

University of Pittsburgh
School of Pharmacy



Annual
Report
2006-07

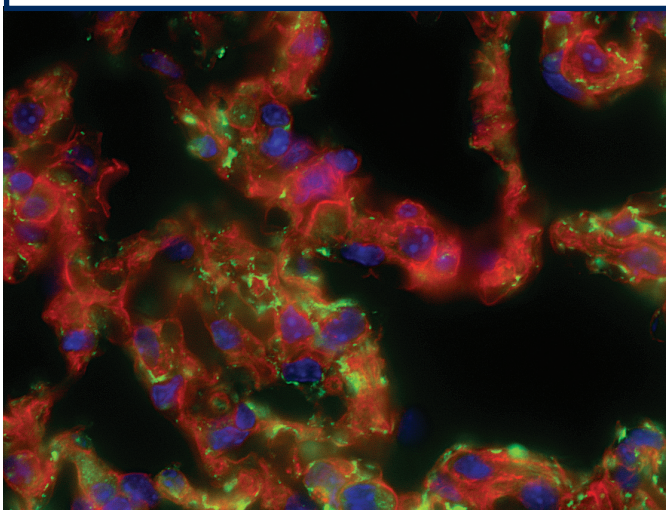
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The School of Pharmacy: A Description



The School of Pharmacy: A Description

Chartered in 1878, the School of Pharmacy is the oldest of the University of Pittsburgh's schools of the health sciences. The School of Pharmacy is located on the Oakland Campus of the University of Pittsburgh, a beautiful 132-acre urban campus. The University's 12,000 employees, including 3,800 full-time faculty members, serve approximately 34,000 students through the programs of 15 undergraduate, graduate, and professional schools.

Along with the five other schools of the health sciences, the School of Pharmacy is adjacent to and affiliated with the internationally renowned University of Pittsburgh Medical Center (UPMC), which provides care through the region's largest and finest network of tertiary, specialty, and community hospitals. Collectively, these facilities provide one of the nation's greatest, most complete health centers for teaching, patient care, and research in the health sciences. The School's overall reputation is grounded in its excellence of the teaching, patient care, research, and service conducted by its faculty, graduate students, residents, postdoctoral fellows, staff, and alumni.

The University of Pittsburgh School of Pharmacy is on the forefront of educating pharmacy's future practitioners with its four-year PharmD program. Setting the School apart from others is a curriculum that: 1) integrates science and practice throughout the course of study; 2) emphasizes team building through collaborative learning; 3) leads the nation in its service learning program; 4) offers professionally and technologically advanced methods of instruction delivery. The School of Pharmacy also enjoys a national reputation for the Clinical Pharmaceutical Scientist Program, an innovative PhD program that educates scientists to conduct translational and patient-oriented research.

Today, the School of Pharmacy is a leader in research, with endeavors ranging from research in molecular genetics to human clinical research and patient care outcomes. The School of Pharmacy is home to the Center for Pharmacogenetics, the Center for Education and Drug Abuse Research (CEDAR), the Pharmacodynamic Research Center, and the Center for Pharmacoinformatics and Outcomes Research. The School also houses the Cell Imaging Core of the Center for Reproductive Science, a Neuroendocrinology Research Consortium, as well as considerable chemistry expertise in the newly created Drug Discovery Institute of the University. Collectively, these programs have consistently placed the School among the top schools of pharmacy based on competitive research funding from the National Institutes of Health. Through its collaboration with UPMC, School of Pharmacy faculty members also lead the combined Pittsburgh Poison Center and Drug Information Center.

Organizationally, the School of Pharmacy is comprised of three units: the Office of the Dean, the Department of Pharmaceutical Sciences, and the Department of Pharmacy and Therapeutics. Instruction for the professional and graduate courses in the School of Pharmacy occurs mainly in Salk Hall, in shared classrooms and in a dedicated teaching laboratory. State-of-the-art research laboratories are located on the fifth through eighth floors and the tenth floor of Salk Hall. The ninth and eleventh floors house faculty and administrative offices exclusively. Faculty members also have laboratory facilities in the Biomedical Science Tower 3 as part of the Drug Discovery Institute. Some faculty members have offices in Scaife Hall, Lothrop Hall, and Falk Clinic as well as in UPMC hospitals, the Children's Hospital of Pittsburgh, and VA Pittsburgh Healthcare System hospitals, in proximity to their patient care practices. Off-site faculty and staff offices are also located in the Birmingham Towers on the South Side.

School of Pharmacy Factoids

- The School of Pharmacy housed the first prototype for robots that dispense medications in hospital pharmacies across the country.
- Safe dosage regimens for drugs that prevent transplant rejection were developed by School of Pharmacy faculty who worked with Dr. Thomas Starzl.
- The School of Pharmacy has produced three Remington medalists, pharmacy's highest honor. The first medal was awarded to faculty member James Hartley Beal, who drafted sections of the 1906 Pure Food and Drug Act that established the definitions of "drug" and "adulteration."
- Every 25 seconds, a Pennsylvania resident is poisoned. In 2005, the Pittsburgh Poison Center, under the direction of faculty member Edward P. Krenzelok responded to more than 119,000 calls.
- School of Pharmacy 1916 graduate Ella P. Stewart was the first licensed African American female pharmacist in Pennsylvania and one of the earliest practicing African American female pharmacists in the country.
- The School of Pharmacy is a regional and national leader in preventing and reducing deadly medication errors.
- In the 1990s, the School of Pharmacy trained more than 10,000 pharmacists internationally as certified smoking cessation counselors.
- Surgeon General Richard Carmona presented the National Award for Project Immunization to the Student Pharmacist Organization in 2003.
- Researchers in the School of Pharmacy developed the gas technology used for disinfecting the Hart Senate Office Building following the 2001 anthrax incident.
- The banana split was invented by Pitt pharmacy alumnus David Strickler in 1904.
- Udderly Smooth hand cream sells worldwide and is the invention of Bill Kennedy, a 1961 Pitt Pharmacy graduate.
- Alumnus William Goode, who graduated in 1929, was the first African American pharmacist and pharmacy owner in Pittsburgh.
- School of Pharmacy faculty distributed and managed drugs for nearly every AIDS patient nationwide in the 1990s.
- Success rates for School of Pharmacy graduates for licensure are consistently at 100%.
- 20% of School of Pharmacy faculty members are recognized as elected fellows in the national scientific and professional organizations.
- Six current deans of the 96 schools of pharmacy nationwide have their roots at the University of Pittsburgh (in total there have been 15).





University of Pittsburgh
School of Pharmacy

Vision for 2011

Long-Range
Strategic Plan

2006–2011



Vision for 2011

Long-Range Strategic Plan 2006–2011

During FY06, faculty and staff of the School of Pharmacy adopted mission, vision, and values statements and finalized a long-range strategic plan that extends through 2011. Only the action part of the plan is presented here. The full text of the strategic plan that provides an assessment of the environment and the opportunities is available on request.

Mission

The School of Pharmacy is committed to improving health through excellence, innovation, and leadership in education, research, patient care, and service.

Adopted July 2006

Vision

To be an outstanding school of pharmacy renowned for excellence in discovery and advancement of science-based use of medicines and other interventions to enhance the vitality and quality of life.

Adopted July 2006

Values

Integrity guides our daily work.
We foster:
Passion, commitment, and diligence;
Creativity and personal growth;
Collaboration and teamwork;
A culture of respect for the individual.

Adopted July 2006

Long-Range Strategic Plan 2006–2011

The School of Pharmacy first embarked on a new long-term strategic plan in 2001. The original plan extended through 2006. The plan was developed with faculty and staff and was therefore, highly participative in its design and implementation. The plan was aligned closely with the strategic focus areas of the University, and was outcome and mission driven.

The current plan presented here extends from 2006 through 2011. The elements of the plan were developed in January 2005 and are based on the same five strategic outcome areas as the original plan, which includes:

- Educating the next generation of practitioners and scientists;
- Advancing human health through research;
- Enhancing the health of the community through partnerships;
- Increasing our capabilities by enhancing our efficiency and effectiveness;
- Assuring an adequate resource base.



It has been the firm belief of the leadership of the School of Pharmacy that faculty, staff, students and trainees, and alumni of the School must all be actively engaged in order to have the best possible chances for achieving the stated outcomes of our strategic plan.

Annual retreats at the Johnstown and Greensburg campuses have been the major forum for development of tactics and milestones to accompany the strategic plan. PharmD student leaders are engaged at the annual student leadership retreat. Techniques used at the retreat include large group presentations and discussions, breakout groups, and multivoting.



Educating the Next Generation of Practitioners and Scientists

PHARM D PROGRAM

The University of Pittsburgh School of Pharmacy PharmD program has gained national and University recognition for the quality of its students and faculty, a goal adopted in 2001. During the accreditation in 2002, the Accreditation Council for Pharmacy Education noted that:

"The many steps taken by the School ... place it in a position to provide leadership on a national level."

Fueled by the challenge implicit in that statement, the leadership of the School used the statement to model the vision for our educational mission.

By 2011, the School of Pharmacy will have become a leader in pharmacy education at the national level.

Adopted 2005



In order to be recognized as a leader in pharmacy education at the national level, by 2011 the School of Pharmacy will have:

- Developed a culture of innovation and scholarship in teaching and assessment. By 2011, actions will have been taken that will have enhanced our reputation; these include but are not limited to:
 - Publishing innovations in pharmacy and higher education literature.
 - Identifying faculty to become AACP leadership fellows.
 - Developing multidisciplinary training for health professionals.
 - Becoming recognized for excellence in service learning and experiential learning
 - Providing leadership to pharmacy organizations such as ASHP and AACP.
 - Introducing problem-based learning into our curriculum.
 - Creating a culture of collaborative innovation.
- Increased the number of faculty members who have been recognized by a special University of Pittsburgh award, board certification, elected fellowship in a scientific or professional organization, appointment to editorial or advisory board, and other honors in recognition of excellence.
- Led the collaborative development of new courses for schools of pharmacy around the country.

These new courses could include, but are not limited to:

 - a curriculum for community practice.
 - innovative use of technology to enhance pharmacy patient care.
 - multidisciplinary training for health professionals.
 - literacy-appropriate patient health education.
- Created curricular tracks for specialization.

The numerous and diverse roles of pharmacy graduates and requests from existing students have demonstrated the need to enable students to specialize more during their professional training. There are opportunities to prepare students for management and entrepreneurship, pharmacy and health law, advanced practice, and graduate training.
- Developed at least two joint-degree programs.

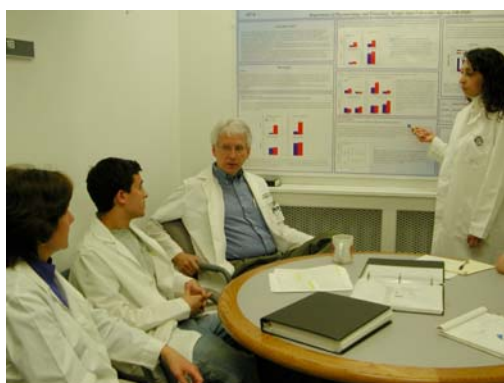
Opportunities for differentiating the School of Pharmacy through joint-degree programs will be assessed and developed. A PharmD-PhD program within the School would create an economy of time for students who earn both degrees. Other joint programs could include a PharmD-MBA, PharmD-MPH, and PharmD-JD.
- Developed extensive interprofessional education opportunities that include required and elective courses within our curriculum.
- Increased the diversity of the faculty and of the student body and enhanced the cultural competence of our graduates.
- Consistently demonstrated the excellence of our students and their organizations by the awards and national recognitions they have received.

- Clarified the focus and purpose for international research and educational initiatives.
- Developed credit-based opportunities for students to obtain international study experiences.
 - The School of Pharmacy will have partnered with the University Center for International Study (UCIS) and other schools on campus to develop meaningful experiences for the students with the goal of enhancing cultural competence, and the understanding of global health issues, healthcare policy, and the practice of pharmacy in other countries.
- Increased the number of preceptors who offer quality advanced practice experiences for our students and trainees.
- Developed and implemented a complete assessment program for all curricular outcomes of the PharmD program.
 - To date, faculty members of the School of Pharmacy have developed innovative tools for assessing selected curricular outcomes. By 2011, assessment tools for the entire curriculum will have been developed and implemented, and the results of the assessment will have been used to inform the faculty who will have used the information to make specific curricular enhancements.
- Considered and possibly developed an “out-of-Pittsburgh” curricular program that takes advantage of technology for distance education. This could be either within or outside of the continental United States.
- Met or exceeded the standards for accreditation by ACPE, serving as a model for other institutions.
- Enhanced the profession and encouraged life-long learning by providing innovative, quality, ACPE-accredited programs.

GRADUATE PROGRAM

By 2011, the School will have gained University and national recognition for the quality of our graduate program and for the excellence of our students and faculty.

Adopted 2005



In order to have gained University and national recognition for the quality of our graduate program and for the excellence of our students and faculty, by 2011 the School of Pharmacy will have:

- Increased the number of U.S. citizens and permanent residents that apply to and are accepted to the graduate program.
- Established nationally competitive stipends for graduate students and a system for funding to consistently support tuition and stipends.
- Developed programs to recruit students who have educational and research experiences that are aligned with the graduate program research areas.
- Increased the number of graduate students in proportion to the increase in faculty members who have funded research programs.
- Enhanced the learning opportunities for Clinical Pharmaceutical Scientist students and faculty through collaboration with the NIH-funded Clinical and Translational Science Institute at the University of Pittsburgh.

