

North Dakota leads the way in Tele-Pharmacy: Following in the footsteps of Lewis and Clark, Chief Sitting Bull, and President Theodore Roosevelt

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When you consider visiting, or moving and possibly retiring to North Dakota, the first thing you might do is visit their [tourist office](#):

Welcome to North Dakota!

Pick up the trail of America's greatest legends in North Dakota, and you'll find yourself in a legendary adventure of your own. Lewis and Clark, Sakakawea, George Custer, Sitting Bull, and Theodore Roosevelt lived out larger-than-life adventures here. Whether you follow in their footsteps and rediscover the past or blaze your own trail and discover what makes North Dakota legendary today, you'll find wide-open spaces and wide-open fun!

The second thing you might want to do, if you're close to retirement age, is check out the availability of medical care, or, more importantly, access to medication. Turns out you can rest assured, for the State of North Dakota has blazed a trail there and, following in the footsteps of Chief Sitting Bull and President Theodore Roosevelt, has pioneered telepharmacy. In doing so, the state is well on its way to insuring that everyone, young and old, even those 90 years old who are 90 miles from the nearest pharmacist, can get the medication they need.

"North Dakota is spread out, with 27 of the state's 53 counties classified as 'frontier,'" said Dr. Charles "Chuck" Peterson, Dean and Professor, College of Pharmacy, North Dakota State University. "Being classified as frontier means there are fewer than six

people per square mile in those counties. Add to that the fact that our population is aging, with people, primarily the younger people, migrating from rural areas to urban areas; we began to see something quite alarming in the state. Folks in the rural areas who formerly had access to healthcare through one-person pharmacies were suddenly without pharmacists. And this came just as there was an increased need for pharmaceutical services by them. The baby boomers are growing older, more drugs are being dispensed, and there's more demand for pharmaceutical services. That means that many in those areas would have to drive up to 90 miles, each way, in order to get their prescriptions filled.**"

Is \$7.5 million a year in business attractive enough to change?

While most would turn their head away from this "problem," possibly after writing a feel-good "charitable" check to the state, some other very smart business people turned toward the problem. Led by the College of Pharmacy of North Dakota State University, a group saw this as a business opportunity, one that is already generating \$4.5 million in revenues for businesses owned by residents of the state, and is soon to generate \$7.5 million. All of this would have been lost without... videoconferencing. Welcome to telepharmacy!

* According to 2000 Census data and data supplied to TeleSpan by the North Dakota Department of Commerce, the state's population is quite sparse overall, with an average of only nine persons per square mile. The state's population growth is flat, growing by fewer than 4,000 people over the last decade to 642,200 at the end of 2000. And, indeed, the state is aging, with the average age of residents rising from 32 years in 1990 to 36 in 2000, with 28.9% of the population now 50 or older, and 18.5% 60 or older. (Special thanks to Michelle Halone of the Department of Commerce.)



“What we learned was that of the 373 cities in North Dakota, only 73 had pharmacies,” said Chuck. “And of the 53 counties, nine entire counties didn’t have one, and 11 others have only one pharmacy.”

One possible solution could have been going outside the state, inviting a large drugstore chain to come in and install pharmacies in all these counties. But the state has gone on record legislating against that. In fact, North Dakota has a fairly strict law requiring that pharmacies have a local resident owner, one who controls at least 51% of any pharmacy operating in the state. “We have Walgreens in North Dakota without a pharmacy, for example,” said Chuck.

Chuck and his department saw the need to use technology to extend the reach of the pharmacists who have stayed in business in the state to the communities that were soon to lose, or had already lost, their pharmacist. The solution began with what he calls an ABC committee: A—association of pharmacists, B—board of regulators from the state, and C—the College of Pharmacy. After a lot of negotiations, the committee agreed to a pilot telepharmacy program, which would rely on videoconferencing, allowing practitioners to abide by the state law, which requires that patients with prescriptions “see” the pharmacist, but with value being added through the use of video.

