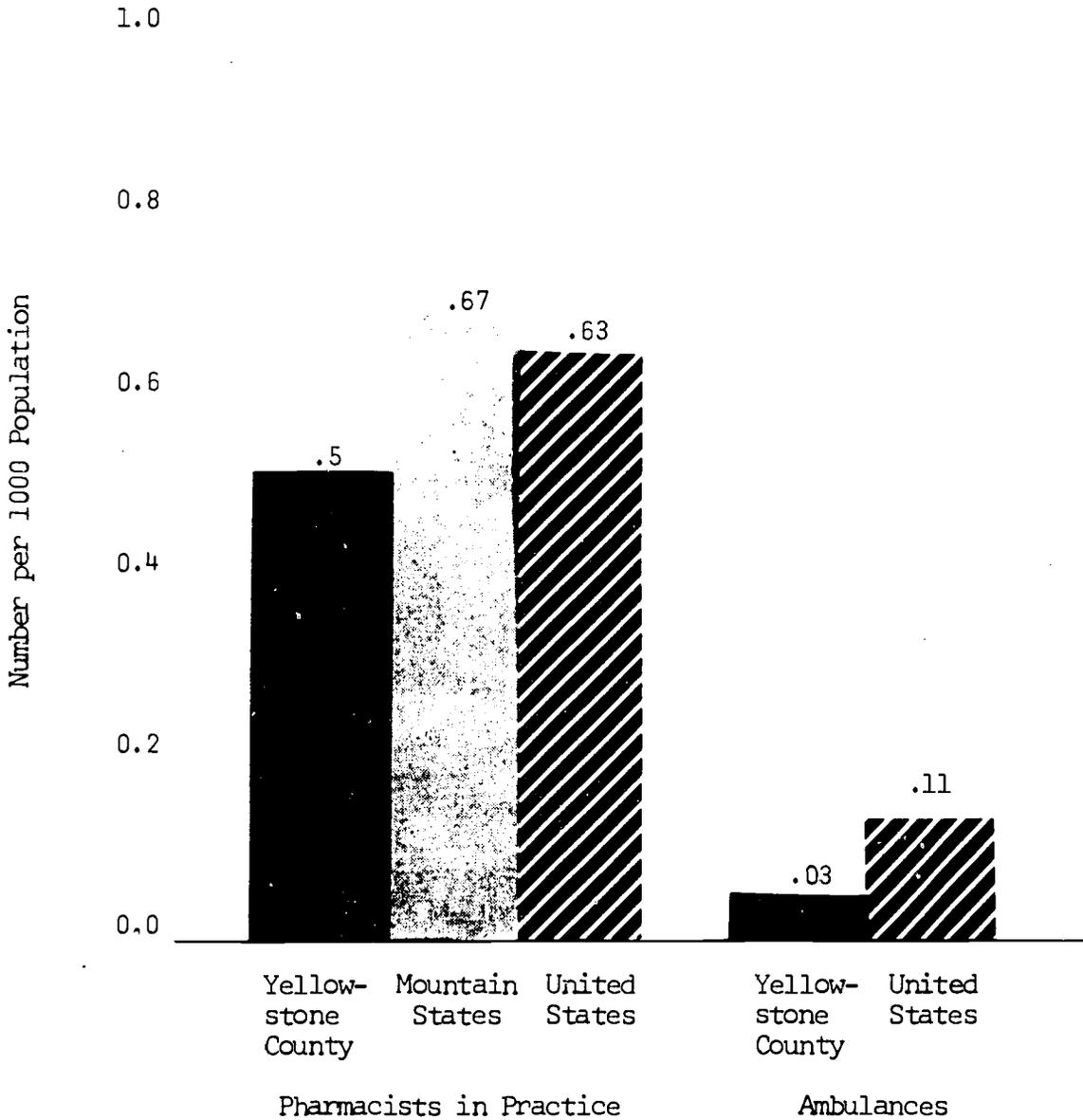
1. Hospitals	2
-----	-----
a. Number Beds	404
2. Nursing Homes	5
-----	-----
b. Number Beds	361
3. Medical (Clinics)	1
4. Dental Facilities	42
5. Clinical Laboratories	1
6. Mental Health Centers	1
7. Pharmacies	20
8. Ambulances	3

FIGURE 6: Hospital and Nursing Home Beds



¹ All Mountain States and U.S. data from: USDHEW. Health Resources Statistics: 1971 Edition. Publication No. (HSM) 72-1509. U.S. Government Printing Office, Washington, D.C., 1972.

