Institutional growth springs from the imagination of those committed to ideals. When an ideal is embraced by mission, it becomes the source of growth, integral with those it serves.
growing together

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“When we talk of growth, here at Penn State Milton S. Hershey Medical Center and Penn State College of Medicine, we are talking about responsibility.”
Message from the Dean

There is no question that we face tremendous health care challenges nationally. Nor is it likely there can be a single quick fix to address them. Answers will come from educating the next generation of health care providers who will add the strength of numbers and intellect to the growing shortage of physicians. Solutions will come as well through breakthroughs in research, an intense focus on quality of care, and in improved access to affordable health care for people who now travel great distances for medical treatment. Such solutions are synonymous with growth.

When we talk of growth, here at Penn State Milton S. Hershey Medical Center and Penn State College of Medicine, we are talking about responsibility. We face a nationwide shortage of medical doctors. Our faculty leadership is responding to the need by finding ways to increase class size. In fact, the Association of American Medical Colleges (AAMC) notes Penn State is one of nine institutions nationwide that has increased medical school enrollment by at least 10 percent to help expand the ranks of trained physicians.

Our responsibility to grow extends to our patients and to the community. Of the regional academic health centers in Pennsylvania, we are the youngest, and yet we have had phenomenal growth in services provided over the last several decades. Penn State Hershey Medical Center provides everything from primary to quaternary care, including a transplantation team, high echelon heart and vascular services, a cancer institute, and the only Level I trauma center in the central part of the Commonwealth. Our goal is to ensure that everyone who lives in this community receives access to cutting edge care, either at our Hershey campus, or through our excellent outreach services and affiliated hospitals.

Evidence of our growth surrounds us, and all of it is a reflection of our commitment to those we serve. In the past year, we opened our new South Annex, which provides advanced image-guided treatments for patients with brain tumors, lesions, and other serious ailments. Recently, we broke ground for an ambulatory care center, focused on providing needed outpatient care with adjacent parking. Similarly, our fitness center is being doubled in size to accommodate community as well as student use. We have broken ground for a new building to house the Cancer Institute’s patient care and research initiatives. Perhaps the most important challenge before us is that of building a free-standing children’s hospital. We already have raised $25 million toward that project, and we must move steadily toward completion of the fund-raising effort that will make a state-of-the-art pediatric center a reality for young patients in our burgeoning community.

Here in Hershey, we have the “laboratories” that will contribute to the evolving health system of tomorrow. That is the essence of growth—an improved model for the future. I can think of no better place for this to happen. Ours is one of only a few in the nation in which an academic medical center is fully integrated to work seamlessly with the College of Medicine, and that is why I came to Penn State. I am confident we are well-positioned to address community and educational needs through focused growth—and it is our responsibility to do no less.

Harold L. Paz, M.D.
Senior Vice President for Health Affairs
Dean, Penn State College of Medicine
Chief Executive Officer,
Penn State Milton S. Hershey Medical Center
Mission: Education

As long as Americans can remember, the nation has basked in the complacency of having one of the best medical systems in the world. Discovery has been companion to the intellectual curiosity that drives U.S. physicians to go beyond care to cure, forging techniques that enhance recovery and disrupt the course of disease. Imagine, then, this country without enough doctors to carry on a tradition that has become commonplace with expectation. Inconceivable? Unfortunately not.

The Association of American Medical Colleges (AAMC) predicts a shortage of 100,000 or more physicians in the next twenty years. Some estimates are as high as 200,000.
In 2005, there were twice as many applicants to medical schools as were accepted. Many of those rejected were academically qualified. There simply was no room for them.

In addition to lack of available medical school seats, the impending physician shortage is compounded by a significant population growth paralleled by an aging physician workforce—one of three currently active doctors will likely retire by 2020. The U.S. population is growing by 25 million people each decade. By 2030, there will be twice as many people past the age of sixty-five as there were in 2000. The problem is shaded as well by a disproportionate shortage of doctors in specific specialties, and by geographic inequities in many rural and urban locales that are underserved in comparison to suburban and thriving metropolitan areas.

Solutions are complex. However, Penn State College of Medicine has committed itself to the issue by responding to the AAMC’s efforts to increase overall medical school admissions by 30 percent by 2015. Following a year-long study to examine resources and determine how best the College of Medicine might accommodate increased class size, a plan for graduated growth was initiated. The responsiveness of the College of Medicine to confront this issue head-on is typical of the Penn State mindset that links growth with mission and service to the community. An increase in class size is likely to result in additional physicians who will build local practices, and serve in area hospitals where they will treat patients in central Pennsylvania communities.

Following results of the internal study in 2003, the number of first-year students was increased by an additional 10 students in 2004 and 2005, bringing the total complement to 135. In 2006, the class increased to 145 first year students, where the cap remains for the present.

In fact, 152 freshmen were enrolled in 2006. As it turned out, several students who had multiple acceptances and might have gone to other top schools chose Penn State. Fortuitously, the College was able to make provisions for these outstanding candidates. Their choice is consistent with the competitive advantage the College of Medicine enjoys in attracting highly qualified students from every part of the country.

“Approximately one in every six medical school candidates throughout the country applies to Penn State College of Medicine, giving the College a rare choice in educating the best and brightest among future doctors.”

Dwight Davis, M.D.
Associate Dean for Admissions and Student Affairs
Looking Ahead

The vision that guides the education mission at the College of Medicine is one that prepares physicians for leadership roles in the future of medicine. That demands exhaustive research, and the application of considerable intellect in appropriately re-examining course curriculum. A recent task force examined how best to teach social and behavioral sciences so that students become more knowledgeable about the health care system in which they will practice. Physicians need to thoroughly understand the system in order to make system resources available to patients. Clinical skills will be more important than ever in the future—as doctors are called on to improve physical examination skills, the manner in which medical interviews are conducted, and how they can influence patient behavior. Until recently, an umbrella course encompassed physical diagnosis and humanities, including ethics and professionalism. Now, several courses have been directed to these critical issues, including two new courses called Social Influences on Health and Behavioral Influences on Health. The College always has had a strong emphasis on humanities, and the redesign of curriculum underlines that continuing emphasis, as does an increased clinical assessment, now added at the completion of the first and second years of medical school, in addition to the assessment traditionally given at the end of the third year.

The College of Medicine’s curriculum continues to evolve as the practice of medicine changes. During the past year, faculty leaders met in retreat to determine ways in which education in the basic and clinical sciences might be integrated to avoid a disconnect between the two. Toward this aim, a member of the Carnegie Task Force on Education was invited to one of the retreats. As a result, it was learned that longitudinal clinical experiences in which a student is mentored by a faculty member over a long period of time are extremely valuable in shaping the student’s career. The faculty responded by redesigning its mentoring experiences to pair students with faculty members willing to invest in long-term one-on-one mentoring.

“Six competencies have been defined as critical to residency education; systems based practice being one of them. We’ve taken that directive a step further by beginning to build this kind of strength in medical college, just as we’re ahead of the curve in the assessment of students.”

Richard Simons, M.D. ’81 MED
Vice Dean for Educational Affairs

“We work hard to create an environment in which students see themselves as part of a community. We have a well structured mentoring and faculty advisor initiative, a high faculty to student ratio, and an open door policy that invites an interchange for any student with an issue or concern.”

Dwight Davis, M.D.
Associate Dean for Admissions and Student Affairs
Patients First

Why do so many future physicians appear to choose Penn State College of Medicine? Some say it is because the College of Medicine was the first in the country to have a Department of Humanities, underlining a program that emphasizes understanding of humanistic values. Others point to the patient project, in which students are able to follow local chronically ill patients over time—an experience in which they gain insights, not only about the progression of illness, but about its personal impact. This is where both medical and nursing students come to grips, for the first time, with the consequences of illness on a patient’s lifestyle. They learn that sometimes traditional medical advice isn’t appropriate for a specific patient. Individuality plays its role in recovery. Not all patients heal on schedule. Not all react to convalescence similarly. The project is invaluable in teaching students more than they can ever learn in a classroom about the confrontations between illness and daily living.

Rising Medical School Debt

Contrasted to the need to increase resources to accommodate medical training is the soaring cost of that training. Among the casualties are young men and women whose potential is cut short by an inability to pay for medical school. Fifty percent of 2005 graduates nationally left with a debt of more than $149,000, some with as much as $200,000. The average debt for 2005 was $120,280, with Penn State medical alumni incurring an even greater average debt of $134,000.

Why the gap in debt assumed by medical school graduates here and elsewhere? While the problem is universal, it is more severe at Penn State, a relatively young College of Medicine without the financial support of older, more financially comfortable alumni, those who traditionally provide the backbone for scholarships. In addition, the College of Medicine receives comparatively little in state support for medical education, meaning that there are few funds available for non-loan help to students, unlike many private and even state institutions that can provide as much as a third or half tuition to qualifying students. A strong case for the value students place on their medical educational experience at the College is that many of them turn down offers of significant financial support from other schools to come to Hershey.

“The cost of a medical student’s education has risen to astronomic proportions, and nowhere is that more critical than at Penn State College of Medicine, which receives less public support than most other public colleges of medicine in the country. We must find alternative sources of revenue to underwrite scholarship money for deserving students, as well as to help reduce projected shortages of physicians nationwide.”

Harold L. Paz, M.D.
Dean
Simulation: the Future is Here

Practice makes perfect, and since 1992, students at the College of Medicine have had the advantage of being able to practice medical skills, such as doing venopunctures on lifelike models, while residents and fellows perform colonoscopies and other procedures. During the past year, the Simulation Development and Cognitive Science Laboratory—or Sim Lab as it is known—has expanded its role. Formerly a project of the Department of Anesthesiology, and recognized as a national leader in the progressive integration of human simulation and medical education, the Sim Lab now is within the purview of the Office of the Vice Dean for Educational Affairs, where it is being used by students to practice medical procedures and to understand intricacies of physiological disease. Lifelike simulators breathe and mimic the cardiovascular system. Medical students and residents use them to palpate pulses, and program the simulator to go into shock. The manikins can be used for patient education as well, offering patients an opportunity to practice maintenance and preventive measures prior to their discharge from the hospital. In addition, the lab will be used for team training of people from different disciplines who are working together. More and more, simulation is becoming a valuable asset to medical education. Here, at Penn State College of Medicine, already recognized as a forerunner in the field, it is being expanded as an institutional resource, one that continues to serve medical education, but can be used by faculty and staff in several scenarios including training people to work as teams in crisis situations. In Crisis Resource Management Training, for example, physicians, residents, medical students, and nurses learn to work as a team in response to simulated crisis. The training helps emphasize the importance of teamwork and communication under pressure that must complement skilled provision of care.

“It’s clear to me simulation is a resource that needs to be utilized in educating all health professionals, and not only for the purpose of practicing procedure, but from the perspective of patient safety.”

Richard Simons, M.D. ’81 MED
Vice Dean for Educational Affairs
2006 Special Occasions

WHITE COAT CEREMONY—In 2006, 152 first-year students pursuing M.D. and M.D./Ph.D. degrees—the largest class in the College’s history—recited the Hippocratic Oath in unison, as they committed themselves to a future of healing, and put on white coats, symbolizing the garments that would identify them throughout their professional lives.

MATCH DAY—Anticipation was high as 113 graduating students learned in March where they would complete their residencies. Penn State College of Medicine alumni go on to some of the most competitive programs in the country, with an overwhelming majority getting their top choices, including twenty-three graduates of the 2006 class who were accepted into Penn State residency programs.

COMMENCEMENT—The thirty-sixth annual Commencement celebrated turning points in the lives of 125 new medical doctors, and thirty-four graduates receiving M.S., Ph.D. and M.D./Ph.D. degrees. Their exceptional standing in the medical community is found in their performance in the United States Medical Licensing Examination. The exam is given in three steps, the first at the end of the second year, the second during the fourth year, and the final during the first year of residency. In the past year, Penn State College of Medicine students had a 95 percent pass rate, compared to a national mean of 92. Step two performance is graded by a knowledge component as well as by clinical skills. Penn State students had a 98 percent pass rate in clinical skills, compared to a national mean of 96, and a 98 pass rate in knowledge, contrasted to the 94 national mean.

“All we really need to learn, we learned in medical school. Life isn’t fair, but as physicians, we can be. We can treat anyone who comes to us for help. We can become advocates for our patients. And we can be active role models in our community.”

Sarah Strong, M.D.
Representing the Class of 2006
Penn State College of Medicine
Graduate Education: Exercise in Independent Thinking

The philosophy of the sixteen graduate programs at the College of Medicine is independence merged with the cornerstone of scientific investigation—curiosity. While each program has a different focus, and each reflects its faculty perspective, all recognize one reality, and that is that not all students are headed toward careers in medical research. Their work at the College of Medicine may turn out to be preparation for teaching at a college or secondary level. Other students will pursue opportunities in industry, especially in pharmaceutical companies. In May, fifteen doctor of philosophy degrees, three M.D./Ph.D. degrees and sixteen M.S. degrees were awarded to graduates set to begin careers in a variety of science-based positions from medical research to drug development. As is traditional at the College, graduates were accepted for posts at leading institutions including Johns Hopkins University, Harvard University, University of California, San Diego, and Penn State College of Medicine.

Meanwhile, at least one third-year Ph.D. candidate has her sights set on NASA.

**Katrina Schweiker** has distinguished the College of Medicine as a recipient of a renewable $24,000 fellowship awarded by NASA. Schweiker uses thermodynamics to study protein stability in the biochemistry and molecular biology laboratory of George Makhatadze, Ph.D. Her work is directed to understanding the factors that stabilize proteins, thereby paving the way for the development of a protein-based medication to target disease. This study has applications for the space industry as well, in that astronauts incur excessive radiation during long-term space travel when they are not protected by the earth’s ozone layer. It’s just possible that drug development resulting from Schweiker’s studies could solve the problem. The student, who is continuing her studies at the College of Medicine, while collaborating with a fellowship mentor in California, has narrowed her investigation to a newly identified protein. It is hoped that the protein, which stimulates the immune system and the cell’s repair mechanism, can lead to development of a drug that would lessen the radiation damage from extended space travel.
Our goal is to lead graduate students to think as independent scientists with the ability to analyze what is in front of them. The objective is not to train them to perform one dimensional laboratory experiments, but to challenge their imaginations.

