Russell Berrie Diabetes Center Takes Reins at CUMC

New Administrative Leader

The Naomi Berrie Diabetes Center

Research Briefs

Columbia Nurses Provide Travel Advice and Services

P&S Students Offer Health Care to Homeless

Goal: Creating Soft Tissue from Stem Cells

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PHILANTHROPY

$21 Million to Diabetes Center

LATEST GIFT FROM LONGTIME SUPPORTER BRINGS TOTAL DONATIONS TO $63 MILLION

The Russell Berrie Foundation will donate $21 million to the Naomi Berrie Diabetes Center at Columbia University Medical Center to fund clinical care, new research, and ongoing efforts to use stem cells for understanding and possibly treating diabetes. An additional $7 million will go to New York Presbyterian Hospital to create a Diabetes Heart Center of Excellence, which will focus on the cardiovascular complications of the disease.

The Naomi Berrie Diabetes Center was created in 1997 through a collaborative vision among CUMC, the Russell Berrie Foundation and Columbia University. The Foundation’s initial $13.3 million grant, along with local and state government funding and other philanthropic support, provided the initial resources to create the center. It is now one of the premier diabetes facilities in the country, combining outstanding diabetes care with world-class diabetes research programs that together provide diabetes patients and their families with information, treatment and hope. The center supports a cadre of more than 50 investigators working on projects ranging from basic biology to clinical trials related to diabetes and its complications.

Robin Goland, MD, associate professor of medicine and co-director of the Naomi Berrie Diabetes Center, says the new gift is crucial to the center's ability to continue caring for more than 12,000 patients each year and to support increasingly urgent efforts to find means to prevent or cure diabetes.

"Since we opened, the Berrie Foundation has been critically important to the Naomi Berrie Diabetes Center, not just by donating more than $63 million in the last decade for diabetes treatment and research, but also by helping us to transform the model of diabetes care in this city and beyond," Dr. Goland says. "We are enormously grateful for their commitment."

Three other diabetes centers also opened in New York City in the late 1990s, all promising comprehensive care from a multi-disciplinary team including nutritionists, exercise physiologists, podiatrists and ophthalmologists to help patients control their diabetes. All but the Berrie Center have now closed.

"This is not because diabetes is wan-

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PHYSICIAN SHOWS PROCEDURE IMPROVES OUTCOMES, QUALITY OF LIFE POST-SURGERY

"Quicker recoveries meant the patient got back to work and resumed normal activities sooner and a faster return to

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Robot-Assisted Surgery for Prostate Cancer More Popular at CUMC

Since the use of robots in prostate surgery was approved by the FDA in 2000, robotic-assisted laparoscopic prostatectomy, or RALP, has become the most common type of surgery for prostate cancer in the country. Now, Ketan Badani, MD, director of robotic surgery in the Department of Urology, and colleagues have shown that RALP is an improvement over conventional surgery in terms of post-surgical healing and quality of life.

The findings, published in Cancer (2007 Nov 11;110(9):1951-8), detail outcomes for more than 2,700 patients who underwent the procedure for prostate cancer.

RALP has evolved from a relatively obscure procedure just a few years ago to the most common type of prostate cancer surgery today. Still, a certain level of uncertainty about the value of robot-assisted surgery for prostatectomy has existed. Dr. Badani hopes the findings from his latest study will put any uncertainty to rest.

"We found that RALP was just as good as conventional surgery for cancer control, but the remarkable thing was that complications were much more rare and urinary control and sexual function dramatically improved," he says. "Quicker recoveries meant the patient got back to work and resumed normal activities sooner and a faster return to

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CLINICAL CARE

Ketan Badani with the robot used to perform radical prostatectomies.
Dear Colleagues & Students,

Herbert Irving, the medical center’s long-time supporter and friend, called the opening of the Irving Cancer Research Center one of the happiest days of his life. “In 1998,” he said, “we conceived of having a research building dedicated to cancer and today we are a comprehensive cancer center bursting at the seams, ready to do fantastic things in the future.”

That was May 2005, when Columbia dedicated the medical center’s new 120,000-square-foot, nine-story building that bears his name and houses the Herbert Irving Comprehensive Cancer Center (HI CCC), which was recently reaccredited by the NCI as a comprehensive center. This designation is one given by the National Cancer Institute when a cancer center fulfills its criteria related to basic and clinical research, public information, education and outreach activities. The new building immediately doubled the research capacity of the HI CCC, it also houses the Avon Foundation Breast Imaging Center for medically underserved women.

Ricardo Dalla-Favera, MD, the Percy and Joanne Urs Professor of Clinical Medicine and director of the HI CCC, has raised Columbia’s stature in cancer care and research – especially in the areas of breast, prostate, lymphoma and brain cancer – since assuming the leadership of the center in 2005.

Encompassing all cancer-related research, treatment, prevention, and education efforts at CUMC and New York-Presbyterian Hospital, the HI CCC has more than 200 members across the College of Physicians and Surgeons and the Mailman School of Public Health, who have successfully attracted more than $90 million in peer-reviewed cancer research funding. Since 2007, a number of renowned cancer researchers and physician-scientists have joined the already stellar faculty to strengthen and expand our areas of expertise.

