

Mayo Magazine

VOLUME 23 NO. 2



*Inside: Giving for the Future
The Campaign for Mayo Clinic
Profiles in Philanthropy*

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CAMPAIGN



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On the cover

The act of giving comes from a deeply held yearning to do something meaningful that is bigger than ourselves, that outlives us and makes a difference.

TOGETHER, WE'RE INVENTING THE FUTURE OF MEDICINE

Only months remain in the first-ever comprehensive campaign for Mayo Clinic. This historic undertaking to transform medicine through advancements in patient care, research and education already is leading medicine to its true potential in the 21st century.

The Campaign for Mayo Clinic is infusing innovation to provide more effective medical interventions and accelerate the pace of medical research that will lead to decreasing the burdens of illness and disease. Benefactor support is being applied to realize new educational paradigms, start new research protocols, and define hope and healing for generations to come.

Consider Mayo's new pediatric center, new patient education center and new imaging center. Consider too the new hospital in Florida, the new Mayo Clinic Specialty Building in Arizona and Mayo Health System's new Emergency Services Department in LaCrosse, Wis. In addition, research such as the identification of genes involved in heart disease, Parkinson's disease, liver disease and other conditions is moving the science of medicine forward. Endowments have provided our academic leaders and distinguished faculty with the resources to support their efforts in a broad spectrum of medical science and clinical practice. These individuals are teaching and mentoring students who will care for tomorrow's patients.

All this and more is made possible by the support of you, our benefactors, who trust Mayo to do work that truly matters.

As a not-for-profit organization, Mayo maintains an unwavering focus on putting the needs of patients first. Your contributions are bringing about positive outcomes that are felt worldwide.



The
CAMPAIGN *for*
MAYO CLINIC



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PROVIDING RESOURCES FOR RESEARCH

NEW BIOBANK KEY TO CRITICAL INFORMATION

A first-year Mayo researcher with an idea of how to decrease the occurrence of sudden cardiac death needs something very special to succeed — the blood of 200 healthy people, or at least people without heart disease.

Suzette Bielinski, Ph.D., was drawn to Mayo Clinic a little more than a year ago after completing her postdoctoral studies at the University of Minnesota. She was interested in studying genes that increase a person's risk for heart disease. Dr. Bielinski was impressed by Mayo Clinic's well-known heart research programs and the chance to use her expertise in cardiovascular genetic epidemiology as part of a team led by Veronique Roger, M.D., chair of the Department of Health Sciences.

Dr. Bielinski's idea is that certain proteins in the blood are unique to people at risk of sudden cardiac death after surviving a heart attack. To prove this idea, she needs 200 control samples to compare with Dr. Roger's 200 samples from heart attack patients.

Researchers often find their own volunteers to create a collection of biospecimens for control group studies. But for many, particularly new, young researchers, the time, cost and resources required are enough to derail a project. Fortunately, Mayo Clinic leaders recognized this need and have been laying groundwork for the solution: a new biobank of control specimens.

The plan and the planners

Mayo Clinic is creating that biobank of blood samples from 20,000 volunteers and linking it to their medical records. The collection is a fundamental building block for the next wave of discovery and will function as a "communal well" from which Mayo Clinic researchers can repeatedly dip to give life to their studies. Being able to map disease specimens against controls will be invaluable to the study of many diseases, such as rheumatoid arthritis and cancer.

A group including physicians, study coordinators, genetic counselors, an administrative assistant and other key personnel is responsible for the collection and oversight of the biobank. This group is led by James Cerhan, M.D., Ph.D., and Janet Olson, Ph.D. Bioethicist Barbara Koenig, Ph.D., and her staff have been instrumental in working with the community and providing guidance for the informed consent process, study material and policy decisions. This project is under the direction of the Mayo Center for Individualized Medicine, with direct governance provided by the Mayo Clinic Biospecimen Trust Oversight Group, chaired by Stephen Thibodeau, Ph.D. "This project has truly been a team effort," he says.

"The biobank project is the culmination of planning by a large group of very committed individuals," says Dr. Thibodeau. "The goal has been to do this the right way for our participants, for our investigators and for Mayo."

Mayo started seeking volunteers for the collection in April 2009, and the well is now beginning to fill up. Investigators have already begun requesting material for future studies and for research grant applications, says Dr. Olson, biobank project director. Dr. Bielinski is certainly near the front of the line, along with several other researchers with studies ready to go. This resource will accelerate research, and patients will benefit.

Dr. Thibodeau says that two years ago it became clear that access to high-quality, annotated biospecimens was a critical issue for future research studies. He and his colleagues saw an acute need made even more so by the rapid advances in genetics, instrumentation, computer technology and a whole host of discoveries shaping the future of medicine. It was time for Mayo to commit the money and resources to establish an institutional biobank with high standards for quality, clinical information and privacy.

Dr. Thibodeau says, "Biobanking has been at Mayo for a long time in many different forms and is really an important part of Mayo's culture and history. We're very careful that we obtain specimens the right way, in a way that protects patient confidentiality."



Stephen Thibodeau, Ph.D., chairs the Mayo Clinic Biospecimen Trust Oversight Group.

The simple fact that the Mayo Clinic Biobank is centralized and tied to clinical and lifestyle data makes it immeasurably more valuable and accessible to a larger community of investigators within Mayo.

"The goal of the collection is not merely to collect and store a large number of samples," says Dr. Thibodeau. "It is to use biobanking as a research tool to discover new treatments for chronic illness and disease, to help understand why people become sick and to find new ways to best manage patients in the era of genomic medicine.

"We will be successful only if Mayo investigators use this material for their research projects. We will have failed miserably if the samples sit in the freezer. I believe that this is how our participants feel as well."

And research is exactly what Dr. Bielinski and the dozen or so other researchers waiting in line for samples from the new biobank are intending to do. Without this

What makes the specimens associated with the Mayo Clinic Biobank different from the other specimens collected by Mayo for over a century?

- Participants are giving consent to have their blood used for many different types of projects.
- This material can be used, essentially, indefinitely. Most other collections at Mayo have a much more limited use.
- This will be the first large-scale collection that is not directed toward a particular disease, but rather to a more healthy group of individuals. Most biobanks at Mayo are disease related. For example, there are collections from patients who have different types of cancer, such as colon cancer or prostate cancer. For us to understand disease, says Dr. Thibodeau, it is also necessary for us to understand what health means.
- This bank will be centralized. In the past, individual scientists gathered their own specimens for their own use. This biobank is being set up to make material available to every investigator at Mayo.
- The participants in this biobank have granted access to medical records and the collection of lifestyle factors, for example, smoking history.

resource, Dr. Bielinski says, “I have no idea how I would have obtained the needed samples. There is no money to recruit and collect samples for a control group.”

Franklyn Prendergast, M.D., Ph.D., director of the Center for Individualized Medicine, says Mayo is committed to building the infrastructure needed for this biobank.

“This is just a start. A really important start,” he says. “It is our eventual aim to collect not just the 20,000 specimens but to enroll many more volunteers. The more patients enrolled and samples available for use, the more insights we will gain into what is ‘normal’ in the human genome, what causes disease and how we can treat it. We are in the early phases of building something that is extremely powerful for a very good cause.”

Mayo has also invested in the infrastructure needed by Mayo Clinic in Arizona and Mayo Clinic in Florida so that all sites may be part of this endeavor.

Studying sudden death proteins

Dr. Bielinski is interested in the part of blood that contains proteins, often stored in the form of a “serum.” Blood collected from participants is processed into several different parts (serum, plasma, cells, DNA) that have different uses for different research studies. These are then stored in mini-test tubes (aliquots) in a freezer for long-term storage. When Dr. Bielinski’s request for serum is approved, a portion will be delivered to the Mayo Immunochemistry Core Lab where her collaborator Ravinder Singh, Ph.D., will put the samples through rigorous tests.

Dr. Bielinski’s interest in sudden cardiac death was heightened when she discovered that eight blood proteins related to sudden death in dogs are also found in humans. She thinks at least one of these proteins may help her determine which heart attack patients are most at risk of sudden cardiac death.

The term *sudden cardiac death* is used to describe a heart condition characterized by a serious heart arrhythmia, or erratic beat. Every year more than 300,000 Americans die suddenly from cardiac causes. Roughly 90 percent of these sudden deaths are caused by cardiac arrhythmias. Despite its name, this condition does not necessarily mean a person dies. People can be revived after a sudden death episode.

The people most at risk of this condition are those who have had a previous heart attack. In fact, 25 percent of heart attack patients go on to experience sudden death. One way to help prevent this condition is to surgically implant a



Suzette Bielinski, Ph.D., seeks to understand the role of certain blood proteins involved in the risk of sudden cardiac death. Her research hinges on access to blood samples.

defibrillator in the chest that provides a “mini-shock” to reset the heart’s rhythm any time it senses an irregularity. However, physicians do not have a very good way to assess which 25 percent of at-risk heart patients would benefit from such a device. Through Dr. Bielinski’s efforts, identifying a protein that defines a high risk of sudden cardiac death could provide an effective biomarker for physicians when making a decision about a defibrillator implant. Instead of implanting 100 heart attack patients with a defibrillator to prevent a sudden death incident, physicians could effectively target the procedure to the 25 patients who will likely benefit from a device, as indicated by a biomarker defining predisposition for this event. That is a savings of 75 unnecessary surgeries out of 100, including the pain, suffering and cost of about \$30,000 for each procedure.

To make this a reality, Dr. Bielinski needs to learn much more about those eight proteins of interest. That’s where the biobank specimens come in. By comparing a group of individuals without disease to the diseased group, she can answer whether these proteins appear in all people, if there are different levels of proteins between heart attack patients and controls, and what changes to protein levels may occur during the first few days after a heart attack. Through this, she hopes to prove “Protein X” is indeed unique to heart attack patients most likely to experience sudden cardiac death and define a new test for identifying who is at greatest risk and should, without doubt, have defibrillator surgery.

Dr. Bielinski is conducting preliminary data studies and is eagerly awaiting the use of participant samples and medical information from the biobank.

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Blood samples are sorted into serum, plasma, cells, DNA and other groupings and frozen for long-term storage.



Why biobank volunteers help

Biobank donors are diverse, which is important in gathering a control group. Most volunteers are relatively healthy, though Mayo Clinic Biobank Project Director Janet Olson, Ph.D., says few of us are really perfectly healthy in every way. Dr. Olson says Mayo will gather specimens from everyone as long as they have a Mayo Clinic patient number, are over the age of 18 and are able to provide informed consent.

People decide to donate their blood and have it stored in a freezer for future research studies for many reasons.

Dr. Olson: “The patients we have here are amazing. They say, ‘I can’t do much but I can do this.’ Everyone who comes to us is a real volunteer.”

Donor Alton Riddle of Sartell, Minn.: “Mayo saved my wife’s life. This is the least I could do. If they learn something that helps someone else ... that’s how we can help. I am a curious person. If I see something I’m interested in, I start studying it. As long as you’ve got an idea, you can find something out. That’s how you make progress. You have people like me who are curious.”

Mayo Clinic investigator: “I volunteer because I believe in the work it will make possible.”

Mayo Clinic Biobank project director: “I know how important this is to so many of our investigators.”

Olmsted County, Minn., mother: “I think that in the future this will someday help my grandchildren.”

Olmsted County, Minn., resident and retired researcher: “I understand how important this is to research.”

Olmsted County, Minn., resident and Mayo Clinic employee: “One of my colleagues in research mentioned it to me. I know she needs this for her work, and I’m glad I could help.”

Mayo Clinic research technician: “I know how difficult it is to get permission to do research on human subjects. I understand the need.”

Becoming a biobank participant

“Participating in the biobank may not be for all individuals. This is an important decision, and we want to make sure that participants understand what they are agreeing to,” says Dr. Cerhan.

Participants are provided educational material and access to study coordinators to help with the process of understanding the goals and implications of participation. As part of the preparation and planning for this project, Dr. Koenig organized a gathering of community members who were provided information on biobanking as part of an educational process and then asked to discuss and provide advice on many issues and problems surrounding biobanks in general. This feedback was used extensively in helping to set up the participant educational material, the consent form and policies for the biobank, says Dr. Thibodeau.

Once a person has agreed to participate, providing the blood sample is much like visiting a lab for a clinical blood test to check cholesterol, PSA or iron. But instead of the blood being analyzed to guide immediate treatment, it is sent off to be processed and stored in a freezer for future research studies. The sample becomes part of a collection from generally healthy people, and five vials of blood are processed into 27 aliquots of various components: DNA, cells, serum and plasma. The sample, lifestyle and clinical information become available (without a name attached) as part of a large collection that can be used for multiple types of research studies.

Collection sites are located on the lower levels of the Hilton and Baldwin buildings on the Rochester campus, and collection sites may be set up at other Mayo locations. Anyone over 18 years of age with a Mayo Clinic patient number can volunteer to donate. After signing a consent form in person or by mail and filling out a questionnaire, the participant goes to a Mayo lab for a blood draw. The risk and privacy issues are clearly laid out as part of the informed consent process. Biobank personnel are available to address concerns.

Biobank donor and Mayo Clinic employee Konnie Bicknese says, “The team that works in the biobank is made of some of the kindest, most generous people I have met. They are good at explaining why they are doing it and what it is all about.”



Janet Olson, Ph.D., is project director of the Mayo Clinic Biobank.

The collection connection

An institutionally funded biobank means different things to different people.

To Dr. Bielinski, it means the difference between just having a great idea and being able to test that idea with human samples.

To donor and new Mayo Clinic employee Konnie Bicknese, it means making a difference. She says, “The more people we can get this word out to, the better.” She even distributed biobank information packets to her family after Easter dinner. She says, “The biggest reason I donated is because my dad had Parkinson’s disease and rheumatoid arthritis. And Mom has a family history of heart disease. It’s in the interest of my son and future generations.”

To Dr. Thibodeau, it means building an infrastructure for the future and meeting the needs of Mayo researchers, clinicians and patients.

In a way, biobanking connects volunteer patients, researchers and physicians to Mayo’s vision for the future. Mayo is creating a resource and infrastructure vital to advancing the science of health care delivery: better value, better outcomes, better lives for patients and their families.

Dr. Olson says, “We welcome questions. We don’t want blind trust. We want informed consent. It’s not just, ‘I trust Mayo.’ I want donors to know what they are getting into. That informed trust is precious to us.” That’s the kind of trust Mayo Clinic can bank on.

Although the biobank is intended to be a resource for all Mayo investigators, material will be made available to an investigator only after the project has been reviewed by a group of Mayo scientists and physicians to ensure that it is both appropriate and scientifically valuable.

“Privacy is a very important issue to us,” says Dr. Cerhan. “All samples will be given a unique code that only a few key people responsible for the project will know. Researchers will not be able to connect the code to your name unless they have been given special access and unless it is necessary for the project.”

Finally, the medical information provided to researchers will not contain anything commonly used to identify the participant, such as name, address and Mayo Clinic number. ■

Samples from the biobank are prepared for genetic analysis using an automated liquid handling instrument.



