

# The fido factor

By RYAN SJOHOLM '99 BS

**T**he word is out: dogs are more than our best friends. Helen Kahn, professor of communication disorders at Northern Michigan University, set out to document how animal-assisted therapy works, specifically in speech-language pathology. Her findings are definitely something to bark about.

"Using animals in therapy is not a new concept," Kahn said, "but it is only now beginning to be scientifically documented and supported. My goal is not to prove it works, but to see how it works through the study of communication between a therapist and a patient in both regular and animal-assisted therapy (AAT) sessions."

Kahn received a faculty grant from Northern in early 2002 to study the effects of animals in speech-pathology therapy sessions.

"We use dogs in our research, though there are individuals who work with cats," Kahn said, "Regardless of what animal is used, however, we're finding that AAT works on numerous levels and that therapeutic progress occurs more rapidly with AAT than without."

In Kahn's research, a patient is paired with a dog during his or her AAT sessions, and the patient, therapist, and dog handler each give feedback. During another "control" therapy session, the dog and the dog handler are removed and feedback from patient and therapist is recorded. Kahn and her research assistants film and transcribe each session, noting the conversational utterances and non-verbal cues. These are coded according to a list of communication acts and further analyzed.

"We're still analyzing all the data," Kahn said. "I don't know of any other controlled research concerning this hypothesis, so our preliminary results are pleasing."

Still, Kahn is well aware of the critics of AAT. "Traditional circles still think the concept is a novelty," she said. "But they miss the point that this is directed intervention with certified and experienced therapists and dog handlers. It is hard to deny that humans form a bond with animals and that animals seem to reciprocate this bond."

Kahn also notes that during AAT, a patient's physical anxiety goes down, measured by lower blood pressure and heart rate. And less patient stress almost always equals a more productive session.

"AAT doesn't replace rehabilitative therapy; it augments it," Kahn said. "In our age of managed health care, it should be important to get the patients out of therapy faster while producing good treatment outcome. That is what everyone wants—the patient most of all." ■



*Health care in America is changing. It is more technologically advanced, more expensive, and often less physically invasive. Never before has the general public had as much access to medical information as it does today, and medical research has been breathtaking in its progress to unlock the mysteries of some diseases.*

*The health care industry is also changing in that it must now grapple with critical shortages of nurses, clinical laboratory professionals, general practice physicians, and service providers for the elderly. Americans want to know: Who will take care of my children during times of critical need, my aging parents, me as I grow older? The answer, in part, will come from the nation's universities and colleges that train the health care professionals.*

# Answering

By CINDY PAAVOLA '84 BS

Photo by Stephen Allen





*the call*

## Nursing shortage becomes national crisis

There are not enough nurses in America today for proper patient care. The impact of that fact is spreading like a virus through hospitals, communities, and families.

According to the U.S. Bureau of Labor Statistics, more than one million new and replacement nurses will be needed by 2010. The American Hospital Association reports that hospitals throughout the nation are averaging nursing vacancy rates of 13 percent, and numerous recent studies have found that too few nurses has increased the potential for patient care errors.

While nursing shortages of the past were a result of mismatched supply and demand, today's shortfall can be attributed primarily to two parallel demographic trends: a drastic increase in age of the nation's overall population as baby boomers become senior adults, and the simultaneous aging of nurses, the majority who will be eligible for retirement within the next decade.

As the alarm for more nurses has become public knowledge, enrollments in college and university nursing programs across the nation are up, on average about 8 percent from 2001, according to the American Association of Colleges of Nursing. Northern's baccalaureate and practical nursing programs are experiencing a similar growth spurt—up nearly 17 percent since fall 2001—with 526 students declared as nursing, pre-nursing, or practical nursing majors.

Despite growing nursing enrollments, universities will be unable to quickly help alleviate the national shortage. One reason is because there is also a shortage of nursing faculty.

With a strong job market, fewer nurses are choosing to continue to the master's and doctoral levels. Two other related factors are the expense of the specialized facilities and equipment needed to operate nursing programs and the limited potential for enrollment growth due to the current national faculty-to-student ratio accreditation standards.

