

**Part II**

**An Overview of  
Rural Populations  
and Health Programs**

## Chapter 2

# Rural Populations

### CONTENTS

	<i>Page</i>
INTRODUCTION .....	35
WHO IS RURAL? .....	35
THE RURAL POPULATION .....	37
Size and Geographic Distribution .....	37
Demographic and Income Characteristics .....	38
THE RURAL ECONOMIC ENVIRONMENT .....	41
THE HEALTH OF RURAL POPULATIONS .....	43
Health Status .....	43
Health Insurance .....	43
Health Care Utilization .....	47
TWO SPECIAL POPULATIONS: A CLOSER LOOK... ..	50
The Rural Elderly .....	50
Migrant and Seasonal Farmworkers .....	52
SUMMARY AND CONCLUSIONS .....	53

### *Figures*

<i>Figure</i>	<i>Page</i>
2-1. Metropolitan Statistical Areas... ..	36
2-2. Frontier Counties: Population Density of Six or Fewer Persons Per Square Mile .....	37
2-3. Industry of Employed Persons Over Age 16 in Metropolitan and Nonmetropolitan Areas, 1980 .....	41
2-4. Health Insurance Status of Working Adults and Their Families, by Type of Industry, 1987..	49
2-5. Regional Distribution of Urban and Rural Elderly Residents, 1980 .....	55

## Tables

<i>Table</i>	<i>Page</i>
2-1. United States Rural and Rural Farm Population, Selected Years, 1920-88 . . . . .	38
2-2. Size and Percentage of Population in Nonmetropolitan and Rural Areas, by State, 1987 . . .	39
2-3. Characteristics of Metropolitan and Nonmetropolitan Populations . . . . .	40
2-4. Proportion of the U.S. Population Age 65 and Older, by Metropolitan/Nonmetropolitan and Urban/Rural Status, 1980 . . . . .	41
2-5. Age Distribution of the U.S. Population Across Metropolitan and Nonmetropolitan Areas, by Geographic Region, 1980 . . . . .	42
2-6. Metropolitan/Nonmetropolitan Differences in Selected Health Indicators . . . . . +	44
2-7. Acute Conditions Involving Activity Limitation and/or Medical Attention in Metropolitan and Nonmetropolitan Populations, 1986 . . . . .	45
2-8. Selected Chronic Conditions Among Metropolitan and Nonmetropolitan Residents . . . . .	45
2-9. Proportion of Metropolitan and Nonmetropolitan Residents Who Rated Their Health as Fair or Poor, Selected Years, 1975 -88 . . . . .	47
2-10. Selected Preventive Behaviors and Risk Exposure of Metropolitan and Nonmetropolitan Residents, 1985 . . . . .	47
2-11. Immunization Status of Children Aged 1-4, 1985 . . . . .	48
2-12. Percentage of Population With Health Insurance Coverage, by Age and Residence, 1984..	48
2-13. Private Insurance Coverage of Metropolitan and Nonmetropolitan Residents, 1987.....	48
2-14. Insurance Coverage of the Population Under Age 65, by Residence and Income, 1987 . . . .	49
2-15. Interval Since Last Contact With Physician (1988) and Dentis (1986) for Metropolitan and Nonmetropolitan Residents . . . . .	50
2-16. Percent of Metropolitan and Nonmetropolitan Residents Who Have Had a Physician Visit Within the Past 2 Years, Selected Years, 1964-88 . . . . .	51
2-17. Distribution of Physician Visits in Metropolitan and Nonmetropolitan Areas, by Specialty, 1985 . . . . .	51
2-18. Hospital Utilization of Metropolitan and Nonmetropolitan Residents . . . . .	52
2-19. Trends in Hospital Utilization by Metropolitan and Nonmetropolitan Residents, Selected Years, 1964-88 . . . . .	53
2-20. Age Distribution of Urban and Rural Elderly Residents, 1980 . . . . .	54
2-21. Percent of Urban and Rural Persons Who Are Elderly, by Region, 1980 .....	++ 56
2-22. Income Characteristics of Elderly Urban and Rural Residents (age 65 and older), 1979 . . . .	56
2-23. Living Characteristics of Elderly Urban and Rural Residents, 1980 . . . . .	56
2-24. Percent of Metropolitan and Nonmetropolitan Elderly Limited in Activity Due to Chronic Conditions, By Age, 1987 . . . . .	57
2-25. Self-Assessed Health Status Among the Metropolitan and Nonmetropolitan Elderly, 1987 . . . . .	57
2-26. Rate of Restricted Activity Days Among the Metropolitan and Nonmetropolitan Elderly Due to Acute and Chronic Conditions, by Age, 1987 . . . . .	57
2-27. Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons: Average Annual Number of Physician Visits Per Person, 1983 and 1987 . . . . .	58
2-28. Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons, 1964, 1982, and 1987 . . . . .	58
2-29. Hospital Utilization by Elderly Metropolitan and Nonmetropolitan Persons, 1987 . . . . .	58
2-30. Most Frequent Diagnoses Reported by 60 Federally Funded Migrant Health Centers, 1980 . . . . .	59
2-31. Major Illnesses Reported by Migrant Farmworker Families, 1984 . . . . . +	59
2-32. Utilization of Federally Funded Migrant Health Centers, 1984-88 . . . . . +	59
2-33. State Distribution of Migrant and Seasonal Farmworkers (MSFW) and Federal Migrant Health Center (MHC) Funds, Fiscal Year 1988 . . . . .	60

## INTRODUCTION

“Rural” evokes images of wheat fields and dairy farms, long stretches of desert, and small Appalachian communities. This chapter presents background on the rural population: who it includes, the economic and demographic characteristics of rural residents, and some basic indicators of rural health status.

The adjectives “urban” and “rural” encompass enormously diverse populations. Urban people may be residents of large inner cities, suburbs, or smaller cities and towns, each with its own characteristics and cultures. Similarly, rural people may live in towns or open countryside; their nearest neighbors may be across the street or 10 miles down a dirt road. Existing measures cannot convey the full diversity of urban and rural populations, but they can provide a starting place for examining the similarities and differences between these groups. An overview contrasting these basic characteristics is the goal of this chapter. Where possible, information summarizing aspects of rural diversity is also presented.

## WHO IS RURAL?<sup>1</sup>

The term “rural” is intuitively associated with areas of small and sparsely settled population. Two more specific definitions are commonly used for statistical and health program purposes: the “rural population,” as defined by the Bureau of the Census, and the “nonmetropolitan population,” those people living outside of metropolitan (metro) areas as defined by the Office of Management and Budget.

The Census Bureau defines the rural population as the population not categorized as urban. The urban population, in turn, is defined as those people living:

- in an urbanized area—a central city (or cities) and its contiguous closely settled territory, with a combined population of at least 50,000; and

- in places (towns, villages, etc.) outside of urbanized areas with populations of at least 2,500 (633).

The nonmetropolitan (nonmetro) population consists of those people living outside of metropolitan statistical areas (MSAs). An MSA is a county,<sup>2</sup> or group of counties, that includes either:

- a city of 50,000 or more residents, or
- an urbanized area with at least 50,000 people that is itself part of a county or counties with at least 100,000 total residents (634).<sup>3</sup>

To be included in an MSA, a county that does not itself have a central city must have a specified level of commuting to the central county(ies) and must meet certain other standards regarding metropolitan character, such as population density. Figure 2-1 shows the MSAs in the United States as of 1986.

About one-fourth of the U.S. population is either “real” by the Census definition or lives in nonmetro areas, but these two groups of people are by no means identical. About 14 percent of the population living in MSAs is designated by the Census Bureau as rural, while about 38 percent of the population living outside of MSAs is designated as urban (633). This occurs because, on the one hand, MSAs are county-based and may include large tracts of sparsely populated land in outlying areas of the county. On the other hand, the Census “urban” designation includes people in towns in otherwise sparsely populated areas. Roughly 15 percent of the U.S. population is “rural” by both definitions—i.e., lives neither in places of 2,500 or more residents nor in metropolitan counties.

Each definition has its advantages. The Census designations are more specific, because they are based on smaller geographic units, such as census tracts and towns. Census tract boundaries vary over time, however. In contrast, counties—the basic units from which MSA designations are made—have boundaries that are relatively stable, a major advantage for collecting and reporting statistical data that

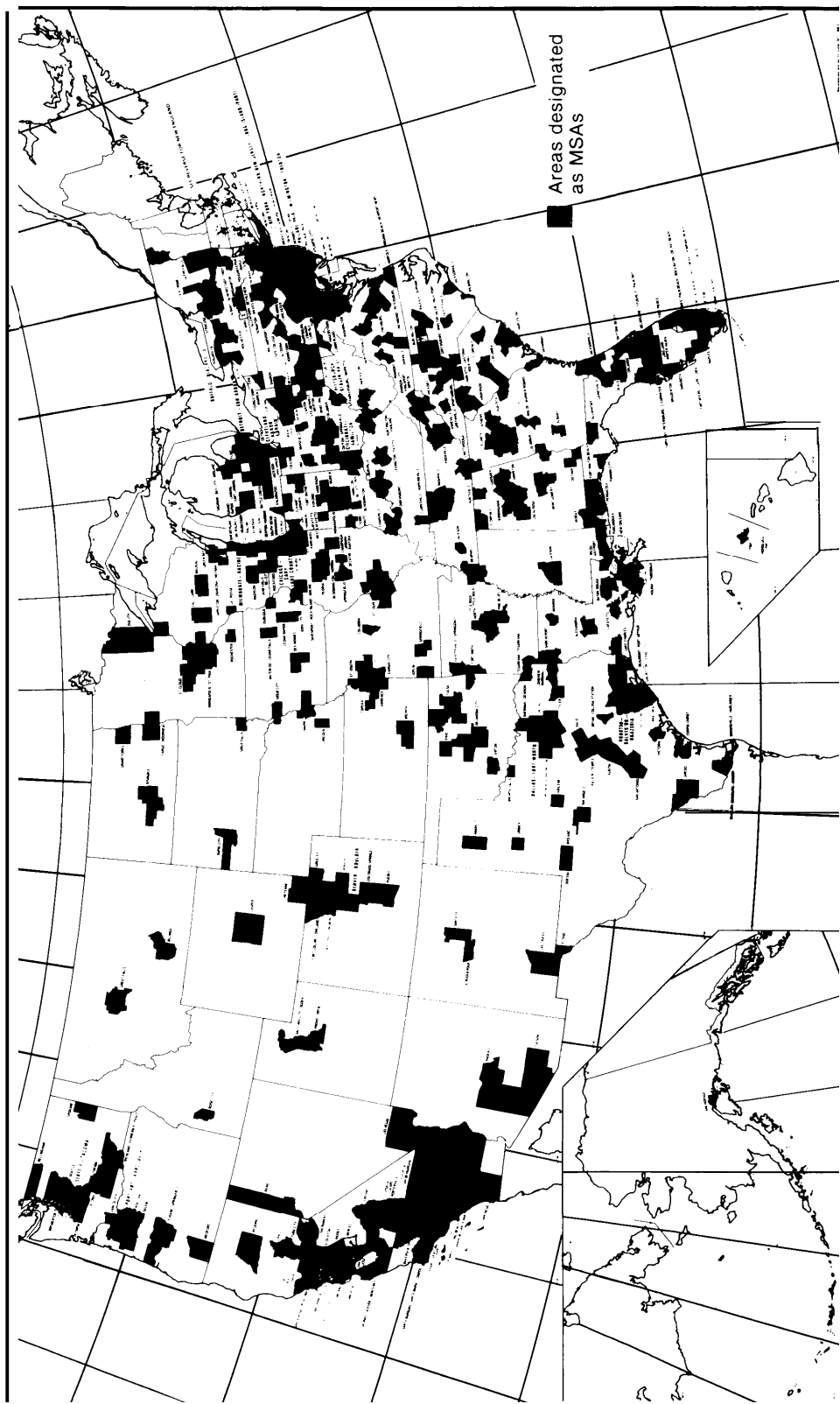
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<sup>1</sup>See the related OTA Staff Paper for a more detailed discussion (255).