Excellence in Cancer Care and Research

Our most recent appointment is Clifford Chao, MD, an expert in the use of image-guided targeted radiotherapy for the treatment of head and neck cancer and other cancers. Dr. Chao’s combined use of positron emission tomography and computed tomography enables him to develop effective treatment plans that target individual tumors. The new chair of the Department of Radiation Oncology at P&S, Dr. Chao also holds positions and sees patients at NYPH and Weill Cornell Medical College [see story at left].

Also new to the HI CCC are cancer researchers Michael Shen, PhD, professor of medicine, Division of Hematology/Oncology, and member of the Prostate Cancer Program of the HI CCC, who is studying prostate cancer stem cells, and Cory Abate-Shen, PhD, professor and director of research, Department of Urology, and a member of the Prostate Cancer Program at HI CCC, who is investigating prostate development and oncogenesis.

In 2007, three renowned physician scientists joined the HI CCC. Carlos Cordon-Cardo, MD, PhD, professor of pathology and urology, came on board as the co-leader of the Genitourinary Malignancy Program of the HI CCC. Also vice chair of the Department of Pathology, Dr. Cordon-Cardo has integrated molecular techniques into pathology as a way of improving assessment of a tumor’s biological and clinical behavior. Edward Gelmann, MD, the Clyde Wu Professor of Medicine, chief of the Division of Hematology/Oncology in the Department of Medicine and deputy director for clinical research at HI CCC, is expanding the medical oncology division to find opportunities to test new therapies in the clinic and streamline the process for initiating cancer trials. Dr. Gelmann also sees patients and does research on prostate cancer; he is at the forefront in the study of a prostate cancer suppressor protein. Owen O’Connor, MD, PhD, director of the Lymphoid Development and Malignancy Program in the HI CCC and chief of the Lymphoma Service at NYPH, is translating lab findings into therapies for lymphoma and other hematological cancers and testing them in Phase 1 and 2 clinical trials.

Herbert and Florence Irving’s vision for making CUMC a force in cancer care and research is coming to life as CUMC increasingly becomes a locus for talented individuals making a powerful difference for those with cancer.

Library Journals En Route to Tanzania

Nearly 10,000 volumes, representing more than 500 important peer-reviewed medical journals, many of which have been housed in the Augustus C. Long Health Sciences Library for decades (and some even dating back to the 1700s), have been donated to the Muhimbili University of Health and Allied Sciences in Dar es Salaam, Tanzania. The journals were boxed in a day, put aboard a shipping container and will make a seven-week ocean voyage to Africa. The donation frees up space on lower levels 1 and 2 that will be converted into classrooms and study space as part of an ongoing project to build a new education center in the library. The journals are now available electronically to CUMC students and staff.
When Lisa Hogarty moved 50 blocks north from her Columbia Morningside office to become Chief Operating Officer at CUMC in December, she had little time to catch her breath. “When I got here it was like jumping onto a very fast, moving train,” she says. “Change is happening on so many levels.”

For the previous five years, Ms. Hogarty was executive vice president for student and administrative services at Columbia University. During this time she reorganized human resources and information technology, implemented an electronic student health record that significantly reduced wait times, improved student living conditions, and transformed commencement into an almost rock concert-like event. Before joining Columbia, she spent nine years in top leadership positions in facilities operations and hospital support services at New York hospitals, responsible for multi-million dollar budgets. She has also worked in the hotel industry and as a stage manager in the theater.

In her new role, Ms. Hogarty reports to Lee Goldman, MD, executive vice president and dean of the faculties of health sciences and medicine at CUMC, and oversees IT, HR, facilities, space planning, communications, government and community affairs, and libraries.

A basic theme throughout Ms. Hogarty’s career has been the belief that organizations can get better. Arriving at CUMC at a time when the medical center is experiencing significant financial challenges, Ms. Hogarty remains undaunted. With seemingly boundless energy, she appears to be everywhere at once, eager to meet and serve faculty and staff. “In the kind of work I do, it’s impossible to understand all that is happening by sitting in my office,” she says.

In Vivo recently caught up with Ms. Hogarty during a brief respite in a day that had begun, as it often does, at 7 a.m., to see how things are progressing a few months into her new role.

What are your current priorities? My overarching goal is to smooth the way for all the health sciences schools to have the tools to function as optimally as possible. We have incredible faculty and superb students. What we need is an improved infrastructure, and for all processes to run smoothly. My immediate short-term priorities are to upgrade facilities and streamline HR procedures.

Why are these two functions so important? CUMC is a wonderful place to work on so many levels. On a daily basis faculty here interact with other clinicians, scientists, and educators who are changing people’s lives. These are wonderful selling points when we try to recruit. It’s critical, then, that the act of joining the medical center is as stress-free and pleasant as possible. And it’s important for all our employees to know that HR is a place where their questions can be addressed in a timely and efficient manner. As for facilities – many of us are working here in 80-year-old buildings. Most of our competitors on the east coast, such as Johns Hopkins and Mass General, have completely replaced their early 20th century buildings. We simply must upgrade in order to retain and recruit new faculty and staff. We want to get out of the situation where someone may not want to come here because we can’t provide him or her with something as basic as adequate lab space.