The biobank push

In early 2009 *Time* magazine called biobanking one of the 10 ideas changing the world. Major medical and academic institutions are responding to the call for a national biobank or launching their own collections.

The largest collections are held by Kaiser Permanente in northern California, which intends to develop a bank of 500,000 samples by 2012, and the United Kingdom biobank, which is linked to the United Kingdom’s national medical record.

The Campaign for Mayo Clinic supports medical research that relies on samples such as those collected by the biobank. Through this research, answers are found for predicting, preventing and curing diseases. For more information on initiatives supported by the campaign, visit www.mayoclinic.org/mm.



Blood samples collected for the biobank are barcoded and de-identified.

FRONT AND CENTER

A YOUNG RESEARCHER AND HER TEAM BLAZE NEW TRAILS IN DEMENTIA RESEARCH



Rosa Rademakers, Ph.D.

Two and a half years ago, Rosa Rademakers, Ph.D., was a young postdoctoral fellow wondering where the next stop in her career would be. Today, she is running her own lab at Mayo Clinic, producing research that is gaining international attention.

How did it all happen? Through her own hard work and widespread support from Mayo Clinic, including philanthropy from a Mayo colleague.

Her career began its topsy-turvy arc in 2006. Then a postdoctoral fellow in the lab of Michael Hutton, Ph.D., Dr. Rademakers was part of an international team that discovered that mutations in the progranulin gene could cause frontotemporal dementia (FTD), a common dementia that typically strikes people earlier than Alzheimer's disease and causes personality changes before memory loss.

The discovery made international headlines and introduced a new actor in the dementia research community. Prior to this discovery, no one was studying progranulin for its connection to dementia and the health of brain cells.

But less than a year later, Dr. Hutton accepted a position outside Mayo, leaving Dr. Rademakers wondering how she would be able to further pursue the progranulin mystery. "Mike told me not to worry and that there would be opportunities here for me, but I wasn't so sure," Dr. Rademakers says. "I was only 29, and funding for research is hard to come by, especially for young investigators."

An exciting chain of events has followed since then. Not only was Dr. Hutton right — Dr. Rademakers was given the

opportunity to start a small lab at Mayo — but her research also caught the attention of researchers across the country.

In April, she was a featured speaker at the annual meeting of the American Academy of Neurology, which followed up her talk with an article in *Neurology Today*, its national newsletter. And in June she presented at the Third International Research Workshop on FTD and amyotrophic lateral sclerosis (ALS).

What's all the buzz about?

Two recent discoveries have emerged from Dr. Rademakers' lab, one that Mayo is moving into patient care and another that may well represent a new avenue for understanding the causes of dementias and other diseases.

The most recent discovery, announced in January, helps physicians diagnose FTD, which is important because it's hard to distinguish from Alzheimer's, and treatment strategies for the diseases differ. The research showed that proof of disease-causing mutations in the progranulin gene can be detected simply by performing a blood test.

Although about 90 percent of FTD patients don't have progranulin mutations, the test is important because it provides physicians one way to diagnose the disease quickly, accurately and inexpensively, says Neill Graff-Radford, M.D., a Mayo Clinic neurologist who worked with Dr. Rademakers on the study. "It's very useful because instead of testing a person's entire DNA, which costs thousands of dollars, we can perform this test at much less cost," he says.

That discovery came just two months after Dr. Rademakers' team found a new actor in progranulin's connection to FTD. The culprit is a microRNA, a small clump of RNA that influences the activities inside cells by regulating the proteins that are produced from the instructions encoded within genes. Dr. Rademakers' group found that a variation in the code of one microRNA was associated with a three-fold increase in FTD.

The variant they identified is surprisingly common, present in about 25 percent of the general population. The majority of people with it will not develop FTD. But the research opens a new avenue for understanding progranulin's role in FTD and its connection to the health of brain cells, both of which remain mysteries. The study also was one of the first in neuroscience to find a connection between a microRNA and the destruction of brain cells.

"MicroRNAs are an incredibly hot area in neuroscience research," Dr. Graff-Radford says. "In addition to the kind of discovery Rosa made, they will help us understand why some people get diseases at much earlier ages than others."

Reaching milestones

Dr. Graff-Radford and others at Mayo Clinic call Dr. Rademakers a rising star, but she doesn't use those words to describe herself. Nonetheless, she looks at her career differently now than she did two years ago. "Now I not only worry about myself, I feel extra pressure to get grants to keep the people in my lab employed," she says, laughing.

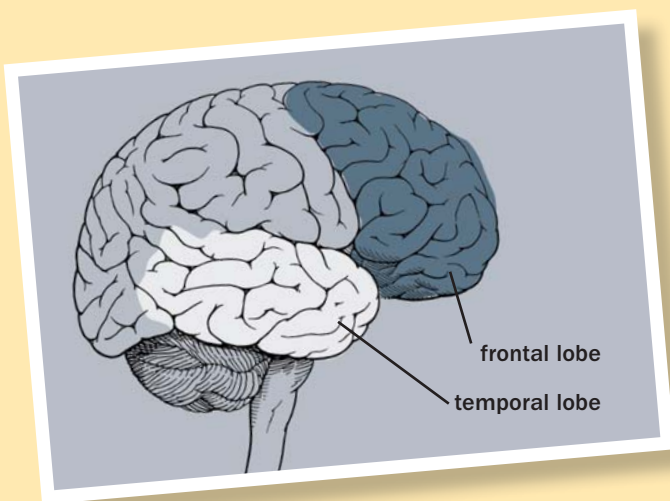
There's good news there, too. This summer, Dr. Rademakers received a long-term grant from the National Institutes of Health (NIH) to continue her studies in progranulin and further investigate microRNAs.

The first NIH grant in any scientist's career is a milestone, and Dr. Rademakers is quick to mention that she achieved it with important support from a variety of sources. Two mentors figure in her scientific career: Dr. Hutton and Christine Van Broeckhoven, Ph.D., a world-renowned scientist from Dr. Rademakers' Belgian homeland. They have had a yin-yang affect, teaching her the value of collaboration but also toughness, she says. And Mayo Clinic took a chance on her, providing her with partial funding to operate her lab.

Mayo Clinic was able to offer her that opportunity in part because of philanthropy, which is a major source of funding for research. But Dr. Rademakers has an even more direct connection to philanthropy. A gift from a Mayo gastroenterologist, David Loeb, M.D., has funded FTD research at the Florida campus and in Dr. Rademakers' lab.

Dr. Loeb and his family have been there throughout the many twists and turns in Dr. Rademakers' career. They initially supported Mayo because of Dr. Hutton's reputation, and when he left, they were faced with a very clear-cut decision. Keep their money at Mayo or put it somewhere else. They chose Mayo and have no regrets.

"In my opinion, philanthropy is not charity," says Dr. Loeb, whose father-in-law was stricken with FTD. "You do it with a purpose and you do it based on people and programs. Rosa has really run with the support she's received and established herself as an up-and-comer in the field. She is tremendously energetic and we couldn't be more pleased with the results of her research." ■



Frontotemporal dementia (FTD) is an umbrella term for a diverse group of uncommon disorders that primarily affect the frontal and temporal lobes of the brain — the areas generally associated with personality, behavior and language. FTD is often misdiagnosed as a psychiatric problem or as Alzheimer's disease. But FTD tends to occur at a younger age than does Alzheimer's disease, typically between the ages of 40 and 70.

RESTORING DREAMS

TRANSPLANT KEEPS RETIREE ON COURSE

One of the ways Bill and Barb Pearse enjoy their retirement is by hitting the links together. Like many golfers, Mr. Pearse marks his ball to distinguish it from others on the course. His “L.D.” moniker doesn’t mean much to those he meets during a round, but it actually holds great symbolism. The initials remind him every day that he is “Living the Dream.”

By outward appearances, the dream turned into a living nightmare for Mr. and Mrs. Pearse. Their plans of pursuing fun and adventure were nearly sabotaged by a serious medical problem that left Mr. Pearse without his kidneys. They turned to Mayo Clinic to restore his health and their dream.

In 2005, as Mr. Pearse was rushed to the hospital in severe pain, he directed the ambulance team to take him to Mayo Clinic. He could think of no better place to be in this crisis. Quickly, the Mayo emergency department team diagnosed kidney stones — a relief. However, diligent Mayo physicians ran additional tests — which revealed something far worse — a cancerous tumor on one kidney.

Mayo Clinic physicians “were very persistent in really determining what the cause was,” says Mr. Pearse. “They didn’t just dismiss me and say, ‘Well, you’re presenting yourself as if you have a kidney stone.’ They found out more and they dug deeper.”



Barb and Bill Pearse

The “L.D.” on Bill Pearse’s golf ball holds special significance for him after Mayo Clinic physicians helped put his retirement plans back on track.

Mr. Pearse underwent surgery — expecting Mayo surgeons to remove most, if not all, of his cancerous kidney. However, once the surgery was under way, his doctors found a different type of cancer than they expected — one with small cells, as opposed to the typical larger cell kidney cancer. The surgical team in Arizona was forced to change course and confront the more aggressive cancer. After careful assessment, which included drawing on Mayo resources in Rochester, Minn., the decision was made to remove both kidneys.

“When he woke up, I told Bill, “You don’t have any kidneys,”” said Mrs. Pearse. “He promptly responded, ‘It’s a darn good thing they took both of them because I don’t want cancer.’”

Although his cancer was cured through surgery, Mr. Pearse’s medical journey was far from over — he needed a transplant.

The ultimate gift

"I had 20 or 30 different bottles of drugs that I was dealing with," said Mr. Pearse reflecting on his two years of dialysis treatments.

The removal of his kidneys left him dependent on that menagerie of drugs, as well as three types of dialysis. This treatment required careful coordination and education. It worked — and brought the Pearse family to the point where another dream could come true.

After two years of being cancer free, it was time for his transplant. Because his cancer was hereditary, blood relatives had to be ruled out as donors. However, his match still came from his family tree.

Following two months of rigorous testing, Mr. Pearse's adopted son, Brad, was found to be a good match. At age 32, he was in good health and would be able to recuperate from the surgery. The donation allowed Brad — who was adopted from the Philippines when he was nine months old — to give his father the ultimate gift: life.

"Brad is my hero," says Mr. Pearse. "We now joke about the fact that we are genetically related. We laugh about it a lot and it's a wonderful thing."

"It's hard to describe how humbly grateful I am today because I was able to receive treatment from Mayo Clinic," says Mr. Pearse, who is now back out on the golf course with his partner in life and on the course, Barb. "L.D. represents that I am finally able to live the dream of having fun in retirement."

Transformative impact of transplant

Mr. Pearse's outcome is shared by many patients treated at the transplant center at Mayo Clinic. The restorative properties of transplants treat disease but, perhaps profoundly, also transform the quality of patients' lives.

"You've heard the term 'gift of life,' and it is true," says Raymond Heilman, M.D., medical director of Mayo's Kidney Transplant Program in Arizona. "The degree of quality of life improvement after transplant is phenomenal. You see it with all organs."

"The reward of seeing patients sick, possibly knocking on death's door, turn around and walk out of the hospital a few days later with a whole new life ahead of them is just

amazing," says David Mulligan, M.D., surgical director of Mayo's Arizona transplant division.

Prior to their surgeries, transplant patients represent a unique segment of the overall patient population. These individuals are chronically ill, chronically fatigued, less than half can work — and none live normal lives. Advances in medical modalities, dialysis in the case of kidney patients, and medications offer care of this group of patients. However, quality of life is greatly diminished.

In most cases, the impact of an organ transplant is significant because organ transplant replaces a failing organ rather than simply treating the symptoms or the disease.

"A patient without kidney function requires therapy to get by every day," says Dr. Mulligan. "With a two-hour kidney transplant operation, that patient can be rendered normal. They have kidney function and no longer require dialysis."





Mr. and Mrs. Pearse are Principal Benefactors of Mayo Clinic. Their Principal gift in January 2007 established the Bill and Barb Pearse Research Endowment. Prior gifts from Mr. and Mrs. Pearse supported breast cancer and prostate cancer research.

Certainly, transplants are not a panacea. The initial operations are very intense and carry risks. However, comparing the risks of a transplant to not having the procedure, it's clear — the long-term risks of living with the disease are greater than those of having an operation.

Transplant recipients usually are on immunosuppression medications for the rest of their lives. This group of medicines lowers the body's immune system so that the transplanted organs are accepted. They can cause side effects, such as shakiness and gastrointestinal symptoms. But these can be minimized through careful monitoring.

Teamwork fuels transplantation

Successful transplant medicine requires teamwork. Physicians, surgeons, nurses, case workers and administrators must work in a cohesive team from the presurgery exams through the surgery and postoperative rehabilitation. Mayo Clinic is well positioned to meet these demands through the Mayo Clinic Model of Care.

When Drs. William J. and Charles H. Mayo established what is now called the Mayo Clinic Model of Care, they recognized that patients benefited from teamwork. Physicians

with different perspectives and medical specialties joined together in search of answers. This approach ensures that patients receive the medical care they need to get well. "Our model of care is ideal for transplant," says Dr. Heilman.

"In every aspect of transplant medicine, teamwork makes the difference," says Dr. Mulligan. "You can take an incredible transplant surgeon or physician and put that person in an area where you don't have the team support, and he or she will fail. Every part of the team must work well to achieve success."

Transplant medicine at Mayo Clinic

Mayo Clinic operates transplant centers at each of its three locations — Arizona, Florida and Minnesota. Each center is unique due to varying donor populations and geographic regions, but the three centers work together to enhance patient care.

Since 1998, the centers have met collectively at what has become known as the "Transplant Summit." Leaders of all three sites get together annually and work on what they can accomplish together. Areas of collaboration include medication protocols, research projects, practice performance evaluation and paired kidney exchange.



Future of kidney transplant

The biggest challenge for transplant medicine is the availability of donor organs. In the United States, 13 people die each day waiting for a solid organ — including the heart, lungs, kidneys, pancreas, intestines and liver.

“I like to compare the situation to farmers who rely on weather for their crops,” says Dr. Mulligan. “They may be able to work around lack of rain with irrigation and nutrients, but at some time, the conditions are out of their control. We have a similar challenge in organ donation. If organs are not available, we are unable to save our patients.”

With kidneys alone, 70,000 people await a transplant, and only about 15,000 kidney transplants are performed each year. Fifty percent of those transplants are the result of living donor contributions, with the remainder from deceased donors.

Mayo Clinic is working to overcome kidney shortage through the Kidney Paired Donor Exchange program. The program consists of kidney transplant patients who have an identified donor but cannot complete the transplant because they are not blood type compatible or have antibodies that disqualify the donation. The program allows patients to “exchange” donors to try to match with a compatible donor.

“People who get a successful kidney transplant have a longer life expectancy and a better quality of life than those who are on dialysis,” said Dr. Heilman. “Through the paired donor exchange we can provide more patients with transplants.”

