

Office of Rural Health & Primary Care Health Workforce Analysis Program

Demographics of Physicians, Nurses and Dentists: Urban-Rural Comparisons of Minnesota's Health Care Workforce

Health care providers tend to be concentrated in more urban areas where larger hospitals and clinics are located. This report uses several alternative geographic breakdowns to analyze the distribution of physicians, nurses and dentists in Minnesota.

The Office of Rural Health and Primary Care has usually compared health workforce data for urban and rural Minnesota using a definition that treats seven Twin Cities metropolitan counties (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington), plus the cities of Rochester, Duluth and St. Cloud as urban, and all remaining counties as rural.

Using this definition, the urban part of the state has a disproportionate share of most health care professions.

“Urban” and “Rural” Minnesota

	N*	Urban	Rural
Population	5,088,006	59%	41%
All Physicians	9,336	80%	20%
Primary Care	4,709	73%	27%
Specialist	4,627	87%	13%
Registered Nurses	38,261	74%	26%
Licensed Practical Nurses	14,409	48%	52%
Dentists	1,872	69%	31%

* N = number of respondents working at a primary practice site in Minnesota.

Urban areas account for 59 percent of the state's population, but 69 percent of dentists, 73 percent of primary care physicians and 74 percent of registered nurses. Specialist physicians are even more concentrated in urban Minnesota—only 13 percent have primary practice sites in rural parts of the state.

The state can be divided in many other ways to analyze differences between more urban and more rural areas. Just as there are significant differences between urban and rural counties using the definition above, there is significant variation within the urban and rural groupings.



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Three alternative geographical schemes are used below to give a more complete picture of the geographic distribution of health care practitioners in Minnesota:

- A more urbanized 16-county area stretching from Winona and Rochester in southeastern Minnesota through the Twin Cities and St. Cloud in central Minnesota, compared to 71 more rural counties.
- A three-way analysis of 21 counties in the state's seven metropolitan statistical areas, compared to 20 micropolitan statistical area counties and 46 rural counties.
- Comparisons that separate the state's major medical centers in Hennepin, Ramsey and Olmsted counties from the rest of urban and rural Minnesota.

Taken together, these comparisons show that the urban-rural comparison used previously by the Office of Rural Health and Primary Care obscure important variations within both the urban and rural regions. General findings include:

Geographic distribution

- More urban parts of the state have a disproportionate share of physicians, dentists and registered nurses.
- Specialist physicians are more concentrated in urban areas than primary care physicians.
- Except in the most rural areas, the distribution of registered nurses and dentists is more in line with the distribution of population.
- The more rural areas have a disproportionate share of licensed practical nurses, reflecting the more decentralized pattern of nursing homes and other facilities where licensed practical nurses work.
- The highest concentrations of physicians are in Hennepin, Ramsey and Olmsted counties. Suburban counties in the Twin Cities area actually have smaller shares of physicians and nurses than their population would predict.

Age

- Rural health care providers are generally a bit older than urban providers. The gap is greatest for dentists and specialist physicians.
- Olmsted County practitioners are significantly younger than practitioners in the Twin Cities area or elsewhere in the state. The exception is Olmsted County licensed practical nurses, which are older than licensed practical nurses in other parts of the state.

Gender

Physicians and dentists are mostly male. Registered nurses and licensed practical nurses are predominantly female.

- Females make up a larger share of urban physicians and dentists than of rural practitioners.
- The urban nursing workforce is somewhat less female dominated than the rural nursing workforce.

An important lesson from this analysis is that the concentration of health care providers in Olmsted County is so exceptional that its inclusion can easily distort findings of any geographical analysis.

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The data below support these and more specific findings. All data is from the Office of Rural Health and Primary Care's workforce licensing surveys. Response rates range from more than 60 percent for dentists to more than 80 percent for physicians. The data reported here are estimates for the total workforce.

Geographic Distribution

St. Cloud-Twin Cities-Rochester-Winona Corridor

The 16 counties stretching from Winona and Rochester to St. Cloud contain three metropolitan areas, as well as several major medical centers and higher education institutions. This corridor accounts for 67 percent of the state's population, but 80 percent of the state's physicians (including 85 percent of the state's specialist physicians). The numbers of primary care physicians, registered nurses and dentists are more in line with the corridor's share of population. Licensed practical nurses are underrepresented.

	N*	Corridor**	Balance of state
Population	5,088,006	67%	33%
All Physicians	9,336	80%	20%
Primary Care	4,709	74%	26%
Specialist	4,627	85%	15%
Registered Nurses	38,261	74%	26%
Licensed Practical Nurses	14,409	53%	47%
Dentists	1,872	72%	28%

* N = number of respondents working at a primary practice site in Minnesota.

