Walking in Beauty at Sage Memorial Hospital

Marsha F. Goldsmith

GANADO, ARIZ—As Sage Memorial Hospital begins its second century of service to people here in the heart of the Navajo Nation, this unique facility located on a compound of 110 acres of high desert in northeastern Arizona faces problems unimagined by the Presbyterian missionaries who founded it in 1901. At the same time, a cadre of dedicated health care professionals, augmented by a frequently changing cast of visiting colleagues, offers the 18 000 Navajo people in its service area—1500 sq miles of the 25 000-sq mile reservation, the largest in the United States—state-of-the-art attention to their well-being.

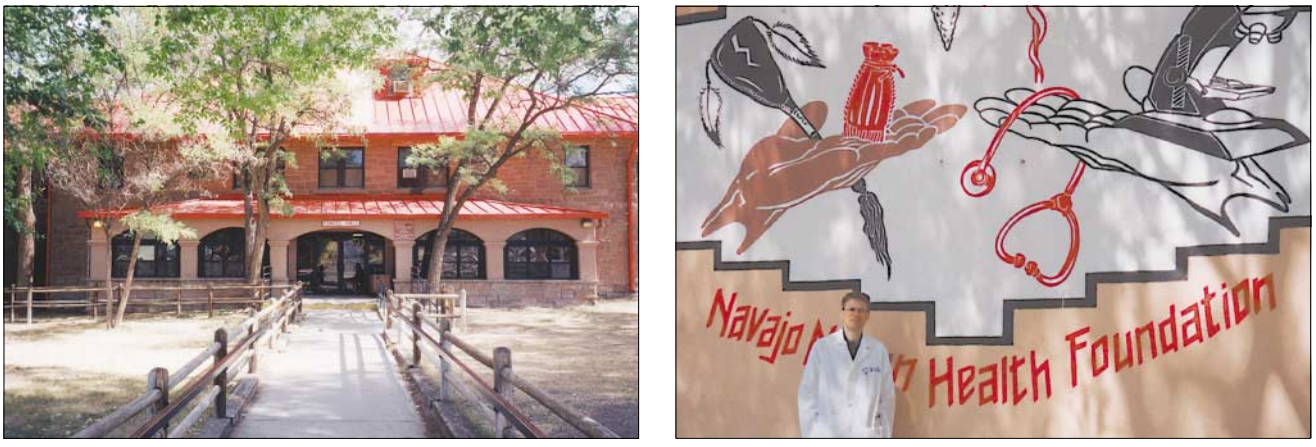
A short stay in Ganado guided by Louis A. Kazal, Jr, MD, a family physician who spent 10 years here, part of it as the hospital's medical director, and is now a Robert Wood Johnson Health Policy Fellow in Washington, DC, afforded a glimpse of how a combination of high tech/"high touch" medicine is practiced in a challenging setting.

The setting, in Kazal's words, "is not just rural, it is remote." Twenty-eight miles from Window Rock, Ariz, capital of the Navajo Nation, 176 from Flagstaff, Ariz, and 52 from Gallup, NM, this is country that readers of Tony Hillerman's mystery novels know well. For others, it is a revelation. Vast stretches of sagebrush-covered earth are dotted with small dwellings, single-story houses or traditional six-sided, east-facing hogans, a daunting distance apart. Outhouses are not unheard of. Sheep and cattle roam on the few paved roads at will, almost as if aware that their economic value to the tribe enhances their safety. Herds of horses graze. Bear and elk live in the nearby Chuska Mountains. An hour's drive away is Canyon de Chelly, a natural wonder of spectacular beauty and—along with the clean air, the quiet, and the chance to live simply and know one's neighbors well—one of the big attractions for professional staff, many of whom enjoy hiking and camping.