How are you addressing the infrastructure challenges? Several months ago we instituted a new budget plan – AIM HI [align interests and maximize healthy incentives] – that addresses the medical school’s deficits. We are looking for ways to boost revenue and manage costs in each P&S department, without going the classic route of slashing budgets. With AIM HI, everyone participates in both revenue sharing and cost sharing to create the fiscal turnaround. By generating more revenue we will be able to make the investments in school-wide programs and initiatives needed to place P&S among the top five U.S. medical schools – a key goal of Dean Goldman’s. One of the ways to raise revenue is to require that departments pay their share for the space they occupy, rather than have central administration absorb all of these costs, as has historically been the case.

As our faculty has learned more about this new financial model, they have begun to carefully assess their use of space. We are starting to see departments ready to give back to central operations space they no longer need or wish to pay for. If you had asked a faculty member, even just a few months ago, about the space situation at CUMC, he or she would likely have said that we’ve been out of space for the past 10 years. Now, because of this sea change in philosophy, that person might be happy to give up a certain amount of non-productive space or rent it out to someone else who can really use it. Suddenly, space is being made available where no one ever imagined it existed.

A big part of my job now is being available to our faculty to walk them through the logistics of all these space rearrangements. What other infrastructure issues are you addressing? We are dealing now with a campus originally configured in a unique way by Edward Harkness, the man who gave the land that the medical center was built on. He stipulated that the university and the hospital enter into a partnership that essentially meant the two could never be separated – university buildings sit on land owned by the hospital and vice versa. That means that all the infrastructure for university buildings – steam pipes, electricity, water pipes – are controlled by the hospital. Whenever there needs to be any type of construction or repair to a university building, we must work with the hospital to ensure that the work can be done. With infrastructure that is now almost 100 years old, and with a desire by the medical center to perform many upgrades in the coming years, we are now meeting regularly with the hospital to address infrastructure issues.

This brings up another key aspect of my job, which is to build a closer working relationship with our NYPH colleagues. We are neighbors, friends and co-workers and our lives intersect here. When it comes to something like faculty maintenance, I’m trying to tease out basic things, like who is responsible for housekeeping in specific university areas. Sometimes the university is responsible, but sometimes it’s hospital staff, even though it’s a university building. This has not been altogether obvious until now. I’m working to clear up any confusion that may have existed, with the goal of better maintenance of our buildings.

Improving quality of life and services for students was a large part of your job on the Morningside campus. What changes are on the horizon for CUMC student life? I’ve met with students from most of the health sciences schools and I can say that without exception, the caliber of students here is extraordinary. What’s even more extraordinary is that we attract such high quality students even when our facilities are not ideal and service delivery is intermittent. Students come here because our faculty is truly world-class.

Improving facilities is a major priority now because of Dr. Goldman’s often stated desire to boost P&S back into the top-five ranking of medical schools in the country. If we can provide students with better facilities and housing, that will surely help, ultimately, with rankings.

In the near-term, we are focusing on creating a new education center on lower levels 1 and 2 of the library. This 36,000-square-foot space will have modern classrooms equipped with state-of-the-art electronics that will give faculty the best possible teaching tools. There will also be ample study and social spaces and new auditoriums. Importantly, all four schools have been at the table during the planning of the center, participating equally in decisions about the space. We are already setting up temporary study spaces for people to use when construction begins at the end of April. I have also been asked to work with the deans of students at all the schools to build a more comprehensive student services capability. All student health providers here are superb, but access to facilities is less than desirable. We plan to install an electronic health record for students, similar to the one downtown, which reduced wait times for services by half; we also plan to consolidate the two student insurance programs we currently have into one program.

CUMC recently committed to developing a patient electronic health record. How will this benefit the medical center? This is part of the general upgrade of facilities and processes. The electronic health record is a major step toward improving both the patient and faculty experience here. It will enable clinical staff throughout the medical center and NYPH to access outpatient data by computer and will streamline patient care, billing, scheduling and lab information. The project was launched this past summer by the Faculty Practice Organization after trustee approval. The electronic record eliminates redundancies in data collection, provides for continuity in patient care and ensures patient safety. It’s a very basic level it also frees up office space now being consumed by voluminous amounts of patient records. Both patient and doctor will see advantages.

And we’re working to ensure that as we roll out the electronic record, people are comfortable learning how to use it. There will be online training, one-on-one tutorials, and group training.
Berrie Center Diabetes Care and Research: Dynamic, Committed, Compassionate

The motto of the Naomi Berrie Diabetes Center, "The care until the cure," is compressed yet powerful: In one breath it tells the saga of diabetes treatment and research, is optimistic and aggressive about the future, and captures the vigilance needed to care for people with diabetes today. These stories chronicle just a few of the ways the center's clinicians and scientists strive to provide the care and reach for a cure. By Susan Conova

Diabetes is Many Diseases

Although he hopes someone proves him wrong, Berrie Center researcher Domenico Accili, professor of medicine, says the chance that one "magic pill" will in the future cure type 2 diabetes is slim. "That would be my first choice, but I don't think it will happen."

