VCU Medical Center

» » » » » » » » » » 2006 ANNUAL REPORT

Virginia Commonwealth University

Remarkable energy and vision

That's what fuels our success as one of the nation's leading academic health centers. Strategic investments to grow our facilities, strengthen our expertise and advance our research programs in 2006 propel us on a path of unequaled excellence and ensure we deliver the highest quality of patient care.

CONTENTS

Heart

» » » » » » » » » JUMP-STARTING ADVANCEMENTS IN CARDIAC CARE

In January 2006, the VCU Heart Center became the VCU Pauley Heart Center, in recognition of a $5 million gift from the Pauley Family Foundation. The designation places the heart center among only a few named major heart centers across the country.

Stanley F. Pauley and George W. Vetrovec, M.D., VCU Pauley Heart Center

"This generous gift from the Pauley Family Foundation means so much to the research and educational programs in cardiovascular disease," remarked Sheldon M. Retchin, M.D., M.S.P.H., CEO of the VCU Health System and Vice President for Health Sciences at VCU.

Dorothy A. and Stanley F. Pauley lead the Pauley Family Foundation. Mr. Pauley, CEO of Carpenter Co., is a long-time supporter of VCU. He said he was impressed with the staff's dedication and care and wanted to give something back that would benefit not only VCU but also all Virginians.

"They are doing a great job in making a difference in peoples' lives," Pauley said. "Their technical prowess is exceptional and the intention of the gift is to extend their capabilities by expanding the staff and providing sufficient assets to keep up with rapidly changing technology needed to treat heart diseases." A national leader in developing and implementing cardiovascular procedures, the center includes subspecialty areas in acute chest pain management, general and invasive cardiology, heart failure and transplantation, electrophysiology and cardiac surgery.

"The additional funding will advance our mission of excellence in patient care, innovative research and comprehensive education, as well as help us attract exceptional cardiology trainees and faculty," said George W. Vetrovec, M.D., chairman of cardiology at the VCU School of Medicine. "For all of this we are exceedingly grateful and proud."

SETTING THE PACE IN RHYTHM MANAGEMENT

According to the American Heart Association, more than 2 million people in the U.S. suffer from atrial fibrillation — a common rhythm abnormality in the heart's upper chambers — and 300,000 new cases are diagnosed each year. In addition to an increased risk for stroke, atrial fibrillation is a major contributor in the development of congestive heart failure. Cardiologists at the VCU Pauley Heart Center are performing two new procedures that may revolutionize the treatment of atrial fibrillation: modified Mini-Maze and cryoablation.

An amazing technique. During the modified Mini-Maze, surgeons insert instruments into the chest through several keyhole-size incisions between the ribs. With the aid of a tiny video camera, a specially designed instrument is placed around the top of one of the atria and energy is delivered to destroy the tissue near the origin of the irregular impulses. The damaged tissue disrupts the abnormal signaling pathways, stopping the irregular impulses.

Vigneshwar Kasirajan, M.D., chairman of cardiothoracic surgery at the VCU Pauley Heart Center, performed the first Mini-Maze procedure in June 2006.

"This is a significant advance in the management of atrial fibrillation," he said. "We've known for some time this could be an effective strategy for treating the abnormal rhythm, but until now we haven't had the tools to do it efficiently."

A cool approach. VCU Medical Center is one of fewer than 20 in the country with access to balloon cryoablation, an investigational treatment for atrial fibrillation.

Cryoablation permanently disables heart arrhythmias by using an extremely cold temperature to destroy very small and carefully selected parts of the heart.

"This is the latest advancement and could potentially prove to be a major change in how we treat atrial fibrillation," said Kenneth Ellenbogen, M.D., director of the Pauley Heart Center's cardiac electrophysiology lab. "We've found catheter cryoablation to be successful and preliminary results from balloon cryoablation suggest a success rate up to 85 percent in some patients."

During the treatment, cardiologists insert a small catheter through a blood vessel into the heart. Doctors use another catheter tipped with an electrode to reproduce the arrhythmia, then test it by cooling the catheter tip. The cold temporarily stops the arrhythmia, which allows doctors to pinpoint the problem area without damaging surrounding normal areas.

Once the exact location of the arrhythmia has been confirmed, cardiologists use extreme cold to freeze and scar the problematic heart tissue, eliminating the arrhythmia altogether.

Cryotherapy is already used to successfully treat certain types of cancer, including prostate, and in Food and Drug Administration-monitored studies following its safety and efficacy, cryoablation also shows promise as a therapy for atrial fibrillation.

"We believe that this procedure tends to be simpler and safer, so more patients may soon be candidates for it," Ellenbogen said. "It's an exciting new technology that appears to be quite successful treating atrial fibrillation."

"Dr. Ellenbogen and his group are nationally recognized for their pioneering leadership in arrhythmia management," said Vetrovec. "New therapies such as cryoablation are available to patients at the VCU Medical Center before many other hospitals can provide such services."

BEATING THE BENCHMARK FOR RESPONSE TIME

A new program at the VCU Pauley Heart Center is decreasing the time it takes for heart attack patients to receive life-saving treatment. The Acute Myocardial Infarction Program provides patients with 24/7 access to the cardiac catheterization lab, ensuring that a blockage is opened with percutaneous coronary intervention within 90 minutes after hospital arrival, the goal identified by the American College of Cardiology and the American Heart Association. The Joint Commission on Accreditation of Healthcare Organizations and the Centers for Medicare and Medicaid Services report data nationally for the previous 120-minute benchmark. Since the program's implementation in early 2005, the Acute MI Program has exceeded this benchmark, and since early 2006, 100 percent of patients have received treatment within 120 minutes and 86 percent within 90 minutes of hospital arrival, faster than the average rate of hospitals both nation- (72 percent) and statewide (74 percent).

TAKING A TEAM APPROACH TO AORTIC DISEASE

Derek Brinster, M.D., joined the VCU Medical Center in 2006 as director of the Thoracic Aortic Surgery Program. Treating problems of the aorta in the chest, the abdomen and the vessels that feed blood to the brain and other organs, the program offers an experienced multidisciplinary team that excels in both medical management and surgical intervention of individuals with serious aortic conditions. Under the leadership of Brinster and Vigneshwar Kasirajan, M.D., chief of the Division of Cardiothoracic Surgery, the medical center now offers expertise covering all aspects of the treatment of cardiac and aortic disease.

Discovering an unlikely protector

The discovery of Viagra as a treatment for male erectile dysfunction was accidental. Researchers had been developing the drug for the treatment of hypertension when they discovered an interesting side effect — a change in erectile function. But Rakesh C. Kukreja, Ph.D., VCU professor of internal medicine and cardiology and NIH MERIT recipient, has brought the research back to its initial focus and found a potentially important use for this drug — heart protection.

Kukreja's laboratory is one of the first to explore the area of "preconditioning," a way to protect the heart muscle from serious damage in the future by subjecting it to very brief periods of deprivation of blood flow and, therefore, oxygen.

This preconditioning effect was modeled in his lab by pretreating mice with doses of Viagra, which also increases desirable levels of nitric oxide. A preconditioned or pretreated heart has an improved ability to produce nitric oxide and directly improves a patient's outcome following a heart attack. Generally, damage following a heart attack is related to an inability to recover from lack of oxygen.

In 2005, Kukreja and his colleagues demonstrated that Viagra prevented damage to the heart from doxorubicin, a potent chemotherapeutic agent frequently used in the treatment of breast cancer, leukemia and sarcomas.

"Our work in understanding the mechanisms of preconditioning has led to the identification of several novel compounds that will have enormous impact in protecting the heart muscle after a severe heart attack in patients with coronary heart disease," said Kukreja. "This landmark discovery could give these compounds a lifesaving medical role."

Kukreja said that the PDE-5 inhibitors — drugs that help dilate the arteries — might be developed for future use to protect the brain, liver and other organs against ischemic injury — those injuries that are caused by lack of oxygen.

Kukreja's laboratory has three studies currently funded by the National Institutes of Health, one by the American Heart Association and two from the pharmaceutical industry providing a total of more than $6 million for his work in this area.

"Our work in understanding the mechanisms of preconditioning has led to the identification of several novel compounds that will have enormous impact in protecting the heart muscle after a severe heart attack in patients with coronary heart disease." » Rakesh C. Kukreja, Ph.D.

Rakesh C. Kukreja, Ph.D.
VCU Department of Internal Medicine

Total artificial heart

» » » » » » » » » MAKING HISTORY WITH THE FIRST TAH-t IMPLANT ON THE EAST COAST

The national spotlight shone on the VCU Pauley Heart Center in April 2006, as the center's cardiac surgery team performed the first total artificial heart implant on the East Coast. The CardioWest temporary Total Artificial Heart, or TAH-t, is the only total artificial heart approved by the Food and Drug Administration.

The VCU Medical Center is one of just three hospitals in the U.S., and seven others worldwide, currently certified to implant the TAH-t. The two other U.S. hospitals are the University Medical Center in Tucson, Ariz., and the Cleveland Clinic.

"More than 300,000 Americans die every year from heart failure, and many die while waiting for a transplant. As a national leader in treating heart failure, we are excited to be among the first to introduce this new technology to the nation. We also continue to introduce other diagnostic and therapeutic advances in the treatment of heart failure through the VCU Pauley Heart Center," said Sheldon M. Retchin, M.D., M.S.P.H., CEO of the VCU Health System and Vice President for Health Sciences at VCU.

The TAH-t serves as a bridge to heart transplant for critically ill patients with end-stage biventricular failure and pumps up to 9.5 liters of blood per minute — more than any other artificial device — helping to rejuvenate vital organs that have atrophied due to a failing heart.

The TAH-t is a modern version of the Jarvik-7 artificial heart of the 1980s and is manufactured by SynCardia Systems Inc. in Tucson, Ariz. In 2004, the American Heart Association named the TAH-t the No. 1 advance in cardiovascular medicine, and a New England Journal of Medicine paper (2004) found the one-year survival rate for patients receiving the TAH-t was 70 percent, versus 31 percent for control patients.

The transplant team at VCU's Pauley Heart Center, led by Vigneshwar Kasirajan, M.D., cardiothoracic surgeon, underwent rigorous training in Tucson and Richmond to ensure that the hospital and the team were ready. All TAH-t certified hospitals have years — and often decades — of experience in human heart transplantation.

"We have an extraordinary interdisciplinary team of physicians, nurses, perfusionists and medical technicians," said Kasirajan. "The role of nursing care is particularly crucial and one of the reasons that we were able to be TAH-t certified."

As the country's second oldest heart transplant program, the VCU Pauley Heart Center continues, after nearly 50 years, to be one of the most innovative and clinically successful programs in the nation. The ninth heart transplant in the U.S., and the 16th worldwide, was performed at VCU in 1968 by Richard Lower, M.D., who pioneered the techniques for heart transplantation and whose story is told in the recently published book "Every Second Counts: The Race to Transplant the First Human Heart."

"The VCU Medical Center, through its Pauley Heart Center, is recognized as a national leader in developing and implementing cardiovascular procedures," said Dr. Eugene P. Trani, VCU president, and president and chair of the VCU Health System. "The TAH-t program reaffirms our tradition as a leader in advanced cardiac care."