Currently, Mayo Clinic has a database with over 2,000 names from throughout Mayo Clinic. ■

Help transform the future of medicine by contributing to The Campaign for Mayo Clinic. As a not-for-profit organization, Mayo Clinic depends on your support. For more information, visit www.mayoclinic.org/mm or call a development officer at 1-800-297-1185.

INSPIRED TO LEARN

CREATING FUTURE LEADERS



In May, Rebecca Schmidt returned to Rochester, Minn., from her postdoctoral fellowship in Denver to receive her diploma at graduation ceremonies for Mayo Graduate School. Ms. Schmidt was featured in a 2006 issue of *Mayo Magazine* as the first recipient of the Pobanz Family Endowed Predoctoral Fellowship. Established with an estate gift from Wilbur and Grace Pobanz and their daughter Sandra Pobanz, the fellowship was the first dedicated solely to the training of scientists in the school's Ph.D. program. In this essay, Ms. Schmidt shares thoughts on her education and on the role of medical science in society.

Most people have at least a passing acquaintance with the phrase “the scientific method.” It describes how scientific study is conducted through careful observation, hypotheses testing and data interpretation. I’ve noticed, however, that an important component of scientific work, though far from hidden, is sometimes overlooked.

I was a bit of a science geek as early as sixth grade. From my college days at Lawrence University, I have a t-shirt that

Rebecca Schmidt, left, was the first recipient of the Pobanz Family Endowed Predoctoral Fellowship. She was joined by Sandra Pobanz in May 2009 to celebrate her graduation from Mayo Graduate School.

says “Bio Club” on the front and “not your average geek” on the back. My interest in science eventually led me to the doctoral program at Mayo Graduate School.

One reason I chose Mayo was that being in a medical setting, which is different from a purely academic setting, offers a great opportunity to combine basic science research, but also be in the context of health care and know that what you are researching is going to make a difference. Every day you see the people who you might be helping in the future.

It’s easy for me to picture myself back in my first weeks at Mayo — how impressed I was that faculty members would take time away from their research and come tell us about some aspect of biology, why it’s important, and then tie it to what they worked on.

One of the really great teachers at the medical school is Dr. Jim Maher. Each of his lectures was a new experience. He’d start to talk, and it would be like something opening up, and you knew you better pay attention or you’ll have missed something.

I recall him telling us about how warfarin, the blood thinner, was discovered. I got really wrapped up in the story. He explained that cows were eating sweet clover hay, getting sick and dying. So a farmer brought a bucket of blood from a dead cow to a biochemist at the University of Wisconsin. The biochemist discovered that storing the damp clover in silos produced dicoumarol, an anticoagulant. Later, this discovery led to a treatment for strokes. Dr. Maher's use of anecdotes such as this brought the science to life. In my mind, I can hear the farmer shouting, "It won't clot! It won't clot!"

My mentor, Dr. Amy Tang, played a huge role in my education. When I met Amy, pretty much from the moment we sat down, we had good rapport. I've published four papers with her. It was amazing to be able to go onto PubMed [a database of medical articles] and search for my own name and see how all of the hard work came to fruition. And it's exciting to know that the research we did, essentially making cancer cells in animal models stop behaving like cancer cells, may translate to new cancer treatments.

While at Mayo, I've had a wonderful honor to be a Pobanz scholar. It's definitely colored my experience in a very positive way. I've been connected to a specific story, that of the Pobanz family, and I've known that because of them, I was able to be here to work on what I love.

Now I'm a postdoctoral research fellow, and I'm working at National Jewish Health in Denver. I'm studying listeria, a food-borne bacterium that can cause meningitis. Colleagues of mine are studying organisms such as anthrax to determine how to defend against their use in bioterrorism. The scientific method guides our research every day.

But what is the important component of scientific work that I said is sometimes overlooked? A scientist's work doesn't stop in a laboratory — it goes out into the community where it contributes to understanding and improving our world. Like Drs. Maher and Tang, scientists share their knowledge and findings through teaching and publishing. I'm honored to be one of them. And, yes, I'm proud to be a science geek! ■

The Campaign for Mayo Clinic helps fund education for Mayo Graduate School. The school's mission is to train future leaders in biomedical research and education. For more information on The Campaign for Mayo Clinic, please visit www.mayoclinic.org/mm.



Rebecca Schmidt, left, says that being a recipient of the Pobanz Family Endowed Predoctoral Fellowship has connected her to the Pobanz family. She is seen here with Sandra Pobanz.

RACING TO CURE BREAST CANCER

RAISING FUNDS AND AWARENESS



Dr. Edith Perez is working to identify the genes and proteins that cause breast cancer.

Curing breast cancer is not a new idea. Organizing a marathon to raise money for medical research is not a new idea. But these two goals are coming together in an entirely new way at Mayo Clinic, where, with funding from a marathon, researchers are developing new techniques — and new hopes — for identifying the mutated genes that drive breast cancer in each patient.

“We’ve made many advances in breast cancer over the years, but it’s still a significant problem,” says Edith Perez, M.D., whose vision is leading the research. “We want to continue improving the cure rates for breast cancer. One of the ways we can do this is by identifying the genes and proteins that drive breast cancer in each patient and using that information to help us predict the benefits of treatment and develop new therapies.”

The lever moving this project forward is the National Marathon to Fight Breast Cancer. Now in its third year, the event starts and finishes at Mayo Clinic’s Florida campus, and it has drawn more than 5,000 participants each year. The marathon is the brain child of Donna Deegan, a three-time breast cancer survivor, Mayo Clinic patient and fanatical runner. It’s the only marathon in the country devoted exclusively to raising money for breast cancer research and care, and in two years it has raised more than \$1 million for Mayo Clinic.

Those funds are fueling physicians, scientists, computer experts and statisticians across all three Mayo campuses who are collaborating and using technology so new that only a few research centers have it. The Illumina Genome Analyzer produces enough information from a single patient sample to fill 1,000 encyclopedias. Its technology is based on a procedure called “next-generation gene sequencing,” and it enables researchers to determine the sequences of all of the gene products within a cell quickly and to measure the activity of genes. Together, these data allow researchers to identify much more quickly genetic mutations that may cause breast cancer.

Philanthropy often is the only way to get projects like this moving because the National Institutes of Health and other larger granting agencies prefer to support projects after their initial stages. But Mrs. Deegan sees this project as one step toward the day when breast cancer will be cured.

“I believe we will see a cure during my lifetime, and I think Mayo Clinic is going to make it happen,” Mrs. Deegan says.

A team effort

If Mrs. Deegan is correct, a lot of people at Mayo Clinic — and outside of Mayo — will have reason to feel proud about their role in making possible this new age for breast cancer care.

At Mayo Clinic in Florida, for example, Dr. Perez is working closely with Aubrey Thompson, Ph.D., whose lab has a wealth of experience in genetic sequencing technologies. Their expertise and close collaboration with Illumina enabled them to design a new way to use the sequencing machine to detect a specific type of genetic abnormality called fusion gene products.

Colleagues at Mayo Clinic in Rochester, Minn., Yan Asmann, Ph.D., a bioinformatics scientist, and Jeanette Eckel Passow, Ph.D., a biostatistician, are analyzing the terabytes of data generated from these tests and providing Dr. Thompson's team with information about these fusion gene products. The work is like searching for a needle in a haystack the size of the Empire State Building. But in just a matter of months, the team has found several new genetic mutations that have never been described before. Dr. Thompson's lab is now following up on these suspects, to learn more about their roles in breast cancer.

It's not clear yet if these leads will yield information that is helpful for treating breast cancer right now, but finding several candidates in a matter of months is exciting, and the clinical potential of this new area of research is enormous, Dr. Thompson says. Fusion genes result when two previously separate genes come together, one of several genetic abnormalities that occur during the cancer process. They have been successfully targeted in blood cancers, but they have been especially difficult to detect in solid tumors.

Arizona colleagues also will have an invaluable role in determining what happens with this aspect of the project, as well as other investigations. Investigating breast cancer cell lines is an early step. More substantial evidence comes from analyses of breast cancer tissue, and Barbara Pockaj, M.D., and her colleagues in Arizona are collecting samples so that the team has a repository to study.

But the fusion gene research is only the first step in this project. To achieve its goal, the team will have to continue collaborating with people inside and outside of Mayo and search across the human genome. Ultimately, Dr. Perez believes that instead of two or three types of breast cancer, research will eventually identify 15 or 20 types, each of which is treated differently and more effectively than today.

Many people, many steps: sounds like a marathon.

"Some people ask me, 'How are you going to accomplish this vision?'" says Dr. Perez, who has completed two marathons. "It's a long process, for sure. But that's why it's so appropriate that a marathon is funding the work. A lot of people might look at a marathon and say, 'I can't do it.' But when you have a goal such as a marathon, you need to develop a strategy. Once you have that strategy, you can take the right steps to get to your goal, and that's what we're doing." ■



Dr. Edith Perez, cancer researcher, and Donna Deegan, cancer survivor, participate in the marathon.





Imaging and imagination meet medicine

Welcome to the wonders of Dr. Robb's Advanced Imaging Lab in the Biomedical Imaging Resource, one of several such centers of near-magical science at Mayo Clinic. Here in a gadget- and gizmo-filled room you find, rotating on two-dimensional computer screens, three-dimensional images so convincing you're tempted to reach through to touch them. With special goggles, you "step" into a room where you can walk around or inside a heart and examine it from every angle. This is not a hypothetical heart; this is the heart of a particular human being. You also can prod and poke a kidney, that, through a computer rendering, has similar pliability as the kidney encased in some person's body. And you can hold a phantom in your hands — but more about that later.



Decades ago, a neurosurgeon said to Richard Robb, Ph.D., “If we can see it, we can fix it.” While not every disease or health condition falls into the category of something that can be fixed if seen, many can. Dr. Robb has made it his life’s work to create through technology new ways of accessing, visualizing and analyzing components of the body previously unreachable.

It’s work that Dr. Robb enjoys very much. “I’m excited about how we can solve problems not yet solved,” he says. “The more we discover, the more we know that there is to discover. I feel like a kid in a toy shop.”

But make no mistake, Dr. Robb considers this to be very serious work. “It’s about real people with real problems, and we can help provide real solutions,” he says.

Seizures, surgery and software

One of those real people is Michael S. Hutton. Mr. Hutton had epilepsy that wasn’t responding to medication. He was having as many as four seizures a day, which limited his activities. In 2004, he underwent surgery at Mayo Clinic. Key to successful surgery was pinpointing where electrical misfires occurred deep in his brain. Neurologist Elson So, M.D., used

a technique he and Dr. Robb developed in which radioactive ink attaches to blood flowing into the region of the brain experiencing a seizure. A scan known as SPECT (single photon emission computed tomography) revealed an abnormality in Mr. Hutton’s right temporal lobe. Using Analyze (a software program developed in Dr. Robb’s lab) to overlay this image on an MRI of Mr. Hutton’s brain scan, surgeons were able to remove the mass, smaller than the tip of a thumb.

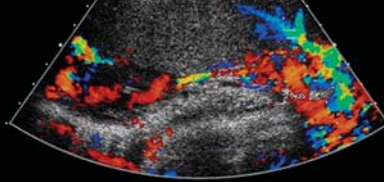
“The more we discover, the more we know that there is to discover.”

— Richard Robb, Ph.D.

Following surgery, Mr. Hutton no longer has seizures. He’s now able to enjoy a full range of activities, including his favorite hobby — skydiving.

Abbigail and Isabelle Carlsen, conjoined sisters, underwent two CT scans that revealed important details of their unique anatomy. Using a scan protocol developed at Mayo, essential information about the girls’ fused liver and bile duct systems was revealed. From this information a 3-D physical model — a phantom — was created that surgeons used as reference during procedures to separate the twins.





The software used to guide the surgeons, Analyze, is the product of 30 years of development. It can interactively, selectively and synchronously display, edit and measure multiple images. In simple terms, this allows doctors to see and analyze exactly what they need to see and analyze to diagnose and treat problems.

Take the case of spine surgery. Scans of a patient's spine are fed into Analyze MD, the clinical version of the software program. The resulting printout of the spine allows the doctors to plan exactly where screws and rods will be placed during surgery and the appropriate lengths of each. "For the patient, it makes the surgery safer," says orthopedic surgeon Paul Huddleston III, M.D. "It shortens surgical time, helps the surgeon concentrate on doing a good job, not deciding on the spot what implants to use."

Phantom of the lab

In some situations, surgeons benefit from actually being able to hold a model of a patient's organ in their hands, examine it and use it to plan a surgery. That's where phantoms come in. A phantom is an exact physical replica or model of an individual's body part, which can be provided to the physician by

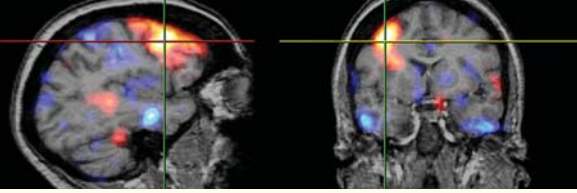
Dr. Robb and his colleagues in the Advanced Imaging Laboratory. If screws are to be implanted in a spine, for example, the surgeons can see and touch exactly where those screws would go on the phantom so they can recognize the locations during the surgery. "It's like doing a crossword puzzle with half the letters already filled in," says Dr. Huddleston.

The same approach was used in complex surgery to separate Abigail and Isabelle Carlsen, conjoined sisters. The girls' unique anatomy needed to be fully understood by surgeons before and during the separation procedures. Working with Mayo's radiologists and medical illustrators, Dr. Robb's team gathered detailed diagnostic imagery and created groundbreaking visual guides for the surgery. One of these guides was a phantom of the girls' shared liver and bile duct system.

Imaging: The backbone of research

Modern imaging devices also play a critical role in medical research. Investigators look at the world in unique ways — they create new perspectives by magnifying or reducing, by separating or combining. In this way, they detect patterns that reveal how things work. A goal of Dr. Robb's team is to





enable researchers to see exactly what they need to see and to filter out what isn't needed.

Every scan of every patient holds valuable information. David Holmes III, Ph.D., director of Mayo's Biomedical Imaging Resource Core Facility, talks about "a whole lot of mathematics meeting medicine" because the information generated is first represented in numerical form. Part of the challenge for the imaging lab team is to help researchers effectively analyze the data they generate and collect.

"We're not even close to the limits."

— Richard Robb, Ph.D.

Among projects the lab is facilitating is one endocrinologist Ann Kearns, M.D., Ph.D., has been involved in. The purpose of the study is to determine the relationship between osteoporosis and cardiovascular disease and the potential role of estrogen in the development of both diseases in postmenopausal women.

"Most bone density testing is on the lower spine," says Dr. Kearns. "But that testing doesn't give us information about the condition of the coronary arteries. What we've been able to do is take existing CT scans that were used to look at calcium in coronary arteries and measure the bone density and structure of the upper spine." By using these existing scans, the researchers are able to analyze information about both the heart and spine of a patient without having to subject the patient to additional testing, which would involve additional costs and radiation exposure.

