

**Access to Rural Pharmacy Services  
In Minnesota, North Dakota, and South Dakota**

*Working Paper Series*

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## EXECUTIVE SUMMARY

This paper describes the current status of rural retail pharmacies in Minnesota, North Dakota, and South Dakota, including their organizational characteristics, staffing, services provided, financial status, and planned future changes; examines the availability of pharmacy services in rural areas of these three states, including changes over the past three years in the distribution of pharmacies; and briefly analyzes regulatory and policy issues that affect the delivery of pharmacy services in rural areas. Data for the study came from a phone survey of 537 rural pharmacies in the three states, an analysis of pharmacy licensure data, and follow-up phone interviews with clinic, public health, and social services staff in rural communities with potential pharmacy access problems.

Most rural residents of Minnesota, North Dakota, and South Dakota live within a 20 mile radius of a retail pharmacy, and three-fourths of rural pharmacists do not perceive that geographic barriers make it difficult for residents of their area to access pharmacy services. However, geographic access to pharmacy services is a problem in some rural areas of northern Minnesota, central and western North Dakota, and western South Dakota, where pharmacies are more than 20 miles apart. Many of these areas are sparsely populated, and underserved by primary medical care and other health care providers, as well as by pharmacies. In addition, these counties have significantly higher rates of poverty than other counties in the three states; therefore, the people in these areas have multiple problems with access to pharmacy services. The pharmacy access problems that exist in these three states are not primarily due to closure of rural pharmacies in recent years.

### **Recommendation #1**

State policy initiatives to address problems with geographic access to pharmacy services should be targeted to rural pharmacies that are critical for access, using criteria that take into account the distance from each pharmacy to the next nearest pharmacy, and the capacity of the next nearest pharmacy to provide pharmacy services to the population at risk.

To evaluate the need for subsidies or reimbursement enhancement for pharmacies that are critical for access, states will need to obtain financial data from pharmacies. This study requested financial information from pharmacies, but was unable to obtain sufficient data to assess their financial status.

State Boards of Pharmacy should continue exploring ways to allow or encourage alternative methods of providing pharmacy services in underserved rural areas, such as telepharmacy.

Rural areas are likely to experience a significant demand for rural pharmacists and pharmacy technicians in the near future, due to retirements, increases in the volume of prescriptions, and expansion of services offered by pharmacies. The national movement toward the Pharm.D. degree means that rural pharmacies seeking to replace retiring pharmacists or add new pharmacists will increasingly need to recruit pharmacists with Pharm.D. degrees. Colleges of Pharmacy and rural communities will need to work together to prepare pharmacists for rural practice and enable them to make use of their skills in rural settings.

**Recommendation #2**

All states should evaluate the capacity of their Colleges of Pharmacy to produce an adequate supply of rural pharmacists over the next decade, taking into account demographic trends and the impact of recent initiatives to promote rural practice.

Relief coverage emerged as a major concern for many rural pharmacies. Rural pharmacists work long hours to provide access to pharmacy services, and 30 percent of rural pharmacies are staffed by a single pharmacist. More than half of all rural pharmacies report it is difficult or very difficult to obtain relief coverage for pharmacists for scheduled time off, and two-thirds report that it is difficult or very difficult to obtain relief coverage on short notice, for example if the pharmacist is ill. Forty-one pharmacies had to close at least one day during the past year because of lack of pharmacist coverage.

**Recommendation #3**

State Pharmacy Associations, Colleges of Pharmacy, and Boards of Pharmacy should explore additional options to provide affordable relief coverage for rural pharmacists, for example, regional or state level locum tenens programs. These organizations should evaluate the need for state funding to develop programs that would encourage cooperative coverage relationships within geographic areas, both among retail pharmacies in neighboring communities, and among hospital and retail pharmacies.

Financial access to pharmacy services is a major concern in rural areas of Minnesota, North Dakota, and South Dakota, especially for the rural elderly who lack prescription drug coverage. Three-fourths of rural pharmacist respondents agree or strongly agree that financial barriers such as lack of insurance make it difficult for some residents of their area to access pharmacy services. Clinic, public health, and social services staff in rural communities at risk for pharmacy access problems also rate financial access to pharmacy services for the elderly as a major problem.

Existing programs to assist the elderly in obtaining medication only meet a portion of the need, and are not a good long term solution to the problem of financial access to prescription drugs for the elderly and uninsured. The complex application process and the lengthy processing time for pharmaceutical companies' free medication programs often leave individuals without an adequate supply of medication for a period of time. These programs require additional clinic administrative time, and urgent and acutely needed medications such as antibiotics are not available.

**Recommendation #4**

More comprehensive approaches should be implemented to ensure financial access to prescription drug coverage for the elderly and other vulnerable populations, including the addition of a prescription drug benefit to the Medicare program.

Several sources, including the pharmacy literature, the Rural Pharmacy Advisory Committee, the pharmacist survey, and state board and association interviews, identified the financial viability of rural pharmacies as a key policy issue. The negative impact of increased competition from large chain pharmacies and mail-order companies, reductions in third-party reimbursement levels, and discriminatory pricing on the part of drug manufacturers were cited as major causes of the financial difficulties currently being experienced by independent and small chain pharmacies in rural areas.

Medicare beneficiaries without prescription benefits comprise a large portion of patient pay consumers in rural pharmacies, and the profit margin on prescriptions paid by Medicare is likely to be lower than the margin currently paid by private pay customers. While a prescription benefit will increase demand among low income beneficiaries who have not been able to afford needed prescriptions, the increase in demand may not offset the reduced margin for rural pharmacies. If Medicare reimbursement rates are significantly lower than the private pay rates pharmacies currently charge to private pay customers, and the benefit is administered by pharmacy benefit management companies that rely on mail-order and large chains to reduce costs, the addition of a Medicare prescription benefit may have a substantial negative impact on the financial status of rural pharmacies. This in turn may reduce geographic access to pharmacy services for rural Medicare beneficiaries and other rural residents.

**Recommendation #5**

In designing a Medicare prescription benefit, Congress should consider the potential financial impact on rural pharmacies.

## INTRODUCTION

Studies of access to health care services in rural areas have traditionally focused on primary and specialty medical care, and on hospital services. Recently, however, access to pharmacy services in rural areas has begun to receive more attention, as a result of increased utilization of prescription medications, the rising costs of drugs, and pharmacy closures and pharmacist shortages in some rural areas.

Problems with access to pharmacy services may cause rural consumers to delay or forego essential treatment with prescription medications. The rural elderly are at particularly high risk, because of their high rates of prescription medication use relative to other age groups, their greater likelihood of experiencing transportation problems, and often limited financial resources. In addition, many elderly persons take multiple prescription medications, making them vulnerable to drug interactions. Given the high rate of prescription medication use among the elderly, and the number of elderly persons taking multiple medications, the patient education and counseling component of pharmacy services is especially important for this population.

The recent policy debate about adding a prescription drug benefit to the Medicare program has generated considerable interest in beneficiaries' prescription drug coverage, utilization, and out-of-pocket expenditures for drugs (Davis et al., 1999; Gibson et al., 1999; Stuart et al., 2000; Poisal and Chulis, 2000; U.S. Department of Health and Human Services (USDHHS), 2000). The debate over a potential Medicare prescription drug benefit has particular salience for rural beneficiaries, who are much less likely than urban beneficiaries to have any type of drug coverage (Poisal and Chulis, 2000; USDHHS, 2000; Coburn and Ziller, 2000). Depending on how it is designed and implemented, a Medicare prescription drug benefit may

also have a significant financial impact on rural pharmacies if, for example, the pharmacy network for the benefit is limited.

The purpose of this project is to analyze the extent to which problems with access to pharmacy services exist in rural areas of three states, Minnesota, North Dakota, and South Dakota, especially for the rural elderly. The project describes the current status of rural retail pharmacies in the three states, including their organizational characteristics, staffing, services provided, financial status, and planned future changes; examines the availability of pharmacy services in rural areas of these three states, including changes over the past three years in the distribution of pharmacies; and briefly analyzes regulatory and policy issues that affect the delivery of pharmacy services in rural areas.

#### **PREVIOUS RESEARCH ON ACCESS TO RURAL PHARMACY SERVICES**

Much of the existing literature on pharmacy services in rural areas consists of articles based on anecdotes or opinions. One national study and five state or county level studies were reviewed that involved empirical research on access to pharmacy care in rural areas.

Doucette et al. (1999) examined the relationship between market factors and the availability of a community pharmacy nationally. The study used 1994 licensure data from the National Council of Prescription Drug Programs. The number of pharmacies per 10,000 population in a county ranged from 0 to 12.59, with a mean of 2.68 pharmacies per county. Location, the percentage of elderly, HMO penetration rates, and the percentage of the population below poverty level affected the pharmacy to population ratio and the ratio of independent pharmacies to all pharmacies in a county.

Ranelli and Coward (1996) conducted a telephone survey of 400 elderly urban and rural residents in one metropolitan and six non-metropolitan Florida counties, achieving an 83 percent

response rate. Most rural and urban respondents used a single pharmacy source. Rural respondents were more likely than urban respondents to use independent pharmacies, mail-order services, and pharmacies in another town. Watts, Dinger et al. (1999) surveyed 5,474 residents in a rural Illinois county by mail, obtaining a 51 percent response rate. Households with less than \$25,000 annual income valued access to pharmacy services more than households with more than \$75,000 annual income. Straub and Straub (1999) analyzed data regarding satisfaction with pharmacy services from the 1996 Illinois Rural Life Panel survey. Over three-quarters of rural respondents had a pharmacy in their community, and 64 percent reported using it, for reasons of cost, quality, and convenience. The authors concluded that local access to a pharmacy remains good for rural Illinois residents, despite a decline in the number of rural pharmacies.

Xiao, Sorofman, et al. (2000) examined the effect of pharmacy closures in 1994 on Medicaid beneficiaries' drug use in 16 communities in Iowa. Pre-closure and post-closure prescription claims were compared. Controlling for demographic characteristics and health status, patients whose main pharmacy closed had significantly fewer prescriptions in the six month period after closure, while patients whose main pharmacy did not close had significantly more prescriptions in the same six month period.

Scott, Neary et al. (1992) surveyed urban and rural pharmacists in Nebraska by mail, obtaining a 62 percent response rate. Individuals reared in rural areas were more likely to practice in rural areas. Rural pharmacists were more likely to have lower salaries and to be the owner or part owner of the pharmacy. One third of rural pharmacists and one fourth of urban pharmacists worked more than 50 hours per week. Straub and Straub (1999) surveyed pharmacists in 74 rural counties in Illinois by mail, achieving a 46 percent response rate. The

survey questions covered prescription sales, profitability, payment sources, and factors affecting rural pharmacies. Respondents reported a shift in revenues by payment source over the past decade, with the largest changes being a reduction in private pay revenues and an increase in managed care revenues.

In summary, the review of literature indicated a definite need for empirical research on the status of rural pharmacies and access to pharmacy services in rural areas. This study was designed to help fill that need, by collecting and analyzing primary and secondary data on rural pharmacies in a three state area.

## **STUDY DESIGN**

This study consisted of three interrelated parts: 1) a phone survey of all rural pharmacies in these three states; 2) an analysis of pharmacy licensure data from Minnesota, North Dakota, and South Dakota, and follow-up phone interviews with clinic and public health staff in rural communities with potential pharmacy access problems; and 3) a brief analysis of regulatory and policy issues that affect the delivery of pharmacy services in rural areas.

The first part of the project consisted of a phone survey of all licensed rural pharmacies in the three states. Rural areas were defined as counties located outside of metropolitan statistical areas (MSAs).<sup>1</sup> The unit of analysis was the pharmacy, and the survey respondents were the pharmacist in charge at each rural pharmacy. The survey questions addressed the organizational characteristics of the pharmacy; staffing and relief coverage; volume of prescriptions; financial measures; the type of services provided; planned changes in staffing and services; and the pharmacists' assessments of access problems in the area. The survey interviews were conducted by the University of Minnesota Survey Research Center, from January to March 2000.

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<sup>1</sup>The federal Office of Management and Budget defines an area as an MSA if it includes at least one city with 50,000 inhabitants or an urbanized area of at least 50,000 inhabitants and a total metropolitan population of at least 100,000.

The survey instrument was developed by University of Minnesota Rural Health Research Center (UMRHRC) staff, with input from a Rural Pharmacy Advisory Committee formed for the project. The Committee consisted of three pharmacists, one from each of the states in the project, who were selected with the assistance of the state pharmacy associations; and a rural physician and a rural hospital administrator from Minnesota. At the start of the project, Committee members met in an all-day session to provide input to the overall study design and development of the survey protocols.

The second part of the project involved an analysis of secondary data on currently licensed pharmacies and pharmacies that closed within the last three years in Minnesota, North Dakota and South Dakota. The data were obtained from the Minnesota, North Dakota and South Dakota Boards of Pharmacy, and consisted of the names and addresses of all licensed pharmacies in the three states as of 1999, and lists of pharmacies that closed during the previous three years (1996-1998). The data were matched to a Census Bureau database consisting of latitude and longitude points for each zip code in the United States, which was used to determine the location of each rural pharmacy. Maps were then created with the locations of all pharmacies in the three states to determine which rural communities are more than 30 minutes travel time from a pharmacy, the standard used in designating federal primary care health professional shortage areas.