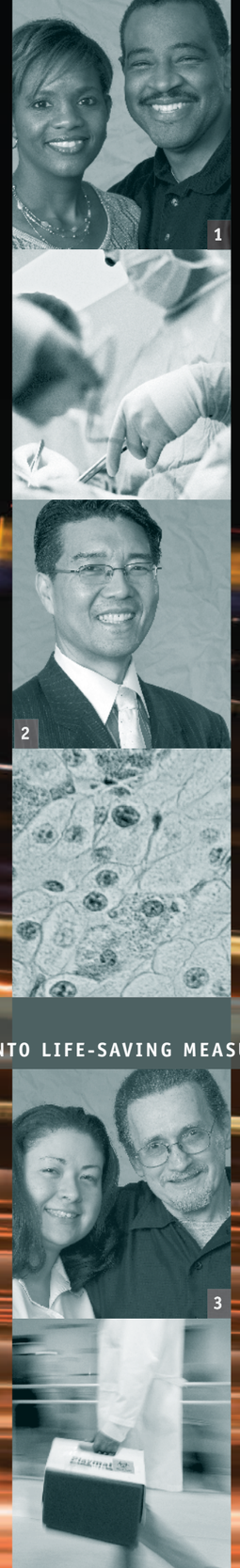
Since the first TAH-t transplant, the center has performed four additional artificial heart procedures and expects to perform an average of six of the operations each year.

"We are delighted at the bright future that this and other cutting-edge technology that we're bringing here holds for patients in Central Virginia and across the country," said John Duval, CEO of MCV Hospitals at the VCU Medical Center.

"We have an extraordinary interdisciplinary team of physicians, nurses, perfusionists and medical technicians." » Vigneshwar Kasirajan, M.D.

Transplant

» » » » » » » » » TRANSLATING RESEARCH INTO LIFE-SAVING MEASURES



Primary liver cancer, also known as hepatocellular carcinoma (HCC), is one of the most common malignancies in the world. Although it once was rare in the U.S., liver cancer now is occurring at a greater frequency. According to Robert A. Fisher, M.D., professor and director of VCU's Liver Transplant Program and Transplant Research Laboratories, four or five new liver cancer patients come to the Hume-Lee Transplant Clinic in an average week now versus one or two every few months before 1998.

A few of these patients — those with small liver tumors and very early cirrhosis — can be treated with surgery. Curing more extensive cirrhosis and select cancers of the liver requires a transplant, which can mean a wait of as long as 18 months because of organ shortages.

Fisher's VCU liver cancer molecular group, working in collaboration with six leading liver transplantation centers, received a $3 million grant from the National Institute of Diabetes and Digestive and Kidney Diseases and the National Cancer Institute to study the genes related to Hepatitis C virus-induced hepatocellular carcinoma in patients with liver transplants. HCV is a leading cause of liver failure, cirrhosis and liver cancer. The grant will allow researchers to identify the genes involved in the development of HCC and to determine the role of these genetic markers in predicting post-transplantation outcomes in HCV-infected patients with HCC. Ultimately, the findings could serve as a guide for treating HCC patients and for predicting their post-transplantation survival. Recurrence after liver transplantation remains one of the major obstacles to further prolonging survival of HCC patients.

Other institutions participating in the study include Northwestern University, UCLA Healthcare, UCSF Medical Center, UNC Health Care and the University of Pennsylvania Health System, plus the data collection center at the University of Michigan Health System. In addition, the Viral Epidemiology Branch Laboratory at the National Cancer Institute will provide a critical arm of the quality control program and data analysis.

Robert A. Fisher, M.D., VCU Department of Surgery, with transplant recipient Marla Hamilton

1 » Felicia Guilbe (donor) and Jorge Guilbe (recipient)
2 » Jae-Ryong Kim (donor)
3 » Andrea Avgolaus (donor) and John Avgolaus (recipient)

REVIVING INSULIN STORES WITHOUT SURGERY

As one of the nation's first to establish a program in human organ transplantation, VCU's Hume-Lee Transplant Center is once again leading the way in developing cell transplantation programs.

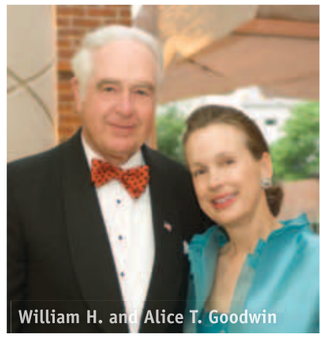
The new Pancreatic Islet Cell Transplantation Laboratory is the center's first step in developing a program for pancreatic islet cell transplantation. The pancreas, which makes insulin and enzymes that help the body use and digest food, contains clusters of islets key in the production of insulin. An islet cell transplant provides people with type I diabetes with new insulin-producing cells from a donor pancreas — and more importantly, the possibility to live life with fewer or no daily insulin injections. In the short term, islet transplantation can consistently and reliably reverse insulin dependency in patients with severe diabetes. Past studies have shown an 80 percent survival rate at one year and up to 60 percent at three years. In partnership with the University of Miami, the Hume-Lee Transplant Center is one of only about 40 centers nationwide embarking on islet cell transplantation.

The center also has expanded its capacity for hepatocyte transplantation, which enables transplanted cells to reconstitute injured or metabolically defective liver tissue. Simpler, safer and less costly than whole organ transplantation, the procedure shows promise for the treatment of acute liver failure, liver-based metabolic diseases and chronic liver disease.

Both labs are housed in the new Hume-Lee Transplant Center Cellular and Molecular Therapeutics Laboratories.

As Virginia's first NCI-designated Cancer Center — and one of only 61 nationwide — the VCU Massey Cancer Center leads and shapes America's cancer research efforts. Its 1,000 researchers, clinicians and staff members are dedicated to improving the quality of human life by developing and delivering effective means to prevent, control and ultimately cure cancer.

The Goodwin Research Laboratory — the new hub of cancer discoveries for the VCU Massey Cancer Center — welcomed researchers in the spring of 2006. Named in honor of Mr. and Mrs. William H. Goodwin Jr., the 80,000-square-foot, state-of-the-art cancer research facility provides modern and adaptable space for up to 250 cancer researchers.


William H. and Alice T. Goodwin

The Goodwins provided major support for the Campaign for Massey, which helped fund the $41.5 million building, and have also given substantial support to Massey's translational research program.

"In the next 10 years, researchers at Massey will make important new discoveries that improve the lives and life spans of people with cancer in Virginia and around the world, and we are so grateful to the Goodwins for helping us to fulfill this promise," said Gordon Ginder, M.D., director of the VCU Massey Cancer Center.

The building's unique open architecture allows for collaboration among researchers who aim to translate their discoveries into new treatments and clinical trials. The building itself anchors the east end of the VCU Medical Center, adjacent to Massey's cancer treatment clinics and the hospital, providing the scientist-physicians convenient access to their patients.

"Previously our researchers from 25 academic departments were working in various buildings throughout the two main campuses at VCU," said Ginder. "By enabling researchers to work together with as few walls as possible, we open up the exchange of ideas and information that can lead to new discoveries."

The building has 68 lab modules, which can expand or contract to meet the needs of the research teams, and shared equipment is centrally located to control costs and encourage interaction.

A unique feature of the building is a healing garden, accessible from the main level lobby and from the large conference room. The garden provides a restorative space among the concrete and brick of the downtown campus. The windows mirror the bronze gates of the nearby landmark Egyptian Building, and patients and researchers can enjoy the flowering native plantings and sculptures by Virginia artists.

Team approach. National experts staff the new urologic tumor multidisciplinary program for the treatment of prostate, bladder, kidney, testicular and related cancers.

"Prostate cancer is the most common cancer in the U.S. and the third-leading cause of deaths from cancer in men," said Mitchell S. Anscher, M.D., chairman of the Department of Radiation Oncology and director of the Urologic Tumor Center. A leading authority on prostate cancer, Anscher joined his alma mater, the VCU School of Medicine, in June 2006.

Other members of the center's multidisciplinary team include John D. Roberts, M.D., associate director of clinical research at Massey with clinical expertise in urologic cancers; Michael P. Hagan, M.D., radiation oncologist and researcher with expertise in bladder cancer and brachytherapy to treat prostate cancer; and B. Mayer Grob, M.D., a urologic surgeon who specializes in minimally invasive surgical techniques.

Two levels of care. As one of several growth initiatives slated to move the VCU Massey Cancer Center forward, patient treatment clinics were expanded significantly at Massey's flagship location, the VCU Medical Center. In March 2006, oncology services opened "Lower Dalton" on the North Hospital's basement level, boasting 14 new exam rooms, two procedures rooms, two physician workrooms and the cancer rehabilitation clinic. This supplements the existing 19 exam rooms and two physician workrooms in Upper Dalton on the hospital's ground level.

Cancer survivor Hester Witcher with her great-granddaughter

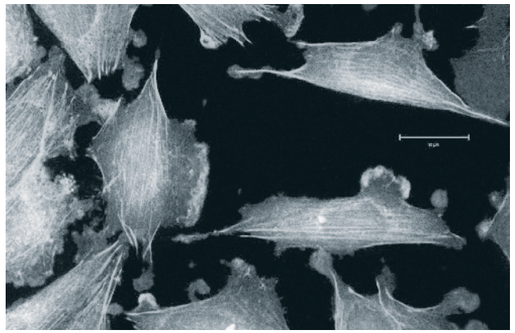
Photos: John Hollis

MAKING STRIDES IN CANCER RESEARCH

More than 30 years ago, the VCU Massey Cancer Center earned a prestigious designation from the National Cancer Institute based on its world-class research programs — a designation it still retains today. Working with all types of cancers, Massey conducts basic, translational and clinical cancer research with one goal in mind: eliminating the suffering and death caused by cancer. In 2006, significant advances and appointments were made in two key areas: breast cancer and leukemia.

Breast cancer-killing duo. Paul Dent, Ph.D., associate professor of biochemistry and radiation oncology, and his team found that combining two novel drugs, UCN-01 and a MEK 1/2 inhibitor, killed up to 75 percent of breast cancer tumor cells in mice and suppressed the regrowth of tumors. When studied separately, the drugs only killed a small percentage of the cells to which they were exposed.

Funded by the U.S. Department of Defense and the National Institutes of Health, the research also may have implications for prostate cancer, lymphoma, myeloma and other hematologic cancers.



Targeted therapy. VCU Massey Cancer Center researchers have found that two enzymes that catalyze the same reaction and produce the same product have opposite effects on cancer cell growth and death.

In a late 2005 study published in the Journal of Biological Chemistry, Sarah Spiegel, Ph.D., professor and chair in the VCU Department of Biochemistry and co-leader of Massey's Cell Biology program, and research colleagues reported that the different effects of the two enzymes may arise because they act at different locations within the cell. In addition, the data suggest that one of the enzymes can sensitize cancer cells to chemotherapy, and therefore may be a potential target for cancer therapy.

The research was supported by grants from the National Cancer Institute and a postdoctoral fellowship from Massey's T32 Cancer Biology program to Michael Maceyka, Ph.D., a Massey trainee in the biochemistry department.

"These results highlight the importance of designing inhibitors of exquisite selectivity," said Maceyka. "Our findings highlight some critical information — just because two enzymes catalyze the same reaction does not mean that targeting one will have the same effect as targeting the other."

Fateful encounter. A team of Massey researchers discovered an entirely new mechanism of action for a novel pharmacological agent currently in clinical trials in patients — the kinase inhibitor BAY 43-9006. Originally designed to disrupt the survival pathways of tumor cells, BAY 43-9006 is known to induce apoptosis, or cell death, in a variety of tumor cells, including leukemic cells.

"This insight into the mode of action of BAY 43-9006 could have important implications for the development of rational combination strategies involving this agent in leukemia and potentially other types of cancer," said Steven Grant, M.D., Massey's associate director for translational research and co-leader of the cancer center's Cell Biology program.

Grant and his team also reported new findings involving factors that can affect a novel class of antileukemic agents, termed histone deacetylase inhibitors, that could lead to an innovative form of combined treatment for leukemia.