<sup>2</sup>In six New England States—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut—MSAs comprise cities and towns, rather than whole counties. Standards for these MSAs are based primarily on population density and commuting patterns (634).

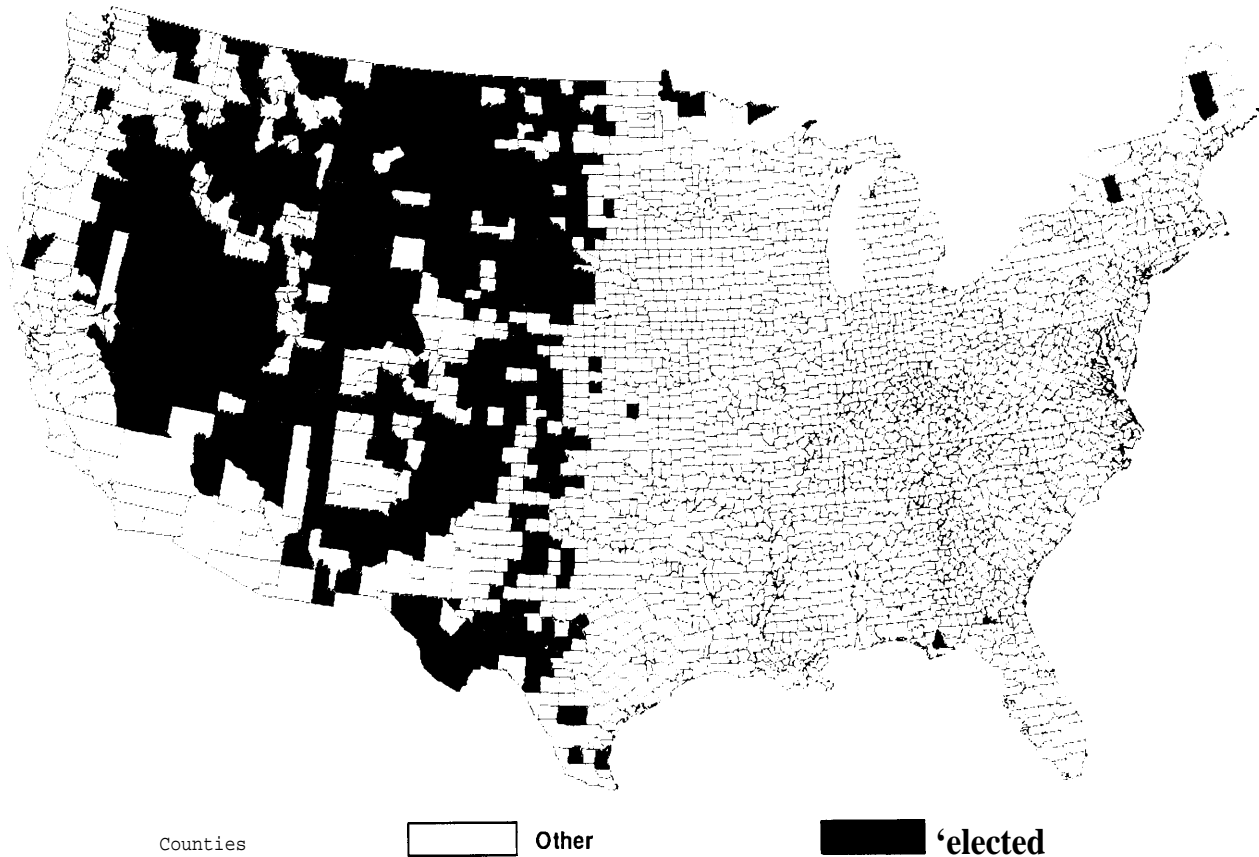
<sup>3</sup>Population is generally calculated based on the most recent decennial census, although some intercensal MSA designations t&O occur.

Figure 2-1—Metropolitan Statistical Areas (June 30, 1986)



SOURCE: Adapted from U.S. Department of Commerce, Bureau of the Census, "Metropolitan Statistical Areas (CMSAs, PMSAs, and MSAs)" (GE-50, No. 84) Stock No. 003-024-06506-1 (Washington, DC: U.S. Government Printing Office, 1986).

Figure 2-2—Frontier Counties: Population Density of Six or Fewer Persons Per Square Mile



SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data and Management, Area Resource File, June 16, 1986.

are comparable over time. *Data on “rural” residents presented in this and later chapters are actually data on nonmetro residents, unless a different definition is specified.*

A problem of both definitions is that they are dichotomous; they permit classification into only two categories (urban/metro and rural/nonmetro). Neither can describe the urban/rural continuum, nor can they describe in any detail the range of variation that exists within rural areas. Some researchers have developed more extensive topologies in an attempt to overcome these disadvantages, relying on combinations of measures such as population size, population density, adjacency to a metro area, and urbanization. None of the available topologies has so far found general application to health care programs, although several of them are being used in research efforts (255).

A particularly useful concept for the purpose of examining health care resources and access is that of “frontier” areas, defined as counties with population densities of six or fewer people per square mile (480). In such areas, physical access to health care is implicitly difficult for a substantial proportion of residents. Frontier counties are concentrated in the Great Plains and Western States and often extend over a large physical area (480) (see figure 2-2).

## THE RURAL POPULATION

### *Size and Geographic Distribution*

During America’s brief history as a nation, the composition of the U.S. population has changed from one that was overwhelmingly rural to one that is predominantly urban. According to Census estimates, 95 percent of the population was rural in 1790; about 60 percent was rural at the turn of the

Table 2-1—United States Rural and Rural Farm Population, Selected Years, 1920-88

Year	Rural population		Farm population		
	Number (in thousands)	Percent of total U.S. population	Number (in thousands)	Percent of rural population	Percent of total
1920. . . . .	51,553	49	31,359	60	30
1930. . . . .	53,820	44	30,529	57	25
1940 <sup>a</sup> . . . . .	57,246	44	30,547	53	23
1950 <sup>b</sup> . . . . .	54,230	36	23,048	42	15
1960. . . . .	54,054	30	13,475	24	9
1970. . . . .	53,887	26	8,292	15	5
1980. . . . .	59,495	26	6,051	10	3
1986. . . . .	63,133	27	5,226	8	2
1987. . . . .	63,889	27	4,986	8	2
1988. . . . .	64,798	27	4,951	8	2

<sup>a</sup>Based on the Census-defined rural population.

<sup>b</sup>The rural population figures from 1950 on reflect definitional changes; if the previous definition been used, the 1950 rural population would have been 60,948,000 percent of the total U.S. population.

SOURCE: U.S. Department of Commerce, Bureau of the Census, U.S. Department of Agriculture, "Rural and Rural Farm Population:1988," *Current Population Reports*, Series P-20, No. 439 (Washington, DC: U.S. Government Printing Office, September 1989).

20th century; and only 27 percent of the Nation's estimated 241 million people lived in rural areas by 1988 (table 2-1) (632). In 1988, an estimated 23 percent of the population—56,843,000 people—lived in nonmetro areas (631).

The absolute size of the rural population has not declined overall, but in recent years it has grown much more slowly than the urban population. The nonmetro population grew at a rate of only 0.6 percent per year during the 1980s (after a mild boom in the 1970s, when the growth rate was twice as high) (631). In contrast, the metro population has continued to grow at rates of over 1 percent per year.

The rural farm population has undergone an absolute and marked decline during this century (table 2-1). In 1920, an estimated 31 million Americans lived on farms. In 1988, in contrast, the Census Bureau estimated the farm population to be slightly fewer than 5 million—about 8 percent of the Census-defined rural population, and about 2 percent of the total U.S. population (632).

Of the four major regions of the country, the South has both the highest proportion of its population (30 percent) and the highest number of people (25 million) living in nonmetro areas. The next most rural region by this measure is the Midwest (29

percent), followed by the West (16 percent) and, finally, by the Northeast (12 percent) (631).

States vary tremendously in their degree of "ruralness" depending on the criterion used. Of the 10 States whose nonmetro populations are largest in absolute size, for example, only two (Mississippi and Kentucky) have more than 50 percent of their population residing in these areas (table 2-2) (631). Contrasts between States according to the definition of "rural" are striking; less than one-half of Idaho's population is rural according to the Census definition, but over 80 percent of this State's population lives in nonmetro areas, the highest percentage in the United States (631).

### *Demographic and Income Characteristics*

In general, rural residents are more likely than urban residents to be white, native-born, and living in a family headed by a married couple (table 2-3) (633). They are also more likely to be children (under age 18) or elderly (age 65 or older). They are less likely to be reemployed and to have completed a high-school education (633).

Rural residents have relatively low incomes. The average median family income in rural areas in 1987 was \$24,397, about three-quarters of the average urban family income of \$33,131 (629).<sup>5</sup> One out of eight urban families lived in poverty in 1987,

<sup>4</sup>The Census Bureau defines the farm population as people living in rural areas on properties of at least 1 acre of land where at least \$1,000 worth of agricultural products was sold (or would have been sold) during the previous 12 months (632).

<sup>5</sup>This ratio has not changed since the 1980 census (633).

Table 2-2-Size and Percentage of Population in Nonmetropolitan and Rural Areas, by State, 1987

State	Size of nonmetro population (in thousands)	Percent of total population in nonmetro areas (1987)	Percent of total population in Census- defined rural areas (1980)
Alabama . . . . .	1,338	32.8	40.0
Alaska . . . . .	303	57.6	35.7
Arizona . . . . .	805	23.8	16.2
Arkansas . . . . .	1,444	60.5	48.4
California . . . . .	1,182	4.3	8.7
Colorado . . . . .	603	18.3	19.4
Connecticut . . . . .	238	7.4	21.2
Delaware . . . . .	219	34.0	29.4
District of Columbia . . . . .	0	0.0	0.0
Florida . . . . .	1,110	9.2	15.7
Georgia . . . . .	2,204	35.4	37.6
Hawaii . . . . .	252	23.3	13.5
Idaho . . . . .	803	80.4	46.0
Illinois . . . . .	2,022	17.5	16.7
Indiana . . . . .	1,768	32.0	35.8
Iowa . . . . .	1,612	56.9	41.4
Kansas . . . . .	1,169	47.2	43.3
Kentucky . . . . .	2,019	54.2	49.1
Louisiana . . . . .	1,382	31.0	31.4
Maine . . . . .	758	63.9	52.5
Maryland . . . . .	322	7.1	19.7
Massachusetts . . . . .	546	9.3	16.2
Michigan . . . . .	1,820	19.8	29.3
Minnesota . . . . .	1,435	33.8	33.1
Mississippi . . . . .	1,829	69.7	52.7
Missouri . . . . .	1,736	34.0	31.9
Montana . . . . .	613	75.8	47.1
Nebraska . . . . .	842	52.8	37.1
Nevada . . . . .	175	17.4	14.7
New Hampshire . . . . .	462	43.7	47.8
New Jersey . . . . .	0	0.0	11.0
New Mexico . . . . .	774	51.6	27.9
New York . . . . .	1,696	9.5	15.4
North Carolina . . . . .	2,868	44.7	52.0
North Dakota . . . . .	417	62.0	51.2
Ohio . . . . .	2,276	21.1	26.7
Oklahoma . . . . .	1,350	41.2	32.7
Oregon . . . . .	883	32.4	22.1
Pennsylvania . . . . .	1,828	15.3	30.7
Rhode Island . . . . .	73	7.4	13.0
South Carolina . . . . .	1,355	39.6	45.9
South Dakota . . . . .	506	71.3	53.6
Tennessee . . . . .	1,603	33.0	39.6
Texas . . . . .	3,194	19.0	20.4
Utah . . . . .	384	22.8	15.6
Vermont . . . . .	421	76.9	66.2
Virginia . . . . .	1,668	28.3	44.0
Washington . . . . .	854	18.8	26.5
West Virginia . . . . .	1,209	63.7	63.8
Wisconsin . . . . .	1,610	33.5	35.8
Wyoming . . . . .	348	71.0	37.3

\*The nonmetropolitan population in Alaska is determined using census tract and borough boundaries rather than county boundaries.