Michael Verderame, Ph.D.  
Associate Dean, Graduate Studies

This program was implemented to prepare for worst case scenarios—the kind that can seriously impede public health. Since 9/11, we have had an evolving discipline called homeland security, but there is a need for education to validate that discipline. This program addresses that need.

Robert Cherry, M.D.  
Program Director, Master of Homeland Security in Public Health Preparedness

Penn State’s Master in Homeland Security

Offered as an online degree through Penn State University’s World Campus, this new graduate program was conceived by Robert Cherry, M.D., a trauma surgeon and chief of trauma and critical care at Penn State Hershey Medical Center. It is the first master’s program in homeland security offered by a college of medicine, and it is designed to provide graduates with an understanding of the principles of hazard analysis and incident management of disasters the scale of 9/11 or Katrina. Directed by Cherry, the thirty-credit master’s program is the collaboration of eight departments at six Penn State schools, including the College of Medicine, College of Agricultural Sciences, Commonwealth College, College of Earth and Mineral Sciences, Graduate School, and College of Liberal Arts. Courses include Public Health Preparedness for Disaster and Terrorist Emergencies I and II, Natural Disasters, the Politics of Terrorism, Disaster Psychology, Agricultural Biosecurity, Public Health Evaluation of Disasters and Bioterrorism, Critical Infrastructure Protection of Health Care Delivery Systems, Leadership in Work Settings, and Policy Making and Evaluation.

The program was designed as a result of Cherry’s recognition of a need for comprehensive training of those engaged in disaster medicine—not only health care workers, but all those involved in disaster planning and coordination. More than 200 applications from around the country were submitted for the first class that was launched in January 2006. Students come from diverse backgrounds, including medicine, nursing, criminal justice, the government, military, and emergency health services.
Faculty: Commitment at its Peak

Faculty growth at the College of Medicine is consistent with increases in research and patient volumes. At the same time, there has been a gradual shift from a hierarchal campus to one that takes a much stronger approach to collaboration among teams. Those teams cut across department lines to encourage shared decision-making and progress in efforts to increase diversity, encourage tenure among women and minorities, and enhance professional development activities. The Junior Faculty Program has become a national model under the leadership of an associate dean for professional development. Faculty excellence is underlined by the fact that since 2001, every promotion and tenure dossier submitted to University Park has met with success. Faculty members have garnered national reputations as the result of three research papers published in the last three years in Academic Medicine.

“The collaboration among our faculty teams is exceptional. The mutual respect and trust among members are responsible for attracting faculty who recognize that, not only do we have a wonderful work ethic, but we also have people who are committed to making the College a better place to work and thrive.”

R. Kevin Grigsby, D.S.W.
Vice Dean for Faculty and Administrative Affairs
Faculty Honors

The Society of Distinguished Educators is a Penn State College of Medicine organization whose membership is comprised of those faculty members who have been awarded the prestigious Distinguished Educator Award. The organization serves as a key resource for development in education. Each year, the college selects four accomplished educators for induction into the society. Its mission to promote excellence in the education of physicians and scientists is exemplified in the work of the four 2006 honorees.

Gregory M. Caputo, M.D., Medicine
Caputo, Robert E. Dye Professor of Medicine, and chief quality officer for Penn State Hershey Medical Center, serves as associate director of The Doctors Kienle Center for Humanistic Medicine. He served a Penn State College of Medicine residency in infectious diseases, and is a research fellow in medicine from the Harvard Medical School, Division of Infectious Diseases. In addition to infectious diseases, his interests include complications of diabetes and geriatric medicine.

Maryellen E. Gusic, M.D., Pediatrics
Associate dean for clinical education and associate professor of pediatrics, Division of General Pediatrics, Gusic provides oversight for new program initiatives in clinical skills education. She earned her medical degree from the University of Pennsylvania School of Medicine, and served a pediatric residency at Children’s Hospital, Boston, and a clinical fellowship in pediatrics at Harvard Medical School.

Graham H. Jeffries, M.B., Ch.B., D.Phil., Medicine
A professor of medicine, Division of Gastroenterology/Hepatology, Jeffries is a graduate of the Otago Medical School, University of New Zealand, and received his doctorate from Oxford University. Throughout his medical career, he has been the recipient of numerous honors, including the American College of Physicians Laureate Award. Jeffries established the Graham H. Jeffries Professorship of Medicine Award at Penn State College of Medicine.

Ralph L. Keil, Ph.D., Biochemistry and Molecular Biology
Keil is an associate professor of biochemistry and molecular biology who earned his doctorate in genetics from Cornell University, and did postdoctoral work in molecular genetics at Yale. His current laboratory studies at Penn State include investigating the mechanisms of the action of volatile anesthetics.
Science is not an insular pursuit. At Penn State Milton S. Hershey Medical Center and Penn State College of Medicine, scientists from multiple disciplines are encouraged to jointly apply their innovation and creativity to discovery. Collaborative endeavors have grown from joint efforts of biomedical researchers and clinicians to include interchanges with engineers, physicists, and mathematicians. That becomes possible at the College of Medicine as result of a broad $638 million University-wide research portfolio, and efforts to apply biological, mathematical, medical, social, and physical sciences to tackle problems affecting the community and the future of health care. Innovation and seeding connections combine with the University’s strengths in theoretical and physical sciences and engineering to maintain a robust health sciences research program that has prospered in spite of overall government health spending cutbacks.
Understandably, funding drives the selection of research areas. After all, this is how public priorities are expressed. The ability to respond to evolving priorities has been at the forefront of the College of Medicine’s success in raising total research support from $54.5 million in 2000 to more than $100 million in 2005, including $48 million in National Institutes of Health (NIH) funding.

Funding for 2006 fell back to just over $95 million dollars as a direct result of overall government cuts in support of health sciences research. The College of Medicine will continue to strive to maximize its share of NIH support. Cognizant of the NIH strategy for balancing support of investigator initiator grants with support of large teams, Penn State has accelerated collaboration with University Park scientists and affiliated hospitals to form research teams working on multiple studies but focused on a single endpoint.

One way the need for more varied and numerous collaborations is being met is through a bus service that shuttles scientists between the University Park and Hershey campuses for access to facilities and close interaction with colleagues. Participants agree that technology such as video conferencing assists in collaborative endeavors, particularly across international boundaries. But focused, intimate discussions with colleagues are irreplaceable and economies are gained by strategic placement of core equipment. The ability to read papers, do data analysis, and work on laptops while traveling to engage in this kind of collaboration means that there's a limited amount of time wasted.

While NIH funding remains critical, the Medical Center and College of Medicine are continuously cultivating other sources. A broad base of funding comprised of support from other government sources, such as NASA, industry, private individuals, and foundations is critical in an environment when competition for NIH funding is increasing just as the pool of available NIH dollars is decreasing. In the past year, applications to foundations and the private sector exceeded those for any previous year. An increase in support from the National Science Foundation for the College of Medicine’s health-related research has accelerated interest in both highly practical projects and theoretical research relating to bioterrorism hazards, as well as the work of the College’s Center for Health Improvement, which addresses the interests of the U.S. Agency for Health Quality Research. In short, the College of Medicine continues to engage in high-priority basic and clinical research initiatives—from basic science that forms the foundation of the health sciences, to genetic studies that will enable the new era of personalized health care, and population research that fosters community health.
Scientists at the College of Medicine are driving research in new directions that will move the health care paradigm from treatment to prevention. This vision demands a focus on the determinants of future disease rather than on management of disease after it has taken hold. The vision requires fine-tuning of predictive models that will allow clinicians to guide their patients in lifelong health maintenance. The new mindset began with sequencing of the genome. Today, scientists recognize the rich interactions among genes and the proteins they produce, and have begun to untangle their effects on the processes of life.

Applied Research

In April, groundbreaking for the Hershey Center for Applied Research signaled a new beginning for the College of Medicine and surrounding community. Located adjacent to campus, land for the research center, owned by the Hershey Trust Company as Trustee for the Milton S. Hershey School, is designated by the Pennsylvania Department of Community and Economic Development as a Keystone Innovation Zone (KIZ). KIZ status brings financial benefit to companies that locate in the Zone. Along with a presence at the Center, this KIZ translates to new possibilities for Penn State and for the region. The purpose of the KIZ program is to keep talent and business in Pennsylvania by facilitating the transition from laboratory to company. Placement of KIZ sites adjacent to university campuses fosters creation of technology communities in which the scientific foundations, business acumen, and funding sources necessary for incubation of new companies come together in one place.

The Medical Center and College of Medicine will lease 32,000 square feet of the building for the Department of Pharmacology and the Office of Technology Development. The Department of Pharmacology research portfolio spans the laboratory research continuum from the basic biology work that identifies drug targets through drug discovery and drug development. Placement of this entrepreneurial department—which already has been the source of spin-off companies—at the Hershey Center for Applied Research, will increase chances of placing the next spin-off close to campus. The Office of Technology Development facilitates sharing of knowledge and research materials with both for-profit and non-profit partners, helps researchers translate their research results into technologies that others can use to benefit patients, and cultivates strong, constructive relationships with the business community. The office’s placement at the Center is a symbol of Penn State’s commitment to the Commonwealth and the region. In addition to being a prime location for companies relying upon College of Medicine technologies, the Center will offer tenants coming from elsewhere all of the access to faculty expertise and the open educational, library, and research resources available on campus.

“There are no blueprints for research. It is inevitable that directions will change with time. Our success depends on the talent and creativity of our people and our ability to maintain a balanced portfolio of basic, translational, and applied research. Cultivation of traditional government-supported basic science, new NIH programs in team-based and translational research, industry-supported applied research, and research in community health and health care delivery will allow us to facilitate the movement of ideas and concepts from our laboratories to the patients who will benefit from them.”

Sheila Vrana, Ph.D., Associate Dean for Basic Science Research

“Whether we study the breathtaking details of a life process or the challenge of determining the best treatment for an individual patient, our purpose is to improve the human condition through science. We keep this in mind in everything we do—our laboratory research, our publication of results, and our exchanges with university and corporate colleagues. The scientist dreams of contributing to society’s wealth of knowledge and of knowing that somewhere a life is improved because of his or her work. The privilege of contributing to the vitality of our community only adds to the rewards.”

Alan J. Snyder, Ph.D.
Associate Dean for Technology Development
Historic Global Agreement

Throughout the world of health, international boundaries are opening to the shared intellect of men and women who serve in a global community. Penn State College of Medicine and the Tianjin Bureau of Public Health in China jointly initiated a program that encourages collaboration among clinicians and researchers at the College of Medicine and in Tianjin’s largest hospitals.

The agreement has its roots in a 2004 tour of American academic medical centers by the Tianjin group. They sought a dynamic and progressive institution for collaboration and chose the College of Medicine because of its reputation for leading research and excellent patient care, as well as for the its focus on areas that are of specific interest to Tianjin physicians. In November, three neurosurgeons from Tianjin began a three-month stay in Hershey to learn from College of Medicine physicians and researchers. A second group of physicians is expected to replace this first group in the spring. College faculty eventually will travel to Tianjin to work with counterparts there.

The teams plan to expand areas of interest to include research and cancer treatment, diabetes, and heart disease. Additionally, the American and Chinese colleagues will collaborate on clinical trials, benefiting each group by sharing data from genetically disparate populations. Penn State researchers report interest in traditional Chinese healing techniques, such as acupuncture. They say a goal for the team is to study whether such techniques may improve patient outcomes.

“This collaboration is an opportunity to dramatically expand the scope of those who benefit from our expertise in patient care, biomedical research, and medical education. In return, we gain a strategic partner in our mission to improve the quality of care for people in our community and around the world.”

Jay Moskowitz, Ph.D.
Associate Vice President for Health Science Research
Vice Dean for Research and Graduate Studies.
Chief Scientific Officer
A Proud Moment—an Enduring Contribution

On December 16, 2005, when the leading scientific magazine, Science, hit the stands, the cover story heralded the work of College of Medicine geneticist, Keith Cheng, M.D., Ph.D., a Jake Gittlen Cancer Research Foundation scientist or researcher at the Penn State Cancer Institute.

One of science’s most perplexing mysteries has been the genetic determination of human skin color. Cheng and his research team, which included University Park anthropologist, Mark Shriver, Ph.D., found that a change in one amino acid in one gene has a major impact in determining why people of European descent have lighter skin than people of African descent. The discovery may lead to further study by Cheng, using the protein coded by the pigmentation gene as a target for treatment of malignant melanoma, the deadliest form of skin cancer. It may also lead researchers to discover ways to modify skin color without damaging it by tanning or the use of chemicals.

As with many scientific milestones, the pigmentation discovery was an unexpected offshoot from Cheng’s cancer research using zebra fish, a widely used model for the study of developmental genetics. Because zebra fish reproduce rapidly and many of the animal’s genes mimic those of humans, it is a good model for the study of genetic alterations in cancer. The similarity between the fish and humans is present in pigment cells that contain granules called melanosomes. Europeans have fewer, smaller, and lighter melanosomes than people of West Africa, while East Asians have intermediate properties. The team found that a zebra fish variant also had these less heavily pigmented melanosomes than normal fish, suggesting that gene mechanisms responsible for the change in zebra fish might also be involved in skin color variation. The importance of the work, however, extends beyond pigmentation.

“Working out the details of pigmentation with help from model systems like zebra fish helps in the understanding of diseases such as diabetes and heart disease.”

Keith Cheng, M.D., Ph.D.
Jake Gittlen Cancer Research Foundation Researcher
Penn State Cancer Institute
Collaboration Brings Results

The new Penn State Center for Neural Engineering is advancing translational capabilities by applying resources in engineering, materials, and neurosciences to the development and commercialization of implantable medical devices.

Neurostimulation is an exciting and growing science that employs “smart” devices, effective in the treatment of many diseases including psychiatric and vascular disorders, brain tumors, spinal injuries, Parkinson’s disease, epilepsy, and stroke. The new Center, which is a partnership of the College of Medicine and Penn State College of Engineering, underlines the collaborative direction of Penn State research, and is funded by a $250,000 grant from the Harrisburg Market Keystone Innovation Zone (KiZ), and matching funds from the University.