"The reason? Diabetes is probably a collection of related diseases, more like cancer than an infectious process." We don't treat brain cancer the same way we treat colon cancer, yet we still treat all patients as if diabetes was one disease," Dr Accili says. "And we now have a good hunch it's not the same disease in everyone."

Dr. Accili, an internationally acclaimed diabetes researcher for more than 20 years, was one of the first to find evidence for this idea. Traditionally, diabetes was thought to follow the same course in everyone: first the muscle and fat cells became resistant to insulin, and tissues – the brain, liver, the beta cells themselves – also become insulin-resistant and contribute to diabetes development. It's likely that one of these tissues is more important than the others, but that organ may be the liver in one patient, or fat cells in another. Knowing which organ dominates will become an important consideration for clinicians in the future. "We won't find a drug that treats every aspect of diabetes," Dr Accili says. "New drugs may only work on the beta cells, so knowing if a patient suffers from beta cell or muscle or brain insulin resistance will be important so we can target treatment to individuals."

With any luck, one of these new drugs may spring from discoveries Dr. Accili's research lab has made in the last 10 years. The target is the excess glucose the liver produces in diabetic patients – it's the glut of glucose in the blood that's largely responsible for taking 5 to 10 years off the lifespan of the average person with diabetes.

Dr. Accili's work has revealed that glucose release from the liver is largely controlled by a protein called FOXO1. When FOXO1 moves into a liver cell's nucleus, the cell produces glucose. A drug that keeps FOXO1 out of the nucleus could potentially stop excess glucose production and prevent diabetes.

Dr. Accili is now working to see if a drug based on FOXO1 can be developed, but he cautions that it could take a long time for this to happen and success is not guaranteed. "We start with good drug targets we find in mice, but after that, it's a matter of trial and error. Even the best targets frequently founder in humans, and mediocre targets sometimes turn out to work," Dr Accili says. "There's really no way to make the process any faster, but we feel we may be on the right track."

Beta Cell Imaging in Beta Testing

Many factors may lead to diabetes, but ultimately, whether one develops the disease comes down to just one kind of cell: the pancreatic beta cell. Once these insulin-producing cells are reduced in number, blood glucose levels become uncontrollable, and diabetes ensues.

Beta cell transplants or drugs that regenerate the cells are considered by many to be a very logical way to treat diabetes. But a critical roadblock in assessing such therapies lies in the way: No method can accurately measure just how many beta cells are in the pancreas. "Without that, we really have a hard time figuring out if treatments are working," says Rudolph Leibl, MD, co-director of the Berrie Center. "Are beta cells being saved? Are they dying? We just don't know."

Columbia scientists may soon be able to provide these answers with a new imaging technique based on positron emission tomography (PET). PET scans are commonly used to diagnose cancer, heart disease, and brain disorders because they can detect minute molecular changes inside the body. About two years ago, Paul Harris, PhD, and Antonella Maffei, PhD, research scientists in the Department of Medicine and the Naomi Berrie Diabetes Center, found they could tally the number of beta cells present inside the pancreas by using PET to measure the level of a molecule called VMAT2 that is localized to beta cells.

Since initial testing of the technique in rodents about two years ago, the researchers have shepherded beta cell imaging past a few more milestones. The PET scans are now able to detect beta cells in people; in rats, the scans can pick up transplanted beta cells as well as natural-born cells. The latter development, if replicated in people, will be critically important in monitoring clinical trials of beta cell or embryonic stem cell transplantations.

Beta cell imaging also will help scientists answer some still unknown basic questions about beta cells, such as: How many beta cells does a healthy pancreas contain? What happens to beta cells as the disease progresses? And, how many are needed to stave off diabetes onset? Says Dr. Leibl: "Imaging will revolutionize what we know about diabetes as well as the way we follow patients and develop and evaluate interventions."

Berrie Gift

Berrie Center post-doctoral fellow Rebecca Hauker, who is studying the role of diabetes in heart disease in the lab of Domenico Accili, right.

The Naomi Berrie Diabetes Center is named for the mother of the late Russell Berrie, founder of one of the world's leading suppliers of toys and gifts, Russ Berrie and Company. Both Naomi and Russell Berrie had diabetes. Mr. Berrie died in 2002.

"Russ cared about people, regular people living their lives with diabetes," says Angelica Berrie, the late Mr. Berrie's wife. "He wanted his giving to impact people's lives. What would matter to him most is the number of diabetes patients whose lives this support will transform. Every day, the Naomi Berrie Diabetes Center improves the lives of people living with diabetes and fulfills Russ's dream of providing a holistic, caring environment for people with diabetes."
They say the eyes are the window to the soul, but for people with diabetes, the eyes are even more meaningful: They are a window into their health.