PROVIDING SERVICES TO PATIENTS

With approximately 10.5 million cancer survivors living in the U.S., and an anticipated increase to more than 20 million by 2015, the Centers for Disease Control and the National Cancer Institute have identified cancer survivorship as a key area for research and public health intervention.

In November, the VCU Massey Cancer Center and the Greater Richmond Affiliate of the Susan G. Komen for a Cure launched an educational series to provide survivors of all types of cancer and their families with practical information on the unique health and social issues they face.

Led by Massey's Cancer Prevention and Control researchers Diane Baer Wilson, Ed.D., and Lynne T. Penberthy, M.D., M.P.H., and featuring national cancer experts, the free sessions touch on important aspects of the health and lives of cancer survivors as identified by the CDC.

"Even after successful cancer treatment, many survivors have ongoing questions and concerns about their physical and psychosocial health," said Penberthy. "By providing evidence-based information from leading experts, we hope to give men and women the information they need to reduce their chance for recurrence."

Over the course of 12 months, the survivorship series will address topics ranging from diet and exercise to employment and insurance issues.

Breast imaging. Already, the VCU Medical Center offers various breast imaging procedures, including mammograms and ultrasounds. As the new director of breast imaging for the VCU School of Medicine's Department of Radiology, Gilda Cardeñosa, M.D., an internationally recognized radiologist, is implementing enhanced patient services.

Patients can now benefit from 24-hour availability, same-day and expedited appointments, same-day biopsies, consultation with a surgeon within 48 hours of diagnosis and more screening services for high-risk women. Cardeñosa also plans to create a world-class breast imaging teaching service and a fellowship program for the benefit of patients, their referring physicians and the community.

DEFINING PALLIATIVE TRAINING EXCELLENCE

The award-winning Thomas Palliative Care Program at the VCU Massey Cancer Center has received the International Association of Hospice and Palliative Care's annual University Award.

Massey's program is the first in the U.S. to win this international award, which recognizes universities that incorporate palliative care into their curriculum for undergraduate or postgraduate medical and nursing training.

Palliative care encompasses pain and symptom management and provides emotional, spiritual and psychological support for patients and their families.

"We are teaching the next generation of health care professionals how to deliver a variety of services concurrently to improve quality of life for patients and their families," said Thomas J. Smith, M.D., co-founder of the program and an oncologist, researcher and professor at the VCU Massey Cancer Center. "Our mission includes spawning the growth of this powerful form of care nationwide."

Each year Massey trains hundreds of health care professionals in the humanistic and medical aspects of palliative care. In addition, it provides monthly two-day training sessions for teams from other hospitals around the nation on how to create, build and sustain excellent palliative care programs in their own institutions.

Thomas J. Smith, M.D., VCU Massey Cancer Center

Nursing

» » » » » » » » UPHOLDING THE MAGNET PROMISE

In February 2006, the American Nurses Credentialing Center awarded the VCU Health System Magnet status, the highest honor and level of recognition the group awards to nursing excellence in national and international health care. VCU Health System joins an elite group of about 200 health care organizations worldwide that have received the prestigious honor.

"The Magnet designation is emblematic of the outstanding quality of care delivered by the nurses here," said Sheldon Retchin, M.D., M.S.P.H., CEO of the VCU Health System and Vice President for Health Sciences at VCU. "Additionally, we have an extraordinary team of health professionals at VCU, including our physicians, pharmacists, therapists and staff who are all standing a little taller today — proud to be the first health system in Central Virginia to be recognized for Magnet status."

The ANCC's Magnet recognition identifies health care organizations that provide the very best in nursing care and uphold the tradition of professional nursing practices. The award recognizes excellence in 14 rigorous standards that touch all aspects of superior nursing, from patient care quality to nursing education and leadership.

Offering opportunities for nurses to teach not only their patients but also new nurses and nursing students is among "the 14 Forces of Magnetism" ANCC reviews. Last year, the VCU Health System in collaboration with the VCU School of Nursing launched a new teaching opportunity aimed at recruiting more graduate nurses into perioperative nursing. Through the externship program, nursing students gain clinical experience under the supervision of their more experienced colleagues in the perioperative nursing department. Response was high out of the gate with 14 applicants vying for just four positions, so the program was expanded to accommodate six students in its first year.

Under the "Quality Improvement" banner, health system nurses, specifically the specialized wound care team, led an initiative to educate the health system on prevention and treatment of hospital-acquired pressure ulcers. Thanks to their efforts, in just 24 months, pressure ulcers were down nearly 30 percent, increasing patient comfort and positive patient outcomes.

"This is a testament to the dedication of the VCU nursing staff, whose professionalism is manifested in the delivery of excellent care," said Carol Crosby, M.S.N., R.N., CNAA, vice president for patient care services and chief nursing officer. "It is their dedication to excellence, evidence-based practice, collaboration and commitment to lifelong learning that has led to the VCU Health System receiving this designation."

(From left) Lou Usry, R.N., and Janet Schmid, R.N., Clinical Research Center; and Trina Trimmer, R.N., Mother/Infant Unit

THE 14 FORCES OF MAGNETISM

1 » Quality of Nursing Leadership
2 » Organizational Structure
3 » Management Style
4 » Personnel Policies and Procedures
5 » Professional Models of Care
6 » Quality of Care
7 » Quality Improvement
8 » Consultation and Resources
9 » Autonomy
10 » Community and the Healthcare Organization
11 » Nurses as Teachers
12 » Image of Nursing
13 » Interdisciplinary Relationships
14 » Professional Development

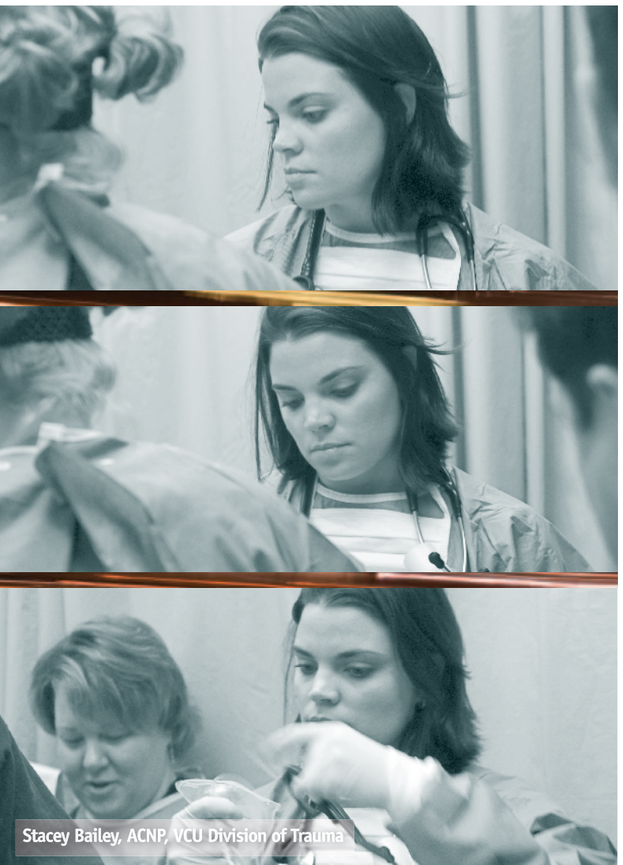
ANSWERING THE NATION'S CALL FOR NURSES

The result of a two-year $17 million construction project, the new VCU School of Nursing building, opening to students in March 2007, is hailed as part of the solution to the region's nursing shortage. The four-story teaching and research facility, located at the VCU Medical Center, includes much-needed research space for faculty and students, a clinical learning center with patient simulators, a community outreach nursing center, large classrooms and faculty offices.

"The goal is that increased space and modern classrooms and facilities will be part of the solution to the nursing shortage and improving health care — by educating more nurses who will enter the work force as competent health care professionals," said VCU President Dr. Eugene P. Trani.

Bureau of Labor statistics indicate that the nation will need 1 million new nurses in the next five years to meet the escalating demands of the aging population. Virginia will need 22,000 new nurses. Current projections are that without increases in enrollment in nursing education programs, one in three patients in Virginia will not have a nurse to care for them by the year 2020.

In the past decade, the VCU School of Nursing has experienced dramatic growth in both enrollment and research funding. Undergraduate and graduate enrollment nearly doubled from


Stacey Bailey, ACNP, VCU Division of Trauma


Nancy F. Langston, Ph.D., R.N., FAAN, dean, VCU School of Nursing

444 to 838 students. Research funding grew from $300,000 to $2.8 million, catapulting the nursing school's ranking for National Institutes of Health-funded research.

"The activities occurring in this 21st century School of Nursing simply have significantly exceeded the capacity of the current building to expand and adapt," said Nancy Langston, Ph.D., R.N., FAAN, dean of the VCU School of Nursing. "We believe the construction of this new facility is a significant developmental milestone in support of our life's work."

In addition to expanding its physical structure, the nursing school has boosted student recruitment efforts and expanded the academic options available for individuals interested in nursing careers.

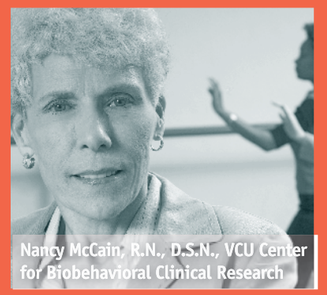
Habla Español? With a significant unfilled demand for Spanish-speaking nurses in Richmond and Central Virginia, the VCU School of Nursing secured a new grant to fill the void. The $601,725 grant, from the Health Resources and Service Administration of the Department of Health and Human Services, allows the school to target Hispanic and Spanish-speaking nurses and current public health nurses for its weekend program, the R.N. to B.S. Completion Program. This career ladder initiative, spearheaded by Martha Moon, Ph.D., associate professor in the nursing school, promotes career advancement and retention by allowing nurses to augment their current abilities and also obtain new skills that prepare them for expanded leadership roles.

From clinical to classroom. The post-master's nursing education certificate not only advances practice nurses for clinical care, but also provides nurses who are academically prepared to serve as faculty in nursing programs throughout the region and state. This graduate education opportunity ensures a continual pipeline of teachers, enabling enrollment expansion initiatives. The first cohorts completed the program in December 2006.

NIH research grants

In line with the VCU School of Nursing's overall mission to integrate knowledge development, knowledge transmission and knowledge application, faculty members conduct programs of research to generate nursing knowledge and disseminate that knowledge to students, health professionals and the general public. Many of the projects focus on healing, risk and resilience, immunocompetence, and biobehavioral clinical research.

CARING FOR THE WHOLE PATIENT


Nancy McCain, R.N., D.S.N., VCU Center for Biobehavioral Clinical Research

The National Institutes of Health awarded the VCU School of Nursing a $1.5 million grant to establish a new research center to study how biological and behavioral processes interact to affect a person's health.

The five-year award, from the NIH's National Institute of Nursing Research, is being used to develop and fund several pilot studies in the new Center for Biobehavioral Clinical Research at the VCU School of Nursing. Biobehavioral clinical research focuses on the interaction of biological processes and behavioral factors on health. For example, an irregular sleep cycle — a behavior — could affect the immune system — a biological process — of a patient who has acquired the HIV infection.

School of Nursing faculty already are conducting NIH-funded research on behavioral strategies to reduce stress and improve immune responses in patients, the biological links between pneumonia and mechanically ventilated patients, and the development of a model to assess the feeding readiness of preterm infants.

Nancy L. McCain, R.N., D.S.N., principal investigator for the center grant and an expert in stress management and HIV disease, said nursing focuses on treating the whole patient, not just an organ system or a damaged limb.