Advances in the field of neural engineering range from the development of tools to help understand neural systems, to those that assist in brain stimulation and systems for enabling direct brain-machine interfaces. Much of the Center’s work involves the development of neural prosthetics that transport signals from the brain through the nervous system so patients can control high-tech artificial limbs. The Center also uses nanotechnology in the miniaturization of devices for implantation.

“The work being done at the Center represents enormous advances in the treatment of neurological disease. One device, the deep brain stimulator, implanted to control symptoms of Parkinson’s disease, can cancel tremors experienced by patients, and restore full function in people once unable to walk independently.”

Robert E. Harbaugh, M.D., F.A.C.S., ’78 MED
Chair, Department of Neurosurgery
2006 Research Milestones

College of Medicine researchers Mark Kester, Ph.D., and Gavin Robertson, Ph.D., professors of pharmacology, have developed components of a drug delivery system that uses tiny particles and a naturally occurring substance called ceramide to fight cancer. The Penn State Research Foundation recently granted development rights of the drug to Tracon Pharmaceuticals, Inc. in San Diego. The system, which Kester and Robertson successfully tested in lab mice, has potential to be more successful than combination chemotherapy and radiation treatment because it quickly and accurately delivers multiple therapeutic agents to attack cancer cells without damaging healthy tissue.

Christopher Hollenbeak, Ph.D., associate professor, Departments of Surgery and Health Evaluation Sciences, has conducted a study suggesting that people who receive a kidney transplant are almost four times more likely than the general population to develop melanoma. The study was published in Cancer, a peer-reviewed journal of the American Cancer Society.

Jill P Smith, M.D., gastroenterology physician and researcher at the College of Medicine, conducted a pilot study suggesting that patients with Crohn’s disease, an intestinal inflammatory disorder affecting an estimated 500,000 Americans, may be helped by a drug used to relieve symptoms of alcohol and drug addiction. The College of Medicine received $500,000 from the NIH for continued study of the drug naltrexone, an FDA-approved drug used for withdrawal from substance abuse. The first phase of the NIH-supported study began this fall. In Smith’s pilot study, patients with diagnosed Crohn’s disease were treated with a low dose of naltrexone and monitored for improvement during a twelve-week period, during which 89 percent of participants showed improvement with therapy, while 67 percent had remission of symptoms. The only side effect of the treatment was sleep disturbance in some patients.
In itself, recent growth at Penn State Milton S. Hershey Medical Center is impressive. In 2006, 764,000 patients were seen in outpatient departments, 23,000 surgeries were performed, 48,000 emergency department visits, and 26,000 hospital admissions were recorded. Surgical cases alone represented a 17 percent increase, while admissions and emergency visits saw a rise of more than 2 percent, and outpatient visits increased by nearly 4 percent. More remarkable than the numbers themselves, however, is the fact that growth has been conscientiously structured to serve families throughout central Pennsylvania in their own communities. Affiliations with local hospitals bring the benefits of academic medical centered care to a growing contingent of people who receive an enhanced level of treatment close to home, thanks to interaction between hospital partners and Penn State Hershey Medical Center.
Clinical emphasis at Penn State Hershey Medical Center is prominently evidenced by the ground breaking of the East Campus outpatient building that will house the Departments of Neurosurgery, Neurology, and Orthopaedics, plus physical therapy, diagnostic imaging, and a breast center for women.

Additional focus at the Medical Center is directed to numerous priority services including colorectal surgery, cardiac electrophysiology, functional neurosurgery, minimally invasive surgery, neonatal intensive care, neural oncology, and a spine program. Expansion of the Penn State Cancer Institute will pave the way for increased translational research benefiting people of central Pennsylvania through the availability of state-of-the-art, interdisciplinary cancer care without the need for extensive travel. A similar advantage exists in the delivery of children’s services, particularly pediatric cancer care. Collaboration between clinical researchers in Hershey and providers in central Pennsylvania hospitals is improving the lives of young patients who now can get the care they need close to home.
Penn State Children’s Hospital—A Top Priority

Penn State Children’s Hospital conducts the only Level I pediatric trauma center outside Pittsburgh and Philadelphia, a facility that serves children from most Pennsylvania counties as well as those in neighboring states. Additionally, the Neonatal Intensive Care Unit (NICU) at the hospital is a Level 3C unit, the highest level assigned to NICU care. The twenty-eight-bed unit provides care in most pediatric subspecialties, as well as to low birth-weight infants, those with congenital disease, and babies born to mothers with high-risk pregnancies.

During the past year, planning and fund-raising continued towards the development of a free-standing children’s hospital. The ultimate vision is a comprehensive pediatric medical center that would complement services in the more than twenty clinical settings operated by Penn State throughout Pennsylvania. The hospital would combine state-of-the art technologies, leading-edge therapies, and medical research that will help expand the level of pediatric care offered at the community level while providing an accessible resource for children and families with the most advanced medical needs.

Among 2006 clinical pediatric research projects, Ian Paul, M.D., M.Sc., ’98 MED received an NIH grant in excess of $1 million to study influences on families following the birth of a child. The program, Nurse for Infants Through Teaching and Assessment after the Nursery (NITTANY), compares how the lives of newborns and mothers are affected by single home nurse visitation as contrasted with clinic-based care.

New mothers experience many changes after giving birth, such as interrupted sleep patterns, and having to learn to recognize signs of illness in an infant. Paul’s group has examined whether or not home care, rather than traditional office based care, better accommodates mothers and babies. The research has determined that, not only is home care more appropriate in many situations, it is more cost efficient as well.

The Pediatric Hematology and Oncology program is benefiting from research conducted by Barbara Miller, M.D. Miller is examining pathways that block blood cell development, hoping to learn how leukemia and other blood-borne childhood cancers can or cannot be regulated by different protocols. Other hematology and oncology programs, conducted by the Pediatric Stem Cell Transplant Program in collaboration with national groups, include a pilot study affecting children with relapsed Ewing’s sarcoma and neuroblastoma.

“We offer fourteen pediatric sub-specialties including pediatric rheumatology and pediatric gastroenterology. Many of these services are offered in our community clinics and in partnership with community hospitals and providers. An expanded children’s hospital will give us a much-needed additional 20 percent bed capacity to serve children and families with critical health care needs, and also will allow us to significantly broaden the scope of outpatient care we provide children through community outreach.”

Matthew Wain
Administrator,
Penn State Children’s Hospital
Ryan’s Dream

There is so much an 18-year-old like Ryan Drako might have wished for, not the least of which would be release from the pain of cystic fibrosis, or retreat from the recurring hospitalizations that had consumed almost half his young years. He might have wished to play football or engage in cross-country running. Everyone who knew Ryan remembers what he wished for during his senior year in high school—a simple wish really. Ryan wanted to join his classmates and claim the diploma for which he had worked so hard. He wanted to graduate with his class, and thanks to his determination and some good friends at Penn State Hershey Medical Center, he did.

Ryan was on a waiting list for a lung and liver transplant. He had been in the hospital for a month preceding graduation, getting his schooling from tutors supported by the Children’s Miracle Network. His cystic fibrosis was complicated by difficult breathing and gastrointestinal bleeding. Finally, he stopped telling people about his dream of going to his graduation. He knew the odds weren’t good, and he wasn’t about to make a bid for sympathy. That wasn’t Ryan’s way. But when someone asked him casually one day, “Say Ryan, when is graduation?” he began to cry. It was that very day. In fact, it would begin in three hours.

Word spread quickly, and a dream team went into action. First came his doctor’s approval. If he could be transported by the Life Lion ground pediatric ambulance to Wilkes-Barre, he could go. Arrangements had to be made with the school’s principal and teachers. Classmates were alerted—Ryan would be there, throwing his mortar board in the air with the same happy abandonment of his peers.

A total of five employees, including a pediatric intensive care nurse, traveled with the boy and his mother. The pediatric ambulance drove them to the high school football field, with the graduation ceremony about to take place at the center. News crews were waiting. Ryan was a celebrity. Suddenly his classmates were cheering him, screaming his name. As he was wheeled toward the entrance, he got up from his wheelchair, pulled off his oxygen and joined his class. He was able to walk to the podium and receive his diploma along with his classmates.

Afterwards, there was the usual boisterous commencement celebration, but most of it surrounded Ryan, as friends and total strangers ran up to hug him. Ryan stayed with his friends, laughing and talking like any 18-year-old at such a milestone. When he returned to his hospital room, he found celebratory balloons fighting for space by his bedside. A young man’s wish had come true. As for the hospital staff members who made that possible, the joy on Ryan’s face was just reward.

EDITOR’S NOTE: On December 6, 2006, Ryan Drako lost his battle with cystic fibrosis. Those who cared for him during his many hospitalizations at Penn State Hershey Medical Center say his courage and optimism in the face of illness will continue to hold a special place in their memories.

“I have sat by the beds of dying patients. I’ve helped patients recover from life-threatening illness. I’ve overseen care for so many sick patients in the Pediatric Intensive Care Unit, and every time it touches some part of me emotionally. But nothing has ever gotten to me as much as Ryan’s graduation. You have to be grateful when life gives you a chance to be part of something like that.”

Cheryl Bartke
Certified Registered Nurse Practitioner
To Conquer Cancer

It is not only brick and mortar but intellect and discovery that characterize growth at Penn State Cancer Institute (PSCI). As the Institute’s leadership prepared for the groundbreaking of the new PSCI building in early 2007, two goals remained constant. The first is the continuation of state-of-the-art interdisciplinary patient care, in which medical and surgical oncologists jointly determine the best therapeutic course for each patient. The second mission is to become designated by the National Cancer Institute (NCI) following submission of a competitive grant application in 2009. While preparation for this event has for years been an integral part of PSCI programming, the opening of the new building will significantly enhance the Cancer Institute’s eligibility to become one of only forty NCI-designated comprehensive institutes in the nation.

The presence of a new, five-story, 175,000-square foot facility will enable the further integration of research and clinical care. Three clinical floors will house radiation oncology and multidisciplinary medical and surgical oncology. Clinic space will include an infusion area and a day hospital for bone marrow transplant patients. Two floors will be dedicated to laboratory research, office space, and a clinical science facility. The theme of collaborative endeavor will be ignited by a spiraling atrium, which the architects call the “beehive,” extending from the ground to the top of the structure.

Meanwhile the organizational strength that is requisite to NCI designation has been reinforced by the 2006 recruitment of a director of basic science research, and a director of population studies, plus the ongoing recruitment of a director of clinical science research. The latter parallels the dramatic increase in patient capacity that will take place with the opening of the new

“Among other strengths, our application for NCI-designation will be underlined by the Cancer Institute’s emphasis on epidemiology projects, many of which are conducted through the Appalachian Cancer Network by volunteers throughout central Pennsylvania and beyond who provide education and screening services, as well as behavioral interventions to reduce cancer risk.”

Tom Loughran, M.D.
Director, Penn State Cancer Institute
building. Vigorous recruitment of clinical specialists in all areas of medical, radiation, and surgical oncology, as well as hematology, continues. Although the care of pediatric cancer patients is through the Medical Center’s Department of Pediatrics, interfaced with PSCI, oversight responsibility for clinical research in pediatric oncology is under the umbrella of the Cancer Institute.

**Four-pronged Attack on Cancer**

Among PSCI’s cancer-fighting initiatives are four major scientific programs. They include:

**Viral oncogenesis and host defense.**—How do viruses cause cancer? Historically initiated through the Department of Microbiology and Immunology of the College of Medicine, this critical area of research continues to be a prominent study of PSCI investigators.

**Cancer prevention and control.**—Molecular epidemiology studies are focusing on the interaction between genetic background and the environment, particularly with regard to smoking and lung cancer. Phil Lazarus, Ph.D., has discovered there are genetic variants of enzymes in the body that detoxify cigarette smoking to eliminate poisons. Smokers with one form of these enzymes will be at higher risk for lung cancer than those with a more benign form of enzyme. An emerging and important study examines every aspect of cancer survivorship, from diagnosis to treatment and recovery, studying how family dynamics, economics, social issues, related health problems, and treatment outcomes directly and indirectly affect survivorship. Questions that explore the financial consequences of cancer and the ability or inability of patients to return to full time employment are approached, as are those that look at the physical, emotional, and mental development of children with cancer.

**Chemical carcinogenesis.**—This program’s research goal is to uncover exactly how cancer develops and then provide means for cancer chemoprevention—the use of agents before the detection of disease to inhibit, delay, or reverse carcinogenesis.

**Experimental therapeutics.**—Critical to NCI designation are programs like PSCI’s that seek newer and better cancer treatment through the collaboration of basic scientists who explore what makes a cancer cell different from a normal cell, then design therapies that physicians take to clinical research studies and ultimate treatment. One significant evidence of PSCI’s collaborative strength in the past year has been its work with University Park scientists in the field of nanotechnology. Mark Kester, Ph.D., has been successful in the development of several projects and platforms of basic technology that have been accepted by NCI for further investigation nationally. Using technology developed at Penn State, NCI will continue to build nano particles for cancer treatment at its nanotechnology fabrication facility in Maryland.

“When the NCI evaluates an institution’s eligibility to become designated, it questions what practical progress has been made toward saving lives. A dozen Nobel laureates won’t help if the institution hasn’t made a significant effort to recruit basic and clinical investigators. That’s what we have done in the past year, often matching investigator strengths with four major scientific programs.”

Tom Loughran, M.D.
Echoes of Another Life

At 22, Todd Hitz had his life planned, and it looked good. The Bloomsburg (PA) University senior and third baseman was headed toward a baseball career and was courting scouts interested in signing him to a pro team. Then one day, he passed out. A biopsy revealed a tumor in his chest. Todd had Hodgkin’s disease. He didn’t know it, but his baseball career ended then—before it had even started.

Todd came to Penn State Cancer Institute, where he was treated by Witold Rybka, M.D. He first underwent a six-month regime of chemotherapy, while continuing his college work so that he could graduate with his class. When his chemotherapy was completed, he had radiation treatment every day for four weeks. At the end of his radiation therapy, he was declared “in remission”—joyous words for any cancer patient.