FIGURE 7: Pharmacists -- Ambulances



¹ All Mountain States and U.S. data from: USDHEW. Health Resources Statistics: 1971 Edition. Publication No. (HSM) 72-1509. U.S. Government Printing Office, Washington, D.C., 1972.

APPENDIX I

MS/RMP WORKING DEFINITIONS OF HEALTH OCCUPATIONS

1. Administration
 - a. Hospital Administrators and Assistant Administrators
Administer and coordinate activities of hospital personnel to promote care of sick and injured, furtherance of scientific knowledge, development of preventive medicine, advancement of medical and vocational rehabilitation, and participation in and promotion of community health and welfare.
 - b. Nursing Home Administrators and Assistant Administrators
Same as above, except in nursing homes.
2. Dentistry
 - a. Dentists
 - 1) Endodontists
Concerned with the etiology, prevention, diagnosis and treatment of diseases and injuries that affect the tooth pulp and apical periodontal tissues.
 - 2) Oral Pathologists
Examine and diagnose tumors and lesions of mouth.
 - 3) Oral Surgeons
Perform surgery on mouth and jaws.
 - 4) Orthodontists
Prevent, diagnose, and correct deviations from normal that occur in growth, development, and position of teeth and other dental-facial structures.
 - 5) Pedodontists
Treat children's teeth.
 - 6) Periodontists
Treat inflammatory and destructive diseases of investing and supporting tissue of teeth.
 - 7) Prosthodontists
Restore and maintain oral functions.
 - 8) Public Health Dentists
Participate in planning, organizing, and maintaining dental health program of public health agency.
 - 9) General Dentistry
Diagnose and treat diseases, injuries, and malformations of teeth and gums, and related oral structures.
 - b. Dental Hygienists
Perform dental prophylactic treatments and instruct groups and individuals in care of teeth and mouth.
 - c. Dental Laboratory Technicians
Make dentures, partials, etc., as needed by the dentist.
3. Dietetic and Nutritional Services
 - a. Dietitians
Plan and direct food service programs in hospitals, schools, restaurants, and other public or private institutions.

- b. Nutritionists
Organize, plan and conduct programs concerning nutrition to assist in promotion of health and control of disease.
- 4. Emergency Health Services
 - a. Emergency/Ambulance Attendants
Assist persons entering hospital through emergency entrances; and accompany and assist ambulance driver in transporting sick, injured, or convalescent persons.
- 5. Environmental Health Services
 - a. Health Physicists
Devise and direct research, training, and monitoring programs to protect plant and laboratory personnel from radiation hazards.
 - b. Industrial Hygienists
Conduct health program in industrial plant or similar organization to eliminate or control occupational health hazards and diseases.
 - c. Environmental Scientists
Perform research related to specific man-made or natural environmental hazards to health.
 - d. Sanitarians
Work with general environmental problems related to the control of food and drink, private water supplies and sewage disposal, and control of insects and rodents.
 - e. Public Health Engineers
Design, construct and maintain large engineering systems or programs and know how public health is affected by these systems.
- 6. Health Education
 - a. Public Health Educators
Plan, organize and direct health education programs for group and community needs.
 - b. School Health Educators
Plan, organize and direct health education programs in schools.
 - c. Health Science Educators
Provide health care and health prevention instruction through community, county, or state organizations.
- 7. Health Planning
 - a. Patient Care Analysts
Engage in analyzing the comprehensive care of in-patients in an institution, usually a hospital.
 - b. Health Care Planners
Analyze health needs and services, propose improvements and assist in the implementation of health care programs.
 - c. Bio-statisticians
Plan surveys, and collect, organize, interpret, summarize, and analyze numerical data on sampling or complete enumeration bases, applying statistical theory and methods to provide usable information in scientific and other fields.
- 8. Medical Librarians
Manage library or section containing specialized materials for hospitals.
- 9. Medical Records Services
 - a. Medical Record Librarians
Compile and maintain medical records of hospital and clinic patients.

