RURAL ENROLLMENT IN STATE HEALTH INSURANCE PROGRAMS: THE MINNESOTA EXPERIENCE

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EXECUTIVE SUMMARY

Many rural Americans remain underserved and uninsured. Attempts to initiate national health care reform and universal health insurance coverage have stalled. The impetus to continue reform and universal coverage efforts is now at the state level. Studying one state's efforts to provide insurance for uninsured rural citizens may facilitate other states' attempts to design and implement reform to provide universal health insurance coverage.

In 1992, the Minnesota State Legislature passed MinnesotaCare. This health system reform package included a subsidized insurance program. Estimates of the percent of the Minnesota population eligible for this type of insurance ranged from 6 percent to 13 percent. While estimates of the number of uninsured have improved, actual measures of the subset of the uninsured who are eligible for MinnesotaCare are not available. As of October 21, 1995, 91,140 people were enrolled in MinnesotaCare. Enrollees came from every county in the state and represent an estimated 2.1 percent of the total population of Minnesota or 2.4 percent of the Minnesota population less than age 65.

Since comparisons cannot be made of MinnesotaCare enrollment data with the actual number of people who are eligible to apply, this paper examines some of the indirect assessments that are possible using available information from census data, vital statistics data and county level MinnesotaCare enrollment figures.

Enrollment estimates in MinnesotaCare varied from a high of 10.8 percent of the population of Red Lake County who are under 65 and report incomes over 100 percent of the poverty level to a low of 1.5 percent of similar residents of Nicollet County. The lowest rates of enrollment for MinnesotaCare are clustered in southern Minnesota, especially southeastern Minnesota. Higher enrollment rates appear to cluster in central Minnesota. MinnesotaCare enrollment is positively correlated with several county level factors including the portion of the county's population with low income (but above the poverty level), the portion of the county population who accept Medicaid benefits, the county unemployment rate, and the Beale ruralness code for the county. MinnesotaCare enrollment is negatively associated with size of the county's minority population and the county's population density.

The evaluation of MinnesotaCare enrollment based on county geographic and socio-demographic factors identified few modifiable factors. However, the evaluation identified counties with unusually high and low enrollment rates. Additional studies in these counties could identify modifiable factors such as enrollment procedures, number of enrollment sites or community attitudes that appear to enhance or deter MinnesotaCare enrollment.

INTRODUCTION

An estimated 15.8 percent of all Americans (Winterbottom, Liska, and Obermaier, 1995) and 17.0 percent of rural Americans are uninsured (Frenzen, 1993). The process of providing health insurance coverage for these uninsured persons through national health care reform has stalled and the impetus has returned to state initiated health care reform. The generally high proportion of rural residents among the uninsured and special rural concerns such as the geographic dispersion and sparsity of the rural population, the unique cultural climate of rural areas, and the accessibility of health care services to be covered by insurance programs, are important considerations for states that are implementing new programs for the uninsured.

The states are in varying stages of developing health reform and insurance programs for the uninsured. Minnesota has been considered a leader in these efforts (Yawn, Yawn, and Jacott, 1993) and has a large rural population. Evaluating rural enrollment in Minnesota's state run and state subsidized insurance program for the uninsured (MinnesotaCare) may provide information useful in planning and implementing insurance programs that will serve rural citizens in other states.

This paper uses several currently available data sources to examine MinnesotaCare enrollment in rural Minnesota. Due to the sevenfold variability in MinnesotaCare enrollment across counties, the factors that may be associated with county enrollment are of special interest. In addition, recommendations are made for

the identification and collection of additional data that could further explain the variability of county level enrollment in MinnesotaCare.