It was during those weeks of radiation that he became engaged to the young woman he calls his “rock.” They were married the following summer. She was with him when he first was diagnosed and has been there—his support and encouragement—throughout all that has happened since. Todd remained in remission for a year and began pursuing a master’s degree in water reserve management from Southern Illinois University. Then during Christmas break, he began to feel ill, and before long, his worst fears were confirmed.

He underwent more chemotherapy and was hospitalized for a week. He had already reached his limit of radiation. If chemotherapy wasn’t totally successful, he would need a bone marrow transplant. Admittedly terrified but determined to move on with his life, Todd returned to Southern Illinois University, relapsed again but managed to finish the semester and his thesis before returning to PSCI for further treatment.

In the end, Todd required the bone marrow transplant, and more chemotherapy. As it happens, his was an historical event. It was 1996, and his was the first such transplant done at Penn State Hershey Medical Center. He was frightened of what lay ahead, mostly of the unknown. His doctors prepared him thoroughly and yet, the more he knew, the more he understood that there were no assurances, and much would depend on how his body responded to the changes it would undergo. His blood count had to be reduced to zero, so that harvested stem cells from his sister could be infused.

Following his transplant, Todd remained in the hospital for a month, and some of the side-effects of the procedure were severe. He got through it with his usual stamina and determination. A year after his bone marrow transplant, he started working for the Susquehanna River Basin Commission. The agency equipped him with home office adaptability so that he can work from his home.

“Todd gave his doctors and others around him strength. He had a great deal of faith and was eager to move ahead with his treatment. He certainly wasn’t in the best shape. He had failed multiple rounds of chemotherapy. But he never gave up hope. Eventually, he spearheaded a patient driven support group for bone marrow patients that has been enormously helpful to other patients. Working with a patient like Todd makes you feel like you’re doing some good. He has caused me to see all patients in a different light.”

Witold Rybka, M.D.
Director, Bone Marrow Transplant Program
Todd is quick to say he feels “pretty good,” even though he still takes medication. While he has some expected complications, he counters with the fact that he has not had pneumonia since his transplant, quite an advantage for a young man for whom pneumonia was once a constant risk—a man who was Penn State Hershey Medical Center’s first recipient of a bone marrow transplant more than ten years ago.

Progress on Colorectal Cancer Survivorship

Thanks to a $10,000 grant from the Lance Armstrong Foundation, and a collaborative endeavor between PSCI and the Northern Appalachian Cancer Network (NACN), a program to provide community-based training in underserved rural areas is helping improve colorectal cancer survivorship.

The program includes workshops for community cancer coalitions and organizations to develop implementation plans, including resource guides for NACN coalitions from several Pennsylvania counties plus coalitions in Chautauqua, Delaware, and southern New York. The grant enables PSCI to work with rural hospitals and cancer groups to enhance the quality of life for colorectal cancer survivors, and it lays the groundwork for future community collaborations to provide service to their local communities.

The Expanding Arm of Care

Through its network of local hospitals throughout central and northeastern Pennsylvania, Penn State Hershey Medical Center and Penn State Cancer Institute are bringing research to patients in a growing number of communities. Founding members of the network include Lehigh Valley Hospital and Health Network, Allentown and Mount Nittany Medical Center, State College. Affiliates include Lewistown Hospital, Lewistown; Wyoming Valley Health Care System, Wilkes-Barre; and Susquehanna Health System, Williamsport.

“Everyone was terrific. I never felt I was going through it by myself. My wife knew all the risks from the beginning. But she’s been right there the whole time. She has sacrificed so much, so has my family and my wife’s family. My doctors at the Medical Center were absolutely supportive and understanding. People talk about my having courage, but the real courage comes from the people around me.”

Todd Hitz
Bone Marrow Transplant Recipient and Cancer Survivor
A Few Among Many

Penn State cancer researchers whose laboratory progress merit special recognition include Joshua Muscat, Ph.D., epidemiologist, Department of Health Evaluation Sciences. His studies explore the interaction among smoking exposure, genetics, behavior and physiology, and between active and second-hand smoking. His work is aimed at determining the factors that make some people more vulnerable than others to lung cancer. So far, the studies show that African-Americans are at increased risk compared with other populations and that cigarette-smoking women are more likely than male smokers to get lung cancer.

Karam El-Bayoumy, Ph.D., Raghu Sinha, Ph.D., both with the Department of Biochemistry and Molecular Biology; and John Richie, Ph.D., Department of Health Evaluation Sciences, showed that a diet supplemented with selenium reduced oxidative stress levels in men and altered levels of proteins that may be critical in developing prostate cancer. These proteins now can be used as biomarkers in future chemoprevention intervention trials.

Bogdan Prokopczyk, Ph.D., Department of Pharmacology, identified tobacco carcinogens in the cervical fluid of smokers and, with Craig Meyers, Ph.D., Department of Microbiology and Immunology, found that the type of human papilloma virus can influence the activation of tobacco carcinogens to form intermediates that can severely damage DNA in cervical tissue.

Mark Kester, Ph.D., distinguished professor, Department of Pharmacology, has made an important discovery that employs nanotechnology in the delivery of ceramide to target and kill cancer cells. Ceramide is a naturally growing substance that accumulates in cancer tissue and inhibits the growth of cells in patients undergoing chemotherapy and radiation. However it is toxic when
injected directly into the bloodstream. But by packaging the ceramide in miniscule nanoliposome capsules, Kester and University Park nanotechnology scientists discovered that it travels through the bloodstream, targeting the tumor without attendant toxicity.

Michael Green, M.D., M.S., Departments of Humanities and Medicine; Benjamin Levi, M.D., Ph.D., Departments of Humanities and Pediatrics; and Elana Farace, Ph.D., Department of Neurosurgery, have developed a cancer survivorship project. The goal of the project is to help patients make end-of-life decisions using an innovative computer program that involves tailored education, values clarification exercises, and a sophisticated decision aid to generate a specific medical plan. The computer program is user-friendly and nonthreatening and generates an advance directive document.

Following the completion of several pilot studies, the researchers have sought National Institutes of Health funding to evaluate the overall effect of this intervention and to determine whether it affects decisions made by the patient and treatment received at the end of life. They will be investigating these outcomes in a randomized clinical research study among patients with advanced cancer, who typically have life expectancies of less than six months.

Neil Christensen, Ph.D., Department of Pathology, is working on a research project aimed at preventing the papilloma virus, as well as improving the effectiveness of the therapeutic vaccine currently in use. His work extends to collaboration with scientists in other laboratories, including those at Johns Hopkins. There are more than 100 papilloma viruses, each of which has subtle differences. While only about a dozen of the viruses are associated with cancer, many of the others have serious implications. The vaccine now being used is ineffective in treating some of the viruses, and so Christensen is focusing on the immune system in an effort to find a refinement that will make the vaccine cross-protective.
Cancer Fighting Technology

Since mid-2006, image-guided radiation technologies have been directly targeting tumors and brain lesions. The Trilogy™ linear accelerator, one of the first of its kind in the country, combines diagnostic imaging, digital fluoroscopy, and digital radiography into the treatment machine, giving daily verification of the tumor location and surrounding normal tissue. This breakthrough technology allows for a more direct target with less possibility of invading normal tissue. And it provides customized treatments for specific patients. It can deliver higher doses of radiation during a short period, or smaller doses during an extended period, depending on the patient’s condition—further evidence of PSCI’s commitment to the highest standards of patient care.

Disease Teams Work Together to Treat Patients

In 2005, cancer clinicians and researchers developed an innovative concept for enhancing the multidisciplinary care so critical to the efficient management of patients diagnosed with cancer. Penn State Cancer Institute established multidisciplinary teams led by David Claxton, M.D.-hematologic malignancies; Henry Wagner, M.D.-pulmonary malignancies; David Goldenberg, M.D.-head and neck malignancies; Paul Mosca, M.D., Ph.D.-melanoma; Alan Lipton, M.D.-urologic malignancies; Walter Koltun, M.D.-colorectal malignancies; J Stanley Smith, M.D.-breast malignancies; Jonas Sheehan, M.D.-neurologic malignancies; and Kevin Staveley-O’Carroll, M.D., Ph.D.-liver, pancreas, and foregut malignancies.

An excellent example of how this collaborative effort is advancing patient care is the Liver, Pancreas, and Foregut Tumor Team. These clinicians have established a multidisciplinary clinic in which medical oncologists and surgeons work in close proximity, so that they are available to jointly consult with patients and reach decisions about care in a shared environment. The entire team meets weekly for a multidisciplinary conference where patients benefit from the combined input of surgical oncologists, radiation oncologists, interventional radiologists, psychiatrists, transplant surgeons, palliative care physicians, gastroenterologists, and hepatologists.

The Liver, Pancreas, and Foregut Tumor Program also is comprised of cancer centers throughout greater central Pennsylvania, including Allentown, Lewistown, State College, Williamsport, Wilkes-Barre, and Scranton. This allows for the referral process to be streamlined, an easy transition of treatment, and physicians in partnering clinics to participate in clinical research studies developed through Penn State Cancer Institute.

The team also has organized liaisons with Penn State basic scientists involved in cancer studies relating to liver, pancreas, and foregut tumors, thereby enhancing opportunities for translational research and clinical protocols.

“This is a highly organized and smooth-running operation. One might think it would have taken several years to plan and execute such a concept. In fact, it all came together rather quickly, and that’s because of the camaraderie and cooperation that exist in this institution. People at Penn State are a close-knit group who work together seamlessly. All of us had been doing so for years. All that remained to do was formalize it.”

Kevin Staveley-O’Carroll, M.D., Ph.D.
Associate Professor, Department of Surgery, Department of Microbiology and Immunology
Oncotype Study of Breast Cancer Patients

J Stanley Smith, M.D., professor, Department of Surgery, and Breast Cancer Disease Team leader, headed a retrospective review of fifty breast cancer patients who underwent the OncotypeDX™ assay at PSCI. Offered by Genomic Health Incorporated, the OncotypeDX test evaluates risk of breast cancer recurrence based on a multigene assay, including five reference genes and sixteen cancer genes. The test determines a score that classifies recurrent cancer risk as low, intermediate, or high, and the scores indicate which patients will benefit from chemotherapy and which patients will not. The PSCI review established beneficial use of the assay in that clinicians have found it effective in determining treatment decisions for patients evaluated as low- or high-risk. The decisions for the intermediate-risk group were not as clear.

Quality of Care

Tantamount to its mission of growth predicated on service is a Medical Center objective aimed at leadership in both safety and quality. The Institute of Medicine has called for hospitals across the country to re-examine programs and make whatever adjustments are requisite to ensuring the highest quality care along with the safest possible delivery of that care. Such goals are traditional at the Medical Center, and recently became structured under a top-flight Department of Quality Operations.

Safety precautions are being strengthened by a grant from the Pennsylvania Health Care Cost Containment Council (PHC4) and Highmark Foundation. The Medical Center is one of eleven Pennsylvania hospitals receiving the grant to implement electronic surveillance for reducing hospital-acquired infections. The technology, provided by MedMined, provides data mining analysis and related technical, clinical, and financial consulting services to the health care community. The service pinpoints sources of infections by electronically monitoring real-time and historical clinical data, and then alerts infection control professionals to the processes of care that increase infection risk. More importantly, it frees infection control professionals to focus more of their time on preventing and reducing infections and less time on time-consuming data collection efforts.

Can You Handle It? That’s the question being asked of more than 8,000 Medical Center and College of Medicine employees on a daily basis. There is a reason behind the question, and it directly relates to an innovative and highly successful campaign aimed at raising compliance rates for hand hygiene. The campaign introduced a VIP club with an exclusive membership, but one that is open to all. Flyers in bathrooms reminded employees to wash their hands. Posters encouraged lab workers to “know when to take off the gloves.” An employee event used a night-club theme in a cafeteria-turned-Club Clean, where attendees were served appetizers with reminders of hand safety. Meanwhile, the entry fee was a pair of clean hands, with glo-germ powder sprayed on tickets to make the point that germs spread fast. Six months after
the initiation of this quality project, hand hygiene compliance rates went from 64.1 to 90 percent. The campaign also earned a Gold Award from the International Association of Business Communicators (IABC), Harrisburg Chapter.

Another safety-related program, called CLUE (Central Line Utilization Education), has been instrumental in reducing infections resulting from central line insertions and maintenance. Central lines have been a traditional source of morbidity and mortality. Risk in today’s health care environment may be accelerated because central lines are used more frequently. Studies show that the more they are used, and the longer a line remains in the patient, the more likely it is that an infection will occur. According to the Institute for Healthcare Improvement’s 100,000 Lives Campaign, hospital acquired blood stream infections cause an increased average length of stay of seven days, at a cost of $4,000 to $29,000 per case. Combating such statistics, the CLUE program has a task force directed to vigilant education, monitoring, and tracking of complaints.

In May, the Medical Center and its senior management team were recognized as one of 100 U.S. hospitals making the most progress in the improvement of hospital-wide performance over the past five years. It was the only teaching hospital in Pennsylvania to be honored. This top performance recognition was announced by Solucient®, a leading source of health care information products, and those recognized were featured in Modern Healthcare magazine. Solucient based its recognition on hospitals that made the most significant gains in several areas in the five-year period. Improvement areas included having fewer than expected complications, deaths, and adverse safety events; improved financial stability; improvement in length of stay; lower increase in expenses than peers; and growth in patient volumes compared to reduction in patient volumes by peers.

“The recognition is a tribute to those throughout the organization who have accepted the challenge to lead positive change, and build a culture focused on quality and constant improvement.”

Harold L. Paz, M.D.
Senior Vice President for Health Affairs; Dean, Penn State College of Medicine; CEO Penn State Hershey Medical Center
We’re Connected

*Health Imaging and IT* magazine has twice honored the Medical Center as one of the nation’s top health care facilities for connecting digital imaging and information technology systems. The recognition is given to medical facilities that create a seamless flow of well organized patient information.

