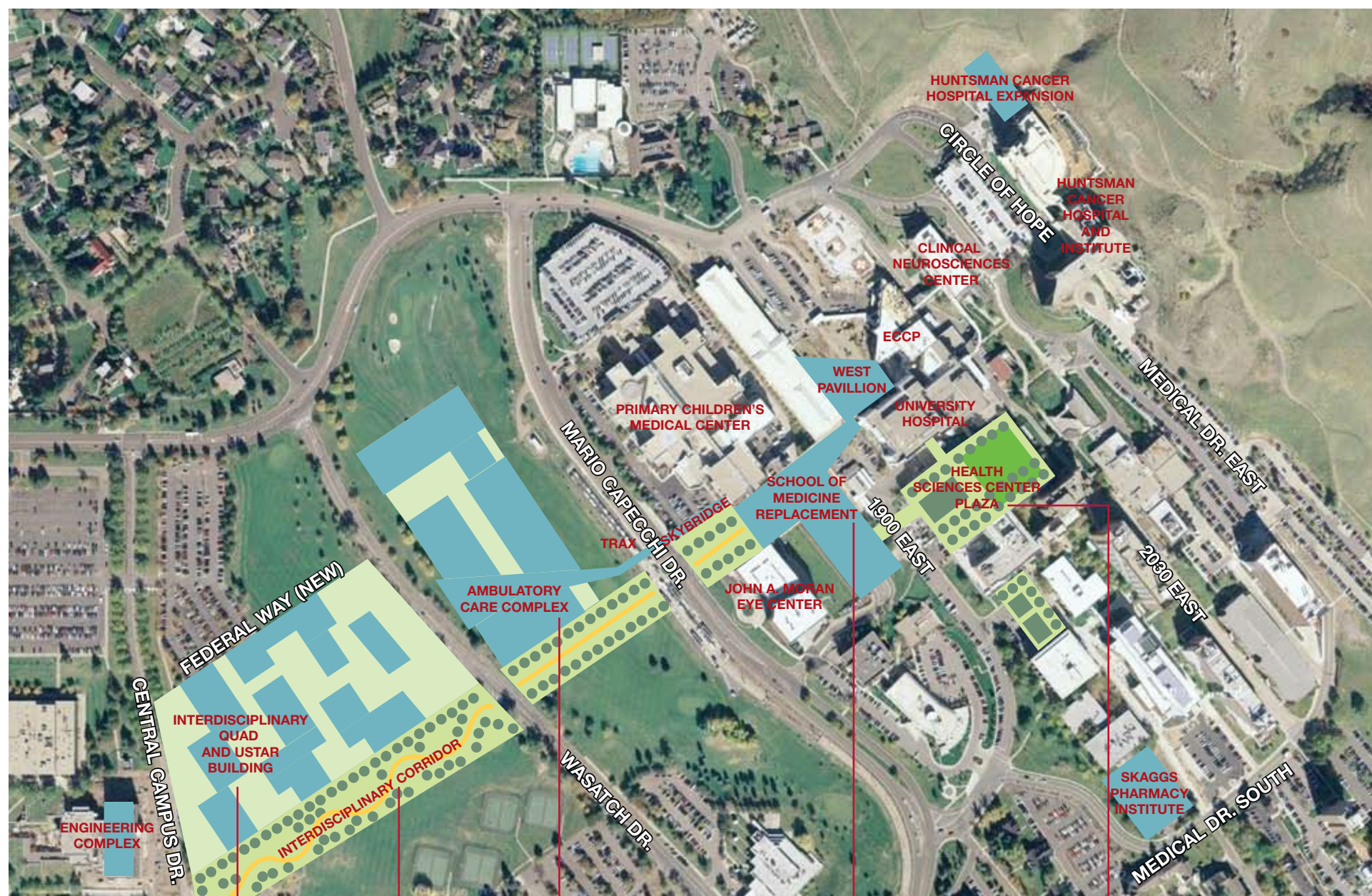


The Future

It was perhaps just a matter of time before a burgeoning medical campus overflowed onto the U's 18-hole golf course. While some are nostalgic about the loss, others are excited about the possibilities the green fairways provide to improve patient care and research facilities. The expansion is part of an ambitious campus master plan that has thoughtfully laid out two decades of growth (including 40 new buildings) for the University's 1,500-acre campus. Patient care will extend across Mario Capecchi Drive, and an interdisciplinary corridor will eventually connect a new USTAR building and the Colleges of Engineering and Science with the health sciences campus. The design reflects and encourages the increasing academic and clinical collaboration among diverse fields. To learn more about the campus master plan, visit <http://campusmasterplan.utah.edu/index.html>



INTERDISCIPLINARY QUAD AND USTAR BUILDING

The new USTAR building—recently named the James L. Sorenson Molecular Biotechnology Building—will be the first element in a proposed Interdisciplinary Quad, which will eventually house a cluster of interdisciplinary research facilities. Four buildings, with a total floor area of up to 1 million square feet, will be organized around courtyards. The quad will be designed to include attractive physical spaces that invite researchers from diverse areas to come out of their labs and offices and interact socially in casual settings. The hope is it will spark conversations and collaborations among scientists who normally wouldn't work in physical proximity to one another. The USTAR building, which will house USTAR faculty and their labs, will be the anchor for the quad. It will include a state-of-the-art nanofabrication facility, wet and dry labs, a conference center and below-grade parking.

INTERDISCIPLINARY CORRIDOR

The interdisciplinary corridor will be a new pedestrian and bicycle connection that extends from the Colleges of Engineering and Science on the west to the School of Medicine on the east, serving as the primary link between main campus and the medical campus. It's considered to be a transformative project and a key element to achieving the U's vision of supporting interdisciplinary work across campus. The multipurpose pathway and planted area will also provide a convenient access route to TRAX. The path is designed to have a curvilinear form providing a shallower grade for walking and pedaling on the 6 percent slope between Central Campus Drive and Wasatch Drive. Small gathering spaces and entrance plazas will be incorporated along its length. The design also incorporates water management features to collect rainwater and snowmelt, which will be filtered and reused to irrigate nearby landscapes.

AMBULATORY CARE COMPLEX

When the School of Medicine is demolished, outpatient clinics currently located there will need to relocate. They will do so in the Ambulatory Care Complex, which will be located across Mario Capecchi Drive where the U's golf course is currently. A proposed pedestrian skybridge will connect the different facilities to allow convenient and efficient movement of staff, physicians, and patients from University Hospital to the School of Medicine to the Ambulatory Care Center. Parking is anticipated to be below the building. The center will have its primary address and entrances along Mario Capecchi Drive by the Medical Center TRAX station to encourage ease of access to public transportation. The southern edge of the complex will face the pedestrian-friendly Interdisciplinary Corridor

SCHOOL OF MEDICINE REPLACEMENT

The seismically unsafe and generally outdated School of Medicine facility (Building 521), is slated to be demolished and replaced. A new School of Medicine building that will be constructed behind the John A. Moran Eye Center at the site currently occupied by Parking Structure 56. The L-shaped building will be located adjacent to a TRAX station and provide a public front door for the Health Sciences Center via an open, multistory atrium space that extends to Mario Capecchi Drive. A series of escalators will take patients, visitors, and staff from ground level to the A level of University Hospital. The proposed seven-to-eight-story School of Medicine building will provide 640,000 square feet of programmable space for academic, research, and hospital support functions. The building will also include several floors of underground parking.