"These caps are needed," said Kerri Schuiling, head of NMU's School of Nursing. "When students are learning material that may have life and death consequences, it is imperative that students have as much one-on-one interaction with their instructors as possible."

Societal change has also impacted the nursing shortage. In the past, the primary career options available to women were that of a secretary, a teacher, or a nurse. Today's career-bound woman has unlimited options and that, some say, hurts a field often perceived as overly demanding and lacking in respect from other health care professionals.

This isn't the case, however, for **Deidra Ruohomaki '03 BSN** of Iron Mountain.

Ruohomaki began her college studies as a pre-med major before deciding to continue in the footsteps of her mother and grandmother. She believes that the public's growing awareness of the shortage has garnered greater prestige and respect for nurses.

"Nursing is a career with many opportunities," said Ruohomaki. "There is critical-care nursing, home-care nursing, psych nursing. Once you have the basic skills, you can pretty easily train to move from one area to another."

Ruohomaki added that while the nursing profession has seen a lot

of change, one thing has remained the same over time.

"My mother and grandmother tell me about their experiences treating diseases we rarely see today, while I've had to learn about illnesses they've never treated. When I talk to my grandmother about watching a patient's monitor, that's something she never experienced in her career. But the primary mission of what makes a good nurse hasn't changed. You are there for the patient."

## Demand for lab professionals critical

People know about the nursing shortage, but rarely does one hear about today's critical shortage of clinical laboratory personnel.

According to the American Society of Clinical Pathology, the shortage of certified laboratory professionals is as serious as the nursing shortage and in some areas of the country, it is worse. Like nursing, about 13 percent of all clinical laboratory jobs are going unfilled. In remote areas, the numbers can climb as high as 30 percent. Also like nursing, the large number of current lab personnel reaching retirement age is one impetus behind the deficit.

The impact of this, according to the Clinical Laboratory Management Association, is that there are serious time delays in processing patients' test results and an increase in the possibility of testing errors.

Pete Pelletier, a sophomore in Northern's clinical laboratory sciences program, said that NMU's program, like the CLS field, is "rigorous and challenging."

"From day one, you're actually doing and seeing what you are learning about, rather than just reading about it," said Pelletier. "It's hard, but it's very rewarding."

Students in Northern's CLS program do two internships. The first takes place during the sophomore or junior year at a clinical lab in a smaller hospital setting. The second takes place during a student's senior year with placement in a lab at Marquette General Hospital or at Mayo Clinic in Rochester, Minn.

**Lucille (Weecks) Contois '71 BS, '75 MA**, director of the CLS program, said the partnership with Mayo Clinic began in the 1990s.

"Mayo was looking to work with CLS programs that would graduate students with experience in molecular biology and cytogenetics. At that same time, Northern was looking for more internship opportunities. I said to the people at Mayo, 'We can build the type of program you're looking for, but what about having our students train in your labs?'" said Contois. "As a result, Northern was able to develop and offer the diagnostic genetics program as one of the clinical laboratory sciences options."

Contois said that having the two internship experiences embedded into the bachelor degree requirements is a great benefit to students.

"With the internships, NMU graduates enter the workforce with close to a full year of hands-on experience," she said. "They've also had to adjust to both small and large settings. That primes our students to look at their work and life with more flexibility."

Pelletier said his desire to serve others comes from a lifetime of watching his parents run their adult foster care home.

"I've seen what helping others accomplishes for both the patient and yourself," said Pelletier. "I want to be able to look at what I'm doing

and know I'm making a difference in someone's life."

## Doctors and dentists of tomorrow

Senior biochemistry major Alissa Holman of Gwinn is applying for medical school this summer.

"I'm ready," she said. "I feel I'm very prepared for this."

David Lucas, physics department head and director of NMU's pre-professional medical programs, agrees. He said advising and preparing students for professional school is a Northern forte.

early introduction gives students a chance to decide if medicine or dentistry is really where they want to be," Lucas said.