RESIDENCY PROGRAM

By 2011, the School of Pharmacy residency program will have:

- Gained national recognition for excellence.

Renewed 2005



In order to have gained national recognition for the excellence of our residency program and residents who excel in patient-focused practice, by 2011 the School of Pharmacy will have:

- Created new residencies and increased the total number of residency positions available.
Particular emphasis will be on specialty residencies including drug information, critical care, cardiology, infectious disease, and oncology. New residencies will be created in one or more of the following: pharmacy practice management, transplant, geriatrics, and/or psychiatry.
- Increased the number of pharmacy practice residency positions offered and the opportunities for learning within that residency.
- Developed the opportunity for residents to pursue a graduate degree in conjunction with their residency.
- Provided an increased number of highly qualified faculty preceptors for residents.
The quality of the residency experience is affected greatly by the clinical and research experience of the residency director and preceptors. By 2011, only faculty who have been board certified in their specialties (where applicable) will be residency preceptors. In addition, new faculty members will have been provided with development experiences to increase their research and scholarly capabilities to enhance their academic careers and prepare them to precept residents.

Advancing Human Health Through Research

By 2011, the School of Pharmacy will be recognized as a research school of distinction.

Adopted 2005



The revised outcome statement for research reflects a broader vision of research excellence that implies that comparisons need not be limited to schools of pharmacy and that excellence will be measured by NIH rankings as well as other measures of distinction.

In order to be recognized as a research school of distinction, by 2011 the School of Pharmacy will have:

- Secured a place in the top five schools of pharmacy based on NIH funding.
The School has ranked in the top 10 for 5 of the past 7 years. However, the goal presents a substantial challenge given that the School ranked #11, #12, and #10 based on FY04, FY05, and FY06 NIH funding, respectively.

In spite of projections for a shrinking NIH budget, there will have been:

- An increase in number of PHS funded grants.
 - An increase in number of funded faculty members.
 - An increase in number of faculty who are supported by K awards.
 - Funding for program projects and training grants, which are currently absent from the School's research portfolio.
 - An increase in number of postdoctoral trainees.
- Developed at least two niche research programs that may include:
 - Drug discovery.
 - Drug safety.
 - Drug delivery.
 - Geriatrics.
 - Transplantation.
 - Community pharmacy service models and health outcomes.
 - Clinical and translational research.
 - Diversified its portfolio of research funding.
The portfolio of funding support may include the Department of Defense, the National Science Foundation, Agency for Healthcare Research and Quality, foundations, and the pharmaceutical industry.
 - Assured continued faculty leadership in research programs.
Retention of faculty and timely recruitment of new faculty members, some of whom are academically advanced, will be key to becoming a research school of distinction.
 - Enhanced its reputation of research excellence through recognition including:
 - Awards, fellowships, and editorial board appointments for individual faculty members.
 - School membership in the Pharmacy Research Discussion Group (22 member schools).

Enhancing the Health of the Community Through Partnerships

By 2011, the School of Pharmacy will have:

- Developed a model system for comprehensive care that is implemented for all UPMC patients, assuring safety and efficacy of medications during their hospital stay and transition back to the community.
- Created national acceptance of standardized pharmacy care in the community that enhances patient well-being through the effective and safe use of medications.

Adopted 2005



By 2011, the School of Pharmacy will have:

- Established a center of excellence that focuses on delivery of pharmacy patient care.
This center of excellence will be home to an interdisciplinary team that focuses on improving patient medication-related care through research, ranging from health literacy and medication safety to evidence-based use of medication. The pharmacy center of excellence will position the School of Pharmacy and University of Pittsburgh as the national leader in effecting changes in the way pharmacy care is delivered.

Through the center, the School will become the recognized leader in pharmacy care, services, research, and education.

INSTITUTIONAL PHARMACY

By 2011 the School of Pharmacy will have:

- Developed criteria for the level and intensity of pharmacy care to ensure that the intensity of care provided is appropriate for the level of individual patient risk for drug-related problems.
Criteria will include reviewing drug problems and learning about proper use of their medications in the hospital and when they are discharged.
- Created and implemented a new pharmacy service model that integrates faculty and staff and through which UPMC inpatients receive their care.
The goals are to implement a service model that incorporates distributive pharmacy service with clinical care; to evaluate all patients at least once during their inpatient stay; and to assure continuity of care through the times of transition of care.
- Added a call-center pharmacy service to provide medication reconciliation within 48 to 72 hours of discharge.
- Conducted research on clinical problems, services, and patient outcomes to improve patient care.
As new faculty members are recruited to the Department of Pharmacy and Therapeutics, preference will be given to candidates with the greatest potential to develop scholarship that promotes the service, research, and educational programs of the School of Pharmacy.
- Developed evidence-based medication protocols that improve clinical outcomes, enhance patient safety, and reduce costs.
- Combined the Pittsburgh Poison Center and Drug Information Center.
The combined center under UPMC would increase the opportunities for disseminating drug and poison information, for training advanced level practitioners and students, for scholarship, and for enhancing efficiency.
- Become a national leader in implementing patient focused-care consistent with ASHP 2015 objectives.
Among the indicators of leadership are publications, grants, invited presentations, and leadership positions held by faculty members.

COMMUNITY PHARMACY

By 2011 the School of Pharmacy will have:

- Been recognized as a leader in defining and providing a curriculum for medication therapy management (MTM) services.
The School of Pharmacy will develop a training program for practicing pharmacists to enable them to implement MTM practice using a standardized methodology.
- Established partnerships for the purpose of providing patient care and testing and refining a care model that engages pharmacists, physicians, and patients.
The partnerships will be between the School of Pharmacy and:
 - a national chain that is committed to implementing the model nationwide.
 - at least one health plan.
 - at least one employer.
 - independent pharmacy owners.
 - other educational institutions.
- Created an advanced-practice support service for pharmacists who provide Medication Therapy Management.



Enhancing Our Capabilities Through Increased Efficiency and Effectiveness

By 2011, we will have increased effectiveness and efficiency and will have enhanced the personal growth and professional development of the staff.

Renewed 2005

STAFF DEVELOPMENT

In order to increase efficiency and effectiveness while enhancing the personal growth and professional development of staff, by 2011 the School of Pharmacy will have:

- Completed the development of work specifications for all staff work and for some faculty processes.
Members of the School of Pharmacy have been trained in adaptive work design which is based on the lean manufacturing concepts of the Toyota Production System. Implementation of adaptive work design incorporates detailed work specifications and problem solving in the course of work. Adaptive design is particularly effective in reducing duplication of effort, unnecessary steps, and waste. The highly specified work also creates an easy way to train new staff and to easily provide backup.
- Created individualized development plans for all staff members.
Minimum standards for computer literacy and familiarity with common computer software will be developed.
- Empowered staff to contribute to achieving the goals set in the School of Pharmacy's long-range plan.



STUDENT SERVICES

By 2011 the School of Pharmacy will have:

- Improved efficiency and effectiveness in student affairs process and work.
- Recruited students that meet the strategic diversity goals of the School of Pharmacy for both the PhD and PharmD programs.
Programs and communications tools will be developed to increase the number of minority students and to increase the international training and student exchange opportunities with schools in other countries.
- Enhanced the School's capability for meeting experiential learning needs including:
 - measuring educational/behavioral outcomes of students.
 - recruiting and retaining, highly qualified preceptors.
 - increasing efficiency in the student site selection process.
 - creating a faculty extender position to support experiential learning.
 - providing preceptor forums for improving skills and networking.



INFORMATION TECHNOLOGY

In order to increase efficiency and effectiveness, by 2011 the School of Pharmacy will have:

- Developed state-of-the-art technology platform for education.
- Implemented a technology platform, software, and peripheral standards.
This includes but is not limited to:
 - Improving the management of software licenses.
 - Implementing appropriate new technology as it becomes available in order to better support the mission of the School.
- Developed a high-security network.
This includes but is not limited to:
 - implementing measures to create the highest possible security while still enabling faculty to access necessary external sites.
 - developing capability to securely share data files and access the network from Salk Hall and from remote sites.
 - improving connectivity with the UPMC network to permit easy access and exchange between UPMC and University based faculty.
- Consistently been a lead partner with CSSD in testing the application of technology before widespread adoption by the University community.
- Developed training programs on new technology for faculty and staff.



COMMUNICATIONS

Communicating with School of Pharmacy stakeholders and the public is an important function that supports all of the School's strategic outcomes. By 2011 the School of Pharmacy will have:

- Developed an annual public relations and communications plan.
This includes:
 - Increased placements in University, local, and national publications.
 - Increased awareness through media interviews and appearances.
- Improved the effectiveness of publications and communications.
We will have:
 - Ensured high-quality standards.
 - Developed a plan that identifies the target audiences and measures how many times they have been touched by School of Pharmacy communications.
 - Assured high-quality publications and communications at the lowest possible cost.
- Increased the utility of the Web site.
This includes assuring:
 - Ease of navigation.
 - Up-to-date information of sufficient quantity.
 - High-quality imaging through effective design.
- Assessed and implemented electronic communication with stakeholders where appropriate.
- Retained our place among the top schools on campus for alumni engagement.



Securing an Adequate Resource Base

By 2011, we will have increased the resource base of the School of Pharmacy.

Renewed 2005

FINANCIAL RESOURCES

The financial projections through 2011 have been based on the assumptions that the size of the PharmD classes will remain the same and that there will be an increase in University budget allocation of 3% per year on salary and associated fringe benefits.

By 2011, the School of Pharmacy will have:

- Increased research funding by approximately \$5.1 million to \$11.6 million in today's dollars.
- Raised an additional \$15 million in the capital campaign.
Funds are essential to meet the critical need for state-of-the art research laboratories, for creating a learning environment that is rich with simulators and related technology, and for supporting scholarships for students and professorships for faculty.
- Increased the School of Pharmacy endowment by \$7 million.
Support is needed to increase the scholarship dollars awarded; tuition increases have outpaced the feasibility for students to work their way through school. Endowed faculty scholars and professorships are needed to retain our faculty, who have achieved successes that make them attractive to other institutions.
- Developed stable revenue streams to assure the continued growth of programs that contribute to leadership, innovation, and excellence in:
 - Education.
 - Research.
 - Patient care.



PHYSICAL RESOURCES

The complete facilities plan that was submitted in 2005 is available upon request. Briefly, by 2011, the School of Pharmacy will have:

- Acquired a sufficient amount of state-of-the-art research space to meet the needs of the growing research programs of our faculty, whose creativity and perseverance continues to build the research excellence of the School of Pharmacy.
Projections for a Salk Hall Annex and renovations to Salk Hall are on paper, though details have yet to be defined.
- Secured its place in the Master Plan for Oakland, assuring adequate space for the School's programs and bringing programs located in leased off-campus space back to Oakland.
- Acquired space to conduct small-group classes for PharmD students in order to prepare them to meet the healthcare needs of society.
- Completed plans for an extensive renovation for Salk Hall that will meet the programmatic and space needs of the School of Pharmacy in a high-functioning and appealing manner.





School-Based Initiatives



School-Based Initiatives

Distinguished Lecture Series

FY07 marked the sixth year of the School of Pharmacy's Distinguished Lecture Series. The Series celebrates achievement in laboratory, clinical, and health policy research, all of which are fundamental to drug discovery and to safe and appropriate drug use. The Distinguished Lecture Series Committee, chaired by Dr. Wen Xie, selected this year's awardees from an eminent group of nominees. These innovators and leaders in research spoke about their most significant discoveries and challenges.

FY07 Distinguished Lecture Series

Date	Distinguished Lecturer	Lecture Topic
October 24, 2006	David J. Mangelsdorf, PhD Investigator, Howard Hughes Medical Institute; Professor and Chair, Department of Pharmacology, and Doris and Bryan Wildenthal Distinguished Chair in Medical Science, University of Texas Southwestern Medical Center	The Nuclear Receptor Paradigm: Hormone-Dependent Control of Reproduction and Metabolism
November 14, 2006	Gary A. Puckrein, PhD Executive Director, National Minority Health Month Foundation	Where We Die, Why We Die: Building a Real-Time National Health Monitoring System
March 13, 2007	Susan B. Horwitz, PhD Distinguished University Professor and Rose C. Falkenstein Professor of Cancer Research; Co-chair, Department of Molecular Pharmacology and Associate Director for Therapeutics, Albert Einstein Cancer Center, Albert Einstein College of Medicine	Taxol, Tubulin, and Tumors: Challenges in the New Era of Cancer Therapeutics
March 28, 2007	Kenneth N. Barker, PhD Director, Center for Pharmacy Operations and Designs	The 51st Annual Koch Lecture Research on Pharmacy Operations and Medication Safety: A Lifetime of Challenges and Fun
May 15, 2007	Peter Tontonoz, MD, PhD Investigator, Howard Hughes Medical Institute; Associate Professor, Department of Pathology and Laboratory Medicine, University of California at Los Angeles	Nuclear Receptors at the Crossroads of Lipid Metabolism and Inflammation

Alumni Engagement

The School of Pharmacy ranked first in memberships to the Pitt Alumni Association among the schools of the University, and currently ranks second among the schools of the University in alumni engagement. Of the 4,359 living alumni, 36.54% (up 3.5% from last year) were engaged with the School of Pharmacy in some way during FY07. The term "engagement" includes contributions to the University and participation in events.