HEALTH SCIENCES CENTER PLAZA

When campus planners looked at the current medical campus, they felt it was dominated by parking and service access and lacked a coherent connective landscape or any significant outdoor gathering areas. They suggested taking advantage of the striking natural setting, and to that end proposed a Health Sciences Center Plaza to take the place of the existing medical school once it was demolished. The plaza will offer an expansive view over Salt Lake City and connect buildings with usable plazas and courtyard spaces, shade trees, xeriscape gardens, and comfortable seating areas. A lawn for recreational sporting activities might also be included.

pulse

January 2009

A SPECIAL ISSUE ON EXPANSION



Since arriving in Utah 10 years ago, I don't think there's ever been a time when I've not seen a crane towering somewhere on the health sciences campus skyline.

It seems the crane has become a permanent fixture and unofficial symbol of a decade of unprecedented expansion. After reading this issue of *Pulse*, you'll realize that the crane won't be leaving campus for another decade . . . or even two.

Impressive pieces of construction equipment and new buildings, however interesting architecturally, are just the physical symbol of growth; their importance measured by what they allow us to accomplish. It may seem like business-as-usual some days, but our responsibility to the community—to deliver exceptional patient care, ensure accessibility, conduct cutting-edge research and accelerate its integration into new treatments, and educate the next generation of health-care workers—is great. We hold people's lives in our hands.

Five years ago we began a comprehensive process to figure out who we are as an institution and who we want to become. We strived to be objective and critical during this process. We looked at market dynamics, and assessed financial, operational and demographic data. What emerged from that rigorous process is the University of Utah Health System Strategic Plan. The plan created a clear vision and a virtual road map to create an integrated health system. I use the word "system" carefully and deliberately because it implies that groups interact in such a way that they can form a unified whole. I can assure you there aren't many academic medical centers in the country that have integrated their clinical enterprise with their academic and research endeavors as successfully as we have. We've earned a national reputation for our willingness to work together, and I feel privileged to be part of an institution that believes people do not belong in separate towers but connected to one another.

Throughout our strategic planning, the question we found ourselves asking was, "What are the needs and desires of our patients?" Recently, we've been focusing on "the exceptional patient experience" and what it means to deliver care, on every single level, that exceeds a patient's expectations. Our expansion efforts are, in many ways, the institution's commitment to provide each of you with the resources and the environment to care for patients in a way that makes you proud. We want you to come to work every day and be inspired.

These are exciting times. They are also tough economic times, and you may be asking, "How will we pay for all of this growth?" The answer is that we'll do it by being strategic. By leveraging our clinical enterprise to support our research and education missions. By incorporating technology that makes us more efficient. By continuing to look critically at ourselves and be willing to change. We'll also do it by earning the respect and confidence of individual donors and state legislators who appreciate our serious efforts to serve the community.

Throughout this issue of *Pulse* you will learn more about how we are expanding and who we are becoming. As you read these stories, I hope you will appreciate the role you play in this great organization, and the difference you're making in the lives of others. Thank you for everything you do.

—Lorris Betz, M.D., Ph.D., Senior Vice President for Health Sciences; Executive Dean, School of Medicine; CEO, University Health Care

"These are exciting times. They are also tough economic times, and you may be asking, 'How will we pay for all of this growth?' The answer is that we'll do it by being strategic."

—Lorris Betz, M.D., Ph.D.

PAGES 2 & 3
Hospitals & Clinics

PAGES 4 & 5
Programmatic Growth & Expansion Timeline

PAGE 6
Education

PAGE 7
Research

PAGE 8
The Future

Hospitals & Clinics

It's sometimes hard to imagine, but just over a decade ago, University Hospital was pretty much *it* when it came to the U's clinical enterprise. Today, University Health Care is an entire system that includes specialty centers for cancer, orthopedics, ophthalmology, and clinical neurosciences and 10 neighborhood health centers throughout the Wasatch Front. Over the past few years, the focus has turned back to University Hospital. Private patient rooms and increased capacity for patients have been the catalyst behind building the Eccles Critical Care Pavilion and the West Wing, scheduled for completion this July. What's next on the horizon? Expanding our cancer hospital, creating a more convenient access point to primary and specialty care for patients in the southwestern part of the valley, and revolutionizing the way we do outpatient care.

The West Pavilion



THE PAST
90,000 cubic yards of soil were removed to create the lower levels and foundation of what is to be the new West Pavilion of University Hospital. Digging began in July 2006 and exactly two years later the last piece of structural steel was added to the building that quickly occupied the hole in the ground.



THE PRESENT
An average of 250 construction workers per day have logged 390,000 hours on the project. Another 200,000 man-hours are expected before the job is complete. They are currently installing the electrical, plumbing and other support systems. By July 2009, all of the finishing touches will be complete.



THE FUTURE
On July 6, 2009, University Hospital's new lobby and cafeteria will open in the West Pavilion, as will three floors of private patient rooms (and a fourth patient floor shelled for future growth). The new lobby will house a glass-ceiling atrium and the University of Utah's first escalator, while the expanded cafeteria will include state-of-the-art food preparation areas and a Starbucks with an interior patio.

Community Expansion

Daybreak Health Center Ensures Convenient Access to U for South Valley Patients

University Health Care can be compared to a big wheel with spokes: the main campus hospitals and specialty centers at the center working together with the surrounding Community Clinics. Soon though, there will be new addition—and this one is big. University Health Care (UHC) has partnered with Rio Tinto and Kennecott Copper to construct a 150,000 square-foot ambulatory care center at the Daybreak housing development in South Jordan. Quinn McKenna, University of Utah Hospitals & Clinics chief operations officer, says this facility will be double the size of Redwood Health Center, currently the largest of the Community Clinics. "The majority of Salt Lake County's population growth is happening at the south end of the valley, requiring our patients in that area to come quite a way to be seen at a University Health Care facility," McKenna says. "The Daybreak health center is our way of reaching out to those individuals by offering a closer connection to our exceptional staff and physicians." Phase I of the Daybreak project, which is expected to be completed 18 months after breaking ground this spring, will be a multispecialty center that focuses on primary and emergent care. The center will include imaging capabilities, urgent and emergency care, and a helipad for AirMed. In the long run, however, McKenna sees potential for an entire medical campus offering expanded specialty services and procedures, and perhaps the possibility of a full-fledged hospital. But for now, with the official letter of intent finalized, the next step is to work out a legal lease agreement with Rio Tinto within the next few months. Officials for UHC anticipate the price tag of Phase I to be in the \$40-50 million range, but McKenna believes the opportunity to better serve a large number of patients far outweighs the cost. "Of course, those with complex health concerns will be easily transferred to University Hospital or the Huntsman Cancer Institute, but for those families looking for a primary-care clinic, selected specialty services, or an emergency room close to home, the Daybreak facility will meet those needs," he says.