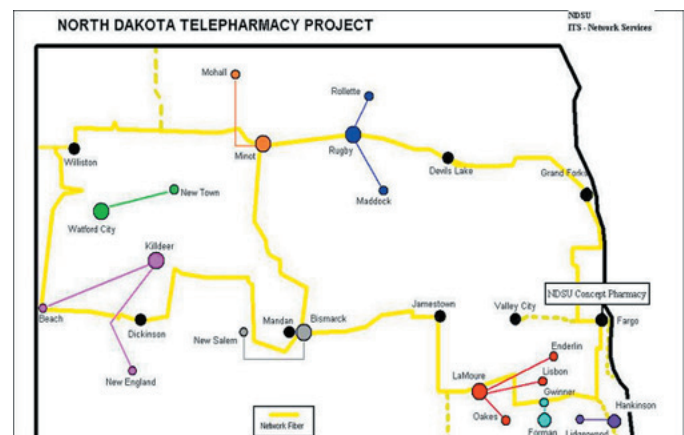
The North Dakota Telepharmacy Network

North Dakota now has a telepharmacy network that transmits interactive voice and video, using symmetrical DSL. According to Sandra Sprafka, of the University’s Information Tech Services, pharmacies use 512-kbps connections (256 kbps in each direction) to link a licensed pharmacist to a specially trained technician

in a remote area, where patients come in to have their prescription filled. Prescription in hand, patients come into a remote office manned by a trained technician and are seated in front of a videoconferencing system, where they can talk to and see the licensed pharmacist at the base location. In parallel with the video network, PCs at each location communicate with one another at 56 kbps over the PSTN using ordinary telephone line modems, logging and tracking the details of the prescription filled.

Initially, the network used [Polycom](#) ViaVideo PC-based videoconferencing systems. While technically effective, they were a mismatch for their target market. “A lot of the users are senior citizens, who are not computer savvy,” said Chuck. “When we went to the Polycom VSX 7000 with television monitors, acceptance grew. Grandpa and Grandma don’t have a PC in their home, but they have a TV, and they were more comfortable with it.”

While the video part of the network is there to allow compliance with state law, requiring that the patient “see” the pharmacist, videoconferencing is now being used to add value beyond what typically happens when





a patient walks in face-to-face for a prescription. As configured today, the VSX 7000 has three cameras, two for people views, and one a document camera. At the remote site, one camera can be used to view the patient, a second camera to view the technician, while the third, a document camera, is used to zoom in and capture real time images of the original prescription, the label showing the patient instructions, the original container, with all the images then stored on the PC or on a CD. This way, there is a visual record, one that validates that the prescription was filled properly. "If we went into a traditional pharmacy without video, we'd have no guarantee that the prescription was properly filled, other than signatures," said Chuck. "Here, we actually have pictures."

Another "value-added feature" pointed out by Chuck is that since there is no licensed pharmacist



physically present in the pharmacy with the patient, the State Board of Pharmacy in North Dakota made it a requirement that every patient must talk to the pharmacist before they leave the pharmacy with their prescription. "In other words, there is 100% mandatory patient education counseling by the pharmacist at these remote telepharmacy sites," said Chuck. "Patients can not leave these remote telepharmacies with their medications unless they first talk to a pharmacist. They won't get their drugs if they don't. In the standard mode of pharmacy drug delivery, there is a federal law called OBRA'90 which requires a pharmacist to *offer* the patient a consultation but unfortunately the patients can decline and usually do. In these telepharmacy sites, 100% of patients must speak to and be counseled by the pharmacist on how to properly take their medications and how to watch for drug adverse effects."

Is it successful?

According to Chuck, the remote sites are averaging 30-40 prescriptions a day, with one doing 50-60 prescriptions over the system. The participating sites were able to get their initial equipment through grants that the University got for them. In total, the University was able to raise over \$1.6 million for the pilot program, initial installations, and the evaluation. As a result of the evaluation, which required that participating pharmacists provide usage and financial records, Chuck found that each pharmacy, on average, was able to expand its business by \$500,000 a year. Therefore, the initial nine participating pharmacies gained about \$4.5 million annually in business. With the network expected to grow to 15 pharmacies this year, that will turn into a tidy \$7.5 million in business for the participants.

Thrifty White Pharmacy

Thrifty White Pharmacy in Rugby, ND is run by Kyle DeMontigny. He delivers telepharmacy services to two remote locations, one in Rolette, ND and the other in Maddock, ND. His business is up by a third, but not without a lot of work. "Our business is definitely up by a third, measured in scripts," said Kyle. "But it takes people to use it to grow like that. If you put in a telepharmacy where there hasn't been a pharmacy for a few years, it's harder to get the business back. Most of the target sites though are really being given a choice when the pharmacy there gets ready to shut its doors, sometimes due to the fact that the pharmacist there just wants to retire. The customers can drive 90 miles to get a prescription filled, use the mail, or use telepharmacy."

Kyle finds that videoconferencing is not easy for many of his customers to use. "We're dealing with an elderly population in these rural areas," said Kyle. "The interesting part is getting them accustomed to the technology. We've got a video television, so they sit down in front of it and we sit down in front of ours. At times, I've sat down and seen only an eyeball on the screen, as the person at the other end is staring into the camera, trying to see us. A lot of them are quite reluctant to sit in front of the television set and talk to us. They're not sure what they're going to see. That sure turns around though. When they walk out, we can still hear them over the microphones saying, "That was kind of neat."