“One reason why the Berrie Center provides onsite ophthalmologic care is because an eye exam is an easy way to see what’s going on inside the body,” says Daniel Casper, MD, PhD, associate clinical professor of ophthalmology and director of ophthalmology at the center. “If a patient has signs of eye disease, it’s likely that their kidneys and coronary arteries are also starting to show signs of diabetic microvascular changes. It’s a wake-up call that they need to better control their diabetes.”

The other reason, of course, is to prevent blindness. After living with diabetes for 15 or 20 years or more, many people with type 1 and type 2 show some signs of eye disease. Diabetic retinal disease – retinopathy – is the most common complication among diabetes patients and is still the leading cause of blindness in working-age adults.

But it doesn’t have to be that way.

“People who have just been diagnosed with diabetes often fear they are going to go blind, because their mother or their uncle had diabetes and that’s what happened to them,” Dr. Casper says. “These days, if patients control their diabetes, there is little reason that should happen.”

Controlling diabetes – specifically controlling the level of glucose in the bloodstream – is no easy task, and blood pressure and cholesterol must be monitored as well. Patients have to adopt a whole new way of living that revolves around numbers. It’s a wake-up call that they need to better control their diabetes.

Eating is turned into an exercise that evolves around numbers: Patients have to adopt a whole new way of living that revolves around numbers. It’s a wake-up call that they need to better control their diabetes.

“Openning the binder, Dr. Casper stops to explain the first images, which look like two orange orbs, each perfectly healthy. “These normal retinas belong to a person who has had type 1 diabetes for more than 20 years. It shows what’s achievable if you’re careful,” he says.

“The images on the next pages show eyes in progressively worse shape. First only a few tiny red flecks are visible, microaneurysms in the retina’s blood vessels. Then, the amount of bleeding increases, often accompanied by leakage of lipids and retinal swelling.

“If immediate steps aren’t taken to gain tighter glucose control at this point, the person gets into trouble,” Dr. Casper says. “In the binder’s fourth set of images, abnormal vessels – which started growing in the eye. In the next set, there’s a big red blotch almost covering the entire retina.

“The new vessels tend to tear and bleed, and suddenly one day, the patient can’t see because there’s a big layer of blood in the eye,” Dr. Casper says. “The blood usually goes away, but creates scarring, and as the scar contracts, it pulls the retina off the back of the eye, creating a tractional retinal detachment. That’s one of the main ways that people with diabetes lose their sight. Vision may also be impaired by swelling in the retina, so-called macular edema.

“Lasers can often prevent the progression to detachment and blindness, but lasers destroy some tissue and may impair night and peripheral vision.

“Developing diabetes is a chronic disease, and these tiny vessels that are forming can grow, tear, and bleed, which is why the patient undergoes these laser treatments.”

In response to the crisis Dr. Rosenbaum and a team of nutritionists and exercise physiologists designed a unique health and fitness curriculum for junior high school students. They examined how diabetes risk factors develop in children and how they might be reduced through school-based interventions. Classroom sessions focused on diabetes, nutrition, and the importance of exercise, while physical education sessions focused on aerobic exercise.

“In many schools, P.E. is prejudiced against less fit students,” Dr. Rosenbaum says. “Overweight kids are picked last for teams, they play last, or they’re standing around waiting for more athletic students to finish their sit-ups. Those who need it most end up exercising least. We designed the program so all children were busy but also having fun, like choreographing their own hip-hop dance routines.

“In addition, we avoided stigmatizing the overweight child by taking him or her out of school to a gym or a nutritionist. My feeling is that one should not be denied a good opportunity to improve his or her health, so we wrote this curriculum for everyone,” Dr. Rosenbaum says.

“In fact, everyone in the study benefited, regardless of their initial level of fitness. After three months, students in the program lost more weight, had improved sensitivity to insulin, and reduced other risk factors for type 2 diabetes. In addition, the results provided insights into how diabetes develops that would have been extremely difficult to identify in studies of adults.

In an editorial that accompanied publication of the findings in the Journal of Clinical Endocrinology and Metabolism [J Clin Endocrinol Metab. 2007 Feb; 92(2): 504-8], Philip Zeitzer, MD, PhD, study chair of the multicenter Treatment Options for Type 2 Diabetes in Adolescents and Youth study, wrote: “The study represents an exciting advance because the results of previous school-based interven-
**Possible Link Between Stroke and Alzheimer’s Found**

A newly discovered pathway in the brain may help explain why stroke nearly doubles the risk of developing Alzheimer’s disease. Alzheimer’s is believed to be caused by toxic amyloid beta (Aβ) peptides that accumulate in the brain. Aβ levels are known to increase after a stroke, but it is not known why, says Karen Duff, PhD, professor of pathology in psychiatry and the Taub Institute for Research on Alzheimer’s Disease and the Aging Brain.

Dr. Duff’s new study found that in cells and transgenic mice, Aβ levels rise when there is an increase in another protein, p25, which also has been previously linked to stroke.

One component of the pathway that connects p25 and Aβ may be a good target for treatments aimed at preventing post-stroke Alzheimer’s, the researchers also discovered. When the activity of this component (called CaMKK2) was restrained, toxic Aβ levels dropped.