—by Ryann Rasmussen, ryann.rasmussen@hsc.utah.edu

Huntsman Cancer Hospital

Operating at Capacity, Hospital is Doubling in Size to Meet the Need for Cancer Care

Almost from the day the Huntsman Cancer Hospital opened four years ago, its 50 beds have been full, as patients from Utah, the Intermountain West, and the across the country have come to receive the finest cancer care. Which is why work on the hospital's 156,000-square-foot-expansion project didn't start a day too soon.

For patients, caregivers, and researchers, the expansion, which will double the hospital's capacity, means much-needed programs in cancer research and treatment can grow. The project will add 50 more inpatient rooms, 25 additional outpatient exam rooms and four new operating rooms. It will also expand the hospital's personalized medicine clinics, add a larger Cancer Learning Center, molecular imaging technologies, a Breast Health Center, a new Center of Investigational Therapeutics, and an expanded Wellness and Survivorship Center.

Huntsman Cancer Institute founders **Jon M. and Karen Huntsman** want "to conquer this disease so that no individual will suffer from cancer again." From the day the Huntsman Cancer Hospital opened, they anticipated the need to expand.

"When we dedicated the first phase of Huntsman Cancer Institute in 1999, we promised that this would only be the beginning of our cancer campus," said Jon Huntsman at the project's Oct. 31 groundbreaking. "Then we opened the hospital in 2004, and almost immediately it began operating at capacity. . . . This hospital expansion will provide extra space to serve and heal our patients."

Annual outpatient visits to Huntsman Cancer Hospital are projected to grow 50 percent—to 75,000—in the next three to four years, while the average number of hospital beds occupied is expected to grow from 41 to 75 during that time. Numbers like that show the hospital serves a critical need for the people of Utah and beyond, according to **David Entwistle**, CEO of University Hospitals & Clinics. "With that kind of growth, we need a larger hospital to accommodate the increase in patients," Entwistle said. "When it's finished, the expansion will aid our clinical mission in many important ways."

Mary Beckerle, Ph.D., executive director of Huntsman Cancer Institute, called the groundbreaking a day of great hope. "Research is the hope for improving cancer detection, diagnosis, treatment, and prevention," Beckerle said. "As our world-class investigators conduct basic-science research, our expanded facility will help us bring their discoveries to patient care more quickly and encourage even more collaboration among our researchers and clinicians." —by Chantelle Turner, chantelle.turner@hsc.utah.edu



On Oct. 31, Utah state Governor Jon Huntsman, Jr. joined a crowd of about 450 people for a ceremonial groundbreaking to kickoff Huntsman Cancer Hospital's expansion project. The 156,000-square-foot-expansion will double the hospital's capacity, adding 50 inpatient rooms, 25 outpatient exam rooms and four operating rooms. The project will also expand personalized medicine clinics, create a larger Cancer Learning Center, add molecular imaging technologies, a Breast Health Center, a new Center of Investigational Therapeutics, and an expanded Wellness and Survivorship Center. Designed by Architectural Nexus and to be built by Okland Construction, the new building will be located northeast of the existing hospital. It's scheduled for completion in 2011.



Ambulatory Care Center

Steering Committee Envisions an Outpatient Care Center that Defines the Exceptional Patient Experience



The 30-member Ambulatory Care Initiative Steering Committee is charged with creating an outpatient center that will be a model clinical enterprise for the region. Some of its members, pictured above (left to right), include **John Zone, M.D.**, professor and chair of Department of Dermatology, **Susan Alois**, associate director of University of Utah Medical Group (UUMG), Project Lead **Marilynn Paine**, assistant vice president for Health Sciences Strategic Initiatives, Committee Chair **Michael Cahalan, M.D.**, professor and chair of Department of Anesthesiology, and **Lynette Seeborn**, assistant vice president for Planning.

When the School of Medicine (SOM) was deemed to have seismological challenges and earmarked to be rebuilt, discussions began about where to relocate the outpatient clinics, which—more out of necessity than design—were housed in the SOM building. Those conversations led to the idea of a new Ambulatory Care Center that would be more accessible, better organized, and able to physically link clinical care, academic, and research entities. The University's Campus Master Plan determined that the best location for an ambulatory care complex on the U's land-limited medical campus was across Mario Capecchi Drive on what is now the golf course.

A 30-member Ambulatory Care Initiative Steering Committee comprising physicians, nurses, and administrators was formed and charged with creating a new model for outpatient care. The new center will be physician led, with administrative and nursing partnerships that support joint decision making and accountability. "We've had remarkable engagement during this process," says project lead **Marilynn Paine**, assistant vice president for Health Sciences Strategic Initiatives. "It's been exciting to watch people come up with solutions and design a process that works."

Eventually, the committee will establish a firm budget. But for now, they are happily working in the realm of possibility. "We want to design the ideal ambulatory clinic, where both patients and providers have exactly what they need," said Paine. "Maybe the idea of a waiting room becomes obsolete and instead the clinic is automatically notified when a patient enters the parking lot," she says, citing one example of the futuristic thinking going on. Other ideas include technology to help patients navigate through the system, paperless record keeping, green building features, and a sky bridge across Mario Capecchi Drive.

Planning for the future has been a catalyst to better understanding and improving current patient-care systems. "We want to preserve what's working and fix anything that's broken before incorporating it into a new building," says Paine. To do that, they needed to examine exactly what happens during a typical patient clinic visit.

Richard R. Orlandi, M.D., an otolaryngologist and associate professor of surgery, volunteered the Surgical Specialty Center in the Imaging and Neurosciences Center in Research Park for the project. "No stone was left unturned as we dissected everything we did from the time the patient contacted us for an appointment until their visit was complete," says Orlandi, the Surgical Specialty Center's medical director. "Our entire clinic staff energetically partnered with the University of Utah Medical Group to view everything we did from the patient's perspective."

The team found numerous opportunities for improvement, which they incorporated not only into the Research Park clinic but also into the ENT Clinic (Clinic 9). "In the short term, the process has allowed us to better anticipate our patients' needs and find new ways to provide excellent service. Looking forward, it has helped us to understand what further changes need to be made as we plan for the future of our clinical services," Orlandi says.

With plans to build still three to five years out, the Ambulatory Care Center Committee committee has the luxury of time on its side.

—by Amy Albo, amy.albo@hsc.utah.edu

"We want to design the ideal ambulatory clinic, where both patients and providers have exactly what they need."

—Marilynn Paine, assistant vice president for Health Sciences Strategic Initiatives.

Programmatic Growth

The idea of being the best in the world at everything is enticing. It's also, of course, unrealistic. Limited resources require strategic growth. When the Health Systems Executive Council, which is comprised of 13 voting members and six ex officio members, gathers to discuss programmatic expansion, the hard questions they ask are: Is there a market or community need? Can we really excel in this area? How well does the program incorporate our tripartite mission of clinical care, research, and education? Is there a strong champion? Do we have the faculty and staff? What is the potential to be self-sustaining or profitable? After serious analysis, the 2004 strategic plan identified clinical neurosciences and cardiovascular services as priority areas for growth. What's on deck? Transplant services and a mid-life women's assessment program.