In FY07 alumni demonstrated their commitment to the University and the School in many ways, including participation in events sponsored by the School and/or the Alumni Society:

- Homecoming celebration on Friday, October 20, 2006, in Salk Hall;
 - Three alumni speakers gave presentations to pharmacy students during the day.
 - Approximately 75 alumni attended the Banana Split Homecoming Party.
- Three receptions at national professional and scientific meetings:
 - American Association of Pharmaceutical Scientists, October 30, 2006, in San Antonio, Texas
 - American Society of Health-System Pharmacists, December 4, 2006, in Anaheim, Fla.
 - American Pharmacists Association, March 18, 2006, in Atlanta, Ga.
- Career Roundtables, February 21, 2007 (50 alumni participants).
- The First Annual Scholarship Tea, April 13, 2007. There were 75 guests comprised of scholarship donors and recipients of scholarships.
- Gala 2007: On the Red Carpet, May 12, 2007, an annual celebration for alumni and friends. Over 260 alumni and friends enjoyed the Saturday evening dinner and dancing extravaganza, which was held at the Circuit Center and Ballroom in the Pittsburgh's South Side.
- The School of Pharmacy Golf Invitational, Friday June 8, 2007; 80 golfers participated, and raised \$17,357 for the Alumni Scholarship Fund.

School of Pharmacy Retreats

Two faculty retreats were held during the past year. In addition to the goal of enhancing communications and camaraderie among faculty, each retreat had the goal of enhancing skills of the participants.

“The Questioning Mind: Problem-Solving in Education, Research and Practice”

Guest Speaker: Phillip Evans

Monday, December 18, 2006

Biomedical Science Tower and Salk Hall

This retreat enhanced skills related to problem solving as applied in teaching, practice, and research and promoted sharing of knowledge and experiences among faculty.

The goals of the retreat were to discuss the current state of student problem-solving abilities; the similarities and differences in problem-solving strategies across the pharmaceutical and clinical sciences; and strategies to improve the progressive development of student problem-solving abilities across the PharmD and PhD programs.

Mr. Phillip Evans, University of Edinburgh, an internationally recognized leader in problem-based learning in health professions education, directed the morning sessions. These sessions included an overview of problem-based learning, a video of the application of problem-based learning with medical students, and breakout groups in which faculty participated in a problem-based learning exercise to explore potential applications for the teaching-learning strategy within the School of Pharmacy.

Discussion groups led by faculty facilitators met in the afternoon to discuss the application of problem-based learning in the pharmacy curriculum.

“Strategically Planning Your Personal Academic Career”

Guest Speaker: Provost James Maher

Wednesday, June 6, 2007

Southpointe Golf Club, Canonsburg, Pa.

The focus of the retreat was to assist faculty in developing individual strategic plans to achieve their academic goals.

After an update on the School’s strategic planning activities by Dean Patricia Kroboth, faculty met in breakout groups to create and discuss their personal vision and mission statements. A discussion about personal career development and goals, including challenges to achieving those goals, ensued. Provost James Maher spoke about the University mission, strategic plan, and goals. In the afternoon, faculty worked in small groups to consider sources of support available for academic planning and planning for success, and opportunities to integrate the pharmaceutical and clinical sciences in the curriculum.

Continuing Education

In spring 2007, Dr. James Pschirer joined the School of Pharmacy faculty as director of experiential learning and continuing professional development. Dr. Pschirer comes to the School from UPMC Shadyside where he was the director of pharmacy. He serves as the administrative authority for assuring the School’s compliance with the ACPE quality criteria for continuing education programs developed and administered by the School and chairs the Continuing Education Steering Committee.

The School of Pharmacy partnered with the University of Pittsburgh Center for Continuing Education in the Health Sciences (CCEHS) to deliver two live continuing education programs in FY07:

- Annual Paul J. Wurdack Fall Continuing Education Seminar, “New Opportunities for Pharmacists and Pharmacies,” featured presentations by Dr. Carl Gainor, Mr. Robert Weber, and Dr. Deanne Hall.
- The Spring Continuing Education Seminar, “Providing Chronic Care for Patients with Diabetes and Cardiovascular Disease,” was led by Drs. Amy Seybert and Scott Drab. This unique program was held at the Peter M. Winter Institute for Simulation, Education and Research (WISER) Center and incorporated hands-on learning. The 54 participating pharmacists and pharmacy technicians measured their blood glucose levels with meters designed for in-home use and practiced physical assessment and patient-care rounds with the sophisticated human patient simulators available at the WISER Center.

Continuing education needs of pharmacists within UPMC were addressed through an ongoing Pharmacy Grand Rounds series administered by the School of Pharmacy and CCEHS.

In June 2007, CCEHS was recognized by ACPE as a separately accredited provider of continuing pharmacy education. CCEHS will move forward as the sole sponsor of the UPMC Pharmacy Grand Rounds series. The School and CCEHS will continue to co-sponsor the fall and spring seminars.

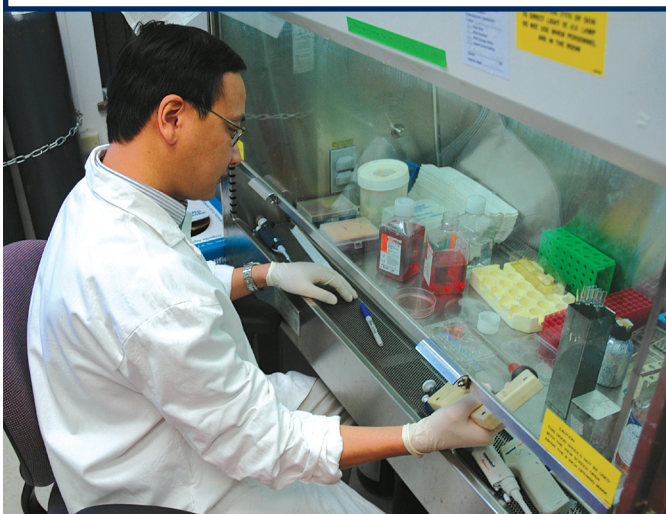
The School of Pharmacy is an Accreditation Council for Pharmacy Education (ACPE) accredited provider of continuing pharmacy education.

Continuing Education Programs Sponsored or Co-sponsored by the School

Date(s)	Title	Description	Number of Attendees
August 30, 2006	Management of Venous Thromboembolism	UPMC Pharmacy Grand Rounds	21
September 13, 2006	Anticoagulation Management	UPMC Pharmacy Grand Rounds	18
November 1, 2006	Congestive Heart Failure	UPMC Pharmacy Grand Rounds	18
November 8, 2006	Heart Failure Case Studies	UPMC Pharmacy Grand Rounds	5
November 15, 2006	Peripheral Arterial Disease	UPMC Pharmacy Grand Rounds	21
November 20, 2006	Medication Reconciliation	UPMC Pharmacy Grand Rounds	6
December 10, 2006	State Board Update: Pharmacy Practice Changes	School of Pharmacy Fall Seminar	62
December 10, 2006	Practical considerations in Establishing a Collaborative Practice	School of Pharmacy Fall Seminar	62
December 10, 2006	Liability Considerations Associated with Pharmacy-based Collaborative Practice Agreements and On-site Immunizations/Injections	School of Pharmacy Fall Seminar	62
December 10, 2006	Practical Considerations in Establishing a Pharmacy-Based Immunization Service	School of Pharmacy Fall Seminar	62
January 24, 2007	Heparin-induced Thrombocytopenia	UPMC Pharmacy Grand Rounds	34
February 28, 2007	Diabetes: Part One	UPMC Pharmacy Grand Rounds	23
March 14, 2007	Diabetes: Part Two	UPMC Pharmacy Grand Rounds	26
April 15, 2007	Providing Chronic Care for Patients with Diabetes and Cardiovascular Disease	School of Pharmacy Spring Seminar	54
April 15, 2007	Providing Chronic Care for Patients with Diabetes and Cardiovascular Disease: Patient Care Rounds	School of Pharmacy Spring Seminar	54
April 15, 2007	Providing Chronic Care for Patients with Diabetes and Cardiovascular Disease: Physical Assessment	School of Pharmacy Spring Seminar	54
April 20, 2007	Clinical Advances for Oncology Mid-level Practitioners	UPMC Pharmacy Grand Rounds	25
April 20, 2007	Drug Information for Pharmacists by Pharmacists	UPMC Pharmacy Grand Rounds	25
May 23, 2007	Oral Agents in the Management of Diabetes	UPMC Pharmacy Grand Rounds	9
Total			641



Advancing
Human Health
Through
Research



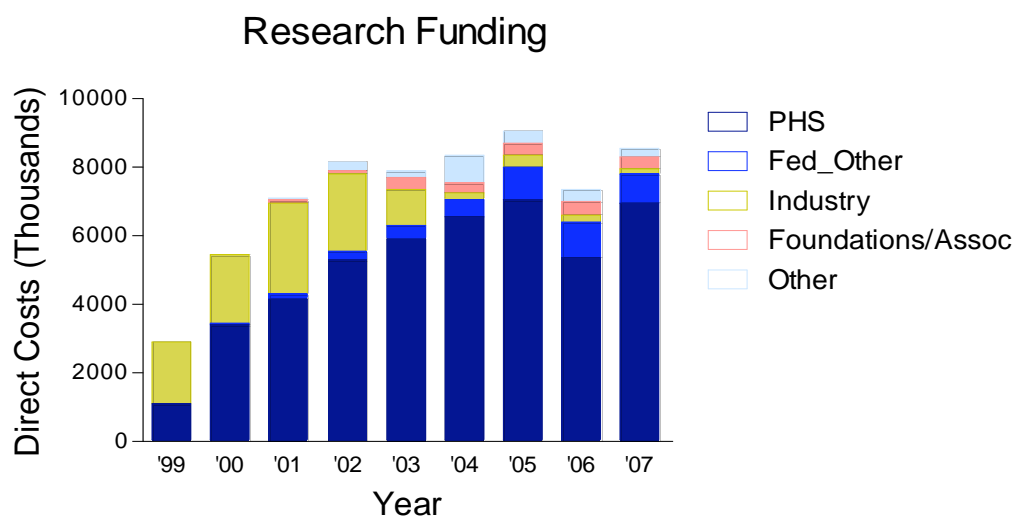
Advancing Human Health Through Research

By 2011, the School of Pharmacy will:

- Be recognized as a research school of distinction.

The overall goal of the School of Pharmacy's research programs is to advance human health through a diversified research portfolio that ranges from the molecular to the care of patients. School of Pharmacy investigators are using state-of-the-art techniques to answer important questions leading to new drug targets and improved drug therapy. They are identifying sources of variability to improve patient outcomes and creating evidence-based guides to therapy. The quality of the science is shown through successful competition for NIH research support in a time of greatly increased competition for those limited resources.

The figure below show direct cost figures associated with research by funding area for the past nine years. In FY07, Public Health Service (PHS) grant support increased by 30 percent. The recovery from the fall off in FY06 was directly due to the successful recruitments reported last year and highly competitive grant submissions.



Drug Discovery Institute

Drug discovery is the newest strategic research emphasis within the School. We have made a major commitment to building strength in drug discovery by forging partnerships with two other schools to create the Drug Discovery Institute and through recruitment of new faculty members who are also members of the Institute. This year's annual report provides a special highlight of the research interests of the four School of Pharmacy faculty members who are members of the Drug Discovery Institute.

Billy Day (Professor)
Design of anticancer compounds

The research of the Day laboratory ranges from synthesis of compounds to the biochemical and biological evaluation of libraries of compounds. Synthetic work focuses on developing new reaction methods for organic molecules, for natural products, and for the stable isotope- or radioisotope-labeled versions of the compounds of interest. The group also focuses on the biochemical and cell biological evaluation of chemical compound libraries in the search for desired biological activities, on detailed analytical chemistries of the cellular actions, and the effects of metabolizing systems on the chemical compounds.

Included among the several projects undertaken by the Day group over the past year is the evaluation of synthetic libraries designed around the naturally occurring microtubule perturbing agents dictyostatin, cyclostreptin and tubulyisin (Figure 1).

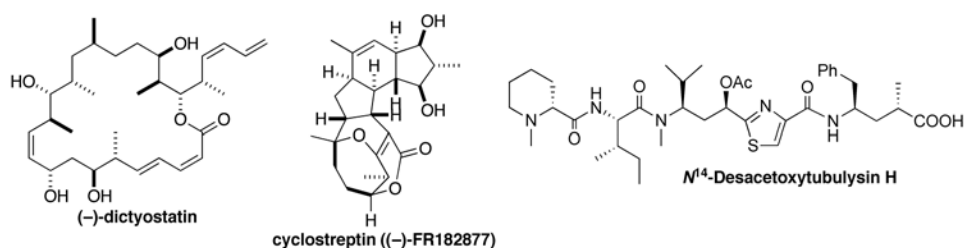


Figure 1. Lead compounds in the study of microtubule perturbing agents.

The former two compounds are microtubule stabilizers (e.g., paclitaxel and docetaxel) and the latter is a tubulin assembly inhibitor (e.g., the vinca alkaloids vinblastine, vincristine, vindesine and vinorelbine). These studies have been carried out in collaboration with researchers in the Drug Discovery Institute and include collaborators in the Departments of Chemistry and Pharmacology at the University of Pittsburgh as well as at the National Cancer Institute in Bethesda.