- b. Record Technicians
Engaged in the formulation of and handling of medical data recording procedures.
 - c. Record Clerks
Classify medical records of hospital patients and compile statistics for use in reports and surveys.
10. Medical Technology
- a. Medical Technologists (usually a 4 year degree)
Perform chemical, microscopic, and bacteriologic tests to provide data for use in treatment and diagnosis of disease.
 - b. Medical Technicians (usually a 2 year degree)
Perform routine tests in medical laboratory for use in treatment and diagnosis of disease.
 - c. Certified Laboratory Technicians (usually train in 1 year or less)
Same as b.
 - d. Cytology/Tissue Technicians
Perform laboratory analysis on cell and tissue samples.
 - e. Laboratory Assistance to the above personnel in laboratory responsibilities.
11. Medicine and Osteopathy
- a. Physicians
 - 1) Allergists
Specialize in the diagnosis and treatment of allergic conditions.
 - 2) Anesthesiologists
Administer anesthetics to render patients insensible to pain during surgical, obstetrical and other medical procedures.
 - 3) Aviation Medicine Specialists
Administer general medicine to flight personnel only.
 - 4) Cardiovascular Disease Specialists
Specialize in the diagnosis and treatment of diseases of the heart and blood vessels.
 - 5) Colon and Rectal Surgeons (Proctologists)
Specialize in the treatment of the rectum and its diseases.
 - 6) Dermatologists
Diagnose and treat diseases of the human skin.
 - 7) Emergency Specialists
Physicians who work in hospital emergency rooms and handle emergency type cases.
 - 8) Endocrinologists
Skilled in the diagnosis and treatment of disorders of the glands of internal secretion.
 - 9) Gastroenterologists
Specialize in diseases of the stomach and intestine.
 - 10) General Practitioners
Attend to a variety of medical cases in general practice.
 - 11) Gynecologists/Obstetricians
Treat and diagnose diseases of the female generative organs; treat women during prenatal, natal, and postnatal periods.
 - 12) Internists
Specialize in the diagnosis and medical treatment of diseases and disorders of the internal structures of the human body.

- 13) Manipulative Therapy Specialists
Specialize in prescription and supervision of therapeutic administrations.
- 14) Neurological Surgeons
Specialize in surgery of the nervous system.
- 15) Neurologists
Diagnose and treat organic diseases and disorders of the nervous system.
- 16) Occupational Medicine Specialists
Specialize in diagnosis and care of individuals in specific occupations and settings.
- 17) Ophthalmologists
Diagnose and treat diseases and injuries of the eyes.
- 18) Orthopedic Surgeons
Preserve, restore, and develop form and function of the extremities, spine, and associated structures by medical, surgical, and physical methods.
- 19) Otolaryngologists
Diagnose and treat diseases of the ear, nose and throat.
- 20) Pathologists
Study nature, cause, and development of diseases, and structural and functional changes caused by them.
- 21) Pediatricians
Plan and carry out medical care program for children from birth through adolescence to aid in mental and physical growth and development.
- 22) Physiatrists
Specialize in clinical and diagnostic use of physical agents and exercises to provide physiotherapy for physical, mental and occupational rehabilitation of patients.
- 23) Plastic Surgeons
Specialize in skin grafts and bone and tissue transplants to restore or repair damaged, lost or deformed parts of the face and body.
- 24) Preventive Medicine Specialists
Specialize in prescribing practices which prevent physical subsumption and deterioration.
- 25) Psychiatrists
Study, diagnose and treat diseases and disorders of the mind.
- 26) Public Health Physicians
Generalists or specialists employed by the community, county, or state.
- 27) Pulmonary Disease Specialists
Specialize in treating diseases of the lung.
- 28) Radiologists
Diagnose and treat diseases of the human body, using X-rays and radio-active substances.
- 29) Surgeons
Perform surgery to correct deformities, repair injuries, prevent diseases, and improve function in patients.
- 30) Thoracic Surgeons
Perform surgery on the chest.