Clinical Neurosciences Center

Neurology Chair Joins Interdisciplinary Team to Expand Frontiers for Research, Education, and Treatments across the Neurosciences

Forty years ago in his hometown of Braunschweig, Germany, a young **Stefan Pulst, M.D.**, professor and chair of neurology, would listen to his father, a neurologist, tell stories about his patients. Neuroscience, the study of the nervous system, spinal cord, and brain, was in its infancy, and Pulst was fascinated by his father's stories, igniting his interest in the fledgling medical specialty.

"I never wanted to do anything else other than neurology," recalls Pulst, professor and chair of neurology. At age 14, he also became captivated with philosophy, genetics, and psychiatry—and those interests remain evident in his approach to patients and research today. Don't imagine, however, a boy with his nose buried in a book; Pulst was a competitive long-distance runner and went on to play semi-professional soccer in the United States.

Clinical neuroscience—the translation of discoveries into treatments to care for patients with neurological conditions—is an even newer field. In the past 10 years it has experienced unparalleled advances, much of it because of neurologists such as Pulst. "We have seen enormous growth in our knowledge at a molecular and cellular level and now we must translate these findings into clinical care," explains Pulst, whose smile flickers easily beneath the serious gaze of keen blue eyes. "At the Clinical Neurosciences Center (CNC), we have the infrastructure to provide our patients with the most advanced care possible."

The infrastructure at the center, combined with the University's strength in basic sciences and human genetics and the collegiality found among staff and faculty members, prompted Pulst to leave his job as director of neurology at Cedars-Sinai Medical Center in Los Angeles and come to the University 16 months ago. The opportunity to collaborate with **William Couldwell, M.D., Ph.D.**, and **Edwin A. "Steve" Stevens, M.D.**, chairs of the departments of neurosurgery and radiology, respectively, gave him even more confidence in the CNC's potential. He saw the possibility of taking the U's clinical neurosciences to the level of similar programs at Columbia and Harvard. He points out the U is the only neurosciences center in the Intermountain West and in some areas the only provider of this type of care within a thousand-mile radius.

"The success we had at recruiting faculty within my first six months here really made it apparent this was the right place to be," says Pulst. "In addition, key members of my research group in L.A. have joined me in Utah."

The residencies and fellowship programs, particularly in neurosurgery and neuro-radiology, are extremely competitive, attracting some of the best applicants from around the world for just a few coveted positions.

"Dynamic and positive energy has streamed into the neurosciences and the Department of Neurology, because of Dr. Pulst," says Neurosciences Administrative Director **Candice Gourley, MSHA, MBA**. "I could not ask for a more collaborative, visionary, and decisive chair." She points out that one of his key initiatives is the patient experience; he is undeterred in finding out what is working or not working and why. He takes patient satisfaction to heart.

Neurology resident **Seth Kareus, M.D.**, views Pulst as a mentor.

"His compassion for patients is evident, while at the same time he is honest and direct with them," says Kareus. "He has an encyclopedic knowledge of neurological issues; it is amazing how quickly he puts info together. When I tell him a story about a patient, he knows a lot more about the clinical state of the patient than what I've told him, based on his vast amount of knowledge."

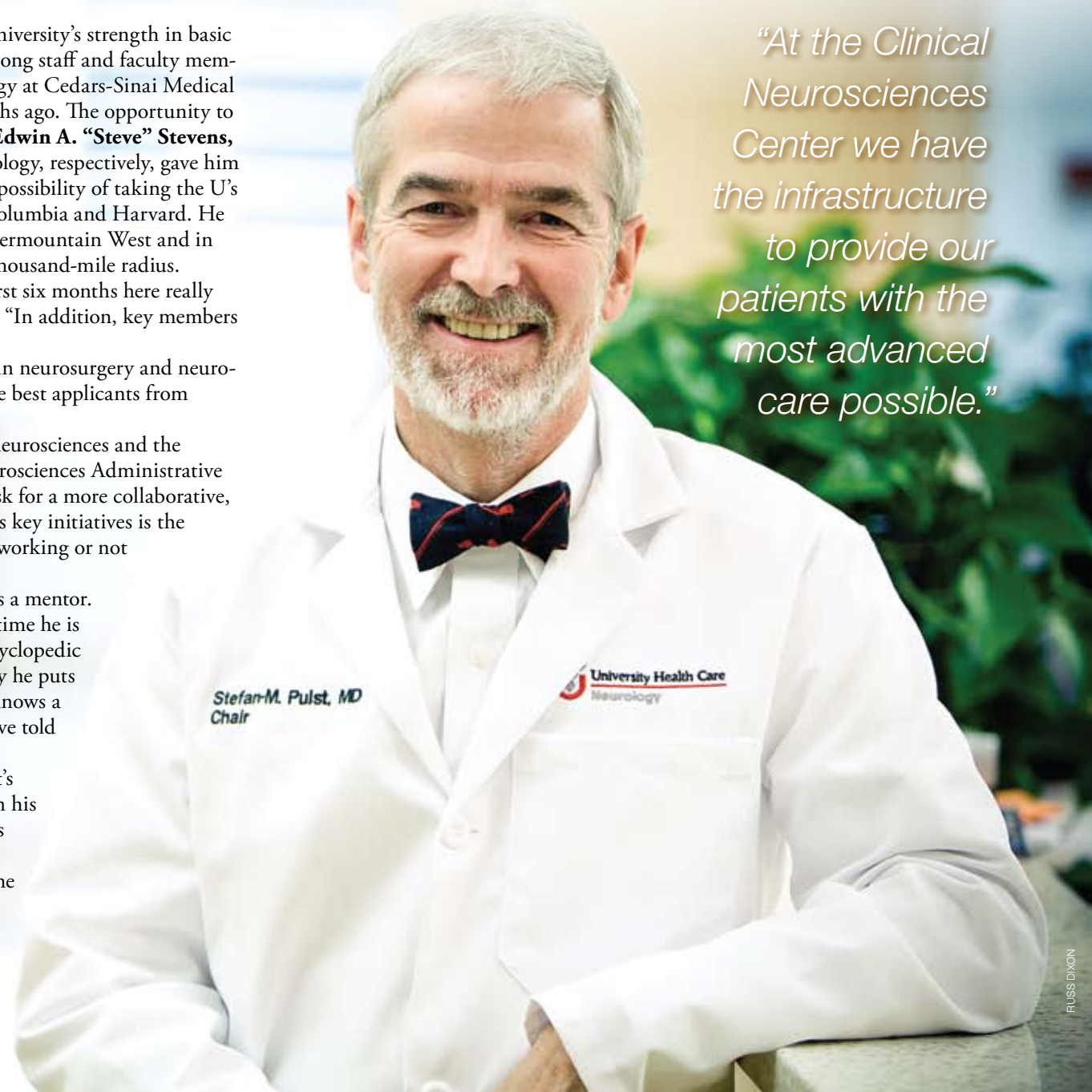
Much of the cutting-edge knowledge stems from Pulst's involvement in research. "He's a scientist and he's tireless in his interactions to make sure the progress of the research in his lab is always moving forward," says **Daniel Scoles, Ph.D.**, associate professor of neurology, who collaborates within the Neuro-Degenerative Disorders Lab. "It is clearly always on his mind. E-mails arrive even when he's on vacation."