The dictyostatin project has advanced to a point where several tens of analogues have been prepared, with each synthesis requiring over 25 steps. The computational analyses of structures have been done as in Figure 2. Biological activity studies have pointed to one key compound, 6-*epi*-dictyostatin, as a good candidate for evaluation in animals; synthesis of the compound at the gram scale is now underway.

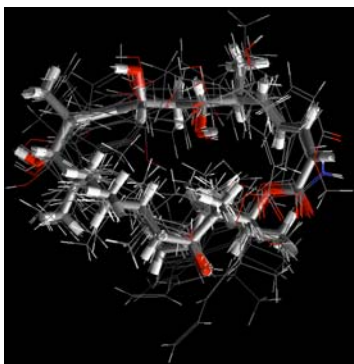


Figure 2. Line and point model showing superimposition of the dictyostatin analogues on the NMR structure of the parent compound

Cyclostreptin, a natural product from *Streptomyces*, irreversibly stabilizes cellular microtubules, causes cell cycle arrest and potently inhibits the binding of paclitaxel to microtubules, yet it only weakly induces tubulin assembly. The Day group was one of several groups worldwide that found that cyclostreptin covalently crosslinks to β -tubulin at the outer surface of a pore in the microtubule wall and at the luminal paclitaxel site; this action helps to explain how taxoid-site drugs induce microtubule formation from dimeric and oligomeric tubulin.

The tubulysins, originally isolated from a soil myxobacterium, are picomolar inhibitors of cell proliferation. The Day group helped to find a synthetically less expensive and potentially more stable version of the natural products, and evaluation of additional synthetic analogs is underway.

Alexander Doemling (Associate Professor)

P53-MDM2-MDM4 protein interaction antagonists as novel anticancer drugs

The Doemling group has developed a new paradigm for early drug discovery that is more efficient than current methods. This algorithm is based on fast and efficient multicomponent reaction chemistry (MCR) and its leverage, using modeling and computational chemistry tools.

Applying the new drug discovery algorithm, we were able to develop several effective and novel chemical scaffolds that antagonize the non-trivial protein-protein interactions between the transcription factor p53 and its negative regulatory proteins MDM2 and MDM4 (Figure 3). Moreover, the group made the novel discovery of a dual action MDM2/4 antagonist which is believed to be particularly useful to fight cancer.

P53 is a transcription factor that serves as a major tumor suppressor. P53 mutations and other alterations that cause the protein to malfunction are found in the majority of human cancers. Extrapolating from data based upon almost 10 million new cancer cases each year, it is estimated that approximately 2 million new cancers per year would have increased expression levels of the proteins MDM2 and/or MDM4 that serve as negative regulators of P53. This includes a significant fraction of lung, breast, colon, stomach, uterus and liver tumors. *“Therefore, MDM2 and MDM4 antagonists could be used to treat 2,000,000–3,000,000 new cancers each year, and so might be the main drugs of tomorrow, assuming that their therapeutic index is acceptable.”* (Nat. Rev. Canc. 2006).

Currently the group is applying techniques of medicinal chemistry to obtain even more potent compounds to investigate our compounds *in vitro* and *in vivo*.

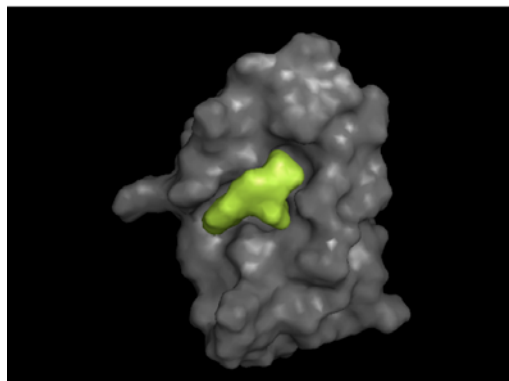


Figure 3. Space-filling model showing the binding of one representative p53/MDM2 antagonist (green) into the MDM2 protein (grey surface) as determined by NMR spectroscopy. Note the high degree of shape complementarity helping to obtain tight binding.

Barry Gold (Professor)

Development of non-tumorigenic anticancer compounds

Most anticancer compounds that kill cancer cells by damaging (i.e., alkylating) DNA yield a complex mixture of DNA lesions. Some of the lesions induce cell death, as desired, while others are both cytotoxic and mutagenic/carcinogenic. Thus, successful treatment of a primary cancer by these agents can lead to the significant incidence of secondary tumors due to the treatment. Our goal is to develop molecules, and eventually drugs, that will be cytotoxic but not mutagenic or carcinogenic to avoid the problem of secondary cancers.

In order to exercise a significant regulation over the alkylation pattern on DNA, and in particular to achieve minor groove selectivity, several alkylating agents related to Me-lex, a methyl sulfonate ester appended to a neutral N-methylpyrrolicarboxamide-based dipeptide (lex) (Figure 4), have been synthesized. The lex dipeptide binds at A/T rich sequences in the minor groove of DNA and as a result Me-lex efficiently methylates the N3 position of adenine (3-A), generating almost exclusively N3-methyladenine (3-MeA).

We have demonstrated that a new analogue of Me-lex, with an allyl substitution on the carboxy terminus, is more effective than Me-lex in a tumor cell based assay that measured apoptosis and necrosis mediated cell death. We are synthesizing other analogues that are designed to have better pharmacological properties *in vivo*.

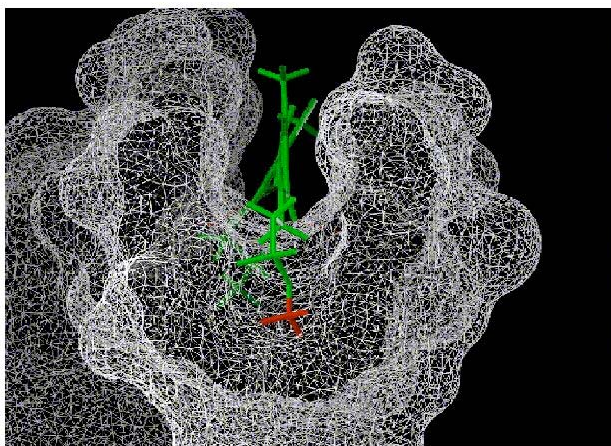


Figure 4. A line and stick representation of the Me-lex molecule bound in the minor groove of DNA (shown as a van der Waals surface map): the dipeptide that binds to DNA is green; the methyl group that gets transferred to DNA is red.

Xiang-Qun Xie (Professor)

Design of G-protein coupled cannabinoid (CB2) receptor

Dr. Xie's research group focuses on developing molecules that target the G-protein coupled cannabinoid (CB2) receptor. The CB2 receptor was chosen because it is involved in signal transduction in immune systems, and can potentially be a target for immuno-treatments. Xie's group has established databases of the PubChem library by combining a cell-based algorithm with pair-wise 2D fingerprint similarity. They applied the chemistry-space matrix calculation algorithm to build target-focused libraries based upon the few known active leads. The work will guide and support library design, improve the hit rates from high throughput screening studies, and streamline the interpretation of screening data. This approach will allow efficient screening of sets of compounds that are small enough to be tractable, yet representative of the full library set.

Dr. Xie's research has developed pharmacophore-guided database search methods for CB2 ligand screening. By the combining in silico and in vitro approaches, the group of investigators has identified several nanomolar-micromolar range CB2 selective ligands with new chemical scaffolds. Dr. Xie has screened a new CB2 selective ligand in silico and confirmed its activity by in vitro using a radioactive ligand binding assay.

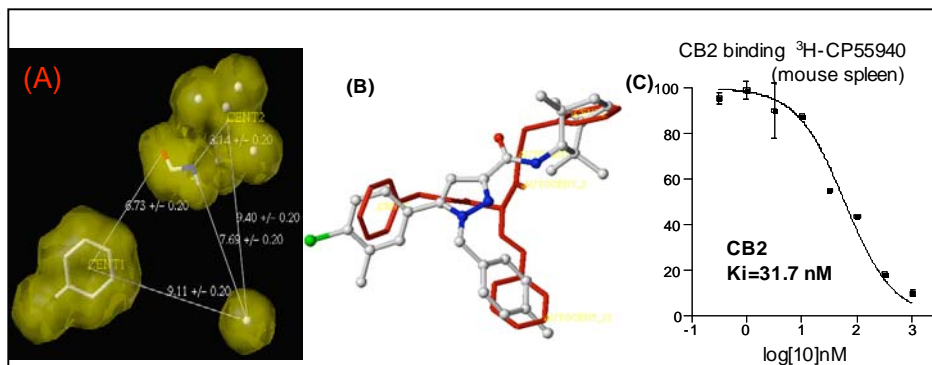


Figure 5. **A.** 3-D pharmacophore model showing CB2 ligands that were used in the virtual screening. **B.** The compound (red color) is one of the screened novel CB2 ligands with a new chemical scaffold and high CB2 selectivity. **C.** The screened hit compound was confirmed by receptor binding affinity assay: $K_i=31.7$ nM (CB2) and 4185 nM (CB1). These lead compounds are used as chemical probes for studies of ligand-receptor interaction mechanism of actions and further lead chemistry optimization.

Xie's group also developed and published the 3D CB2 receptor structure constructed by multiple sequence homology alignment, the model for which is refined in 3D NMR studies. The CB2 putative binding pocket was predicted by MOLCAD solvent-accessible channel surface calculations. The predicted binding site has also correlated well with site-directed mutagenesis data, except for Phe87 that is a little far from the predicted pocket, as shown in the figure below.

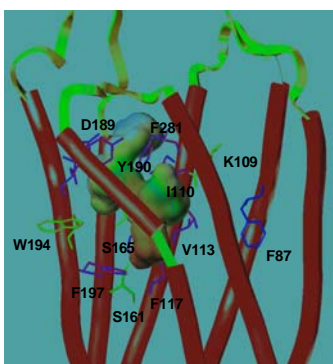


Figure 6. A MOLCAD rendering of CB2 receptor and CB2 agonist molecule shows an amphipathic binding pocket with color-mapped contour and reveals the hydrophilic center (blue) is framed by polar residues, while the hydrophobic cleft (brown) is surrounded by aromatic residues. The mutagenesis binding residues are color-coded in terms of their distance to the pocket. For CB2 agonist, the color ranging from magenta \rightarrow red \rightarrow yellow \rightarrow blue as the interaction weakens.

Such receptor-based studies offer an alternative avenue to understand the receptor-ligand interactions and to assist 3D receptor-based database screening and in-silico design.

Selected Brief Research Highlights

During FY07, a number of important key findings were identified through the research of our faculty.

Center for Education and Drug Abuse Research

- A commonly held belief is that use of legal addictive substances (e.g. alcohol, nicotine) predisposes to using “soft” illegal drugs (e.g. marijuana) that in turn promotes consumption of hard drugs (e.g. opiates). This progression to hard drug use, termed the gateway hypothesis, has been the guiding framework of drug use prevention policy. A CEDAR study demonstrated that this progression is not invariant. Up to 40% of youths, especially those living in poor neighborhoods, begin drug use with illegal compounds. Moreover, the risk for developing a diagnosis of substance use disorder is not different whether initial consumption was a legal or illegal drug. These findings add to emerging results indicating that there is shared or common liability to using different types of addictive drugs. (Tarter)
- Demonstrated risk for early age onset substance use disorder is associated with particular loci in candidate gene systems, especially the glutamate system. (Vanyukov)
- Found that a complex dysfunctional personality type, termed the borderline personality disorder, can be quantified as a unidimensional trait that is predictive of and correlates with severity of addiction in women. (Feske)
- Developed a computer interactive assessment protocol and found that it predicts substance use, depression and academic performance for children as young as eight years of age. (Ridenour).
- Found that all the diagnostic categories for addiction contained in the DSM can be characterized as one common underlying disorder. (Kirisci)
- Demonstrated that neurobehavior disinhibition in childhood predicts drug use, concussion, committing a crime while intoxicated and arrest up to 10-12 years later. (Mezzich)
- Found that an economically depressed neighborhood amplifies testosterone level in 10-12 year old boys that, in turn, predicts assaultive and dominance striving behavior leading to cannabis use and addiction. (Tarter)

Center for Pharmacogenetic Research

- Developed a bivalency-based small molecule inhibitor (RF-C11) of the N-end rule pathway, where type 1 and type 2 N-terminal residues are connected via hydrocarbon linkers. RF-C11 inhibited the pathway *in vitro* and *in vivo* much more effectively than known N-end rule inhibitors. In addition, RF-C11 inhibited cardiac proliferation and hypertrophy in cultured cardiomyocytes, exhibiting a previously unknown function of the pathway. This work establishes the first *in vivo* inhibitor of the pathway and may contribute to design of small molecule inhibitors with multiple ligands in a single molecule. (Yong Tae Kwon lab)
- Characterized UBR3 as a UBR-box E3 family member. UBR3 formed an E2-E3 complex with ubiquitin conjugating enzyme HR6A or HR6B, but did not bind to known destabilizing N-

terminal residues. UBR3-deficient mice were impaired in olfaction, and UBR3 was prominently expressed in sensory cells of five major senses (*smell, touch, vision, hearing and taste*), suggesting its general function in the sensory nervous system. (Yong Tae Kwon lab)