"The sophisticated programs developed in Dr. Robb's lab allow us to analyze the information we get from the scans," she explains. "We hope to determine if starting estrogen therapy early may be beneficial in preventing both heart disease and osteoporosis in postmenopausal women." Dr. Kearns notes that Dr. Robb and his team offer more than technology. They provide consulting services to researchers that can help determine the direction of a project.

Defining the future

Dr. Robb's world doesn't end with three dimensions. He talks of 4D and even 5D, including not just space, but time and function. As both the technology and application of imaging

Multidimensional imaging can provide patient-specific detailed anatomic and functional information of any organ or structure in the body. Advanced processing of these images renders striking 3D views of different tissues, like the hard bone of the skeleton or the soft parenchyma and airways of the lungs. Multidimensional information about the health and performance of the heart can be displayed in ways never before possible. Advanced processing of 3D microscopic images provides high resolution detail in "virtual biopsies," such as in bone.

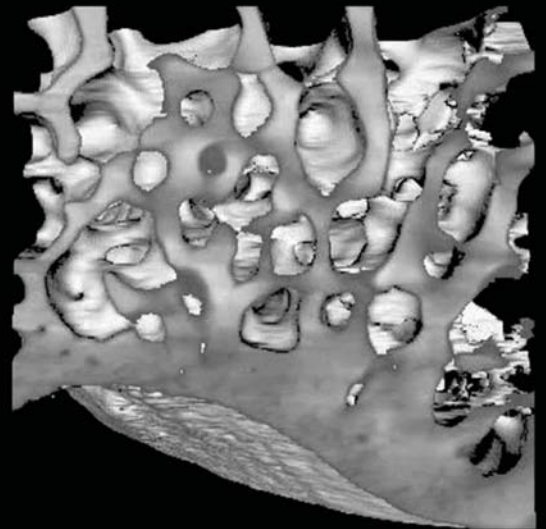
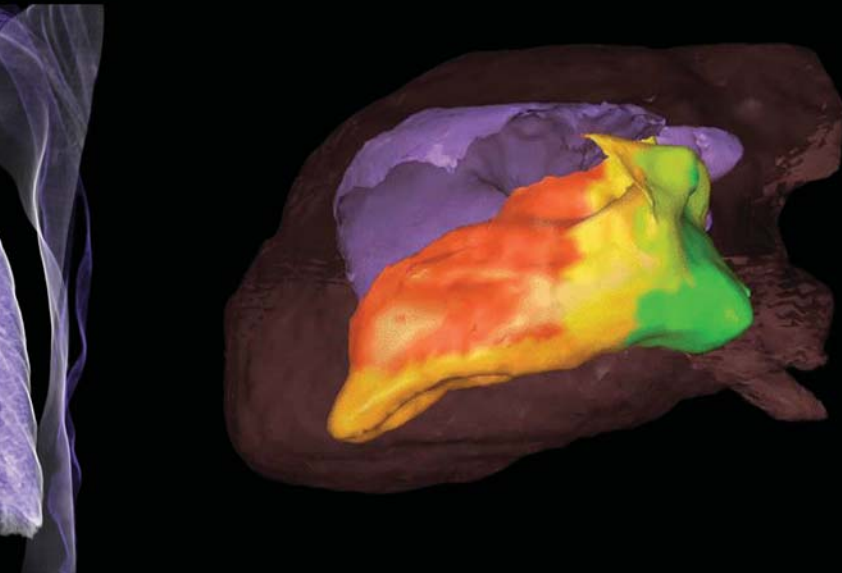


evolve, new insights into the process of life and disease, together with significant increases in the sensitivity and specificity of diagnosis of disease, will lead to more precise, effective treatments.

No magic spell or crystal ball provide Dr. Robb with a clear view of the future. But his experience and imagination, together with those of his team and the many researchers who work with him, combine to create a vision for medical imaging. That image includes devices such as nanobots (miniscule robots) inserted into the body to find and treat diseases. It includes “smart rooms” and “smart clothes” that sense the positions of physicians, surgeons, patients and instruments during a procedure. It includes visualizing body chemistry in new ways.

Looking into the future of medical imaging, Dr. Robb says, “We’re not even close to the limits.” ■

Ann Kearns, M.D., Ph.D., shown here holding a spine phantom, studies the role of estrogen in osteoporosis.



Hip, heart and hope

Beverly Teachout regains her stride



Beverly Teachout's neighbor smiles when he sees her tying on her shoes to head out for a walk. Although walking is a favorite activity for Mrs. Teachout, for years she was unable to enjoy it.

In 1994, Mrs. Teachout had her right hip replaced. But she continued to have problems, specifically a sharp pain at the site of the artificial hip. For the next decade, she tried to find a diagnosis.

"I went all over looking for a doctor to tell me why and fix it," she says. "I went from Michigan to Memphis, Tenn. I had blood tests, bone scans, CT scans, pokes and prods, but still no answers."

Mrs. Teachout and her husband retired from Michigan to Florida in the late 1990s. Despite the sunny weather and losing 40 pounds, Mrs. Teachout still had debilitating pain. She walked around the house with a cane, and sitting in a car for any length of time was unbearable. "I couldn't do much of anything," she says.

Eventually a local orthopedist referred her to Mayo Clinic, and in January 2005 she saw orthopedic surgeon Mary O'Connor, M.D.

"She took one look and said, 'Oh, yes, we can fix it' just as if she was saying 'Let's have lunch,'" says Mrs. Teachout. "After all the doctors I had seen, I broke down in tears."

It turned out, however, that hip surgery was not in her immediate future. She had a heart attack in 1995 and since had been plagued by chest pain and shortness of breath. A cardiac catheterization and an echocardiogram at a local facility showed some narrowing of the aortic valve and minor coronary blockages, but not enough to account for the symptoms.



Beverly Teachout enjoys walking again after heart and hip surgery. She credits Mayo Clinic with saving her life.

The challenge of diagnosing aortic valve stenosis is that patients — and often their doctors — don't recognize the problem. The symptoms, which include chest pain, dizziness, angina and shortness of breath, are similar to other ailments, such as coronary artery disease. Many people also attribute the symptoms to old age and adjust their lifestyle when in fact their discomfort is due to a valve problem.

Mrs. Teachout was devastated when she found out that her hip surgery would have to wait. But she was relieved that her heart problem was detected before surgery.

"I truly believe if it weren't for Mayo Clinic, my children wouldn't have a mother," she says.

Back on track

Finally, in September 2005 she got the go-ahead to have the hip fixed. The following April, Dr. O'Connor also performed a total left knee replacement.

"The infrastructure that we have here in the clinic — my ability, for instance, to pick up the phone, dial five digits and talk immediately to another Mayo physician or pull up electronic medical records — really facilitates our integrated group care," says Dr. O'Connor.

Despite some setbacks (she had a pacemaker installed recently), Mrs. Teachout is happy to be back on her feet, and she says she's thankful Mayo staff was there every step of the way.

"Mayo's commitment to the patient shows in all they do, from the greeting at the door to the goodbye at the parking garage," says Mrs. Teachout. "That includes everyone and everything in between." ■

Treating the whole patient

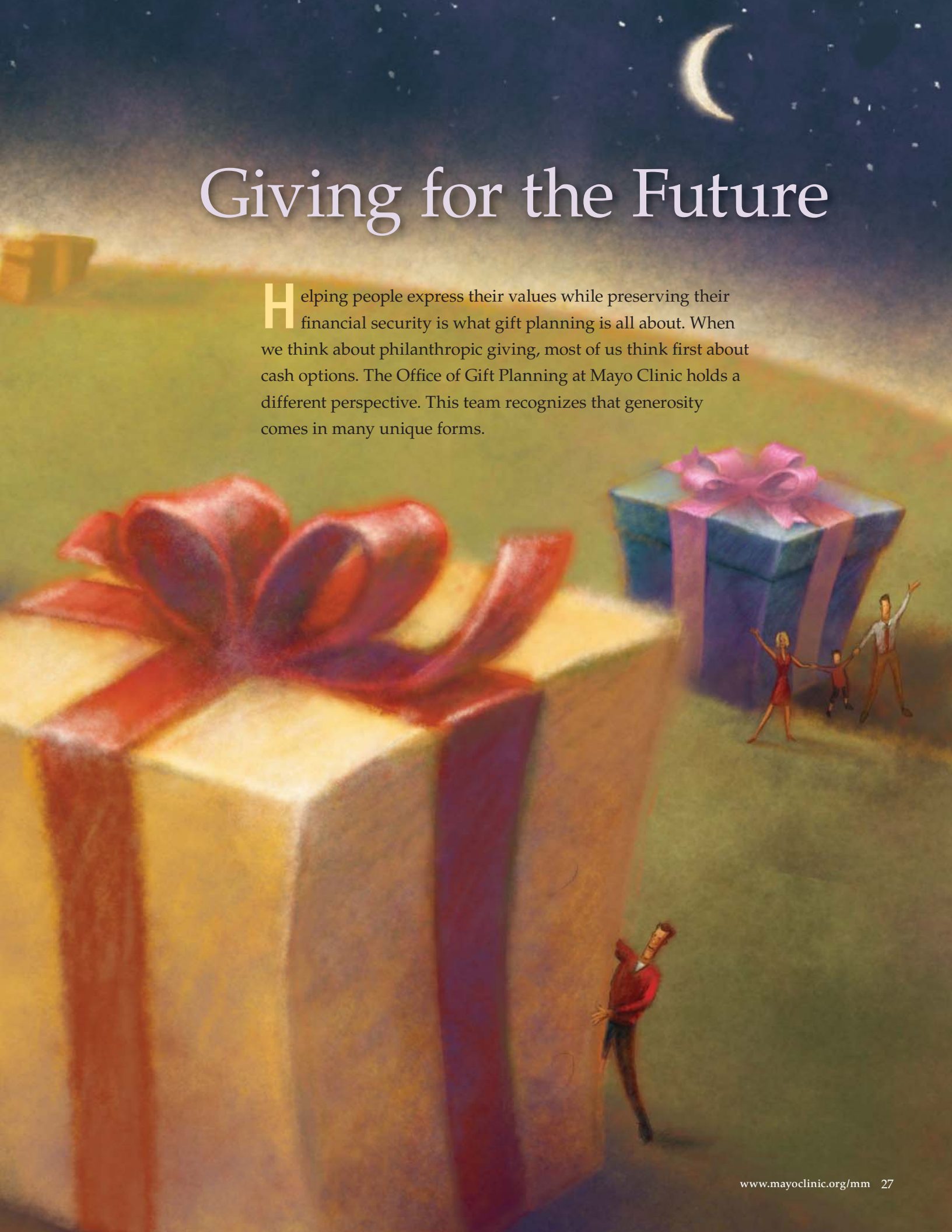
As part of the examination that patients undergo before surgery at Mayo Clinic, cardiologist Ramon Castello, M.D., ordered another echocardiogram because Mrs. Teachout had a significant heart murmur. That test showed a severely narrowed aortic valve, making hip surgery extremely risky. She had aortic valve stenosis, a condition where one of the valves in the left heart tightens and limits blood flow to the rest of the body. Over time, aortic stenosis leads to a weak heart muscle and, possibly, congestive heart failure. Her symptoms indicated she was in the initial stages of that, too. Dr. Castello advised Mrs. Teachout to remain in Jacksonville and undergo valve replacement surgery before the hip procedure.

"Patients with severe congestive heart failure symptoms have a 50 percent chance of dying within a year, and she was to undergo a major orthopedic procedure for her hip," says Dr. Castello. "If she would have had this surgery with the severe heart valve narrowing, she could have died during the procedure."



Giving for the Future

Helping people express their values while preserving their financial security is what gift planning is all about. When we think about philanthropic giving, most of us think first about cash options. The Office of Gift Planning at Mayo Clinic holds a different perspective. This team recognizes that generosity comes in many unique forms.



An oil well. A 2,500-pound chunk of jade. The family farm. Silverware. Using creative planning, the alchemy of philanthropy has transformed each of these tangible assets from estate gifts into advances in medical science at Mayo Clinic. That opportunity exists because the gift planning staff at Mayo commits its time to helping potential benefactors consider all the options, including what to give as well as when and how to structure their support. This expertise enables people to make more meaningful gifts while meeting their personal planning goals.

Giving back

Many people who choose to leave gifts to Mayo Clinic in their wills have a strong, long-term commitment to Mayo Clinic. They may share its passion for science and health, or they may feel deep gratitude for people at Mayo who helped them.

Jane Whitmyer first came to Mayo Clinic in the 1950s when she was about 40 years old. She believed it changed, indeed, saved her life. Her enduring sense of gratitude moved her to give back many years later.

Tim Fort, Ph.D., J.D., a longtime family friend and the executor of her estate, says, “Jane suffered a medical accident and came to Mayo for help. She believed that it was Mayo and the doctors there that saved her life after an X-ray performed elsewhere went horribly wrong and burned her very badly.”

Early on, Mrs. Whitmyer vowed that her assets would go to Mayo Clinic. She never wavered from that commitment. She and her husband, Harry, lived in a way that most people would call very modest, on the small family farm she inherited when her parents died.

Dr. Fort says, “She and Harry were very straightforward, honest, frugal, hardworking people. They had no children. They didn’t travel, didn’t spend, carried no debt. They saved everything.”

When Mrs. Whitmyer died in 2004 at the age of 85, it was revealed that she had left a Principal estate gift to Mayo Clinic.

Dr. Fort says, “Jane believed in keeping her vows. She thought the absolute world of Mayo.”

Committing

Longtime patient Paul Miller of Roseville, Minn., also has come to respect Mayo Clinic. He says, “My first appointment was in the Plummer Building. That’s how long I’ve been coming to Mayo. I have always been impressed with the way Mayo does business. It’s something to emulate. When I heard about Denny Sanford’s Philanthropic Partner level gift for the pediatric center, I was inspired to do something for Mayo Clinic.” So Mr. Miller told Paul Ross, Mayo Clinic development officer, “I would like to remember Mayo Clinic in my estate.”

A man of his word, Mr. Miller in 2008 committed to a generous gift from his estate to benefit Mayo Clinic.

Mr. Ross says that many people don’t like to talk about estate gifts because it means first acknowledging that they won’t be around forever. “Many don’t have wills,” he says. “But why not get things in place so you have control after you’re gone? More importantly, your assets go where you want them to go.”

“You have to do a lot of planning for when you’re not going to be here. It makes for uncomfortable conversations about, what do we want to leave money to? I’ve always had a spiritual bent, so when we met Teri Hauser, our development officer, she spoke about the spiritual garden, the healing garden at the hospital in Arizona and invited us to take a look. It was honoring the Native American tradition and made me feel like the Mayo philosophy of treatment not only cares for the body but also cares for the spirit, and that’s why I could do it and do it well. I think it improves the quality of our lives. And it also improves, our connectedness with endeavors that are bigger than just us. When you can point to something that is helping other people, there’s no price tag that you can put on that.”