But the bucolic surroundings are no barrier to natural ills. The staff at Sage Memorial, which is a full-time hospital, and its three part-time clinics in the communities of Greasewood (28 miles away), Wide Ruins (20 miles), and Sanders (38 miles), deal with the same medical problems encountered by their city colleagues, as well as those spawned or exacerbated by the situations found on reservations. Few people have much money; many still earn their living by weaving rugs or raising sheep. With a 50% unemployment rate, job opportunities for young people are limited, leading to idle time to indulge in alcohol or other drug use, and frequent domestic abuse. A particular problem is the number of people with diabetes mellitus, nearly all of it type 2. Estimates of its prevalence range widely, but Kazal said he believes nearly one fourth of Navajos are affected.

DIABETES: CAUSES AND CURE

In 1940, said Kazal, who relishes recounting Sage's history, Clarence



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Poncel Hall, the first home of Sage Memorial Hospital, dates from 1930. It is now an administrative center for the Navajo Health Foundation. Right, Louis A. Kazal, Jr, the hospital's medical director from 1966 to 1999, in front of a mural outside the old gymnasium, now the Wellness Center.

Salsbury, MD, found "no diabetes" on the reservation. Salsbury was superintendent of Ganado Mission (as the compound that included the hospital and a church, schools, and other facilities was called) from 1929 to 1950. However, in Kazal's view, a series of events encompassing US government dumping of flour and lard after World War II that led to the introduction of now ubiquitous "fry bread," the decline of horseback travel in favor of cars or pickup trucks, and the advent of television on the reservation in 1950 fostered the development of obesity—and diabetes. Some verification of this view may be gained from measuring the doorways of rooms in the original hospital building. Their 22-inch width requires many of those who need to get into the small rooms, now used for storage, to enter sideways.

Whatever role genetics may play in the onset of type 2 diabetes, said Kazal, with a nod to the "thrifty gene" theory, which posits that in the past starving Indians who could conserve food survived while others perished, there is no disputing the role of too much eating and too little activity. Consequently, the program he and others started in the mid-1990s focuses on such things as teaching women to cook healthy meals, visiting their homes to suggest ways of storing and preparing fruits and vegetables when there is no electricity or running water (the situation for many people), establishing a Wellness Center that provides athletic opportunities for youth and aerobic programs for others (the Passport to Health program), and coordinating medical care for patients with complications of the disease.

Foundation grants are helping fund the effort, which is now run by Rosemary Anslow, BS, director of Community Diabetes Projects. The medical director of Sage Memorial Hospital, Ralph Eccles, DO, oversees the diabetes program, which is entirely a community affair, with Navajo people participating in decisions about treatment, education, exercise programs, and so on. Although their situation regarding diabetes is not as dire as that of the Pima and Zuñi Indians, the Navajos are well aware that steps must be taken to stop the spread of the disease on their reservation. And to literally ease those steps, Ganado has the services of a podiatrist, a necessity for people with diabetes who must walk many miles a day on their usual rounds.

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Melinda Begay, MA, left, a medical assistant, with Jean Lu, MD, who is medical director of Greasewood Clinic, a Sage satellite facility.

WHAT MAKES SAGE SAGE?

Sage is able to pursue its own path—which too often includes searching for its own funding—because it is an independent hospital, not part of the Indian Health Service (IHS), although it is a subcontractor of the federal agency, paid to take care of Indian patients in a portion of the reservation where there is no IHS facility. The name of the hospital, so apt in its surroundings, is in fact a happy coincidence: it honors Russell and Margaret Sage, early 20th-century philanthropists who helped in its establishment.

Money remains a problem. A new hospital is needed because the current building, although equipped with a $1 million operating room that opened just a few years ago, a birthing room built with a $20 000 grant, and several state-of-the-art diagnostic devices, such as an Accuson ultrasound machine for cardiac imaging, is not air conditioned and has steam heat, making it "too hot all year round," Kazal said.