- Showed for the first time that FXR is expressed in pulmonary vasculature including endothelial cells (EC) and smooth muscle cells (SMC). Treatment with FXR-specific ligands (bile acids) led to various types of biological effects including increased expression of vasodilators (e.g. nitric oxide) and decreased expression of vasoconstrictors (e.g., endothelin-1) in EC and up-regulation of angiotensin type 2 receptor and growth inhibition in SMC. This study may shed new insights into a novel role of bile acids/FXR in the pathogenesis of hepatopulmonary syndrome. It also suggests the potential of FXR ligand-based novel therapy for the treatment of pulmonary hypertension. (Song Li lab in collaboration with Wen Xie)
- Developed a new series of cationic polymers that show improved transfection efficiency and significantly decreased toxicity over currently available polymers. Studies are ongoing to evaluate their applications in targeted gene delivery to pulmonary circulation in mouse models. (Song Li lab)
- Found that activation of PXR by genetic or pharmacological means increased plasma concentrations of corticosterone and aldosterone. The increased corticosterone and aldosterone outputs were associated with activation of adrenal steroidogenic enzymes. The PXR-activating transgenic mice also exhibited hypertrophy of the adrenal cortex, loss of glucocorticoid circadian rhythm, and lack of glucocorticoid response to psychogenic stress. It is proposed that PXR is a potential endocrine disrupting factor that may have broad implications in steroid homeostasis and drug-hormone interactions. (Wen Xie lab)
- Found that activation of LXRs prevents bile acid toxicity and cholestasis. Genetic or pharmacological activation of LXR confers a resistance to lithocholic acid toxicity and cholestasis induced bile duct ligation in females. Activation of LXRs also suppresses the expression of the oxysterol 7 α -hydroxylase (CYP7B1), which may lead to increased levels of the LXR-activating oxysterols. It is proposed that LXR has evolved to have a dual function in maintaining cholesterol and bile acid homeostasis by increasing cholesterol catabolism and, at the same time, preventing toxicity from bile acid accumulation. (Wen Xie lab)
- Found that SV40 large T antigen represses intestinal drug metabolizing enzymes, which may have broad implications in the metabolism and biotransformation of both carcinogens and prescription drugs. (Wen Xie lab)

Pharmacodynamic Research Center

- Determined that CYP isoforms are down-regulated after asphyxial arrest, which is mediated in part by the inflammatory cytokine, IL-6 via decreased PXR regulation. The study also demonstrated that the CYP downregulation and increase in IL-6 by asphyxial arrest are attenuated by therapeutic hypothermia after cardiac arrest. These data are the first to demonstrate that therapeutic hypothermia alters the transcriptional regulation of the CYP enzyme system after cardiac arrest. (Poloyac)
- Determined that mild short duration hypothermia impairs the hepatic elimination of midazolam in normal healthy volunteers. The reduction in midazolam metabolism demonstrates the translational significance of our previous animal model studies that employed therapeutic hypothermia. Furthermore, these data demonstrate that hepatic metabolism is significantly altered

in humans during therapeutic hypothermia, thereby, demonstrating that alterations in drug dosing should be considered during temperature reduction. (Poloyac)

- Determined that high endothelin-1 concentrations in the cerebral spinal fluid are significantly related to poor learning and memory outcomes in patients suffering a subarachnoid hemorrhage. These data demonstrate that CSF ET-1 may be a novel biomarker for 12 month outcomes in subarachnoid hemorrhage patients. This study also demonstrated that endothelin-1 concentrations are associated with development of vasospasm in this patient population. (Poloyac)

Center for Pharmacoinformatics and Outcomes Research

- Initiation of acute treatment with aripiprazole was successful in 64% of inpatients with schizophrenia/schizoaffective disorder. Factors associated with treatment success included upward dose titration within three days of admission, concomitant antidepressant treatment, and higher maximum aripiprazole dose. (Coley, Fabian)
- In a large cohort study of psychiatric inpatients treated with aripiprazole, 78% of patients achieved treatment success defined as continuation of therapy at discharge. Those most likely to achieve treatment success were <18 years of age and had at least one dose titration. (Coley, Fabian)
- The strongest predictors of inappropriate acid suppressive therapy in internal medicine inpatients were a diagnosis of cirrhosis, concomitant use of anticoagulants, and prior acid suppressive therapy. Possible explanations include undocumented appropriate indications, physician continuation of home medications without investigating indications, and inappropriate gastrointestinal bleeding prophylaxis. (Coley, Sokos)
- In the CATIE schizophrenia study, the disposition of perphenazine was well described by a mixed effect model using sparse sampling. Smoking status, race, and co-administration of paroxetine strongly influenced the value of estimated oral clearance of perphenazine. This is the first report suggesting that smoking status and race contribute to the inter-individual variability in exposure to perphenazine. (Bies, Coley)
- In a study evaluating diazepam use for sedation in a trauma ICU, diazepam was found to be a safe adjunctive sedative and a goal SAS score of 3-4 was achieved in the majority of patients. No adverse drug events (phlebitis, hypotension, BZD withdrawal) were noted and no patients were re-intubated due to excessive sedation. (Kane-Gill)
- Six months after providing screening, brief intervention and referral to treatment for problem alcohol and drug use to patients within selected emergency room and primary care settings in Pa. over a 70% decreased their alcohol and drug use. (Pringle, Holland and Keyes)

Research Funding

Direct Costs for Research by Funding Category

Source	FY01	FY02	FY03	FY04	FY05	FY06	FY07
PHS	\$4,155,442	\$5,269,880	\$5,905,214	\$6,534,485	\$7,013,478	\$5,338,778	\$6,934,873
Federal-Other	127,733	257,268	376,042	519,572	974,624	1,024,805	846,586
Industry	2,654,632	2,277,596	1,049,399	190,418	359,881	232,777	156,419
Foundation/Association	91,444	86,523	366,780	272,805	313,274	369,428	351,468
Other	41,057	261,494	174,049	811,652	380,527	355,421	222,110
Total	\$7,070,308	\$8,152,761	\$7,871,484	\$8,328,932	\$9,041,784	\$7,321,209	\$8,511.456

FY07 PHS Funding

Investigator	Agency	Grant #	Title	Direct \$	Indirect \$	Total
J. Amico	NIH	R01 HD044898	Anxiety and Stress Responses in Oxytocin Deficient Mice	213,341	94,364	307,705
R. Bies	NIH	P30 MH071944	Advanced Center for Interventions and Services Research for Late-Life Mood Disorders - Operations Core	5,336	2,588	7,924
R. Bies	NIH	P30 MH071944	Advanced Center for Interventions and Services Research for Late-Life Mood Disorders - Research Methods Core	8,004	3,882	11,886
K. Bigos	NIH	F31 MH076420	Pharmacodynamics of IVCitalopram Using Functional MRI	35,820	-	35,820
B. Day	NIH	P01 CA078039	Bioinformation and Cell-Based Assay Core - Core B	31,939	15,491	47,430
B. Day	NIH	P01 CA078039	Combinatorial Approaches for Novel Anticancer Agents: Project 3	2,636	1,278	3,914
B. Day	NIH	P01 CA101944	Integrated NK and DC into Cancer Therapy	5,570	2,701	8,271
B. Day	NIH	R01 CA120792	Chemical Approaches for the Discovery of New Cancer Therapeutic Targets	7,269	3,525	10,794
B. Day	NIH	R21 NS057026	High Throughput/Content Screens for Dynein Inhibitors	47,363	18,315	65,678
B. Day	NIH	P30 CA047904	Core - Basic Genomics and Proteomics Facility	8,010	3,885	11,895
B. Day	NIH	R21 AL068784	A Quantitative Proteomic Study of MyD88 Pathways	3,625	1,758	5,383
U. Feske	NIH	R01 DA020130	Drug Abuse and Risky Sex in Borderline Personality	234,449	99,183	333,632
R. Gibbs	NIH	R01 AG21471	Cholinergic Lesions and Age-Related Cognitive Impairment	219,712	68,523	288,235
R. Gibbs	NIH	R01 HD046700	Novel Rehabilitative Approaches for Recovery from TBI	6,219	3,016	9,235

Investigator	Agency	Grant #	Title	Direct \$	Indirect \$	Total
R. Gibbs	NIH	R01 HD13254	Molecular and Structural Bases of Hypothalamic Puberty	5,790	2,808	8,598
R. Gibbs	NIH	R21 NS46292	New Tool for Targeted Anti-sense Knockdown in Brain	122,972	44,696	167,668
R. Gibbs	NIH	S10 RR022515	LSM510 Confocal Microscope	296,279	-	296,279
R. Gibbs	NIH	U54 HD008610	Physiology and Pathophysiology of the Primate Gonad	6,000	2,910	8,910
B. Gold	NIH	R01 GM068430	Sequence Specific Triple Helix Forming Molecules	223,049	63,975	287,024
B. Gold	NIH	R01 CA029088	DNA Damage: Role in Toxicity and Mutagenicity	219,713	58,727	278,440
L. Kirisci	NIH	K02 DA017822	Quantifying and Tracking Risk for Substance Use Disorder	117,717	9,417	127,134
Y. Kwon	NIH	R01 GM074000	Proteomics of Ubiquitin-Dependent N-End Rule Pathway	188,000	85,771	273,771
Y. Kwon	NIH	R01 GM69482	Function and Mechanism of the N-End Rule Pathway	205,065	83,444	288,509
Y. Kwon	NIH	R01 HL083365	Role of Ubiquitin in Cardiovascular System	250,000	111,355	361,355
S. Li	NIH	R01 HL068688	Pharmacogenetic Therapy of Pulmonary Hypertension	244,125	114,488	358,613
D. Liu	NIH	R01 EB002946	Bifunctional Compounds for Targeted Gene Delivery	186,756	90,357	277,113
D. Liu	NIH	R01 HL075542	New Polymeric Carriers for Pulmonary Gene Delivery	219,713	105,130	324,843
R. McNamee	NIH	K25 DA14568	FMRI Methods Research in Children at Risk for Drug Abuse	85,027	6,563	91,590
S. Poloyac	NIH	R01 CA095239	Fatty Acid Synthase in Prostate Tumorigenesis	16,048	7,783	23,831
S. Poloyac	NIH	R01 NR004339	Role of 20 HETE on Vasospasm Induced Ischemia After SAH	40,460	19,623	60,083
S. Poloyac	NIH	R01 NS052315	The Role of 20 HETE in the Pathogenesis of Stroke	197,340	88,351	285,691
S. Poloyac	NIH	R01 GM07031	Implications of Hypothermia on Hepatic Drug Metabolism	175,000	81,857	256,857
S. Poloyac	NIH	1 S10 RR023461	API 4000 QTRAP	486,817	-	486,817
L. Rohan	NIH	U19 AI065430	CV-N-Secreting Lactobacilli and Retrocyclin Microbicides - Formulation Core B	61,839	24,696	86,535
A. Seybert	NIH	R21 LM009102	Evidence Based Anomaly Detection in Clinical Databases	5,088	2,468	7,556
G. Stoehr	NIH	R01 AG023651	Mild Cognitive Impairment: Prospective Community Study	15,205	7,374	22,579
R. Tarter	NIH	P50 DA005605	Drug Abuse Vulnerability: Mechanisms and Manifestations	1,294,342	463,838	1,758,180

Investigator	Agency	Grant #	Title	Direct \$	Indirect \$	Total
R. Tarter	NIH	R01 AA014952	Molecular Studies of Cognition in Chronic Alcoholism	19,920	9,661	29,581
R. Tarter	NIH	R01 DE014899	Genetic Factors Contributing to Oral Health Disparities in Appalachia	10,317	5,004	15,321
R. Tarter	NIH	R01 NR009878	Adherence and Health Outcomes after Liver Transplantation	21,033	10,201	31,234
M. Vanyukov	NIH	K02 DA018701	Phenogenetics of Liability to Substance Use Disorders	113,561	9,085	122,646
M. Vanyukov	NIH	R01 DA019157	Substance Use Disorder Liability: Candidate Gene Systems	306,967	121,272	428,239
R. Venkataramanan	NIH	U01 AT003566	Phase I/II Trials of Silymarin for Chronic Liver Diseases Data Coordinating Center	3,751	1,819	5,570
R. Venkataramanan	NIH	N01 CM052202	Preclinical Pharmacological Studies of Antitumor and Other Therapeutic Agents	7,268	3,524	10,792
R. Weber	NIH	U18 HS015851	Enhanced Patient Safety Intervention to Optimize Medication Education	26,107	12,662	38,769
W. Xie	NIH	R01 CA107011	Orphan Nuclear Receptor PXR Controlled Bile Acid Detoxification in Colon Cancer	200,183	72,658	272,841
W. Xie	NIH	R01 ES012479	Regulation of the Phase II UDP-glucuronosyltransferases by PXR	195,300	91,484	286,784
W. Xie	NIH	R01 NS037459	Cyclooxygenase 2 and Ischemic Neuronal Injury	17,293	8,387	25,680
W. Xie	NIH	R01 ES014626	Regulation of Sulfotransferases by LXR and Its Implication in Pathophysiology	225,000	90,019	315,019
X. Xie	NIH	U54 MH074411	Pittsburgh Molecular Library Screening Center	20,626	10,004	30,630
X. Xie	NIH	R01 DA015417	A Public Cannabinoid Molecular Information Repository	261,402	112,254	373,656
X. Xie	NIH	R01 DA015770	Advanced Isotope Aided NMR for CB2 Structural Study	14,507	7,036	21,543
Total				\$6,934,873	\$2,359,210	\$9,294,083