SOURCE: U.S. Bureau of the Census, Statistical Abstract of the United States: 1989, 109th ed. (Washington, DC: U.S. Government Printing Office, 1989).



Table 2-3—Characteristics of Metropolitan and Nonmetropolitan Populations

	Metro	Nonmetro
<b>General characteristics ( 1987)</b>		
Total population . . . . .	187,072,000	56,324,000
Population density per sq mi. . . . .	328	19
<b>Social and demographic characteristics (1980)</b>		
Median age . . . . .	30.0	30.2
Percent of population under age 18 . . . . .	27.8%	29.4%
Percent of population age 65 and over . . . . .	10.7%	13.0%
Percent white . . . . .	81.8%	88.2%
Percent Hispanic . . . . .	7.6%	3.2%
Percent nonwhite . . . . .	18.2%	11.8%
Percent black . . . . .	12.7%	8.8%
Percent American Indian . . . . .	0.5%	1.3%
Percent Asian/Pacific Islander . . . . .	2.0%	0.6%
Percent native-born . . . . .	92.4%	98.0%
Birth rate (births/1,000 population/year, 1977-1980) . . . . .	1.5	1.6
Percent of households headed by women . . . . .	28.3%	23.9%
Percent of children living with two parents . . . . .	75.4%	80.1%
<b>Education, employment, and income characteristics</b>		
Median years of education completed (1980) . . . . .	11.6	10.9
Percent high school graduates . . . . .	85.0%	83.1%
Percent with college education (4 or more years) . . . . .	12.8%	9.2%
Unemployment rate (1985) . . . . .	6.9%	8.4%
Median family income (1987) . . . . .	\$33,131	\$24,397
Percent with family incomes below poverty level (1987) . . . . .	12.5%	16.9%
White . . . . .	9.6%	13.7%
Black . . . . .	30.7%	44.1%
Hispanic . . . . .	27.6%	35.6%
Percent of poor families with 2 or more workers (1983) . . . . .	15.4%	28.9%

SOURCES: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1989 109th ed. (Washington, DC: U.S. Government Printing Office, 1989); U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981); U.S. Department of Commerce, Bureau of the Census, "Money Income and Poverty Status in the United States: 1987," Current Population Reports, Series P-60, No. 161 (Washington, DC: U.S. Government Printing Office, August 1988); D.L. Brown and K.L. Deavers, "Rural Change and the Rural Economic Policy Agenda for the 1980's," D.L. Brown, J.N. Reid, H. Bluestone et al. (eds.), Rural Economic Development in the 1980's: Prospects for the Future (Washington, DC: U.S. Department of Agriculture, September 1988).

compared with more than one out of every six rural families (table 2-3); the ratio approaches one out of two for black families in rural areas (629). The rural poor are much less evenly distributed throughout the United States than the urban poor; over one-half (53 percent) of poor rural people under age 65 live in the south (530).

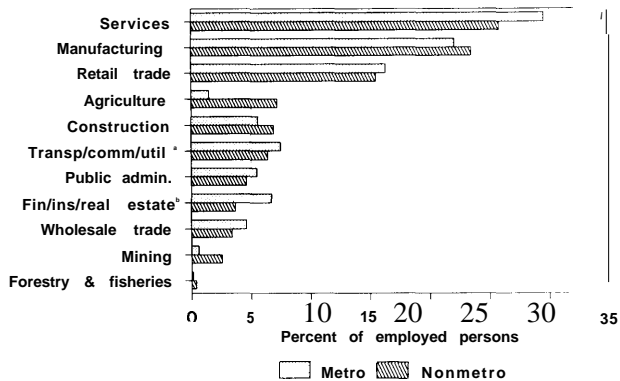
The vast majority of employed people both within and outside of metro areas are employed impersonal services, manufacturing, and retail trade (figure 2-3).<sup>6</sup> The most striking employment difference, not unexpectedly, is in agriculture, which is the primary

occupation of over 7 percent of employed persons in nonmetro areas (v. 1.5 percent of employed metro residents) (633).

A major caveat to this picture of the rural population is that the definition of "rural" used can affect even some of the most basic conclusions regarding urban/rural differences. For example, as stated above, nonmetro areas have a relatively high proportion of elderly residents. By the Census Bureau's definition, however, *urban areas* have a higher proportion of elderly residents (633). This apparent discrepancy is resolved by closer examina-

<sup>6</sup>These three occupational groups account for 68 and 74 percent, respectively, of employed metro and nonmetro residents (633).

**Figure 2-3-Industry of Employed Persons Over Age 16 in Metropolitan and Nonmetropolitan Areas, 1980**



<sup>a</sup>Transportation, communications, and public utilities.

<sup>b</sup>Finance, insurance, and real estate.

**SOURCE:** Office of Technology Assessment, 1990. Data from U.S. Department of Commerce, Bureau of the Census, 1980 *Census: General Social and Economic Characteristics*, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

tion of the distribution of the elderly population, which shows it to be concentrated in small or medium-sized towns in both metro and nonmetro areas (table 2-4).

Within the nonmetro population, the generalities regarding rural residents obscure substantial regional differences. For example, nonmetro areas in the West have a much higher proportion of children than do metro areas (reflecting the profile for the Nation as a whole), but Midwestern nonmetro areas actually have proportionately fewer children than do metro areas in that region (table 2-5) (447).

## THE RURAL ECONOMIC ENVIRONMENT

The Nation's rural areas are economically as well as demographically diverse. The U.S. Department of Agriculture (USDA) has identified seven groups of nonmetro counties according to the principal economic activity<sup>7</sup> or other predominating characteristics:<sup>8</sup>

1. *Farming-dependent counties*—702 counties, concentrated in the Midwestern plains region, in which farming contributed 20 percent or more of total income.

**Table 2-4-Proportion of the U.S. Population Age 65 and Older, by Metropolitan/Nonmetropolitan and Urban/Rural<sup>a</sup> Status, 1980**

Area	U.S. population (in thousands)	Percent age 65 and over
Metro. . . . .	169,430	10.7
Nonmetro. . . . .	57,115	13.0
Urban. . . . .	167,055	11.4
Rural. . . . .	59,491	10.9
<b>Metro</b>		
Urban. . . . .	145,451	10.9
Rural. . . . .	23,979	9.0
<b>Nonmetro</b>		
Urban. . . . .	21,603	14.3
Rural. . . . .	35,512	12.2

<sup>a</sup>"Urban" and "rural" as defined by the U. S. Census Bureau.

**SOURCE :** U.S. Department of Commerce, Bureau of the Census, *1980 Census: General Social and Economic Characteristics*, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

2. *Manufacturing-dependent counties*—678 counties, concentrated in the Southeast, in which manufacturing contributed 30 percent or more of total income.
3. *Mining-dependent counties*—200 counties, concentrated in the West and in Appalachia, in which mining contributed 20 percent or more to total income.
4. *Specialized government counties*—315 counties, scattered throughout the country, in which government activities contributed 25 percent or more of total income.
5. *Persistent poverty counties*—242 counties, concentrated in the South, in which the per capita family income in the county was in the lowest quintile in specified years between 1950 and 1979.
6. *Federal lands counties*—247 counties, concentrated in the West, in which Federal land was 33 percent or more of the land area.
7. *Destination retirement counties*—515 counties, concentrated in the South, Southwest, and northern Lake States, in which the net immigration rates of people aged 60 and over during the 1970s were 15 percent or more of the expected population in this age group in 1980 (82).

<sup>7</sup>I.e., the industry that contributed the most to labor and proprietor income in those counties in the 1970s.

<sup>8</sup>In all, 370 counties did not meet the requirements for any of the 7 county groups and are unclassified by this typology.

**Table 2-5—Age Distribution of the U.S. Population Across Metropolitan and Nonmetropolitan Areas, by Geographic Region, 1980**

Geographic region and residence	Population (in thousands)	Under 17 years	17-44 years	45-64 years	65 years and over
<b>United States</b>					
Metro. . . . .	150,836	25.8%	43.9%	19.9%	10.4%
Nonmetro. . . . .	70,650	27.5	40.7	19.6	12.3
<b>Northeast</b>					
Metro. . . . .	38,861	24.9	42.0	21.3	11.7
Nonmetro. . . . .	10,067	26.7	41.2	19.3	12.8
<b>Midwest</b>					
Metro. . . . .	38,919	26.9	43.9	19.6	9.6
Nonmetro. . . . .	19,574	26.2	41.5	19.4	12.9
<b>South</b>					
Metro. . . . .	41,036	26.3	44.2	19.5	10.0
Nonmetro. . . . .	31,467	27.8	40.0	19.9	12.3
<b>West</b>					
Metro. . . . .	32,021	25.1	45.6	19.0	10.3
Nonmetro. . . . .	9,542	29.8	40.9	18.8	10.6

SOURCE: C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," *Health Services Research* 23(6):725-756, February 1989.

Rural America has undergone a major economic restructuring over the past half century. In 1940, industries based on natural resources--agriculture, forestry, fishing, and mining--employed 40 percent of the rural labor force (93). By 1980, these industries accounted for fewer than 10 percent of jobs, while service, manufacturing, and construction industries had become as dominant as they were in urban areas (93).

The changes in the rural economy have not been consistently accompanied by prosperity. Rural areas in the 1970s experienced both population growth and economic prosperity. The disparity between rural and urban incomes narrowed during the early part of the decade, with rural per capita income reaching a high of 78 percent of urban income in 1973 (253). During the 1980s, however, the rural economy slowed dramatically. The rural unemployment rate skyrocketed from 5.7 percent in 1979 to 10.1 in 1982, and by 1985 it was still considerably higher than the urban rate (8.4 v. 6.9 percent). When the unemployment rate is adjusted to account for discouraged workers (those no longer looking for jobs) and involuntary part-time workers, differences were even more extreme (13.0 percent for rural workers v. 9.9 percent for urban workers in 1985) (106). The rural poverty rate increased by nearly one-third between 1973 and 1983 (106); despite improvements, it was still 35 percent higher than the urban poverty rate in 1987 (629).

Individual rural communities are highly vulnerable to economic shifts, because they are so often dependent on a single major industry (e.g., agriculture). The slow employment growth in rural areas also means that workers who lose their jobs often cannot find alternative employment. Regional clustering of particular industries and other characteristics of rural employment also amplify the effects of some economic changes. Rural manufacturing employment, for example, is heavily concentrated in blue-collar occupations in low-wage industries. Thus, rapid job losses in the manufacturing sector are likely to have a disproportionately negative effect on rural areas (106). In addition, rural manufacturing is heavily concentrated in the South, in large regions that may thus experience simultaneous employment problems. The agricultural sector experienced this situation in the early 1980s, leading to the "farm crisis" that devastated much of the Midwest.

Not all rural areas fared badly during the past decade. Rural areas with retirement- and government-based economies experienced economic growth as high as that in urban areas, at least during the early part of the 1980s (253). But counties dependent on farming, mining, and manufacturing suffered very slow economic growth. In farming and mining areas, real per capita income (adjusted for inflation) actually decreased between 1979 and 1984 (253). The economic upswing of the early 1980s for the most part left rural areas behind; two-thirds of new

jobs during this period were in service industries, and over 85 percent of those service jobs were in urban areas (253).

## THE HEALTH OF' RURAL POPULATIONS

### *Health Status*

Table 2-6 presents some information on basic health indicators for urban and rural populations. Compared with urban residents, rural residents overall have lower mortality rates, higher rates of chronic disease, and comparable rates of acute health problems.

After accounting for differences in age, sex, and racial distribution between urban and rural areas, mortality rates are lower in rural areas than in urban areas (table 2-6) (626). Two exceptions are notable. First, infant mortality is slightly higher in rural areas. Second, deaths resulting from accidents are a striking 40 percent higher in rural than in urban areas.

The frequency of acute illness, and the rate of disability due to acute disease, is similar for rural and urban populations (table 2-7). Rural residents in 1986 had a slightly higher incidence of acute conditions than did urban residents, and they had more days in which their activities were restricted due to these conditions, but they were less frequently confined to bed as a result of acute illness (648). An interesting and slightly different pattern is found for the subcategory of injury; rural residents have relatively fewer injuries, but greater levels of injury disability (table 2-7) (648).