After 66 years of operating Ganado Mission—which had grown to include on its compound the first nursing school for Native Americans (training women from some 20 tribes) as well as a gymnasium and music building, a library, a barn, a swimming pool, and staff dormitories and family housing—the Presbyterian National Board of Home Missions ended its ownership of most of these facilities. The Ganado Presbyterian Church continues to have an active Navajo congregation, and the hospital, after 5 years of being run by Project Hope, is now operated by the Navajo Health Foundation/Sage Memorial Hospital Inc, an enterprise with an all-Indian board of directors and about 225 employees. Many of the old buildings still in use are picturesque but often in need of costly repair.

A DIFFERENT WAY TO PRACTICE

During Kazal's tenure as medical director and even thereafter he was instrumental in making changes to increase staff retention, previously a major concern, and improve quality of care. As the backbone of the staff, he recruited family physicians from every training program in the United States, he said, inviting them to visit Ganado and emphasizing that while salaries are lower than in cities or towns, opportunities for personal development and community involvement are unsurpassed.

"Rent here is only $125 a month," he told prospective Sage physicians; "You can walk to work, practice medicine closer to the way medicine should be practiced without all the paperwork and hassle, serve a population really in need, learn about a different culture, and enjoy the outdoors. You can step off the world here and find your own space."

The plan succeeded, and a core group of 10 family physicians who appreciate a different way to live and work has been in place "without significant turnover" for 5 years. None of them is Navajo, said Kazal, because it has so far not been possible to persuade any of those few Navajo young people who leave the reservation and become physicians to come back to practice. But Taylor Mackenzie, MD, the first Navajo to be trained as a surgeon, is vice president of the Navajo Nation and lives in Window Rock, so perhaps that

New Applications for Old Skills

Horsemanship

Brian Johnson is a prize-winning rodeo rider (and compassionate teacher) who devotes his equine expertise to a project that seems to spring naturally from its western surroundings. As head of the Hozhoni Therapeutic Horseback Riding Program in Ganado, Johnson, the first Navajo to be certified as an instructor by the North American Riding for the Handicapped Association (NARHA), works to help disabled children gain comfort and confidence through interaction with horses. Johnson says, "Horses are sacred to the Navajo. The history of my people is inseparably tied to our horses."

Despite the many roles these animals have played in tribal life, the idea of enlisting them as aids for pediatric patients took hold on the reservation only in 1996, when Sage Memorial Hospital physical therapist Mary Helen Brown became aware of programs in other parts of the country. She persuaded Ann Nora Ehret, a physician's assistant, and Rebecca Kazal, the wife of Louis Kazal, Jr, MD, to undergo the intensive training that would make them certified instructors, and the thriving program has been the only one on the Navajo reservation for 6 years. (This was just one of Rebecca Kazal's community efforts. Among other projects, she set up a reading room for Children at Sage Memorial Hospital, decorated with a painting by noted Navajo artist Beverly Black Sheep of a Navajo grandmother reading to children, and started a program in which young patients are given a book on each of 10 well-child visits up to the age of 6 years.)

Called *Hozhoni* from the Navajo word *Hozho*, or Walking in Beauty, which embodies the tradition that "teaches all people to find peace and harmony by respecting everything in the world and on the land," the riding program's mission is "dedicated to affording persons with disabilities the opportunity to grow as they walk in beauty." Johnson explained that riding on the back of one of the gentle, patient horses chosen for the program and learning to direct its movements allows a child to feel the warmth of the animal's body and the easy rocking motion of its gait as a connection with the natural world. In addition to offering the children a pleasant respite from the wheelchairs in which they may have to spend their days or the demands of a society that may require excessive mental exertion, the horseback experience stretches muscles and expands awareness, truly functioning as therapy for body and mind.

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Brian Johnson, director of the Hozhoni Therapeutic Horseback Riding Program, watches young rider Tiyarra Curley and instructors Natanya Tsosie and Mark Maddy as an early morning therapy session begins.