FY07 Other Federal Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
J. Amico	Univ Arizona	Longitudinal Effects of Intimate Partner Relationship Quality on Serum Oxytocin Levels in Newly Diagnosed Breast Cancer Patients	22,151	10,743	32,894
J. Amico	Baylor Univ	A Functional MRI Study of Mother Infant Attachment	5,224	418	5,642
R. Bies	UnivWash	Resource Facility for Population Kinetics	23,226	11,265	34,491
A. Calabrese	DOD	Diabetes Prevention and Treatment Programs for Western PA	42,086	13,814	55,900
B. Day	DOD	Proteomics and Bioinformatic Core Facilities TATRC	85,214	30,736	115,950
B. Day	DARPA	A Small Volume Mitochondrial Preservation Cocktail to Delay Development of Irreversibility in Combat Casualties with Hemorrhagic Shock	18,128	8,792	26,920
B. Gold	PA	Keystone Innovation Starter Kit (KISK) Grant	208,335	-	208,335
J. Pringle	George WashUniv	Ensuring Solution	218,182	105,818	324,000
J. Pringle	Allegheny County	Screening Brief Intervention Referral and Treatment Initiative	218,182	105,818	324,000
J. Pringle	Allegheny County	Strategic Prevention Framework State Incentive Grant (SPF-SIG)	122,224	25,276	147,500
M. Sarachine	DOD	Design, Synthesis and Biological Evaluation of Focused Combinatorial Libraries of Antiestrogens	27,777	2,223	30,000
R. Venkataramanan	Magee Womens	Obstetric-Fetal Pharmacology Research Units (OPRU) Network	55,215	26,780	81,995
Total			\$846,586	\$244,995	\$1,091,581

FY07 Industry Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
K. Coley	Bristol-Myers Squibb	Predictors of Successful Aripiprazole Treatment in Psychiatric Patients	103,502	25,875	129,377
B. Potoski	Pfizer	Intravenous Voriconazole in Patients with Renal Compromise	12,917	2,583	15,500
J. Pringle	Astra-Zeneca	Wrap Around Service Impact Study	40,000	10,000	50,000
Total			\$156,419	\$38,458	\$194,877

FY07 Foundation and Association Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
B. Day	ACS	Nitric Oxide & Methyl-Nitroso-Urea Evoked Bladder Cancer	6,037	1,207	7,244
B. Day	ACS	Regulation of Protein Phosphatase 2A by the Tor Signalin Yeast	6,128	1,226	7,354
U. Feske	BPDRF	Sub-Types in BPD Cognitive Variables That Predict Aggression	35,327	-	35,327
Y. Kwon	AHA	N-terminal Oxidation-Dependent Ubiquitin Pathway	59,200	5,800	65,000
S. Li	AHA	Expressing Minigenes to Pulmonary Endothelium	54,709	5,291	60,000
J. Pringle	Candle	Evaluation of the Reality Tour Drug Prevention and Awareness Program	12,820	2,180	15,000
C. Scelsi	ACCP	Medication Used at the End of Life	35,210	-	35,210
F. Vitale	ASHP	National Pharmacists' Partnership on Smoking Cessation	97,037	-	97,037
W. Xie	KOMEN	Orphan Nuclear Receptor PXR in Estrogen Deprivation and Breast Cancer	45,000	-	45,000
Total			\$351,468	\$15,704	\$367,172

FY07 Other Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
B. Day	IPA	Application of Metabolomics in Psychosis and Therapeutic Monitoring	6,300	0	6,300
S. Kane-Gill	SCCM	An Analysis of Risk Factors for Adverse Drug Events in Critically Ill Patients	27,273	2,727	30,000
J. Pringle	IRETA	Cooperative Agreements for Addiction Technology Center	46,297	3,704	50,001
J. Pringle	IRETA	2006 Scaife Advanced Medical Fellowship in Alcohol and Other Drug Dependency	16,538	2,987	19,525
J. Pringle	IRETA	Addiction Technology Transfer Center	10,000	2,000	12,000
F. Vitale	UCSF	National Pharmacists' Partnership for Tobacco Cessation	115,702	10,413	126,115
Total			\$222,110	\$21,831	\$243,941

Department Seminars

The Department of Pharmaceutical Sciences hosts a seminar series in which nationally recognized researchers are invited to present topics of general interest to the faculty and students of the department. The purpose of the seminar program is to enhance both the research and teaching missions of the School in all of its focus areas, by presenting cutting-edge research that will promote knowledge, stimulate ideas and encourage collaborations.

Department of Pharmaceutical Sciences FY07 Seminar Series		
September 18	Bruce Hammock, PhD Professor of Entomology University of California, Davis	Development of Inhibitors of the Soluble Epoxide Hydroxylase as Replacements or Synergists for Nonsteroidal Anti-Inflammatory Drugs
September 26	Vinod Labhasetwar, PhD Associate Professor of Pharmaceutics, Biochemistry and Molecular Biology Department of Pharmaceutical Sciences Nebraska Medical Center	Intracellular Trafficking and Molecular Mechanisms of Nanoparticle-Mediated Drug/Gene Delivery
October 10	Peijun Zhang, PhD Assistant Professor Department of Structural Biology University of Pittsburgh	3D Electron Microscopy of Macromolecular Assemblies
November 21	John Chiang, PhD Professor, Biochemistry and Molecular Pathology Northeastern Ohio Universities College of Medicine (sponsored by the Center for Pharmacogenetics)	Bile Acid Regulation of Lipid and Drug Metabolism
November 28	Andrey Zozulya, MD, PhD National Research Center for Mental Health Russian Academy of Medical Sciences, Moscow	Synthetic Pharmacotherapeutic Analogs of Regulatory Peptides
December 5	Stephen Benkovic, PhD Evan Pugh Professor and Eberly Chair in Chemistry Penn State University (co-sponsored with the Department of Chemistry)	On DNA Replication
December 12	Curtis Klaassen, PhD University Distinguished Professor and Chair Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center	Regulation of Xenobiotic Transporters
January 23	Richard Wood, PhD Richard M. Cyert Chair & Professor of Molecular Oncology Professor of Pharmacology Molecular & Cellular Oncology Program University of Pittsburgh Cancer Institute	DNA Damage Tolerance, Genome Instability, and Cancer
January 30	Sarah Hamm-Alvarez, PhD Davin S. Herbert Professor & Chair Department of Pharmaceutical Sciences University of Southern California School of Pharmacy	A Novel Fiber-Dependent Internalization Pathway for AD5 in Secretory Epithelial Cells
February 13	Guo-qiang Bi, PhD Associate Professor Department of Neurobiology University of Pittsburgh School of Medicine	Reverberatory Activity in Neuronal Circuits: Dynamics, Plasticity and Modulation
February 20	David Collins, PhD Director, Pharmaceutical Sciences Research and Development Eli Lilly and Company	Pharmaceutical Science at the Discovery-Development Interface

Department of Pharmaceutical Sciences FY07 Seminar Series		
April 3	Lawrence Marnett, PhD Director of the Vanderbilt Institute of Chemical Biology Mary Geddes Stahlman Professor of Cancer Research Professor of Biochemistry and Professor of Chemistry Vanderbilt University School of Medicine	Mining the Active Site of Cyclooxygenase II for New Substrates, Inhibitors and Imaging Agents
April 10	Norman Farnsworth, PhD Research Professor Department of Chemistry and Pharmacognosy University of Illinois at Chicago	Challenges and Rewards from Botanical Dietary Supplements Research in An Academic Setting

Faculty Recruitment and Changes

New Faculty

Name	Current Rank	Department	Prior Institution/Rank
Jan Beumer	Research Assistant Professor	Pharmaceutical Sciences	University of Pittsburgh Cancer Institute/Post Doctoral Associate
Kerry Empey*	Assistant Professor <i>Start date 8/1/07</i>	Pharmacy and Therapeutics	University of Kentucky Graduate Student
Xiang Gao	Research Assistant Professor	Pharmaceutical Sciences	Private Industry
Stanton Jonas	Senior Lecturer	Pharmaceutical Sciences	Allegheny County Public Health Department
Jiang Li	Research Assistant Professor	Pharmaceutical Sciences	Former Postdoctoral fellow
Yong Li	Assistant Professor	Pharmaceutical Sciences	Van Andel Research Institute, Grand Rapids/Research Scientist
Sripal Mada	Research Assistant Professor	Pharmaceutical Sciences	Former Research Associate
James Pschirer	Assistant Professor	Pharmacy and Therapeutics	UPMC PUH SHY, Director, Pharmacy Operations
Karen Pater*	Assistant Professor <i>Start date 8/1/07</i>	Pharmacy and Therapeutics	University of Illinois Chicago, Assistant Professor
Ty Ridenour	Research Associate Professor	Pharmaceutical Sciences	Penn State Prevention Research Center/Research Associate Professor
Rafael Saenz	Instructor	Pharmacy and Therapeutics	UPMC PUH SHY, Mgr., Pharmacy Operations
Xiang-Qun Xie	Professor	Pharmaceutical Sciences	University of Houston/ Associate Professor
Yuxun Zhang	Research Assistant Professor	Pharmaceutical Sciences	University of Houston

*Recruited in FY07

Promotions

Name	Previous Rank	New Rank	Department
Billy Day	Associate Professor	Professor	Pharmaceutical Sciences
Wen Xie	Assistant Professor	Associate Professor/Tenure	Pharmaceutical Sciences
Michael Vanyukov	Associate Professor	Associate Professor/Tenure	Pharmaceutical Sciences

Departing Faculty

Name	Previous Rank	Department	Position Accepted
Ryan Bookout	Assistant Professor	Pharmacy and Therapeutics	Clinical Pharmacist, H.Lee Moffitt Cancer Center, Tampa, Fla.
Teresa Donegan	Assistant Professor	Pharmacy and Therapeutics	
Karen Laughlin	Assistant Professor	Pharmacy and Therapeutics	Medical Info Liaison, Mylan Labs, Morgantown, W.Va.
Rhonda Rea	Assistant Professor	Pharmacy and Therapeutics	Sanofi Aventi
Rowena Schwartz	Associate Professor	Pharmacy and Therapeutics	Johns Hopkins University Hospital

NIH/NCI Study Section Participation

Billy W. Day, PhD

2003, 2007, Drug Discovery and Molecular Pharmacology (DMP) Study Section, Center for Scientific Review, National Institutes of Health, ad hoc

Li, Song, MD, PhD

NIH Special Emphasis Panel ZRG1 GGG-S (52) on applications on Therapeutics Delivery for Neurodegenerative Diseases (RFA-EY-07-001) (March 12, 2007)

Liu, Dexi, PhD

Member, ZRG1 GGG-A 52S Special Study Section (NIH), 1/29/07
Member, PO1 Grant (NIH GM), 10/07/06

Robert B. Gibbs, PhD

NIH Study Section NDBG (formerly MDCN-2)

Samuel M. Poloyac, PharmD, PhD

S10 Shared Instrumentation Grant Study Section. Asynchronous Electronic Discussion, NIH, July 18-19, 2007. Primary Reviewer

Lisa C. Rohan, PhD

Special Emphasis Panel for the review of "Pharmaceutical and Chemical Resources for AIDS Drug Development" Contracts for the National Institute of Allergy and Infectious Disease. Oct. 2-3, 2006

Michael M. Vanyukov, PhD

Member (2005-2009 Chartered Member), Behavioral Genetics and Epidemiology Study Section (BGES), Center for Scientific Review, NIH

National Institute on Drug Abuse Special Emphasis Panel “Developmental Centers For Translational Research on the Clinical Neurobiology of Drug Addiction”, 2006/10 ZDA1 MXS-M (06) (1)

National Institute on Drug Abuse Centers Review Committee, 2006/10 ZDA1 RXL-E (01)

National Institute on Drug Abuse Centers Review Committee, 2007/01 ZDA1 RXL-E (10) (P)

NIDA Treatment Research Subcommittee, 2007/05 NIDA-E (2)

Wen Xie, MD, PhD

NIH Cancer Etiology (CE) Study Section, Center for Scientific Review, Ad hoc Reviewer, 2, 6-2007

Xiang-Qun (Sean) Xie, PhD

NIH Biomedical Library and Informatics Review Committee, National Library of Medicine, 2007

NIH Center for Scientific Review, Biochemical Science Study Section, ZRG1 F04B

Bibliography of Peer-Reviewed Publications

DEPARTMENT OF PHARMACEUTICAL SCIENCES

Published Papers

Beumer JH, Natale JJ, Lagattuta TF, Raptis A, Egorin MJ. Disposition of Imatinib and Its Metabolite CGP74588 in a Patient with Chronic Myelogenous Leukemia and Short Bowel Syndrome. Pharmacotherapy 2006; 26(7):903-907.

Parise RA, Holleran JL, Beumer JH, Ramalingam S, Egorin MJ. A liquid chromatography-electrospray ionization tandem mass spectrometric assay for quantitation of the histone deacetylase inhibitor, vorinostat (suberoylanilide hydroxamic acid, SAHA), and its metabolites in human serum. Journal of Chromatography. B, Analytical Technologies in the Biomedical and Life Sciences 2006; 840(2):108-115.