Northern also works with students preparing for physician's assistant and chiropractic programs.

Freshmen and sophomores attend a 14-week seminar program that explores the different options available in the medical field. Students of sophomore class status or higher can participate in MGH's professional development conferences, covering different health care issues and medical topics each week.



NMU has five nursing laboratories that allow students to hone their skills in a variety of settings—from intensive care to home care. Photo by Bill Sampson.

"I spend a lot of time advising freshmen and sophomores on getting medically related volunteer opportunities early," said Lucas.

In conjunction with Marquette General Hospital (MGH), Lucas coordinates a program each semester for 10 student volunteers, usually sophomores, to assist in the operating room.

"It's menial work, such as cleaning up after surgeries, but that

These two experiences expose NMU students to some of the nation's physician needs, such as the decreasing number of general practitioners and the severe shortage of rural primary care physicians.

"Students get to sit in the same room with health care professionals, listen to, and participate in their discussions," said Lucas.

Another important aspect of the program, according to Lucas, is



Applied learning is a hallmark of Northern's clinical laboratory science program. In this laboratory, students develop their skills using the same equipment they will be required to use in their future careers. Photo by Bill Sampson.

the emphasis put into mentoring students when it comes to applying for professional school.

"There's a lot to know about the application process," he said.

To that end, Northern's preceptorship program pairs junior and seniors with a physician or dentist with whom they meet on a regular basis, observing this professional during hospital rounds, office visits, and surgery.

"These mentors often serve as references when students apply for professional school," said Lucas.

One thing Holman learned about the medical profession during her preceptorship was the amount of paperwork a doctor is required to do.

"I was paired with a cardiothoracic surgeon. I observed surgery and gained some good insight by watching his patient interaction, but I was shocked at how many meet-

ings and how much paperwork was involved in being a doctor," she said.

One piece of advice Holman, a hospice volunteer, offers to other pre-med majors is to get comfortable with the idea of death.

"We all want to get into the medical field to help people, but the reality is that death is a part of the job for most medical professionals, and you need to learn how to deal with that aspect, too."



## Researching cancer markers

In all of its informational materials, the American Cancer Society advises people with cancer not to be afraid to ask questions, regardless of how insignificant they may seem.

Northern senior biology major Horacio Soto believes that should also be the mantra for those investigating human diseases. Soto is one of the NMU students involved in researching antigens—cancer markers—as part of an educational partnership

with Dendreon, a Seattle biotechnology company. Dendreon researches innovative ways to enhance the body's natural defenses to fight disease.

The Dendreon project, as it is known on campus, involves producing vaccines that modify antigens the human immune system can recognize and respond to, specifically those related to breast and colon cancer cells.

“The biotechnology field is so fast-paced and competitive that companies simply can't afford to invest time and resources in research that might not turn out to be profitable,” said Rob Winn, NMU biology professor and coordinator of the project. “In academia, students and faculty can spend the time needed to ask and try to answer questions that may not necessarily have monetary goals, but could lead to better scientific understanding.”

It was that idea of trying to unlock the questions about cancer markers that caught Soto's attention.

“I was planning to go directly into medical school after graduation. Then I started working on this, and now I'm fascinated by the research aspect,” said Soto. He's put medical school on hold to work on a master's degree at NMU next year while continuing with the Dendreon project.

“We have two groups: the DNA group and the protein group. I'm in the protein group,” the Los Angeles native said.

The students working in the DNA group modify DNA that will be used as a template to produce proteins. These proteins are then passed to the protein group.

Soto said the protein group is trying to grow cells at an optimal temperature to produce proteins. The group then wants to “purify the

proteins and study the different steps of the purification process to see how the proteins react at various stages.” The ultimate goal is for the NMU students to see if antigen recognition can be enhanced at any point in the process, and subsequently increase the efficiency of vaccines to work on cancer cells.

According to the American Cancer Society, more than one million people get cancer each year. The organization estimates that one out of every two American men and one out of every three American women will have some type of cancer during their lifetime.