Such high tech capability includes a new system for clinical provider order entry. While most hospital systems are automated, they rely on the input of several people, from the physician who initiates the order to secretaries, pharmacists, and other personnel. This new system increases safety due to the elimination of hand-written orders. The medication process is safer because once the physician orders a medication, the pharmacist can verify it, and nursing can document administration of it electronically.

Development of new technology accounts for one advantage underlining improved quality. So too is the competence of a hospital’s medical staff. More than 125 Penn State Medical Center physicians were recently selected for inclusion in the Best Doctors® in America database, more than any other health care organization in the region. Ratings are the result of an exhaustive peer-review survey in which thousands of physicians are asked to name the best clinical practitioners in their specialties. More than a quarter of the Medical Center’s faculty were included, with eight specialists selected in more than one category.
Here's To The Happy Couple

Lydia and John Hutchinson planned a small wedding, surrounded by family and a few friends. That’s exactly what it turned out to be—small, intimate, and at Penn State Hershey Medical Center, where John was hospitalized following an on-the-job accident in which a heavy tree branch fell on him. At first, the not-so-happy couple figured their wedding plans would have to be postponed. Then they decided they wanted to downsize the event and get married immediately. There wasn’t any reason they couldn’t put it together in an hour or two. Hospitals have chaplains, and surely the dietary department could come up with a few cupcakes for visitors.

Their first call was to Reverend Paul Derrickson, a Medical Center chaplain and director of pastoral services, who said he would be delighted to perform the ceremony. Next, they called their families and told them their plans, cautioning there wouldn’t be a real reception—just cupcakes.

Meanwhile, Medical Center staff members had their own idea of what a wedding should be. From the kitchen came a quickly but affectionately baked wedding cake that would have looked at home in a more lavish setting. A room off the hospital auditorium was taken over for the reception, while staff rushed to provide table linens, floral arrangements, chilled champagne, even a “boom box” for wedding music. There was a bridal bouquet, and a taste-tempting spread for guests. The newly married couple had a wedding with all the trimmings, even if it was in a less than traditional setting. When it was over, they expressed their gratitude as well as their surprise that the hospital staff would be inclined to go to such lengths to put together a party for a patient.

“This is one uncommon denominator that distinguishes Penn State Hershey Medical Center. It’s seen every day in the way staff members care. I’m sure that young couple would have been happy with a few cupcakes and a ceremony in the hospital room. But our people always want to go the extra mile. With practically no time to put it all together, they made the occasion a wedding to be remembered and cherished.”

Reverend Paul Derrickson
Chaplain
Heart and Vascular Institute

In its first year of introducing a new national model for the interdisciplinary treatment of cardiovascular patients, Penn State Heart and Vascular Institute has met with extraordinary success, and the acclaim of leading centers nationwide.

The unique approach to care, under the director of Lawrence I. Sinoway, M.D., has its origins in an effort to redesign the delivery of care in a way that will eliminate some of the obstacles to efficiency in the care of cardiac patients who often rely on a swift coordination of care, if not because of medical urgency, then at least for peace of mind. It all comes down to coordination among cardiovascular teams. The Institute uses an integrated approach to cardiology, vascular services, cardiothoracic surgery, imaging, and intervention, housed under one administrative roof for the purpose of developing interdisciplinary partnerships.

Streamlining the process includes enabling a patient to have all testing and procedures at the same facility, resulting in faster appointments, and the ability to get test results the same day. Because medical records are shared, each provider has instant access to information he or she may need. In just one year, Penn State Heart and Vascular Institute may be changing the direction of cardiovascular care for the future.

In fact, the world is already taking notice. Solucient, the leading consumer health guide, has twice named the Institute one of the top 100 cardiovascular programs in the country.

Heart Alert, a new program developed jointly by the Heart and Vascular Institute’s interventional team, and the Medical Center’s Department of Emergency Medicine, helps ensure heart attack patients receive critical interventions within ninety minutes of a patient’s arrival in the emergency department—the recommended reperfusion time defined by U.S. and European guidelines, and identified by the Joint Commission on Accreditation of Hospital Organizations as a national quality measure.

The Medical Center’s program focuses on patients with acute coronary syndrome, specifically segment elevation myocardial infarction. Members of the team focus on the steps leading to diagnosis, the goal being to develop a plan that will quickly identify patients who will benefit from treatment in the catheterization laboratory. Once a patient is so identified, often while the patient is still en route to the hospital, Heart Alert goes into action. Physicians and staff coordinate activities, prepare to perform balloon angioplasty, implant a stent, or refer the patient for cardiac surgery. Every step is carefully evaluated to speed the process, with the result that, since implementation of the program in July 2006, the mean door-to-balloon time was 83 minutes, considerably faster than the recommended guideline.
Advancing Heart Care Technology for Kids

William Weiss, Ph.D., Harold E. Morgan Professor of Surgery and Bioengineering, and recipient of a $5 million NIH grant to develop a device to improve the circulation of blood in infants and children, is working with colleagues to design, build, and test a left-ventricular assist device (LVAD) specifically for children. Bench and animal testing will continue over the next two years, with clinical testing to begin shortly thereafter. The device is intended for use on infants with congenital heart disease who require corrective surgery. Some of these children may need such circulatory support following surgery. For a child who needs a heart transplant, the pump may serve as a bridge, while he or she is placed on a wait list for a donor. Modeled after the LionHeart™, a left-ventricular assist device which also was developed by Penn State researchers in conjunction with Arrow International, the new pump extends the length of time a LVAD can be used on children by six months. Weiss and his team will be developing a second pump, a LVAD for larger children, once work on the smaller pump has been completed.
New In Neurosciences

The number of neurosurgical procedures performed at the Medical Center has increased almost 125 percent over the past two years. Add that to ground-breaking research and expertise in the latest surgical techniques and the result is phenomenal departmental growth. When the department opened in 2003, there were four clinical and one research faculty members. There now are eleven clinical faculty members and nine full-time research faculty, all with post-doctoral or fellowship training. It was anticipated that the 2006 caseload would reach 1,800, as contrasted to 800 in 2003. The department will exceed $7 million in externally funded research grants, placing it in the top tier of neurosurgery programs nationwide.

New to the department is the stereotactic Gamma Knife® radiosurgery system, a non-invasive technique that delivers a high dose of radiation to specific targets such as brain tumors, and treats functional neurological disorders including seizures and severe pain. Treatment is fast, taking from 20 to 60 minutes for a single session. The Gamma Knife is used to successfully treat a number of brain disorders.

“The Gamma Knife holds tremendous promise for a wide range of brain diseases and neurobehavioral disorders, such as addiction and obesity. We’re in the forefront of developing radiosurgical research initiatives with potential for expanded use.”

Robert E. Harbaugh, M.D.
Chair, Department of Neurosurgery
New Department Chairs

Colin J. Barnstable, D.Phil., is the new chair of the Department of Neural and Behavioral Sciences at the College of Medicine. Barnstable joins Penn State after almost twenty years at the Yale University School of Medicine, where he most recently served as professor and vice chair of research in the Department of Ophthalmology and Visual Science. He also was a professor of neurobiology and past director of the interdepartmental neuroscience graduate program at Yale. Barnstable is internationally recognized for his study of mammalian visual system development and structure, for which he has earned numerous awards. He has published more than 160 peer-reviewed publications and is a series editor for research textbooks in ophthalmology.

College of Medicine graduate (1981), Thomas E. Temdrup, M.D., founding chair of the Department of Emergency Medicine and co-director, Center for Emerging Infections and Emergency Preparedness, University of Alabama at Birmingham, has been named chair of the Department of Emergency Medicine, and associate dean for clinical research at the College of Medicine.

Temdrup is a co-principal investigator, in cooperation with Johns Hopkins University, for a Department of Homeland Security grant supporting research on simulation and lessons learned from food and agricultural bioterrorism, and high consequence events preparedness and response. He also is the primary investigator for a five-year research study investigating ways to improve resuscitation outcomes.

A former faculty member of the National American Heart Association’s Pediatric Resuscitation Subcommittee, Temdrup has served as chair of the Education Subcommittee, and editorial consultant for Currents, a journal of the American Heart Association. He serves on the executive committee of the Resuscitations Outcomes Consortium of the NIH and the Association of Academic Chairs of Emergency Medicine.
Officer Down—But Not Out

The initial radio report didn’t give the name of the officer shot while attempting to apprehend a murder suspect. The description of a trooper from the Newport barracks, however, was all it took to alert Michele Colyer that her husband’s life might well be on the line. Trooper Ron Colyer had been shot below the ball of the shoulder, and the gun took out a four-inch section of his arm. The bullet hit its mark just two inches from the heart, and the wound was life-threatening because of possible artery damage. It took Life Lion less than six minutes to get to the site, fifty miles away. Today, after five surgeries and one year of treatment, Ron Colyer has survived his ordeal with help from the EMS, medical, and support staff at Penn State Hershey Medical Center. Michele says she is recovering as well, counteracting that, in a law enforcement family, something like this is always at the back of one’s mind.

Ron Colyer recalls that, when his arm was first shattered by a deer hunting rifle, his immediate thoughts were of his wife and daughter. He wondered would he ever see them again, and then, before he could think further, he was being airlifted to Penn State Hershey Medical Center. In the emergency department, he was given morphine and he remained conscious, not sure what lay ahead for him, but aware of the efficiency and concern of those taking care of him. The bullet had taken a portion of his bone. His arm hung, with part of the bone exposed. During a ten-day hospital stay, he underwent three surgeries. The first was to repair artery damage, the second to put a plate in his arm and a third for a skin graft. In the months that followed, he had two bone grafts.

Michele agrees the family was treated with very special care, that hospital staff was vigilant in protecting their privacy, and made needed accommodations to standard visiting rules to allow a group of Ron’s fellow officers to gather at his bed to offer support.

Ron Colyer hopes to be wearing his trooper uniform again sometime in 2007. He realizes he may be limited to desk duty at first, but whatever he’s assigned to, he’ll be happy to get back to work.

Both he and Michele say they have learned a great deal from the experience, as harrowing as it was.

Recently, all three members of the Colyer family were treated to a special ride aboard Life Lion, part of a twentieth anniversary celebration for the Medical Center’s air medical service. It was quite different from the one Ron remembers from a year ago. This time, the danger to his life was long past. Except for needed physical therapy, he was in fairly good shape. He and Michele were looking forward to an upcoming Disney World vacation with their little girl. Life had changed dramatically for the young family in the past year, but life was still good. Just ask the Colyers.

“Officer Down—But Not Out” by Ron and Michele Colyer

“‘You act spontaneously. You just do it. I remember thinking it was important for our little girl to be nearby, so I took her to the hospital chapel and talked to her about what had happened.’

Michele Colyer

“The treatment I received was outstanding. The trauma room doctors and reconstructive surgeons did an awesome job at saving my arm, and gave me the opportunity of being able to gradually use it to its full potential. The residents and aftercare nurses were wonderful as well. They went above and beyond their duties to make my recovery as short and comfortable as possible.”

Trooper Ron Colyer

“We don’t take anything for granted. We don’t put off things that are important to us. And we certainly have learned gratitude, for our families, and for everyone at Penn State Hershey Medical Center who did so much for us.”

Michele Colyer
Diabetes—Reinventing Care

Thomas W. Gardner, M.D., M.S., Jack and Nancy Turner Professor of Ophthalmology and Cellular and Molecular Physiology, and vice chair of ophthalmology research, spoke with legislators at a Capitol Hill luncheon briefing in September 2006. The event was held by the Alliance for Eye and Vision Research, in conjunction with the American Diabetes Association and the Juvenile Diabetes Research Foundation International (JDRF). The meeting provided an opportunity for Gardner to describe the latest approaches to detect, treat and prevent diabetic retinopathy. He discussed the work of the Diabetic Retinopathy Center at Penn State which appeared in the journal *Diabetes*. Diabetic retinopathy affects the retina and can cause blood vessels within the retina to swell and leak, causing the formation of new blood vessels that can hemorrhage and result in severe vision loss and blindness. He spoke to Senators Rick Santorum and Arlen Specter, and Congressman Tim Holden about the importance of NIH research funding in diabetic retinopathy, and reports the lawmakers have been supportive of biomedical research.

The Penn State Diabetes Center has developed a diabetes database that expands recruitment of volunteers for research studies. More than 10,000 patients with type 1 and type 2 diabetes have been entered into the rapidly growing system that is successfully partnering with volunteers who have diabetes, and providing them opportunities to engage in important research initiatives.

Community advocacy for both patients and families has been a goal of the Penn State Diabetes Center since its inception. That goal is being underlined by a new Diabetes Playbook, developed by the Center to help patients in the self management of their illness. The message, “you are the manager of your own health team,” comes across clearly in the Playbook that provides advice on how patients can better care for themselves, who to contact in specific situations, how to organize medical information for doctor appointments, and more.

The National Institute of Diabetes and Digestive and Kidney Diseases of the NIH has awarded a $3 million grant to a Penn State Hershey Medical Center team to determine if enhanced nursing care in the primary care setting can reduce sickness and death from complications of Type 2 diabetes. Headed by Robert A. Gabbay, M.D., Ph.D., principle investigator of the project, and co-director of the Penn State Diabetes Center, the study concludes that lack of adequate time physicians are able to spend with patients, as well as lack of patient compliance and resistance to guidelines set by the American Diabetes Association, may be responsible for inadequate patient recovery. Gabbay’s team will determine if enhanced nurse care management can counteract some of the barriers to optimal diabetes care.
Most academic health centers subscribe to three missions: education, research, and patient care. They represent, in fact, a triad of purposes for which such institutions exist. Penn State College of Medicine ranks high among institutions that assertively pursue the education of clinicians and researchers, and the aligned mission of patient care, with the highest degree of responsibility. The College of Medicine and Penn State Hershey Medical Center recently went a step further in the adoption of a fourth mission, contiguous to the first three in that, just as it is impossible to separate good scientific and medical education from practice, it is impossible to separate the principles that guide those three from the compassion that drives community engagement. The history of the College of Medicine and Medical Center showcases a chronicle of people who traditionally travel the extra mile to give comfort and support, and who exercise their professional talent without regard for gain. Community service, then, becomes not so much a new mission for the College of Medicine and Medical Center, as it is a newly defined mission—one that has been around from the beginning, but is just now getting the recognition it deserves.
Language Isn’t Everything

Hadiya Hussein was a frail 6-year-old, and very shy, when she first arrived with her father from Iraq. She must have been frightened, leaving her mother and her homeland—as war torn as it is—and coming to a big medical center where doctors would perform life-saving surgery. She didn’t smile that first day, but she carried herself erect, her fragility masked by a kind of dignity, her uncertainty veiled by the silence that separated her from this strange new world. Hadiya spoke no English, nor did these people in a place called Hershey, Pennsylvania, speak her language. She would just have to find another way to communicate.