Chronic disease, on the other hand, is a significant problem in rural areas. Some common chronic conditions (e.g., heart disease, hypertension, diabetes, arthritis, and certain vision and hearing impairments) are especially prevalent in rural populations (table 2-8) (648). The high rates of chronic impairment in rural areas result in slightly higher reported overall days of activity limitation (including both acute and chronic conditions) among rural than among urban residents (648).

High rates of chronic disease may explain the urban/rural differences in self-assessed health status.

The proportion of people who consider themselves to be in only fair or poor health has been declining in both urban and rural areas (table 2-9). Nonetheless, rural residents remain 20 percent more likely than urban residents to consider themselves to be in this category (651).

Urban and rural residents differ in their practice of preventive behaviors. Rural residents are much less likely than urban residents to use seatbelts regularly (table 2-10), a characteristic that is consistent with their higher motor vehicle accident fatality rates (649).<sup>9</sup> Rural residents are also less likely to exercise regularly, and they are more likely to be obese. Fewer rural residents smoke, but those who do smoke more heavily than their urban counterparts (649).

In general, rural residents also appear to use preventive screening services less often than do urban residents (table 2-10) (649). This difference may be attributable to differences in access to medical services, so it is difficult to interpret. In at least one area of preventive medical care, however, rural residents participate on a greater level than U.S. residents as a whole. Children in rural areas are more likely than urban children as a group, and inner city children in particular, to be immunized against childhood diseases (table 2-1 1) (651).

### *Health Insurance*

Rural residents are less likely than urban residents to be insured for their health care costs, particularly by private insurance (table 2-12). For children, differences in private insuredness among urban and rural residents is slight, but rural children are considerably less likely to be covered by Medicaid (513). The opposite is true for nonelderly rural adults: they are much less likely than urban adults to be privately insured, but they have only slightly lower Medicaid coverage (513). In 1987, 17.4 percent of rural residents had no health insurance (557).<sup>10</sup>

Differences in private coverage between urban and rural residents are strongly related to employment. Rural residents are much less likely than urban ones to have employment-related insurance (table 2-13) (557). In fact, differences in private coverage between urban and rural populations would probably

<sup>9</sup>Motorvehicle accidents do not occur more frequently in rural than in urban areas, but when accidents do occur they are more likely to be fatal (623).

<sup>10</sup>Includes only civilian and noninstitutionalized persons.

**Table 2-6—Metropolitan/Nonmetropolitan Differences in Selected Health Indicators**

Indicator	Metro	Nonmetro
<b>Mortality<sup>a</sup></b>		
Infant mortality (deaths per 1,000 liveborn infants under age 1, 1987) . . . . .	9.88	10.07
Mortality from all causes (per 1,000 population, 1980) . . . . .	9.21	8.87
Major cardiovascular disease . . . . .	4.61	4.45
Malignant neoplasm . . . . .	1.99	1.73
Chronic obstructive pulmonary disease . . . . .	.26	.25
Pneumonia and influenza . . . . .	.26	.24
Motor vehicle accidents . . . . .	.21	.31
All other accidents . . . . .	.22	.29
Diabetes mellitus . . . . .	.16	.16
Suicide . . . . .	.12	.11
Homicide and legal intervention . . . . .	.11	.07
<b>Acute disease (per person per year, 1987)</b>		
Number of conditions . . . . .	1.73	1.73
Restricted activity days . . . . .	6.72	7.07
Bed days . . . . .	2.98	2.95
Work-loss days (employed adults) . . . . .	3.13	3.00
School-loss days (children) . . . . .	3.36	3.48
<b>Chronic disease<sup>b</sup> (percent of respondents with activity limitation, 1988)</b>		
Total limited in activities due to chronic conditions . . . . .	12.6%	14.9%
Limited in major activity . . . . .	8.7%	10.7%
Unable to perform major activity . . . . .	3.7%	4.3%
Limited in amount or scope of major activity . . . . .	5.0%	6.4%
Limited, but not in major activity . . . . .	3.9%	4.2%
<b>Overall health, including both acute and chronic conditions</b>		
<b>Number of restricted days per person per year, 1987:</b>		
All types of restrictions . . . . .	14.1	14.7
Bed days . . . . .	6.2	6.0
Work-loss days (employed persons) . . . . .	5.2	4.9
<b>Self-assessed health status, percent of respondents, 1988:<sup>b,c</sup></b>		
Fair or poor . . . . .	9.0%	11.0%
Good . . . . .	22.2%	24.8%
Very good or excellent . . . . .	69.0%	64.3%

<sup>a</sup>Mortality rates are adjusted to accommodate the different age, sex, and racial distributions of the urban and rural populations.  
<sup>b</sup>Rates in these categories are age-adjusted.  
<sup>c</sup>Numbers do not add to 100 percent due to rounding.

**SOURCES:** Mortality rates from National Center for Health Statistics, unpublished and published data as adjusted by Office of Technology Assessment (see refs. 626 and 650). Restricted activity data from C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," *Health Services Research* 23(6):725-756, February 1989; and U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey, 1987," *Vital and Health Statistics*, Series 10, No. 166, DHHS Pub. No. (PHS)88-1594 (Washington, DC: U.S. Government Printing Office, September, 1988). Activity limitation and self-assessed health status data from 1987 National Health Interview Survey data as published in U.S. Department of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health, United States, 1988 and Health, United States, 1989* (Washington, DC: U.S. Government Printing Office, March 1989 and March 1990).

be even greater except for the fact that rural residents are more likely than their urban counterparts to purchase non-employment-related private coverage (table 2-13). Employment-related insurance coverage is lower for agricultural, forestry, and fishery workers--occupations that are predominantly rural--than for workers in any other industries (figure 2-4) (557).

Rural residents have lower average incomes than urban residents, and lower incomes are associated in both rural and urban areas with lower rates of private insurance coverage (table 2-14)(530). At any given level of income, however, poor rural residents (incomes below 200 percent of the Federal poverty threshold) are more likely than urban residents to have some private insurance. On the other hand, for

**Table 2-7—Acute Conditions Involving Activity Limitation and/or Medical Attention  
in Metropolitan and Nonmetropolitan Populations, 1986**

Type of acute condition	Number per 100 persons per year <sup>a</sup>					
	Conditions		Restricted activity days		Bed days	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
All acute conditions.....	172.6	173.0	671.9	707.3	298.2	295.4
Infective/parasitic diseases. . . . .	22.7	24.8	73.4	78.6	35.1	36.9
Respiratory conditions. . . . .	80.0	80.2	263.9	265.8	131.0	136.5
Digestive system conditions. . . . .	6.6	5.3	24.9	31.1	12.1	12.0
Urinary conditions. . . . .	2.3	4.0	11.0	13.9	5.4	5.1
Musculoskeletal/skin conditions. . . . .	5.0	2.7	29.0	28.3	10.5	6.2
Ear/eye conditions. . . . .	10.7	11.1	25.5	20.4	11.0	7.7
Unspecified fever/headache (excluding migraine). . . . .	3.1	2.7	8.8	9.1	4.1	4.6
Injuries . . . . .	27.6	24.9	158.6	180.2	52.4	56.8
Delivery/conditions of pregnancy. . . . .	1.9	1.7	26.1	25.9	10.7	9.1
Disorders of the female genital tract . . . . .	1.6	1.1	8.0	8.0	4.1	2.5
All other acute conditions. . . . .	11.0	11.0	42.8	45.8	20.2	13.0

<sup>a</sup>The estimates are based on a sample of fewer than 123,000 people. Estimates for low-incidence conditions thus have a high potential rate of error.

SOURCE: U.S. Department of Health and Human Services, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey: United States, 1987," Vital and Health Statistics, Series 10, No. 166. DHHS pub. No.(PHS) 88-1594 (Washington, DC: U.S. Government Printing Office, 1987).

**Table 2-8—Selected Chronic Conditions Among Metropolitan and Nonmetropolitan Residents  
(prevalence per 1,000 persons, 1987)<sup>1</sup>**

Type of chronic condition	Metro	Nonmetro
<b>Selected circulatory conditions</b>		
Rheumatic fever with or without heart disease. . . . .	8.0	7.6
Heart disease. . . . .	77.4	99.3
High blood pressure (hypertension) . . . . .	113.6	135.7
Cerebrovascular disease . . . . .	11.2	11.8
Hardening of the arteries . . . . .	9.0	12.9
Varicose veins of lower extremities. . . . .	30.1	33.0
Hemorrhoids. . . . .	41.7	51.6
<b>Selected respiratory conditions</b>		
Chronic bronchitis. . . . .	51.8	59.2
Asthma . . . . .	39.9	40.9
Hay fever or allergic rhinitis without asthma. . . . .	97.8	86.0
Chronic sinusitis. . . . .	125.0	158.8
Deviated nasal septum. . . . .	7.0	3.2
Chronic disease of tonsils or adenoids. . . . .	12.3	16.4
Emphysema. . . . .	8.1	10.2
<b>Selected skin and musculoskeletal condition</b>		
Arthritis. . . . .	123.8	158.9
Gout, including gouty arthritis . . . . .	9.2	11.2
Intervertebral disc disorders. . . . .	16.9	16.0
Bone spur or tendinitis, unspecified. . . . .	8.7	11.5
Disorders of bone or cartilage. . . . .	4.7	5.1
Trouble with bunions. . . . .	10.1	7.9
Bursitis, unclassified. . . . .	19.0	20.9
Sebaceous skin cyst. . . . .	5.9	5.8
Trouble with acne. . . . .	19.4	18.8
Psoriasis. . . . .	8.4	9.5

(continued on next page)

**Table 2-8-Selected Chronic Conditions Among Metropolitan and Nonmetropolitan Residents**  
(prevalence per 1,000 persons, 1987)<sup>a</sup>—Continued

Type of chronic condition	Metro	Nonmetro
<b>Selected skin and musculoskeletal conditions--Continued</b>		
Dermatitis . . . . .	35.8	38.9
Trouble with dry, itching skin (unclassified) . . . . .	16.8	22.1
Trouble with ingrown nails . . . . .	19.9	37.1
Trouble with corns and calluses . . . . .	16.1	20.3
<b>Impairments</b>		
Visual impairment . . . . .	31.9	37.9
Color blindness . . . . .	11.5	11.9
Cataracts . . . . .	22.2	27.3
Glaucoma . . . . .	8.2	10.8
Hearing impairment . . . . .	82.0	108.5
Tinnitus . . . . .	25.2	29.3
Speech impairment . . . . .	9.8	10.9
Absence of extremities . . . . .	6.6	7.8
Paralysis of extremities, complete or partial . . . . .	4.4	7.4
Deformity or orthopedic impairment . . . . .	115.5	118.6
Back . . . . .	65.4	63.3
Upper extremities . . . . .	12.5	15.7
Lower extremities . . . . .	50.4	55.2
<b>Selected digestive conditions</b>		
Ulcer . . . . .	18.1	23.1
Hernia of abdominal cavity . . . . .	18.0	24.0
Gastritis or duodenitis . . . . .	12.5	10.7
Frequent indigestion . . . . .	22.6	35.2
Enteritis or colitis . . . . .	7.9	9.9
Spastic colon . . . . .	5.9	4.4
Diverticula of intestines . . . . .	7.6	10.0
Frequent constipation . . . . .	18.7	23.3
<b>Other selected conditions</b>		
Goiter or other disorders of the thyroid . . . . .	11.4	11.7
Diabetes . . . . .	26.7	31.6
Anemias . . . . .	13.7	12.2
Epilepsy . . . . .	4.1	4.9
Migraine headache . . . . .	35.8	35.8
Neuralgia or neuritis, unspecified . . . . .	3.3	5.1
Kidney trouble . . . . .	12.1	20.0
Bladder disorders . . . . .	13.3	18.4
Diseases of prostate . . . . .	6.8	8.7
Diseases of female genital organs . . . . .	18.0	18.2

<sup>a</sup>These estimates are based on a sample of fewer than 123,000 people. Estimates for low-prevalence conditions thus have a high potential rate of error.