Such statistics are the reason Soto believes that human disease researchers need to be bold with their questions and “be willing to take different approaches” to find cures.

**T. Dennis George '60 BS,** Dendreon's senior vice president for corporate affairs, feels the inquisitiveness of students like Soto add to the project's potential for success. George helped to create the partnership with Northern and provide internships for NMU students at the Seattle laboratory.

“We are impressed with the excitement and commitment of NMU students to do this job well,” said George.

Soto said the students spend little time talking about the magnitude of their research, but he believes it's on everyone's mind.

“The thought that we could do something revolutionary in the field of cancer research is there in the back of everyone's mind. Imagine if we played even the tiniest role in answering the questions on how to cure cancer—think about the difference we'd make in the world. That just blows my mind.” ■



# Stress, adoption, and health care

By MIRIAM MOELLER '00 BA, '02 MA

Photographs of Soo and Eileen Smit by Kim Marsh '80 BS.

**O**n a U.P. winter day about 10 years ago, NMU nursing professor Eileen Smit was walking with her daughter, Soo-Hyung, across an icy parking lot. Smit took Soo's hand and then asked her why she had done that. Expecting a response like, "So I won't fall," Smit was surprised when Soo answered, "So no one will take me away."

Smit and her husband **James '91 MSN** had adopted Soo from Seoul, Korea, when she was 11-months old. This was one of the first incidents that made Smit realize that her daughter's experiences as an adopted child would have distinct differences from, say, the experiences of her two biological sons.

As Soo grew up and entered public school, her differences became more distinct—and more stressful for her. It upset Soo that many of the other kids in school thought adopted children weren't loved because their mothers had given them away. And she was frustrated in science class when she was unable to complete an assignment to figure out her parents' genes.

Being a loving mother, Smit wanted to understand and help her daughter with what she was going through, so she began reading literature on adoption and talking to other families with adopted children. She even joined a local adoption support group. Slowly, Smit became an expert on the subject.

But what began as a personal endeavor, slowly crept into her career. In 1997 Smit decided to use her sabbatical semester to do research in an area that seemingly nobody previously had: the stress of adoptive mothers and adopted children in the hospital setting. She began collecting data by asking 33 adoptive mothers and 19 biological mothers in several different hospitals to fill out a Parental Stressor Scale questionnaire. She asked adoptive mothers to complete a second questionnaire about whether or not they felt adoption had had an impact on their hospital experience. The majority of these mothers felt that it had.

"In some hospital settings the staff didn't know about the rights of the adoptive parents," Smit said.

"Some parents said that the staff wouldn't let them sign the consent forms initially, and that delayed things."

Smit recognized that health care professionals needed better training on dealing with adopted children and their families.

"There are unique things the staff needs to know about adoptive families. A lot of it just boils down to being respectful and empathetic and caring about any family, but some families have different concerns than others."

The results of her study were published in *The American Journal of Maternal/Child Nursing* in 2000. Smit received a research paper of the year award from the magazine, in part because of the originality of the subject matter.

The study raised new questions for Smit—questions she decided to research in a follow-up study. She is currently trying to determine whether maternal stress in the hospital setting is unique to the parent or if it is in response to the child's stress. This time Smit picked a large hospital in Milwaukee for her survey. She has asked parents of biological and adopted children to answer questions about the child's condition at home and at the hospital. To date she has received responses from 60 biological parents and ten adoptive parents. Once she finds at least ten more adoptive parents who are willing to participate in her study, she can begin analyzing her data.

In the meantime, she is teaching her nursing students to be aware of and sensitive to the unique needs of adoptive families in the hospital setting.

As for Soo? While she wonders how tall she will eventually be, this confident 14-year-old seems otherwise unaffected by the stresses of her childhood. Soccer, R&B music, and tenor saxophone rule her life now.

"I have gotten to the point where I don't really care anymore," Soo said. "I am more open-minded to differences in people because I grew up being the different one." ■