The child’s odyssey began in Iraq when her father appealed to Major Bradley Lauver of Linglestown, stationed with the Army Reserves, Civil Affairs Battalion, and pleaded for help for his little girl who would die if she wasn’t treated for a serious heart condition. Major Lauver e-mailed Penn State Children’s Hospital and asked if there was anything that could be done to help. Wheels were set in motion, communications exchanged. There were no pediatric specialists where Hadiya lived, but one of the soldiers there was a heart surgeon treating adults. He performed a physical exam and assessment, and sent them to Stephen E. Cyran, M.D., chief of pediatric cardiology at Children’s Hospital. Cyran conferred with colleague Jack Myers, M.D., chief of pediatric cardiothoracic surgery—and a small miracle was in the making.

Hadiya and her father stayed with Major Lauver’s wife, Eveanne, while awaiting surgery. During the postoperative stay, Mrs. Lauver became very attached to the youngster.

Hadiya suffered from a ventricle septic defect (VSD), a hole between the two ventricles, which are the main pumping chambers of the heart. She also had a hole between the right and left atrium (ASD), between the two receiving chambers. The pressures are higher on the left side of the heart than on the right, and that causes blood to go from the left atrium to the right atrium, and from the left ventricle to the right ventricle. The net effect is that there is two to three times as much blood going to the lungs as to the body. This over-circulation of blood to the lungs is very dangerous. Doctors believe that, in a few years, if not months, Hadiya’s condition would have been inoperable. Thankfully, however, her congenital heart defect was surgically and successfully repaired.

“Language isn’t everything.”

Jack Myers, M.D.
Chief, Pediatric Cardiovascular Surgery,
Penn State Children’s Hospital

“This child is an example of the survival of the fittest. If you took 100 children with her exact condition, very few would have survived to age six. As it is, her long-term prognosis is very good.”

Jack Myers, M.D.
Chief, Pediatric Cardiovascular Surgery,
Penn State Children’s Hospital

“It didn’t take much to make her happy—a dog, falling leaves, shopping. When I pulled up to the door in my car, she would run out and call ‘Madam’ in Arabic. She was a joy to be with because she was so joyful herself.”

Eveanne Lauver
Variety Children’s Lifeline Program helped defray the cost of Hadiya’s surgery, and the Medical Center’s International Heart Fund paid the remainder. The Fund is supported by external gifts that allow Children’s Hospital to provide heart surgery and intervention to children from the global communities who would not otherwise have such access to care.

From a group of soldiers fighting a war, not knowing when they would see their own children, to Major Lauver who took action, and Eveanne Lauver who filled a temporary home with love, to physicians who acted quickly, never questioning the cost, to the nursing staff who fell in love with a little girl who couldn’t understand them any more than they understood her—it seems Hadiya Hussein had friends cheering for her on opposite parts of the globe—all of which proves that language has nothing to do with caring.

A Helping Hand

When Ronald Williams, M.D., director of the Pediatric Multidisciplinary Weight Loss Program, and colleagues, decided to conduct a community-based preventive program for area children, they found a generous partner for their volunteer efforts in the Kohl’s Cares for Kids program. A $134,000 Kohl’s grant is enabling an obesity awareness, education, and prevention program, presented by Children’s Hospital in three schools in Cornwall-Lebanon, Harrisburg, and Lower Dauphin school districts.

The Kohl’s Cares for Kids Healthy Choices/Healthy Me initiative provides follow-up to body mass index notices that schools send to educate parents on their children’s scores, plus information on how to improve lifestyle habits. Information on unhealthy eating and exercise patterns is available as well, while hospital staff, in cooperation with school nurses, work with children who participate in program to engage them in healthy, active lifestyles.

The program, which is presented to children in the second, third, and fourth grades, is open to family members who may want to participate. Slated to run during the course of the school year, it aims not only toward weight loss but at improving general health.
Taking Care on the Road

Registered nurse, Chanty Webb is a woman with big ideas when it comes to making health services available to minorities. Since 2003, she has conducted a minority health fair, not on the Penn State campus, but in supermarkets, beauty salons, and barber shops. Her plan is to go where the people are, and meet them on friendly ground in their own environment. The plan is a good one that served 150 people the first year and has been growing since.

Volunteer staff for the event includes nursing personnel, medical students, nurse practitioners, and physician assistants, as well as Cardiologist Larry Sinoway, M.D., director of Penn State Heart and Vascular Institute. Screenings for everything from gastrointestinal disorders to sleep deprivation, dermatology, and cardiovascular symptoms are offered. Blood pressure and cholesterol checks are performed, and referrals to Penn State’s Front Street Clinic are given when indicated. In some instances, drug and alcohol counseling is an additional need recognized though screening and provided through referral to programs for low income families.

“The best endorsement we get is watching people come back year after year. They are so appreciative, so committed to their own health care. It makes all of us feel good.”

Chanty Webb,
Minority Recruitment Nurse Specialist
Hearts to Soles

In August, men at Harrisburg’s Bethesda Mission lined up for foot care proved by Jorge Bustillo, M.D., a specialist in orthopaedic medicine and rehabilitation. Bustillo is a member of an organization, founded two years ago in Pittsburgh, and rapidly spreading throughout Pennsylvania and beyond. Foot care and new shoes are provided to men in shelters who are at high risk for foot ulcers and infection resulting from diabetes. During the summer screening program, sixty pairs of shoes were distributed free of charge, as result of a donation from Darco Shoes International.

A United Front

Penn State employees traditionally demonstrate their generosity and community involvement through their annual pledges to the United Way Campaign. During the 2006 drive for funds that will benefit community organizations throughout the Hershey area, employee giving rose to nearly $190,000. We’re proud of our people who year after year show such pride in their community.

A Thriving Legacy of Service

A Continuity of Care was exactly that as College of Medicine students embarked on the annual Community Service Day. There were no academic classes held April 5, 2006, as Medical Center staffers joined students as they donated a day of service to a variety of Hershey area community service projects.

The College of Medicine has almost thirty student organizations, and most of them have service integrated within their mission.

Community Service Day is a special event that encompasses the entire student body. Its success is contagious and has spread to employees who spend the day cleaning rooms at the Bethesda Mission and several nursing homes, re-packaging food at food banks, doing yard work, talking to school children about health and smoking, even playing bingo with nursing home residents, and making cookies for patients at the Lebanon Veteran’s Administration Medical Center.

The event is sponsored by several local organizations, and their names are proudly displayed by participants as they work throughout the Hershey area.
Students Taking Charge

A year-round free clinic, funded, organized, and run by College of Medicine students and residents is a tribute to the humanism emphasized at the College of Medicine. Currently conducted at the Bethesda Mission on Tuesdays and Thursdays, the Lion Care Clinic treats residents of the shelter and others who have come to depend on the services provided. They are helped by Edward Bollard, M.D.,’93 MED who serves as director. Students provide physical examinations, take medical histories, offer health screenings for women—all with a physician volunteer on board to approve student diagnoses and recommendations.

The stories of patients having serious disorders detected and treated are numerous. Last summer, an unemployed man walked into the clinic complaining of poor vision.

A student at the clinic met with the man, and glaucoma was diagnosed. An ophthalmologist who provided treatment free of charge determined the patient would have been blind in three months. Instead, he was given free medication and appointments for follow-up care. After a few months, his condition had improved immeasurably.

The Lion Care Clinic is conducted with a $10,000 annual operating budget, primarily funded by Penn State University and philanthropy. A recent $20,000 grant from the Association of American Medical Colleges is designated toward outfitting new space with furnishings and equipment, necessary as the result of the Bethesda Mission’s planned relocation to new quarters.
The Meaning of Emergency Response

When Katrina devastated Louisiana, members of the University Emergency Medical Services (UEMS) lost no time in responding to the cry for help. In twelve hours time, members of the crew were ready for whatever lay ahead, and were on their 1200 mile drive to the ravaged area. Life Lion had already been deployed for search and rescue operations. In Louisiana, team members administered tetanus and hepatitis shots to workers doing door-to-door searches. They inoculated hundreds of workers, including police and contractors on clean-up crews. These UEMS members are everyday heroes as they help to save lives on the homefront, and for a brief time, they became part of a national call for help. Once again, the heroes came through with unhesitating support.

An Anniversary to Celebrate

Life Lion, Penn State’s critical air transport service celebrated twenty years of service to the community on October 20, 2006. The occasion was fêted with a party at the Life Lion hangar, with employees and past employees as guests, and special honoree, Trooper Ron Colyer who told of his rescue by the air transport when he was shot in the line of duty.

The Life Lion team includes two medically equipped helicopters and a pediatric mobile intensive care ground ambulance. Available 24-hours-a-day, the service transports severely ill and injured patients to the Medical Center or nearest appropriate hospital. The program began in 1986 with one helicopter with a top speed of 180 miles an hour and a flight range of more than 400 miles. Nineteen patients were flown that first year. By 1991, a new Life Lion aircraft replaced the original. With IFR instrument flight capabilities, it increased a pilot’s ability to fly safely in difficult weather conditions.

A mobile life support ground transport was added in 1993, and in 2003, another Life Lion aircraft was placed at the Carlisle Airport, bringing 24-hour-a-day coverage to the western part of the service area. By 2004, Life Lion provided round the clock critical care ground transport service. Thanks to a new pediatric ambulance, funded through Children’s Miracle Network, transport of critically ill children throughout the state was improved. At the time of its anniversary in 2006, Penn State Life Lion was handling 500 ground transports and 1,400 flights a year, giving just cause for celebration.
During the 2006 fiscal year (July 1, 2005–June 30, 2006), 42,044 donors contributed a total $26,993,001. The generous spirit that prompted these gifts is deeply appreciated, and that appreciation is reflected by the programs they support, and in the lives of those served by the education, research, clinical care, and community service missions of Penn State Milton S. Hershey Medical Center and Penn State College of Medicine.
Traditionally, this report includes a list of major donors—individuals, organizations, corporate donors, and others to whom we owe enormous gratitude. Every name, every group is an essential link in the philanthropic legacy that continues to enable the progress recorded throughout this book. However, we would be remiss if we didn’t add a special thanks to those whose names don’t appear here—donors whose gifts were under $1,000, but whose support and generosity are equally important. These partners in building a healthier tomorrow have contributed a total $2,574,937. Thank you!

Those who gave

Those who gave increased by 711 alumni and $907,886 since 2005

- 786 organizations
  $6,923,054
  25.6%
- 116 foundations
  $5,871,482
  21.74%
- 11,426 alumni
  $2,743,835*
  10.16%
- 27,868 friends
  $4,793,514
  17.75%
- 1,848 corporations
  $6,671,114
  24.71%
- 32,814 gifts under $100
  $1,008,666
  39.17%
- 1,085 gifts of $250-$499
  $326,074
  12.66%
- 6,687 gifts of $100-$249
  $881,842
  13.92%
- 626 gifts of $500-$999
  $358,355
  13.92%
- 39.17%
- 12.66%
- 34.25%
- 116 foundations
  $5,871,482
  21.74%
- 11,426 alumni
  $2,743,835*
  10.16%
- 27,868 friends
  $4,793,514
  17.75%
- 1,848 corporations
  $6,671,114
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- 32,814 gifts under $100
  $1,008,666
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- 1,085 gifts of $250-$499
  $326,074
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- 6,687 gifts of $100-$249
  $881,842
  13.92%
- 626 gifts of $500-$999
  $358,355
  13.92%

*Increased by 711 alumni and $907,886 since 2005

Donors of less than $1,000

Endowments

Market Value of Penn State Hershey Endowments at start of Fiscal Year 2006
$223,852,614.32 (6/30/05)

Market Value of Penn State Hershey Endowments at close of Fiscal Year 2006
$253,367,203.50 (6/30/06)

Gifts to Penn State Hershey endowed funds during Fiscal Year 2006
$3,491,183.93
Newly Created Endowments

Thirteen new endowments were created during fiscal year 2005-2006, representing a commitment of nearly $6.5 million. They include the following:

Fenza Gaynor Family Endowment for Cancer Research
created and funded in spring 2006

In the spirit of philanthropist Milton S. Hershey, Robert E. Fenza, executive vice president and chief operating officer of Liberty Property Trust in Malvern, created a legacy of love.

The 1980 Penn State graduate and his wife, Marcy, established the Fenza Gaynor Family Endowment for Cancer Research at Penn State College of Medicine in honor of his father, Matthew Fenza, who died from non-Hodgkin’s lymphoma on April 26, 2006, and his father-in-law, Joseph Gaynor, and sister, Debi Danino, both of whom currently are in remission. The $50,000 pledged to create the endowment will provide annual support to Penn State Cancer Institute physicians and researchers.

Rob and Marcy decided to use gifts from their wedding, as well as donations from his father’s memorial to fund the endowment. The couple said they came up with the idea while planning for their wedding, which was May 27, 2006.

While Rob received his bachelor’s degree from Penn State’s University Park campus and not the College of Medicine, it is the College that will benefit from his strong desire to see a cure for cancer.

In addition to honoring his family, the endowment also allows Rob to recognize his alma mater. As an alumnus with a bachelor of philosophy degree, who earned a partial scholarship during his years at Penn State, he decided he had a responsibility to give something back. The flexibility of his philosophy curriculum allowed him to combine business, real estate, insurance, banking, taxation, engineering, landscape architecture, and land planning into one major. His customized degree prepared him well for an opportunity twenty-two years ago to join Liberty Property Trust, where he came in contact with founder and philanthropist Willard G. Rouse III.