"Our holistic approach to patient care and research is in step with nursing's philosophy of caring for the whole person," said McCain, a professor in adult health nursing. "Our development of a center for biobehavioral research provides an opportunity to train new investigators and to focus our research on more holistic biobehavioral approaches."

For example, McCain is conducting research to determine how stress-management techniques — such as tai chi training and spiritual-growth groups — may improve immune system responses in women with breast cancer. In 2004, McCain and her colleagues received a $3 million grant from the National Institutes of Health to evaluate whether complementary strategies for stress management can ease psychological distress, positively affect physical symptoms and enhance immune function in breast cancer patients receiving chemotherapy. McCain also is a member of VCU's Massey Cancer Center, the primary recruitment site for study participants.

Coinvestigators for the CBCR are Rita Pickler, Ph.D., associate professor and chair, Department of Maternal Child Nursing; Mary Jo Grap, Ph.D., professor, adult health nursing; Cindy Munro, Ph.D., professor, adult health nursing; R.K. Elswick Jr., Ph.D., associate professor, biostatistics and nursing. The grants administrator is Jeanette Acree.

DESIGNING AND TESTING FEEDING MODELS


Rita Pickler, Ph.D., VCU Department of Maternal Child Nursing

Helping at-risk children achieve the best possible outcomes is the main focus of research being conducted by Rita Pickler, Ph.D.

Pickler, chair of the Department of Maternal Child Nursing in the VCU School of Nursing, devotes much of her time to examining factors that place a child at risk, such as family-child interactions and child-specific characteristics, transactional models of relationships among risk factors, mediators and outcomes, and identification of meaningful indicators of optimal outcomes, both short and long term.

She recently completed a study funded by the National Institutes of Health that focused on developing a model of feeding readiness for preterm infants. The findings showed that feeding experience along with infant mortality and maturity predicted feeding performance and, in addition, that more active infants fed better.

According to Pickler, theoretical understanding of growth, development, learning and social interaction are important to this research, which is clinically oriented and directed toward models of improved caregiving.

W. Baxter Perkinson Jr., D.D.S., VCU School of Dentistry, and Pye Kyu, D.D.S., Advanced Education General Dentistry Program

Dental

» » » » » » » » LAUNCHING THE PROFESSION INTO A NEW ERA

Major clinical, laboratory and technological advances are coming to the School of Dentistry thanks to a $2.5 million gift from VCU alumnus and former rector, W. Baxter Perkinson Jr., D.D.S. This is the largest gift in the school's 113-year history.

"Dr. Perkinson's gift is a benefit not only to the school, but also to dental health overall," said Ronald J. Hunt, D.D.S., dean of the School of Dentistry. "It will help us better meet the dental needs of Virginians and expand our research into improving methods of preventing and managing dental disease."

In making the gift, Perkinson says he hopes to strengthen the rich partnership he enjoys with VCU and the school.

"For much of my life, my involvement with VCU and the School of Dentistry has been a big part of who I am and what I do," Perkinson said. "I am thrilled to be able to make this gift and give back to a place that has given so much to my family and me."

Perkinson, a 1970 graduate of the VCU School of Dentistry, is founder of Virginia's largest dental practice. Three of his four children and a son-in-law followed him in earning Doctor of Dental Surgery degrees at VCU.

Perkinson said his introduction to dentistry came at age 12 when he was treated at the Medical College of Virginia's School of Dentistry. He said being treated at the school over the course of several years made him decide to become a dentist — a lofty ambition coming from a poor family in which no one had yet gone to college.

Perkinson, who also serves as vice chairman of the VCU Health System Authority board, has provided other significant financial support for the dental school, including the simulation center. In recognition of Perkinson's years of support to the school, the VCU Board of Visitors approved naming a new dental school building in his honor.

The 55,000-square-foot, four-story building on Leigh Street will connect the existing Lyons and Wood dental school buildings. The additional clinic, classroom, conference center and research space will allow for expanded enrollment in the dental and dental hygiene programs and expanded research in head and neck cancer and dental biomaterials. The projected cost for the building totals $11.75 million, $9.15 million of which the school received from the Virginia General Assembly in 2006.

Groundbreaking for the new building at the VCU Medical Center is projected for the summer of 2007, with completion 18 months later in the winter of 2008-09.


Ronald J. Hunt, D.D.S., dean, VCU School of Dentistry

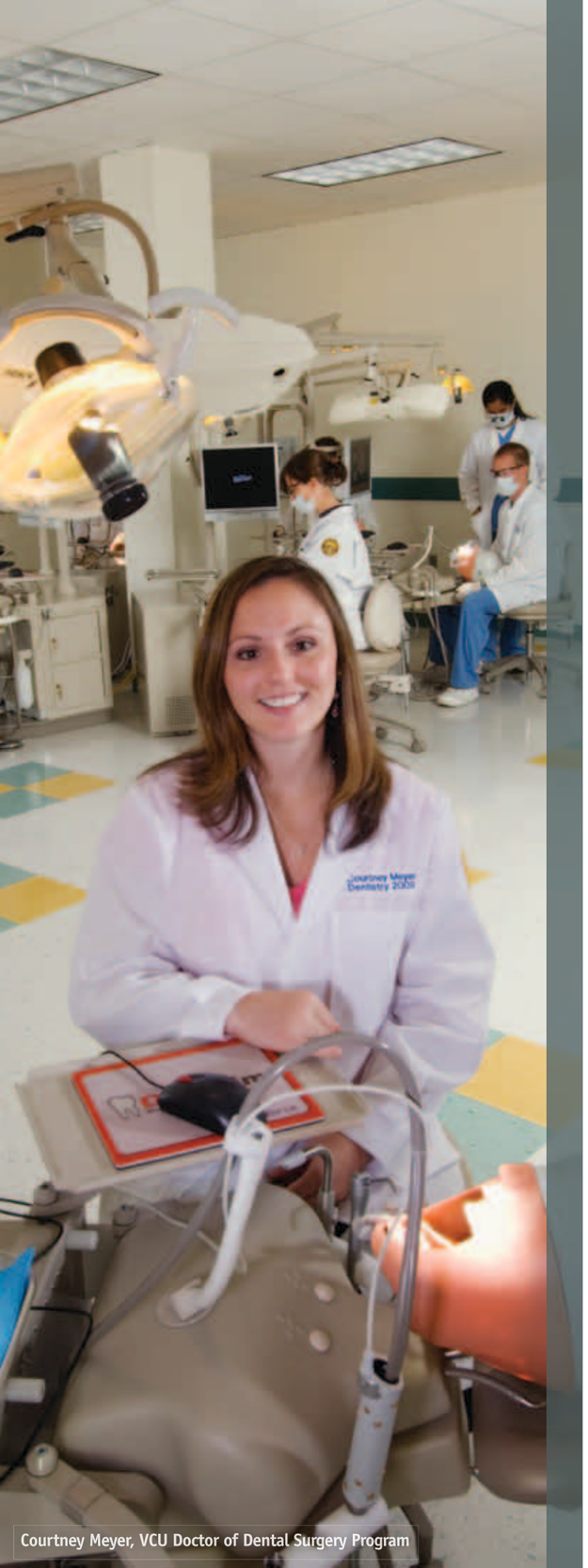
REVOLUTIONIZING PRECLINICAL EDUCATION

This past fall, VCU first-year dental students began using virtual reality technology as part of their preclinical training, preparing them to treat patients by the beginning of their second year. The DentSim technology — a computerized dental simulator designed to evaluate students' performance in an environment that closely resembles a dental clinical setting — provides real-time feedback and allows for fast evaluation and correction of students' errors.

Researchers from the University of Pennsylvania showed that their students who train on DentSim learn twice as fast as students who learn on the traditional head-on-a-stick apparatus used at VCU previously. The DentSim lab equipment contains the same instruments used in clinics — headpieces, water spray and suction — for a more realistic simulation of clinical dentistry.

With a fully operational virtual reality-based training lab, the VCU School of Dentistry is one of an elite group of U.S. dental schools with widespread use of this state-of-the-art equipment.

In the coming year, a 100-station mannequin lab will be constructed, representing the final phase of renovations of the preclinical laboratories. When finished, the lab will allow students to do all their preclinical preparations on mannequins similar to those in the DentSim lab. Although DentSim



Courtney Meyer, VCU Doctor of Dental Surgery Program

system is well-suited to single-tooth preparations, the new lab will be more conducive to multistage preparations such as a three-unit bridge. Also, each station in the mannequin lab will have individual computer monitors so students can view videos, slides and DVDs or check documents on the Internet.

TAKING STUDENTS, SERVICES ON THE ROAD

The dental school continued to build an off-campus preceptorship program and increase accessibility to new practice settings. In September 2006, fourth-year dental students began staffing a new clinic in Martinsville, Va. The clinic is part of an extended program of preceptorships that the School of Dentistry has been conducting for years. All fourth-year students in the dental hygiene and D.D.S. programs participate in rotations at public clinics, providing dental care services for underserved Virginians. The primary clinic sites have been in Lynchburg, Kilmarnock, Roanoke, Boydton and Norfolk; the Martinsville clinic is the newest location.

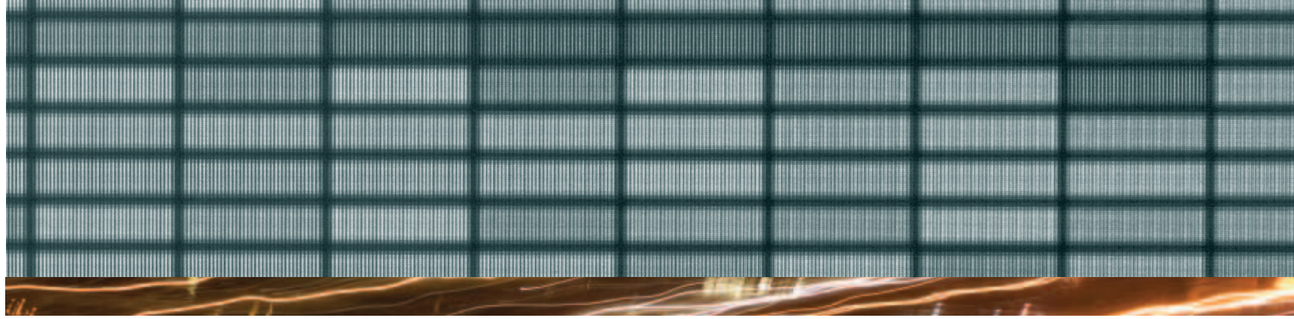
"These rotations expose students to underserved populations and provide experiences in alternative dental delivery systems while increasing access to dental care for Virginians," said Hunt. "Students gain real-world experiences not possible in the dental-school setting. They see firsthand the opportunity, the quality of life and quality of practice in rural areas, while observing the business side of dental practice."

Earlier in the year, representatives from the dental school teamed up with the Virginia Dental Association through the Mission of Mercy (MOM) project to provide free dental care to the residents of New Orleans.

Four VCU students along with Carol Brooks, D.D.S., associate professor in the School of Dentistry, and several VCU alumni, joined other health care professionals from around the country to take part in the Katrina Mission of Mercy project.

The MOM project offered victims of Hurricane Katrina access to dental care — ranging from fillings and extractions to cleanings — that was unavailable due to the damage sustained by medical facilities in and around the city. According to event organizers, there were approximately 4,000 dental patients, which included uninsured, underinsured and temporary residents.

The MOM project was established in Virginia in 2000 as a response to the lack of access to care for individuals in underserved areas, and has been adopted by other states as a model for their dental missions. Virginia's MOM projects have broken records in the number of patients treated at respective projects by providing free dental care to more than 14,000 patients with a monetary value of more than $5 million.