SOURCE: U.S. Department of Health and Human Services, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey: United States, 1987," *Vital and Health Statistics*, Series 10, No. 166, DHHS Pub. No. (PHS) 88-1594 (Washington, DC: U.S. Government Printing Office, September 1988).

any given income level, poor rural residents are much less likely than poor urban residents to be covered by Medicaid. For farm residents, the lack of Medicaid coverage is striking; fewer than 6 percent of farm residents with incomes below the Federal poverty threshold were covered by Medicaid in 1987, compared with over 44 percent of below-poverty urban residents (and 38 percent of nonfarm rural residents) (530). A likely explanation is that poor farm families tend to be two-parent households who are often ineligible for Medicaid. (As of 1990,

States are required to provide Medicaid coverage to all two-parent families with incomes below State-defined poverty levels. They must also cover all pregnant women and young children with incomes up to 133 percent of the Federal poverty threshold, and they have the option of extending coverage to those with incomes up to 185 percent of the poverty threshold (Public Laws 99-509, 100-203). Other poor individuals, however, still qualify for Medicaid only if their incomes fall below State-defined eligibility levels).

**Table 2-9—Proportion of Metropolitan and Nonmetropolitan Residents Who Rated Their Health as Fair or Poor, Selected Years, 1975-88**

Year	Metro	Nonmetro
1975 . . . . .	11.2	14.2
1980 . . . . .	11.0	14.0
1983 . . . . .	10.0	12.0
1985 . . . . .	9.0	12.0
1987 . . . . .	9.0	10.8
1988 . . . . .	9.0	11.0

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas).

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, *Health, United States, 1982*; *Health, United States, 1986*, — *Health, United States, 1988*, and *Health, United States, 1989* (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990) .

### Health Care Utilization

Rural residents have less contact with physicians than do people in urban areas. Based on responses from the National Health Interview Survey, not quite three-fourths (74 percent) of the rural population have seen or telephoned a physician within the past year (table 2-15).<sup>11</sup> This proportion is slightly lower than that for the urban population (76 percent), whose visits were also longer in duration (651). However, both urban and rural populations have increased the number and frequency of physician contacts over the past two decades (table 2-16) (651).

Compared with urban residents, rural residents are much more likely to visit a physician specializing in family medicine and much less likely to visit one specializing in internal medicine (table 2-17) (447). These differences are probably largely due to the geographic distribution of the different specialties (see ch. 10).

Trends for visits to dentists parallel those for physician contacts. Rural residents average fewer visits per year and are less likely to have had a recent

**Table 2-10--Selected Preventive Behaviors and Risk Exposure of Metropolitan and Nonmetropolitan Residents, 1985**

Behavior	Percent of adult population with behavior	
	Metro	Nonmetro
Use seatbelts all or most of time. . . . .	38.9	25.5
Exercise regularly. . . . .	41.5	35.2
Had Pap smear in past year (women only). . . . .	46.8	41.8
Had breast exam in past year (women only). . . . .	51.8	45.4
Had blood pressure check in past year. . . . .	85.3	83.7
Have been told have high blood pressure at least 2 times. . . . .	16.8	19.4
Of those with high blood pressure, taking medication. . . . .	64.9	67.9
20 percent or more above desirable body weight . . . . .	23.1	26.9
Currently smoke cigarettes. . . . .	30.3	29.4
Of smokers, smoke 25 or more cigarettes per day. . . . .	26.0	28.7
Of women aged 18 to 44 giving birth in past 5 years:		
Smoked in 12 months before giving birth . . . . .	31.7	31.9
Quit smoking when pregnant . . . . .	22.0	18.8
Reduced smoking when pregnant. . . . .	35.4	38.0
Of drinkers, in the past year:		
Consumed 5 or more drinks in one day on at least 5 occasions. . . . .	24.5	26.0
Have driven car when had too much to drink. . . . .	16.6	17.9
Exposed to at least one job-related health hazard in current job. . . . .	59.5	68.7

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, Hyattsville, MD, National Center for Health Statistics, unpublished data from the 1985 National Health Interview Survey, Health Promotion and Disease Prevention component.

<sup>11</sup>These data are adjusted for the differences in age distributions between urban and rural populations.



Table 2-1—immunization Status of Children Aged 1-4,1985

Vaccination	Percent immunized			
	Total	Central cities	Other metro areas	Nonmetro
Polio.....	55.3	47.1	58.4	58.0
Measles.....	60.8	55.5	63.3	61.9
Mumps.....	58.9	52.4	61.0	61.4
Rubella.....	58.9	53.9	61.0	60.3
Diphtheria/pertussis/tetanus.....	64.9	55.5	68.4	67.9

NOTE: These rates are self-reported and based on respondent's memories. Rates reported by respondents who had consulted vaccination records were somewhat higher.

SOURCE: Data from the United States Immunization Survey, as published in *Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1989* (Washington, DC:U.S. Government Printing Office, March 1990).

Table 2-12—Percentage of Population With Health Insurance Coverage, by Age and Residence, 1984a

Type of insurance	All ages		0-17 years		18-64 years		65+ years	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Private insurance.....	77.2	74.7	72.6	72.3	78.9	76.2	75.0	71.9
Medicare.....	11.1	13.7	1.1 <sup>b</sup>	1.4 <sup>b</sup>	1.1 <sup>b</sup>	1.4 <sup>b</sup>	95.3	96.1
Public assistance (Medicaid, other).....	6.1	5.8	11.5	9.1	4.0	3.9	5.6	7.6
Military/Veterans' Administration.....	3.2	3.9	2.7	2.9	3.1	3.9	4.5	6.1
No insurance.....	12.3	14.5	13.0	16.2	13.8	16.7	0.9	0.9

<sup>a</sup>Numbers do not add up to 100 percent, since individuals may be covered by more than one type of insurance (e.g., Medicare and private insurance).

<sup>b</sup>Number applies to all persons under age 65.

SOURCE: P. Ries, "Health Care Coverage by Sociodemographic and Health Characteristics, United States, 1984," *Vital and Health Statistics*, Series 10, No. 162, DHHS Pub. No. (PHS) 87-1590 (Washington, DC: U.S. Government Printing Office, November 1987).

Table 2-13—Private Insurance Coverage of Metropolitan and Nonmetropolitan Residents, 1987

Place of residence	Percent of population with type of health insurance			
	Employment-related private coverage	Other private coverage	Public coverage only	No coverage
20 largest metro areas.....	65.0	9.7	10.2	15.1
Other metro areas.....	67.4	8.9	9.0	14.7
Nonmetro areas.....	57.4	13.4	11.8	17.4

SOURCE: P.F. Short, A. Monheit, and K. Beauregard, *A Profile of Uninsured Americans*, DHHS Pub. No. (PHS) 89-3443 (Rockville, MD: U.S. Department of Health and Human Services, September 1989).

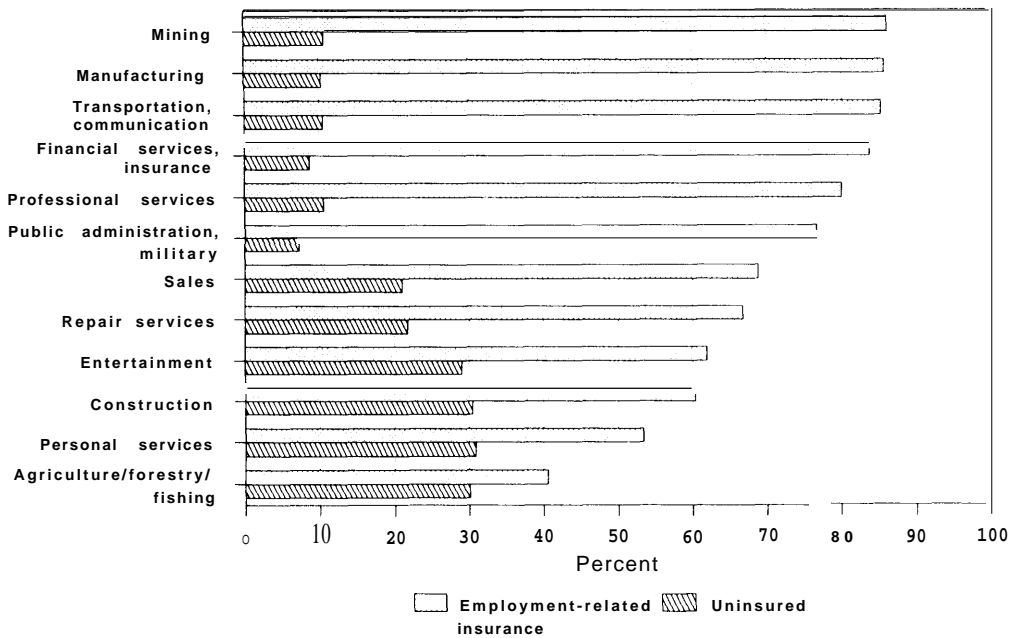
dental visit (table 2-15) (651). Eleven percent of rural residents have never visited a dentist (651).

Hospital utilization differences between rural and urban populations are less consistent. Proportionately more rural than urban people are hospitalized, but their hospital stays are shorter,<sup>12</sup> and rural

residents had only slightly more hospital days per 100 residents in 1988 (table 2-18) (651). Rural residents also have fewer emergency room visits (447). As with physician contacts, however, trends in utilization are similar; urban and rural groups have decreased both their rates of hospital admis-

<sup>12</sup>Data from the National Health Interview Survey show that rural residents continue to report shorter hospital stays than urban residents. Since 1987, however, rural hospitals have actually been reporting slightly longer average stays than urban hospitals (see ch. 5). The reason for the discrepancy is unclear.

**Figure 2-4—Health Insurance Status of Working Adults and Their Families, by Type of Industry, 1987**



SOURCE: Office of Technology Assessment, 1980. Data from P.F. Short, A. Monheit, and K. Beauregard, *A Profile of Uninsured Americans*, DHHS pub. no. (PHS) 88-3443 (Rockville, MD: U.S. Department of Health and Human Services, September 1989).

**Table 2-14-Insurance Coverage of the Population Under Age 65, by Residence and Income, 1987**

Income (percent of Federal poverty level) and residence	Percent of population covered		
	Uninsured	Medicaid	Private/other
<b>Below poverty</b>			
Metro. . . . .	37.0	44.4	18.6
Nonmetro. . . . .	38.3	35.5	26.2
Nonfarm. . . . .	38.9	38.4	22.7
Farm. . . . .	32.4	5.8	61.8
<b>100-149%</b>			
Metro. . . . .	36.4	13.5	50.1
Nonmetro. . . . .	31.5	9.2	59.3
Nonfarm. . . . .	32.2	9.7	58.1
Farm. . . . .	24.7	3.9	71.4
<b>150-199%</b>			
Metro. . . . .	26.1	6.1	67.8
Nonmetro. . . . .	19.8	5.3	74.9
Nonfarm. . . . .	20.2	5.6	74.2
Farm. . . . .	15.1	1.3	83.6
<b>200% or more</b>			
Metro. . . . .	10.5	1.1	88.4
Nonmetro. . . . .	10.3	0.9	88.8
Nonfarm. . . . .	10.0	1.0	89.0
Farm. . . . .	14.4	0.3	85.3

SOURCE: Adapted from D. Rowland and B. Lyons, "Triple Jeopardy: Rural, Poor, and Uninsured," *Health Services Research* 23(6):975-1004, February 1989.

**Table 2-15—Interval Since Last Contact With Physician (1988) and Dentist (1986) for Metropolitan and Nonmetropolitan Residents**

Residence	Interval since last visit			
	Number of contacts per person in past year <sup>a</sup>	< 1 yr	1-2 yrs	2 or more yrs <sup>b</sup>
<b>Physician contacts</b>				
Metro. ....	5.5	77.8%	10.2%	12.0%
Nonmetro. ....	4.8	75.0%	11.5%	13.5%
<b>Dentist visits</b>				
Metro. ....	2.0	58.8%	7.1%	34.1%
Nonmetro. ....	1.7	51.8%	8.9%	39.3%

NOTE: Data are adjusted for differences in age distribution between metro and nonmetro areas.

<sup>a</sup>Physician contacts include telephone office visits, hospital visits, and other Dentist contacts include only visits.