BACKGROUND

In 1992, the Minnesota State Legislature passed the first version of its health system reform legislation, MinnesotaCare (formerly known as HealthRight) (Priester, 1992; Yawn, Yawn, and Jacott, 1993). Included in this health system reform package was a subsidized insurance program for uninsured persons under age 65 with yearly income levels above those necessary for Medicaid eligibility but less than 275 percent of the poverty level. Prior to applying for MinnesotaCare, a person or family has to be without insurance coverage for a minimum of four months and not have had access to employer based insurance within the past 18 months. In the first three months MinnesotaCare insurance was only available to children less than age 19. In October 1992, families with children less than age 19 years were added. In January of 1993, income ceilings were raised to 275 percent of the federal poverty guidelines for families. Currently adults without children are also eligible but only if they have incomes less than 125 percent of the poverty level and meet the other requirements previously described (Table 1). Participants contribute to premiums according to the level of yearly family income (Laws of Minnesota 1992, Chapter 549). For example, in 1993 a family of four would have contributed $25/month to $221/month depending on their family income.

Table 1

Expansion of Eligibility for MinnesotaCare

Beginning Date	Groups Eligible	Income Limit	Other Eligibility Criteria	Cost to Enrollee
July 1, 1992	Children age one through 17	185% of the federal poverty guidelines	Not eligible for Medical Assistance (MA); not otherwise insured	Annual enrollment fee of $25 per person (up to $150 per family)
October 1, 1992	Children age one through 17; parents and dependent siblings	185% of the federal poverty guidelines	Not eligible for MA; not otherwise insured; permanent Minnesota resident	Adults pay premium based on sliding scale; children pay $25 enrollment fee until July 1, 1993[1]
January 1, 1993	Children under age 18; parents and dependent siblings	275% of the federal poverty guidelines	Not eligible for MA; no access to employer subsidized coverage for 18 months; at least 4 months uninsured; permanent Minnesota resident	Premiums based on sliding scale
October 1, 1994	Single adults, families with or without children	275% of the federal poverty guidelines for families, 125% of the federal poverty guidelines for single adults	Not eligible for MA; no access to employer subsidized coverage for 18 months; at least 4 months uninsured; permanent Minnesota resident	Premiums based on sliding scale

Source: House Research Department, MnCare, Minnesota Legislature, St. Paul, MN, October, 1994 and written communication from Kathy Lamp, Director, MinnesotaCare, February 1996.

[1]This applies to children in households with incomes under 185 percent of the federal poverty guidelines applying for coverage through June 30, 1993, and is contingent upon the availability of appropriations.

As of October 21, 1995, 91,140 Minnesotans were enrolled in MinnesotaCare (written communication, Jeanyne B. Slettom, Public Information Officer, MinnesotaCare, December 1, 1995). Enrollees include residents from every county in the state. The 91,140 enrollees represent 2.1 percent of the total population of Minnesota or 2.4 percent of the Minnesota population less than age 65. Before MinnesotaCare was passed by the legislature, estimates of the number of Minnesotans eligible for MinnesotaCare insurance were based on estimates of the state's total uninsured population. Estimates of the percent of Minnesotans that were uninsured ranged from 6 percent (262,506 people, based on a Health Access Commission Survey) to 13 percent (568,762 people, based on the Current Population Survey, U.S. Bureau of Census).

Unfortunately none of the available estimates reflect actual MinnesotaCare eligibility. To accurately assess the population eligible for MinnesotaCare, it is necessary to know the size of the uninsured population and to exclude several subgroups of the total uninsured population. Families with incomes greater than 275 percent of the poverty level and single individuals with incomes greater than 125 percent of the poverty level are not eligible for MinnesotaCare.[1] Persons with access to insurance (employer subsidized, Medicare or Medicaid) but who choose not to obtain it may not apply for MinnesotaCare and should also be excluded from the

[1]According to the Current Population Survey from the Bureau of Census, 1991-1993, the income distribution of the uninsured in Minnesota is as follows: 16.8% below 100% of the poverty level, 37% between 100 and 199% of the poverty level, 18.7% between 200 and 299% of the poverty level, and 27.5% with incomes greater than 300% of the poverty level (Mitchell, 1993).

population of uninsured persons who are eligible for MinnesotaCare. No new or more accurate estimates of the target population for MinnesotaCare insurance have been made since 1992, although a study in progress may provide updated state level estimates of Minnesota's uninsured population.