Pulst's research, currently funded by four federal grants, focuses primarily on inherited diseases of the nervous system, with an emphasis on Parkinson disease and spinocerebellar ataxias, degenerative diseases affecting coordination of gait, and speech. With his research team, he has made breakthroughs by discovering several genes responsible for neurological disorders. His lab is using transgenic and knockout mouse models to understand the molecular and cellular causes of these diseases and to develop new therapies. "Once we understand the causes of the disease, then we have the basis for identifying treatment for the disease," explains Scoles.

Pushing the frontlines of neurogenetics forward, Pulst is using the vast Utah Population Database to explore the genetic makeup of Parkinson disease and degenerative ataxias in Utah—yet another advantage of coming to the U.

Pulst moved to the U with his spouse, **Julie Korenberg, M.D., Ph.D.**, a pioneer in molecular genetics of disease who is heading up a new USTAR program in neural circuits of the brain. With their two children studying the neurosciences as well, one can't help wonder if it is the genes or the stories, or both, that keep passing down the ambition to push the frontiers of this field forward.

—by *Peta Owens-Liston, pulse@hsc.utah.edu*



"At the Clinical Neurosciences Center we have the infrastructure to provide our patients with the most advanced care possible."

Clinical Neurosciences—Nursing Education Advanced Training Provides Career Growth and Top-Level Care for Patients



Tammy Van Tassel, R.N., and Bruce Garrett, R.N., manager of Neuro-Critical Care. Garrett says the educational expectations for critical care nurses at the U are very high. "We expect a lot of ourselves."

"These specialized nurses provide another expert, giving patients more immediate access to top-level care. Some of these nurses are considered leading experts in Utah."

—*Candice Gourley, administrative director of the Clinical Neurosciences Center*

ways in the U's academic medical setting. **Bruce Garrett, R.N.**, manager of Neuro-Critical Care, says "The educational expectations are very high. As critical-care nurses, we expect a lot of ourselves as well as others."

A mentoring process at the CNC supports the transition to increased responsibility as well. Working in the state's only neuro-critical care unit, the CNC's nurses train others how to do neuro-nursing, including staff at competing hospitals. Many nurses value these opportunities to continue learning and growing in their profession.

More often than not, what is good for the nurse is good for the patient. "As a critical-care nurse, you are doing a lot of critical thinking, dealing with complicated issues, plus constantly interacting with the patient and family," points out Garrett. "These practitioners always have to be aware of the family's emotional state and be incredibly sensitive to what they are going through."

—by *Peta Owens-Liston, pulse@hsc.utah.edu*

Clinical Neurosciences—Research A Physician's Determination to Discover New Treatments



Kathryn Swoboda, M.D., director of the Pediatric Motor Disorders Research Program, works with one of her young patients during a therapy session. Through her clinical research, Swoboda is making a long-term difference in her young patients' lives. "We've had patients who have lost their ability to walk and then regain it on treatment."

Swoboda's research focuses primarily on pediatric motor disorders. She is deeply involved in the Project Cure Spinal Muscular Atrophy Investigators Network, an international research collaboration intended to provide rapid translation of new therapies for treatment trials. "Translational research allows us to be proactive in treating a disease rather than just being reactive to symptoms," she says.

Swoboda's research also underscores the importance of early intervention. Understanding and screening for genetic links can give many newborns a brighter and healthier future. "Once you have diagnosed a neurological disease, it's too late to prevent it," points out Swoboda. "I believe our research is leading us toward the ability to do preventive neurology, which introduces a completely new aspect to this field."

The development of the Clinical Neurosciences Center has allowed Swoboda to collaborate more easily with colleagues with different areas of expertise. "Bringing us all together means that when a child comes in with a form of Parkinson's, I can tap into the knowledge of someone who sees patients with Parkinson's every single day. Sure, I can find information in journals but nothing that matches the personal experiences of clinicians. This kind of interaction is invaluable to all of us, especially the patient. It can immediately provide new ideas, perspectives, and strategies. It also allows us to engage and continue a proactive learning process."

Although her job often presents difficult challenges, Swoboda feels that what she does as a neurologist is a privilege. Plus, she couldn't quit if she wanted to. "I have a hard time giving up. When I can't find a diagnosis for a patient, it drives me to work that much harder to find an answer."

—by *Peta Owens-Liston, pulse@hsc.utah.edu*

Cardiovascular Services Four Subspecialties Collaborate to Treat No. 1 Killer

Next spring, a crane will hoist an 18,000-pound magnet through an 8-to-10-foot hole in the hospital's 4th-floor exterior wall. The magnet is a 3T MRI (magnetic resonance imager), which will be the centerpiece of a new Electrophysiology (EP) MRI Lab.

The EP MRI Lab will allow electrophysiology cardiologists, such as **Nassir F. Marrouche, M.D.**, assistant professor of internal medicine, to perform cardiac ablation procedures with simultaneous MRI imaging, meaning patients won't have to be wheeled back and forth between an imaging suite and cath lab. Cardiac ablation is most commonly used to treat patients who have atrial fibrillation and arrhythmias.

Adding state-of-the-art technology is just one of the improvements University Health Care is making to its cardiovascular (CV) service line to ensure that patients receive the best possible care. The need for such care is clear: cardiovascular disease, which comprises a group of conditions that damage the heart and major blood vessels, is the No. 1 killer in the United States. Last year, it



Cardiovascular diseases affect the heart and blood vessels and include coronary artery disease, arrhythmia, heart failure, hypertension, disorders of the peripheral vascular system, and congenital heart disease. Heart disease is the No. 1 killer in the United States.

claimed the lives of 4,000 Utahns.

To better respond to this need, University Health Care opened its Cardiovascular Center (Clinic 10) two years ago. Because treatment of CV disease involves four subspecialties—cardiology, interventional radiology, cardiothoracic surgery, and vascular surgery—the center was designed to improve the collaboration between these divisions that train, work, and care for CV patients together.

"Coordinated services, such as the cardiovascular program, differentiate us in the marketplace and assist us

in maintaining a long-term competitive advantage," says **Lynette Seebohm**, assistant vice president for health sciences planning.

Donald Zarkou, service director of Cardiovascular Services, said all of these efforts feed into the goal of growing volumes and capturing market share. "We are rapidly moving to a more competitive position that will distinguish the University's program as the best cardiovascular care in the Intermountain West," Zarkou said.