Rob already has plans for the next generation to carry the torch. He and Marcy are teaching their children to give each year. The couple has a blended family of four, Jake 13, Erica 13, Dylan 18, and Michelle 20.
C. McCollister Evarts, M.D. Professorship in Artificial Organs

Gerson “Gus” Rosenberg, Ph.D., chief of the Division of Artificial Organs, and a renowned artificial organs researcher and engineer was named the C. McCollister Evarts, M.D. Professor in Artificial Organs at a ceremony and reception on May 16, 2006. Rosenberg was appointed in recognition of his contributions to the artificial organs program at Penn State Hershey Medical Center.

Marlin Miller, Jr., co-founder and retired chairman and CEO of Arrow International, Inc. in Reading, Pa., created this endowment to honor former Penn State College of Medicine Dean, C. McCollister Evarts, M.D. Arrow International, working closely with Rosenberg, developed and manufactured the Arrow LionHeart, a left ventricular assist device. This philanthropy reflects Miller’s ongoing commitment to the field of biomedical engineering. After retiring from Arrow, he partnered with several individuals to found Norwich Ventures, a venture capital firm committed to helping entrepreneurs, health care professionals, and inventors build innovative medical device companies. Miller also serves as chairman of the board of directors of the Life Sciences Greenhouse of Central Pennsylvania, whose mission is to enhance and translate important discoveries in the life sciences into economic growth and job creation in the central Pennsylvania region.

Rosenberg has worked on heart assist pumps since 1970 when he joined the Penn State research team as a graduate student. He earned his B.S., M.S., and Ph.D. degrees in mechanical engineering from Penn State. In 2002, Rosenberg was named “Engineer of the Year” by the readers of Design News magazine. During his distinguished career, he has been published in more than 250 journals and publications and, along with William S. Pierce, M.D., holds a patent for an artificial heart. In addition to his role as chief of the Division of Artificial Organs, Rosenberg also serves as co-director, Biomedical Engineering Institute.

C. McCollister Evarts served as dean of the College of Medicine, chief executive officer of the Medical Center, and senior vice president for health affairs for fourteen years. During his tenure, faculty ranks tripled, while research funding from public and private sources nearly tripled to $60 million annually. Endowments increased from $28 million to almost $200 million, and medical school applications jumped from 2,000 to more than 7,000 a year.

In 1998, Evarts and his wife, Nancy, established the C. McCollister Evarts, M.D. endowed chair in orthopedic medicine gift—the largest ever to the University from a senior administrator. Upon the occasion of his retirement, the Department of Orthopaedics established the Evarts Dean’s Chair in Medicine, endowed at $5 million, to honor Evarts.

Martin F. and Patricia A. Scheinholtz College of Medicine Student Scholarship

Created by College of Medicine alumnus Marty Scheinholtz, M.D., ’67 ENG, ’69 gENG, and his wife, the scholarship provides recognition and financial assistance to outstanding medical students enrolled in the College of Medicine. It is awarded to those who have achieved positive academic records in their undergraduate studies and who manifest promise of outstanding academic success, who indicate a high level of professionalism, who display exceptional humanitarianism, who demonstrate promise of success in their medical or scientific careers, and who have a demonstrated financial need.

In 2006, the first Martin F. and Patricia A. Scheinholtz Scholarship was awarded to Kevin Finnerty, a second-year medical student, class of 2009.
The Berstler Estate

In the late 1980s, Penn State alumna, Lois High Berstler ’48 EDU, formerly of Reading, PA, initiated a relationship with Penn State College of Medicine and Penn State Hershey Medical Center that would benefit many areas of the University for years to come.

In addition to the Medical Center campus, Berstler provided philanthropic support to Penn State Berks and University Park during her lifetime. When she died in 2005, the estate included additional gifts for the University.

A former elementary school principal, she was married to John W. Berstler who died in 1976. Most of her assets were invested in the stock market, and she got real pleasure from managing her own portfolio.

Over the years, her estate grew as did her commitment to Penn State. In 2001, Penn State named the Lois High Berstler Community Health Library in the Department of Women’s Health at the Medical Center in her honor.

The mission of the Lois High Berstler Community Health Library is to provide information and education on health care concerns as a way of assisting individuals in making informed decisions about their health and lifestyle.

The library, which is located on the second floor of the University Physician Group, on Cherry Drive, is open to the public, and its services are provided free of charge.

Thanks to Berstler’s commitment and foresight, her estate gift, in excess of $5 million, will allow Penn State to enhance the Berstler Community Health Library, as well as advance medical knowledge in cancer, arthritis, heart disease, gerontology, and pulmonary medicine through the Berstler Research Endowment Gift. The gift also will help educate health care workers through support of the Simulation Development and Cognitive Science Laboratory, and serve students from Berks County through the Berstler Scholarship.

“...it is the generosity of individuals like Lois Berstler, Martin and Patricia Scheinoltz, Martin Miller, and Rob and Marcy Fenza, that has made a vital difference in our ability to grow and develop our programs. Their gifts will have an impact on every aspect of our four-fold mission to improve the quality of life and serve our community through improved health, the education of health care professionals and researchers, and the discovery of knowledge. We are exceptionally grateful for their support.”

Harold L. Paz, M.D.
Senior Vice President for Health Affairs; Dean, Penn State College of Medicine; CEO Penn State Hershey Medical Center
EVENTS THAT SHAPE OUR YEAR

THON™ Raises Record-Setting $4.2 Million

When THON™ 2006, with its theme of Together We’ll Prevail, concluded at 7 p.m. on Sunday, February 19, more than $4.2 million had been raised to support The Four Diamonds Fund at Penn State Children’s Hospital. It was the largest amount ever raised by the largest student-run philanthropy in the world, and it topped 2005 by almost $100,000.

Nearly 700 dancers stayed awake and on their toes during the forty-eight-hour dance marathon to show their support for The Four Diamonds Fund at Penn State Children’s Hospital. They were joined by 160 very grateful Four Diamonds families who attended THON to motivate the dancers and keep their feet moving throughout the weekend.

Besides setting yet another fund-raising record, this Penn State Dance Marathon was notable for another reason—it was the last year THON would be held in Recreation Hall. After just seven years, THON has outgrown its third home on the University Park campus, having moved to Rec Hall from the Mary Beaver White Building in 1999, and from the HUB Ballroom to the White building in 1979. First-year medical students, Sowkya Rangarajan and Erica Zerfoss, were two of the dancers who, in addition to the 2,000 volunteer workers, participated in Rec Hall’s final dance. Beginning in 2007, THON will be held in the Bryce Jordan Center.

Since partnering with The Four Diamonds Fund in 1977, THON has raised more than $40 million to support pediatric oncology services at Children’s Hospital.
Children’s Miracle Network

Children’s Miracle Network (CMN) hosts several signature events throughout the year—each one of them intrinsic to the spirit of generosity and volunteerism for which the Penn State family is known.

The sixteenth annual Penn State Children’s Hospital “Magnolia Ball” was held Saturday, November 19 at the Hershey Lodge. A record number of 500 guests attended the black-tie event and $120,000 was raised for Children’s Miracle Network.

2006 Radiothons Raise $293,000 for CMN

Two Radiothons host-ed by local media partner, Citadel Broadcasting Company, raised $293,000 to support Children’s Miracle Network at Penn State Children’s Hospital.

RED 102.3 fm raised $108,000 during the GIANT Food Stores “Red Cares For Kids” Radiothon at the Capital City Mall in Camp Hill, PA. The funds will be used to purchase two state-of-the-art transport incubators for the Neonatal Intensive Care Unit at Children’s Hospital.

The GIANT Food Stores “I Care For Kids” Radiothon broadcast on I105 FM from Auntie Anne’s Café at the Rockvale Outlets in Lancaster, PA, raised $185,000 to purchase an ultrasound probe for pediatric neurosurgery at Children’s Hospital. Providing real-time imaging, the probe will assist neurosurgeons in placing shunts in children with hydrocephalus, and will aid in diagnosing brain and spinal cord tumors.

Held in February, the annual Radiothon events have raised $1.7 million for Children’s Hospital since 1998.

Telethon Sets a New Record

It was another record-breaking year for the CMN Telethon. During the twenty-second annual Celebration Broadcast on June 3 and 4, it was announced that $2,830,225 was raised to support pediatric services and to help thousands of children treated at Penn State Children’s Hospital. Throughout the Telethon, more than 986 $20x12 pledges—$20 a month for twelve months—were made to help purchase a heart/lung bypass machine for pediatric heart surgeries performed at Children’s Hospital.

Top corporate donors this year included GIANT Food Stores, Citadel Broadcasting Company’s annual Radiothons on Red 102.3 fm and The Big I105, Penn State Hershey Medical Center and College of Medicine employees, Wal-Mart and SAM’S Clubs, employees of The Hershey Company, Auntie Anne’s Inc., and Rite Aid.

Children’s Miracle Network has raised more than $25 million for Children’s Hospital since it began locally in 1984. Thank you to everyone who supported the 2006 fiscal year events that helped change the lives of our pediatric patients.

A Special Thank You

Gift shop proceeds during the past year exceeded $200,000 toward hospital programs. We owe inestimable gratitude to the volunteers whose contributions of time helped make this possible. While their time and commitment cannot be measured in dollars and cents, their results often can be.
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Annual Contributions Totaling $100,000 or More

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Individuals
Annual Contributions Totaling $2,500 to $4,999

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Mount Nittany Society

Named for Penn State's most cherished landmark, Mount Nittany Society represents the highest level of personal philanthropy to Penn State and includes those individuals and couples whose lifetime giving or irrevocable commitments to the university total $100,000 or more. Throughout this report, members of the Mount Nittany Society are denoted by the MNS symbol.

*deceased

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Corporation, Foundation Annual Contributions Totaling $100,000 or More

- Altria Group Inc.
- American Cancer Society
- American Diabetes Association, Inc.
- American Health Assistance Foundation
- American Heart Association
- Arrow International
- Association of American Medical Colleges
- Biosan, Inc.
- Children's Miracle Network Miracle Ball
- Children's Miracle Network Telethon
- Citadel Broadcasting Company
- Cleveland Clinic Foundation
- Wallace H. Coulter Foundation
- DBI Laboratories Inc.
- Fidelity Investments Charitable Gift Fund
- Michael J. Fox Foundation for Parkinson's Research
- Frontier Science & Technology Research Foundation
- Giant Food Stores, LLC
- Gittlen Memorial Golf Tournament
- Governor's Cup Charities
- The Hershey Company Employees for Children's Miracle Network
- Huck Charitable Foundation, Inc.
- Immune Tolerance Network
- Robert Wood Johnson Foundation
- Juvenile Diabetes Research Foundation International
- George M. Leader Family Corporation
- Joy McCann Foundation
- National Space Biomedical Research Institute
- Elsa U. Pardee Foundation
- Penn State IFC/Panhellenic Dance Marathon
- Penn State Hershey Medical Center Employee Fundraising Committee for Children's Miracle Network
- Philadelphia Health Care Trust
- PNC Foundation
- Rite Aid Corporation
- W. W. Smith Charitable Trust
- Thrasher Research Fund
- Turner Family Foundation
- University of Kentucky Research Foundation
- University of North Carolina
- University of Pennsylvania
- Wake Forest University
- Wal-Mart Stores, Inc.
## Corporations, Foundations, and Organizations