The 91,140 enrollees in MinnesotaCare as of October 21, 1995 represented less than 39 percent of the presumed uninsured persons based on the most conservative estimates of Minnesota uninsured, that is the 6 percent estimate of the Health Care Access Commission. But with no accurate baseline data of who is uninsured and eligible for MinnesotaCare, it is difficult to assess the success of the program in insuring the uninsured. We do not know what percentage of Minnesotans are eligible for MinnesotaCare or what percent of eligible Minnesotans have enrolled in MinnesotaCare.

Rather than trying to understand MinnesotaCare enrollment from a statewide perspective, separating the state into rural and urban regions may facilitate better understanding. The work of other researchers suggests that socioeconomic factors necessary for MinnesotaCare eligibility may be more common among the rural population in Minnesota. In general, rural residents are required to pay more for health insurance than comparable groups of metropolitan residents and "discretionary" income in many young rural families is very limited. (Hartley, Quam, and Lurie, 1994; Kralewski, Liu, and Shapiro, 1992). The percentage of people self-employed and therefore not eligible for employer subsidized insurance is higher in rural counties. (Hartley, Quam, and Lurie, 1994; Thomas, 1994; Braden and

Beauregard, 1994; Norton and McManus, 1989). Lower average income has been shown to be associated with higher rates of uninsured persons (Braden and Beauregard, 1994; Hartley, Quam, and Lurie, 1994; Kralewski, Liu, and Shapiro, 1992) and per capita income is lower in rural counties in Minnesota.

Eligibility rates, however, may vary not only between metropolitan and rural areas but among rural counties within Minnesota. The distribution of age, income, employment and race varies among the populations of different rural Minnesota counties. Diehr et al., (1993), found these factors to be associated with varying levels of state insurance program enrollment in Washington and these factors may affect rural enrollment in MinnesotaCare. Other factors that may be uniquely associated with rural accessibility of health services (such as distance to a metropolitan area and sparseness of the population) will also be considered since rural citizens with less accessibility to services may be less likely to purchase health insurance.

METHODS

This paper presents an initial assessment of the penetration of MinnesotaCare into the state's rural populace on a county-by-county basis. Using a combination of county-level census data, vital statistics from the Minnesota Department of Health and Minnesota Department of Human Services, and data from the Area Resource File, we compare the number of MinnesotaCare enrollees with county population characteristics and degree of ruralness.

Data from the Minnesota Department of Health included the percentage of the population at or below 100 percent and 200 percent of the federal level for poverty.[2] Information on the number of enrollees in MinnesotaCare and the number of Medicaid beneficiaries was obtained from the Minnesota Department of Human Services. The Area Resource File provided information on the total population, the proportion of non-white individuals, the population density, the unemployment rate, and the population less than age 65 by county.

The 1988 rural/urban continuum scale used in the analysis was developed by the Department of Agriculture (Table 2). This scale was included to better quantify the difference in "ruralness" among rural counties. Rural Minnesota counties were defined as those that are not listed as part of metropolitan areas by the Federal Office of Management and Budget plus six counties that are listed as MA counties but have more characteristics in common with rural than metropolitan areas. This includes Houston, Clay and Polk counties, which have no cities of greater than 5,000 residents but are adjacent to metropolitan areas in other states. Since the MinnesotaCare program is Minnesota based, these border counties appear to be rural when considering this program. In addition, Stearns, Benton, and St. Louis counties have a single metropolitan area that is more than 60 miles distant from the majority of the county's land mass. All of these counties have Beale codes of four or greater, identifying them more with rural areas than the other MA counties.

[2]Although MinnesotaCare eligibility is up to 275% of the poverty level, no county level data is available from the U.S. Bureau of Census other than the percent of the population below 100% or below 200% of the poverty level.