The Cardiovascular Hybrid Operating Room, expected to open next fall, will give vascular surgeons real-time, high-end imaging in the operating room. "This will expand our capabilities dramatically," said **Larry W. Kraiss, M.D.**, professor of surgery and chief of cardiovascular surgery. "It will help inform decisions made in the OR and allow us access to high-end imaging in situations too risky to transport patients to an angiogram suite."

In addition to opening the Cardiovascular Center, CV services hired 10 additional faculty, renovated a cath lab, and relocated Outpatient Cardiac Rehab from Research Park to the hospital's fourth floor. **John R. Michael, M.D.**, professor and vice chair of internal medicine, said recruiting top CV specialists is paramount to the program's success. "In the next year, CV services expects to hire six additional faculty members to manage increased demand, and substantially strengthen areas that give us a competitive edge."

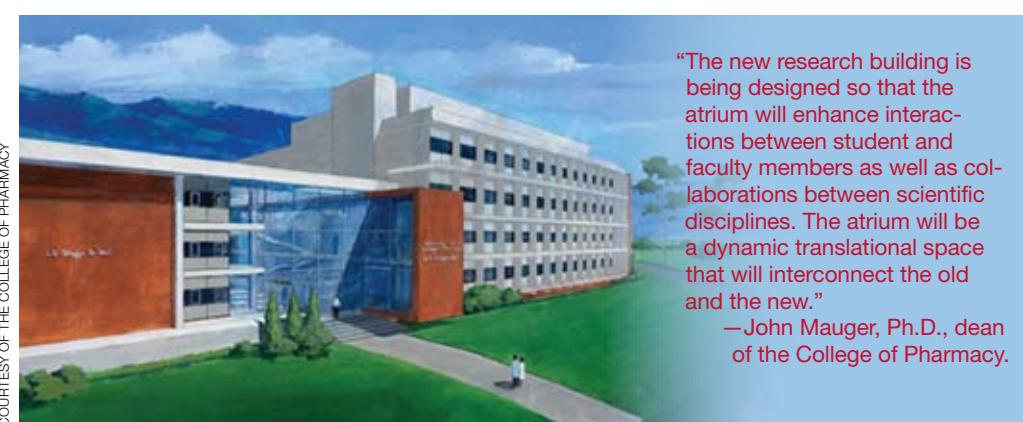
—by *Chantelle Turner, chantelle.turner@hsc.utah.edu*

Timeline Highlights from a decade of expansion at University of Utah Health Sciences

1998: U purchases five outpatient medical clinics creating a 14-clinic network along Wasatch Front and Summit County	1999: The 225,000 square-foot Huntsman Cancer Institute opens	2003: U Hospital opens \$42.5 million George S. and Dolores Doré Eccles Critical Care Pavilion	2004: The 50-bed Huntsman Cancer Hospital dedicated	2004: U Hospital opens U Orthopaedic Center in Research Park	2005: Opening of the 125,000-square-foot Emma Eccles Jones Medical Research Building	2005: \$40 million Spencer F. and Cleone P. Eccles Health Sciences Education Building opens	2006: New \$54 million John A. Moran Eye Center opens	2007: University Health Care celebrates completion of Eccles Critical Care Pavilion expansion	2008: A comprehensive, five-story Clinical Neurosciences Center opens.	October 2008: Groundbreaking for 156,000-square-foot expansion of the Huntsman Cancer Hospital, which will include 50 new inpatient rooms. Scheduled for completion in 2011	November 2008: Kickoff for the \$24 million College of Nursing renovation project. The new Annette Poulson Cumming Building is scheduled to open in 18 months	July 2009: Opening of West Pavilion, which will include a new lobby, cafeteria, and three floors of private patient rooms
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Education

What sets University Health Care apart from other health-care entities is that our clinical services are part of an academic medical center. “Patients appreciate the academic advantage the U provides,” says Senior VP Lorris Betz. As the School of Medicine and Colleges of Nursing, Pharmacy and Health educate the next generation of health-care workers, they continue evolving to attract the best and brightest faculty and students. Education, however, is not confined to the classroom. The opportunity and willingness to teach and learn permeates the entire culture. For many who choose to work at University Health Care, the academic environment is the main attraction.



“The new research building is being designed so that the atrium will enhance interactions between student and faculty members as well as collaborations between scientific disciplines. The atrium will be a dynamic translational space that will interconnect the old and the new.”
—John Mauger, Ph.D., dean of the College of Pharmacy.

College of Pharmacy A Family Legacy Supports a Vision

The glass atrium that will bridge the College of Pharmacy’s old building to a new research building, also will link a father to his son, and continue two legacies—the Skaggs family’s generosity and the college’s impressive history of internationally recognized research.

In 1965, Sam Skaggs and his family made a donation that allowed the college to move out of the former women’s gymnasium and into a new building named in honor of his father, L.S. Skaggs, Sr. Four decades later, Skaggs made another donation—a generous lead gift of \$20 million from The ALSAM Foundation and \$10 million from him personally to create a new building designed to foster collaboration among researchers. Construction of the Skaggs Pharmacy Institute will begin in 2009 and continue through 2011.

“Sam Skaggs’ initial gift was transformative, because it brought us all together and created a culture of collaboration,” says **John W. Mauger Ph.D.**, dean of the college. “He was a visionary who recognized that the College of Pharmacy should be located within the health sciences.”

Skaggs had a passion for the pharmaceutical sciences and its potential to dramatically improve people’s lives. “As a youngster, dad wanted to be a pharmacist—he was attracted to the science and benefits of it for mankind,” recalls his daughter Claudia Skaggs Luttrell. But life took him down a different path. When his father died in 1950, 28-year-old Sam took over the family’s grocery store business. He revolutionized the profession by bringing pharmacies into retail grocery stores and earned the reputation as the “father” of the modern combination food and drugstores. “His business success has had an enormous effect on research in colleges of pharmacy,” says Mauger. “Particularly, research leading to new medicines and technology.”

Each year, since 1975, the U’s College of Pharmacy has been one of the top four programs to receive funding for peer-reviewed research from the National Institutes of Health. The Skaggs family’s most recent gift will again help turn brick and mortar into a place where treatments for diseases such as cancer, epilepsy, and diabetes could be realized.

—by Peta Owens-Liston, pulse@hsc.utah.edu

“He is not about receiving recognition; he has often been the quiet anonymous donor. Dad is more interested in how his support is helping people; he donates from the heart.”

—Claudia Skaggs Luttrell

School of Medicine Redesigning the Curriculum

Larry Reimer, M.D., doesn’t wear a hard hat or carry a shovel. Still, he is responsible for one of the largest projects currently under way in the health sciences.

As chair of the School of Medicine’s curriculum transformation and implementation committees, Reimer is leading an effort to ensure that the 2009 freshman class starts school with a newly redesigned curriculum. Work on the project has spanned four years and involved hundreds of faculty members.

“This is the largest, most intense curriculum redesign effort in our school’s history,” said Reimer, who also serves as associate dean of curriculum and graduate medical education. “We’re not only reevaluating and redesigning what our medical students learn, but how and when they learn it.”