The pharmacy data was then used to identify rural communities where potential problems exist with geographic access to pharmacy services. These communities included: 1) communities where the sole pharmacy had closed during 1996-99, and 2) communities located more than 20 miles away from another pharmacy. In these rural communities, follow-up phone interviews were conducted with nurses in physicians offices/clinics, social services providers,

and public health nurses to determine how elderly community members obtain pharmaceuticals, and to document specific problems with access to pharmacy services and innovative approaches that have been implemented to increase access to pharmacy services.

The project also included a brief analysis of regulatory and policy issues that affect the delivery of pharmacy services in rural areas. A comprehensive assessment of all state regulations regarding pharmacy was beyond the scope of the project. However, phone interviews with State Boards of Pharmacy in the three states and the Pharmacy Associations in North Dakota and South Dakota; input from the Rural Pharmacy Advisory Committee; and a review of state pharmacy laws and regulations from Minnesota, North Dakota, and South Dakota were used to identify regulatory and policy issues related to rural pharmacy access.

The study focused on access to pharmacy services in retail pharmacies located in rural areas of three Midwestern states. Therefore, the results may not be generalizable nationally or to pharmacies in other settings, for example, in rural hospital pharmacies. The study did not address the supply of rural pharmacists, including pharmacy education and recruitment and retention issues. These issues are clearly very important to rural pharmacy practice, but are being addressed by several other organizations on the state and national level (Larson, Uden, Hadsall, and Holmstrom, 1999; Minnesota Center for Rural Health, 1999; Knapp, Paavola, Maine, Sorofman, and Politzer, 1999; Midwest Pharmacy Workforce Research Consortium, 2000; USDHHS, 2000).

## **THE STATUS OF RURAL PHARMACIES IN MINNESOTA, NORTH DAKOTA, AND SOUTH DAKOTA**

This section describes the results of the first part of the project, the phone survey of all licensed rural retail pharmacies in the three states. The initial sample for the survey consisted of 728 pharmacies (Table 1). The pharmacy lists obtained from the states consisted of all

**Table 1**  
**Sample and Response Rate for Pharmacy Survey**

	<b>MN</b>	<b>ND</b>	<b>SD</b>	<b>Total</b>
Total Sample	425	155	148	728
Out of Sample	92	43	21	156
Closed	3	1	0	4
Not a retail pharmacy	89	42	21	152
<u>Refusals</u>	<u>22</u>	<u>5</u>	<u>8</u>	<u>35</u>
Completed Surveys	311	107	119	537

Response rate = 93.9 percent

pharmacies licensed in the state, including hospital pharmacies that served only inpatients and specialty pharmacies. Each pharmacy was called to determine eligibility for the survey. A total of 156 pharmacies were removed from the sample because they had closed ( $n = 4$ ) or were not retail pharmacies ( $n = 152$ ), leaving 572 pharmacies eligible for the survey. Thirty-five pharmacies refused to participate in the survey, for a response rate of 93.9 percent. The refusals were distributed across the three states in similar proportions to the completed surveys. Nine refusals (25.7%) were regional or national chains, which was similar to the proportion of chain pharmacies among the respondents (28.8%).

### **Pharmacy Organizational Characteristics**

Table 2 displays the organizational characteristics of the responding rural pharmacies in Minnesota, North Dakota, and South Dakota ( $n = 537$ ). Over two-thirds are independent pharmacies, either in one location (55%) or more than one location (13%). National or regional chains account for 29 percent of rural pharmacies, with three percent of pharmacies owned by hospital or clinics, and less than one percent owned by other entities.

Pharmacy ownership patterns vary across the three states. The vast majority of pharmacies in North Dakota (92%) and three-fourths of the pharmacies in South Dakota are independently owned, reflecting those states' policies to limit the growth of chain pharmacies. Just over half (56%) of Minnesota pharmacies are independently owned.

Overall, a third of the pharmacies have been in operation for more than 50 years, and almost half (45%) have been in operation for 10 to 49 years. Of the three states, North Dakota has the highest proportion of pharmacies in the over 50 years of operation group (45%). Thirty-nine of Minnesota's rural pharmacies (13%) began operation less than five years ago, compared to only four pharmacies in North Dakota and five in South Dakota.

**Table 2****Organizational Characteristics of Rural Pharmacies  
in Minnesota, North Dakota, and South Dakota**

	Percent of Pharmacies			
	MN (n=311)	ND (n=107)	SD (n=119)	Total (n=537)
<b>Type of pharmacy</b>				
Independent in one location	43.7	84.1	58.0	54.9
Regional or national chain	37.9	7.5	24.4	28.9
Independent in more than one location	12.5	8.4	16.8	12.7
Owned by hospital or clinic <sup>1</sup>	5.5	0.0	0.0	3.2
Other	0.3	0.0	0.8	0.4
<b>Years of operation</b>				
Less than 2 years	7.4	1.9	0.8	4.8
2-4 years	5.1	1.9	3.4	4.1
5 to 10 years	14.5	10.3	16.0	14.0
10 to 49 years <sup>2</sup>	43.1	41.1	52.9	44.9
50 years or more	29.9	44.9	26.9	32.2
Mean = 39.1 years				
<b>Days of operation per week</b>				
< 5 days	0.3	0.0	2.5	0.7
5 days	8.0	8.4	9.2	8.4
5.5 to 6 days	61.4	78.5	62.2	65.0
7 days	30.2	13.1	26.1	25.9
Mean = 6.14 days				
<b>Hours pharmacy is open per week</b>				
< 40 hours	5.8	2.8	5.0	5.0
40-49 hours	19.9	31.8	24.4	23.3
50-59 hours	44.1	51.4	41.2	44.9
60-69 hours	16.7	6.5	10.9	13.4
70-79 hours	10.0	5.6	13.5	9.9
≥ 80 hours	3.5	1.9	5.0	3.5
Mean = 58.0				

<sup>1</sup>These pharmacies were retail pharmacies that served outpatients. Hospital pharmacies that only served inpatients were not included in this survey.

<sup>2</sup>This group includes 16 pharmacies for which the respondents did not know the exact age, but stated that it was more than 10 years.

Rural pharmacies in the three states are open an average of 6.1 days per week and an average of 57 hours per week. These averages are very similar to the average 6.0 days per week and 58 hours per week of operation reported in a national survey of independent pharmacies in communities of 50,000 population or less (Huffman, 1999). Over 90 percent of the pharmacies in the three states are open more than 5 days per week; 65 percent are open five and a half or six days per week, and an additional 26 percent are open seven days per week. Pharmacies in Minnesota and South Dakota are more likely to be open seven days per week than those in North Dakota.

Independent pharmacies account for over two-thirds of the pharmacies that are open five and a half to six days per week, while pharmacies owned by regional or national chains make up over two-thirds of the pharmacies that are open seven days per week (Table 3).

### **Pharmacy Staffing**

Almost half of the pharmacies (47%) are staffed by two pharmacists, with 30 percent of pharmacies staffed by a single pharmacist, 18 percent of pharmacies staffed by three pharmacists, and the remaining six percent with four or more pharmacists (Table 4). The proportion of pharmacies staffed by a solo pharmacist is higher in South Dakota (38%) and North Dakota (32%) than in Minnesota (25%).

Eighty-three percent of the pharmacies have at least one pharmacy technician. The most common staffing pattern is two or three pharmacy technicians, accounting for a total of 58 percent of the pharmacies. The employment of pharmacy technicians is more common in Minnesota than in North Dakota or South Dakota, with 92 percent of Minnesota pharmacies reporting at least one pharmacy technician, compared to 68 percent of North Dakota pharmacies and 73 percent of those in South Dakota.

**Table 3**  
**Days of Operation by Ownership Category for Rural Pharmacies in Minnesota, North Dakota, and South Dakota**  
**(n=537)**

Type of Pharmacy	Percent of Pharmacies Open 5 Days or Less/Week (n=49)	Percent of Pharmacies Open 5.5 – 6 Days/Week (n=349)	Percent of Pharmacies Open 7 Days/Week (n=139)
Independent in one Location	44.9	68.1	25.2
Regional or national change	8.2	16.7	67.6
Independent in more than one location	32.7	12.9	3.6
Owned by hospital or clinic	10.2	2.1	3.6
Other	4.1	0.3	0.0

**Table 4****Staffing of Rural Pharmacies in Minnesota, South Dakota, and South Dakota**

	<b>Percent of Pharmacies</b>			
	<b>MN (n=311)</b>	<b>ND (n=107)</b>	<b>SD (n=118)</b>	<b>Total (n=536)</b>
<b>Pharmacists</b>				
1	25.4	38.3	32.2	29.5
2	49.8	40.2	44.1	46.6
3	19.0	17.8	15.3	17.9
4	4.5	1.9	6.8	4.5
5	1.0	0.9	0.9	0.9
6	0.3	0.9	0.9	0.6
<b>Pharmacy Technicians</b>				
0	8.4	31.8	27.1	17.4
1	23.5	39.3	28.0	27.6
2	37.0	15.9	23.7	29.9
3	18.6	9.4	14.4	15.9
4	8.0	2.8	2.5	5.8
5	1.6	0.9	3.4	1.9
6	1.9	0.0	0.0	1.1
7-9	1.0	0.0	0.9	0.7

Staffing patterns also vary by pharmacy ownership (Table 5). Independent pharmacies account for 87 percent of the pharmacies with a solo pharmacist, and 55 percent of those with three or more pharmacists. In contrast, national/regional chains account for only nine percent of solo pharmacist facilities, but 38 percent of the pharmacies with three or more pharmacists. Chain pharmacies are more likely to employ pharmacy technicians. Only two percent of pharmacies without any technicians are chain pharmacies, while over half of the pharmacies with three or more technicians are chain pharmacies.

Table 6 shows the number of hours worked by pharmacists. First (or only) pharmacists work an average of 44.7 hours per week. One-third of the first or only pharmacists work 40 hours per week, and more than half work more than 40 hours per week. Two-thirds of the first or only pharmacists who work more than 40 hours per week are pharmacy owners. Second pharmacists work an average of 29.5 hours per week, and third pharmacists work an average of 25.6 hours per week. Over half of second pharmacists and two-thirds of third pharmacists work less than 40 hours per week. In pharmacies with more than three pharmacists, the majority of fourth and higher pharmacists work less than 40 hours per week. The average number of hours worked by a fourth pharmacist is 21.7; by a fifth pharmacist is 14.0 hours; and a sixth pharmacist is 14.7 hours.

First pharmacy technicians work an average of 37.1 hours per week (Table 7). The proportion of pharmacy technicians that work full-time decreases for second pharmacy technicians and above. Almost half of second pharmacy technicians, just over one fourth of third technicians, and less than eight percent of fourth technicians work 40 hours per week.

**Table 5**  
**Staffing by Ownership Category for Rural Pharmacies in Minnesota, North Dakota, and South Dakota**  
**(n=536)**

Type of Pharmacy	Number of Pharmacists			Number of Pharmacy Technicians			
	One (n=158)	Two (n=250)	3 or More (n=128)	Zero (n=92)	One (n=149)	Two (n=16)	3 or More (n=136)
Independent in one location	75.3%	49.6%	40.6%	58.1%	58.1%	53.8%	31.6%
Regional or national chain	8.9%	36.4%	38.3%	2.2%	16.9%	14.4%	52.9%
Independent in > one location	12.0%	12.0%	14.8%	8.7%	22.2%	29.4%	8.8%
Owned by hospital or clinic	3.2%	1.6%	6.3%	0.0%	2.7%	2.5%	6.6%
Other	0.6%	0.4%	0.0%	2.2%	1.3%	0.0%	0.0%

**Table 6****Hours Worked by Pharmacists in Rural Pharmacies in Minnesota, North Dakota, and South Dakota**

	<b>Percent of Pharmacies</b>
<b>Number of Hours Worked by First Pharmacist (n=535)</b>	
Less than 40 hours	10.0
40 hours	33.6
41 to 45 hours	19.3
46 to 50 hours	16.9
51 to 55 hours	8.2
56 to 60 hours	9.1
More than 60 hours	2.8
Mean = 44.7 hours	
<b>Number of Hours Worked by Second Pharmacist (n=378)</b>	
Less than 20 hours	26.7
20 to 39 hours	25.1
40 hours	33.3
More than 40 hours	14.7
Mean = 25.6 hours	
<b>Number of Hours worked by Third Pharmacist (n=128)</b>	
Less than 20 hours	32.0
20 to 39 hours	37.5
40 hours	21.9
More than 40 hours	8.6
Mean = 25.6 hours	
<b>Average Number of Hours Worked by</b>	
Fourth Pharmacist (n = 31)	21.7 hours
Fifth Pharmacist (n=8)	14.0 hours
Sixth Pharmacist (n=3)	14.7 hours

**Table 7****Hours Worked by Pharmacy Technicians in Rural Pharmacies  
In Minnesota, North Dakota, and South Dakota**

	<b>Percent of Pharmacies</b>
<b>Number of Hours Worked by First Pharmacy Technician (n=443)</b>	
Less than 20 hours	4.3
20 to 39 hours	20.1
40 hours	71.3
More than 40 hours	4.3
Mean = 37.1 hours	
<b>Number of Hours Worked by Second Pharmacy Technician (n=295)</b>	
Less than 20 hours	10.8
20 to 39 hours	39.7
40 hours	48.6
More than 40 hours	1.0
Mean = 32.1 hours	
<b>Number of Hours worked by Third Pharmacy Technician (n=135)</b>	
Less than 20 hours	23.7
20 to 39 hours	47.4
40 hours	26.7
More than 40 hours	2.2
Mean = 25.6 hours	
<b>Number of Hours worked by Fourth Pharmacy Technician (n=51)</b>	
Less than 20 hours	27.5
20 to 39 hours	64.7
40 hours	7.8
Mean = 25.6 hours	
<b>Average Number of Hours Worked by</b>	
Fifth Pharmacy Technician (n=20) 19.7 hours	
Sixth Pharmacy Technician (n=10) 17.7 hours	
Seventh Pharmacy Technician (n=4) 16.3 hours	
Eighth and Ninth Pharmacy Technicians (n=4) 16 hours	

## Relief Coverage

Rural pharmacies use a variety of sources to obtain relief coverage for pharmacists (Table 8). A total of 104 pharmacies use pharmacists from the community or nearby areas for coverage. Other major sources of coverage are unspecified informal arrangements, relief pharmacists from the corporation or other stores in the same chain, contract pharmacists, and the pharmacy's own staff. Thirteen pharmacies use staffing services, and eleven pharmacies report basically using "anyone we can get." Four pharmacists indicated that they do not have any relief coverage; one of these stated, "There isn't anyone for 100 miles."