<sup>b</sup>Includes those who have never visited a physician or dentist.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, *Health, United States, 1989* (Washington, DC:U.S. Government Printing Office, March 1990).

sions and their average lengths of stay during the 1980s (table 2-19)(651).

## TWO SPECIAL POPULATIONS: A CLOSER LOOK

The rural population includes many subpopulations, each with its own characteristics. This section briefly examines two such subpopulations in greater detail: the rural elderly and migrant and seasonal farmworkers.

### *The Rural Elderly*

#### Population Characteristics

The great majority of people age 65 and over in the United States—71 percent—live in metropolitan counties (633). Nonetheless, elderly persons make up a greater proportion of the nonmetro than the metro population (13 v. 11 percent) (table 2-20) (633). The elderly are especially prevalent in towns of 2,500 to 10,000 residents, where they make up nearly 15 percent of the population. Even the oldest ages are well-represented in these towns; the proportion of the population that is age 85 and over, for example, is higher in towns of this size than in any other urban or rural category (table 2-20)(633).

Among geographic regions, the South has by far the greatest number of rural elderly persons. One-third of the Nation's elderly live in this region (figure 2-5), and 38 percent of them live in nonmetro areas (633). Nearly 16 percent of farm residents in the South are elderly (table 2-21). The Midwest is a

close second with 26 percent of the U.S. elderly, over one-third of whom live in nonmetro areas. In contrast, the West and Northeast have a relatively low rural elderly presence (633).

The rural elderly have incomes lower than those of the urban elderly (table 2-22). Based on the 1980 census, the median income is lower for nonmetro than metro elderly residents, and within both groups "rural" residents (by the Census definition) have lower median incomes than "urban" residents. In 1979, nearly one-third of nonmetro elderly persons had incomes that were less than 125 percent of the Federal poverty threshold (633).

About 28 percent of both metro and nonmetro elderly residents live alone (table 2-23) (633). Within nonmetro areas, however, there are substantial differences in living arrangements. Only 16 percent of elderly persons on farms live alone, for example; 75 percent live with their spouses. In contrast, only a little more than one-half of elderly individuals residing in small cities and towns live with their spouses, while over 30 percent live alone (633). Thus, there is considerable variation within rural areas in the home-based family and social resources available to elderly people.

The great majority of rural elderly persons—96 percent—are covered by Medicare (see table 2-12); less than 1 percent lack any health insurance (513). However, the rural elderly are somewhat more likely than the urban elderly to rely on Medicaid or other public assistance, and they are less likely to have

**Table 2-16-Percent of Metropolitan and Nonmetropolitan Residents Who Have Had a Physician Visit Within the Past 2 Years, Selected Years, 1964-88**

Year	Metro	Nonmetro
1964 . . . . .	82.2	78.1
1975. . . . .	86.6	84.8
1980. . . . .	86.6	84.7
1982. . . . .	87.5	85.2
1985. . . . .	85.9	84.0
1987. . . . .	87.6	85.6
1988. . . . .	88.0	86.5

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas).

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1982, Health, United States, 1986, Health, United States, 1988, and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990).

private insurance to supplement their Medicare policies (513).

**Health Status and Health Care Utilization**

Rural elderly residents are more likely than urban elderly residents to have chronic health impairments (41 v. 36 percent) (table 2-24) (645), and they are more likely to consider themselves in only fair or poor health (table 2-25). It appears that disability due to acute illness is lower among rural than among urban elderly residents, because when both chronic and acute causes of illness are considered, rural elderly residents actually report slightly fewer total days of disability (table 2-26) (645).

Health care utilization trends for the rural elderly parallel many of the trends for the urban elderly and for the United States as a whole. For example, the number of physician visits per rural elderly person per year rose between 1983 and 1987, and within the elderly group the frequency of visits rises with age (table 2-27) (645). Similarly, the proportion of the rural elderly population who had seen a physician within the past year has risen overtime (table 2-28). Nevertheless, physician utilization among the rural elderly continues to lag behind utilization by the

**Table 2-17—Distribution of Physician Visits in Metropolitan and Nonmetropolitan Areas, by Specialty, 1985**

Physician specialty	Metro	Nonmetro
General and family practice. . . . .	11.9%	52.6%
Internal medicine. . . . .	51.7	10.0
Pediatrics. . . . .	6.0	7.1
Obstetrics/gynecology. . . . .	4.7	5.9
General surgery. . . . .	2.0	6.7
Orthopedic surgery. . . . .	2.6	3.1
Ophthalmology. . . . .	3.4	3.6
Other. . . . .	17.4	11.1
Total. . . . .	100%	100%

SOURCE: 1985 National Ambulatory Medical Care Survey data as cited in C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," Health Services Research 23(6):725-756, February 1989.

urban elderly in nearly every category (645). This lower utilization cannot be adequately explained by less illness and disability among the rural elderly. It is consistent, however, with relatively more difficult physical and economic access to physicians for residents of rural areas.

Hospital utilization patterns for rural elderly persons, on the other hand, are not so easily explained by lessened access to hospital facilities. Rural elderly individuals report more hospital discharges, but substantially shorter average lengths of stay, than do their urban counterparts (table 2-29) (645). This pattern seemingly conflicts with the image of hospital scarcity in rural areas, and it cannot be explained by a higher availability of home caregivers for the rural elderly (since just as many nonmetro as metro residents live alone).

A study of Medicare beneficiaries in five States (Alabama, California, Illinois, Montana, and Texas) lends some insight into the enigma. In this study, Medicare hospital admissions decreased 18 percent for urban beneficiaries and a dramatic 22 percent for rural beneficiaries between 1984 and 1986(134).<sup>13</sup> Not only did the rural trend follow the urban trend, but the greater decline in admissions for rural beneficiaries suggests the possibility that rural patients' hospital utilization is becoming more like that of urban patients. Furthermore, when admissions were categorized by type, by far the greatest

<sup>13</sup>These figures are for admissions adjusted for differences in age and sex distributions. Unadjusted differences were -11 percent for urban and -17 percent for rural beneficiaries.

**Table 2-18-Hospital Utilization of Metropolitan and Nonmetropolitan Residents**

Measure	Year	Metro	Nonmetro
Hospital discharges (number per 100 persons per year) . . . . .	1988	8.7	11.4
Average length of hospital stay (days) . . . . .	1988	6.9	6.0
Total hospital days per 100 population . . . . .	1988	60.6	68.2
Average number of days per person hospitalized per year. . . . .	1987	8.3	8.0
Percentage of people hospitalized in past year. . . . .	1987	8.2%	9.2%
1 episode . . . . .	1987	6.7%	7.3%
2 episodes . . . . .	1987	1.1%	1.3%
3 or more episodes . . . . .	1987	0.4%	0.6%
Percentage of people with emergency visit in past year. . . . .	1986	18.2%	16.9%

SOURCES: 1986 data from Robert Wood Johnson Foundation, *Access to Health Care in the United States: Results of a 1986 Survey* (Princeton, NJ: Robert Wood Johnson Foundation, 1987). 1987 data from U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey, United States, 1987," *Vital and Health Statistics*, Series 10, No. 166 (PHS Pub. No. (PHS) 88-1594 (Washington, DC: U.S. Government Printing Office, September 1988)). 1988 data from U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, *Health, United States, 1989* (Washington, DC: U.S. Government Printing Office, March 1990).

difference in admission rates was for medical conditions treated in the local hospital--particularly "high-variation" conditions, for which there are considerable differences in opinion among physicians regarding the appropriateness of hospitalization. In 1986, rural beneficiaries' admission rates for this group of conditions, which includes such common diagnoses as pneumonia, bronchitis, influenza, and gastroenteritis, were 28 percent higher than admission rates for urban beneficiaries (134).

Thus, a plausible explanation for the higher hospitalization rates and shorter stays of the rural elderly is that these individuals are more likely than their urban counterparts to be admitted to the hospital for modest medical complaints, observation, and testing. If this explanation is valid it presents a perplexing policy issue, because many of these conditions might, in an urban setting, be considered insufficient reasons for hospitalization (rendering them unqualified for Medicare reimbursement). In rural areas where access to urgent care is difficult, however, it may be that short hospital stays to ensure that a patient's conditions are stable, or that the patient is available for tests, are looked upon as good care by the patient and physician (albeit care that is costly to Medicare). It is worth noting that, whatever the reason for the shorter stays, the effect is quite powerful; rural elderly individuals, on average, spend 22 percent fewer days in the hospital during anyone stay than do urban elderly persons (645).

***Migrant and Seasonal Farmworkers***

**Population Characteristics**

U.S. agriculture is heavily dependent for farm labor on the services of migrant and seasonal farmworkers. The estimated 4 million such workers are a culturally diverse group who have in common a set of employment-related health problems and who are characterized by low incomes, a lack of health insurance, a high proportion of individuals from non-English-speaking cultures, and (in the case of migrant workers) high mobility.

Migrant and seasonal farmworkers are individuals whose principal employment is in agriculture on a seasonal basis [and who have] been so employed within the last 24 months" (Public Law 100-386). Migrant workers are those "who establish ...for a temporary abode," while seasonal workers are those who meet the seasonal definition but are not migrant workers (Public Law 100-386). "Seasonal" is not defined explicitly in this law; the Department of Agriculture defines a "seasonal farmworker as one who performs 25 to 149 days of farm wage work in 1 year (726).

All estimates of the size of the migrant and seasonal farmworker population are imprecise. State data and estimates suggest that there are approximately 4 million farmworkers in the United States and Puerto Rico, although this estimate includes some duplicated counts of migrant farmworkers.

**Table 2-19-Trends in Hospital Utilization by Metropolitan and Nonmetropolitan Residents, Selected Years, 1964-88**

Year	Metro	Nonmetro
<b>Hospital discharges (number per 100 persons per year)</b>		
1964	10.8	11.3
1975	11.9	13.6
1980	11.0	14.1
1985	10.1	11.7
1987	9.3	10.9
1988	8.7	11.4
<b>Average length of hospital stay (days)</b>		
1964	9.4	7.7
1975	7.8	6.8
1980	8.3	7.5
1985	7.2	6.8
1987	7.1	5.8
1988	6.9	6.0
<b>Total hospital inpatient days (per 100 population)</b>		
1964	101.5	87.2
1975	104.3	105.7
1980	91.1	105.8
1985	73.3	79.3
1987	65.6	63.4
1988	60.6	68.2

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas). These data are based on interviews and thus include only patients who were discharged alive.

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1982, Health, United States, 1985, Health, United States, 1988, and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990).

(181). If ratios from the late 1970s still hold true, approximately 30 percent of these farmworkers (1.1 million) are migrants (726).

Farmworkers are culturally diverse. In the East, many are from Puerto Rico, Jamaica, and Haiti. In the Midwest and West, the great majority of migrant farmworkers are Hispanic. Native Americans make up a substantial proportion of the farmworker population in the west and southwest (726).

The living conditions of migrant and seasonal agricultural workers are typically poor. According to one source, the average annual family income in 1983 for migrant workers was about \$9,000, significantly below the Federal poverty threshold (\$11,000 for a family of four) (420).

**Health Care Status and Utilization**

There are few routinely collected national data on the health status of farmworkers; most that do exist are from farmworkers seen in federally funded migrant health centers (MHCs). Although these clinics serve only an estimated 523,000 persons per year—about 13 percent of the target population (181)—they are a vital source of health care services to migrant and seasonal farmworkers and the cornerstone of Federal policies to promote health services to this community.

A 1981 survey of MHCs found that obstetrics and hypertension were the most frequent reasons for visits to these clinics in 1979 and 1980 (table 2-30) (256). A 1984 survey of migrant farmworker families identified some major health problems in the population (table 2-31), including:

- ailments (e.g. urinary tract infections) associated with poor sanitation and overcrowded living conditions (e.g., lack of toilets, hand-washing facilities, potable drinking water);
- a prevalence of parasitic infections that averaged 20 times greater than in the general population;
- acute and chronic illnesses related to pesticide poisoning; and
- hazards affecting the health of pregnant women and children(605).