Table 2

Beale Code (Rural/Urban Continuum)

	Metropolitan Counties	
0	Large Metropolitan: Core Counties	Core counties of greater SMSA's of 1,000,000 or more population
1	Fringe Counties	Noncore counties of metropolitan areas of 1,000,000 or more population
2	Medium Metropolitan	Counties of metropolitan areas of 250,000 to 999,999 population
3	Lesser Metropolitan	Counties of metropolitan areas of less than 250,000
	Nonmetropolitan Counties	
	Urbanized:	
4	Adjacent to SMSA	Counties contiguous to SMSA and having 20,000 or more urban residents
5	Not adjacent to SMSA	Counties not contiguous to SMSA which have 20,000 or more urban residents
	Less Urbanized:	
6	Adjacent to SMSA	Counties contiguous to SMSA and having 2,500 to 19,999 urban residents
7	Not adjacent to SMSA	Counties not contiguous to SMSA which have 2,500 to 19,999 urban residents
	Thinly Populated:	
8	Adjacent to SMSA	Counties having less than 2,500 urban residents, contiguous to SMSA
9	Not adjacent to SMSA	Counties having less than 2,500 urban residents, not contiguous to SMSA

Source: Economic Research Service, U.S. Department of Agriculture.

Descriptive tables of all Minnesota's rural counties were developed to compare the number of enrollees in MinnesotaCare to the number of residents in the county less than 65 years of age who reported incomes greater than 100 percent of the poverty level on the 1990 census. People over age 65 are not eligible for MinnesotaCare and those under sixty-five who have incomes less than 100 percent of the poverty level are likely to be eligible for Medicaid or other state programs and therefore are also not eligible for MinnesotaCare. While Medicaid has additional categorical eligibility requirements, 100 percent of the poverty level is considered an adequate proxy for Medicaid eligibility (Norton and McManus, 1989). The counties were ranked from highest to lowest based on the percent of county residents enrolled in MinnesotaCare.

To better understand the county-to-county variability in MinnesotaCare enrollment, partial correlation coefficients were calculated, comparing each county's MinnesotaCare enrollment to relevant demographic and socio-economic variables that have been identified by researchers studying state subsidized insurance programs (Diehr et al., 1993; Nelson et al., 1994). These variables include county population density, unemployment rate in the county, ruralness of the county, percent of eligible persons requesting and receiving Medicaid benefits, and racial mix of county residents. Partial correlation coefficients were used to control for the intercorrelation among the socio-economic variables.

RESULTS

MinnesotaCare enrollment in rural counties varies from a high of 10.8 percent of the population of Red Lake County who are under age 65 and report incomes over 100 percent of the poverty level to a low of 1.5 percent in Nicollet County (Table 3). Figure 1 displays the same data on a map of Minnesota counties. Counties with the lowest percentage of the population enrolled in MinnesotaCare are clustered in southern Minnesota, especially southeastern Minnesota. Counties with higher enrollment appear to cluster in central Minnesota. Three counties (Red Lake, Clearwater, and Aitkin) have over 10 percent of the population under age 65 and with incomes over 100 percent of the poverty level enrolled in MinnesotaCare.

Partial correlation coefficients of MinnesotaCare enrollment with relevant socio-economic and demographic variables identified in the health services literature are shown in Table 4. In rural counties in Minnesota, increases in the unemployment rate, the number of citizens less than 65 years of age with incomes greater than 100 percent and less than 200 percent of the poverty level, and the number of persons receiving Medical Assistance are all positively correlated with the level of MinnesotaCare enrollment. A higher level of rurality on the Beale rural-urban continuum is also associated with higher county MinnesotaCare enrollment. However, having more non-white residents and being more sparsely populated (i.e., lower population density) are associated with lower county enrollment in MinnesotaCare. All of these partial correlations are statistically significant.