Dr. Duff cautions, however, that it is still unclear if stroke actually triggers the p25/calcium pathway. Her lab is currently looking for signs of activation in stroke patients. The work was supported by the NIH and the Alzheimer’s Association.

Neuron 57(5): 665-690

**“Speed” May Nurture AIDS-related Infections**

Methamphetamine — colloquially known as “crystal,” “tina,” “meth,” or “speed” — may hasten the development of AIDS in HIV-infected individuals by weakening the immune system, according to a new study by Zsolt Talloczy, PhD, associate research scientist, and David Sulzer, PhD, associate professor, in the Department of Neurology, and their colleagues.

Use of methamphetamine has reached epidemic proportions in the past decade. About 5 percent of the U.S. population has used the drug at least once, and there are an estimated 35 million users around the world. Methamphetamine users are twice as likely to be infected with HIV as non-users.

The new study found that methampheta- mine impairs the ability of immune cells to defend against AIDS-related pathogens by increasing pH inside the cells. The change in pH prevents the cells from engulfing and destroying bacteria and fungi and from activating other parts of the immune response. PLoS Pathogens 4(2): e28

This work was supported by the NIH, the Parkinson’s Disease Foundation, and the Einstein/Montefiore Medical Center for AIDS Research.

**Study Faults Immune System in Lung Disease**

An aberrant immune response triggers the development of one of the first events in pulmonary arterial hypertension (PAH), according to a team led by Gabriele Grunig, DVM, assistant professor of microbiology.

For more information, call 212-326-5710 or go to www.capna.com

**Nurses Group Provides One-stop Shop for Travelers**

To mark the 10th anniversary of Columbia Advanced Practice Nurse Associates (CAPNA), Mary O’Neal Mundinger, DrPh, Centennial Professor of Health Policy and dean of the School of Nursing, has launched a new service that addresses the health needs of people traveling anywhere in the world. Founded by Dr. Mundinger, CAPNA, based in the medical center’s East 60th street location, provides comprehensive primary care.

Columbia Travel Medicine at CAPNA applies the same individualized approach to caring for travelers as it does to caring for patients in its CAPNA practice. “We conduct a full pre-travel consultation, taking into account who the traveler is, where he or she is going, and what they plan to do at their destination,” says Melissa Kramps, assistant professor of clinical nursing and an adult/gerontological nurse practitioner who coordinates the travel medicine program. “Someone who intends to stay at a full service, high class hotel will likely have different needs than someone who will be backpacking through rice paddies or the bush.”

Though the travel practice has been open only a few months, the nurse practitioners have already seen a broad range of clients, from a young woman with little money and only a vague plan to travel in southeast Asia for nine months, to people setting out by private jet for a destination they read about in Travel & Leisure.

“You have to balance the patient’s itinerary, personal, and medical needs,” says Ms. Kramps. “For example, when it comes to providing protection against malaria, you wouldn’t prescribe the antibiotic doxycycline, which causes photosensitivity, to someone who plans to lie on the beach all day. On the other hand, if someone is going to scuba dive or explore caves, you would more likely prescribe doxycycline than a tetracycline whose side effects might be paranoia and even hallucinations, but not photosensitivity.”

In addition to prescribing medications, the nurse practitioners counsel patients about measures to protect against health dangers that may not be vaccine preventable, such as some insect-borne diseases, and injury prevention, the No. 1 cause of death among travelers (always use seatbelts and stay off mopeds and motorcycles, they say). The nurse practitioners also dispense advice on all aspects of staying healthy abroad, such as evacuation services and insurance, food and water safety, and protection against identity fraud.

“The goal of travel is to have an enjoyable experience,” Ms. Kramps says. “Adequate preparation for the trip can help make that happen.”

For more information, call 212-326-5710 or go to www.capna.com

PAH is a rare but deadly disease of unknown origin that has no cure. PAH occurs when small pulmonary arteries become constricted, forcing the heart to work harder to pump blood through the lungs. Most patients die from heart failure within three years of diagnosis.

Though the immune system has been a suspect in PAH for more than four decades — because many cases of PAH occur in people with other immune conditions such as lupus, rheumatoid arthritis, and HIV infection — no direct experimental proof has linked the two until now.

Dr. Grunig and her colleagues found that mice exposed intermittently to various inhaled antigens generate a T cell response that leads to severe thickening of pulmonary arteries, one of the first events in the development of PAH.

Mice with arteries surrounded by thick layers of smooth muscle cells, however, did not have hypertension. Dr. Grunig says that more work is needed to determine how thickened arteries lead to PAH.

Journal of Experimental Medicine 205(2): 361

The work was funded by the Flight Attendant Medical Research Institute, the American Heart Association, the American Lung Association, Scheinering-Plough Biopharma, and the Stony World-Herbart Fund.
P&S Students Launch Project to Provide Health Care for Homeless

Columbia-Harlem Homeless Medical Partnership (CHHMP), a free, student-run clinic that is up and running after completing a successful pilot phase this past November.