. . . and Harmony

A description of health care on the Navajo reservation is incomplete without attention to the role of the "singers," *Hataali* as they are called in Navajo, or medicine men, as they are known to the general public. Rituals involving elaborate sand paintings and week-long ceremonies have captured the popular imagination. When people employ a medicine man today, said Mel Patashnick, MHA,who is chief executive officer of Navajo Health Foundation/Sage Memorial Hospital, they do so as a way of reaffirming their connection with tradition. In the Navajo world view, illness is the result of disharmony with some aspect of nature, and the healing ceremonies are meant to cure illness by reestablishing harmony.

In contrast to medical care at Sage Memorial, which is free, the fee for a medicine man may be $50 to $400. Moreover, whereas medicine men used to be like general practitioners, today they specialize, said Louis Kazal, Sage's former medical director. "Now you have hand tremblers, crystal gazers. People who only do the Enemy Way ceremony, people who only do the Blessing Way ceremony, and so on."

Still, the hospital staff is open to the traditional approach, said Kazal, even suggesting to someone who is not getting better, "Have you seen a medicine man? Have you had a ceremony? Maybe you should try that." Kazal said working as colleagues with traditional medicine men opens a physician's eyes to the role of spirituality in health: "You can see the effects of having a ceremony, or not doing so if they can't afford one." At one time he went so far as to suggest to the (all Navajo) hospital board that a medicine man be put on staff as a consultant, but the idea failed to gain acceptance. The board chair, he added, later resigned and became a medicine man himself.

Plans are under way to build a traditional ceremonial hogan outside the hospital, which is intended to meet the spiritual needs of a significant portion of the population. Here, Navajo patients and their families who wish to do so will be able to gather in the traditional way, to conduct their ceremonies and "walk in beauty."—M.F.G.

example will inspire others to return and make their careers on "the Big Rez," as the entire Navajo homeland is colloquially known.

Each year, 65 000 patients visit Sage or one of the outlying clinics and 1000 are admitted as inpatients to 44-bed Sage Memorial. About 100 infants are delivered. The emergency department receives 8000 visits. To care for these patients, a number of other health care professionals—many of whom are Navajo—are part of the full-time staff: eight physician assistants, 20 certified nursing assistants and medical assistants, four registered nurses (more would be welcomed), two pharmacists and four pharmacy technologists

(all prescriptions are filled in the hospital, as there are no nearby pharmacies), and seven dentists and one dental hygienist. Two ophthalmologists take turns working a month at a time. A general surgeon, a radiologist, an anesthesiologist, and a psychiatrist are available from elsewhere at various times.

VOLUNTEERS ARE WELCOME

In addition, Sage is grateful for the services of many physicians who visit, sometimes for a fee but often voluntarily, on an informal basis. For example, Preston Manning, MD, a now retired Mayo Clinic surgeon, "helped out" for 2 years. Carl Chelius, MD, a cardiologist from Wisconsin, volunteered for a total of 9 months. Pulmonologist Alan Burghhauser, MD, came west from New Jersey several times to run a pulmonary clinic—and has persuaded pharmaceutical companies to donate some $250 000 worth of drugs, to which he adds his own financial contribution. Retired cardiologist Thomas Glatter, MD, wrote from Phoenix that he "still wanted to be useful"; he runs a monthly cardiology clinic at Sage. Volunteer anesthesiologists are vital, said Kazal, but they are hard to come by. He encourages more to offer their services.

While a permanent staff of family physicians is not unusual in rural areas, Kazal said, "If we had the luxury of having a couple of pediatricians and internists on staff, that would be fine. But there isn't the money or the volume of patients." So the family physicians "handle 95% of what patients need, including appendectomies, cesarean sections, and emergency care." Serious trauma cases—of which there are a fair number caused by motor vehicle crashes and weapons—must be sent to larger hospitals at $5000 per airplane trip (helicopters, at $20 000 per trip, are too expensive, said Kazal, as well as more dangerous).