### Annual Contributions Totaling $1,000 to $99,999

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<td>Annville-Cleona Middle School/High School Mini-Thon</td>
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<td>Cardinal Health, Inc.</td>
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<td>Carlisle Dairy Queen, Inc.</td>
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<td>CVS Systems, Inc.</td>
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<td>Eat’n Park Hospitality Group, Inc.</td>
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<td>Foxborough Nursery, Inc.</td>
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<td>Fraternal Order of Eagles - Carlisle, Pennsylvania</td>
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<td>Fraternal Order Of Police</td>
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<td>Gateway Health Plan, LP</td>
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<td>GEICO</td>
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<td>Geico Philanthropic Foundation</td>
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<td>Genentech, Inc.</td>
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<td>General Growth Properties, Inc.</td>
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<td>Gettysburg Open Golf Tournament</td>
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<td>Gift of Life Donor Program</td>
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<td>Gilbane Building Company</td>
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<td>Gillian's of Camp Hill</td>
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<td>Anne M. and Philip H. Glattfelter, III Family Foundation</td>
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<td>Gleason &amp; Associates, PC.</td>
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<td>Globe Gears &amp; Couplings</td>
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<td>Golf Weekend/Penn State Friends</td>
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<td>Goschen Mechanical, Inc.</td>
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<tr>
<td>Greater Philadelphia Chapter ALS Association</td>
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<tr>
<td>Great Valley School District</td>
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<tr>
<td>Greenwich Court, Inc.</td>
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<tr>
<td>Jonathan Grula Memorial Foundation</td>
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<td>Hall Foundation</td>
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<tr>
<td>Hanover High School Mini-Thon</td>
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<tr>
<td>Harman Stove Company</td>
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<tr>
<td>Hatfield Quality Meats, Inc.</td>
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<td>Hatzel &amp; Buehler, Inc.</td>
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<td>Heritage Valley Federal Credit Union</td>
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<td>Hershey Bears Booster Club</td>
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<td>The Hershey Company</td>
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<td>The Hershey Company Employees</td>
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<td>The Hershey Company Fund</td>
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<td>Hershey Entertainment &amp; Resorts</td>
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<td>Hershey Middle School PTO</td>
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<td>Hershey Middle School Read-A-Thon</td>
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<td>High Industries Inc.</td>
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<td>Highmark Inc.</td>
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<td>Highmark Life &amp; Casualty Group</td>
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<td>High Real Estate</td>
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<td>Hill Dermaceuticals, Inc.</td>
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<td>H. Lee Moffitt Cancer Center and Research Institute</td>
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<td>H&amp;MS Host Blue Mountain Plaza</td>
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<td>Hoffmann-LaRoche, Inc./Roche Laboratories Division</td>
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<td>IBM Corporation</td>
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<td>Impulse Monitoring, Inc.</td>
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<td>Indiana University</td>
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<td>Ingersoll-Rand Charitable Foundation</td>
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<td>Integrated Therapeutics Corporation</td>
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<td>Intelistaf Healthcare, Inc.</td>
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<td>Intercam Casa De Cambio</td>
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<td>Intercorp, Inc.</td>
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<td>Intermountain Health Care Health Services, Inc.</td>
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<td>International Dairy Queen, Inc.</td>
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<td>Isabel's Hope Fund Golf Tournament</td>
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<td>Itty Bitty, Ink LLC</td>
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<td>Jack Williams Tire Co., Inc.</td>
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<td>Jaeb Center for Health Research</td>
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<tr>
<td>Jewelry Fashions, Inc.</td>
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<td>Jewish Community Foundation</td>
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Mechanicsburg High School Mini-Thon
Medical Education Consultants
Medtronic Vascular
Rose Mellinger Trust
Children of Virginia Mello
Mellon
Members 1st Federal Credit Union
Merck & Co., Inc.
Merck Partnership for Giving
Michael Baker Jr., Inc.
Middletown/Hummelstown Railroad
Middletown Volunteer Fire Department Auxiliary
Millersville University
Millersville University Dance Marathon
MiniMed, Inc.
Moffitt Heart & Vascular Group
Moses & Singer, LLP
Mount Nittany Medical Center
Mountz Jewelers
Mr. Youth, LLC
M&T Bank - Harrisburg
Muscular Dystrophy Association of America
Music in the Air
Nagle Family Foundation
National Alliance for Research on Schizophrenia and Depression
National Committee for Quality Assurance
National Football League
National Honey Board
National Kidney Foundation - Pennsylvania Chapter
National Network of Libraries of Medicine
National Pancreas Foundation
National Properties, Inc.
Carl and Nellie Naugle Foundation
Elmer E. Naugle Foundation
New Holland Custom Woodwork Inc.
Noodles 1, LLC
Northern High School Mini-Thon
Northern Lebanon High School
North Penn School District
Novartis Pharmaceuticals Corporation
Nowinger Group, Inc.
NRT Incorporated
NW Sign Industries Inc.
Odin Technologies, LLC
Omicron Chapter Phi Sigma Pi
Order of the Eastern Star, Grand Chapter of Pennsylvania
Organon USA Inc.
OrthoLogic
Orthopaedic Research and Education Foundation
Orthopedic Clinic of Central Virginia
PA Alpaca Owners & Breeders Association, Inc.
Park Foundation
Pasta for PALS
Patriot News Company
Paytime Harrisburg Inc.
Pennridge High School Mini-Thon
Penn State Abington Student Government Association
Penn State Alumni Association
Penn State Chapter of Berks County, Pennsylvania
Penn State Chapter of Northern New Jersey
Penn State Delaware County Campus
Student Government Association
Penn State Diabetes Center Gala
Penn State Hazleton Student Government Association
Penn State Mont Alto Student Government Association
Penn’s Woods Council, Inc., No. 508
Pennsylvania Academy of the Arts
Pennsylvania Air National Guard
Pennsylvania Apple Marketing Program
Pennsylvania Lions Sight Conservation and Eye Research Foundation, Inc.
Pennsylvania Retina Specialists, PC.
Pennsylvania State Troopers
Pennwest Construction Co., Inc.
Pfizer Foundation, Inc.
Pfizer, Inc.
Pilot Club of York, Inc.
Porsche Club of America Inc.
Porsche Club of America, Central Pennsylvania Region
Positive Fitness, Inc.
Prudential Foundation
PSU Chapter of Philadelphia
Ranker Hanshaw Financial Group
Rapid Transit Sportsware, Inc.
RBS Greenwich Capital Foundation, Inc.
Reading Pediatrics, Inc.
Recruitment Specialists, Inc.
RE/MAX at Hershey
RE/MAX International, Inc.
Residential Funding Corporation
Restless Legs Syndrome Foundation
Retread Motorcycle Club
Robhal Management, Inc.
David and Tricia Rogers Foundation
Ronald McDonald House Charities of Central Pennsylvania
Rotary Club of Elizabethtown
Rothrock
RVG Management & Development Company
S & T Spouting, Inc.
Sabre Systems, Inc.
Sam’s Club Foundation
S and T Insulation Co., Inc.
San Francisco Foundation
Sanofi-Aventis Pharmaceuticals, Inc.
Sara Lee Direct Specialty Retailing
Schwartz Foundation
Seafoss Designer Portraits
Seiden Foods, Inc.
Select Medical Corporation
Seven Sorrows B V M Parish
Shiloh Lutheran Church
Shire Pharmaceuticals
I. O. Silver Games
SKF USA Inc.
Skills USA Pennsylvania Inc.
Skyline Restaurant
Smiths Medical MD, Inc.
Smooke Smith & Associates
Smooke Chiropractic Clinic, PC.
Solar Innovations Inc.
Solid Surface Craftsman, Inc.
SourceCorp Health Services
South Side Elementary School Mini-Thon
South Western High School Mini-Thon
Sovereign Bank
Spiegel Brands, Inc.
G. R. and Grace M. Sponaugle Charitable Foundation
Springfield High School Mini-Thon
Spring Grove Middle School Mini-Thon
Donald B. and Dorothy L. Stabler Foundation
Stammel’s Haunted Hayride
Stambaugh Plumbing & Heating Inc.
State Farm Mutual Automobile Insurance Company
St. Clair CPAs, PC.
St. Theresa School
Carolyn E. Steinhauser Fund of York Foundation
Stevens & Lee, PC.
Stony Bridge Garden Center
Student Pediatric Society
Susquehanna Middle School Mini-Thon
Gertrude and Walter E. Swanson, Jr. Foundation
SYNTHES Spine
SYNTHES (USA)
J. T. Tai & Company Foundation, Inc.
Tanger Outlet Centers
Tender Years, Inc.
Tents & Events
Tower Sales, Inc.
Township of Derry, Pennsylvania Employees
Triax Pharmaceuticals, LLC
Trinity Lutheran Church
Alice Livingston Trout Family Fund
Truckers for Miracle Kids
TSI Corporation
Turkey Hill Minit Markets, Inc.
Twin County Construction
Tyco Electronics Corporation
Tyco Electronics Foundation
Tyco International Ltd.
Unilever Home & Personal Care - USA
Union Pacific Corporation
United Bank Card, Inc.
United Parcel Service
United Way of Allegheny County
United Way of the Capital Region
United Way of Lancaster County
United Way of Lebanon County
Universal Media, Inc.
University Hospital Services
University of Michigan
University of Michigan Medical School
University of Wisconsin
Upper Dauphin Area Middle School Rock-a-thon
Upper Dauphin High School Mini-Thon
Upper Dublin High School
U.S. Charitable Gift Trust
UTZ Quality Foods, Inc.
Valeant Pharmaceuticals International
Vera Bodner Foundation
Verizon Foundation
Wal-Mart Foundation
Waynesboro High School
Weaver Precast, Inc.
Weis Markets, Inc.
Wenger’s Feed Mill, Inc.
West Cumberland Chapter of Thrivent Financial for Lutherans
Whalley Charitable Trust
Winpak Portion Packaging
Woodrow Wilson Middle School
Wyndham Harrisburg-Hershey
XM Satellite Radio Inc.
York County Corvette Club
York County Harley Davidson Owners Association, Inc.
Zimmer-Randall Associates, Inc.
Zohners Motorcycle Club

Note to Donors
Despite every effort to prevent them, errors sometimes occur in producing this report of private giving. If your name has been omitted or misprinted, please notify us and accept our sincere apologies.
Target Audience
CE programs target many health disciplines, with a primary focus on primary care providers, including:
- Physicians
- Physician assistants
- Nurse practitioners
- Nurses
- Medical researchers
- Pharmacists
- Medical social workers
- Psychologists
- Dietitians

Programs for the lay public target:
- Health and science teachers
- High school and college students interested in careers in medicine
- Local community interested in the latest medical information and research

Courses for the Lay Public
Seventh Annual Mini-Medical School
Annual series with more than 500 participants attending all or part of the seven-week series. About half of the participants were “repeat” attendees, with many participants having attended the series every year since its inception. Mini-Medical School is designed to make the scientific research and medical knowledge of the College of Medicine accessible to the community. Participants include high school health and science teachers, students interested in careers in science or medicine, health care workers, and community physicians and nurses. Presentations are also available for viewing over the internet.

Public Cancer Forum: Reducing Cancer in Our Community
The annual day-long forum is designed to promote the integration of the Penn State Cancer Institute (PSCI) within the community it serves, an important component of the education and community outreach missions of PSCI as it works toward NCI designation as a comprehensive cancer center. Presentations bring together a cancer researcher, a clinician, and a patient to address specific types of cancer, its prevention, and treatment. More than 100 participants attended the event this year. The American Cancer Society became a partner for the event in 2006.

Lehigh Capstone Program
This innovative program, funded through a Temporary Assistance for Needy Families (TANF) grant received through the Commonwealth, provides a week-long, intensive, hands-on education in the research and practice of health care to students at the Health Sciences Academy of the Allentown School District. The on-site educational experience at the College of Medicine is designed to be the capstone of their high school experience in the health sciences. Academy students represent underprivileged and minority students who are interested in health care careers.

Oncology Careers Day
This annual event, offered in collaboration with the Penn State Cancer Institute and the Central Pennsylvania Oncology Group, brings high-school and their guidance counselors students onto campus to explore health care careers in oncology. Physicians, nurses, social workers, and researchers work with the students to portray the many career options available.
Summary of Revenue and Expenses

Fiscal Years 01, 02, 03, 04, 05, 06 (in thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>FY 01</th>
<th>FY 02</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Patient Revenue</td>
<td>$423,454</td>
<td>$466,530</td>
<td>$487,554</td>
<td>$578,634</td>
<td>$658,940</td>
<td>$714,244</td>
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<tr>
<td>Other Operating Revenue</td>
<td>$24,166</td>
<td>$27,014</td>
<td>$25,956</td>
<td>$23,755</td>
<td>$32,329</td>
<td>$32,382</td>
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<tr>
<td>Total Revenue</td>
<td>$447,620</td>
<td>$493,544</td>
<td>$513,510</td>
<td>$602,389</td>
<td>$691,269</td>
<td>$746,626</td>
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<tr>
<td>Expense (less Academic Support)</td>
<td>$429,008</td>
<td>$464,843</td>
<td>$483,353</td>
<td>$551,147</td>
<td>$628,301</td>
<td>$690,012</td>
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<tr>
<td>Total Operating Income</td>
<td>$18,612</td>
<td>$28,701</td>
<td>$30,157</td>
<td>$51,242</td>
<td>$62,968</td>
<td>$56,614</td>
</tr>
<tr>
<td>Non Operating Income/loss</td>
<td>$1,548</td>
<td>$789</td>
<td>$3,393</td>
<td>$560</td>
<td>$1,398</td>
<td>$2,767</td>
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<tr>
<td>Total Income</td>
<td>$20,160</td>
<td>$29,490</td>
<td>$33,550</td>
<td>$51,802</td>
<td>$64,366</td>
<td>$59,381</td>
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<td>Academic Support Payments</td>
<td>$19,111</td>
<td>$27,010</td>
<td>$29,967</td>
<td>$36,391</td>
<td>$35,944</td>
<td>$28,420</td>
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</table>

** Please note this schedule reflects the results of PSHMC audited statements. Additionally the numbers represented above exclude any contributions made to PSHMC for the purchase of equipment and cumulative effect of the adoption of accounting principle.

Summary of Inpatient and Outpatient Utilization

FY 2001 thru 2006 Actual

<table>
<thead>
<tr>
<th></th>
<th>Actual 2000/01</th>
<th>Actual 2001/02</th>
<th>Actual 2002/03</th>
<th>Actual 2003/04</th>
<th>Actual 2004/05</th>
<th>Actual 2005/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Discharges</td>
<td>21,761</td>
<td>21,513</td>
<td>21,924</td>
<td>23,663</td>
<td>25,712</td>
<td>26,336</td>
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<tr>
<td>Admissions</td>
<td>21,779</td>
<td>21,493</td>
<td>21,929</td>
<td>23,700</td>
<td>25,718</td>
<td>26,374</td>
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<tr>
<td>Average Length of Stay</td>
<td>5.83</td>
<td>5.84</td>
<td>5.58</td>
<td>5.4</td>
<td>5.34</td>
<td>5.52</td>
</tr>
<tr>
<td>Emergency Dept. Visits</td>
<td>36,927</td>
<td>40,240</td>
<td>42,526</td>
<td>45,044</td>
<td>46,948</td>
<td>47,916</td>
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<tr>
<td>Total Operating Cases</td>
<td>16,023</td>
<td>16,463</td>
<td>15,941</td>
<td>18,254</td>
<td>21,704</td>
<td>23,150</td>
</tr>
<tr>
<td>Hospital - Based Clinic Visits</td>
<td>360,578</td>
<td>377,650</td>
<td>388,781</td>
<td>422,086</td>
<td>444,734</td>
<td>453,788</td>
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<tr>
<td>Free Standing Clinic Visits</td>
<td>206,803</td>
<td>216,910</td>
<td>236,191</td>
<td>275,344</td>
<td>293,482</td>
<td>309,740</td>
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<tr>
<td>Total Clinic Visits</td>
<td>567,381</td>
<td>594,560</td>
<td>624,972</td>
<td>697,430</td>
<td>738,216</td>
<td>763,528</td>
</tr>
</tbody>
</table>
Penn State Milton S. Hershey Medical Center/ Penn State College of Medicine Leadership

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Senior Vice President for Health Affairs, Dean, and, Chief Executive Officer

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Executive Director

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Associate Vice President for Finance and Business, Controller

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Vice Dean for Educational Affairs

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Associate Vice President for Health Sciences Research, Vice Dean for Research and Graduate Studies, Chief Scientific Officer

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Vice Dean for Clinical Affairs, Chair, Department of Pediatrics

Medical Director, Penn State Children’s Hospital

R. Kevin Grigsby, D.S.W.
Vice Dean for Faculty and Administrative Affairs

Michael Weitekamp, M.D., M.H.A.
Chief Medical Officer

Donna Reck, R.N., M.S.N., C.N.A. (B.C.)
Chief Nursing Officer

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