The clinic is the brainchild of Marc Manseau, P&S’09, a first-year P&S student in 2004, and Judy Chertok, P&S’07, then a second-year P&S student and now a resident in family medicine, who were looking for an intensive community service opportunity. A year earlier, Dr. Chertok had explored the idea of setting up a student-run homeless clinic with James Spears, MD, assistant clinical professor of medicine at P&S, but she couldn’t find enough like-minded students to join her. “Judy and I talked and agreed to try to make this project happen,” says Mr. Manseau, now on a research year. “We spoke with Dr. Spears, recruited several more students and it took off.”

“Taking off,” is actually an understatement, for the three years of hard work required to hammer out the details and find clinic space where homeless patients would feel comfortable. St. Mary’s, an Episcopal church on West 126th Street with a history of activism in West Harlem, offered its basement one night a week. The Center for Urban Community Services (CUCS) already ran a drop-in center and housing program there. Now all that was lacking were patients. The students posted flyers about their Tuesday evening clinic, made announcements at the church’s food pantry and a nearby soup kitchen, and on Saturday afternoons walked the neighborhood with a CUCS worker and church members to distribute sandwiches and circulate information about the clinic. Other referrals came from the African Services Committee, created to help immigrants from Africa, and the NYC Department of Health and Mental Hygiene. Outreach efforts follow a similar pattern today.

Soon patients began to trickle into the clinic, 79 of them during the pilot period, with some returning again and again. While half were uninsured, only about 25 percent actually lived on the streets; about 50 percent had their own apartments. The rest were precariously housed, doubling up or living in transitional housing. But no explanation about living arrangements is required for anyone to receive care. “We will see anybody who walks in the door,” says Elizabeth Blair, P&S’10, who coordinates clinic affairs. The patients arrive with a range of health problems—from colds to more serious illnesses. “Some people come in with five or six major medical problems that can be long and complicated to work out,” says Carl Erik Fisher, P&S’09, one of CHHMP’s founders, who says the most common illnesses seen during the pilot period were hypertension and history of stroke, and skin, genitourinary, gynecological, neurological, and musculoskeletal problems.

Everyone Benefits

Taking histories and performing physical examinations is a team effort. “The model is that of a preclinical student, who is someone in the first two years of medical school, and a clinical student, who is in the last two years and beyond, pair up and jointly interview the patient,” says Dr. Spears, who has worked with the homeless since 1991 and volunteers as the clinic’s attending physician, along with Susan Bowers-Johnson, MD, assistant clinical professor of medicine. “The preclinical student learns how to take a history, how to be comfortable speaking with the patient. When they go behind the partitions to give the examination, then it’s the clinical student who takes the lead.”

The students are equipped to do some basic lab tests, such as urine dipstick analyses and finger stick blood glucose tests. Equipment that will permit more elaborate tests on site—especially for the uninsured, for whom many tests are out of reach—is on the students’ wish list.

After presenting each patient’s case to Dr. Spears, the students plan additional interventions with his guidance. Patients who need further care are often referred to the Center for Family and Community Medicine clinic at the Herman “Denny” Farrell Jr. Community Health Center on 158th Street. Other patients who need follow-up are sent to their primary care doctors, if they have them, or asked to return to the clinic. Some patients are given over-the-counter medication on site; others leave with prescriptions signed by Dr. Spears. Students, who cannot sign prescriptions, learn how to write them from Dr. Spears.

The word “organic” pops up frequently in conversations with the students, who want the clinic to evolve in response to community needs. After noting that many of their patients lacked dental care, for example, they formed a partnership with students at the College of Dental Medicine to come to the clinic to provide basic advice on dental hygiene. The school’s two-chair dental van may also start coming to St. Mary’s once a month.

The students also are working on bringing a volunteer social worker or psychiatrist to the clinic and obtaining free prescription drugs to dispense to patients. Upgrading services costs money, though, and the students have written grant proposals in search of funds. So far, they have received a substantial financial commitment from Mel Kramer, PhD, a Baltimore-based epidemiologist who is a supporter of Columbia’s Center for Family and Community Medicine. CHHMP has also received a $2,000 grant from Alpha Omega Alpha, the medical honor society. Without exception, the students, all of whom commit to four years with the project, call it an extremely fulfilling experience, both educationally and emotionally. “There are few things I’d rather be doing than working with my wonderful colleagues at P&S and the terrific community partners on this project,” Mr. Manseau says. “To help fellow human beings who don’t happen to be as fortunate as I am is extremely rewarding.”

Says Dr. Spears: “Clearly, the Columbia-Harlem Homeless Medical Partnership is a win-win situation for both students and patients. Patients receive compassionate primary care at no cost while students benefit in numerous ways. These are fabulous students who really want to make a difference in the world. It is gratifying to work with them.”

—Eric Oatman
differentiate under permissive conditions, they can create long-lasting implants in mice. The implant is created by placing the stem cells into marrow or adipose tissue. Mesenchymal stem cells can differentiate into bone, fat, cartilage and other types of cells.

“Our research has shown that mesenchymal stem cells can create tissue that is biocompatible with the host and that the continuous generation of these cells can replenish the implant to reduce shrinkage,” Dr. Mao says.