TELEMEDICINE TO THE RESCUE

Fortunately, Sage is able to make use of the technological tool that Kazal said "puts 30 or 40 subspecialties at our fingertips any time of the day": telemedicine. Through a connection with the University of Arizona School of Medicine in Tucson, the hospital has both real-time, or live, and store-and-forward capability. Live consultation is particularly useful, Kazal said, for people with psychiatric problems. "In rural areas," he explained, "everybody knows everybody, and when you walk into a building that says 'Mental Health'—well, you don't do it. But you might see your family physician and it looks to others like you have a cold, and the next thing is, you're in a back room doing telemedicine with a psychiatrist hundreds of miles away and nobody knows that."

Even though explaining the concept of telemedicine in the Navajo language was "a huge challenge" for translators, said Kazal, it was necessary because many older people on the reservation do not speak English. According to Eva Grabárek, a Navajo who is medical staff coordinator, patients find the live telemedicine psychiatry experience "fascinating" and really like it.

Dermatology, on the other hand, lends itself to the store-and-forward approach. Difficult to diagnose cases are documented in an electronic file that is sent once a week for viewing by experts at the University of Arizona. Kazal said, "We can take images that make a pore look like the Grand Canyon." The file is commented on weekly by the chair of dermatology in Tucson, as several physicians in Ganado watch and learn. This mode is useful, too, for cardiology and radiology.

It also plays a special role in Sage's dental program. Under an arrangement with Columbia University School of Dental and Oral Surgery, students do some of their didactic work in Ganado. Every Tuesday, using an electronic bridge through other universities, they "attend" classes in New York City. "So actually," said Kazal, "our dentists have appointments at an Ivy League school."

Borrowed Eastern expertise notwithstanding, attracting and keeping excellent health care professionals continues to be a challenge for Sage Memorial Hospital. After 10 years of what they both call "a wonderful, rewarding life," Louis Kazal and Rebecca, his wife, decided that the time had come for them and their three children to move on, and his fellowship has taken them to the Washington area.

"DOING A LOT MORE"

Meanwhile, family physicians in Ganado who, for instance, walk toward the hospital for a 3 AM delivery under a sky lit only by the moon and stars, smelling the fragrant sage and hearing the night birds call, continue to practice in a setting that offers them the opportunity to know a good deal about the mother-to-be and her family. They are going to attend not just a patient, but often a friend.

Despite the social ills and financial concerns, in Kazal's words, "There's no reason not to come to work on the reservation because of the problems. The reason to come to the reservation is, 'I can do a lot more about the problems here than I can in a big inner city.' When you're in the city, the community is hidden. How do you touch that? But here, you see the people, their homes, the land, and their culture. What begins to stand out clearly is how spirituality, family, and community influence health.

"This [Navajo life] is an intact culture where the edges are being chipped away. Each generation goes further, but a good proportion is still traditional. There are many unfortunate realities, but at the same time there are many values. A physician should look at this as an opportunity and a challenge." □

TB Picture Brightening, but Dark Spots Remain

Brian Vastag

WASHINGTON—A cluster of efforts against tuberculosis (TB) had experts at the Fourth World Congress on Tuberculosis sounding optimistic about a disease that still claims 2 million lives each year. The expansion of prevention and control campaigns in China and India, a renewed drive toward an adult vaccine, and the infusion of several hundred million dollars into research and treatment have the world poised for "rapid advances," said Philip Hopewell, MD, a TB researcher at the University of San Francisco School of Medicine.

While those developments bode well, other speakers noted two ominous trends, namely the emergence of TB in Eastern Europe and the 15 states of the former Soviet Union, and the rise of multidrug-resistant strains. Worldwide, some 3% of cases are drug-resistant, but in former Soviet states, which have suffered from economic collapse, that figure reaches as high as 14%. In early June, the World Health Organization (WHO) called for expansion of the DOTS (directly observed therapy, short-course) programs it underwrites in Eastern Europe and Central Asia.