Beumer JH, Joseph E, Egorin MJ, Covey JM, Eiseman JL. A mass balance and disposition study of the DNA-methyltransferase inhibitor zebularine (NSC 309132) and three of its metabolites in mice. Clinical Cancer Research 2006; 12(19):5826-5833.

Beumer JH, Buckle T, Ouwehand M, Franke NE, Lopez-Lazaro L, Schellens JHM, Beijnen JH, Van Tellingen O. Trabectedin (ET-743, Yondelis®) is a substrate for P-glycoprotein, but only high expression of P-glycoprotein confers the multidrug resistance phenotype. Investigational New Drugs 2007; 25(1):1-7.

Beumer JH, Eiseman JL, Parise RA, Joseph E, Holleran JL, Covey JM, Egorin MJ. Pharmacokinetics, metabolism, and oral bioavailability of the DNA methyltransferase inhibitor, 5-fluoro-2'-deoxycytidine (FdCyd), in mice. Clinical Cancer Research 2006; 12(24):7483-7491.

Beumer JH, Rademaker-Lakhai JM, Rosing H, Hillebrand MJX, Bosch TM, Lopez-Lazaro L, Schellens JHM, Beijnen JH. Metabolism of trabectedin (ET-743, Yondelis™) in patients with advanced cancer. Cancer Chemotherapy and Pharmacology 2007; 59(6):825-837.

Parise RA, Egorin MJ, Eiseman JL, Joseph E, Covey JM, Vishnuvajjala BR, *Beumer JH*. Quantitative determination of the cytidine deaminase inhibitor tetrahydrouridine (THU) in mouse plasma by liquid chromatography-electrospray ionization tandem mass spectrometry. *Rapid communications in Mass Spectrometry* 2007; 21:1991-1997.

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Bies RR, Muldoon MF, Pollock BG, Manuck S, Smith G, Sale ME. A genetic algorithm based, hybrid machine learning approach to model building. *J Pharmacokinetic Pharmacodyn* 2006; 33(2):195-221. Epub 2006 Mar 28.

Feng Y, Pollock BG, Farrell R, Kimak M, Reynolds CF, *Bies RR*. Paroxetine: Population pharmacokinetic analysis in late-life depression using sparse concentration sampling. *Br J Clin Pharmacol* 2006; 61(5):558-569.

Zhang Y, *Bies R*, Kochanek P, Graham S, *Poloyac SM (Corresponding Author)*. Protective Effect of the 20-HETE Inhibitor HET0016 on Brain Damage after Temporary Focal Ischemia. *J Cereb Blood Flow Metab* 2006; 26(2):1551-1561. Epub 2006 Mar 29.

Akhavan A, McHugh KH, Guruli G, *Bies RR*, Zamboni W, Strychor S, Nelson, JB, Pflug BR. Endothelin receptor A blockade enhances taxane effects in prostate cancer. *Neoplasia* 2006; 8(9):725-732.

Chew ML, Mulsant BH, Pollock BG, Lehman ME, Greenspan A, Kirshner MA, *Bies RR*, Kapur S, Gharabawi G. A model of anticholinergic activity of atypical antipsychotic medications. *Schizophrenia Res* 2006; 88(1-3):63-72. Epub 2006 Aug 22.

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Educating the Next Generation of Practitioners and Scientists



Educating the Next Generation of Practitioners and Scientists

The School builds on its rich tradition of excellence in education, continuing to fulfill its mission of dedication to teaching to ultimately enhance the health and well-being of people's lives. The School prepares pharmacists of the future through the PharmD program and advanced practice residencies and prepares future scientists through the graduate program. As part of a strategic planning session in 2005, the faculty and staff set a new strategic objective that was finalized during 2006:

By 2011, the School of Pharmacy will have:

- **Become a national leader in pharmacy education.**

This strategic outcome became the overall objective for the PharmD, residency, and PhD programs for the School of Pharmacy, replacing individual statements for each of the educational programs.

PharmD Program

The strategic plan details elements that contribute to a position of national leadership in pharmacy education. The accomplishments described in this document are a direct result of the commitment of the faculty and the oversight of the PharmD Council, which was established in 2003. This integrating forum of faculty, staff, and students has the accountability for achieving strategic outcomes, establishing milestones, and aggregating data for quality measures for the PharmD program. Fourteen committees/activities of the PharmD program are represented on the Council.

Indicators of quality include:

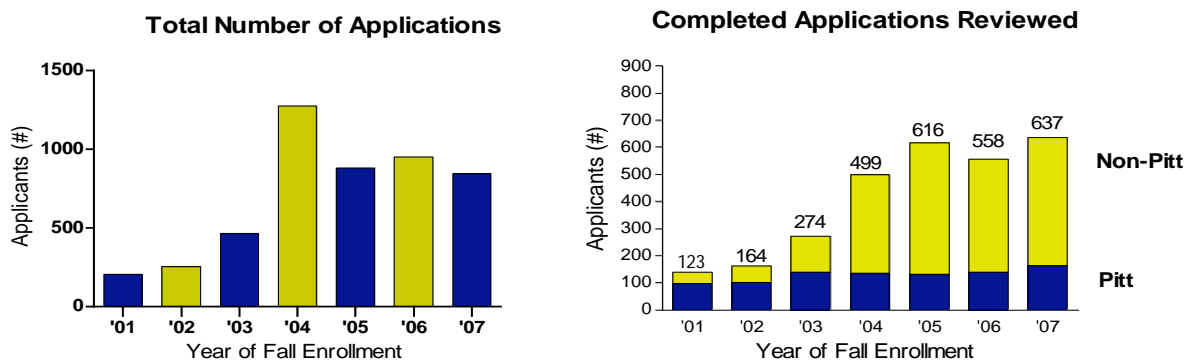
- Achievements of student organizations and individual students
- Applicant qualifications
- Scholarships awarded
- Curricular changes and innovations
- Faculty achievements and awards

Students

Applicants

Admission to the School of Pharmacy was highly competitive for the 108 positions in the Class of 2011.

- Materials were received from 843 applicants, 637 of whom completed the entire application process.
- Forty-two (42) students who had been offered conditional acceptance when admitted to the University of Pittsburgh as freshmen met the requisite criteria for admission to the pharmacy program.
- There were nine applications for every one of the 66 open enrollment slots in the class.
- Competitive applicants had an overall GPA of 3.0 or greater and a science GPA of 3.0 or greater.



Applications* for Fall Enrollment 2001–07

	Applications Received			Applications Reviewed			Average GPA	Average Math/Science GPA
	Men (%)	Women (%)	Total	Pitt	Non-Pitt	Total		
Fall 2001	33	67	204	97	44	141	3.40	3.21
Fall 2002	35	65	252	103	61	164	3.50	3.42
Fall 2003	28	72	466	140	134	274	3.37	3.23
Fall 2004	38	62	1272	134	1138	499	3.16	3.01
Fall 2005	33	67	881	131	485	616	3.33	3.17**
Fall 2006	38	62	951	140	418	558	3.34	3.21**
Fall 2007	37***	59***	843	163	474	637	3.34	3.19**

* Unless otherwise indicated, data reflect the reviewed applicants that completed the application process.

** Average Science GPA

***Some applicants declined to provide gender information

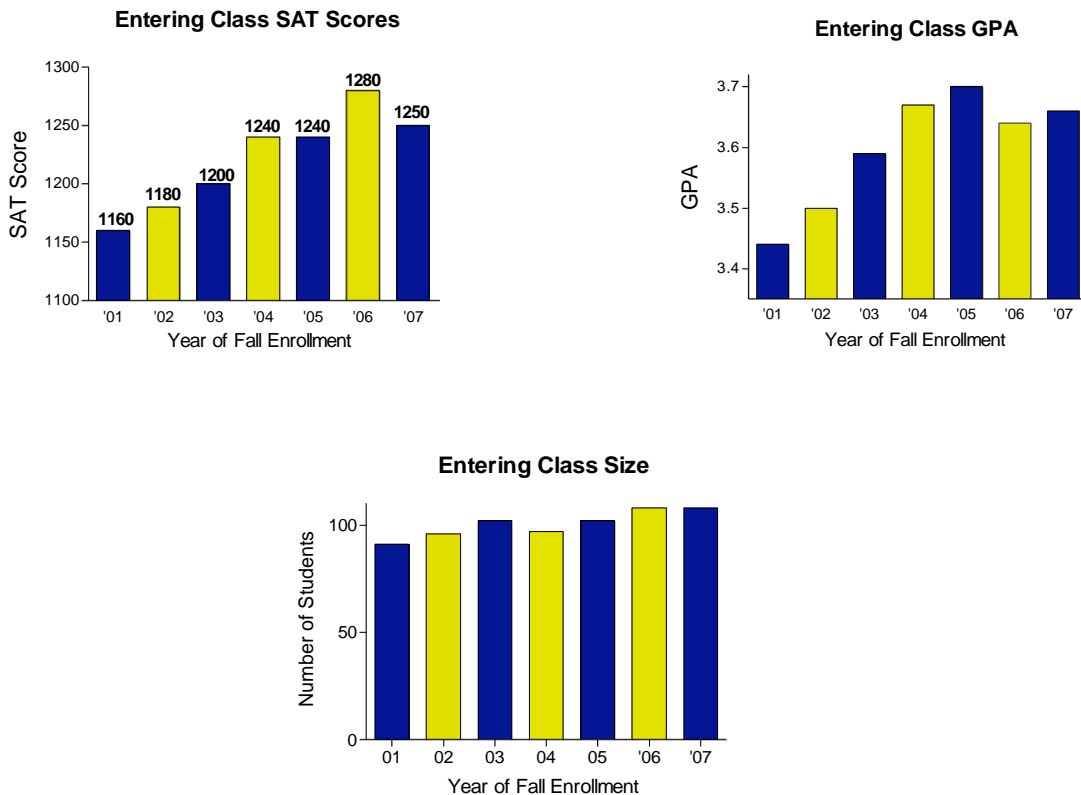
Interview Process

Recent changes in accreditation standards and guidelines require standardized interviews of applicants for admission to the PharmD program. Interviews of applicants for the Class of 2011 were initiated in January 2007. The interview process was standardized by conducting closed file interviews, holding training sessions for interviewers, and employing specific question sets and scoring rubrics to evaluate a number of behavioral dimensions and communication skills. Applicants were selected for interviews based on a review of applications by an interview screening committee. On the day of an interview, groups of applicants met with current PharmD students for 45 minutes for an overview of the program from the students' perspective. This informational meeting was followed by 30-minute interviews of individual applicants. Interviews were conducted by pairs of faculty members or by a faculty member paired with an alumnus of the School or a staff member from the office of student services. Seventy faculty members, four alumni, and four staff members interviewed 150 applicants competing for 66 open-admission spaces in the class; 42 were admitted through the conditional acceptance program.

Enrolled Students

The 108 students selected in 2006–07 to begin the pharmacy program in fall 2007 (the Class of 2011) are academically strong and represent the largest entering class in recent history.

Women continue to constitute the majority of the students in the class. Over the past seven years, women have constituted anywhere from 61 percent to 72 percent of the entering class, with women accounting for 61 percent of the Class of 2011. When making decisions for open admission, the admissions committee considers evidence of sound scholarship, community involvement, leadership skills and communication skills. The graphs below demonstrate data regarding the academic qualifications of students and class sizes since '01.



Efforts to increase racial and ethnic diversity continue to have an impact as evidenced by an increase in the number of minority students enrolling. Under-represented minorities (African American, Hispanic, and Native American) submitted 11 percent of the applications for fall 2007 and account for 5 percent of the Class of 2011.

It is notable that 15 percent of the Class of 2011 holds a four-year degree prior to matriculating in the School of Pharmacy.

**First-Year Class Enrollments
2001-07**

Fall Term	Residency		Application Pathway					Students with 4-Year Degree (% of class)
			Conditional Acceptance	Educational Institution or Type for Students Accepted through Open Admission				
	PA (%)	Non-PA (%)		Pitt	Community College	AAU-member institution	Other	
2002	92	8	37	37	5	5	12	16
2003	86	14	36	38	3	7	18	13
2004	85	15	52	28	0	4	13	15
2005	92	8	60	28	0	8	6	13
2006	87	13	50	44	1	3	10	11
2007	88	12	42	53	0	4	9	15

Graduates

Professional Performance. School of Pharmacy graduates consistently exceed the state and national pass rates on the North American Pharmacist Licensure Examination™ (NAPLEX®) and Multistate Pharmacy Jurisprudence Examination® (MPJE®) examinations.