- 31) Urologists
Diagnose and treat diseases and disorders of the genito-urinary organs and tract.
 - 32) Interns
Perform medical duties while serving in hospital for specified length of time to gain practical experience immediately following graduation from medical school, as requirement for license to practice medicine.
 - 33) Residents
Graduate and licensed physicians resident in a hospital.
- b. Osteopathic Physicians
12. Nursing and Related Services
 - a. Registered Nurses
A term applied to persons meeting the educational, legal, and training requirements to practice as professional nurses, as required by a State board of nursing.
 - b. Licensed Practical Nurses
Care for ill, injured, convalescent, and handicapped persons in hospitals, clinics, private homes, sanitariums, and similar institutions.
 - c. Nurse Aides/Orderlies/Attendants
Assist in care of hospital patients, under direction of nursing and medical staff.
 - d. Ward Clerks
Prepare and compile records in hospital nursing unit, such as obstetrics, pediatrics or surgery.
 - e. Surgical Technicians
Health personnel trained specifically to work in an operating room.
 13. Pharmacy
 - a. Pharmacists
Compound and dispense medications, following prescriptions issued by physicians, dentists or other authorized medical practitioners.
 - b. Pharmacy Aides
Mix pharmaceutical preparations, under direction of pharmacist, issue medicine, label and store supplies, and clean equipment and work areas in hospital pharmacy.
 - c. Pharmacy Interns
Pharmacy students who work under the supervision of a registered pharmacist.
 14. Chiropractors
Adjust spinal column and other articulations of body to prevent disease and correct abnormalities of human body believed to be caused by interference with the nervous system.
 15. Radiologic Technology
 - a. Technologists (usually a 4 year degree)
Apply roentgen rays and radioactive substances to patients for diagnostic and therapeutic purposes.
 - b. Technicians (less than a 4 year degree)
Same as a.

16. Medical Secretarial/Office Personnel
Prepare medical charts and reports for doctor or hospital personnel, utilizing knowledge of medical terminology. May prepare and send bills to patients and record appointments and perform general secretarial and clerical services in a medical setting.
17. Psycho-Social Health Services
 - a. Psychologists (M.A. or Ph.D.)
Diagnose mental and emotional disorders of individuals and administer programs of treatment.
 - b. Social Service Workers
Counsel or otherwise assist persons for improved social adaptation, e.g., Social Workers, etc.
 - c. Vocational Rehabilitation Counseling
Persons engaged in counseling individuals and providing group educational and vocational guidance services.
18. Therapists
 - a. Speech Pathology Therapists
Examine and provide remedial services for patients with speech and language disorders.
 - b. Audiologists
Specialize in diagnostic evaluation, habilitative and rehabilitative services, and research related to hearing.
 - c. Physical Therapists
Treat patients with disabilities, disorders, and injuries to relieve pain, develop or restore function, and maintain maximum performance, using physical means such as exercise, massage, heat, water, light, and electricity as prescribed by physician.
 - d. Occupational Therapists
Plan, organize, and participate in medically oriented occupational program in hospital or similar institution to rehabilitate patients who are physically or mentally ill.
 - e. Inhalation Therapists
Set up and operate various types of oxygen equipment, such as iron lungs, oxygen tents, resuscitators and incubators to administer oxygen and other gases to patients.
 - f. Orthotists-Prosthetists
Write specifications for and fit artificial limbs, braces, and appliances for body deformities and disorders following prescription of physician or other qualified medical practitioner.
 - g. Manual Arts Therapists
Instruct patients in prescribed manual arts activities to prevent anatomical and physiological deconditioning, and to assist in maintaining, improving, or developing work skills.
 - h. Recreational Therapists
Plan, organize and direct medically approved recreation program for patients in hospitals and other institutions.
19. Veterinarians
Diagnose and treat diseases and disorders of animals.