CONNECTING ORAL HEALTH TO TOTAL WELLNESS

Todd O. Kitten, Ph.D., and Janina P. Lewis, Ph.D., both of VCU's Philips Institute of Oral and Craniofacial Molecular Biology, are conducting National Institutes of Health-funded research on the virulence of oral streptococci in dental caries and in diseases that occur beyond the oral cavity.

Kitten is studying Streptococcus sanguinis — a bacterium that is the leading cause of heart valve infections known as endocarditis. According to Kitten, the bacteria live on teeth and escape into the bloodstream, causing this serious infection of the heart, which can result in impairment of heart function and complications such as heart attack and stroke.

"Our research will help us better understand the processes by which endocarditis and periodontal disease occur, and hopefully will lead to improved methods for treating or preventing these diseases" » Todd O. Kitten, Ph.D.

Lewis' research centers on the molecular approaches to elucidate the virulence factors of anaerobic bacteria such as Porphyromonas gingivalis and Prevotella intermedia, which are involved in the development and progression of periodontal diseases.

"Our research will help us better understand the processes by which endocarditis and periodontal disease occur, and hopefully will lead to improved methods for treating or preventing these diseases," said Kitten.

Janina P. Lewis, Ph.D., and Todd O. Kitten, Ph.D.
VCU Philips Institute of Oral and Craniofacial Molecular Biology

Both researchers' studies are funded by the National Institutes of Health, contributing to a 29 percent increase in grant monies to more than $1 million for the institute in the past year.

Workforce development

» » » » » » » » BUILDING THE HEALTH CAREER PIPELINE

At the VCU Medical Center, teachers are doing far more than standing in front of class; they're looking to the future, creating opportunities for today's students to become better practitioners and encouraging future generations of health care professionals.

In November 2006, approximately 600 teenage girls packed the gymnasium of Huguenot High School in Richmond, Va., to learn what it takes to be healthy, eat right and get inspired for a future in the health care field.

The teenagers participated in the first ever Young Women's Health Day event. Led by the VCU Institute for Women's Health and the VCU Women in Medicine Student Organization, and supported by the VCU Health System's Department of Community Outreach and the Office for Workforce Development, the event was held to provide health education and to promote health career opportunities for young women.

"We need to promote healthy behavior at a younger age and to empower these teenaged girls with education. We also want to demystify science and health care," said Wendy Klein, M.D., an associate professor in the VCU School of Medicine and co-founder and senior deputy director of the VCU Institute for Women's Health. "In addition, we need to make strides to increase the pipeline of students who are interested in health and science careers. Our program served to meet both those ends."

Students had the opportunity to learn from VCU experts and visit information booths for resources on teen issues, nutrition, bone health, healthy relationships, sports and fitness, cancer, self-image, and self-confidence. Additionally, VCU experts from radiation sciences, nursing, medicine, physical therapy, occupational therapy, pharmacy, forensics, dentistry, clinical laboratory sciences, respiratory care services and emergency medical services talked with participants about career possibilities.

"The response was overwhelming," said Sheryl Garland, M.H.A., vice president for community outreach for the VCU Health System. "Creating a health fair-type environment engaged the students more than lectures or just handing out materials would have, and the general consensus from many of the school's administrators, teachers and program participants is that the event provided students with good information to help them make informed decisions."

More than 80 volunteers from across the VCU Medical Center helped run the event. Support also came from local radio station WCDX 92.1 FM and popular disc jockey Kay Montey, the Alpha Kappa Alpha sorority, American Family Fitness and the Virginia League for Planned Parenthood. Additional support came from Huguenot High School teachers and leadership.

Sheryl Garland, M.H.A., Department of Community Outreach, VCU Health System

Throughout the VCU Medical Center, departments and schools develop and participate in myriad community engagement activities to promote health care careers. One example is "Jump Rope to Stethoscope," a pipeline program that links and enhances existing outreach, academic and mentoring activities. In 2006, the program welcomed more than 1,400 children to the MCV Campus.

"A Week in Scrubs." This past summer, the VCU School of Nursing in partnership with the VCU Medical Center hosted "A Week in Scrubs" through the VCU Summer Discovery series. Twelve local middle schoolers spent their mornings in a variety of settings in the medical center learning about many aspects of nursing care — from pediatrics to forensic nursing.

Fast-tracked training. In collaboration with the Department of Internal Medicine and under the leadership of Gordon Archer, M.D., associate dean for research, the VCU School of Medicine developed a Physician-Scientist Training Program. This residency "research track" allows the school to recruit residents with strong research backgrounds by shortening their internal medicine residency training period by one year and providing partial support for three years of research following their clinical training.

TURNING VIRTUAL TRAINING INTO A REALITY

The VCU Medical Center is enhancing patient safety using the most advanced forms of simulation-based medical training. The schools of Dentistry and Nursing both have high-tech, mock patients that allow students to practice complex procedures over and over again until they become second nature.

With the purchase of two central line simulators in the spring of 2006, the School of Medicine joined the growing number of VCU health sciences schools incorporating advanced technology into medical training. Last year, the school's computer-based instruction laboratory piloted workshops for third-year students to practice their central venous catheterization skills. All students participated in a lecture on central lines followed by a 90-minute elective interactive session where they could practice central line placement on a mannequin. Additional sessions were held to include the use of the central line simulator as well as the Virtual IV, a comprehensive and fully interactive self-directed learning system for training in intravenous catheterization.

VCU's School of Allied Health Professions also has ratcheted up its use of technological teaching aids. In 2006, the school upgraded the output of its webcasts of lectures and added a podcasting feature. The school's distance-learning students in nurse anesthesia can now download their lectures to an MP3 player. This output is in a video format so that students can watch lectures as well as listen to them. All Ph.D. lectures also are digitized so that they can be downloaded for review.

"Today, students at all levels learn with the use of advanced technologies. Synchronous and asynchronous modalities, along with MP3 player downloads of classroom sessions have produced outstanding instruction to students far outside the traditional classroom," said Cecil B. Drain, Ph.D., FAAN, FASAHP, dean of the VCU School of Allied Health Professions. "It is most interesting that distance-learning students are among those showing the strongest scores on professional certification exams."

AWARDING VCU FACULTY WITH TOP MARKS

Several VCU faculty members received high honors for their teaching and mentoring work in 2006.

Head and shoulders above. The American Academy of Otolaryngology-Head and Neck Surgery's Distinguished Service Award went to Aristides Sismanis, M.D., professor and chair of otolaryngology, for his educational contributions in the field.

Exceptional delivery. Edward Gill, M.D., and John Pierce, M.D., both assistant professors in the Department of Obstetrics and Gynecology, received the Association of Professors of Gynecology and Obstetrics 2005 National Excellence in Teaching Award for Medical Student Education. The association also recognized professor Thomas Peng, M.D., for his teaching excellence in graduate medical education.

Cecil B. Drain, Ph.D., FAAN, FASAHP, dean, VCU School of Allied Health Professions

Crossing oceans, culture for education

In 2006, pharmacy students swapped spots with their counterparts from the University of Messina in Italy, one of VCU's 15 international partner universities. The one-month educational exchange exposed students to the significant differences in both the education and the practice of pharmacy in the two countries — specifically how in the U.S. students gain clinical experience working with patients to understand drug use and drug response, and how pharmacists have increased responsibility for drug therapy outcomes.

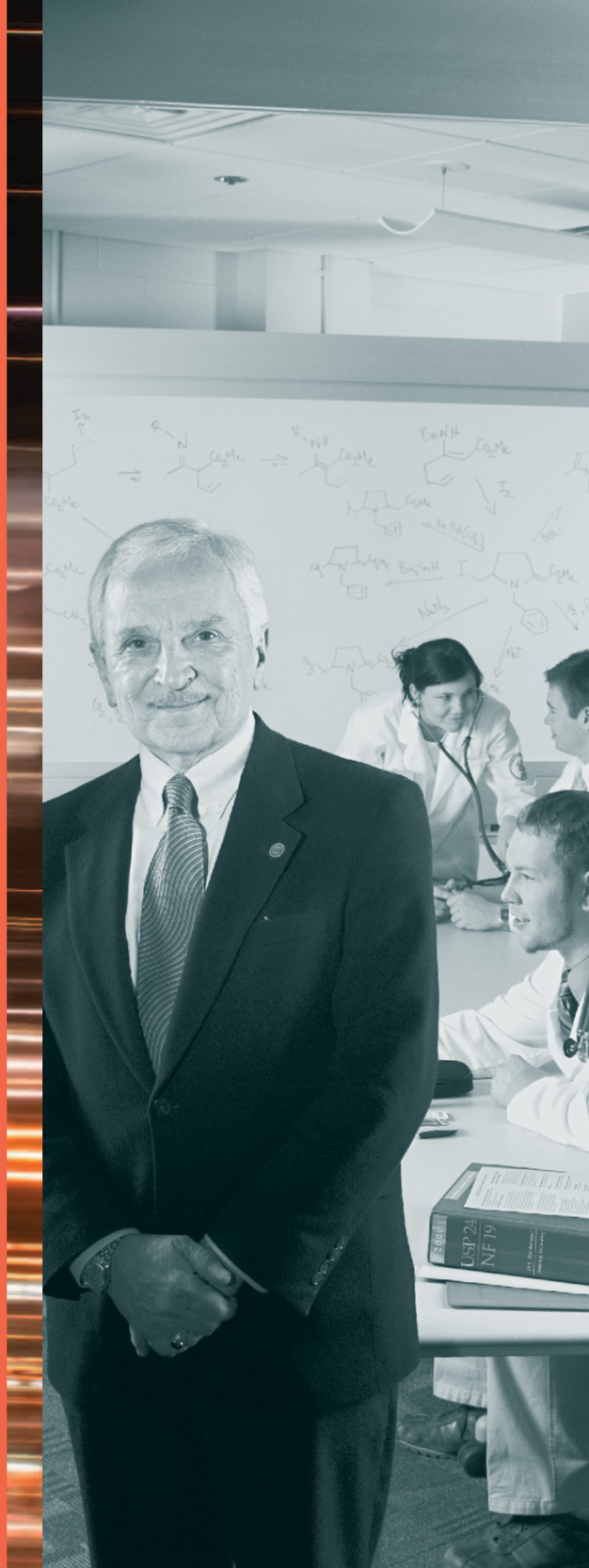
In Italy, students focus more on the behind-the-scenes research, studying the medicinal chemistry of drugs, said Victor Yanchick, Ph.D., dean of the VCU School of Pharmacy and president-elect-designate of the American Association of Colleges of Pharmacy.

Eight VCU students — who had to already speak the language or take a special course in conversational Italian — spent time in Messina's research laboratories examining the molecular basis of drug design. Back in Richmond, the four Messina students worked in VCU's Center for Drug Studies, gaining hands-on experience with Phase I clinical trials for the development of new drugs and new drug delivery systems.

This once-in-a-lifetime experience allows VCU students to gain an appreciation and understanding for the different types of research conducted by pharmacy schools abroad, said Yanchick. He added, "the program is a great way to give our school and university more visibility and credibility in the international community."

VCU and Messina pharmacy students will trade spaces again this June, and talks are under way to expand the exchange program to the University of Sãn Paulo in Brazil in 2008. Plans also are in the works to establish faculty research sabbaticals between VCU and its partner institutions.