Among the pharmacies that described a source of relief coverage, several respondents mentioned the importance of having sufficient advance notice and noted that the source was not always available. "We have an informal agreement with a local pharmacist to provide occasional relief with adequate notice," said one pharmacist. Another said, "The corporation has relief people but it is almost impossible to get time off."

More than half of the responding pharmacists (57%) reported that it was difficult or very difficult for their pharmacy to obtain relief coverage for pharmacist vacations and other scheduled time off. Over two-thirds reported that it was difficult or very difficult to obtain relief coverage on short notice, for example, when a pharmacist was ill. Independent pharmacies in one location and chain pharmacies were more likely to report difficulty obtaining both coverage for scheduled time off and coverage on short notice than independent pharmacies in more than one location (Table 9). Pharmacies in Minnesota and North Dakota were also more likely than those in South Dakota to report that it was very difficult to obtain either type of coverage.

The financial impact of using relief coverage was mixed, with about 30 percent of pharmacies that used relief coverage breaking even; about a fourth of pharmacies losing money,

Table 8

**Relief Coverage for Rural Pharmacies  
In Minnesota, North Dakota, and South Dakota**

	Number of Pharmacies	Percent of Pharmacies
<b>Source of Coverage (n = 348)</b>		
Informal arrangements	60	
Relief pharmacists from corporation/other stores in same chain	59	
Contract pharmacist	56	
Own staff (trade hours, fill in with part-time staff, relief pharmacist on staff, staff from other locations)	41	
Retired/semi-retired local pharmacists	36	
Local pharmacists (unspecified)	33	
Pharmacists from neighboring towns/urban areas	20	
Staffing Service	13	
Anyone we can get	11	
Owner/former owner of pharmacy	9	
Hospital pharmacist	6	
No one/can not get coverage	4	
<b>Difficulty of Finding Coverage for Vacations (n = 537)</b>		
Very Difficult		39.0
Difficult		17.8
Neither		16.9
Easy		16.4
Very Easy		9.9
<b>Difficulty of Finding Coverage on Short Notice (n = 537)</b>		
Very Difficult		55.0
Difficult		12.3
Neither		15.2
Easy		10.4
Very Easy		7.1
<b>Financial Impact of Using Relief Coverage (n = 413)</b>		
Break Even		29.8
Lose Money		25.2
Make Profit		22.5
Don't Know		22.5
<b>Closure of Pharmacy Due to Lack of Coverage (n = 538)</b>		
Had time during past year when pharmacy closed due to lack of coverage		7.6
<b>Number of days closed (n = 41 pharmacies)</b>		
One		51.2
Two		17.7
Three		17.7
4 - 10 days		14.6
Mean = 2.24 days		

**Table 9**

**Difficulty Obtaining Relief Coverage for Rural Pharmacies by Ownership Category and by State  
In Minnesota, North Dakota, and South Dakota  
(n=537)**

	Very Difficult		Difficult		Neither		Easy		Very Easy	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Difficulty Finding Coverage for Vacations</b>										
Independent in one location	128	43.4	58	19.7	42	14.3	41	14.0	26	8.8
Regional or national chain	54	34.8	33	21.3	34	21.0	22	14.2	12	7.7
Independent in > 1 location	19	27.9	5	7.4	13	19.1	18	26.5	13	19.1
Owned by hospital or clinic	7	41.2	0	0.0	1	5.9	7	41.2	2	11.8
Other	1	50.0	0	0.0	1	50.0	0	0.0	0	0.0
Minnesota	127	40.8	51	16.4	57	18.3	55	17.7	21	6.8
North Dakota	45	42.1	23	21.5	11	10.3	15	14.0	13	12.2
South Dakota	37	31.1	22	18.5	23	19.3	18	15.1	19	16.0
<b>Difficulty Finding Coverage on Short Notice</b>										
Independent in one location	173	58.6	34	11.6	41	14.0	28	9.5	19	6.5
Regional or national chain	87	56.1	21	13.6	24	15.5	15	9.7	8	5.2
Independent in > 1 location	25	36.8	9	13.2	15	22.1	10	14.7	9	13.2
Owned by hospital or clinic	8	47.1	2	11.8	2	11.8	3	17.7	2	11.8
Other	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Minnesota	176	56.6	45	14.5	47	15.1	29	9.3	14	4.5
North Dakota	59	55.1	12	11.2	14	13.1	12	11.2	10	9.4
South Dakota	60	50.4	9	7.6	21	17.7	15	12.6	14	11.8

and about 22 percent each making a profit and not knowing the financial impact of using relief coverage. Forty-one pharmacies (7.6%) had to close at least one day during the past year because of lack of pharmacist coverage. Almost half of these (n = 20) closed for more than one day, including one pharmacy that closed for 10 days. The pharmacies that closed for at least a day were distributed proportionally across the three states, with 26 in Minnesota, nine in North Dakota, and six in South Dakota. Twelve of the 13 pharmacies that closed for more than two days were located in Minnesota. Two-thirds of the pharmacies that closed temporarily (n = 27) were independent pharmacies in one location.

### **After Hours Sources of Pharmacy Services**

The pharmacists were asked where their customers usually obtain pharmacy services when the pharmacy is closed (multiple responses were allowed). Two-thirds report customers rely on the pharmacist on call; half report that customers use the hospital; 31 percent report customers use another pharmacy in the same community; and 24 percent report customers use a pharmacy in another community (Table 10). Pharmacies in South Dakota and North Dakota were more likely than those in Minnesota to report that customers use an on-call pharmacist (72 - 74% versus 59%). These responses suggest that after-hours access to pharmacy services is not a problem in the majority of rural communities.

### **Volume of Prescriptions and Sources of Payment**

The average number of prescriptions filled per week ranges from 75 to 3,500, with a mean of 709 prescriptions across all pharmacies (Table 11). Half of pharmacies report an average weekly number of prescriptions between 400 and 799. One-fifth (22%) of pharmacies average 1,000 or more prescriptions weekly. The average of 709 prescriptions is lower than the

**Table 10**

**After Hours Sources of Pharmacy Services  
In Rural Minnesota, North Dakota, and South Dakota  
(n=537)**

<b>Where Customers Go When Pharmacy Is Closed<sup>1</sup></b>	<b>MN (n=311)</b>	<b>ND (n=107)</b>	<b>SD (n=119)</b>	<b>Total</b>
Pharmacist on call	58.8%	73.8%	72.3%	64.8%
Hospital	49.8%	44.9%	52.9%	49.5%
Pharmacy in community	31.5%	27.1%	32.8%	30.9%
Pharmacy in another community	24.8%	67.2%	24.4%	23.6%
Other	1.0%	0.0%	0.0%	0.6%

**Table 11****Volume of Prescriptions and Sources of Payment for Rural Pharmacies in Minnesota, North Dakota, and South Dakota**

	<b>Percent of Pharmacies</b>
<b>Average Number of Prescriptions Filled Per Week (n=500)</b>	
<200	2.8
200-399	15.0
400-599	24.6
600-799	23.4
800-999	12.4
≥ 1000	21.8
<b>Number of Hours Worked by Second Pharmacy Technician (n=295)</b>	
Less than 20 hours	10.8
20 to 39 hours	39.7
40 hours	48.6
More than 40 hours	1.0
Mean = 32.1 hours	
<b>Number of Hours worked by Third Pharmacy Technician (n=135)</b>	
Less than 20 hours	23.7
20 to 39 hours	47.4
40 hours	26.7
More than 40 hours	2.2
Mean = 25.6 hours	
<b>Number of Hours worked by Fourth Pharmacy Technician (n=51)</b>	
Less than 20 hours	27.5
20 to 39 hours	64.7
40 hours	7.8
Mean = 25.6 hours	
<b>Average Number of Hours Worked by</b>	
Fifth Pharmacy Technician (n=20)	19.7 hours
Sixth Pharmacy Technician (n=10)	17.7 hours
Seventh Pharmacy Technician (n=4)	16.3 hours
Eighth and Ninth Pharmacy Technicians (n=4)	16 hours

average of 890 prescriptions weekly reported in a national survey of independent pharmacies in communities of 50,000 population or less (Huffman, 1999).

Four hundred eighty pharmacies reported the percent of total prescriptions paid for by the three payer types. The mean percentage of prescriptions paid for by patients was 29 percent; by Medicaid was 22 percent; and by third party payors (other than Medicaid) was 49 percent. The percentage of third party coverage reported by these pharmacies is very similar to the national average for rural pharmacies reported by Huffman (1999), while the 22 percent Medicaid coverage is slightly higher than the national average of 19 percent reported by Huffman.

Most retail pharmacies receive revenue from the sale of over-the-counter medications, medical products, and sundry items in addition to revenue from prescriptions. Eighty percent of pharmacies reported the percent of total revenue they receive from prescriptions. For half of these pharmacies, prescriptions accounted for 51 to 80 percent of total revenue. Prescriptions were more than 80 percent of revenue for 35 percent of pharmacies, and 50 percent or less for the remaining 15 percent of pharmacies. Nationally, prescriptions account for an average of 82 percent of sales in independent pharmacies located in communities of 50,000 or less population (Huffman, 1999).

The volume of prescriptions is related to pharmacy ownership (Table 12). Less than one-fourth of independent pharmacies in one location are in the two highest volume categories, with over 800 prescriptions per week, compared to more than half of regional/national chains (56%).

### **Financial Margins**

The survey requested information regarding the pharmacies' profit margins by payor type (patient pay, Medicaid, and other third party payers) and overall net profit margin. These questions had high non-response rates because the respondent pharmacists either did not know

**Table 12****Volume of Prescriptions by Ownership for Rural Pharmacies in  
Minnesota, North Dakota, and South Dakota**

<b>Average Number of Prescriptions Filled Per Week</b>	<b><u>Percent of Pharmacies</u></b>				
	<b>Ownership</b>				
	<b>Independent in One Location (n=282)</b>	<b>Independent in More than One Location (n=66)</b>	<b>Regional or National Chair (n=135)</b>	<b>Owned by Hospital or Clinic (n=15)</b>	<b>Other (n=2)</b>
<200	3.2	3.0	1.5	0.0	50.0
200-399	18.1	19.7	5.9	13.3	50.0
400-599	29.4	31.8	13.3	6.7	0.0
600-799	26.6	15.7	23.0	0.0	0.0
800-999	9.6	7.6	19.3	26.7	0.0
≥1000	13.1	21.2	37.0	53.3	0.0

the information or chose not to report it. The non-reporting pharmacies also differed from reporting pharmacies in terms of ownership. Pharmacies where the lead pharmacist is not the owner of the pharmacy and chain pharmacies were much more likely to be non-respondents to the financial questions. In addition, the range of responses on the overall profit margin question suggested that some respondents interpreted the question as gross profit margin while others reported their net margins. Consequently, the data on overall profit margins are not reported, and caution should be used in interpreting the data on profit margin by payer type.

For the 278 pharmacies that reported their profit margins for the three payer types, the patient pay category had the highest mean profit margin of 26.6 percent, followed by Medicaid, with a mean profit margin of 18.7 percent, and other third party payers, with a mean profit margin of 15.6 percent.