Most of the workers and their families sought medical care mainly for acute illnesses.

In 1988, 118 MHCs operated clinics in 33 States and Puerto Rico (181). The number of MHCs and the number of patient encounters (visits) at those centers have both increased slightly in recent years (table 2-32); in 1988, there were over 4.8 million encounters (about 41,000 per center) (181). Encounters specifically from migrant and seasonal farmworkers increased nearly three times as fast as total patient encounters. In 1988, farmworker encounters represented about 35 percent of the total; the number of encounters per farmworker averaged 3.4. Among the States, California has both the largest total number of migrant and seasonal farmworkers and the largest share of Federal MHC funds (table 2-33) (181).

**SUMMARY AND CONCLUSIONS**

Although “rural” is a term with considerable intuitive meaning, two commonly used definitions of the term describe somewhat different populations.

Table 2-20-Age Distribution of Urban and Rural Elderly Residents, 1980

Percent of total population in area that is:	Urban residents					Rural residents			
	All United States	All	Nonurbanized area			All	Farm residents	Metro areas	Nonmetro areas
			Urbanized area	10,000 and over	2,500-10,000				
Age 65 or over.. . . . .	11.3	11.4	10.9	12.9	14.7	10.9	12.7	10.7	13.0
65-74.....	6.9	6.9	6.6	7.5	8.5	6.9	8.6	6.5	7.9
75-84.....	3.4	3.5	3.3	4.1	4.7	3.1	3.3	3.2	3.9
85 and over.....	1.0	1.0	0.9	1.3	1.5	0.9	0.8	0.9	1.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census General Social and Economic Characteristics, vol. 1 (Washington, DC:U.S. Government Printing Office, September 1981).

**Most national statistical information** is available by the county-based metro/nonmetro designations, because county borders are relatively stable and enable consistent comparisons over time. Unfortunately, simple metro/nonmetro comparisons often blur important differences among populations that affect the perception of their health and other characteristics. Good information on health status and health programs is vital to the evaluation of programs, but when only metro/nonmetro distinctions are analyzed, information may be insufficient to assess health improvements adequately.

In general, the picture of the rural population over the past decade has been one of sluggish and erratic economic and population growth. Improvements in the standard of living of rural residents have generally lagged behind those of urban residents, and rural poverty has become a more pressing problem. These generalities obscure crucial regional and local differences. The heavy dependence of many regions and rural communities on single industries make them especially vulnerable to economic changes affecting those industries. Counties economically dependent on agriculture fared badly during the early 1980s, for example, while rural counties that serve as retirement communities have been relatively successful at improving their economic well-being. The South continues to be a reservoir of rural poverty.

Despite persistent differences in important factors such as income and education, rural residents exhibit fewer consistent indicators of poor health than might be expected. Mortality rates are lower in rural than in urban areas, the most spectacular exception being for accidental deaths. However, rural populations are characterized by chronic impairments and poor self-perceptions of health to a substantially greater extent than urban populations. The relatively high

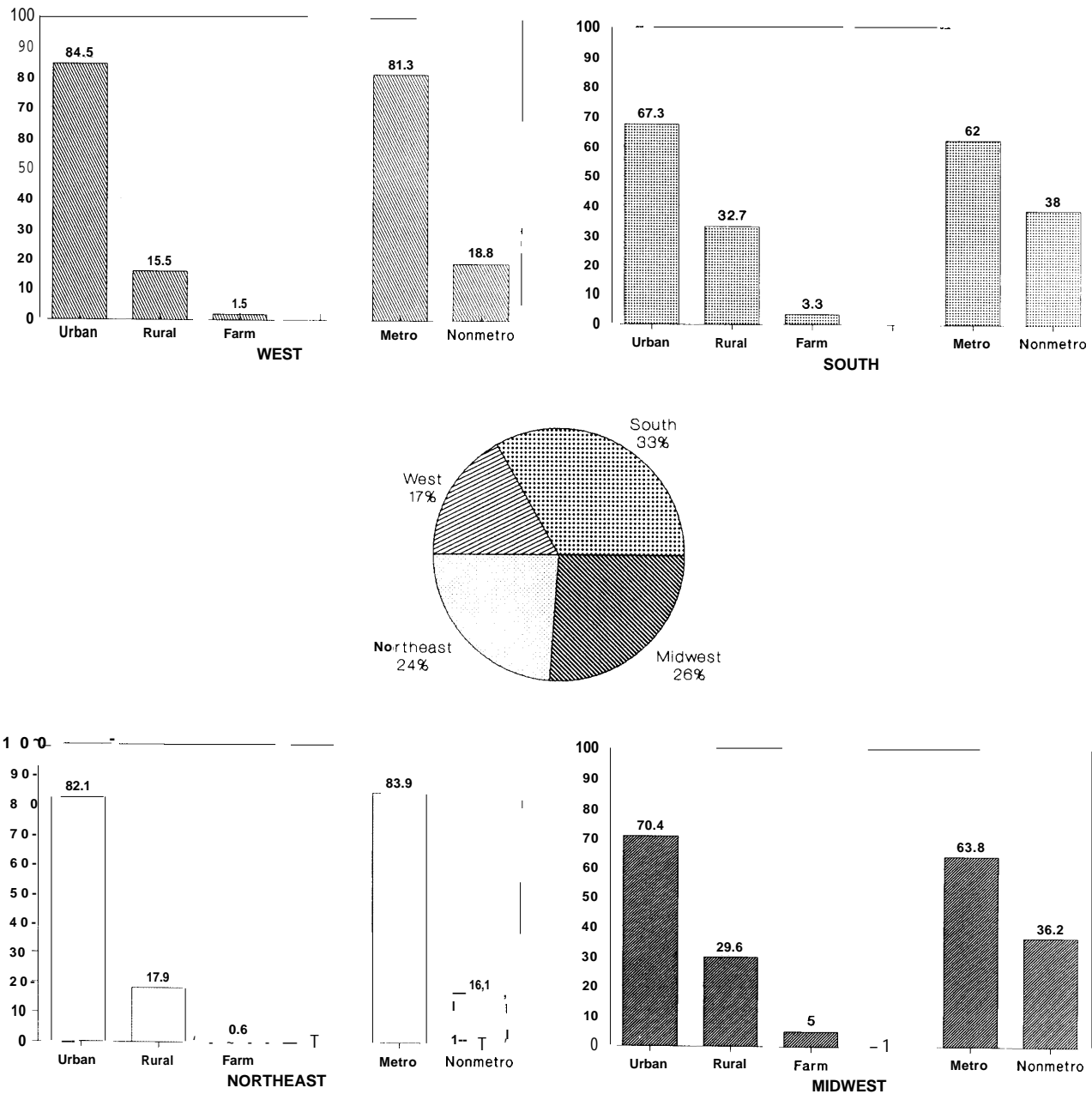
**prevalence** of chronic disability and fatal injuries, combined with a lower prevalence of some key preventive health behaviors (such as seatbelt use), suggests that preventive and therapeutic health programs addressing these areas might be particularly appropriate to rural populations.

Rural residents have relatively low overall utilization rates for hospitals and physicians, despite their high number of hospital admissions. Lower rural incomes, combined with relatively low insurance coverage of nonelderly rural populations, suggest that these utilization patterns may be partially attributable to financial access. The very low rates of Medicaid coverage among poor rural residents, especially farm residents, is of particular concern. Interestingly, despite continued limitations in financial access to health care, trends in rural health care utilization over time have paralleled urban patterns, albeit at a lower level. Physician visits have increased, and inpatient hospital use has decreased, for both groups.

The elderly are disproportionately represented in nonmetro counties, with the South and Midwest having particularly high concentrations of elderly rural residents. The broad brush of Medicare has resulted in few elderly persons without any health insurance, but rural elderly residents are less likely than their urban counterparts to hold private insurance supplements to their Medicare policies. The health care utilization patterns of the rural elderly parallel those of rural residents generally, with fewer physician visits but more hospitalizations--particularly short hospitalizations--than characterize their urban counterparts.

Although their exact distribution across metro and nonmetro areas is unknown, migrant and seasonal farmworkers are another population of particular

Figure 2-5—Regional Distribution of Urban and Rural Elderly Residents, 1980



SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Commerce, Bureau of the Census, 1980 *Census: General Social and Economic Characteristics, vol.1* (Washington, DC: U.S. Government Printing Office, 1981).

concern to rural health services. The health of these roughly 4 million farmworkers is greatly affected by diseases related to their living and working conditions. Federally funded MHCs appear to be a very important source of care to this population, even though only a relatively small proportion of farmworkers seek care in these centers.

Health status and financial access are only two of the major contributors to health care utilization. A third potential contributor--availability of health resources--is the topic of most of the remainder of this report.



**Table 2-21—Percent of Urban and Rural Persons Who Are Elderly, by Region, 1980**

	Entire region	Urban residents	Rural residents		Metro areas	Nonmetro areas
			All	Farm		
South . . . . .	11.2	11.3	11.1	15.8	10.4	12.9
West. . . . .	9.9	10.0	9.6	10.2	9.8	10.6
Northeast. . . . .	12.3	12.8	10.6	9.8	12.2	13.2
Midwest. . . . .	11.4	11.3	11.4	11.6	10.2	14.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

**Table 2-22—Income Characteristics of Elderly Urban and Rural Residents (age 65 and older), 1979**

	Metro			Nonmetro		
	Total	Urban <sup>a</sup>	Rural <sup>a</sup>	Total	Urban <sup>a</sup>	Rural <sup>a</sup>
Median income. . . . .	\$13,421	\$13,775	\$11,426	\$10,157	\$11,165	\$9,633
Percent of elderly with incomes below Federal poverty level. . . . .	12.4%	12.1%	15.2%	20.7%	18.4%	22.2%
Percent of elderly with incomes below 125% of Federal poverty level..	20.7%	20.3%	23.8%	30.9%	28.5%	32.6%

<sup>a</sup>As defined by the Census Bureau.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

**Table 2-23—Living Characteristics of Elderly Urban and Rural Residents, 1980**

Living arrangement	All United States	Urban residents				Rural residents			
		All	Urbanized area	Nonurbanized area		All	Farm residents	Metro areas	Nonmetro areas
				10,000 and over	2,500-10,000				
Living with others. . . . .	66.5	64.8	65.9	60.2	60.8	71.6	84.2	66.3	66.3
Head of household/									
living with spouse. . . . .	55.6	53.3	53.5	52.1	53.3	62.4	74.6	54.6	58.3
Living with other relatives. . . . .	8.8	9.2	10.0	6.3	5.9	7.7	8.6	9.8	6.5
Living with non-relative . . . . .	2.1	2.3	2.4	1.8	1.6	1.5	1.0	2.3	1.5
Living alone. . . . .	27.7	28.8	28.3	31.3	30.6	24.4	15.8	27.6	27.9
Living in group quarters . . . . .	5.8	6.4	5.8	8.5	8.6	4.1	--	5.8	5.8

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

**Table 2-24—Percent of Metropolitan and Nonmetropolitan Elderly Limited in Activity Due to Chronic Conditions, By Age, 1987**

	Metro			Nonmetro		
	>65	65-74	> 75	>65	65-74	> 75
Total with limitation of activity. . . . .	36.2	33.5	40.7	41.0	38.2	45.3
Experienced limitation but not in major activity. . . . .	13.6	11.9	16.5	17.4	15.3	20.7
Limited in amount or kind of major activity. . . . .	12.7	11.2	15.1	13.2	11.5	15.9
Unable to carry out major activity . . . . .	9.9	10.4	9.0	10.3	11.3	8.6

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Oct. 4, 1989.

**Table 2-25—Self-Assessed Health Status Among the Metropolitan and Nonmetropolitan Elderly, 1987**

	Excellent	Very good	Good	Fair or poor
<b>Metro residents</b>				
Age 65 and over. . . . .	16.3%	21.3%	32.6%	29.8%
Age 65-74 . . . . .	17.7	22.2	32.8	27.2
Age 75 and over. . . . .	14.0	19.6	32.3	34.0
<b>Nonmetro residents</b>				
Age 65 and over. . . . .	13.1	20.1	33.4	33.4
Age 65-74 . . . . .	13.9	19.8	35.3	31.0
Age 75 and over. . . . .	11.8	20.5	30.6	37.2

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Oct. 4, 1989.