"The program is a great way to give our school and university more visibility and credibility in the international community." » Victor Yanchick, Ph.D., dean, VCU School of Pharmacy



Access to care

» » » » » » » » ELIMINATING HEALTH DISPARITIES

Wally Smith, M.D., VCU Department of Internal Medicine

In December 2005, the Center on Health Disparities was established. Led by Wally Smith, M.D., chair of the Division of Quality Health Care, the center develops and facilitates research, education, access to health care services and workforce diversity initiatives that will reduce health disparities in populations in Virginia. The center's vision is to have a positive impact on communities through the development of programs that are focused on the needs of those served. These programs will serve as a catalyst for change in health policy and public policy in Virginia.

The center has taken the first step toward achieving the goal of enhancing community partnerships by receiving a consulting grant from the Community-Campus Partnerships for Health and the W.K. Kellogg Foundation. The VCU School of Medicine's graduate program in public health was one of 12 universities selected to participate in the foundation's Engaged Institutions Initiative, which focuses on eliminating racial and ethnic health disparities. The initiative will bring together the institutions and their communities to build upon their strengths and capacities to address the health disparities that persist between whites and minorities. The center's team will receive intense consulting from experts on how to fully engage the community and create a lasting partnership for years to come.

Most recently, the center focused on how to best serve the growing Latino population in Central Virginia. Latin Americans represent one of the largest population groups immigrating to the Richmond area, with a growth rate five times that of the overall population. In November, the center co-sponsored the Latino Health Summit with the School of World Studies. The two-day summit included plenary and small group sessions to equip health care providers, community leaders and individuals involved in the provision of health services with information, knowledge and resources to better serve the growing Latino community.

IDENTIFYING POVERTY AS A GROWING THREAT

A research study led by Steven H. Woolf, M.D., M.P.H., professor and director of research in VCU's Department of Family Medicine, underscores the public health burden associated with disparities in health status.

According to the study published in the October 2006 issue of the American Journal of Preventive Medicine, the percentage of Americans living in severe poverty — earning less than half of the poverty threshold — grew by 20 percent between 2000 and 2004, and the proportion in higher income tiers fell.

"These trends have disturbing implications for society and public health," said Woolf.

The study's authors predicted that increasing poverty would cause "a higher prevalence of chronic illnesses, more frequent and severe disease complications and increased demands and costs for health care services."

The researchers found that the only income category of Americans to increase in number was that of individuals and families whose earnings were at least $8,000 below the poverty threshold. That group grew by approximately 50 percent between 2000 and 2004. All other income tiers decreased during these years. The poverty threshold in 2004 for a family of four was $19,307.

While poverty rates declined in the 1990s, the number of Americans living in severe poverty increased by 3.6 million between 2000 and 2004, according to the study. Those most likely to be living in severe poverty were children and minorities, the study reported.

"This is not just a problem for the poor," Woolf said. "Except for a small class of highly affluent Americans, income for the entire U.S. population has fallen since 2000."

Woolf and his co-authors describe a "sinkhole effect," in which "families and individuals in the middle and upper-class appear to be migrating to lower income tiers that bring them closer to the poverty threshold."

EQUALIZING SERVICES ACROSS THE BOARD

The International Society on Hypertension in Blacks awarded Domenic Sica, M.D., VCU professor of internal medicine and nephrology, a 2006 Master Clinician Award in recognition of his leadership and achievements in overcoming health disparities in ethnic minority populations.

"Ethnic and minority health care issues are critical concerns in this country," said Sica. "Of even more importance is providing quality health care to underserved patients in general, irrespective of ethnicity.

"Patients just want to be treated with some respect, and when that is done, the feeling of self-worth so engendered can have a dramatic impact on patient adherence to therapy as well as their having hope that something can be done for them," he said.

A specialist in all forms of hypertension, Sica headed a research team at VCU that incorporated the first medical implantation device of its kind to treat resistant hypertension — making VCU the first medical center in Virginia to perform the surgical procedure and only the second in the country. In addition, he has been extensively involved in service and leadership capacities with a number of nephrology, clinical pharmacology and hypertension organizations.

INVESTIGATING THE REAL 'COST' OF ILLNESS

Treating cancer can cost hundreds of thousands of dollars for patients, their families, insurance companies and hospitals. But what about the economic cost to patients, employers and society?

Cathy J. Bradley, Ph.D., professor in VCU's Department of Health Administration and a health economist for the VCU Massey Cancer Center, conducts the majority of her research into the economic outcomes, and work loss in particular, of people diagnosed with cancer.

Bradley's research, often quoted in news media throughout the country, looks at cancer treatment in terms of workplace experiences, racial disparities in outcomes, health insurance, treatment costs and other issues. Bradley, as both a principal and a co-investigator, holds about $7 million in grants from the National Cancer Institute and the National Institutes of Health.

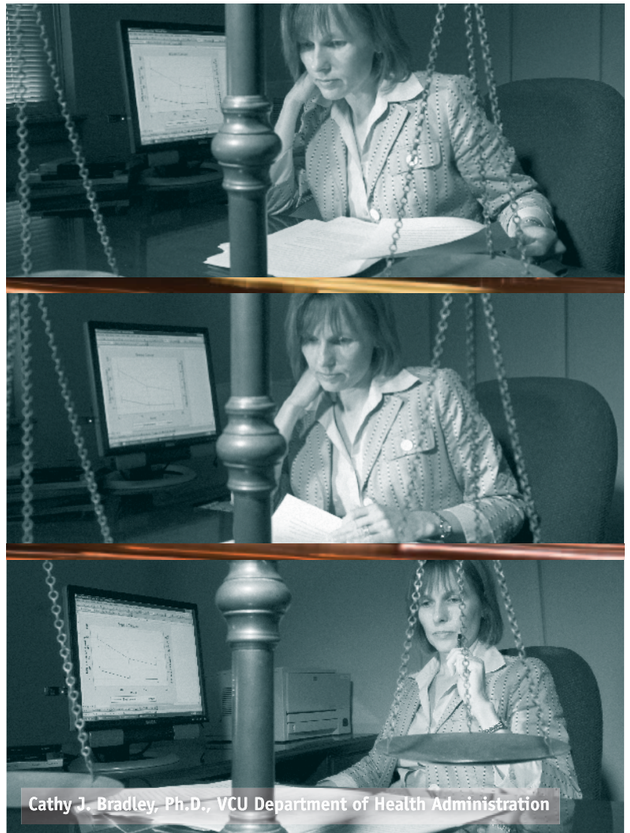
A study published in the Journal of the National Cancer Institute followed 267 employed men with prostate cancer and showed that 10 percent were less likely to be working six months after their cancer diagnosis than men without the disease. Significantly, two-thirds of those men still working reported they did so out of fear of losing their health insurance coverage.

Bradley also found in the study that one-third of 500 women with breast cancer were not working six months following their diagnosis. However, by 12 months, many had returned to the workforce.

"Many cancer patients work because they can't afford not to," Bradley said, adding that it's often single mothers with cancer who suffer in particular. "If they can't work and do their cancer therapy at the same time, they may quit therapy, not their job."

CULTIVATING HEALTHY FAMILIES, LIFESTYLES

A preceptorship program designed to increase the number of family physicians serving inner city and rural communities is working. The Inner City/Rural Preceptorship, sponsored by the Department of Family Medicine, provides community-based experiences for students to cultivate interests in serving medically disadvantaged populations in Virginia through mentoring activities and clinical experiences. The latest data reveal that the majority of students completing the six-year-old program select a family medicine residency. The preceptorship operates under the department's Inner City/Rural Program, which was established to identify, recruit and provide relevant education to medical students committed to practicing in underserved communities.



Cathy J. Bradley, Ph.D., VCU Department of Health Administration

ElderFriends participants Liz Olliver, R.N., and Tilley Powers

INCREASING RESOURCES FOR SHELTERS

VCU's nationally recognized Institute for Women's Health recently received the Jenkins Foundation Award, a grant for $70,000 that will aid in its shelter-based health services project. The project will bring together teams from VCU and other organizations to provide on-site health assessment, care coordination and referral services as well as a health education program for shelter residents and community health providers. The shelter-based services project estimates it will serve up to 250 women and 75 children living in the YWCA and Safe Harbor shelters.

ENRICHING LIVES THROUGH FRIENDSHIP

Through ElderFriends, a specialized program endorsed by the VCU Department of Gerontology, community volunteers have been connecting with local seniors to give them life's most cherished gift — time.

"These individuals are making a difference in the community and in their own lives," said Kiersten Ware, the program's founding director and a graduate student at VCU. "We're lucky to have such caring, inspiring people on board."

In 1996 while she was studying in Seattle, Ware established ElderFriends in response to the growing need for aging services in that city.

In 2005, she approached VCU to replicate the program — modifying the design to build on the university's existing strengths in social work and health care expertise. Then in the summer of 2006, after one year of planning and implementation, she and the program's advocate coordinator Sarah Coble set an ambitious goal to find 12 matches. They had no idea how quickly it would be met. "We're already at 16 and only halfway through the year," said Ware, adding that the program is equipped to support 125 matches once in full operation.

ElderFriends also complements and expands on the services provided by local agencies — such as Meals on Wheels and Senior Connections — to offer companionship, outreach and advocacy to Richmond's aging community.

> "These individuals are making a difference in the community and in their own lives." » Kiersten Ware

Kudos

» » » » » » » » » PROVING PREEMINENCE IN EDUCATION, EMPLOYMENT AND PATIENT CARE

1 » Gloria Bazzoli, Ph.D., VCU School of Allied Health Professions
2 » Richard P. Wenzel, M.D., M.Sc., VCU Department of Internal Medicine
3 » Lenore Buckley, M.D., M.P.H., VCU Department of Internal Medicine
4 » John T. Povlishock, Ph.D., VCU Department of Anatomy and Neurobiology

A local favorite. VCU Health System received the 2006-07 Consumer Choice Award from the National Research Corporation for providing high-quality health services. Results were based on an independent survey of residents of Central Virginia.

Making the grade. The Center for Companies that Care named the VCU Health System to the fourth annual Honor Roll, recognizing its work environment as among the nation's top 27. Also in 2006, the Richmond Human Resources Management Association and the Greater Richmond Chamber of Commerce designated the VCU Health System as the Greater Richmond Area Employer of Choice.

Top docs. Best Doctors Inc. listed 54 full-time VCU Medical Center physicians as among the 2006 Best Doctors in America — in specialties ranging from cardiology to gynecology to oncology.

Quality education. U.S. News & World Report continues to rank VCU programs as among the very best: Nurse Anesthesia, No. 1; Health Administration, No. 5; Physical Therapy, No. 15; Occupational Therapy, No. 17; Rehabilitation Counseling, No. 20; Doctor of Pharmacy, No. 21. VCU's accredited Master of Science in Health Administration also ranked second in the nation for physician executives, according to the May 2006 issue of the journal Modern Healthcare.

Highest level of emergency care, 24/7. The VCU Medical Center's Division of Trauma and its Trauma program received national verification as a Level I trauma center by the American College of Surgeons' Committee on Trauma. VCU Life Evac program, Virginia's only 24-hour air medical service with fetal monitoring capabilities, received full accreditation by the Commission on Accreditation of Medical Transport Systems, a national nonprofit organization that has set the industry standard for safety and patient care since 1991.

Known for care. The VCU Department of Family Medicine received the Program of Excellence Award from the American Association of Family Physicians for its excellence in community outreach provided through the Caritas Clinic, a mobile screening clinic for the homeless population.

World leader. Richard P. Wenzel, M.D., M.Sc., professor and chair of the VCU Department of Internal Medicine and president of MCV Physicians, has been named president of the International Society for Infectious Diseases.