Table 3

Ranking of Rural Counties by MinnesotaCare Enrollment Rate

County	Percent* Enrolled in MinnesotaCare	Percent Receiving Medical Assistance	Percent Minority	Percent Under 200% of Poverty	Unemployment Rate	Population Density
Red Lake	10.76	22.02	1.10	56.33	15.4	10.45
Clearwater	10.55	38.21	7.77	62.68	17.0	8.32
Aitkin	10.49	33.39	1.86	64.48	11.3	6.77
Cass	9.72	36.06	11.39	61.93	9.6	10.72
Hubbard	9.71	29.03	2.02	52.49	9.4	15.96
Wadena	9.68	32.88	1.05	62.40	7.3	24.45
Big Stone	9.27	22.58	0.76	58.49	5.3	12.65
Lincoln	8.66	16.95	0.48	58.33	5.0	12.81
Traverse	8.35	27.09	3.18	56.85	5.6	7.76
Morrison	8.20	20.25	0.66	51.59	9.0	26.34
Swift	8.15	22.15	0.94	55.49	6.4	14.43
Becker	8.10	32.90	7.29	52.29	10.6	21.25
Norman	7.84	24.55	1.37	53.25	7.6	9.09
Pope	7.67	20.22	0.44	57.97	5.7	16.09
Lake of the Woods	7.48	17.08	0.83	47.95	6.1	3.15
Todd	7.44	22.69	0.56	59.87	8.2	24.83
Otter Tail	7.38	18.00	1.03	48.48	7.0	25.70
Grant	7.27	20.65	0.50	57.09	6.7	11.42
Marshall	6.77	15.39	0.95	50.11	12.7	6.25
Beltrami	6.71	34.43	17.38	53.20	7.8	13.72
Lac Qui Parle	6.68	15.78	0.64	52.88	4.9	11.56
Crow Wing	6.65	24.00	1.38	47.30	7.4	43.90
Itasca	6.46	27.30	3.68	45.53	10.8	15.36
Douglas	6.26	17.01	0.73	47.85	5.9	44.59
Pine	6.24	23.30	4.19	47.73	9.6	14.96
Yellow Medicine	5.87	19.30	1.61	50.59	5.5	15.41
Mahnomen	5.85	34.89	24.01	68.81	8.2	9.02
Chippewa	5.38	19.85	0.86	45.90	6.7	22.65
Kanabec	5.33	21.03	1.14	46.14	9.6	24.29
Mille Lacs	5.27	22.92	3.75	46.93	7.6	32.30
Murray	5.26	16.49	0.31	48.44	6.3	13.76
Pennington	5.21	23.04	1.55	45.79	8.8	21.53
Renville	5.18	24.47	1.42	46.45	5.9	17.96
Wilkin	5.00	21.67	1.20	47.04	4.5	10.01
Pipestone	4.95	17.11	2.34	50.82	5.0	22.51
Kandiyohi	4.91	24.80	2.38	40.70	5.2	49.44
Meeker	4.89	16.77	1.26	43.53	8.4	33.41
Cottonwood	4.85	16.12	1.03	48.59	7.3	19.83
Polk	4.82	35.00	3.07	45.76	5.5	16.40
Koochiching	4.67	18.28	4.09	44.18	9.7	5.24

Table 3 (continued)

County	Percent* Enrolled in MinnesotaCare	Percent Receiving Medical Assistance	Percent Minority	Percent Under 200% of Poverty	Unemployment Rate	Population Density
Redwood	4.44	15.37	2.20	49.16	4.4	19.56
Cook	4.30	13.12	7.70	40.59	6.2	2.74
Stevens	4.16	12.41	2.52	46.11	4.3	18.99
Fillmore	4.07	15.11	0.58	49.28	5.7	24.10
Kittson	3.96	16.65	0.61	46.46	7.7	5.22
Lake	3.91	16.85	0.80	42.04	9.4	5.07
Carlton	3.80	20.49	4.90	40.31	8.2	33.86
Rock	3.74	12.17	0.76	47.17	3.3	20.30
Lyon	3.68	14.56	1.47	38.50	3.9	34.72
Martin	3.62	16.36	0.87	42.42	5.8	32.46
Faribault	3.50	17.53	1.58	48.49	5.9	23.72
St. Louis	3.34	22.87	3.11	39.93	7.4	32.36
Freeborn	3.25	16.16	2.55	38.89	4.7	46.89
Nobles	3.18	16.07	3.44	44.56	4.4	28.15
Watonwan	3.14	19.01	4.81	45.92	4.9	26.86
Mower	3.14	18.58	1.32	40.11	3.9	52.58
Jackson	3.11	21.55	2.25	45.36	5.4	16.71
Roseau	3.11	10.22	1.68	40.64	4.9	8.96
Sibley	3.08	12.68	0.74	42.05	6.7	24.23
Dodge	2.82	14.38	1.28	31.91	6.0	35.83
Le Sueur	2.64	12.36	0.70	33.19	6.4	52.11
Clay	2.56	21.22	3.69	35.52	4.3	48.07
Wabasha	2.55	12.09	0.83	35.03	5.2	36.77
Benton	2.47	14.78	1.15	36.23	5.7	73.98
Rice	2.46	9.89	2.24	26.21	5.7	98.17
Blue Earth	2.27	13.08	2.58	40.96	3.8	72.15
Goodhue	2.26	11.63	1.45	30.09	4.3	53.33
Winona	2.26	10.91	1.96	36.48	5.2	75.92
Houston	2.26	11.95	0.72	37.19	5.6	32.80
Waseca	2.19	12.67	1.08	36.31	5.1	42.84
Brown	2.09	11.34	0.72	35.99	5.2	44.24
Stearns	2.02	9.81	1.46	34.93	5.1	88.78
McLeod	1.95	11.04	1.06	28.18	5.3	65.50
Steele	1.70	11.11	1.53	26.87	4.8	71.30
Nicollet	1.53	9.90	1.57	26.04	3.5	63.81