** Corridor counties include Benton, Stearns, Sherburne, Wright, Hennepin, Anoka, Ramsey, Washington, Carver, Scott, Dakota, Rice, Goodhue, Wabasha, Olmsted and Winona.

Metropolitan area—Micropolitan areas—Rural counties

Twenty-one Minnesota counties are part of seven metropolitan statistical areas that lie all or partly in Minnesota. These are counties with significant economic interdependence with urban centers of 50,000 population or more. While some parts of these counties are rural in character, they generally contain communities with relatively easy access to a large urban center. Another 21 counties are parts of micropolitan statistical areas that surround smaller urban centers of at least 10,000 population. The remaining 46 counties include the most rural parts of the state, with less access to urban centers where health care and other services are concentrated.

These county groupings reveal more dramatic contrasts between the state's most urban and most rural areas. The metropolitan counties contain 72 percent of the state's population and 84 percent of physicians, 80 percent of registered nurses and 78 percent of dentists. By contrast, the 46 rural counties contain 13 percent of the state's population, but only 5 percent of physicians. The contrast between metropolitan and rural areas is even greater for specialist physicians—89 percent practice in metropolitan counties, compared to only 2 percent in rural counties.

The micropolitan counties surrounding smaller urban centers also tend to have fewer practitioners than their population would dictate, but they fare better than they rural counties. Again, licensed practical

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nurses provide an exception. Both micropolitan and rural counties have more than their share of licensed practical nurses.

Metropolitan area—Micropolitan areas—Rural counties

	N*	Metropolitan Counties (21)	Micropolitan Counties (20)	Rural Counties (46)
Population	5,088,006	72%	15%	13%
All Physicians	9,336	84%	11%	5%
Primary Care	4,709	79%	13%	8%
Specialist	4,627	89%	9%	2%
Registered Nurses	38,261	80%	12%	8%
Licensed Practical Nurses	14,409	59%	23%	18%
Dentists	1,872	78%	14%	8%

* N = number of respondents working at a primary practice site in Minnesota.

Major health centers—Suburban counties—Balance of state

Major medical facilities in Minneapolis, St. Paul and Rochester serve large geographic areas and can skew data for regions containing them. The concentration of health care employers surrounding the Mayo Clinic is exceptional for a city of its size. There are enough physicians, nurses and dentists in Hennepin, Ramsey and Olmsted counties to produce reasonably reliable survey data, so that they can be compared to other parts of the state.

	N*	Hennepin	Ramsey	Suburbs	Olmsted	Other
Population	5,088,006	22%	10%	21%	3%	44%
All Physicians	9,336	34%	13%	12%	16%	26%
Primary Care	4,709	32%	12%	15%	9%	20%
Specialist	4,627	36%	13%	8%	23%	32%
Registered Nurses	38,261	32%	14%	11%	11%	33%
Licensed Practical Nurses	14,409	18%	9%	10%	5%	60%
Dentists	1,872	29%	11%	20%	3%	37%

* N = number of respondents working at a primary practice site in Minnesota. Suburban counties include Anoka, Carver, Dakota, Scott and Washington.

This geographic breakdown produces two major findings:

- Health care providers in the Twin Cities metropolitan area are concentrated in Hennepin and Ramsey Counties. Except for dentists, the five suburban counties have far fewer providers than their share of the state's population.
- Olmsted County, including Rochester, has far more physicians and registered nurses than its share of the state's population would predict. Its share of dentists and licensed practical nurses is close to its share of the population.

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As in other geographic comparisons, urban and rural differences are largest for specialist physicians and least for dentists. With only 3 percent of the state’s population, Rochester accounts for 23 percent of the state’s specialist physicians. Specialists are underrepresented in both suburban and rural counties.

Age

Winona-Rochester-Twin Cities-St. Cloud Corridor

Practitioners in the Winona/Rochester to St. Cloud corridor are generally a bit younger than in the rest of the state. The greatest differences are for dentists and registered nurses. Specialist physicians are generally two to three years older than primary care physicians.

	Median Age	
	W-R-TC-SC Corridor**	Balance of state
All Physicians	47	48
Primary Care Physicians	46	46
Specialist Physicians	48	49
Registered Nurses	46	48
Licensed Practical Nurses	46	46
Dentists	48	51

* N = number of respondents working at a primary practice site in Minnesota.