The new curriculum will be divided into three main components: medical sciences (the knowledge needed to be a physician);

medical arts (how to apply that knowledge to the care of patients); and clinical practice (the skills needed to practice medicine).

“The training to become a physician can be overwhelming,” said Reimer. “This new curriculum emphasizes integration between the information received in the classroom and the experience and mentoring students receive in the lab and at the patient bedside.”

He’s quick to point out that while the new curriculum will be different, it doesn’t mean the current curriculum isn’t effective. “As educators, we have to always be looking at how to improve the way we teach and train future physicians,” he said.

Students will have more opportunity to interact with patients earlier in their training—a move designed to help students make more informed career choices. There also will be less emphasis on multiple choice exams as an evaluation tool, and more frequent quizzes, written exams and clinical assessments.

For more information on the new curriculum, visit <http://library.med.utah.edu/wiki/bin/view/SomMCTC/WebHome>.

—by Chris Nelson, christopher.nelson@hsc.utah.edu

College of Nursing A New Building and a Bright Future

The boxes are packed, staff and students have moved out, and the iconic statue of the founder of nursing, Florence Nightingale, has been safely tucked away. After months of anticipation, the \$24 million College of Nursing expansion project is officially under way.

“We are certainly looking forward to walking through those doors again 18 months from now, knowing that when we do, we will have a beautifully updated building to accommodate our growing faculty and student population,” said University of Utah College of Nursing Dean **Maureen Keefe, R.N., Ph.D.** “This is an exciting time for the college, and ultimately a big step forward for Utah’s nursing profession.”

When the construction phase is complete, the new Annette Poulson Cumming Building will have more space for additional faculty members, an updated Intermountain Simulation Center for improving students’ clinical and patient care skills, the Emma Eccles Jones Nursing Research Center on the 5th floor, and of course, more space for students. The 40-year-old building also will undergo important safety and structural improvements such as a new heating and cooling system and seismic reinforcements.

But aside from the building improvements, which is Phase I of the expansion, the College of Nursing has a bigger objective in mind—to put more nurses in the field. By recruiting additional faculty with the increased space, the goal of Phase II is to teach more students who will become bedside nurses, a profession where many states fall short. It’s estimated for every additional undergraduate faculty member, six more students can enroll, and for every graduate faculty member, four students. Currently, only one-third of all qualified student applicants are admitted.

“We already have qualified students, and soon we will have the space,” said College of Nursing Director of Development **Dinny Trabert**. “The only thing missing is the faculty, and the goal of Phase II is to entice them to come here.”

—by Ryann Rasmussen, ryann.rasmussen@hsc.utah.edu



Annette Poulson Cumming, R.N., speaks during the College of Nursing’s renovation kickoff ceremony in November with the iconic Florence Nightingale statue in the background. Cumming, a College of Nursing alumna, received a surprise birthday gift from her husband, Ian—a \$5 million gift to the College to update the building, which will bear her name.

STEVEN LETCH

College of Health Responding to Student Interest

With 1,900 undergraduate and graduate students, five departments, and two divisions, the College of Health is one of the largest colleges on campus. So deciding on a strategic area for growth is not an easy task.

“A big part of our decision is based on demand from the students,” says **James E. (Jay) Graves, Ph.D.**, dean of the College of Health. “Sports medicine has become a very popular major at the U and around the country. There’s a need for athletic trainers. And when jobs are available in a certain field, students gravitate toward it.”

The College of Health’s sports medicine major in exercise and sport science prepares students to become athletic trainers who work closely with team physicians to help prevent and treat injuries. Working within a clearly

defined scope of practice, athletic trainers are often first responders to an injury, and are able to start the treatment process, and then, if necessary, refer to an orthopedic clinic.

The program’s expansion will ensure that U teams have athletic trainers—an NCAA requirement—and also provide student trainers to serve area high school teams, who otherwise might not be able to afford them. “These partnerships are really a win-win situation for both the athletes and the students,” says Graves.

As part of the sports medicine program expansion, the college is working on a proposal for a graduate degree at the masters level, recruited new faculty members, and is transforming two racquetball courts into a sports medicine research, clinical training and office complex. A 3,200-square-foot lab will include a state-of-the-art motion capture facility, which will be used to study elite athletes as well as conditions of normal and clinical populations.

—by Amy Albo, amy.albo@hsc.utah.edu

Research

Last year, health sciences researchers generated two-thirds of the University’s \$300 million research funding. To define the vision for the future, the School of Medicine developed a strategic research plan with an ambitious goal: To become one of the nation’s premier biomedical research institutions. The plan includes expanded infrastructure, such as the Center for Clinical and Translational Science, and new programs, such as genomic medicine, that build on historical strengths. The Brain Institute and USTAR are other initiatives that support campuswide collaboration. Future SOM goals? A Center for Molecular Medicine and a Program in Cell Therapy and Regenerative Medicine.

Genomic Medicine Personalizing Care Patient-by-Patient

“Each tumor is an individual, just like a person, with its own genetic profile,” says **Phil Bernard, M.D.**, assistant professor of pathology and investigator with the Huntsman Cancer Institute (HCI).

Bernard is part of a national consortium of researchers that developed a risk predictor for breast cancer based on different biological subtypes of tumors. He’s now validating the findings in randomized clinical trials. Through molecular analysis, Bernard studies the genetic profiles of breast cancer tumors to identify the type of cancer, how aggressive it is, which treatments it responds to, and its chances of recurring. Physicians can use this information to tailor therapy based on the molecular makeup of the tumor and recommend whether therapy beyond surgery is needed.

Deciding on the best treatment plan for a breast cancer patient can be a difficult decision. “These are the first steps toward personalized cancer genomics,” Bernard says. “We aim to decrease patient suffering and reduce the financial burden of unnecessary treatments.”

Bernard’s research is the type the new Program in Genomic Medicine wants to encourage by drawing on the University’s historical strengths in areas such as human genetics, population genomics, drug development, and biomedical informatics.

He and others also developed a clinical test, called the Breast Bioclassifier (www.bioclassifier.com), which uses 55 key genes to determine the risk of relapse in individual patients. The test has been validated for pure prognosis (no treatment other than surgery) and for determining the likelihood of response to chemotherapy (*Journal of Clinical Oncology*, in press). The Breast Bioclassifier will be commercially offered by ARUP Laboratories, where Bernard is medical director of solid tumor molecular diagnostics.



Phil Bernard, M.D.

Translational Research Turning Basic Science into New Treatments

Drawing blood wouldn’t seem to be a likely treatment for type 2 diabetes. But endocrinologist **Donald A. McClain, M.D., Ph.D.**, professor of internal medicine, thinks decreasing iron levels by drawing blood might help diabetes patients whose bodies absorb and store too much iron from food.

McClain, associate director of the Center for Clinical and Translational Science, formed his hypothesis based on the basic-science research of two School of Medicine researchers. He’s now testing it in a clinical trial in which blood is drawn from diabetes patients who also have the iron overload disease hereditary hemochromatosis.