*This column compares the number of MinnesotaCare enrollees to the number of county residents less than 65 years of age with incomes greater than 100 percent of the poverty level on the 1990 census. Only persons less than age 65 are included in the percent receiving MA and the percent under 200% of poverty. The other columns present population characteristics as a percent of the total county population.

MinnesotaCare Enrollment as a Percent of County Residents Less Than Age 65 with Income Greater Than 100 Percent of the Poverty Level

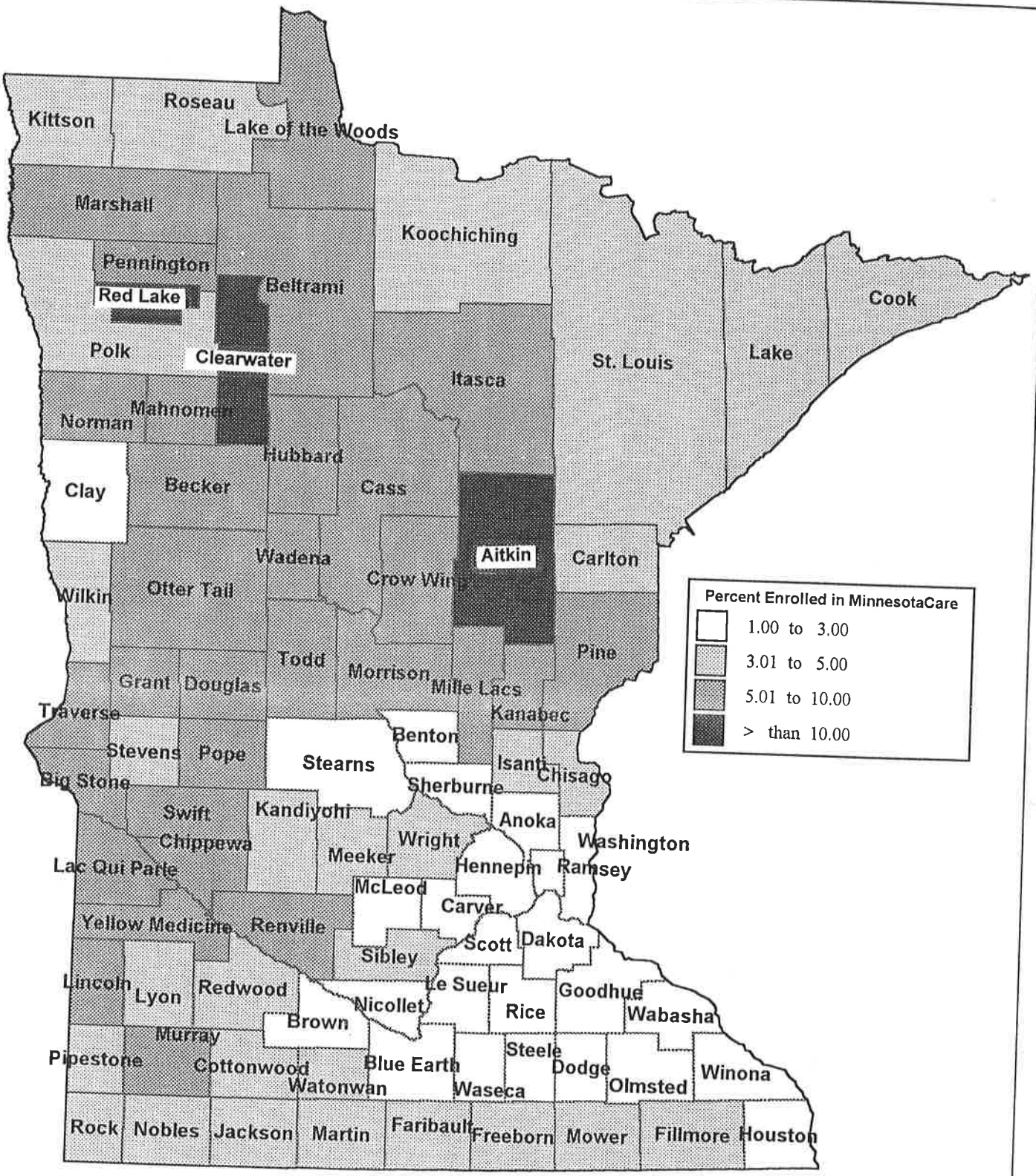

Table 4

The Relationship of MinnesotaCare Enrollment and County Socio-Economic and Demographic Characteristics (Rural Counties Only, n = 75)

Variable	Pearson Partial Correlation Coefficient	p-value
Percent of persons < 65 years who are receiving Medical Assistance	0.44	0.0001
Percent of non-white residents in county	-0.53	0.0001
Population density of the county in persons/square mile	0.25	0.0349
Percent of persons < 65 years whose yearly income is between 100 and 200 percent of the poverty level*	0.68	0.0001
Beale code (rural/urban continuum)	0.33	0.0053
Unemployment rate	0.46	0.0001

* Although MinnesotaCare eligibility is up to 275% of the poverty level, no county level data is available from the U.S. Bureau of Census other than the percent of the population below 100% or below 200% of the poverty level.

DISCUSSION

Overall enrollment in MinnesotaCare is less than 40 percent of the estimated uninsured population of Minnesota and varies widely from county to county with a greater than sevenfold difference between the highest and lowest county enrollments. It is not possible to make more specific assessment of the effectiveness of the penetration of MinnesotaCare into rural counties since no measurements of the actual number of MinnesotaCare eligible residents are available. However, from this analysis it is possible to assess factors that are associated with higher levels of MinnesotaCare enrollment.