### **Sources of Competition**

Pharmacies in the same community were the primary source of competition for over half of the pharmacies (Table 13). The competing pharmacies in the same community were split between chain pharmacies (29% of respondents) and independent pharmacies (25%). Chain pharmacies in another community were the primary source of competition for 19 percent of pharmacies, while independent pharmacies in another community accounted for just under five percent of primary competitors. For 19 percent of pharmacies, mail order pharmacy was their primary competitor. Less than two percent of pharmacies reported no primary source of competition. In the “other” category, four pharmacies described customers going to Canada as their primary competition, and one each cited a clinic pharmacy, a physician giving out samples, and “discriminatory pricing by drug manufacturers” as their primary competition. These results

**Table 13**

**Primary Source of Competition for Rural Pharmacies in  
Minnesota, North Dakota, and South Dakota  
(n=536)**

<b>Type of Competition</b>	<b>Percent of Pharmacies</b>			
	<b>MN</b>	<b>ND</b>	<b>SD</b>	<b>Total</b>
Chain pharmacy in same community	30.5	14.0	38.1	28.9
Independent pharmacy in same community	25.4	29.9	20.3	25.2
Chain pharmacy in another community	19.0	12.2	24.6	19.0
Mail order pharmacies	19.3	24.3	14.4	19.0
Independent pharmacy in another community	3.5	12.2	1.7	4.9
No primary competition	1.6	3.7	0.0	1.7
Other	0.6	3.7	0.9	1.3

indicate that almost all rural pharmacies face some type of competition, with a surprisingly large percentage of the competition coming from pharmacies in the same community.

### **Prescription Delivery and Services Provided at Health Care Facilities**

The vast majority of pharmacies in the three states deliver prescriptions to private homes (85%) and nursing homes (79%) (Table 14). About 40 percent of the pharmacies also deliver to clinics, and 22 percent deliver to other settings, including assisted living/senior housing, group homes, and hospitals. Several pharmacies reported taking extra efforts to ensure that rural patients received their prescriptions: 17 pharmacies mail prescriptions to customers, four pharmacies deliver to neighboring communities, two pharmacies deliver “anywhere in town,” and one pharmacy arranges delivery to schools when parents can’t get into the pharmacy to pick up a prescription. Pharmacies in North Dakota (94%) and South Dakota (88%) are more likely to deliver to private homes than those in Minnesota (81%).

Two-thirds of the lead pharmacists provide pharmacy services in nursing homes, and 19 percent provide them in hospital settings. Lead pharmacists in North Dakota are more likely than those in South Dakota and Minnesota to provide services in these settings. Of those that provide services in nursing homes, the majority (86%) serve one or two nursing homes. The vast majority (97%) of those that provide services in a hospital serve one hospital.

### **Provision of Pharmaceutical Care Services**

Nearly all pharmacies (98%) report providing drug interaction screening services (Table 15). Over two-thirds provide consultation with physicians and other primary care providers regarding drug dosages and interactions, and half of pharmacies provide blood pressure screening. Disease state management services, glucose screening, and immunizations are less frequently provided.

**Table 14**

**Delivery of Prescriptions and Services Provided at Health Care Facilities by  
Rural Pharmacies in Minnesota, North Dakota, and South Dakota  
(n=537)**

	<b>Percent of Pharmacies</b>			
	<b>MN</b>	<b>ND</b>	<b>SD</b>	<b>Total</b>
<b>Delivery of Prescriptions</b>				
Private Homes	81.0	94.4	88.2	85.3
Nursing Homes	79.1	90.7	68.1	79.0
Clinics	24.1	66.4	56.3	39.5
Other Retail Pharmacies	1.3	8.4	5.0	3.5
Other <sup>1</sup>	14.8	26.2	37.3	22.0
<b>Lead Pharmacist Provides Services</b>				
Nursing Homes	60.1	72.9	60.5	62.8
Hospitals	14.1	29.0	22.7	19.0
Other Retail Pharmacies	3.2	8.4	13.5	6.5

**Table 15****Pharmaceutical Care Services Provided by Rural Pharmacies in  
Minnesota, North Dakota, and South Dakota  
(n=537)**

<b>Type of Service</b>	<b>Percent of Pharmacies</b>
Drug interaction screening	98.0
Consultation with physicians, NPS, Pas regarding drug dosages and interactions	68.3
Blood pressure screening	51.0
Glucose screening	19.6
Disease state management	20.5
Immunizations	17.1
Other	0.9

## **Planned Changes in Facility, Staffing, and Services**

Respondent pharmacists were asked a series of questions about changes planned for the pharmacy during the next two years. The possible changes included sale or closure of the pharmacy, reduction or expansion of services, reduction or expansion of days/hours of service, and staffing changes (Table 16).

Fifty-six pharmacies (11%) are expected to be sold during the next two years, and 22 pharmacies (4.2%) are expected to close. Eight of the pharmacies that are expected to close are in Minnesota; another eight are in North Dakota, and six are in South Dakota. Twelve of the 22 pharmacies that expect to close are located in communities with one or more additional pharmacies (Table 17). For the ten potential closures that do not have another pharmacy in the same community, the distance to the next nearest pharmacy ranges from 3.5 to 26.0 road miles, and averages 13.4 road miles. Only two of the potential closures are located more than 20 road miles from another pharmacy.

The pharmacies that are expected to close are mostly independent pharmacies (95%), and staffed by a single pharmacist (59%). Four lead pharmacists are over 65 years of age; eight are between 60 and 65 years; and four are 50 to 59 years. Almost half of these pharmacies have been in operation 50 years or more. Over three-quarters ( $n = 17$ ) have an average number of prescriptions per week in the 200 to 599 range.

Eleven pharmacies expect to reduce services during the next two years, including two that plan to reduce delivery services. A total of 207 pharmacies plan to expand services, with the largest numbers planning to expand disease management services (116 pharmacies); screening or testing services (37 pharmacies); expansion of the pharmacy at the current site or a new site (34 pharmacies); and expansion of services in other health care settings such as nursing homes and

**Table 16****Changes in Facility, Staffing, and Services Planned During Next Two Years for Rural Pharmacies in Minnesota, North Dakota, and South Dakota**

	<b>Number of Pharmacies</b>	<b>Percent of Pharmacies</b>
Sale of pharmacy (n=527)	56	10.6
Closure of pharmacy (n=528)	22	4.2
Reduction in services (n=535)	11	2.1
Services to be reduced		
Delivery services	3	
Reduce size	1	
Phase out nursing home services	1	
Disease state management/cholesterol checks	1	
Stop some 3 <sup>rd</sup> party contracts	1	
Stop giving credit	1	
Get rid of supplies	1	
Don't know	2	
Expansion of services (n=535)	207	38.7
Services to be expanded		
Disease state management	116	
Screening/testing services	37	
Expand this pharmacy/open another site	34	
Services to nursing homes/assisted living/home health	17	
Drive up/mail/delivery services	11	
Wellness services	9	
Immunizations	8	
Add products	5	
Reduction in days/hours of service (n=535)	30	5.6
Increase in days/hours of service (n=534)	30	5.6
Retirement of pharmacist (n=533)	60	11.2
Replace retiring pharmacist (n=55)	27	49.1
Retirement of pharmacy technician (n=534)	21	3.9
Replace retiring pharmacy technician (n=21)	16	76.2
Add new pharmacist (n=534)	109	20.3
Mean number of additional hours = 28.7		
Add new pharmacy technician (n=534)	102	19.0
Mean number of additional hours = 30.6		

**Table 17****Characteristics of Rural Pharmacies Expected to Close During Next Two Years  
(n=22)**

	<b>Percent of Pharmacies Expected to Close</b>
<b>Ownership</b>	
Independent in one location	90.9
Independent in more than one location	4.5
Regional/national chain	4.5
<b>Years of Operation</b>	
2 to 4 years	4.6
5 to 10 years	13.6
11 to 49 years	36.4
50 years and over	45.5
<b>Number of Pharmacists</b>	
1	59.1
2	27.3
3 or more	9.1
<b>Age of Lead Pharmacist<sup>1</sup></b>	
< 30 years	5.0
30-39 years	5.0
40-49 years	10.0
50-59 years	20.0
60-65 years	40.0
> 65 years	20.0
<b>Average Number of Prescriptions Per Week</b>	
< 200	4.6
200-399	40.9
400-599	36.4
600-799	4.6
800-999	9.1
≥ 1000	4.6
<b>Location of Next Nearest Pharmacy<sup>2</sup></b>	
Same community	54.5
Another community	45.5
< 10 miles	50.0
10-20 miles	30.0
> 20 miles	20.0
Range = 3.5 to 26.0 miles	
Mean = 13.4 miles	

<sup>1</sup>The 22 pharmacies had 20 lead pharmacists, since two lead pharmacists each owned two pharmacies in this group.

<sup>2</sup>Distance in road miles calculated using ProMiles.

assisted living (17 pharmacies). Thirty pharmacies plan to reduce their days or hours of service, and an equal number plan to expand their days or hours of service.

Sixty pharmacies anticipate the retirement of a pharmacist, with about half planning to replace the retiring pharmacist. Twenty-one pharmacies anticipate the retirement of a pharmacy technician, with three-quarters of those planning to replace the retiring technician. Similar numbers of pharmacies plan to add a new pharmacist (109 pharmacies) and a new pharmacy technician (102 pharmacies).

### **Pharmacists' Assessments of Access to Pharmacy Services**

The respondent pharmacists were asked whether they strongly agreed, agreed, disagreed, or strongly disagreed with three statements about access to pharmacy services in their area (Table 18). Almost half of the respondents (48%) agreed and 22 percent strongly agreed with the first statement, “Financial barriers such as lack of insurance make it difficult for many elderly and uninsured residents of this area to access pharmacy services.”

About three-fourths of respondents disagreed (65%) or strongly disagreed (10%) with the second statement, “Geographic barriers such as long travel distances make it difficult for residents of this area to access pharmacy services.” Similar proportions of respondents disagreed (69%) or strongly disagreed (8%) with the third statement, “When this pharmacy is not open, it is difficult for residents of this area to access pharmacy services.”

These responses indicate that rural pharmacists perceive financial barriers to pharmacy services as much more important than geographic barriers. The majority of pharmacists also do not view after-hours access to pharmacy services as a problem.

**Table 18**

**Rural Pharmacists' Assessments of Access to Pharmacy Services in  
Minnesota, North Dakota, and South Dakota  
(n=537)**

	<b>Percent of Pharmacies</b>
<b>Financial barriers for elderly and uninsured in area</b>	
Strongly agree	21.7
Agree	48.2
Disagree	26.2
Strongly disagree	2.2
Not sure	1.7
<b>Geographic barriers in area</b>	
Strong agree	1.9
Agree	23.1
Disagree	64.6
Strongly disagree	10.4
<b>Difficult to obtain pharmacy services when pharmacy is not open</b>	
Strongly agree	2.4
Agree	20.1
Disagree	68.7
Strongly disagree	8.2
Not sure	0.6

### **Activities to Increase Access to Pharmacy Services**

The respondent pharmacists were asked an open-ended question about whether the pharmacy had implemented any innovative programs or approaches to increase access to pharmacy services during the past two years (Table 19). The largest number of responses were offering expanded pharmacy hours or having the pharmacist on call 24 hours (17 pharmacies) and increasing local delivery and mailings of prescriptions (13 pharmacies).

### **Demographic Characteristics of Respondent Pharmacists**

The lead pharmacists responding to the survey were asked their age, educational background, years practicing at the pharmacy, and whether or not they were the owner of the pharmacy (Table 20). Their mean age is 46.4 years. Twenty-nine percent of the lead pharmacists are 50 to 59 years, underscoring the importance of workforce planning to ensure that new pharmacists are available to replace those who retire over the next decade. At the same time, six percent of the lead pharmacists are 60 to 65 years old, and four percent are over 65 years old, indicating that some older pharmacists are choosing to remain part of the workforce.

Ninety-five percent of the lead pharmacists have a bachelors degree in Pharmacy, while five percent have a Pharm.D. North Dakota and South Dakota have a slightly higher proportion of pharmacists with a PharmD degree than Minnesota. The Colleges of Pharmacy at the University of Minnesota, North Dakota State University, and South Dakota State University no longer offer B.S. degrees in Pharmacy. As part of the national movement to the Pharm.D. degree, all three institutions only offer the Pharm.D. degree.