McClain’s new treatment builds on the groundbreaking work of **Jerry Kaplan, Ph.D.**, health sciences assistant vice president for research and professor of pathology, and **James P. Kushner, M.D.**, associate vice president for clinical research and M.M. Wintrobe distinguished professor of internal medicine. Kaplan identified several proteins responsible for moving iron from tissue to tissue and Kushner proved that hereditary hemochromatosis can lead to tissue damage and other health consequences.

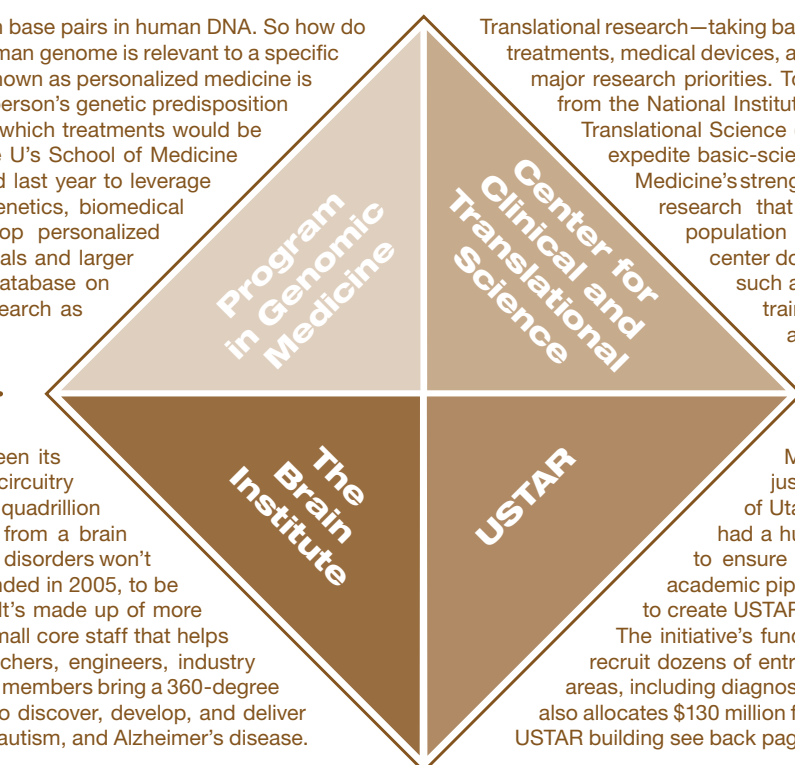
“I carried their work further by looking at the diabetes risk in hemochromatosis and found it to be significant,” McClain says. “That also led me to ask if simple dietary iron overload might be having the same effects in people with diabetes. By applying Dr. Kaplan’s advances, we were able to identify which proteins that mediate iron balance should be examined for possible involvement in the diabetes disease process.”

A trial in which blood was drawn from mice with diabetes showed “jaw-dropping results,” so McClain began a clinical trial using the Center’s inpatient unit. It’s too early for definitive conclusions, but the results are promising.



Donald A. McClain, M.D., Ph.D.

Each of us has a unique genetic profile comprising 3 billion base pairs in human DNA. So how do physicians determine what information contained in the human genome is relevant to a specific patient’s health? The promise of genomic medicine, also known as personalized medicine is that one day physicians will be able to routinely identify a person’s genetic predisposition to a disease, predict the course of outcome, and identify which treatments would be most effective. Genomic medicine is a top priority for the U’s School of Medicine and USTAR. The Genomic Medicine program was created last year to leverage the University’s internationally recognized expertise in genetics, biomedical informatics, drug discovery, and other areas to develop personalized medicine based on the unique genetic profiles of individuals and larger populations. The Utah Population Database, a genetic database on more than 7 million people, will play a crucial role in research as well.



Translational research—taking basic-science discoveries from the laboratory to improve therapies, treatments, medical devices, and health-care delivery and outcomes—is one of the University’s major research priorities. To support that goal, and with the help of a \$22.5 million award from the National Institutes of Health, the University created the Center for Clinical and Translational Science (CCTS), which is designed to provide research infrastructure to expedite basic-science discoveries into clinical practice. Building on the School of Medicine’s strengths in genetics and biomedical informatics, the center encourages research that focuses on defining disease mechanisms and conducting population studies to improve health-care delivery and outcomes. The center doesn’t directly fund researchers but supports them through ways such as an inpatient study facility with skilled nurses and nutritionists, training in clinical research, expertise in informatics and statistics, and other clinical research infrastructure.

The human brain houses a quadrillion connections between its 100 billion neurons, making the brain the most complex circuitry known. A lot can go wrong in establishing and maintaining a quadrillion connections. And it does. One in three of us will suffer from a brain disorder sometime during our lives. Because complex brain disorders won’t be solved by any one scientist, the Brain Institute was founded in 2005, to be a coordinating center for neuroscience research in Utah. It’s made up of more than 140 investigators from four Utah universities, and a small core staff that helps orchestrate collaboration. Basic scientists, clinical researchers, engineers, industry partners, advocacy organizations, and invested community members bring a 360-degree view to each problem tackled. Together, they’re working to discover, develop, and deliver new treatments for a host of brain disorders including MS, autism, and Alzheimer’s disease.

The Brain Institute/USTAR Collaborating to Understand and Treat Brain Disorders

After receiving a doctorate in psychology, **Deborah A. Yurgelun-Todd, Ph.D.**, wanted to study the brains of people, not animal models. Her timing was good.

The science of medical imaging was on the verge of startling advances in technology, which would allow Yurgelun-Todd to study biological and biochemical changes in the brain as never before—in living patients. This set the course for her career—the application of MRI (magnetic resonance imaging) methods to the study of normal and abnormal brain changes.

Her focus on MRI and brain changes is exactly the type of research USTAR and the Brain Institute are seeking. Yurgelun-Todd joined the University in July as a professor of psychiatry and an investigator with both programs. “Coming to the University provides a really good intersection for what I want to do,” she said. “There is very good imaging infrastructure at the U, and there also is a wonderful clinical base.”



Deborah A. Yurgelun-Todd, Ph.D.

Those strengths are critical for her research in the use of MRI to understand brain changes in five areas: normal development from childhood to adulthood; in bipolar disorder; in schizophrenia; brain changes caused by methamphetamine use; and changes caused by the use of cannabis (a psychoactive ingredient in marijuana).

Along with the U of U’s imaging infrastructure and clinical opportunities, Yurgelun-Todd was attracted by the Brain Institute’s holistic approach to studying the brain through its neurobiology, circuitry, and behavioral aspects, and plentiful opportunities to collaborate with scientists from different disciplines across campus. “You need that kind of collaboration to do this kind of work,” she says.

Yurgelun-Todd’s collaborative research projects also fit perfectly into USTAR’s mission. “Dr. Yurgelun-Todd’s research has tremendous commercialization potential down the road in such areas as medical diagnostics and the development of pharmacological interventions for currently hard-to-treat addictions and psychiatric disorders, as well as applications for neuromarketing,” says Michael O’Malley, director of USTAR marketing and communications.

—Research Profiles by Phil Sahn, phil.sahn@hsc.utah.edu