MinnesotaCare enrollment is positively correlated with the individual county's unemployment rate and the percentage of the county's population with incomes greater than 100 percent and less than 200 percent of poverty. Since MinnesotaCare eligibility requires having income levels less than 275 percent of the Federal poverty guidelines this finding could be anticipated. It is also consistent with the findings of other studies of state subsidized insurance programs (Diehr et al., 1993; Holahan and Zedlewski, 1991; Thomas, 1994). As expected, a higher unemployment rate implies less access to employer based insurance programs and greater MinnesotaCare enrollment.

The percent of the population that is non-white was negatively correlated with MinnesotaCare enrollment. This finding was not anticipated since a previous study found that an increase in the minority population resulted in an increase in enrollment in the state subsidized insurance program (Diehr et al., 1993). Several explanations

are possible including the availability of Indian Health Service providers for Native Americans in rural counties and the high percentage of rural minorities who are recent immigrants and are currently receiving Medicaid benefits. While these may be plausible explanations this finding deserves further evaluation.

The percent of persons who receive Medicaid in each county is positively correlated with MinnesotaCare enrollment. Since those eligible for Medicaid are not eligible for MinnesotaCare, this variable is used as a proxy for the populace's acceptance of state subsidized insurance programs rather than as a proxy for income. Other researchers have found that communities less concerned with the stigma of accepting Medicaid may also be more willing to accept other subsidized programs (Nelson et al., 1994; Holahan and Zedlewski, 1991; Braden and Beauregard, 1994).