More than one-fourth of the pharmacists (28%) have been practicing at their current pharmacy for less than five years. Forty-three percent have been there between five and 19

**Table 19**

**Activities to Increase Access to Rural Pharmacy Services in  
Minnesota, North Dakota, and South Dakota  
(n=537)**

	<b>Number of Pharmacies</b>
Expanded hours/24 hours on call	17
Increase local delivery/mailings	13
Provide more counseling/screening/immunization services	8
Provide drugs at clinics/hospitals/nursing homes	7
Toll free line	4
Internet service	4
Pharmacy provides free drugs to free clinic	2
Delivery to neighboring towns	1
Drive-up services	2
New location/added site in clinic	2
More third party contracts/HMO contracts	2
Hospital foundation funds drugs for indigent patients	1

**Table 20**  
**Demographic Characteristics of Lead Pharmacists**  
**(n=537)**

	Percent of Pharmacies			
	MN	ND	SD	Total
<b>Age (n=55)</b>				
< 30 years	6.1	3.7	12.6	7.1
30-39 years	22.6	19.6	15.1	20.4
40-49 years	34.8	29.0	31.9	32.9
50-59 years	28.1	38.3	23.5	29.1
60-65 years	5.2	6.5	9.2	6.4
> 65 years	3.2	2.8	7.6	4.1
Mean = 46.4 years				
<b>Education (n=537)</b>				
B.S. in Pharmacy	96.1	93.5	92.4	95.1
Pharm.D.	3.5	6.5	7.6	4.9
Masters Degree	0.3	0.0	0.0	0.0
<b>Years Practicing at This Pharmacy (n=534)</b>				
One	17.5	3.7	11.0	13.3
2-4 years	15.2	8.4	18.6	14.6
5-9 years	20.1	19.6	17.0	19.3
10-19 years	24.9	27.1	17.8	23.9
20-29 years	13.9	24.3	17.8	16.8
20-39 years	6.5	12.2	16.1	9.7
40 years or more	1.9	4.7	1.7	2.4
Mean = 13.5 years				
<b>Respondent is Owner of Pharmacy (n=536)</b>	43.7	79.4	49.6	52.1

years, and 29 percent have been practicing at their current pharmacy for over 20 years. The average number of years practicing at the pharmacy is 13.5. Over half of the respondent pharmacists are owners of the pharmacy. North Dakota pharmacists are more likely to own the pharmacy (79%) than those in South Dakota (50%) or Minnesota (44%), reflecting the longstanding North Dakota law and more recent South Dakota law limiting the development of new pharmacies that are not owned or controlled by pharmacists.

### **Open-ended Comments**

Seventy-four pharmacists took the opportunity to add open-ended comments at the end of the survey. Comments regarding the financial viability of rural pharmacies and reimbursement issues comprised the largest number of open-ended comments. Twenty-seven rural pharmacists described financial concerns, including several pharmacists who expressed frustration with the reimbursement rates they receive from third party insurers, drug companies' pricing, and insurance policies that require customers to obtain prescriptions from mail order pharmacies in distant locations. One pharmacist concluded, "Mail order pharmacy is going to be the end of the rural pharmacy - the mailbox will be the rural pharmacy." A few offered more optimistic views, including one pharmacist who said, "I think rural pharmacies can make it if they really pay attention to the customers and to managing their business."

Four pharmacists expressed concerns about being able to sell their pharmacies. One said, "If this store closes, geographic barriers will be huge. I've had it on the market for a year and a half and had no buyers." Access to pharmacy services was a specific concern for four pharmacists, including two who advocated prescription coverage for seniors to improve access.

Fourteen pharmacists commented on pharmacist supply issues. Several described a shortage of pharmacists in rural areas, including three pharmacists who specifically blamed the

move to the Pharm.D. degree for the shortage of rural pharmacists. Additional comments addressed the roles of pharmacists and pharmacy technicians. A few pharmacists stressed the need for additional reimbursement to provide pharmaceutical care, while two pharmacists stated that pharmacists should not be involved in disease management. One pharmacist felt strongly that “pharmacy techs are a disservice to the public,” while another suggested that pharmacy technicians need to be certified and the ratio of pharmacy technicians to pharmacists needs to be changed.

### **Summary**

Several key points emerge from the survey results. First, rural pharmacies in these three states provide access to pharmacy customers in several ways, including being open on weekends, having pharmacists on-call after hours, and delivering prescriptions to private homes and health care facilities. Second, pharmacists work long hours to deliver services, and many rural pharmacies have a difficult time obtaining relief coverage for pharmacists who are ill or want time off. Forty-one pharmacies closed at least one day during the last year because of relief coverage problems. Third, financial barriers are perceived by rural pharmacists to be much more of a problem for consumer access to pharmacy services than geographic barriers.

### **DISTANCES BETWEEN RURAL PHARMACIES AND PHARMACY CLOSURES**

The second part of the project involved an analysis of data from the Minnesota, North Dakota and South Dakota Boards of Pharmacy on currently licensed pharmacies and pharmacies that closed within the last three years, and follow-up interviews with clinic and public health staff in rural communities with potential pharmacy access problems. The purpose was 1) to determine the extent to which rural populations in the three states have access to retail pharmacy services within 30 minutes travel time, the standard used in designating federal primary care

health professional shortage areas; and 2) to assess whether recent pharmacy closures in rural areas adversely affected access to pharmacy service. The data from the Boards of Pharmacy consisted of the names and addresses of all licensed pharmacies in the three states as of 1999, and lists of pharmacies that closed during the previous three years (1996-1998).

### **Standard Used to Measure Geographic Access to Pharmacy Services**

No state or national distance or travel time standards for measuring geographic access to pharmacy services were identified in a review of the pharmacy literature, or through consultation with the Rural Pharmacy Advisory Committee, state pharmacy board and association leadership in the study states, and faculty from the University of Minnesota College of Pharmacy. The federal Health Professional Shortage Area (HPSA) designation regulations include travel time and distance standards as well as provider to population ratios for primary medical care, dental care, and mental health care, but do not address pharmacy services (Bureau of Primary Health Care, 2000). Several states, including Minnesota, have similar travel time and distance standards for access to primary care providers, specialists, and hospitals in their HMO regulations, but also do not specifically address pharmacy services.

The Rural Pharmacy Advisory Committee suggested that a reasonable standard for geographic access would be to have a pharmacy provider in each community where there was a primary care provider. They recommended that the travel time and distance criteria for measuring access to pharmacy services be similar to the criteria used for measuring access to primary medical care.

The Health Professional Shortage Area (HPSA) travel time criterion for primary medical care is 30 minutes travel time, which translates to 20 miles on primary roads under normal conditions, 15 miles in mountainous areas or on secondary roads, or 25 miles in flat terrain or on

interstate highways (Bureau of Primary Health Care, 2000). This study used 20 miles as the distance standard for measuring access to pharmacy services.

### **Distances Between Pharmacies in Minnesota, North Dakota, and South Dakota**

A SAS program that employs the Haversine formula was used in conjunction with the pharmacy licensure data to calculate distances between pharmacies and to identify the next nearest pharmacy for each rural pharmacy. Both urban and rural retail pharmacies were included in the distance analysis because, in some cases, the next nearest pharmacy for a rural pharmacy was an urban pharmacy rather than a rural one. The Haversine formula calculates distances between sites “as the crow flies,” using the longitude and the latitude of the zip code centroid and the earth’s radius. These distances may be less than those calculated using road mileage.

ProMiles software, which calculates distances using actual road mileage, was used to calculate more precise distances to the next nearest pharmacy for rural communities whose sole pharmacy closed during 1996-99.<sup>2</sup> A comparison was done of the two methods of calculating distances, the SAS direct distance program and the ProMiles software, for the 79 rural communities whose next nearest pharmacy was more than 15 miles away. Most distances were slightly longer in road mileage than using the direct distance program, with the greatest differences in areas with large geographic features such as major lakes or rivers. The average distance for these communities using the ProMiles program was 28.9 miles, compared to 23.0 miles for the SAS program.

Rural pharmacies located more than twenty miles from the next nearest pharmacy were examined to determine if they were near the Montana, Nebraska, Wyoming, Iowa, or Wisconsin

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<sup>2</sup>ProMiles software contains location information for all US zip code locations and city centers for all cities with more than one zip code. Four different routing methods are available in this program. The Practical Method was chosen, which optimizes for speed, and assumes average speeds of 55 MPH for limited access highways, 45 MPH for primary highways, 40 MPH for secondary highways, and 30 MPH for local roads.

borders of the three study states. If so, Yahoo Yellow Pages was consulted to determine if there was a closer pharmacy in a non-study state. One site, Martin, South Dakota, was closer to a Nebraska pharmacy.

Table 21 shows the distances between pharmacies in Minnesota, North Dakota, and South Dakota. Sixty-eight percent of rural pharmacies ( $n = 391$ ) have another pharmacy in the same zip code, and thus are classified as zero miles from the next nearest pharmacy. An additional nine percent of rural pharmacies are less than ten miles, and 16 percent are between 10 and 19.9 miles from the next nearest pharmacy. Thirty-six rural pharmacies are between 20 and 29.9 miles from the next nearest pharmacy. Six rural pharmacies are more than 30 miles to the next nearest pharmacy, including two in Minnesota (Baudette and Grand Marais), three in South Dakota (Martin, Faith and White River), and one in North Dakota (Killdeer).

Three pharmacies that are classified as urban are more than 20 miles from the next nearest pharmacy. Cook and Floodwood are located in St. Louis County in northeastern Minnesota, and Wall is located in Pennington County in east central South Dakota. Both St. Louis County and Pennington County contain urban population centers: Duluth (population 85,493) and Rapid City (population 58,300). However, both counties cover large geographic areas and are sparsely populated in the portions where these pharmacies are located.

The average distance to the next nearest pharmacy for all rural pharmacies with a distance of greater than zero is 14.2 miles (Table 22). By state, Minnesota has the lowest average distance of 11.2 miles, followed by South Dakota, with an average of 18.2 miles, and North Dakota with an average of 19.9 miles. South Dakota has the greatest standard deviation of 12.2 and is the most skewed of the three states.

**Table 21****Distances Between Pharmacies in Minnesota, North Dakota, and South Dakota**

<b>Distance to the Nearest Pharmacy<sup>1</sup></b>	<b>Urban Pharmacies (n=825)</b>	<b>Rural Pharmacies (n=575)</b>	<b>Total Pharmacies (n=1400)</b>
	<b>Percent</b>	<b>Percent</b>	<b>Percent</b>
0 miles	90.5	68.0	81.3
0.1 – 9.9 miles	6.8	8.7	7.6
10.0 – 19.9 miles	2.3	16.0	7.9
20.0 – 29.9 miles	0.4	6.3	2.8
> 30 miles	0.0	1.0	0.4

<sup>1</sup>Distance “as the crow flies” calculated using latitude and longitude of zip code centroid. Pharmacies in the same zip code are considered to be 0 miles apart.

Data Source: 1999 pharmacy licensure data from Minnesota, North Dakota, and South Dakota Boards of Pharmacy

**Table 22**

**Average Distance to the Nearest Pharmacy for all Rural Pharmacies with Distance Greater than Zero in Minnesota, North Dakota, and South Dakota<sup>1</sup>**

	<b>Number of Pharmacies</b>	<b>Mean Distance In Miles</b>	<b>Standard Devision</b>	<b>Median Distance</b>
Minnesota	138	11.2	6.4	10.2
North Dakota	39	19.9	5.5	19.6
South Dakota	46	14.2	8.8	12.6
Total	223	14.2	8.8	12.6

<sup>1</sup>Distance “as the crow flies” calculated using latitude and longitude of zip code centroid. Pharmacies in the same zip code are considered to be 0 miles apart.

Data Source: 1999 pharmacy licensure data from Minnesota, North Dakota, and South Dakota Boards of Pharmacy.

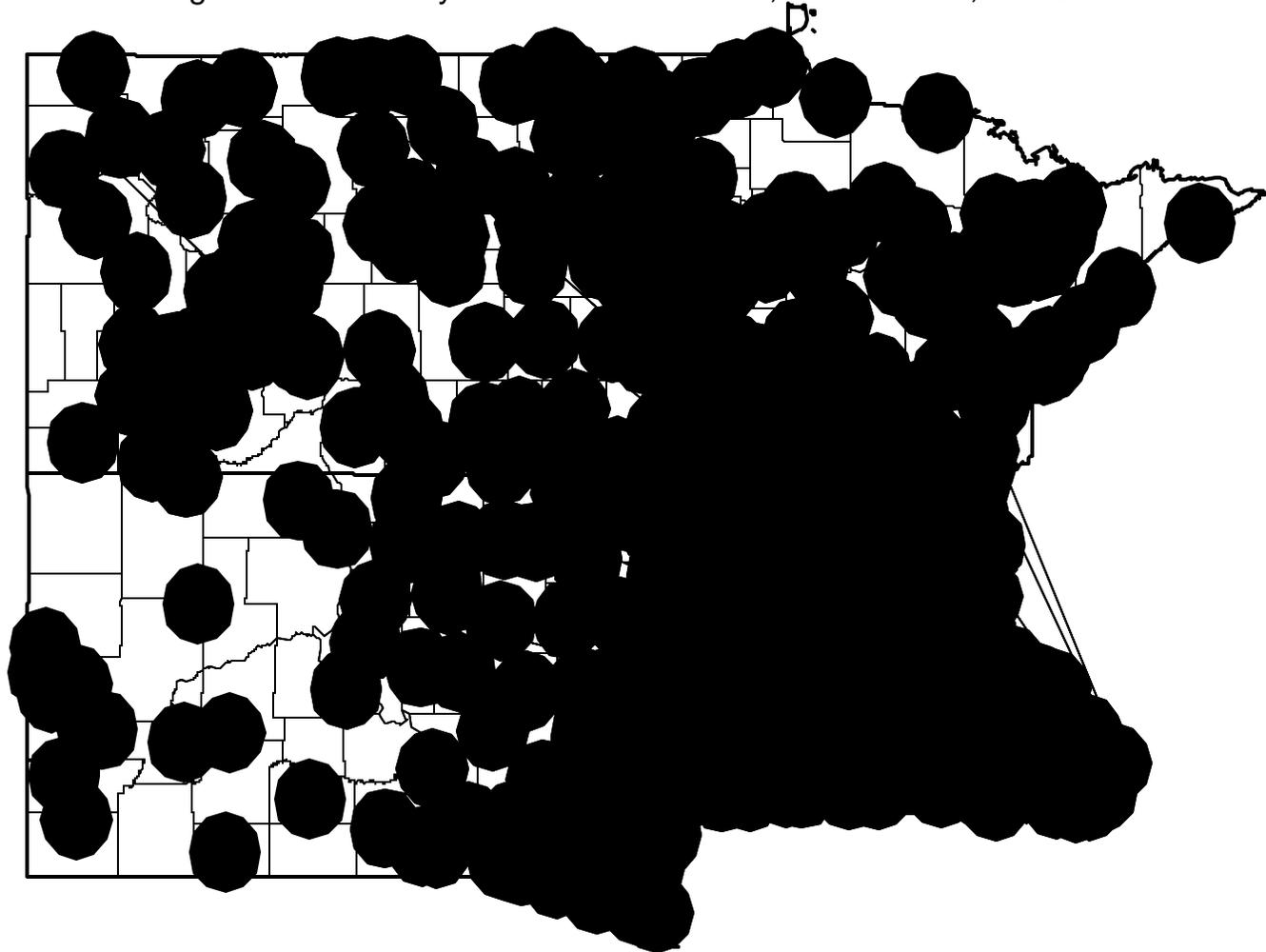
### **Areas More than 20 Miles from A Pharmacy**