Now, surgeons often graft from the patient’s own tissue, which creates additional wounds. Grafted cells also often are not viable, causing implants to shrink up to 70 percent and lose their shape and volume. Attempts have also been made to use fat cells left over after liposuction, but those cells also have a limited lifespan.

The Columbia team of biologists, biomedical engineers, biomaterial scientists, imaging experts and surgeons has shown that human mesenchymal stem cells can create long-lasting implants in mice. The implant is created by placing the stem cells into an FDA-approved scaffold that mimics the conditions needed to turn stem cells into fat cells. Because stem cells have the ability to replicate and differentiate under permissive conditions, they can regenerate the soft tissue, keeping the implant from shrinking. In mice, these cells have successfully created fat cells that could be implanted and retained their size and shape for at least a month. Because the implants can be molded into any size or shape, they could also be used for breast reconstruction.

Robotic Surgery

The robotic surgeons have developed a new technique that can be used in RALP surgery. Dr. Badani, who has performed RALP more than 700 times, says the study’s findings confirmed what he had already observed clinically. “Patients are ecstatic after this surgery because they can’t believe the operation is so non-traumatic,” he says. “I don’t think that a few years ago anyone would have believed we’d get to the point where robotic prostatectomy is the gold standard.”

Prostate cancer is the most common cancer among men; 30,000 men died of the disease in 2004, according to the American Cancer Society. But for the hundreds of thousands of men who survive, post-surgical problems can drastically diminish their quality of life because of issues with urinary incontinence and impotency.

For the surgeon, prostate cancer is also challenging—it’s especially difficult to remove the cancerous prostate while attempting to preserve delicate nerves, arteries and muscles responsible for normal urinary and sexual function.

“Operation is complex but this technique allows greater surgical control than is possible with conventional tools,” says Dr. Badani, who trained for six years in laparoscopic and robotic urology at the Vattikuti Urology Institute at Detroit’s Henry Ford Hospital. The birthplace of robotic prostatectomy.

In RALP, the surgeon makes six tiny holes in the patient’s abdomen, instead of the conventional incision in the lower abdomen, and the laparoscopic instruments are carefully inserted and attached to the robot. Once the setup is complete, the surgeon sits at the console where he or she controls the robotic instruments. The machine itself consists of a surgeon’s console with four arms—one controls the movement of the three-dimensional camera, one works as a retractor and the other two control laparoscopic instruments that allow the surgeon’s hand movements to be replicated. Because the robotic “hands” are able to move in as many directions as wrists and fingers, the effect is one of unparalleled exactitude and control, enabling maneuvers that can spare the most delicate tissues. The robotic arms eliminate even the smallest, barely noticeable human hand tremors, making movements remarkably steady.

In addition to Dr. Badani and Dr. Benson, the robotic and minimally invasive urology team includes Erik Goluboff, MD, professor of clinical urology and director of urology at the Allen Pavilion; James McKiernan, MD, assistant professor of urology and director of minimally invasive surgery; and Benjamin Spencer, MD, assistant professor of urology, who specializes in outcomes research.

With Dr. Benson and Steven Corwin, MD, executive vice president and chief operating officer of NewYork-Presbyterian, and the hospital’s leadership team, Dr. Badani is establishing a robotic surgery program at the Allen Pavilion of NYUH, located in northern Manhattan. Dr. Badani has already trained two other physicians in the RALP technique and plans to teach many more, even while expanding the types of surgeries in which robots might be used. “A noticeable advancement is seen in kidney surgery, for example,” Dr. Badani says. “This will be an important improvement in caring for patients with kidney cancer by removing just the cancerous tissue and sparing the normal portion of the kidney. Robot surgery has also been utilized for radical cystectomy[surgery to remove the bladder], where it has many of the same advantages as in RALP. Robots in surgery are definitely the wave of the future.”

—Keely Savoie

Can you paint a picture of what this campus will look like a decade from now? Actually, it will probably take about a decade for Dr. Goldman to realize his vision of a state-of-the-art education hub, reasonable student housing accommodations, and adequate research space. One of the major projects that will come to fruition is the fifth and last building that comprises the Audubon Biomedical Science and Technology Park, a nearly 240,000-square-foot building that is the third academic research building [the others are the Russ Berrie Medical Science Pavilion and the Irving Cancer Research Center]. It will rise on a site adjacent to the Berrie Pavilion sometime in the next seven years.

We will see a cleaner and greener 168th Street, with more trees planted as part of the city’s drive to reduce its carbon footprint. And we will continue to support the city’s efforts to upgrade the subway station and the Armory.

The focus will largely be on west side of Fort Washington Avenue. We intend to create a campus hub along the 168th Street corridor leading into Haven Avenue—where’s that where students are housed, near the education center, eventually, we would like to tear down Bard and build new dormitories, but this will have to wait until funds can be raised for this purpose.

As for the inside spaces— I envision much more gracious entryways and lobbies— primarily for P&S and the Black Building, but also for the Augustus C. Long Library, which will be redesigned along with the education center.

The bottom line is that in the coming years we will transform CUMC both from the inside and out, to give our outstanding faculty, students and staff the facilities and support that they need and deserve.

—Anna Sobkowski