Killdeer Pharmacy

Jody Doe, a pharmacist at Killdeer Pharmacy in Killdeer, ND, was the first pharmacist to install a telepharmacy in the state, and now has two remote sites, one in Beach, ND and the other in New England, ND. While his business volume has definitely doubled, being the first, he has some pioneering stories to tell. "So far, the profits have not been real substantial," said Jody. "Yes, the workload increase has been quite substantial, but not on the financial side. The grant covered the equipment, but there is a lot of out of pocket expense for inventory and extra technician staff. The margins in the pharmacy business are just not there anymore. And you have to carry such a high inventory. And now with new customers, we have to carry more inventory, as you can't have them stop in the remote stores, and not have what they came in for.

"Eventually, in a couple of years I can see some economic impact. For the first three to five years it's a lot of work...but people do like the convenience of it."

Does he see a future in telepharmacy for areas like North Dakota? "I think for rural areas like ours, where it's hard keeping people around, this is just the tip of the iceberg," said Jody. "With this technology being there, it really works out well for patients. It's a real smooth operation, and in fact, it's really no different than if they were living in a metropolis, and just walked down the street to the pharmacy."

For more information on the telepharmacy project, and a PowerPoint presentation, visit the Web page of the [SURA/ViDe 6th Annual Digital Video Workshop](#). Then do a search for "North Dakota".

Here's what I think

I learned about this network after I delivered my OH-VUCK talk at the IMTC meeting in May, (see *Electronic TeleSpan*, May 31, 2004 p. 2). After I made my point that we were not doing a good job of finding new markets for videoconferencing, and that there's tremendous room for growth, and applications that are going begging, Jill Gemmill came up to me and told me about the telepharmacy network. When I began to explore it, I said, "Man, this is great stuff!" Did you read the part about the older folks (like me) who quickly adapted to videoconferencing? Chuck said that during part of the evaluation, he met a senior from Beach, ND who used the Killdeer Pharmacy system. He told Chuck, "You know, in the population in Beach there is a large percentage of people who were over 90 years old, and we're not very ambulatory. We're doing a good day if we can walk across the street. We can't drive hundreds of miles to get our prescription filled, you know." Yet, here this guy is comfortable sitting in front of a TV to get his prescription filled.

And let me ask you: Is your corporate videoconferencing room being used 30-40 times a day, every single day? These telepharmacy rooms are!

Finally, I have to agree with Sandy that there is no reason why we have to limit this concept to a single state. "Elliot, in some cases, you might have someone in Minnesota who's closer to a pharmacy in North Dakota. This could be a possible way to expand, though the state rules have to be expanded in each state."

I only have one word for the potential here... Yum!

Market opportunity?

While I was preparing the story, Chuck was kind enough to pass me some reference material, which strongly suggests that there is a big opportunity out there for us in the teleconferencing industry. Here's just a sampling of what Chuck sent me.

A study entitled, "The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists," was conducted by the federal government (Health Resources and Services Administration of Health and Human Services) in December of 2000. It concluded that the number of unfilled full- and part-time drugstore pharmacists' positions nationally rose sharply from about 2,700 vacancies in February of 1998 to nearly 7,000 vacancies by February 2000. They concluded that such vacancies are expected to continue to grow.

There are 196,000 licensed pharmacists in the United States. Although the demand for pharmacists is increasing, active pharmacists are expected to grow by only 28,500 over this next decade which is 800 less than the 29,300 over the last decade. This decline in rate of growth of pharmacists comes during a time when prescription sales in the US are progressively increasing due to the baby boomer population aging and now being significant consumers of health care services.

Retail prescriptions dispensed in the US rose by 44 percent between 1992 and 1999, from 1.9 to 2.8 billion prescriptions. Projections are that prescriptions dispensed in the US will exceed 4.0 billion prescriptions by 2005 or 2006.

Finally, Chuck told me about the Pharmacy Manpower Project, Inc. project entitled, "Professionally Determined Need for Pharmacy Services in 2020." Its report

concluded that the need for pharmacists in the coming years will significantly outstrip the supply, with a projected shortfall predicted by this group of some 157,000 pharmacists by 2020.

Oh!

I must thank Chuck and Sandy for taking the time to guide me through their network. Also special thanks are due to Jill Gemmill of the University of Alabama at Birmingham who tipped me off to the North Dakota network.

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