Figure 1 displays the locations of all rural and urban retail pharmacies in Minnesota, North Dakota, and South Dakota. Using 20 miles as the distance standard for measuring access to pharmacy services, a circle with a 20 mile radius was drawn around each pharmacy site. The unhatched areas on the map represent areas without a pharmacy within a 20 mile radius, and include parts of northern Minnesota, central and western North Dakota, and much of western South Dakota.

A total of 47 counties, including six counties in Minnesota, 20 counties in North Dakota, and 21 counties in South Dakota, have 25 percent or more of their land area located more than 20 miles from the nearest pharmacy. The 47 counties represent 23 percent of the counties in the three states, and contain almost 400,000 people, about 6.5 percent of the total population. One county, Burleigh, North Dakota, is classified as an MSA county. The remaining 46 counties are all non-MSA counties; 40 of these counties are classified as frontier counties because they have a population density of six or fewer persons per square mile. Eighteen counties, including six in North Dakota and 12 in South Dakota, do not have a retail pharmacy within the county boundaries.

The areas more than 20 miles from the nearest pharmacy include portions of several American Indian reservations, where some pharmacy services are provided by Indian Health Services hospitals or health centers (IHS, 2000). They also include portions of several state and national forests, and national parks that are sparsely populated. Many of the areas that are underserved by pharmacies are underserved by primary medical care and other health care providers as well. Of the 47 counties that have 25 percent or more of their land area located more than 20 miles from the nearest pharmacy, 14 entire counties and parts of 23 other counties are

Figure 1. Pharmacy locations in Minnesota, North Dakota, and South Dakota



Hatched areas represent circles with a 20 mile radius around each pharmacy.  
The unhatched areas do not have a retail pharmacy within 20 miles.  
Data Source: 1999 state licensure data

federally designated Health Professional Shortage Areas (HPSAs) for primary medical care. These areas are also characterized by large distances between hospitals.

To estimate the number of people within these 47 counties who are living more than 20 miles from a pharmacy, we first identified the townships and Minor Civil Divisions (MCDs) in those counties that are located outside of the 20 mile radius circles. We then added up the population estimates from the 1998 Census for these townships and MCDs. Based on these calculations, we estimate that approximately 98,000 persons, or about 1.6 percent of the population in these three states, live more than 20 miles from a pharmacy. Over half of the total, 52,235 persons, live in South Dakota; 27,570 persons live in North Dakota; and 18,199 persons live in Minnesota. South Dakota has the highest percentage of its population living more than 20 miles from a pharmacy, 7.3 percent, followed by North Dakota with 4.3 percent, and Minnesota with 0.4 percent. Compared to counties within the 20 mile radius circles, the counties outside have a significantly higher percentage of the population below the poverty level (18.3% versus 13.3%).

### **Pharmacy Closures in Minnesota, North Dakota, and South Dakota 1996-99**

Lists of closed pharmacies from the Boards of Pharmacy were analyzed in conjunction with data on currently licensed pharmacies to determine if another pharmacy remained open in each of the rural communities where a pharmacy had closed during 1996-1999. For the rural communities without an open pharmacy, additional data was collected from community Yellow Pages on the Internet, including data on the size of the community and health care facilities in the community.

A total of 104 pharmacies, including retail, hospital, and speciality pharmacies in urban and rural locations, were reported closed during 1996-1998 by the Minnesota, North Dakota, and

South Dakota Boards of Pharmacy (Table 23). Forty-six of the closed pharmacies were located in rural counties. An additional four rural pharmacies were identified as having closed through the phone survey of rural pharmacies, resulting in a total of 50 rural pharmacy closures in the three state area during the 1996-1999 time period. Thirty-nine of the 50 rural closures involved retail pharmacies; the other 11 pharmacies included hospital, nursing home, state facility, student health, and home care pharmacies. Thirty-three of the rural retail closures occurred in Minnesota; four were in South Dakota, and two in North Dakota.

Ten of the rural retail pharmacy closures in the three state area during the 1996-1999 time period resulted in a rural community no longer having a pharmacy (Table 24). Nine of the communities without pharmacies are in Minnesota, and one is in North Dakota. These communities are small, with an average population of 984 persons, and a population range of 300 to 1,475. The distance to the nearest MSA ranges from 27 to 148 miles, and averages 88.6 miles.

Health care facilities in the ten communities without pharmacies are limited. None of the communities have a hospital; six communities do not have a primary care clinic; and four communities do not have a nursing home. For the ten communities, the distance to the next nearest pharmacy averages 16.6 miles, and ranges from 6.2 to 33.2 miles. Three of the communities (two in Minnesota and one in North Dakota) are more than 20 road miles away from the next nearest pharmacy.

### **FOLLOW-UP INTERVIEWS IN RURAL COMMUNITIES WITH POTENTIAL PHARMACY ACCESS PROBLEMS**

A total of 53 rural communities were identified as at risk for potential pharmacy access problems, including towns with the next nearest pharmacy greater than 20 miles away using the Haversine formula (n = 43), and towns whose sole pharmacy closed between 1996 and 1999 (n =

**Table 23**  
**Pharmacy Closures, 1996-1999**

	MN	ND	SD	Total
Closed Pharmacies 1996-1998 <sup>1</sup>				
Rural	35	3	8	46
Urban	46	4	8	58
Total	81	7	16	104
Closed Pharmacies 1999				
Rural	3	1	0	4
Rural Pharmacies Closed 1996-1999	38	4	8	50
Non-retail Pharmacies <sup>2</sup>	5	2	4	11
Retail Pharmacies	33	2	4	39
Rural Retail Pharmacies Closed 1996-1999 with no other pharmacy in same town	9	1	0	10

<sup>1</sup>Pharmacies that changed ownership but remained open at the same locations were excluded from the closure analysis.

<sup>2</sup>Includes pharmacies in hospitals (3); nursing homes (3); regional treatment centers/state facilities (2); home care (2); and student health (1).

Data Sources: 1996-1998 closures based on licensure data from Minnesota, North Dakota, and South Dakota Boards of Pharmacy; 1999 closures based on data from University of Minnesota Rural Health Research Center Survey of Rural Pharmacies.

**Table 24****Characteristics of Rural Communities in Minnesota and North Dakota  
Whose Sole Retail Pharmacy Closed During 1996-1999<sup>1</sup>**

<b>Community</b>	<b>Size of Community</b>	<b>Location in State</b>	<b>Number of Primary Care Physician Clinics</b>	<b>Number of Hospitals</b>	<b>Number of Nursing Homes</b>	<b>Community with Next Pharmacy</b>	<b>Road Miles to Next Pharmacy<sup>2</sup></b>
Sebeka, MN	774	Central	1	0	0	Menahga	11.2
Watkins, MN	757	Central	1	0	1	Cold Spring	11.7
Fairfax, MN	1,405	S Central	0	0	1	Hector	16.0
Remer, MN	300	N Central	0	0	0	Grand Rapids	28.6
Bird Island, MN	1,372	Central	0	0	0	Hector	9.7
Browerville, MN	693	Central	1	0	0	Clarissa	6.2
Edgerton, MN	1,123	SW	0	0	1	Pipestone	17.2
Minneota, MN	1,470	SW	0	0	1	Marshall	9.9
Red Lake Falls, MN	1,475	NW	2	0	1	Crookston	22.3
West Hope, ND	471	N Central	0	0	1	Bottineau	33.2

<sup>1</sup>No Closures in South Dakota were of sole retail pharmacies during this time period.<sup>2</sup>Distance in road miles calculated using ProMiles.

10). Two representatives from each community at risk were contacted for further information regarding access to pharmacy services in their community. The first contact in each town was a nurse or medical assistant at a primary clinic in the town. The primary clinic was identified using the Yahoo Yellow Pages. If there was more than one clinic in town, one was chosen randomly. The clinic contact was interviewed, and then asked to identify either a social service provider or a public health nurse who would be informed about pharmacy access for their community.

The interview questions focused on access to pharmacy for the elderly. Respondents were asked to rate the importance of transportation issues and financial issues to the elderly in getting their prescriptions filled. They were asked to identify where the majority of the elderly from their community get their prescriptions filled, and how they get their pharmacy needs met when that source is closed. Respondents were asked to identify ways that elderly persons obtained medication when the elderly person could not pick up the medication at the pharmacy or did not have insurance that covered prescription drugs.

Three open-ended questions were asked. Each respondent was asked to describe innovative approaches used in their community to maintain or increase access to pharmacy for the elderly and to describe any other population group with pharmacy access problems. Finally, they were asked if there was anything else they wished to discuss regarding pharmacy access for their community.

Ninety-five interviews were completed during June and July 2000, yielding a response rate of 90 percent. Of those, 52 were clinic contacts, 31 were social service contacts, and 12 were public health nurse contacts. Seventy-six completed interviews represented towns that were at risk of access problems because of distance to the next nearest pharmacy, and 19 interviews represented towns where the sole pharmacy had closed.

## **Transportation Issues**

Overall, the medical, social service and public health respondents reported that transportation barriers to pharmacy care are less important to the rural elderly than financial issues. On a scale of one to five, where one is not difficult and five is very difficult, the mean rating of the importance of transportation issues was 2.99, and the mean rating of the importance of financial issues was 4.46 (Table 25).

Though many respondents expressed the belief that drugs are more expensive in smaller communities with independent pharmacy providers, 80 percent of respondents report that the majority of elderly residents get their prescriptions filled in the town where they live. The remaining 20 percent report that the elderly go out of town for prescriptions, driving an average distance of 25 miles one way to the pharmacy.

Many elderly persons who are unable to pick up their medication at their local pharmacy receive additional services from the pharmacy. Fifty-one percent of the respondents indicated that the pharmacy will deliver the medications to the patient's home and 22 percent responded that the local pharmacy will mail the prescriptions to the patient's home. Twenty-five percent of respondents indicated that elderly persons in their community have family, friends, home care providers or community workers pick up the prescriptions for them. This last option is especially important for the elderly who do not live in town. Few elderly are reported to use national mail order services to overcome transportation barriers.

When their local pharmacy is closed, 61 percent of respondents report that the majority of elderly residents drive to another community to meet their pharmacy needs. Other options reported include going to the local hospital emergency room for care (13% of respondents);

**Table 25**

**Financial and Transportation issues for Elderly Identified in Follow-up Interviews in Rural Communities with Potential Pharmacy Access Problems  
(n=95)**

<b>Transportation Issues</b>	<b>Percent</b>
Importance of transportation issues in elderly getting prescriptions filled Mean = 2.99, based on a scale of 1 to 5, where 1 is not important and 5 is very important	
Where do the majority of elderly persons in this community get their prescriptions filled?	
Local pharmacy	80%
Out of town (Mean distance = 25.2 miles)	20%
Where do elderly persons get prescriptions filled when local pharmacy is closed?	
Drive to another community	61%
Local hospital emergency room	13%
Go without until pharmacy reopens	11%
Call pharmacist at home	5%
Other (mail order, samples)	6%
Don't know	3%
Not applicable (pharmacy does not close on weekends)	1%
How do elderly who are unable to pick prescriptions up at the pharmacy receive them?	
Pharmacy delivers to patient's home	51%
Family, friends, home care providers, community workers pick up	25%
Pharmacy mails to patient's home	22%
National mail order pharmacy	2%
<b>Financial issues</b>	
Importance of financial issues in elderly getting prescriptions filled Mean = 4.46, based on a scale of 1 to 5, where 1 is not important and 5 is very important	
How do the majority of elderly persons in this community who do not have prescription coverage pay for their medications?	
Pay out-of-pocket	45%
Local providers refer patients to Medicaid and state prescription drug programs	23%
Local providers contact pharmaceutical companies for free medications	14%
Local providers distribute free samples to patients	11%
Rural Health Clinic, Indian Health Service, veterans administration	4%
Patients reduce dose to make it last longer or don't fill prescriptions	3%

going without their medication until the pharmacy reopens (11%) and calling the pharmacist at home (5%).