Stately honor. Gov. Tim Kaine and the Science Museum of Virginia named VCU scientist John T. Povlishock, Ph.D., the 2006 Virginia Outstanding Scientist for his contributions in identifying how the brain responds to injury and translating that work into promising clinical trials for brain-injured patients. Povlishock, professor and chair of the VCU School of Medicine's Department of Anatomy and Neurobiology, is director of the Commonwealth Center for the Study of Brain Injury. For the past 30 years, Povlishock and his research group have studied how axons respond to traumatic brain injury, or TBI, a condition that affects an estimated 2 million Americans each year.

A friend in deed. William L. Dewey, M.S., Ph.D., VCU professor of pharmacology and toxicology, received the National Institute on Drug Abuse's Public Service Award for creating The Friends of NIDA, a private group that raises awareness about the critical role of science in eliminating addiction and its consequences.

Giving insight. Kenneth S. Kendler, M.D., VCU psychiatrist and psychiatric geneticist, received the Marmor Award from the American Psychiatric Association for his contributions in advancing the biopsychosocial model of psychiatry.

Clinically acclaimed. The VCU Health System bestowed its highest honor for a physician — the Distinguished Clinician Award — to Lenore Buckley, M.D., M.P.H., professor of internal medicine and pediatrics, for her clinical excellence and quality of patient care and compassion.

Hosting Humphrey fellows. The VCU School of Medicine was named as a host campus for the Hubert H. Humphrey Fellowship Program in Substance Abuse, Prevention and Treatment, a Fulbright exchange program that brings midlevel professionals from other countries to the U.S. to study for one year.

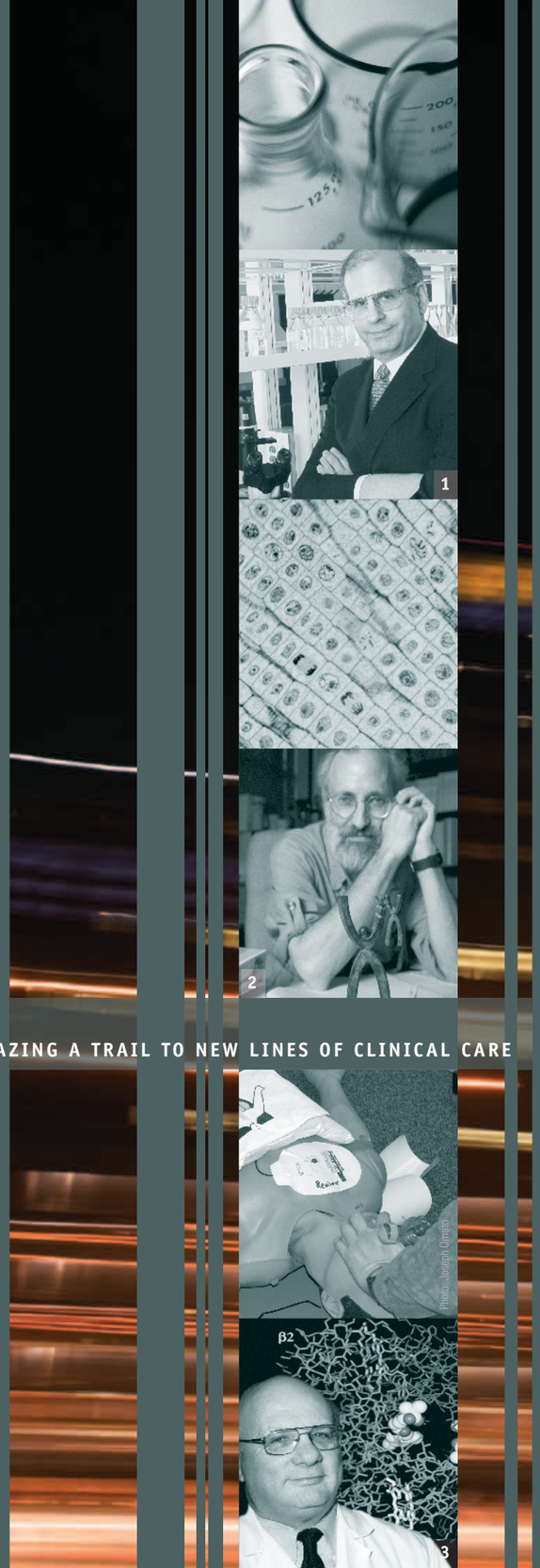
Exercising excellence. CIGNA, Anthem and the Surgical Review Corp. independently recognized the VCU Medical Center for its excellence in bariatric and obesity surgery.

Center of Activity. VCU's Hume-Lee Transplant Center was ranked among the 50 most active renal transplant centers in the U.S. by Nephrology News & Issues. Based on data from the United Network for Organ Sharing, the Hume-Lee center jumped from 50 to 40 with 116 transplants performed in 2005, compared to 100 a year earlier. There are about 260 kidney transplant centers nationwide.

Chief leader. Gloria Bazzoli, Ph.D., a professor in the VCU School of Allied Health Professions' Department of Health Administration, was named editor-in-chief of the journal Medical Care Research and Review. Published by Sage Publications in Thousand Oaks, Calif., the bimonthly publication, in addition to focusing on health services research, carries critical reviews of literature on organizational structure, economics and the financing of health and medical care systems.

Research

» » » » » » » » » BLAZING A TRAIL TO NEW LINES OF CLINICAL CARE



VCU researchers long have been pioneers in clinical and translational research, focusing wherever possible on improving human health and clinical care. They're devoted to producing tangible benefits to global and individual health — to saving and improving lives everywhere.

Preventing preterm births. Jerome F. Strauss III, M.D., Ph.D., dean of VCU's School of Medicine, and colleagues identified a genetic variant that may account for the higher rates of premature delivery experienced by African-American women compared with European-American women, according to findings published online in the Proceedings of the National Academy of Sciences. Working under a five-year $1.9 million National Institutes of Health grant, the team found that a change in a single nucleotide in the gene sequence, known as a single nucleotide polymorphism (SNP), in the SERPINH1 gene may be responsible for the increased risk of preterm premature rupture of membranes in women of African descent. The SERPINH1 gene encodes a heat shock protein known as Hsp47, which is essential for collagen production. Collagen lends strength to the membranes that surround the fetus and amniotic fluid. According to Strauss, the genetic signature can help identify women at risk of early breakage of the "bag of waters" so that appropriate monitoring and therapy can be applied in order to prevent this serious complication in pregnancy.

Pinpointing tumors. Panos Fatouros, Ph.D., a professor in VCU's Department of Radiology, has been awarded a five-year, $3.7 million grant from the National Institutes of Health's National Cancer Institute to lead a team of scientists from VCU and Virginia Tech to further develop, produce and test nanoparticles that can identify brain tumor cells and selectively target them for radiation therapy. Using this material, called a functional metallofullerene or "buckyball," Fatouros and VCU neurosurgeon William Broaddus, M.D., Ph.D., found that the nanoparticles highlighted the tumors more effectively than existing imaging agents. The fMF material provides improved brain tissue differentiation and a dark outline of the tumor margin, making surgical removal more precise.

On the pulse of cardiac care. According to a study by Joseph P. Ornato, M.D., chair of the VCU School of Medicine's Department of Emergency Medicine and medical director of the Richmond Ambulance Authority, survival rates of patients suffering a cardiac arrest dramatically improved when they were treated with an automated cardiopulmonary resuscitation device — AutoPulse — versus manual CPR prior to reaching the hospital. "Before we had the AutoPulse, our paramedics could only restart 20.2 percent of hearts in the field using standard manual CPR. Since the introduction of the AutoPulse device, they now restart 34.5 percent of hearts. More importantly, prior to AutoPulse only 3 percent of cardiac arrest patients survived to hospital discharge (similar to the national average). Now, with AutoPulse, almost 10 percent of cardiac arrest patients in Richmond survive to hospital discharge," says Ornato. He adds that Richmond is the first EMS agency in the country to have significantly more patients survive and be discharged from the hospital with use of the device.

Reducing the pressure of critical care. Researchers in VCU's Reanimation Engineering Shock Center have developed and patented a new, noninvasive means of measuring blood pressure inside the heart. The measurement to determine central venous pressure (CVP) — a reading that gives doctors important information about the volume of blood circulation and how well the heart is pumping — now can be done using a simple blood pressure cuff and special electrodes connected to a computer. Until now, doctors had to thread a catheter through the neck or chest to a point near the right atrium — the first of the heart's four pumping chambers — to accurately determine central pressure. In a recent study published in the journal Resuscitation, VCU investigators used the method to measure CVP in critically ill or injured patients who already were undergoing CVP measurement using the conventional catheter technique. The investigators found the new noninvasive method was as accurate and precise as directly measuring CVP from the catheter.

Foot mechanics. VCU inventors Joseph M. Iaquinto and Jennifer S. Wayne, Ph.D., developed a simulator capable of recreating realistic load distribution across the plantar surface of the foot, mimicking dynamic contact gait and controlling it electronically. Used as a physical simulation tool to study the biomechanical function of the lower extremity during the contact phase of gait in normal, injured and surgically altered

1 » Jerome F. Strauss III, M.D., Ph.D., dean, VCU School of Medicine
2 » Kenneth S. Kendler, M.D., VCU Department of Psychiatry
3 » Donald J. Abraham, Ph.D., VCU Department of Medicinal Chemistry

states, this novel system provides a quantitative means to predict and assess a variety of effects from things such as injury patterns and surgical corrective procedures. Wayne is a professor in the Department of Biomedical Engineering, and Iaquinto is a graduate student in the department.

Tracking the status. Robert DeLorenzo, M.D., Ph.D., a professor of neurology in the School of Medicine, received two grants from the National Institutes of Health totaling nearly $6 million for continued clinical research and basic laboratory studies on the mechanisms and treatment of status epilepticus, a life-threatening form of epilepsy. The Department of Neurology's epilepsy center at the VCU Medical Center has been studying the causes of epilepsy for 15 years and has compiled one of the world's largest databases on status epilepticus.

Treating sickle cell disease. A VCU research team led by Donald Abraham, Ph.D., the Alfred and Frances Burger Professor of Biological and Medicinal Chemistry, in the Department of Medicinal Chemistry in VCU's School of Pharmacy, has developed a unique anti-sickling agent, 5-HMF, that has a high affinity for sickle cell hemoglobin and holds promise for the treatment of sickle cell disease. Recently, VCU received written notification from the U.S. Patent and Trademark Office that a patent relating to this method of sickle cell treatment cleared an internal review and has been approved for issuance.

A genetic tie. In the Oct. 2, 2006, issue of the journal Archives of General Psychiatry, researchers reported the results from both longitudinal and genetic analyses that showed that neuroticism is a strong predictor for major depression. Using twin modeling, the researchers determined that a substantial proportion of the genetic vulnerability to depression is shared with neuroticism. Kenneth S. Kendler, M.D., a professor of psychiatry and human genetics in VCU's School of Medicine and lead author on the study, collaborated with Charles O. Gardener, Ph.D., from VCU and Margaret Gatz, Ph.D., and Nancy L. Pedersen, Ph.D., who are affiliated with the University of Southern California and the Karolinska Institute in Stockholm, Sweden.

Unmasking molecule transport. Sarah Spiegel, Ph.D., professor and chair of the Department of Biochemistry, and colleagues have identified how a bioactive molecule involved with allergy, inflammation and cancer is transported out of mast cells. These are specialized cells that react to allergy-causing agents by releasing substances that trigger the body's allergic response, leading to conditions such as asthma and hives. Among the molecules released by mast cells that participate in the allergic response is sphingosine-1-phosphate. This molecule also is implicated in cancer. The work by VCU investigators opens up a new approach to treating asthma, which affects about 15 million Americans and is increasing in incidence and mortality, especially among African-Americans. It also has implications for other allergic disorders and for cancer in terms of developing drugs that inhibit the transport of S1P out of cells.