— Carla Paonessa

Cultivating hope

One of the largest gifts ever received by Mayo Clinic is the estate of Barbara Woodward Lips. The \$127.9 million bequest from Mrs. Lips was placed in the Mayo Clinic endowment in support of Mayo's research and education programs aimed at achieving excellence in patient care. A strong endowment is essential to Mayo's future. The income it provides is a dependable, flexible, ongoing resource.

Mrs. Lips was born in Oklahoma. In her early years she worked as a sales clerk in a department store and later as a secretary at a sawmill. She met Charles Storch Lips in the 1940s, and the couple married in 1949 at his home in San Antonio. The family had extensive oil, gas and ranching interests in Kansas and Texas. When Mr. Lips became ill, Mrs. Lips began learning the business. After the death of her husband in 1970, she expanded the family businesses. She was a Mayo patient for more than 40 years and made many significant gifts to Mayo during her lifetime, including \$10,000 to have fresh flowers placed at all times in the Lips Atrium, a space dedicated to her at the Mayo Clinic campus in Rochester, Minn., in 1988. She believed that philanthropy is a way to "cultivate hope." She died in 1995, but her generosity and good works continue to generate incalculable benefits.

How we can help

Sometimes Mayo is surprised by bequest gifts and learns of them only after the will has been read. Other times a benefactor's intent is known many years beforehand. To ensure the best possible outcome for all, gift planning staff encourages people to contact Mayo ahead of time when considering an estate gift. It not only helps the benefactor but also enables Mayo to plan ahead too. The professionals in the Office of Gift Planning help benefactors work through the various options and how each might affect families and fulfill goals. Such help may be particularly welcome in difficult economic times.

Attorney Kevin Melvin of the Office of Gift Planning most often gets involved once an estate gift is realized, that is, after the benefactor has died. He says that he sometimes is surprised and humbled by the gifts left to Mayo.

"It makes you realize how very deeply people are affected by their Mayo experience and the relationships they have developed here over the years, with their physicians, their nurses and others who care for them," Mr. Melvin says. ■

"I remember how, in October 1938, my sister Alvina and I brought our seriously ill mother, age 60, to Mayo Clinic in a desperate final effort to find a cure for her illness. I remember with gratitude how Dr. Waltman Walters performed surgery on her and gave her 31 more years of useful, happy living. I have observed over the years how Mayo Clinic has pioneered, discovered, improved and excelled in all areas of medicine. I welcome and accept with pride membership in The Mayo Legacy."

— Walter Borman (deceased)



Join us for the 20th anniversary of The Mayo Legacy

Mark your calendars now to join us May 6-8, 2010, in Rochester, Minn., for the 20th anniversary of The Mayo Legacy (TML).

Established in 1990, TML is the planned giving recognition program for Mayo Clinic. Benefactors become members of TML by pledging their intentions to Mayo. There is no minimum giving level for membership. More than 2,500 members belong to TML, from every state and 13 countries. In the 20 years since TML's inception, members have given more than \$231 million.

TML builds on the trust that its members have in Mayo Clinic by providing meaningful opportunities for benefactors to interact with Mayo. The 20th anniversary promises to be a very special event as we look back on how your gifts are helping to create the future of medicine. Call us today at 1-800-297-1185 or visit our Web site www.mayoclinic.plannedgifts.org, to learn more.

A conversation with Laird Yock

Giving in times of uncertainty



Laird Yock, director of the Office of Gift Planning at Mayo Clinic, has been helping people achieve their philanthropic goals for more than 30 years.

As investors assess their positions in response to world market crises, a quiet revolution is unfolding in ways of giving. Around the world, more and more people are finding new opportunities to give of their time, money and assets for worthwhile endeavors. They are expressing a renewed focus and sense of urgency in making a difference. In today's interdependent world, we feel each other's problems. This new reality is influencing people to support institutions and charities that add value and provide full accountability for funding support. Such a careful approach ultimately benefits society. Laird Yock, director of the Office of Gift Planning, discusses these and other issues in gift planning.

How has the economy changed how we look at giving?

It's the uncertainty. We have less inclination to give up assets during our lifetime because we're afraid we might need them in the future. There's no definitive answer to the question, "How much is enough?" A sense of insecurity recurs from the days of the Depression. In the Office of Gift Planning (OGP) we tend to concentrate more on the ability to use things other than cash to make gifts. In fact, 90 percent of most people's assets are not cash, so we have the opportunity to help people envision giving in ways that they hadn't considered. One of the greatest joys of my role is turning someone on to the idea of philanthropy and helping that person find ways to accomplish his or her dream.

People do start thinking about gift planning in times like these. People don't change how they feel toward Mayo, but some do change how they give. We have been pleased with how many people are showing an interest in gift planning and estate gifts.

What is the role of gift planning staff at Mayo Clinic?

We serve as philanthropic advisers, but it's important to recognize that we don't take the place of other advisers or long-term brokers with whom our benefactors have an ongoing relationship. We are available to be at the table with the benefactor and his or her advisers as a part of the planning team. It's been part of our Mayo Clinic history, and it will be part of our Mayo Clinic future.

The benefits of thoughtful estate planning

- You have the full personal satisfaction of pledging to support Mayo *and* full use of your assets now. Your bequest does not immediately impact your cash flow.
- You control how your estate will be distributed, for maximum benefit to the people and organizations you care about.
- You make a statement and can motivate others to give too.
- You have peace of mind knowing your gift will be put to work in ways that are truly meaningful, no matter when the gift is realized. Mayo Clinic is working to advance health care now and into the future.
- You are recognized by Mayo and welcomed as a partner into the activities of The Mayo Legacy.

What do you mean when you say it's been a part of Mayo's history and will be part of its future?

Gift planning has been a part of Mayo's tradition of philanthropic support for more than a century. It extends back to a series of large contributions made by Mayo Clinic founders Drs. William J. and Charles H. Mayo. Between 1915 and 1934, the brothers set up the charitable not-for-profit corporation now known as Mayo Clinic. They contributed the assets of their then privately-owned practice and their own real estate to Mayo.

Those transformational gifts still influence its work today. Immediate-use estate gifts and gifts to the endowment help Mayo keep patient needs at the forefront of its work. In accepting a gift to the endowment, Mayo Clinic assumes responsibility for ensuring that it will perpetually support its specified purpose. As a pool of permanent funds, they generate essential financial support each year. So gift planning today helps advance tomorrow's health care and benefits not only patients but everyone who gains from Mayo's education and research efforts.

The Mayo Legacy (TML) has experienced strong growth over the last few years. Could you explain what TML is and to what you attribute its growth?

The Mayo Legacy is the recognition group for benefactors who have made a planned gift to Mayo Clinic. Since its inception, some 4,000 friends of Mayo have become members. And you are correct. The past two years have seen the membership grow faster than any year since its inaugural year. I believe the reason is that our benefactors recognize that Mayo is truly interested in acknowledging today those who will benefit Mayo tomorrow, and TML does just that. In addition, TML members receive invitations to special Mayo Clinic events, updates on Mayo medical and research advances, and special recognition.

How does one start the conversation about a desire to explore a gift planning arrangement with Mayo?

I would say, if this is of interest to you, just call us. We'll help you determine options. Because giving is wonderful, but giving right is essential. We can help with values assessment, clarifying your wishes and addressing your need to take care of your survivors and at the same time honor your wish to help Mayo. ■

"It was at the time I joined the Doctors Mayo Society that I first decided I would include Mayo in my estate plan as well as giving during my lifetime. It felt good to give back. It felt good to be a part of the future of Mayo in some small way, with really a minimal amount of sacrifice. My wife used to say, if it doesn't hurt when you give, you're probably not giving enough. In the gifts I've made to Mayo, it's never hurt, and it's always felt good, and it continues to feel good. We're exploring other ways now to make a difference, especially on the educational side, and rewarding some of the young investigators and practitioners who do research as part of their training.

I met a medical student at Mayo whose level of energy and enthusiasm for what she's learning and for the professional life ahead of her is just exciting to see. It infuses the whole organization. This isn't buildings. It's bigger than that. It's a team, and it's people, and it's idealism, and it's caring, and it's exciting."

— Wynn Keamey

Call the Office of Gift Planning at 1-800-297-1185 or visit www.mayoclinic.plannedgifts.org to learn more.

MAYO LEGACY MEMBERS: **Jim and Linda Taggart**

Faith, family and friends

It's a winning formula for Jim and Linda Taggart

What is Jim Taggart made of? Knowing the answer might help us all. After all, not many people survive one bout with an often deadly cancer, never mind two as is the case with Mr. Taggart. But his medical saga doesn't end there. Sandwiched between those experiences is the story of his liver transplant and how he survived a four-hour drive with a liver so swollen it ruptured its anatomical neighbors, causing internal bleeding. And just for extra measure, along the way he also had heart surgery and surgery to repair a stomach aneurysm.



Grateful for the care Jim received, Jim and Linda Taggart have referred friends to Mayo Clinic and named the clinic in their will.

Mr. Taggart hasn't just survived. He looks *good*, and today he lives his life with little-to-no restrictions.

What is Jim Taggart made of?

A former chief financial officer for a power company in Tampa, Fla., Mr. Taggart can't answer that question from a scientific perspective. But he has another response. Faith, family and friends.

"It hit me during my first bout with cancer," Mr. Taggart says. "I started thinking about what's important to me, and it's my faith, family and friends. All of those elements together give me confidence, and they are a big reason my treatment has been a success."

Mr. Taggart's wife, Linda, has the top spot on that importance list. She has battled his illnesses with him, throughout their 25 years together and in ways that few might expect.

The fateful day Mr. Taggart's liver began failing, Mrs. Taggart called Mayo Clinic, where Mr. Taggart was receiving care for his liver ailment, and had been told he needed a transplant. Moments later, she somehow managed to get her semiconscious, 6-foot-5-inch husband from their third-floor apartment into their car.

With her husband barely conscious next to her, she sped their car 230 miles to Jacksonville, through some of the most infamous speed traps in the South, with nary a ticket. "I remember thinking it would be good if I got a

Linda Taggart recounts rushing her husband, Jim, to Mayo Clinic.

speeding ticket because then I might get a police escort all the way to Jacksonville,” Mrs. Taggart says.

An extended family

Great conversationalists and wonderful hosts, the Taggarts have many friends and lasting relationships, which is evident from the many pictures and keepsakes that adorn their apartment.

Mayo Clinic is part of this extended family. In fact, the Taggarts say they have a “Mayo family,” which is the result of their many visits to the Florida campus, where Mr. Taggart has received all of his care except during his first battle with cancer. Their Mayo family includes not just physicians and other members of the medical staff but also housekeepers, volunteers, chaplains and many others.

“Through all of Jim’s treatments and appointments, I have never felt alone at Mayo or in Jacksonville,” says Mrs. Taggart. “I felt part of that family and community.”

The breadth of that family becomes clear whenever the Taggarts visit the Florida campus. People come from everywhere to say hello to them and to inquire about Mr. Taggart’s health. Staff refer other patients to them, to get a dose of their optimism and expertise. In addition to catching up in person, the Taggarts communicate with their Mayo family through

“been well” — not “get well” — cards and year-end letters expressing gratitude for Mr. Taggart’s health.

A ministry for Mayo

Today, the Taggarts’ connection to Mayo has grown to include their advocacy, and they frequently recommend the clinic to friends who have health concerns.

They have a good track record with their recommendations, too. After being told surgery was the only option to control an intestinal illness, one of the Taggarts’ acquaintances went to Mayo Clinic at their behest and learned surgery was not necessary and that ceasing a medication would make him much more comfortable. Another friend spent months traveling to “fancy hospitals” trying unsuccessfully to find the reason for his breathing difficulties. At the Taggarts’ suggestion, he went to Mayo, and in two days the problem was diagnosed — a heart condition — and successfully treated.

“This has become a ministry for us,” the Taggarts say. “People think it’s hard to get an appointment, or you need special insurance, and that’s not true.”

Their ministry for Mayo also includes financial support. The Taggarts have named Mayo Clinic in their will. While they say their gift will help Mayo “in some small way,” they are excited about making a commitment to Mayo’s future.



“We want Mayo to be able to continue always, especially its commitment to ‘the best interest of the patient,’” the Taggarts say. “Through our experiences, we’ve also seen the impressive variety of patients that Mayo serves. We understand the financial needs of its operation, and to help Mayo keep doing what it does feels good.” ■

PRINCIPAL BENEFACTORS: **Wayne and Kathryn Preisel**

Built on trust

Creating a legacy to help others



A gift from Kathryn Preisel and her late husband, Wayne, will fund cardiovascular and Alzheimer's disease research.

With a handshake, the business was complete. The late Wayne Preisel had a reputation for doing business in an unconventional way, establishing relationships built on trust rather than formal business contracts. His wife, Kathryn Preisel, recalls an encounter in which someone said, “Well, I’ve never seen business done like this before.”

But that lone handshake led to an astonishing building. As a general contractor, Mr. Preisel built many buildings in the Kankakee, Ill., area — and his honest word was the foundation for every structure.

Mr. Preisel followed in his father’s footsteps by joining him in the construction industry. While his father preferred building residences, Mr. Preisel had greater interest in commercial construction. In time, Mr. Preisel purchased the contracting business from his father and began building his legacy — literally.

Mr. Preisel was introduced to his future wife, Kathryn, through mutual friends. Mrs. Kathryn Preisel was no stranger to the real estate world either, working for the National Association of Realtors. “After we were married, I moved from Joliet [Ill.] to Kankakee and joined him in the business by helping with the office work,” says Mrs. Preisel.

The trust they demonstrated to their clients and business partners

also was evident in their personal life. When the house of the Preisels’ close friend and family doctor, John Burnett, M.D., burned down, Mr. Preisel was among the first ones there and made a generous offer — he’d help rebuild the house.

Dr. Burnett’s entire family, including his son, John C. Burnett Jr., was touched by the gesture. As the years passed, the Preisels and Burnetts remained close and celebrated each other’s successes, including when John C. Burnett Jr. followed in his father’s footsteps to become a doctor and was hired as a staff physician at Mayo Clinic.

The elder Dr. Burnett initially would have liked his son to have continued in his practice in Kankakee. But the Preisels knew he made the right decision. “We were Mayo Clinic patients,” says Mrs. Preisel. “We loved what we saw there. It didn’t feel like a hospital. Everything there was just wonderful.”



Kathryn Preisel enjoys reading at her home in Kankakee, Ill.



Investing in the land

As the years passed and their contracting business grew, the couple began investing in the fertile farmland of Kankakee. “Wayne was never one to get his hands dirty,” recalls Mrs. Preisel, with a laugh. Yet he was one to get buildings built and farmland farmed. The Preisels employed several farmers to care for the land — in the same way they had cared for the contracting business throughout the years.

While Mr. Preisel’s hands touched many commercial projects in the Kankakee area, one stood above the rest — development of the Riverside Medical Center. In the many phases of this project, the couple established a greater interest in the medical field and began giving back philanthropically. Their gifts went on to benefit not only their local hospital, but also Mayo Clinic.