### **Financial Issues**

A recurring theme in these interviews was that drug costs are a health issue for all elderly persons. Forty-five percent of respondents reported that the majority of elderly persons in their communities without prescription coverage pay out-of-pocket for their medications (Table 25). This is reported to result in “daily choices between food and medicine,” “some decreasing their dose to make the medication last longer,” and “some just not filling their prescriptions.”

Twenty-three percent of respondents report that the majority of elderly patients in their communities who need help paying for prescriptions are referred to Medicaid programs or state sponsored programs. Minnesota and South Dakota have state sponsored programs to assist the low income elderly with obtaining prescription medications. The Minnesota Prescription Drug Program pays for medications for low-income elderly after a \$35 monthly deductible (Minnesota Department of Human Services, 2000). South Dakota’s Rx Access program helps low-income elderly persons apply for pharmaceutical companies’ free medication programs (South Dakota Department of Social Services, 2000). These programs are limited to elderly persons with low income and limited assets, which respondents indicate results in the exclusion of some farmers who have little disposable income but whose assets exceed the limits.<sup>3</sup>

Several respondents from South Dakota also mentioned the Senior Health Information and Insurance Education (SHIINE) Program as an information resource for elderly persons without prescription drug coverage. SHINE has volunteers throughout South Dakota who help any South Dakota senior citizen with Medicare and supplemental insurance questions. All states

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<sup>3</sup> Effective October 1, 2000, the liquid asset limits for the Minnesota Prescription Drug Program increased significantly from \$4,000 to \$10,000 for one person, and from \$6,000 to \$18,000 for a married couple.

have similar information programs. Minnesota's program, the Health Insurance Counseling Program, is run by the Minnesota Board on Aging. North Dakota's information program is located in the North Dakota Division of Insurance.

Thirteen percent of interview respondents said the majority of elderly persons in their community without prescription coverage obtain medication through pharmaceutical companies' free medication programs. An additional ten percent of respondents indicated that local providers distribute free medication samples to elderly patients without prescription coverage. However, respondents expressed concerns about both approaches as long term solutions to the problem of providing medications to the elderly.

The complex application process and the lengthy processing time for pharmaceutical companies' free medication programs often leave individuals without an adequate supply of medication for a period of time. Medications are sent to the prescribing physician's office, which requires additional administrative time for the clinic to contact the patient and dispense the medication, and necessitates an additional patient visit to the clinic. Urgent and acutely needed medications such as antibiotics are not available under these programs. Constant chronic medications without dosage changes are the most adaptable to this distribution system.

Some local communities have systems in place to ease the complexity of applying for these programs. One community health nurse team regularly completes the process for their clients as part of their weekly service. Several clinics have staff with time dedicated specifically for the management of these application processes. The South Dakota Rx Access program will help the elderly to access these programs. An efficient program of application coordination can help work toward the timely delivery of some of the needed medications for eligible patients.

Six respondents expressed concerns about the use of free samples. Federal law requires documentation of all the lot numbers of samples that are received and distributed. This safety measure allows notification of patients who received medications that are recalled for quality reasons. However, it places an additional clerical burden on health care providers, and is a potential source of liability for clinics if the documentation is not done correctly. An additional concern regarding samples is the continuity of care for elderly patients. Pharmaceutical companies distribute samples to promote medications that may not have wide use currently, either because they are new or not in general use. Consequently, they may not be on insurance formularies, or may be too expensive for a private pay patient. They also may not yet be stocked at the local rural pharmacy. Because these medications may not be available through normal channels, respondents were concerned that sample medications may not be easily continued by patients.

#### **Additional Issues and Concerns Expressed by Interviewees**

In addition to elderly persons, interview respondents also mentioned several other population groups with pharmacy access problems, including the uninsured, the working poor, the middle-aged, middle-income uninsured, veterans, Native Americans, migrant workers, and disabled people, especially those mentally handicapped. The barriers to pharmacy access for these groups are cost and transportation. Native Americans, veterans, and migrant workers face the additional challenge of coordinating their care with several providers, payers and regulators.

Interview respondents repeatedly expressed concern over the cost of medications. They described several methods of addressing this barrier to care including cross-border excursions, community bus service to larger locales to fill prescriptions at cheaper pharmacies, sliding fee

scales, voucher sample programs, and prescribing or filling less expensive medications by physicians and pharmacists.

Many North Dakota and Minnesota respondents mentioned trips to Canada to purchase medications. Canada's medications are priced in the reference method by the Canadian government resulting in 1/3 to 2/3 savings on a 3 month supply. One new complication with the Canadian supply methods is the Canadian federal requirement that prescriptions filled in Canada be written by a Canadian licensed physician. However, interview respondents report that their patients have had no trouble getting a Canadian physician to write the prescriptions for them.

A few respondents also mentioned mail order systems through the Veterans Administration and the American Association of Retired Persons (AARP) or similar programs to assist with transportation and cost issues. However, the mail system may not be the best delivery method. Some medications cannot be mailed due to their instability in the very high or very low temperatures that may be experienced in the postal system. Mail service in some areas is described as unpredictable. Mail service may take two to three days or more, requiring additional planning on the part of the consumer. Mail order services often supply medication information to patients, though patients may not read or understand the information provided in a written form.

## **RURAL PHARMACY POLICY AND REGULATORY ISSUES**

Regulatory and policy issues that affect the delivery of pharmacy services in rural areas were identified in several ways. The pharmacy literature was reviewed, including professional and trade journals and newspaper articles. Rural Pharmacy Advisory Committee members identified issues from their perspectives as a rural pharmacist, family physician, or hospital administrator practicing in a rural area. Responses to the pharmacy survey and the follow-up interviews in communities at risk of pharmacy access problems were also analyzed to identify

regulatory and policy issues. The pharmacy statutes and rules of the three states were reviewed with a focus on access- related issues.

Phone interviews were then conducted with leadership of the three state Boards of Pharmacy, the North Dakota and South Dakota Pharmacy Associations, and faculty from the University of Minnesota School of Pharmacy. The interviewees were asked about current regulatory issues and other issues affecting rural pharmacy, any waivers or exceptions granted by the Boards of Pharmacy to improve rural access, the availability of relief coverage for pharmacists, innovative approaches being used to help meet rural pharmacy access needs, and legislative initiatives to address rural pharmacy issues.

The policy and regulatory issues identified through this process include the financial viability of rural pharmacies, the supply of rural pharmacists, relief coverage, alternative methods of dispensing pharmaceuticals, and the potential impact of a Medicare prescription benefit on rural consumers and pharmacies.

### **Financial Viability of Rural Pharmacies**

Several sources, including the pharmacy literature, the Rural Pharmacy Advisory Committee, the pharmacist survey, and state board and association interviews, identified the financial viability of rural pharmacies as a key policy issue. The negative impact of increased competition from large chain pharmacies and mail-order companies, reductions in third-party reimbursement levels, and discriminatory pricing on the part of drug manufacturers were cited as major causes of the financial difficulties currently being experienced by independent and small chain pharmacies in rural areas (Carroll, Miederhoff, and Waters, 1996; Epstein, 1996). Additional concerns included higher overhead costs resulting from increases in the volume and variety of medications to be stocked by rural pharmacies; Balanced Budget Act mandates for

counseling services, without provision for reimbursement, which have increased the time and cost of dispensing medications; and the expansion of prescribing rights for mid-level practitioners, which has resulted in an increase in pharmacy consultations about medications, dosages, and interactions.

In the study states, policy initiatives to address the financial viability of rural pharmacies have focused on regulating competition. All three states require state licensure of out-of-state mail order programs that deliver prescriptions to consumers. Two states, South Dakota and North Dakota, have adopted laws limiting ownership of pharmacies by non-pharmacists. To obtain a pharmacy permit in South Dakota, a pharmacist must be the owner or part owner, or the application must be made jointly with a registered pharmacy owner, or the non-pharmacist owner must delegate complete responsibility for the pharmaceutical services to a pharmacist (South Dakota Codified Laws 36-11-34; Administrative Rules 20:51:06:02). In North Dakota, if a pharmacy is owned by a sole proprietor or a partnership, the owner or each active partner must be a pharmacist. If the pharmacy is owned by a corporation, the majority of stock must be owned by “registered pharmacists in good standing, actively and regularly employed in and responsible for the management, supervision, and operation of (the) applicant pharmacy” (North Dakota Rules 1999, 61-02-01-02, amended effective August 1, 1983). Pharmacies in operation prior to passage of these laws were allowed to continue operating, but new pharmacies that do not meet the ownership criteria are prohibited from opening.

The North Dakota and South Dakota laws limiting the development of new pharmacies that are not owned or controlled by pharmacists have clearly affected the patterns of pharmacy ownership in the two states, but their impact on access to pharmacy services is less clear. During 1996-1999, the proportion of rural retail pharmacies that closed was lower in these two states

than in Minnesota. However, other factors may have contributed to the different rates, and the Minnesota closures included both chain and independent pharmacies. It is also possible that the North Dakota and South Dakota ownership restrictions are resulting in a lack of competition in areas of the state where it might otherwise occur, potentially increasing prescription prices for consumers, since the restrictions are statewide, and not targeted to areas with geographic access problems or a limited number of pharmacies.

Minnesota considered, but did not pass, legislation to establish a financial assistance program for pharmacies that are designated as “sole community pharmacies” by the Commissioner of Health. This legislation, which was introduced in the 1999 and 2000 sessions, was modeled on a state program that provides financial assistance to isolated rural hospitals. However, rural retail pharmacies and rural hospitals differ in fundamental ways that complicate the potential provision of financial subsidies to pharmacies. First, rural hospitals in Minnesota and the Dakotas are not-for-profit or public entities, while rural retail pharmacies are for-profit businesses that usually sell non-health-related products in addition to dispensing prescriptions. Second, hospitals report a considerable amount of financial data to the state and federal governments, which makes it possible to assess their current and historical financial status. No comparable financial data exists for rural pharmacies.

The 2000 Minnesota Legislative Session also considered but did not pass legislation that would have increased Medicaid prescription dispensing fees for rural pharmacies that are the sole pharmacy located in a zip code. An increase in Medicaid fees is difficult to justify as a means of assuring geographic access to pharmacy care. All rural pharmacies that are the sole pharmacy located in a zip code are not necessarily essential for access purposes, since distances to the next nearest pharmacy may vary considerably. In addition, rural pharmacies on average

have a higher profit margin from Medicaid than from other third party payers. Arkansas recently enacted a two-tier Medicaid drug reimbursement policy that provides higher payments to independents and small chains, but large chain pharmacies in Arkansas have filed suit, asserting that the policy discriminates against them (Frederick, 2000).

### **The Supply of Rural Pharmacists and Relief Coverage**

Rural pharmacies need to be adequately staffed in order to provide adequate access to pharmacy services. Although this study did not specifically address pharmacist supply issues, several sources consulted for this study identified the shortage of rural pharmacists as a key policy issue, including Rural Pharmacy Advisory Committee members, respondents to the pharmacy survey and community follow-up interviews, and state board and association leaders.

National data suggest that demand for pharmacists will increase in the near future, as the number of prescriptions grows; pharmacists' roles expand to include a greater role in pharmaceutical care services such as disease management, counseling, and patient education; and programs to prevent adverse drug events are implemented as part of local, state, and national efforts to address medical errors (Mehl and Santell, 1999; National Governor's Association, 2000; Bero, Mays, Barjesteh, and Bond, 1999; Institute of Medicine, 1999).

Public policy initiatives to address pharmacy staffing issues have been limited in the study states. In Minnesota, legislation passed during the 2000 session increased the number of pharmacist technicians a pharmacist may supervise from two to three, provided that at least one of the pharmacy technicians is nationally certified (Minnesota Session Laws 2000, Chapter 276). During the 1999 and 2000 Minnesota Legislative Sessions, legislation was introduced but did not pass that would have established a loan repayment program for pharmacists who practice in rural and underserved urban areas.

A major concern for many rural pharmacists is the lack of relief coverage. State board and association leaders report that problems with relief coverage are not limited to rural areas, and that affordability is the main issue. Although some agencies provide pharmacists who can be hired on a temporary basis, not enough pharmacists specialize in relief work, and advance notice is required. Rural pharmacies are reluctant to pay the costs, which usually include mileage and over-night accommodations, as well as an hourly wage for the relief pharmacist. In addition, emergency services or consultant services to a rural hospital pharmacy can also be an issue. The local pharmacist frequently has responsibilities for providing pharmacy services in hospitals and nursing homes as well as in the retail pharmacy. Hiring a substitute pharmacist who is willing to assume these additional responsibilities is difficult and often prohibitively expensive.