20. Physician Support Personnel
 - a. Physician's Assistants
Assist physician by performing diagnostic and therapeutic procedures under the general supervision and responsibility of the physician. Special academic-professional training of one to two years in classroom and clinical work.
 - b. Nurse Clinicians
Registered nurses who assist a physician by performing diagnostic and therapeutic procedures under the general supervision and responsibility of the physician.
 - c. Nurse Anesthetists
Registered nurses trained and qualified to administer anesthetics.
21. Other
 - a. Bio-Engineering
Practice of design and innovation of mechanical/electrical devices for biological functioning.
 - b. ECG Technicians
Personnel trained to operate an electrocardiograph.
 - c. EEG Technicians
Personnel trained to operate an electroencephalograph.
 - d. Optometrists
Examine eyes to determine visual efficiency and performancy by means of instrumentation and observation, and prescribe corrective procedures.
 - e. Orthoptists
Teach persons with correctable focusing defects to develop and use binocular vision. (focusing of both eyes).
 - f. Podiatrists
Diagnose and treat structural problems relating to the foot.

APPENDIX 2

PRIMARY DATA SOURCES

Area Surveyed Yellowstone County

SOURCE	DATA TYPE
Billings Clinic 2802 9th Avenue North Billings, Montana	Clinic Personnel
Billings Deaconess Hospital 2813 9th Avenue North Billings, Montana	Hospital Personnel Education Programs
Comprehensive Health Planning Helena, Montana	Health Personnel Facilities Listing
County Health Department County Courthouse Billings, Montana	County Health Personnel
Eastern Montana College 1500 North 30th Billings, Montana	Educational Programs Video-tape Information
Glendeen Nursing Home 4001 Rosebud Lane Billings, Montana	Nursing Home Personnel
Mental Health Center 1245 North 29th Billings, Montana	Center Personnel
Montana Center for Handicapped Children 1500 North 30th Eastern Montana College Billings, Montana	Center Personnel

PRIMARY DATA SOURCES (Continued)

SOURCE	DATA TYPE
St. John's Lutheran Home 3940 Rimrock Road Billings, Montana	Nursing Home Personnel
St. Vincent's Hospital 2915 12th Avenue North Billings, Montana	Hospital Personnel Educational Programs
Valley Convalescent Nursing Home 1807 24th Street West Billings, Montana	Nursing Home Personnel
Western Manor Nursing Home 2115 Central Avenue Billings, Montana	Nursing Home Personnel
Yellowstone County Nursing Home - Route 3 Billings, Montana	Nursing Home Personnel

APPENDIX 3

SECONDARY DATA SOURCES

Area Surveyed Montana

SOURCE	DATA TYPE
U.S. Bureau of the Census, <u>Number of Inhabitants.</u> PC(1)-28A Montana, 1971. Table 6.	Demographic Data (1960)
U.S. Bureau of the Census, <u>Per Capita and Median Family</u> <u>Income in 1959 for States,</u> <u>SMA's and Counties.</u> PC(SI)-48, 1960. p. 40.	Economic Characteristics (1960)
U.S. Bureau of the Census, <u>General Social and Economic</u> <u>Characteristics.</u> PC(1)-28C Montana, 1961. Table 84.	Occupational Characteristics (1960)
U.S. Bureau of the Census, <u>Number of Inhabitants.</u> PC(1)-28A Montana, 1971. Table 9.	Demographic Data (1970)
U.S. Bureau of the Census, <u>General Population</u> <u>Characteristics.</u> PC(1)-28B Montana, 1971. Table 35.	Demographic Data (1970)
U.S. Bureau of the Census, <u>General Social and Economic</u> <u>Characteristics.</u> PC(1)-28C Montana, 1971. Table 122.	Economic and Occupational Characteristics (1970)

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