“We believed that research has the ability to change medicine,” says Mrs. Preisel. “We wanted to make a

gift that would have future impact and knew that would happen with a gift to Mayo Clinic.”

Helping others

The Preisels have given annual gifts to Mayo Clinic since 1985, and they became charter members of The Mayo Legacy in 1990. Shortly before Mr. Preisel passed away in August 2008, the couple made their philanthropic interests known to the Mayo Clinic Office of Gift Planning. They became Principal Benefactors by leaving much of their estate of farmland to Mayo, designated to cardiovascular disease research because of Dr. Burnett’s medical specialty and to Alzheimer’s disease research because it was a disease that personally affected Mr. Preisel.

“Wayne often said, ‘It’s been a wonderful life,’” recalls Mrs. Preisel. “And he was right. With our gift, hopefully others can benefit as well.” ■



PRINCIPAL BENEFACTORS: **Lloyd and Barbara Amundson**

Taking the right road

And supporting communities along the way

“In 1993, I don’t know where we were driving that day, but Barbara and I were going somewhere. We were talking about how lucky we’ve been over the years. We reflected on how life presents so many bends in the road and how easy it is to take a wrong turn and then you can really have problems,” says Lloyd Amundson, owner of two Midwest bank holding companies and several First Security Bank locations in Minnesota, North Dakota, Iowa and Montana.

“Other than a couple of little bumps, we felt lucky enough to take the right road most of the time,” he says. “We were blessed with some fortunate breaks along the way. I can cite four of particular importance: marrying the right partner, getting my college degree with the help of the G.I. Bill I earned by serving in the U.S. Navy Air Corps during World War II, committing time and support to the communities in which we do business, and trusting our health care to the people at Mayo Clinic.”

Lessons from a small town

Lloyd and Barbara Amundson, native Minnesotans, married in 1951. Growing up, they knew each other’s families and had been friends. Lloyd Amundson reminisces fondly about his childhood in northern Minnesota. “I was born in 1926, and my family lived in a little town called Almora,” he says. “It was one of those small towns that eventually dried up to zero. We were horribly



Lloyd and Barbara Amundson

poor. The Great Depression hit when I was 4 or 5 years old, and we lived through that. I was 13 years old before we had electric lights. I was 20 years old before we were able to afford indoor plumbing. Everybody we knew was really poor then.”

“We didn’t know we were poor. We thought we were doing fine,” Barbara adds.

The Amundsons will never forget the invaluable importance of having great neighbors during those times, “When somebody butchered a hog, everybody split it,” says Lloyd. “If we shot a deer, why, we all split it, too. That was the camaraderie of the little town and the people and the willingness to share and do whatever they could to help their neighbors. These shared

experiences taught us how to survive and care for one another.”

Shaping life

Lloyd embarked on his successful banking career, ran dependable businesses and supported the communities he served. But it was during that memorable jaunt with Barbara in 1993 that the Amundsons decided to drive their community giving to new levels as a way of returning their good fortune to others.

Lloyd elaborates, “We started with a scholarship fund that targets students who are likely to stay in their communities, keeping the business base strong. We have helped establish several community development funds in each of the towns where we do business. We

PRINCIPAL BENEFACTOR: **Noaber Foundation**

Global neighbors

Mayo and Dutch foundation invest in healthy aging

also set up an endowment to continue that local commitment after Barbara and I are gone.”

This foundation of trust and community shaped their decision to choose Mayo Clinic for their health care needs dating back to 1951. According to Barbara, “Mayo Clinic physicians delivered both of our children. For many years, all of our medical needs were handled at Mayo. Then we left Minnesota and moved several times before eventually settling in Sioux Falls, S.D. But all that time we still remembered the fine people at Mayo Clinic.”

They resumed their relationships with Mayo when they both needed hip replacements. Subsequent to that, John Sperling, M.D., replaced Lloyd’s shoulder, and although a difficult surgery for Lloyd, he claims the results have been unbelievably good.

After experiencing the excellent results from their orthopedic surgeries, Lloyd and Barbara studied more about the research of Dr. Sperling and Robert Trousdale, M.D., and decided to support an endowed professorship at Mayo. Lloyd recalls with gratitude, “Giving perpetuates giving. I could have never have thought about college without the G.I. Bill. It gave me opportunity — such a grand thing. It was a wonderful blessing for us. Hopefully, our support for Mayo Clinic will be a blessing to others and allow them to take the right bends in the road.” ■



Paul Baan and Gen. Henk van den Breemen

Four years ago, Paul Baan and Gen. Henk van den Breemen of the Noaber Foundation started on a common journey with Mayo Clinic to explore the possibility of bundling their collective experience into a healthy aging center. “Noaber,” a Dutch word meaning ‘your neighbor,’ represents the vision for the foundation.

According to Mr. Baan, chairman and one of the founders of the Noaber Foundation, “We care for people. As a foundation, we are always looking for long-term themes with a lot of innovation and entrepreneurial drive. We came to the conclusion that aging is a vital theme because it represents huge financial, social and health challenges in our world.”

Shortly after Mr. Baan decided that Noaber was going to focus on healthy aging as a domain, Gen. van den Breemen became a patient at Mayo Clinic.

It wasn’t long before Gen. van den Breemen became restless with the amount of time he had on his hands as a patient. He decided to put his time to good use by combining it with his trust in Mayo to find the knowledge and advice he needed to help move forward Noaber’s vision for healthy aging. First, he was referred to the international department at Mayo. Next, a luncheon was arranged for Gen. van den Breemen to meet with Mayo scientists and Roberta Allan and Colum Gorman, M.B.B.Ch., Ph.D., from the Department of Development. From this low-key

beginning, a strong, multifaceted relationship has developed between Mayo and Noaber.

Mr. Baan also joined the discussion, and during this luncheon the seeds for a philanthropic partnership on aging began to crystallize between the two organizations.

Mr. Baan elaborates, “For social venturing to work, it’s very important that all the different partners have the same culture in terms of what they would like to bring to the table.

“It’s not only what’s in it for me, but what’s in it for us, what’s in it for *we*. Many, many people maintain a mentality that they should take from the table — not bring anything. They are not the right partners for not-for-profits or foundations. Mayo’s core principle of putting the needs of the patient first dovetails nicely with Noaber’s desire to add more quality to a number of lives. That is our big, big wish and our huge dream — taking care of people.”

Noaber’s generosity already has yielded considerable value for patients and research. To date, Noaber has funded an endowed professorship in aging research for James L. Kirkland, M.D., Ph.D., the director for The Mayo Clinic Robert and Arlene Kogod Center on Aging. Noaber has also endowed a professorship in cellular senescence. The professorship includes scientific collaboration between the named professor, Jan van Deursen, Ph.D.,

“In today’s world of globalization, nothing can be done on its own. More than ever before, we really need each other to tackle some of the world’s most serious challenges ranging from health care to education, and to other areas of social need. Whether you are big or small, live in the United States, in Europe or somewhere else in the world, there is only one way forward; that is working together in a very efficient way. The adoption of cross-sector, entrepreneurial business partnerships with not-for-profits can help achieve that efficiency if we want to solve these problems.”

— Gen. Henk van den Breemen

Chairman of the Advisory Board of the Noaber Foundation and retired general and former Chief of the Defense Staff of the Netherlands

and the University of Groningen. In addition, Mr. Baan and Gen. Henk van den Breemen have been instrumental in facilitating a network of cooperative efforts among Mayo Clinic, Rijksuniversiteit Groningen and VitaValley, a Dutch nonprofit foundation specializing in innovative health and technology products.

“It’s amazing to see that an organization as big as Mayo noticed that a small foundation like Noaber was worthwhile to listen to and worked closely with our people to broaden a relationship with us,” says Mr. Baan. “On the other hand, that’s not a surprise because all of Mayo is built around patients — and patients are, of course, individuals.” ■

Honoring philanthropy

Mayo Clinic publicly honors the many friends who form a productive partnership with Mayo through leadership support of programs and facilities that ensure continued excellence. Philanthropic gifts of all sizes help Mayo Clinic provide the best care to every patient every day and support medical innovations that benefit people throughout the United States and around the world.

We are honored to recognize Mayo benefactors who support our mission in the following ways.

Philanthropic Partners represents Mayo Clinic benefactors who have contributed \$10 million or more cumulatively. Individuals and organizations who make up this elite group are recognized in perpetuity in Rochester's Mathews Grand Lobby and in Mayo Clinic's Halls of Benefactors.

Principal Benefactors demonstrate their distinctive leadership by committing \$1 million to \$9,999,999 to support the mission of Mayo Clinic. These individuals and organizations are recognized in perpetuity in Mayo Clinic's Hall of Benefactors.

Contact: James Hodge
hodge.james@mayo.edu

Major Benefactors have made generous contributions of \$100,000 to \$999,999, continuing the remarkable philanthropic tradition that has been a part of Mayo Clinic since its founding. Major Benefactors are recognized in perpetuity in Mayo Clinic's Halls of Benefactors.

Contact: Cynthia R. Nelson
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The Doctors Mayo Society was established in 1977 by the Mayo Clinic Alumni Association. The society recognizes Mayo alumni philanthropic leaders and provides a way for alumni to stay connected with Mayo. Members are recognized in electronic recognition kiosks in the Halls of Benefactors.

Contact: Robert Giere
giere.robert@mayo.edu

The Mayo Legacy is an organization of Mayo patients, staff and benefactors who provide a bequest in their will or another type of planned gift to support our work. Members are recognized in electronic recognition kiosks in the Halls of Benefactors.

Contact: Laird Yock
yock.laird@mayo.edu

Annual Giving emphasizes the importance of annual support and the need for a strong financial base to meet the challenges and opportunities each year. These benefactors give \$1,000 or more annually (Jan. 1 to Dec. 31) and are recognized in electronic recognition kiosks in the Halls of Benefactors.

\$50,000 to \$99,999	Mayo Leadership Circle
\$25,000 to \$49,999	Mayo Ambassadors
\$10,000 to \$24,999	Mayo Sponsors
\$5,000 to \$9,999	Mayo Stewards
\$2,500 to \$4,999	Mayo Patrons
\$1,000 to \$2,499	Mayo Friends

Contact: Jim Isaak
isaak.jim@mayo.edu

For more information on philanthropy at Mayo, please visit:
www.mayoclinic.org/development.

A personal commitment to public service

Noted emeritus trustee reflects on a life of leadership

When anyone is drawing up a list of people to head an important public commission,” wrote Arthur Levitt Jr., former head of the American Stock Exchange, “Paul Volcker heads the list.”

Mr. Volcker upholds a distinguished tradition of leadership in public service. It spans almost 50 years — including close association with six presidents from both parties — in times of war and peace, plenty and peril.

By any measure, Mr. Volcker is a towering figure. At 6 feet 7 inches tall, he is emeritus chairman of the Federal Reserve System, hailed for taming runaway inflation in the early 1980s and articulating sound positions on economic policy. Author and commentator on a global scale, he is the recipient of more than 50 honorary degrees. But what’s most impressive for people who know Mr. Volcker is his clear vision and bedrock integrity.

When asked to describe his work ethic, Mr. Volcker replies in terms that resonate for those who value the decision-making process at Mayo Clinic: “I try to find a consensus solution or a way for people who may disagree to proceed. But I also think on some basic points, you’d better not be a compromiser.”

“The great attribute of Mayo Clinic”

As part of his commitment to public service, Mr. Volcker served on the Mayo Clinic Board of Trustees from 1978 to 1991, a pivotal era in Mayo’s history. Mayo was “a robust, dynamic organization” at that time, he recalled during a conversation in his office at Rockefeller Center in New York City. After reading the 2008 annual report, he expressed admiration at Mayo’s continued growth.

Mr. Volcker remarks that Mayo has multiplied in size while remaining faithful to what he calls its “contract with the patient.” As he explains, “The great attribute of Mayo Clinic is that you provide professional care, but also humane care.”

During Mr. Volcker’s tenure, the Board of Trustees made key decisions that shaped Mayo Clinic as we know it today: integration with Saint Marys Hospital and Rochester Methodist Hospital; expansion to Florida and Arizona; accreditation to grant academic degrees and the launch of diverse initiatives that include licensing technology, publishing health information and delivering reference laboratory services.

“The development program was in its early stages at the time,” recalls Mr. Volcker, commenting on the increased levels of support now under way with The Campaign for Mayo Clinic. “Health care has always been a natural pull for philanthropy. People want to make a difference by creating a healthier future. That’s part of the Mayo spirit.”

While he was chairman of the Federal Reserve, the central banking system of the United States, the only other board position Mr. Volcker kept was with Mayo. “The Mayo board gave me a different and very helpful perspective for looking at important issues,” he says.

Robert Waller, M.D., who served as president and chief executive officer of Mayo Clinic during Mr. Volcker’s last four years of service on the board, recalls, “Paul Volcker’s dedication and commitment were inspiring. As a trustee, he provided external validation of our stewardship for Mayo’s resources, and this was a great encouragement. When we asked him to give a presentation, he was very generous with his time, and he was a marvelous speaker — insightful, but also warm and humorous.”



Paul Volcker, former head of the Federal Reserve and Mayo Clinic emeritus trustee, chairs the President's Economic Recovery Advisory Board.

On the Mayo Clinic Board of Trustees, Mr. Volcker dealt with national and international topics, but the association had a personal impact as well. Twenty-plus years ago, "I went to Mayo in Jacksonville to give a speech," he says, "and I had a physical exam. It got me to give up smoking cigars, so I can credit Mayo with a healthier lifestyle."

Public and private perspective

Warren Burger, chief justice of the United States and a member of the Mayo board from 1959 to 1969, described Mayo Clinic as "a private trust for public purposes." This balance is emblematic of Mr. Volcker's own career.

After earning his bachelor's degree at Princeton in 1949 and his master's at Harvard in 1951, Mr. Volcker studied at the London School of Economics on a Rotary scholarship. He worked in the Federal Reserve Bank of New York as an economist and joined Chase Manhattan Bank in 1957. From 1962 to 1965, he served in the U.S. Department of the Treasury and then returned to Chase. In 1969, he became undersecretary for monetary affairs at the Treasury Department. He held this position until 1974, playing a key role in decisions that uncoupled the U.S. dollar from the gold standard.

Mr. Volcker became president of the Federal Reserve Bank of New York in 1975. In 1979, President Jimmy Carter named him chairman of the Federal Reserve System. President Ronald Reagan reappointed him in 1983, and he held the chairmanship until 1987. His policies are credited with stopping double-digit inflation, which ravaged the U.S. economy, paving the way for years of economic progress.

In 1987, Mr. Volcker became chairman of the Wolfensohn & Company investment firm. After retiring when it merged with Bankers Trust, he undertook educational, public and financial activities on a global scale.