Both the population density and the ruralness of the county, as assessed by the Beale code, were positively correlated with MinnesotaCare enrollment. Increased ruralness was positively correlated with increased enrollment after adjusting for other factors such as the county unemployment rate and level of poverty. This suggests that other factors that have not been considered in the analysis, such as employee access to employer-based insurance, county methods of enrollment in MinnesotaCare or the populace's perception of the accessibility of health care in more rural counties, may be important.

The clustering of lowest and highest enrollment rates in southeastern and central Minnesota respectively, are interesting. While some of this may be based on demographic and socio-economic factors such as unemployment rates and family

income identified by other researchers and shown here to be correlated with MinnesotaCare enrollment, the geographic clustering may deserve additional investigation. Southeastern Minnesota has higher employment rates and more non-agricultural jobs than many other rural areas of the state. Information about the availability of employer-based insurance for those who are employed would be useful. If employers in southeastern Minnesota are more likely to provide or subsidize employee insurance, this could further explain the lower MinnesotaCare enrollment in this region.

Northwestern Minnesota has a large Native American population that may have very different needs than minority groups in other regions of rural Minnesota. The Indian Health Service is available to most Native Americans living on reservations and does not require reimbursement from MinnesotaCare. However, many Minnesota Native Americans choose to use a combination of services from the Indian Health Service and community providers. MinnesotaCare could be a valuable payment option for community-based services. The use and acceptability of MinnesotaCare to rural Native Americans should be explored.

County level enrollment in MinnesotaCare depends on county geographic and socio-demographic variables. However, few of these variables are easily modifiable. It is important to search for other more modifiable county or county level program characteristics if we hope to increase the accessibility of MinnesotaCare enrollment to the uninsured. Studies of applicant perceived barriers to other state run programs (such as Medicaid) identify length of the application form, access to application sites,

personal pride, stigma associated with the program, program restrictions prohibiting patient contributions for services (Nelson et al., 1994; Holahan and Zedlewski, 1991; Braden and Beauregard, 1994), and attitude of the enrollers (Thomas, 1994) as barriers to enrolling.

Basic requirements for county administration of MinnesotaCare enrollment have been developed and disseminated by the Minnesota Department of Human Services. However, counties continue to have great latitude in the activities they use to promote MinnesotaCare. Each county chooses how it advertises MinnesotaCare and educates the populace regarding benefits available. Each county chooses the number and location of enrollment sites. Each county has different providers who may have different levels of willingness to encourage MinnesotaCare participation. Case studies of counties with high and low MinnesotaCare penetration could generate hypotheses about which of these factors is likely to be most important in explaining enrollment variation. Each case study would include a description of enrollment procedures, enrollment sites, and attitudes and workload of staff who complete enrollment procedures and reviews. The outreach or collaborative activities of the county human service agency in assuring MinnesotaCare enrollment would also be assessed.

In addition, a group of MinnesotaCare beneficiaries and health care professionals from each county would be interviewed to identify attitudes, barriers, community pressures and other community factors that encourage or discourage MinnesotaCare participation. Potential barriers to be studied include distance to enrollment site, cultural differences in acceptance of a government-administered

program, and perceived difficulty in completing the enrollment process. Factors that encourage enrollment would also be studied. These include multiple enrollment sites, ability to enroll at the point of service and widespread marketing of the program.

In summary, many of the factors associated with increased enrollment in state subsidized insurance programs are not easily modified (e.g., unemployment rates, population density, and ruralness of a county). However, our finding of apparent lower enrollment by minority persons may have implications for states with large minority populations. Moreover, other factors that may impact culturally diverse groups as well as all rural citizens have not been studied. These factors include the accessibility of enrollment sites, the length and difficulty of the enrollment process, the enthusiasm of providers and local program administrators for the program and the community acceptability of the program and its implementation processes. Selected case studies would provide additional information on enrollment implementation and program administration procedures and community attitudes that are modifiable and likely to enhance rural enrollment in state subsidized health insurance programs.

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