** Corridor counties include Benton, Stearns, Sherburne, Wright, Hennepin, Anoka, Ramsey, Washington, Carver, Scott, Dakota, Rice, Goodhue, Wabasha, Olmsted and Winona.

Metropolitan area—Micropolitan areas—Rural counties

Limiting the rural area to the 46 counties outside metropolitan and micropolitan statistical areas produces the greatest urban-rural differences in age. While rural nurses and primary care physicians are about the same age as their urban counterparts, rural dentists and specialist physicians are much older than rural practitioners.

	Median Age		
	Metropolitan Counties (21)	Micropolitan Counties (20)	Rural Counties (46)
All Physicians	47	48	47
Primary Care	46	47	46
Specialist	48	50	52
Registered Nurses	46	48	48
Licensed Practical Nurses	46	45	47
Dentists	48	49	53

* N = number of respondents working at a primary practice site in Minnesota.

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Major health centers—Suburban counties—Balance of state

This geographic breakdown does not show the tendency toward older rural dentists and practitioners because the “other” rural category includes larger trade centers beyond the Twin Cities region and Rochester. It does show that physicians, registered nurses and dentists in Olmsted County tend to be younger than in the rest of the state. The difference is greatest for specialist physicians and dentists.

A different pattern holds for licensed practical nurses, who are about three years older in Olmsted County than in other parts of the state.

Median Age

	Hennepin	Ramsey	Suburbs	Olmsted	Other
All Physicians	48	48	46	45	47
Primary Care	47	48	45	46	46
Specialist	49	48	47	45	48
Registered Nurses	47	47	46	43	47
Licensed Practical Nurses	46	46	46	49	46
Dentists	49	51	47	45	51

* N = number of respondents working at a primary practice site in Minnesota.
Suburban counties include Anoka, Carver, Dakota, Scott and Washington.

Gender

Winona-Rochester-Twin Cities-St. Cloud Corridor

Females account for a greater share of physicians and dentists in the 16 corridor counties than in the rest of the state.

There is little difference in gender composition of the nursing workforce between the two areas, although 5 percent of nurses in the corridor region are male, compared to only 2 percent in the rest of the state.

Percent Female

	W-R-TC-SC Corridor**	Balance of state
All Physicians	30%	23%
Primary Care	40%	27%
Specialist	21%	14%
Registered Nurses	94%	94%
Licensed Practical Nurses	95%	98%
Dentists	21%	19%

* N = number of respondents working at a primary practice site in Minnesota.

** Corridor counties include Benton, Stearns, Sherburne, Wright, Hennepin, Anoka, Ramsey, Washington, Carver, Scott, Dakota, Rice, Goodhue, Wabasha, Olmsted and Winona.

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Metropolitan area—Micropolitan areas—Rural counties

The female share of physicians and dentists is notably higher in metropolitan statistical area counties than in micropolitan area or rural counties. The gap is largest for primary care physicians. Forty percent of metropolitan area primary care physicians are female, compared to only 27 percent in micropolitan areas and 25 percent in rural areas. Only 12 percent of rural specialist physicians and only 10 percent of rural dentists are female.

Percent Female

	Metropolitan Counties (21)	Micropolitan Counties (20)	Rural Counties (46)
All Physicians	30%	23%	22%
Primary Care	40%	27%	25%
Specialist	20%	17%	12%
Registered Nurses	93%	95%	96%
Licensed Practical Nurses	95%	98%	98%
Dentists	21%	14%	10%

* N = number of respondents working at a primary practice site in Minnesota.

Major health centers—Suburban counties—Balance of state

Females account for a larger share of physicians in Hennepin County, Ramsey County and the five Twin Cities suburban counties than in Olmsted County or the rest of the state. The gap is most pronounced for primary care physicians.

Hennepin County, Ramsey County, the five suburban counties and Olmsted County have a similar share of female dentists. Female dentists are less common in other parts of the state.

Females constitute more than 90 percent of nurses in all areas. Only in Olmsted County does the male share of registered nurses reach 10 percent.

Percent Female

	Hennepin	Ramsey	Suburbs	Olmsted	Other
All Physicians	31%	32%	34%	24%	23%
Primary Care	42%	44%	40%	31%	29%
Specialist	21%	21%	23%	21%	14%
Registered Nurses	94%	95%	96%	90%	94%
Licensed Practical Nurses	93%	94%	97%	96%	98%
Dentists	22%	22%	23%	21%	14%

* N = number of respondents working at a primary practice site in Minnesota.
Suburban counties include Anoka, Carver, Dakota, Scott and Washington.