For three years starting in 1996, he led a committee that identified dormant accounts and other assets in Swiss banks, which belonged to victims of Nazi persecution in the World War II era. From 2000 to 2005, he led an initiative to establish sound accounting standards that would be acceptable internationally. In 2003, he headed the Commission on Public Service, which made wide-ranging recommendations for the personnel policies of the federal government. Starting in 2004, Mr. Volcker directed the three-year Independent Inquiry into the United Nations Oil-for-Food Program. In 2007, he chaired a panel that assessed integrity and compliance programs at the World Bank. In 2008, President-elect Barack Obama asked him to chair the President's Economic Recovery Advisory Board.

A matter of trust

Mr. Volcker describes the thread that runs through the varied projects of his career in one word: trust. "The fundamental value is the trust that people have with each other and the institutions that serve society," he says. The title of an essay he wrote for *The Wall Street Journal* on Oct. 10, 2008,



speaks to his confidence in American institutions and the importance of collaboration among nations: “We have the tools to manage the crisis.”

Mr. Volcker says he was inspired by his parents, Paul, Sr., and Alma Volcker. His father was the town manager of Teaneck, N.J., from 1930 to 1950, and set a powerful example. He refused to let his son, then in high school, be hired to shovel snow for the city, lest any concern arise from having a relative on the municipal payroll.

The father passed another legacy to his son: a love of fly-fishing. In Mr. Volcker’s Manhattan office, overlooking

the skating rink in Rockefeller Center, along with copies of *Foreign Affairs* and awards from governments around the world, a pillow on the sofa displays an embroidered motto that says, “Work is for people who don’t know how to fish.”

At an age when most people are well into retirement, Mr. Volcker is a presidential adviser, consultant, counselor, lecturer and author in the highly specialized field of economic policy. He may not have as much time as he would like to wade into a trout stream — but Mayo Clinic and our nation are well served by his continuing commitment to service. ■

“The fundamental value is the trust that people have with each other and the institutions that serve society.”

— Paul Volcker



“Hard times force new thinking”

Two weeks after he met with Mayo Magazine, Paul Volcker delivered the commencement address at Brooklyn Law School. These comments, highlighting key themes of public service, are excerpted from his presentation:

I count some nine recessions during my working lifetime. Some I could view at a distance; some from a front row seat, and some I was on stage in a leading role. Recessions do end, even if full recovery will be a matter of years.

The lesson I draw is as simple to state as it is hard to practice.

The recession impacts millions of Americans who in no sense share the blame. But as government moves to ease the pain, over time it will be even more important that we build economic and financial foundations for sustained growth.

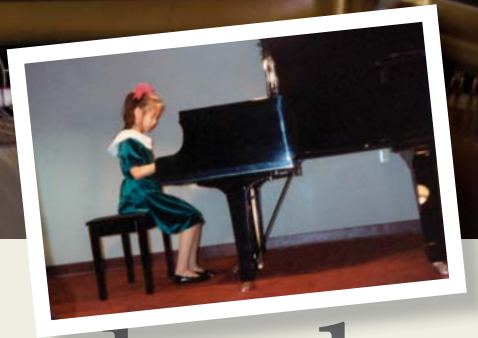
It will be hard and rewarding work. But when I speak of “rewards,” I think less in terms of money than of professional satisfaction.

It reflects another part of my life, when I was involved in the search for funds of Holocaust victims, in an investigation of corruption in the U.N. Oil-for-Food program, and in a review of the anti-corruption efforts of the World Bank. Those were inherently difficult and fraught matters. Success was totally dependent on a group of talented lawyers and investigators — some neophytes, some highly experienced, drawn from around the world. The pay was government standard — in other words, not particularly attractive. But virtually without exception, those staffs coalesced into an energized group, “turned on” by the perceived importance of the work and the conviction that they were, indeed, “making a difference.”

I referred to a change in national mood. The view that money is the measure of all value — of self-worth as well as economic success — has infected too much of society. Hard times force new thinking. There is a better appreciation for financial

prudence. More broadly, there is a greater understanding of the need for more effective, more efficient, more responsive government, whether national, state or local. More than at any time in decades, young men and women are responding.

I hope a fair share of you here today, despite all the obstacles, will want to participate in public service, ready, willing and certainly able to participate in the rebuilding of our economy and the strength of our nation. There can be no greater source of pride and personal satisfaction. ■



Listening from both ends of a stethoscope

The story of Mayo Clinic medical student Yaolin Zhou

Go! Go! Baba, you're going to miss the train. Go!" Although Yaolin was 3 years old, she knew — somehow — that Baba (Dad) was leaving her. Leaving China. Yaolin had heard her Baba and Mama talking about him studying science — they called it a doctorate — in the United States. In a grown-up way Yaolin came to understand that Baba was moving away to study and she would stay behind with Mama, who was a doctor. But right now she feared he would miss his train and miss this opportunity. She put her head down and with a wave, he was gone.

Yaolin stood back and gazed at the sandcastle she and Baba had built. She liked how grand and beautiful it was and she wished it would last forever. Even at 4, she realized that nothing lasts for an eternity — people move and buildings collapse.

Mama and Yaolin had moved to the United States 15 months after Baba, and they all lived snugly in a small studio apartment. In this country of opportunities, they found struggles. Baba's fellowship stipend was meager, and Mama had to work to make enough money for the family. Since the qualification process for her to practice medicine in the United States was long and rigorous, Mama took a job as a waitress.

But Mama wanted Yaolin to learn, and she found ways to teach her with the little they had. They learned the alphabet together with Mama writing letters in the dirt using a stick and Yaolin saying the letter. And every Saturday, the two went to the library, where they read wonderful books aloud in English. Yaolin's mind became a sponge.



Opposite page: Among Yaolin Zhou's volunteer activities is time spent playing the piano for Mayo Clinic visitors. **This page:** Yaolin is pictured with her mother just before they left China. As a young girl, Yaolin enjoyed "performing experiments" in her parents' lab.

Yaolin walked her fingers along the tubes that fed her new baby sister's body. She looked into the incubator that was the baby's home. Nurses milled around the neonatal intensive care unit: checking pulses, respirations, brain activity. Something must have gone terribly wrong. Baby Shelley was born three months premature and had suffered cerebral hemorrhaging in both hemispheres. But at 9 years old, Yaolin didn't know what it meant; she only felt an overwhelming sadness. She felt helpless as she watched the respirations of her sister's small rib cage. But she also felt a nudging of inspiration — someday, she knew she would become a doctor.

Yaolin sat down quickly, fearing she would fall. Had the objects in the room in front of her multiplied, or was she seeing things in double? As she held her head in her hands, Yaolin prayed. She knew something was wrong.

As a senior studying public policy at Duke University, she knew the stress of course work and lectures, of term papers and life in general. She was in the midst of applying and interviewing for medical school, taking classes, working as both a resident assistant and research assistant, and leading a nursing home volunteer organization. Yaolin knew what hectic schedules meant, but her progressive memory problems and fatigue were worrisome. And now — with double vision and frequent headaches — Yaolin feared the worst. She would go to the doctor. Tomorrow.



Yaolin brushed her hand across the gauze wrapped around her head and realized she could see clearly again. A mere 72 hours after her visit to the doctor, she had been rushed in for surgery. The doctors had discovered a tumor in her brain. As the anesthetic wore off, Yaolin's thoughts were on her mother, who now had two daughters with brain problems.

Yaolin answered the phone. She was still affected by heavy medications from the neurosurgery two weeks prior. The voice on the phone said, "Hello, this is Jane from Mayo Medical School. I have some news for you."

Yaolin quickly interrupted, "Oh, hello Jane! You won't believe what happened to me. I have a brain tumor and just had surgery." There was the briefest of pauses. Jane explained that Mayo had accepted her into its medical school, and, even with her health concerns, she'd be in good hands with Mayo's great physicians. Yaolin also knew that a unique principle guided everything done at Mayo Clinic: the needs of patients, like herself, come first.

Yaolin studied her medical school books with difficulty, wondering where her confidence and energy had gone. Just four short months after surgery, she had embarked on her medical school experience at Mayo Clinic. She thought back to Mom and Dad, who had both achieved doctoral degrees in the sciences, but also had endured challenges on the way. For Yaolin, the challenge was relearning how to learn, as the tumor had infiltrated brain structures, altering her previous strategies for learning.

Even though she was a medical student, the best classroom for Yaolin was her doctors' offices — as a patient and student learner. She listened as her team of physicians bounced ideas off of one another, suggesting the best treatments. She felt cared about, listened to, valued. She understood the patients' experiences firsthand and promised herself that she'd model the same behavior and practices when she became a physician.

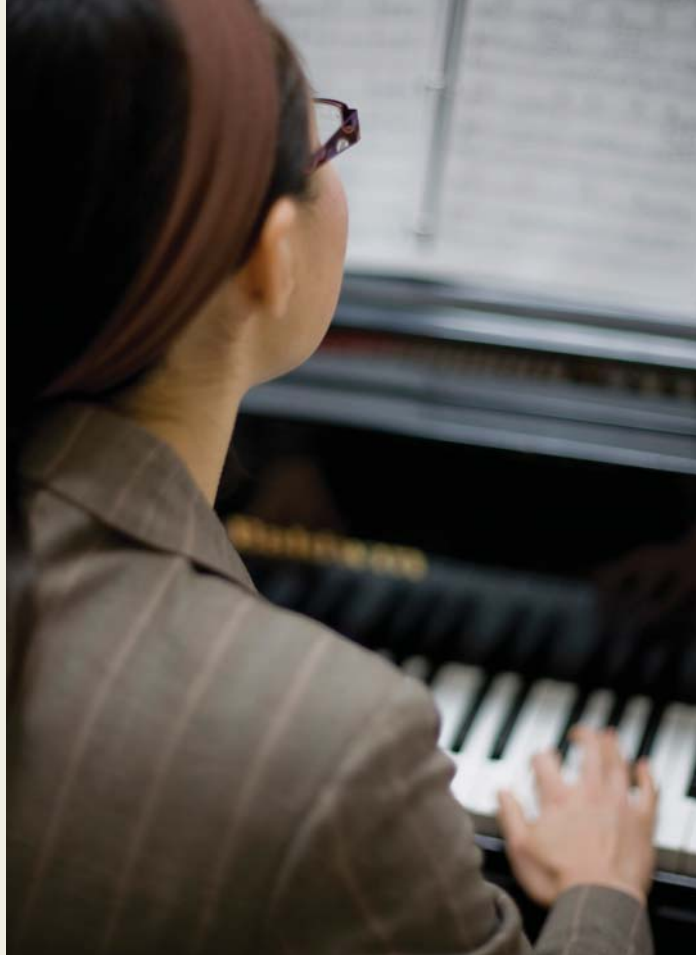
Yaolin lay very still during her regular surveillance MRI as the machine clicked, thumped and buzzed around her. It was the last week before a series of second-year medical school finals, and only one month before her medical licensing exam. What a hassle, she thought to herself, especially as she had been feeling just fine.

But the brain tumor had returned. This time, she wasn't rushed away to an emergency room, but rather, her mentors in the Mayo Clinic Radiation Oncology department scrutinized her case. Should she undergo a gamma knife treatment or conventional radiation treatment here at Mayo? Because of the location of the tumor, both treatment options carried risks. Did this case require a different direction? Yaolin was humbled when, after long consultation and discussion about her options, two Mayo Clinic physicians decided that the best treatment for her condition wasn't at Mayo, but elsewhere. They suggested that, if she were their daughter, they'd want her to receive proton therapy in Boston. She agreed and felt that their counsel reaffirmed that at Mayo Clinic the needs of the patient come first, even if it means the patient goes elsewhere for treatment.



Yaolin and her mother visited the Great Wall of China shortly before coming to the United States.

Yaolin is shown here during her middle school years enjoying family time with "Mama," "Baba" and sister Shelley.



Yaolin continues to learn throughout every corner of Mayo Clinic. A classroom. A research lab. A patient's room. A piano. Following treatment in Boston, she realized that she needed a year off from school to recover. But, that didn't mean a year of relaxation. Her experience with a brain tumor forced her to learn new ways to process information — new ways that could help others learn.

During her year on medical leave, Yaolin taught a licensing exam review class, privately tutored an international medical graduate student and spoke to Mayo Medical School students about her cancer experience.

And, she refuses to let her experience with a brain tumor go unnoticed in the medical world. She's working on a neuro-oncology research project, which has potential to alter the treatment and prognoses of other brain tumor patients.

As a cancer patient, Yaolin has the unique opportunity to reach out to others by serving as a volunteer guest advocate at the American Cancer Society's Hope Lodge, which provides free housing for cancer patients.

After meeting with patient after patient, Yaolin thinks of her own condition, a brain tumor, as a gift. Through this gift, she met Bob, a cancer patient who always greeted her with a hug followed by conversation in a voice hoarse from multiple

surgeries and radiation. Though Yaolin struggled to make out his sentences, she knew that Bob wanted her to become his doctor. Bob trusted that Yaolin, more than anyone else perhaps, understood serious medical issues through the lens of a patient.

Yaolin flings her backpack on — walking toward the Gonda Building at Mayo Clinic. On this day, she is not heading to an appointment, but, rather, to a piano. She had quit playing piano 10 years ago because, in those days, it meant having to be perfect. However, as a cancer survivor, she no longer expected perfection — she expected joy. As she relearned to play, she went through each note, individually, marking and making notes on the paper to refresh her memory. Note by note, song by song, she noticed improvement — not just in piano playing, but in her memory. She improved to the point that several times weekly she played on the grand pianos in the lobbies of Mayo Clinic. Her music — like her life story — had become a source of healing to other patients.

As her fingers flew across the keys of the piano, she heard the melody of her own life: the humming of train tracks as Baba left China for a doctoral fellowship, the voice of Mama talking about a new job, the sweet conversations with her sister who thrives despite struggles with cerebral palsy, and the laughter she shares with her fellow medical students when she talks about experiences with a brain tumor. Each experience posed challenges, but, like the notes on her sheet music, they flow together in harmony. She does not know where life will lead her, but she is confident that she will be a great physician. She had uniquely been on both ends of the stethoscope. ■

Yaolin Zhou is now a third-year medical student at Mayo Medical School. She is creating and implementing an enrichment curriculum to increase other students' awareness of patient perspectives. Through the support of generous benefactors, Mayo students receive financial support. A small class size of 50 students allows for personal attention from a faculty of more than 2,000 physicians and scientists. Graduates of the program exhibit clinical competencies and compassionate care — things that Yaolin has learned firsthand as both a student and patient at Mayo Clinic.

News at Mayo Clinic

John Noseworthy, M.D., elected president and CEO



John Noseworthy, M.D.

In May 2009, the Mayo Clinic Board of Trustees elected John Noseworthy, M.D., to succeed Denis Cortese, M.D., as president and chief executive officer (CEO) of Mayo Clinic.

"The role of the president and CEO of Mayo Clinic is critical to this institution in uniting Mayo Clinic in its vision and strategic direction," says Jim Barksdale, chair of Mayo Clinic's Board of Trustees. "We commend Dr. Cortese for his leadership in helping us more clearly focus on the needs of our patients as we strive to provide an unparalleled patient experience. He moved us to work more closely

as one enterprise and helped frame the national dialogue toward patient-centered reform."