Preventing Lyme disease. Richard Marconi, Ph.D., a professor of microbiology and immunology, received a $1.8 million National Institutes of Health grant to further his studies on Lyme disease. One of only a dozen researchers in the world working to develop an effective vaccine and a more accurate test so that doctors can treat the disease before health problems develop, Marconi will use the NIH funding to develop new and improved vaccines for prevention.

Moving in on a cure. Kathryn Holloway, M.D., received a five-year $500,000 grant from the Parkinson's Disease Research, Education and Clinical Centers to further her work with movement disorder patients and deep brain stimulation. A professor in the VCU Department of Neurosurgery and the director of neurosurgery for the Richmond/Southeast PDRECC at McGuire VA Medical Center, Holloway is a leading expert on DBS. Her development of "frameless" DBS is considered a revolution in functional neurosurgery and is now being used at about 20 locations worldwide. The grant is the only one PDRECC awarded on the East Coast.

Centers promoting research

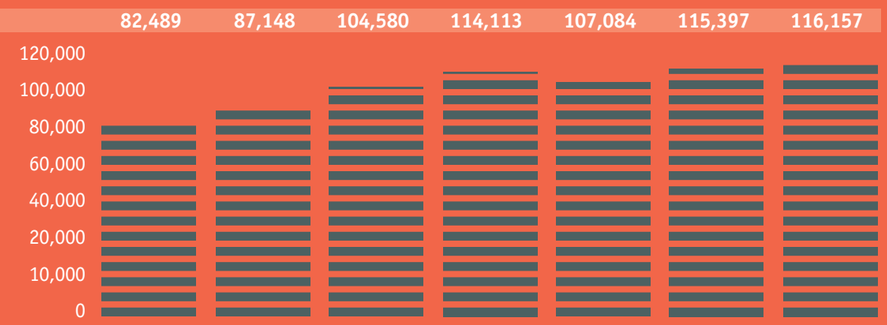
An alliance for rehabilitation research. Partnering with the Virginia Department of Rehabilitation Services, VCU established the Center for Rehabilitation Science and Engineering. CERSE, a close alliance of VCU departments, six cores, special interest groups and seven lab settings, provides concrete support for the formulation of fundable research and training ideas, research-team building, methodological expertise, project planning, IRB approvals, budgeting, grant-getting, project implementation, program evaluation, and dissemination and utilization of findings. CERSE offers both collegial opportunities and an international network of collaborators to all VCU researchers interested in disability issues.

Bringing the country in sync. In 2006, VCU became home to the Coordination, Outreach and Research Center of the National Institute on Disability and Rehabilitation Research's 10 regional Disability and Business Technical Assistance Centers. The CORC will take the lead in conducting activities to improve the capacity of the regional DBTACs to use research-based information to help achieve the objectives of the Americans with Disabilities Act and improve employment outcomes for individuals with disabilities. The plan of operation includes 19 original research studies, 18 training activities, nine dissemination projects, 12 technical assistance projects and program evaluation.

Putting research plans in place. In response to a National Institutes of Health initiative and upon receipt of an NIH planning award, VCU has established a Center for Clinical and Translational Science to enhance the university's research infrastructure and promote collaborative research. The university will use the planning period and funding to define and establish the necessary infrastructure, educational programs, cultural changes and governance procedures needed to achieve success. When complete, the center will offer a corridor in which all participants in the translational research continuum can meet, interact and advance each others' missions.

Increasing capacity for care. The School of Medicine established a joint effort among the departments of Internal Medicine, Surgery, Radiology and Pathology to create the first comprehensive Lung Center in Virginia. The center will not only streamline care of complex thoracic diseases but will also provide a model for interdisciplinary research and collaborative teaching.

SPONSORED PROGRAM AWARDS (IN THOUSANDS OF DOLLARS)



	'00	'01	'02	'03	'04	'05	'06
Allied Health Professions	1,588	2,489	4,059	2,656	1,539	2,633	2,457
Dentistry	545	1,673	2,280	2,886	2,957	2,014	1,396
Medicine	73,333	74,001	87,470	92,348	93,941	100,999	100,748
Nursing	335	1,788	1,777	1,790	2,889	2,413	3,200
Pharmacy	5,597	5,588	7,100	10,455	3,790	4,956	3,721
Health Sciences Career	1,091	1,609	1,894	3,978	1,968	1,382	4,635

Facilities

» » » » » » » » » FORTIFYING THE HEALTH OF THE MEDICAL CENTER

The next two years will see a physical transformation of the VCU Medical Center as facilities are expanded, renovated and built from the ground up in response to three key growth areas: student enrollment, funded research and the demand for state-of-the-art, specialized medical care.

1 » CRITICAL CARE HOSPITAL

Construction continued in 2006 on the $192 million, 367,000-square-foot Critical Care Hospital, which when opened in the fall of 2008 will launch a new era in how seriously ill and injured patients receive treatment in Central Virginia. The 15-level hospital will expand the VCU Medical Center's capacity with new intensive care units for surgical trauma, neonatal, cardiac, neuroscience, medical respiratory and burn center patients. In addition, the hospital will house 232 adult patient beds, increasing the medical center's ratio of private to semiprivate beds from 37 percent to 70 percent.

2 » THE GOODWIN RESEARCH LABORATORY

In May 2006, the VCU Massey Cancer Center dedicated the $41.5 million, 80,000-square-foot Goodwin Research Laboratory. Designed for maximum collaboration, the building's open architecture promotes the synergies of thought and breakthrough ideas needed to fight cancer. The 68 modular labs can accommodate up to 250 researchers and expand or contract to meet the needs of research teams, and centrally located shared equipment encourages interaction while controlling costs. It also has small meeting rooms, a large formal conference room and office space.

3 » SCHOOL OF NURSING BUILDING

Completed in December 2006 and welcoming its first students this fall, the 70,000-square-foot, four-story School of Nursing building offers increased space for expanded enrollment to address Virginia's nursing shortage. The $17 million building includes research areas, a clinical learning center with patient simulators and a community outreach nursing center.

4 » MEDICAL SCIENCES BUILDING II

Site preparation began in 2006 for the $68.7 million, 125,000-square-foot Medical Sciences Building II to support the university's growing research enterprise. Housing predominantly research labs and research support areas, the nine-story MSB2 will connect floor to floor with the Hermes A. Kontos Medical Sciences Building, and include a pedestrian walkway between the two buildings. Projected opening is August 2008.

5 » DENTAL BUILDING

The School of Dentistry received $9.15 million from the Virginia General Assembly and additional donor funds in 2006 to cover the cost of constructing a new 55,000-square-foot, four-story building on Leigh Street. The $11.75 million facility will connect the existing Lyons and Wood dental school buildings, providing space for expanded enrollment and research when it opens in the winter of 2008-09. Groundbreaking is scheduled for this summer.

6 » HUNTON STUDENT CENTER

The unveiling of the Hunton Student Center in October 2006 marked the completion of a $6 million renovation project to turn the 166-year-old former Baptist church into a first-rate gathering place on the MCV Campus for the university community. The refurbished, three-story center serves as the first student commons for the MCV Campus, and includes food service plus space for recreation, lounging, studying, small group meetings and offices for student government and student affairs staff. The renovations for this modern facility were accomplished while still preserving the historical features of the building, such as original church pews.

Financials

» » » » » » » » » TALLYING PROGRESS IN 2006

VCU HEALTH SYSTEM VOLUME

Fiscal year	'02	'03	'04	'05	'06
Inpatient discharges	31,637	30,389	29,847	30,143	30,539
Emergency visits	80,921	78,653	75,747	77,148	81,364
Adjusted discharges	45,067	45,529	44,756	46,528	47,750
Outpatient visits	529,776	530,270	515,029	492,205	491,053
Total surgeries	16,421	16,624	17,293	17,912	18,043
Virginia Premier member months	603,474	828,580	957,095	1,077,760	1,221,866

VCU HEALTH SYSTEM FINANCIAL STATEMENT*

(in thousands for fiscal year ending June 30, 2006)

Total Operating Revenue	$1,112,227
Non operating revenues and expenses	$16,875
Salaries, Wages and Benefits	$476,889
Supplies	$164,053
Purchased Services and Other Expenses	$138,196
Depreciation and Amortization	$36,262
Medical Claims Expense	$253,021

* includes VCU Health System components: MCV Hospitals, MCV Physicians, University Health Service, Virginia Premier Health Plan

VCU MEDICAL CENTER STUDENT ENROLLMENT*

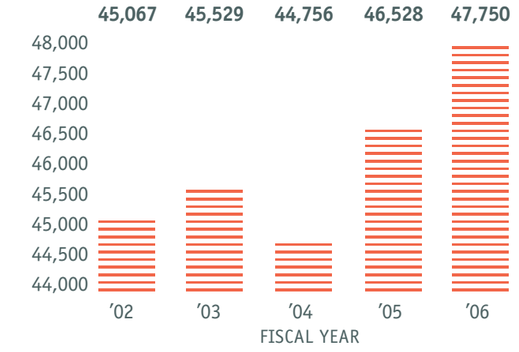
	'02	'03	'04	'05	'06
School of Allied Health Professions	814	882	862	904	964
School of Dentistry	417	445	452	454	454
School of Medicine	1,030	1,060	1,120	1,156	1,180
School of Nursing	768	792	837	830	922
School of Pharmacy	479	497	514	542	569

* includes on-campus and off-campus enrollments

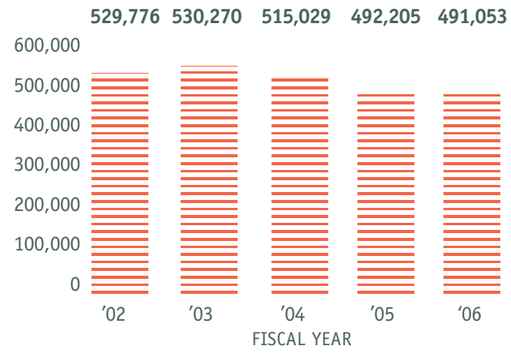
INPATIENT DISCHARGES

EMERGENCY DEPARTMENT VISITS

ADJUSTED DISCHARGES

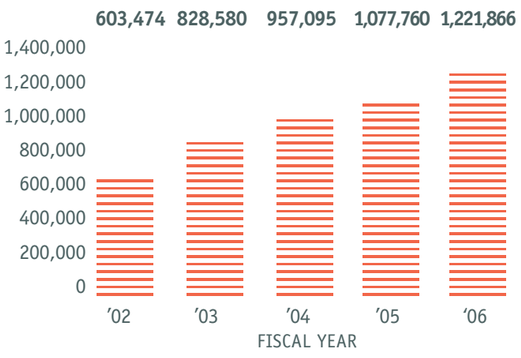


OUTPATIENT VISITS



TOTAL SURGERIES

HMO MEMBER MONTHS



(From left) Richard P Wenzel, M.D., M.Sc., president, MCV Physicians, and chairman, VCU Department of Internal Medicine; Sheldon M. Retchin, M.D., M.S.P.H., vice president for health sciences, VCU, and chief executive officer, VCU Health System; Eugene P. Trani, Ph.D., president, VCU and VCU Health System; Jerome F. Strauss III, M.D., Ph.D., dean, VCU School of Medicine; John F. Duval, chief executive officer, MCV Hospitals, VCU Health System

Virginia Commonwealth University Medical Center
1250 East Marshall Street
Richmond, Virginia 23298-0510
(866) 828-3627 · www.vcu.edu/medcenter