**Table 2-26—Rate of Restricted Activity Days Among the Metropolitan and Nonmetropolitan Elderly Due to Acute and Chronic Conditions, by Age, 1987 (number of days per person)**

	65 and over	65-69	70-74	75 and over
<b>Restricted activity</b>				
All metro. . . . .	30.4	25.1	31.3	<b>34.6</b>
Central city. . . . .	33.8	28.3	36.0	<b>36.7</b>
Noncentral city. . . . .	27.7	22.9	27.6	<b>32.7</b>
All nonmetro. . . . .	30.2	24.1	30.7	<b>35.1</b>
Nonfarm. . . . .	30.7	24.3	32.2	<b>35.0</b>
Farm. . . . .	24.4	21.8	13.3	<b>36.9</b>
<b>confined to bed</b>				
All metro. . . . .	14.3	11.8	13.8	16.9
Central city. . . . .	15.9	13.5	15.1	18.3
Noncentral city. . . . .	13.0	10.6	12.7	15.6
All nonmetro. . . . .	13.2	10.4	12.7	15.9
Nonfarm. . . . .	13.3	10.6	13.6	15.3
Farm. . . . .	12.5	7.8	2.7	26.1

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by G. Hendershot, November 1989.

**Table 2-27—Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons: Average Annual Number of Physician Visits Per Person, 1983 and 1987**

Age group	Physician visits per person <sup>a</sup>			
	1983		1987	
	Metro	Nonmetro	Metro	Nonmetro
65 and over. . . . .	7.9	7.1	9.1	8.2
65-74. . . . .	7.5	6.8	8.8	7.3
75 and over. . . . .	8.5	7.7	9.7	9.7

<sup>a</sup>Data for 1983 include only visits for which the location of visit is known. Visits in 1987 include those in unspecified places as well.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from National Health Interview Survey provided by D. Makuc, Aug. 28, 1989.

**Table 2-28—Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons, 1964, 1982, and 1987**

Age group	Percent of population with visits within past year					
	1964		1982		1987	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
65 and over. . . . .	69.3	70.4	83.0	80.7	85.5	83.6
65-74. . . . .	68.8	68.9	81.4	78.0	84.1	80.7
75 and over. . . . .	70.4	73.2	85.7	85.1	87.7	88.1

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Aug. 28, 1989.

**Table 2-29—Hospital Utilization by Elderly Metropolitan and Nonmetropolitan Persons, 1987a**

Age group	Discharges (Per 100 population)		Average length of stay		Days of care (Per 100 population)	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
	65 and over. . . . .	25.4	26.2	8.8	6.9	221.9
65-74. . . . .	22.4	23.6	8.7	6.9	194.8	162.2
75 and over. . . . .	30.1	30.2	8.8	7.0	265.7	210.2

<sup>a</sup>Data are based on interviews and thus do not include hospital stays of persons who were not discharged alive. Metro and nonmetro status refers to residence of respondent, not location of hospital used.

SOURCE: Unpublished data from the National Health Interview Survey, provided by D. Makuc, U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, Aug. 28, 1989.

**Table 2-30—Most Frequent Diagnoses Reported by 60 Federally Funded Migrant Health Centers, 1980<sup>a</sup>**

Diagnosis/reason for visit	Number of encounters
Obstetrics . . . . .	36,125
Hypertension . . . . .	32,067
Acute upper respiratory infection . . . . .	30,364
Otitis media . . . . .	17,931
Anemia . . . . .	17,889
Diabetes mellitus . . . . .	17,266
Urinary tract infection . . . . .	10,705
Family planning . . . . .	6,827
Obesity . . . . .	4,322
Trauma . . . . .	4,132
Dermatitis . . . . .	3,727
Heart disease . . . . .	2,671
Gastroenteritis . . . . .	2,594

<sup>a</sup>Not all of the 60 centers responding to the survey had complete data.

SOURCE: W. Hicks, "Migrant Health: An Analysis, " Primary Care Focus, publication of the National Association of Community Health Centers, July/August 1982, as cited in V.A. Wilk, The Occupational Health of Migrant and Seasonal Farmworkers in the United States (Washington, DC: Farmworker Justice Fund, Inc., 1986).

**Table 2-31—Major Illnesses Reported by Migrant Farmworker Families, 1984**

Illness	Percent of families reporting at least one member with specified illness during the past year <sup>a</sup>
Eye problems . . . . .	35.2
Depression . . . . .	23.1
Anemia . . . . .	21.7
Arthritis . . . . .	18.9
High blood pressure . . . . .	16.8
Stillbirth . . . . .	16.2
Kidney problems . . . . .	14.8
Obesity . . . . .	14.3
Problems during pregnancy . . . . .	13.4
Asthma . . . . .	12.5
Intestinal parasites . . . . .	11.3
Deafness . . . . .	11.2
Heart problems . . . . .	11.2
Ulcers . . . . .	9.4
Sunstroke . . . . .	9.4
Diabetes . . . . .	7.5
Cancer . . . . .	4.7
Epilepsy . . . . .	4.7
Pesticide poisoning . . . . .	4.3
Liver damage . . . . .	3.8
'Lazy eye' . . . . .	3.8
Tuberculosis . . . . .	3.8
Infertility . . . . .	3.2
Sickle cell anemia . . . . .	2.9
Alcoholism . . . . .	1.9
Polio . . . . .	0.9

<sup>a</sup>Survey included 109 migrant farmworker families.

SOURCE: R.T. Trotter, "Project HAPPIER Final Report of Survey Results: Migrant Family Survey," Sept. 21, 1984, as cited in V.A. Wilk, The Occupational Health of Migrant and Seasonal Farmworkers in the United States (Washington, DC: Farmworker Justice Fund, Inc., 1986).

**Table 2-32—Utilization of Federally Funded Migrant Health Centers, 1984-88**

	1984	1985	1986	1987	1988	Percent change, 1984-88
Number of centers <sup>a</sup> . . . . .	114	120	125	119	118 <sup>b</sup>	3.5
Total center encounters (in millions) . . . . .	4.52	4.08	4.64	4.72	4.85	7.2
Total farmworker encounters (in millions) . . . . .	1.42	1.43	1.54	1.67	1.70	19.9
Estimated total farmworker encounters per person . . . . .	3.36	3.36	3.43	3.50	3.40	1.2

<sup>a</sup>Number of health centers receiving Federal funds authorized under Section 329 of the Public Health Service Act.

<sup>b</sup>Of the 118 centers, 117 were reported.

<sup>c</sup>Migrant and seasonal farmworkers only.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, unpublished data provided by J. Egan, Rockville, MD, March 1990.

**Table 2-33-State Distribution of Migrant and Seasonal Farmworkers (MSFW) and Federal Migrant Health Center (MHC) Funds, Fiscal Year 1988**

State	MSFW population	Percent MSFW population	MSFW users of MHCS		Impact ratio	MHC funds, 1988	
			Number	Percent		Dollars <sup>a</sup>	Percent
Alabama . . . . .	6,483	0.2	--	0.0	0.0%	--	0.0
Alaska . . . . .	-- <sup>b</sup>	0.0	--	0.0	0.0	--	0.0
Arizona . . . . .	31,795	0.8	9,370	1.8	29.5	650,011	1.6
Arkansas . . . . .	--	0.0	--	0.0	0.0	--	0.0
California . . . . .	1,362,534	32.7	107,267	20.5	7.9	6,607,069	16.4
Colorado . . . . .	49,347	1.2	26,374	5.0	53.5	2,017,909	5.0
Connecticut . . . . .	9,421	0.2	--	0.0	0.0	--	0.0
Delaware . . . . .	5,397	0.1	5,027	1.0	93.1	881,440	2.2
Florida . . . . .	435,373	10.4	77,173	14.8	17.7	5,947,653	14.8
Georgia . . . . .	93,604	2.2	1,598	0.3	1.7	143,258	0.4
Hawaii . . . . .	--	0.0	--	0.0	0.0	--	0.0
Idaho . . . . .	119,968	2.9	12,935	2.5	10.8	465,026	1.2
Illinois . . . . .	20,840	0.5	5,894	1.1	28.3	454,985	1.1
Indiana . . . . .	7,716	0.2	5,022	1.0	65.1	460,870	1.1
Iowa . . . . .	34,230	0.8	1,734	0.3	5.1	171,961	0.4
Kansas . . . . .	18,533	0.4	925	0.2	5.0	165,218	0.4
Kentucky . . . . .	--	0.0	--	0.0	0.0	--	0.0
Louisiana . . . . .	--	0.0	--	0.0	0.0	--	0.0
Maine . . . . .	8,660	0.2	230	0.0	2.7	--	0.0
Maryland . . . . .	4,267	0.1	--	0.0	0.0	--	0.0
Massachusetts . . . . .	7,813	0.2	100	0.0	1.3	78,000	0.2
Michigan . . . . .	67,227	1.6	26,676	5.1	39.7	2,535,192	6.3
Minnesota . . . . .	13,344	0.3	9,254	1.8	69.4	863,660	2.2
Mississippi . . . . .	--	0.0	--	0.0	0.0	--	0.0
Missouri . . . . .	20,324	0.5	--	0.0	0.0	130,346	0.3
Montana . . . . .	13,026	0.3	3,641	0.7	28.0	250,172	0.6
Nebraska . . . . .	18,756	0.5	1,422	0.3	7.6	224,475	0.6
Nevada . . . . .	--	0.0	--	0.0	0.0	--	0.0
New Hampshire . . . . .	726	0.0	--	0.0	0.0	--	0.0
New Jersey . . . . .	13,522	0.3	3,314	0.6	24.5	182,710	0.5
New Mexico . . . . .	9,255	0.2	1,081	0.2	11.7	104,197	0.3
New York . . . . .	30,811	0.7	3,617	0.7	11.7	381,164	1.0
North Carolina . . . . .	344,944	8.3	25,353	4.9	7.4	1,477,681	3.7
North Dakota . . . . .	15,000	0.4	--	0.0	0.0	--	0.0
Ohio . . . . .	11,621	0.3	3,483	0.7	30.0	540,000	1.3
Oklahoma . . . . .	--	0.0	1,597	0.3	0.0	193,468	0.5
Oregon . . . . .	128,564	3.1	22,682	4.3	17.6	1,449,900	3.6
Pennsylvania . . . . .	24,711	0.6	5,126	1.0	20.7	601,000	1.5
Puerto Rico . . . . .	231,889	5.6	73,271	14.0	31.6	3,595,126	8.9
Rhode Island . . . . .	459	0.0	--	0.0	0.0	--	0.0
South Carolina . . . . .	18,560	0.4	4,050	0.8	21.8	558,008	1.4
South Dakota . . . . .	--	0.0	--	0.0	0.0	--	0.0
Tennessee . . . . .	6,571	0.2	741	0.1	11.3	125,000	0.3
Texas . . . . .	500,138	12.0	42,116	8.1	8.4	5,221,106	13.0
Utah . . . . .	8,983	0.2	2,957	0.6	32.9	289,825	0.7
Vermont . . . . .	1,785	0.0	--	0.0	0.0	--	0.0
Virginia . . . . .	15,079	0.4	--	0.0	0.0	--	0.0
Washington . . . . .	442,444	10.6	31,247	6.0	7.1	2,658,441	6.6
West Virginia . . . . .	2,700	0.1	2,825	0.5	104.6	300,000	0.8
Wisconsin . . . . .	8,199	0.2	2,193	0.4	26.8	364,293	0.9
Wyoming . . . . .	6,800	0.2	2,754	0.5	40.5	161,756	0.4
Total	4,171,419	100.0%	523,049	100.0%	12.54%	40,250,920	100.0%

<sup>a</sup>The total funding shown does not reflect multistate, hospital, and miscellaneous awards, which equalled \$3,215,080. The grand total for fiscal year 1988 was \$43,466,000.

<sup>b</sup>Dashes indicate that none were identified by the State.

SOURCE: J. Egan, U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Migrant Health, personal communication, March 1990.