The three states in the study have not implemented any formal initiatives to address the problem of relief coverage. The South Dakota Board of Pharmacy has encouraged pharmacists to work informally with the SDSU College of Pharmacy at Brookings and with members of the state pharmacy association to assist with relief coverage.

### **Alternative Methods of Providing Pharmacy Services**

The National Association of Boards of Pharmacy has defined telepharmacy as “the provision of pharmaceutical care through the use of telecommunications and information technologies to patients at a distance” (Angaran, 2000). Pharmaceutical auto-dispensing machines provide frequently used, chemically stable drugs in common dosages. These alternative methods of dispensing pharmaceuticals have the potential to increase access to pharmacy services in underserved rural areas. However, the use of these methods raises

regulatory and reimbursement issues. A central question is how to assure delivery of the patient education/counseling component of pharmacy services.

Current state laws and regulations in Minnesota, North Dakota, and South Dakota require that a pharmacist be physically present when prescription drugs are dispensed. Pharmacy technicians may not hand out medications when a pharmacist is not present, and the pharmacy area must be closed when the pharmacist is absent from the pharmacy. However, all three states allow certain exceptions.

To increase access to medications for residents of nursing homes in urgent situations, the three states allow nursing staff to give new medications from an “emergency kit” of routine medications after consultation with a pharmacist about dosage and drug interactions. South Dakota issues “part-time” pharmacy licenses to very small rural hospitals, which allow a pharmacist to come once a day to do ordering and record keeping, and the charge nurse to distribute medication while the pharmacist is not present. Several pharmacies in North Dakota provide pre-packaged medication for dispensing by practitioners on their clinic visits to rural communities. In those cases, the provider pharmacy maintains ownership of the medication in the remote sites. The North Dakota Board of Pharmacy also allows rural pharmacies, on an unofficial basis, to deliver medications to stores they operate or local community sites for pick up by the patient.

In 1999, the Minnesota Board of Pharmacy granted a “telepharmacy” waiver to the Northern Itasca Pharmacy in Bigfork. The pharmacy is linked to a clinic in Northome, 30 miles away, using video cameras and computers, so that pharmacy technicians at the clinic can dispense drugs under the supervision of the pharmacist in Bigfork (“Northern MN Rural Areas Get Telepharmacy,” 1999). The Minnesota Board did not approve a second waiver request

involving telepharmacy, because it would have been for competitive purposes in a rural community with an existing pharmacy, rather than for improving access. The North Dakota Board of Pharmacy is currently discussing what rules it might adopt to facilitate the use of telepharmacy at remote sites, and has approved four pilot sites for telepharmacy services. The South Dakota Board of Pharmacy has also expressed interest in telepharmacy.

All three states allow auto-dispensing machines in settings where a health care professional authorized to dispense medication is present to supervise the dispensing, for example, a clinic or hospital setting supervised by a pharmacist, physician, nurse practitioner, or physician assistant.

The Minnesota Board of Pharmacy has had a waiver request to set up a rural pharmacy that would be staffed half time by a pharmacist and half time by an auto-dispensing machine. This request was not approved because the auto-dispensing machine would not have been under the full-time supervision of a pharmacist or other health care professional authorized to dispense medication.

North Dakota allows some prescribing authority to pharmacists. After signing a written collaborative agreement with a physician, pharmacists can initiate drug therapy for institutionalized patients with an existing diagnoses. They can also modify dose, drug and route for the patient's existing diagnoses in a hospital, swing bed and/or a long term care facility. The physician must be notified within 24-72 hours. This unique authority seems to address the shortage of physicians more than the shortage of pharmacists.

### **Potential Impact of a Medicare Prescription Benefit**

Implementation of a Medicare prescription drug benefit has considerable potential for improving financial access to pharmacy services for rural beneficiaries. Rural Medicare

beneficiaries purchase more prescriptions than urban seniors, but are less likely to have prescription drug coverage, and experience higher out-of-pocket costs for their medications than urban seniors (Coburn and Ziller, 2000). In 1996, 43 percent of rural Medicare beneficiaries did not have any type of prescription drug coverage, compared to 27 percent of urban beneficiaries (Poisal and Chulis, 2000; DHHS, 2000). One-third of rural Medicare beneficiaries paid more than \$500 in out-of-pocket prescription drug costs, compared to one-fourth of urban beneficiaries (Coburn and Ziller, 2000).

The impact of a Medicare prescription benefit on geographic access to pharmacy services for rural beneficiaries will depend on two key aspects of how the benefit is structured: 1) the extent to which rural pharmacies are allowed to participate in the program, and 2) reimbursement rates for rural pharmacies. Medicare beneficiaries without prescription benefits comprise a large portion of patient pay consumers in rural pharmacies, and the profit margin on prescriptions paid by Medicare is likely to be lower than the margin currently paid by private pay customers. While a prescription benefit will increase demand among low income beneficiaries who have not been able to afford needed prescriptions, the increase in demand may not offset the reduced margin. If Medicare reimbursement rates are significantly lower than the private pay rates pharmacies currently charge to private pay customers, and the benefit is administered by pharmacy benefit management companies that rely on mail-order and large chains to reduce costs, the addition of a Medicare prescription benefit may have a substantial negative impact on the financial status of rural pharmacies.

Of the six major Medicare prescription drug proposals introduced in Congress between April and August 2000, one proposal requires insurers providing or managing the prescription benefit to contract with local providers, and includes possible bonus payments for retail

pharmacies in rural areas; two proposals require that a sufficient number of pharmacies be included to ensure “convenient access”; one proposal requires that retail pharmacies be used “where feasible”; and two proposals do not have provisions regarding geographic access or use of local pharmacies (Coburn and Ziller, 2000).

To ensure access to pharmacy services for rural seniors, the National Advisory Committee on Rural Health has recommended that a Medicare drug benefit program include "any willing provider" requirements to ensure that independent rural pharmacists will be able to contract with the pharmacy benefit manager (National Advisory Committee on Rural Health, 2000). The RUPRI Rural Health Panel has recommended that a Medicare drug benefit “explicitly encourage the inclusion of local pharmacies as vendors,” and further suggested that policymakers may want to consider ways to help small rural pharmacies meet the higher marginal costs inherent in selling smaller volumes of prescriptions (Coburn and Ziller, 2000).

## **CONCLUSIONS AND POLICY RECOMMENDATIONS**

Based on a survey of all licensed rural pharmacies, analyses of distances between pharmacies and pharmacy closures, and follow-up interviews in rural communities with potential access problems, we conclude that most rural residents of Minnesota, North Dakota, and South Dakota currently have adequate geographic access to pharmacy services. However, financial access to pharmacy services is a major concern in rural areas of these three states, especially for the rural elderly who lack prescription drug coverage.

### **Geographic Access to Pharmacy Services**

Most rural residents of Minnesota, North Dakota, and South Dakota live within a 20 mile radius of a retail pharmacy, and three-fourths of rural pharmacists do not perceive that geographic barriers make it difficult for residents of their area to access pharmacy services.

However, geographic access to pharmacy services is a problem in some rural areas of northern Minnesota, central and western North Dakota, and western South Dakota, where pharmacies are more than 20 miles apart. We estimate that approximately 98,000 persons, or about 1.6 percent of the population in these three states, live more than 20 miles from a pharmacy. South Dakota has the highest percentage of its population living more than 20 miles from a pharmacy, 7.3 percent, followed by North Dakota with 4.3 percent, and Minnesota with 0.4 percent.

Rural pharmacies in these three states provide access to pharmacy customers in several ways. Pharmacies are open an average of 6.1 days per week, and an average of 57 hours per week. Two-thirds of pharmacists report that customers use on-call pharmacists for after-hours access to pharmaceutical services. The majority of rural pharmacies deliver prescriptions to private homes and nursing homes.

The pharmacy access problems that exist in these three states are not primarily due to closure of rural pharmacies in recent years. Of the 39 rural retail pharmacies that closed from 1996-99, 29 were located in rural communities with another pharmacy. Ten rural communities were left without a pharmacy, and three of these communities are more than 20 road miles from the next nearest pharmacy. Twenty-two rural pharmacies expect to close during the next two years; 12 of these are located in communities with one or more additional pharmacies. Of the ten potential closures that do not have another pharmacy in the same community, two are located more than 20 road miles from another pharmacy.

### **Recommendation #1**

State policy initiatives to address problems with geographic access to pharmacy services should be targeted to rural pharmacies that are critical for access, using criteria that take into account the distance from each pharmacy to the next nearest pharmacy, and the capacity of the next nearest pharmacy to provide pharmacy services to the population at risk.

To evaluate the need for subsidies or reimbursement enhancement for pharmacies that are critical for access, states will need to obtain financial data from pharmacies. This study requested financial information from pharmacies, but was unable to obtain sufficient data to assess their financial status.

State Boards of Pharmacy should continue exploring ways to allow or encourage alternative methods of providing pharmacy services in underserved rural areas, such as telepharmacy.

### **Pharmacy Staffing and Relief Coverage**

This study did not specifically address pharmacist supply issues, but the results of the pharmacy survey suggest that the three states will experience a significant demand for rural pharmacists and pharmacy technicians in the near future. Sixty pharmacies anticipate the retirement of a pharmacist in the next two years, with about half planning to replace the retiring pharmacist. Twenty-one pharmacies anticipate the retirement of a pharmacy technician, with three-quarters of those planning to replace the retiring technician. One hundred and ten pharmacies plan to add a new pharmacist, and 103 pharmacies plan to add a new pharmacy technician. Over 200 pharmacies plan to expand services, with the largest numbers planning to expand disease management services, screening or testing services, expansion of the pharmacy at the current site or a new site, and expansion of services in other health care settings such as nursing homes and assisted living facilities.

The national movement to the Pharm.D. degree means that Colleges of Pharmacy and rural health communities will need to work together to prepare pharmacists for rural practice, recruit them to rural areas, and enable them to make use of their skills in rural settings.

### **Recommendation #2**

All states should evaluate the capacity of their Colleges of Pharmacy to produce an adequate supply of rural pharmacists over the next decade, taking into account demographic trends and the impact of recent initiatives to promote rural practice.

Relief coverage also emerged as a major concern for many rural pharmacies. Rural pharmacists work long hours to provide access to pharmacy services; 56 percent of first or only pharmacists work more than 40 hours per week. Thirty percent of rural pharmacies are staffed by a single pharmacist, who does not have another pharmacist on staff to rely on for relief coverage. Two-thirds of rural pharmacists provide services in local nursing homes and one-fifth provide hospital pharmacy services; these multiple responsibilities further complicate the process of obtaining relief coverage. More than half of all rural pharmacies report it is difficult or very difficult to obtain relief coverage for pharmacists for scheduled time off, and two-thirds report that it is difficult or very difficult to obtain relief coverage on short notice, for example if the pharmacist is ill. Forty-one pharmacies had to close at least one day during the past year because of lack of coverage.

### **Recommendation #3**

State Pharmacy Associations, Colleges of Pharmacy, and Boards of Pharmacy should explore additional options to provide affordable relief coverage for rural pharmacists, for example, regional or state level locum tenens programs. These organizations should evaluate the need for state funding to develop programs that would encourage cooperative coverage relationships within geographic areas, both among retail pharmacies in neighboring communities, and among hospital and retail pharmacies.

### **Financial Access to Pharmacy Services**

Financial access to pharmacy services is a major concern in rural areas of Minnesota, North Dakota, and South Dakota, especially for the rural elderly who lack prescription drug coverage. Three-fourths of rural pharmacist respondents agree or strongly agree that financial barriers such as lack of insurance make it difficult for some residents of their area to access pharmacy services. Clinic, public health, and social services staff in rural communities at risk for pharmacy access problems also rate financial access to pharmacy services for the elderly as a major problem. Existing programs to assist the elderly in obtaining medication only meet a

portion of the need, and are not a good long term solution to the problem of financial access to prescription drugs for the elderly and uninsured.

**Recommendation #4**

More comprehensive approaches should be implemented to ensure financial access to prescription drug coverage for the elderly and other vulnerable populations, including the addition of a prescription drug benefit to the Medicare program.

However, implementation of Medicare prescription benefit may negatively impact geographic access to pharmacy services for rural beneficiaries, depending on two key aspects of how the benefit is structured: 1) the extent to which rural pharmacies are allowed to participate in the program, and 2) reimbursement rates for rural pharmacies. Limiting the pharmacy network for a Medicare prescription benefit to large pharmacies, requiring the use of mail order pharmacies for prescriptions for chronic health conditions, and setting low Medicare reimbursement rates for prescription drugs could have a serious negative impact on rural pharmacies, thereby reducing geographic access to pharmacy services for rural Medicare beneficiaries and other rural residents.

**Recommendation #5**

In designing a Medicare prescription benefit, Congress should consider the potential financial impact on rural pharmacies.

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