"I look forward to working with Dr. Noseworthy as we continue our strategic transformation to position Mayo Clinic to meet evolving patient needs and broaden our reach in the 21st century," says Dr. Cortese. "Dr. Noseworthy is the perfect choice to continue our commitment to building on the solid foundation of our heritage as we look at providing the Mayo Clinic Model of Care to new people in new ways."

Dr. Noseworthy has been the medical director of the Mayo Clinic Department of Development, a consultant in the Department of Neurology, and professor of neurology in the College of Medicine, Mayo Clinic. He is a vice chair of the Mayo Clinic Rochester Executive Board.

Born in Melrose, Mass., he received the M.D. degree from Dalhousie University in Halifax, Nova Scotia, Canada, completed his neurology training at Dalhousie University and the University of Western Ontario and a research fellowship at Harvard Medical School. In 1990, he joined Mayo Clinic and served as chair of the Department of Neurology from 1997 to 2006.

Dr. Noseworthy specializes in multiple sclerosis, a field he contributed to for more than two decades in the design and conduct of controlled

clinical trials. He is the author or editor of several books, including the three-volume textbook *Neurological Therapeutics: Principles and Practice*, now in its second edition. Also, he is editor-in-chief of *Neurology*, the official journal of the American Academy of Neurology. ■

Development welcomes new medical director



Michael Camilleri, M.D.

Michael Camilleri, M.D., has been named medical director for the Department of Development. Dr. Camilleri succeeds John Noseworthy, M.D., who recently accepted the position of president and chief executive officer of Mayo Clinic.

Dr. Camilleri is professor of medicine and physiology, and was

recognized with the Atherton and Winifred W. Bean Named Professorship in 2001. He joined Mayo Clinic in 1987, becoming a consultant in Gastroenterology in 1990 and a consultant in Physiology and Biophysics in 1991.

Among his many appointments, Dr. Camilleri served as chair of the Mayo Foundation Medical Industry Relations Committee from 2003 to 2007 and was chair of the Mayo Foundation Conflict of Interest Review Board from 2003 to 2008. Recently, he served as medical director of the Office of Strategic Alliances. ■

Trustees honor four named professors

Named professorships represent the highest academic distinction for a Mayo Clinic faculty member. Faculty are appointed to a named professorship through nomination and endorsement of their peers and then confirmed by Mayo Clinic senior leadership. Appointed individuals are recognized for distinguished achievement in their specialty areas and service to the institution.

These professorships are named in honor of the benefactors. The gift funds, which may be unrestricted or focused on a specific medical area, are held in endowment. All income from the endowed professorships supports Mayo Clinic programs in medical education and research.

Thomas G. Brott, M.D., is a consultant in the Department of Neurology. He serves as the James C. and Sarah K. Kennedy Associate Dean for Research at Mayo Clinic and director of research at Mayo Clinic in Florida. He is recognized with the academic rank of professor of neurology and as the Eugene and Marcia Applebaum Professor of Neurosciences.

Dr. Brott is the principal designer of the National Institutes of Health

Stroke Scale, which is used worldwide as the examination tool for patients with stroke. He and his stroke team performed one of the first studies that identified tissue plasminogen activator's (tPA) potential as an acute treatment for ischemic stroke. Subsequent studies by Dr. Brott and others led to approval of tPA as an effective acute treatment for stroke by the Food and Drug Administration (FDA). Dr. Brott is the national principal investigator for the Carotid Revascularization Endarterectomy Versus Stenting Trial, or CREST, one of the largest clinical trials in the country.

Dr. Brott has received numerous awards and honors from leading national organizations. He has served as chair of the Stroke Council of the American Heart Association, vice-chair of the National Stroke Association and chair of the Advisory Committee to the Neurological Devices Panel of the FDA. He has authored more than 300 articles, book chapters, editorials, abstracts and letters.

Michael J. Joyner, M.D., is a consultant in the Department of Anesthesiology. He has a joint appointment in the Department of Physiology and Biomedical Engineering. Dr. Joyner holds the academic rank of professor of anesthesiology. Moreover, he is recognized with the distinction of a named professorship, the Frank R. and Shari Caywood Professorship.

He serves as associate dean for research at Mayo Clinic and deputy director for research at Mayo Clinic in Rochester. Dr. Joyner also is co-principal investigator of Mayo Clinic's National Institutes of Health-funded Center for Translational Science Activities.

Throughout his training and career, Dr. Joyner has participated in many professional organizations and

has received major awards from the American Physiological Society, The Physiological Society of the United Kingdom and the American College of Sports Medicine.

He serves in professional positions for numerous funding bodies and journals, including the National Institutes of Health, *Journal of Physiology* (London) and the *Journal of Applied Physiology*. Dr. Joyner also has participated in a variety of educational activities at Mayo Clinic, Mayo Graduate School of Medicine, Mayo Graduate School and Mayo Medical School, as well as throughout the nation. He has received many education awards and honors.

As an expert in the field of human integrative physiology, Dr. Joyner is a frequent national and international presenter. The primary focus in his laboratory is studying how the peripheral circulation and autonomic reflexes operate as the human body adapts to physical stresses such as standing, exercise or body heating. He also studies the influence of gender and age on these factors.

Jonathan M. Holmes, M.D., is a consultant in the Department of Ophthalmology and serves as chair of the department. He holds the academic rank of professor of ophthalmology and is recognized with the distinction of a named professorship, the Joseph E. and Rose Marie Green Professorship in Visual Sciences.

Dr. Holmes' clinical practice focuses on the surgical and non-surgical management of complex strabismus (misaligned eyes) and pediatric ophthalmology. As an expert in these fields, Dr. Holmes has been appointed to several National Institutes of Health advisory and review committees — serving in both leadership

and membership roles. He also is an accomplished educator, a two-time recipient of the Teacher of the Year Award and a recipient of the Excellence in Teaching Award at Mayo Clinic. He has directed many courses at national meetings and has delivered numerous national and international presentations as an invited speaker and visiting professor. Dr. Holmes has authored or co-authored over 150 peer-reviewed articles and book chapters.

The National Institutes of Health has funded Dr. Holmes' laboratory studies of retinopathy of prematurity (a condition of premature infants) and is funding his studies to develop new methods of assessing strabismus in children and adults. As chair of the national Pediatric Eye Disease Investigator Group, he also leads many multicenter randomized clinical trials to evaluate treatments for childhood eye conditions.

Jan M. van Deursen, Ph.D., holds a joint appointment as a consultant in the Division of Community Pediatric and Adolescent Medicine, with full faculty privileges in the Department of Biochemistry and Molecular Biology. He is director of the Transgenic and Gene Knockout Core Facility, and

he holds the rank of professor of biochemistry, molecular biology and pediatrics at the College of Medicine. He is honorary professor of Molecular Biology of Senescence at the University of Groningen, Netherlands. Dr. van Deursen is recognized as the Vita Valley Professor of Cellular Senescence.

Dr. van Deursen has been honored as a Distinguished Lecturer at Mayo Clinic and with multiple awards. He holds professional memberships in organizations such as the American Society of Hematology, American Society for Cell Biology and the American Association for Cancer Research. He also has served in review and editorial activities for numerous journals.

He has given numerous presentations and has co-authored nearly 100 articles, book chapters, editorials, abstracts and letters.

Dr. van Deursen's research laboratory focuses on elucidating mechanisms that regulate development of cancer and aging-related disorders by combining in vitro biochemistry approaches with genetic experiments in mice. Dr. van Deursen holds two U.S. patents. ■

Mayo establishes MS Center

Moses Rodriguez, M.D., has been appointed as director of the new Center for Multiple Sclerosis and Central Nervous System Demyelinating Diseases Research and Therapeutics (more commonly known as the MS Center).

Dr. Rodriguez, a 2008 Mayo Clinic Distinguished Investigator, has developed some of the most effective treatments to date for multiple sclerosis. The use of plasma exchange for MS patients in crisis, now a standard treatment, was pioneered by Dr. Rodriguez and his Mayo colleagues 15 years ago. More recently, Dr. Rodriguez' work in remyelination (using antibody therapy to restore the myelin sheath over spinal cord nerves) has reversed neurological damage in mice.

"When I came to Mayo in 1983, there was not a single investigator doing MS research," recalls Dr. Rodriguez. "Over the years we've built a strong, interdisciplinary faculty for MS and demyelinating disease research. With the creation of a Mayo Clinic MS Center, we are formalizing the collaborations that have gone on for more than 25 years, and laying the foundation for increased integration



Thomas G. Brott, M.D.



Michael J. Joyner, M.D.



Jonathan M. Holmes, M.D.



Jan M. van Deursen, Ph.D.

of our efforts and the ability to attract additional extramural funding.”

The inaugural faculty of the MS Center represents the entire spectrum of basic, clinical and translational science as well as a wealth of clinical disciplines, including neurology, immunology, physical medicine and rehabilitation, laboratory medicine and pathology, biochemistry and molecular biology, and radiology.

“MS patients quite often develop osteoporosis, so we need orthopedists and endocrinologists,” says Dr. Rodriguez. “Optic nerve degeneration can lead to vision problems, so ophthalmologists often treat MS patients. Neurological deficits cause a multitude of physical symptoms, and only a multidisciplinary approach to research and treatment can adequately address our patients’ needs.” ■

Cancer Center recognized for excellence

The Mayo Clinic Cancer Center (MCCC) has received an additional five years of National Cancer Institute (NCI) funding and redesignation as a comprehensive cancer center — a recognition for an institution’s scientific excellence and multidisciplinary resources focused on cancer prevention, diagnosis and treatment.

Mayo Clinic is the only NCI-designated comprehensive cancer center conducting research at three distinct locations across the United States — in Jacksonville, Fla., Scottsdale, Ariz., and Rochester, Minn. With NCI approval in 2003, the MCCC incorporated its cancer research activity at the three sites into a single, integrated institution.

The NCI Cancer Center Support Grant award to MCCC totals more than \$28 million over five years for infrastructure and administrative support for the 450 MCCC scientists and physicians. Mayo Clinic physician and scientist investigators are working to bring the knowledge gained at the research “bench” to the “bedside” to help patients, particularly those facing breast, colorectal, lung, brain and hematology malignancies. The MCCC designs and develops translational clinical studies that arise from collaborations between scientists and physicians.

The MCCC faculty is organized into programs that focus on 12 key cancer research themes. They include Women’s Cancers, Neuro-Oncology, Hematologic (blood-borne) Malignancies, Gene and Virus Therapy, Developmental Therapeutics, Genetic Epidemiology and Risk Assessment, Immunology and Immunotherapy, Gastrointestinal Cancers, Prostate Cancer, Cell Biology, Cancer Imaging, and Cancer Prevention and Control. In addition, MCCC has robust programs in cancer education — training new cancer physicians and scientists, providing continuing cancer medical education programs to hundreds of physicians, nurses and other medical personnel and conducting dozens of public education programs each year. MCCC also devotes significant resources to reducing cancer health disparities faced by racial and ethnic minorities. ■

Mayo Clinic representatives, members of Congress, discuss health care reform

During the month of August, the Mayo Clinic Health Policy Center facilitated discussions among representatives of Mayo Clinic and members of the U.S. Congress and provided Congress with documents outlining Mayo Clinic’s position on health care reform.

Mayo Clinic alumni physicians met with over a dozen members of Congress or their staffs to share views on health care reform. The physicians spoke on how reforms such as improving access and paying for value will improve the quality of health care in their areas. Additional meetings among alumni and their members of Congress will continue throughout the fall.

Minnesota Senators Amy Klobuchar and Al Franken spent part of their August recess at Mayo Clinic in Rochester, Minn. Sen. Klobuchar participated in a roundtable discussion on health care reform with Mayo physicians and health care professionals. Sen. Franken toured Mayo facilities and heard how Mayo works with the surrounding community to ensure quality health care and a strong economic base in Southeastern Minnesota.

Through the Health Policy Center, Mayo Clinic is playing a leadership role in trying to bring about crucial reforms in the American health care system. For more information on the Health Policy Center, visit www.mayoclinic.org/healthpolicycenter. ■

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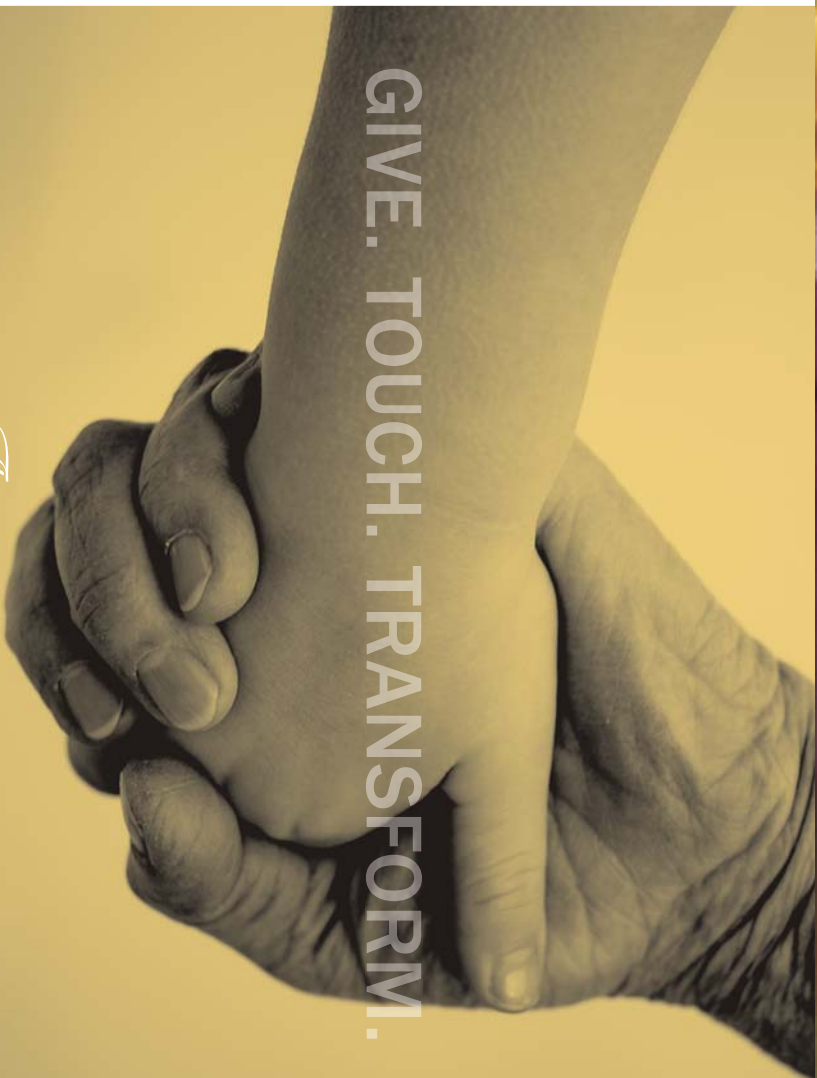




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