Still, a decade of international commitment—WHO declared TB a world emergency in 1993—appears to be paying off, said Hopewell, who recently coauthored an editorial that outlines factors contributing to TB eradication efforts (*Bulletin of the World Health Organization.* 2002;80:427).

Researchers from India and China, which together account for 30% of new cases worldwide, reported gains in cases diagnosed and cured. By 2001, the decade-old Chinese DOTS program had provided 8 million free screenings and diagnosed 1.8 million new cases. Free treatment had been provided to 1.3 million people, of whom 90% were cured. However, researchers from the National Tuberculosis Control Center, Beijing, reported at the Washington conference that they estimate that only half of new Chinese cases are being detected. Indian researchers reported similar figures, and earlier this year the millionth Indian patient received DOTS treatment.

Despite these improvements, Hopewell is not satisfied, writing in his editorial that global TB control is "by no means a success story." And in fact, WHO set and failed to meet ambitious global goals in 2000: a 70% detection rate and, of those detected, an 85% cure rate. Those goals have been pushed back to 2005.

An effective vaccine for adults would make those figures far more reachable. While in its 80-year history the standard BCG vaccine has been given to more people than any other vaccine, it fails to prevent pulmonary TB in adults. So for years, researchers have been working to improve the standard vaccine. The problem, said Carol Nacy, PhD, is that pharmaceutical companies have perceived TB vaccines to hold little profit potential.

Nacy noticed the situation in 1996 and started the Sequella Foundation, Rockville, Md, to play matchmaker. Sequella nurtures basic research projects with the goal of delivering attractive drug and vaccine candidates to manufacturers after early clinical testing. "If we are successful, we'll disappear," said Nacy. One of Sequella's prospects, from the University of California–Los Angeles, is poised to become the first new TB vaccine to enter human testing since BCG; Nacy promised a phase 1 trial later this year. Sequella became a force in TB research in 1999, with a $25-million grant from the Bill and Melinda Gates Foundation.

That sum pales next to WHO's estimates of TB control costs in 23 "high-burden" countries, located mainly in Africa and Asia. Together, the countries need $700 million to $900 million per year to meet the year 2005 goals (excluding funds for research into new diagnostics and treatments). After considering current loan and aid levels, a gap of $100 million to $300 million per year remains.

The Global Fund to Fight AIDS, Tuberculosis, and Malaria (*JAMA.* 2002; 287:3195-3197) is designed to help fill that gap. To date, the Fund has raised $2 billion from governments, corporations, and individuals, and awarded its first grants in April: $616 million to 40 programs in 31 countries. Nearly $100 million of that is devoted to TB control, with additional tens of millions slated for combined HIV/AIDS and TB efforts. □

MISCELLANEA MEDICA

• **Allan T. Bombard,** MD, has been named senior vice president and chair of the Department of Obstetrics and Gynecology at Lutheran Medical Center in Brooklyn, NY. He was medical director for Aetna Women's Health/Western US, in San Ramon, Calif.

• **Jeffrey P. Koplan,** MD, MPH, is the new vice president for Academic Health Affairs at Woodruff Health Sciences Center of Emory University, Atlanta, Ga. He was previously director of the Centers for Disease Control and Prevention.

• **Hal Barron,** MD, has been promoted to vice president, Medical Affairs, at Genentech, Inc, San Francisco, Calif. At the University of California, San Francisco, School of Medicine, Barron is assistant adjunct professor of epidemiology and biostatistics and assistant clinical professor of medicine/cardiology.

Editor's Note: Miscellanea Medica appears in the Medical News & Perspectives section occasionally. Items submitted for consideration should be directed to the attention of Marsha F. Goldsmith, Editor, *JAMA* Medical News & Perspectives.

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3. Rosenthal TC. Outcomes of rural training tracks: a review. *J Rural Health*. 2000; 16:213-216.
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