North American Pharmacist Licensure Examination™ (NAPLEX®) Results

Year	Pitt Candidates Pass/Total	Pitt Pass Rate (%)	State Pass Rate (%)	National Pass Rate (%)
2007 [†]	22/23	95.7	87.5	84.1
2006	90/95	94.7	87.3	93.6
2005	79/80	98.8	85.3*	91.3
2004	81/86	94.2	95.6*	95.0
2003	20/22	90.9	89.2	88.2
2002	81/84	96.4	96.5	95.5

*Based on best information available

[†]Jan–April 2007 scores

Multistate Pharmacy Jurisprudence Examination® (MPJE®) Results

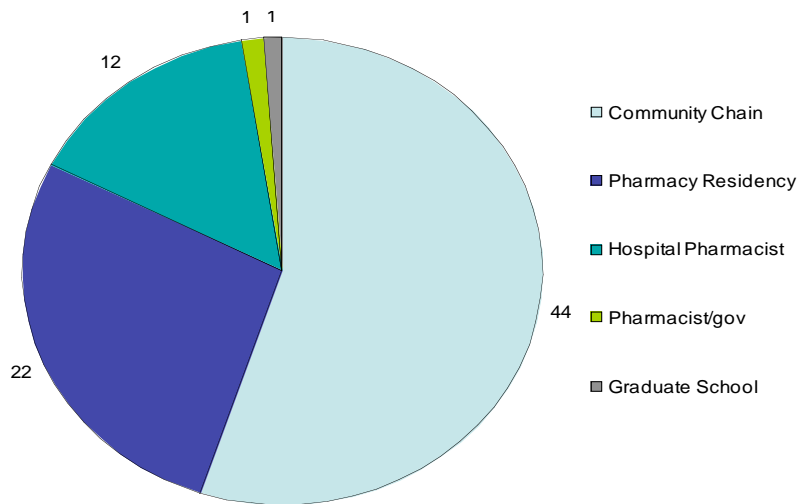
Year	Pitt Candidates Pass/Total	Pitt Pass Rate (%)	State Pass Rate** (%)	National Pass Rate** (%)
2007	72/74*	97.3	87.9	91.4
2006	96/104	92.3	84.5	89.4
2005	166/183	90.7	87.5	88.6
2004	157/165	95.0	86.0	87.5
2003	143/147	97.3	93.2	92.1
2002	110/113	97.3	93.2	92.1

* Includes all School graduates taking the MPJE in any state as a first-time candidate for that state.

** For all first-time candidates.

Post-Graduation Employment and Education Plans for the Class of 2007. At the time of graduation, each member of the Class of 2007 had found employment in one of the many varied pharmacy practice environments or sought post-graduate education and training in the form of a residency or graduate degree. Just over 80 percent of the graduates responding to a graduation survey indicated that they intended to remain in Pennsylvania immediately following graduation. The numbers next to the graph below represent the actual number of graduates pursuing the identified career track. Of particular note is the significantly increased number of students pursuing residency training: 28 percent in 2007, up from 15 percent in 2006.

**Post-Graduate Employment and Educational Plans
Class of 2007**



Student Organizations

Academy of Student Pharmacists (ASP)

The American Pharmacists Association Academy of Student Pharmacists (APhA-ASP) is the student governance organization for the School of Pharmacy. Over 90 percent of the School's PharmD students are members of our ASP Chapter, making it the largest student organization at the School. During FY07, the ASP Chapter reviewed and revised its organizational structure, with the primary goal of permitting ASP to function efficiently and effectively and provide meaningful experiences for the leaders and members. The students have put in place a structure that allows ASP to serve as an "umbrella organization" for all pharmacy student organizations and that enhances communication and coordination of the professional activities and of social events sponsored by the various organizations.

The School of Pharmacy's student organizations provide opportunities for students to:

- Learn about the breadth of opportunities the profession of pharmacy offers
- Participate in a community of learners
- Develop personal leadership skills
- Contribute to the campus and Pittsburgh communities
- Serve others through volunteer activities

Each of the School's various PharmD student organizations was involved in the conduct of professional community service or patient care projects. Examples of such projects during the FY07 academic year include:

- Dissemination of diabetes, hypertension, and heartburn awareness and prevention information at the Latino Population Health Information Day
- Participation in nationally and locally organized Autism Awareness Day, Lupis Brunch, and Leukemia Walk
- Organization of an all-day event directed at the provision of information on HPV and HPV prevention to the University of Pittsburgh female student body
- Dissemination of diabetes and flu awareness and prevention information at local community pharmacies

PharmD social activities in FY07 that were sponsored or co-sponsored by ASP and other student organizations included:

- Back-to-School Picnic
- Career Expo
- Pharmacy Week (including the No Talent Show, Pharmacy Student Auction, and Tucci Lecture);
- School of Pharmacy Formal
- End-of-Year Party

In addition, members of the ASP gained insight into the political process by traveling to Harrisburg to interact with state congressional representatives on legislative issues related to pharmacy practice. Representatives of our student organizations also participated successfully in various professionally oriented competitions sponsored by their parent national organizations (see below).

Other Student Organizations

Organization	Membership and/or Purpose
Dean's Advisory Board	Consists of elected officers from each class and president and president-elect of the ASP Chapter and meets with the dean once each month to discuss issues of student importance.
Student Chapter of the Pennsylvania Society of Health-System Pharmacists (PSHP)	Serves to introduce pharmacy students to opportunities within a variety of health-system settings.
Phi Lambda Sigma	An honorary leadership society that recognizes and fosters the development of leadership skills in its members..
The Rho Chi Society, Alpha Omicron Chapter	The honor society for pharmacy that recognizes students for their academic accomplishments.
RxPrep	Founded and organized to assist pre-pharmacy students as well as undecided students (freshmen and sophomores on the Oakland campus) learn more about the pharmacy profession and the PharmD curriculum.

Organization	Membership and/or Purpose
Academy of Managed Care Pharmacy	Provides students with information about career opportunities in managed care pharmacy.
Student National Pharmaceutical Association	An educational service association of students who are concerned about pharmacy and health care issues, the welfare of the nation's underserved populations, and minority representation in pharmacy and other health-related professions.
Lambda Kappa Sigma	Professional pharmacy sorority (females only) whose members engage in a variety of volunteer community service activities.
Phi Delta Chi	Professional pharmacy fraternity (males only) whose members engage in a variety of volunteer community service activities.
Kappa Psi	Professional pharmacy co-ed fraternity whose members engage in a variety of volunteer community service activities.

Recognitions and Awards

Students Receiving Special National Recognitions and Awards

Students	Organization	Award/Recognition
Alpha Omicron Chapter of Rho Chi Society	Rho Chi (pharmacy honor society)	Received recognition from national organization for chapter activities and achievements.
Beta Kappa Chapter	Kappa Psi Pharmaceutical Fraternity	Province II Chapter of the Year; Frank H. Eby Scholarship Tray Award; Ranked 2 nd internationally.
Melissa Mihalko	Lambda Kappa Sigma	Received Cora E. Craven Scholarship.
Dana Behlke	Lambda Kappa Sigma	Received Cora E. Craven Scholarship.
Kamile Whitters	Association of Black Health-System Pharmacists (ABHP)	ABHP Student Achievement Award.
Matthew Sapko (P2)	Paul Ambrose Scholar	Selected by the Association for Prevention Teaching and Research to participate in the Paul Ambrose Scholars Program.
Nickolas Kernich (P3)	National Community Pharmacists Association (NCPA) Outstanding Student Member	Recognition of work to advance independent community pharmacy practice.
Dana Roman (P1)	Circle K International Diamond Level Service Achievement Award	Recognized by the national organization for community service activities.

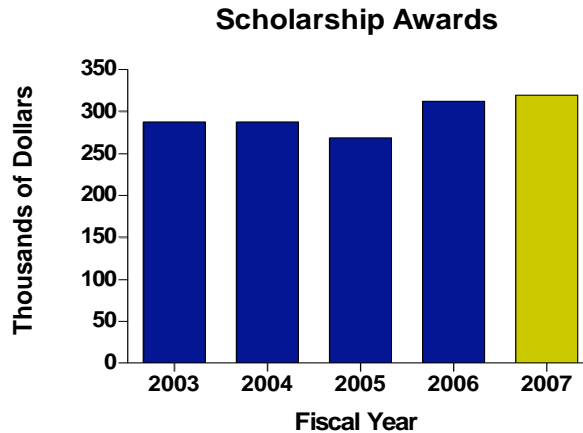
Student Awards at Graduation

Award Title	Student Awardee
The Lilly Achievement Award	Nancy Keefer
TEVA Pharmaceuticals Award	Justin Lutz
GlaxoSmithKline Patient Care Award	Justin Scholl
The Roche Award for Communication	Lauren Hynicka
The Robert W. Taylor Memorial Award	Pamela Havrilla
The Merck Award	Emily Dornblaser, Nicole Cerrusi, Louis Portas, Jr.
The Academy of Students of Pharmacy Certificate of Recognition	Nicole Cerrusi
The John Herman Wurdack Award	Matthew Miller
The Mylan Excellence in Pharmacy Award	Stacey Lavsa
McNeil/APhA-ASP Mortar and Pestle Professionalism Award	Sheen Varghese
Facts and Comparisons Award of Excellence in Clinical Communication	Sarah Battistone
Natural Medicines Comprehensive Database Recognition Award	Adrienne Meck (Barnes)
Perrigo Award of Excellence in Non- prescription Medication Studies	Emily Lundstrom
U.S. Public Health Service-Excellence in Public Health Pharmacy Practice Award	Robert Reynolds

Scholarship Awards

The School of Pharmacy awarded a total of \$310,950 in scholarships to 146 students. The breakdown by class is shown below:

- P4–Class of 2007 = \$96,850 awarded to 47 students
- P3–Class of 2008 = \$87,500 awarded to 41 students
- P2–Class of 2009 = \$92,400 awarded to 37 students
- P1–Class of 2010 = \$34,200 awarded to 21 students



Dr. Gordon J. Vanscoy White Coat Ceremony

The School of Pharmacy sponsored the Dr. Gordon J. Vanscoy Fifth Annual White Coat Ceremony in January 2007. The ceremony marks the entry of first-year pharmacy students into a profession committed to serving humanity. During this year's ceremony, 108 students were individually garbed in a white clinician's coat, the symbol of clinical service and care. The students recited the pledge of professionalism, declaring their commitment to integrity, ethical behavior, and honor before faculty, family members, and friends. More than 500 individuals attended the event.

Toward Leadership in Education

The PharmD program prepares graduates to identify, resolve, and prevent medication-related problems through:

- Patient assessment
- Pharmaceutical care plan development
- Medication therapy management
- Patient monitoring and pharmacodynamic decision making
- Safe medication preparation and distribution
- Systems management
- Health promotion

The curriculum integrates science with practice, reflecting the cooperative spirit of the faculty, its dedication to the profession, and its commitment to educating students to become practitioners who make a difference. Experiential education begins with the first term and continues throughout the curriculum, culminating with a full year of required and elective clinical rotations.

Enhancing Curriculum Content and Process

With leadership from Dr. Denise Howrie as chair, the Curriculum Committee recommended process changes for enhancing and managing the curriculum. Working groups were formed to re-define and assure progressive development in targeted content areas by mapping related course objectives, content, and teaching and assessment strategies to curricular outcomes. Example results of this effort include:

- **Public Health.** The faculty approved revisions to the public health outcome, adding emphasis on developing and participating in wellness and disease prevention initiatives and promoting disease prevention and management across a continuum of care. This and other actions by the working group on public health were presented at the July 2007 AACP Annual Meeting as a poster presentation, "Public Health: Outcome Definition, Gap Analysis, and New Initiatives," by Drs. Meyer, Donegan, Yaramus, Coley, Kane-Gill, Connor, Stoehr, and Howrie.
- **Management;** Drs. Vanscoy, Mark, and Saenz completed an evaluation of the management curriculum and developed plans for new elective courses and a curricular track in management. Implementation of the track is anticipated in fall 2008.

New processes aimed at enhanced curriculum oversight were developed and improved, including:

- A process for systematic course review by the Curriculum Committee, with prioritization to new courses and those undergoing significant revisions in content, methods, and/or faculty;
- Delineation of course coordinator responsibilities;
- Improved projections of teaching resource needs;

- Identification of faculty to serve as professional year coordinators to enhance communication among course coordinators within each year of the curriculum and to better manage the implementation of teaching, learning, and assessment initiatives within and across program years;
- Enhanced processes for review and approval of elective courses.

During FY07, the faculty planned and executed new required and elective courses while continuing to refine and enhance existing courses by incorporating new content, teaching methods, and assessment strategies to optimize student learning. Courses undergoing substantive changes included:

- *Advanced Pharmaceutical Care 1*: The use of problem-based learning (PBL) was expanded with the addition of cases in infectious diseases, diabetes, emergency preparedness, and HIV.
- *Biochemistry 1 & 2*: New faculty planned this two-course sequence, selected a new textbook and study guides, and added clinical correlates of science to the content of the course.
- *Profession of Pharmacy 2*:
 - Emphasis on culturally responsive care was enhanced with the addition of:
 - the cross-culture simulation exercise *BaFa' BaFa'*,
 - guest speakers on the use of interpreters in health care, and
 - trigger videos from *Worlds Apart* to stimulate discussion on how patient and care-giver cultures influence interpersonal communication and health care decision making.
 - To incorporate principles of disease prevention and behavioral change appropriate for individuals within a community, students became their own first patients.
 - A laboratory and two practica sessions were added in which each student gathered personal data; established a personal health record; explored personal readiness to change; and outlined a health-impacting behavior change goal
- *Experiential Learning 5 and 6*: Students were assigned to new acute and ambulatory patient care sites, managed care, compounding, and other unique sites for 6-week rotations in addition to 6-week institutional practice experiences. These experiences permitted students to develop new skills in patient care and introduced them to an expanded array of career options. This innovation was recognized by students who awarded Dr. Denise Howrie the Rho Chi Award for Teaching Innovation. Additionally, the student portfolio process was re-designed to incorporate the mastery scale and activity log being implemented across the experiential learning program.
- *Profession of Pharmacy 5*: Faculty developed a capstone experience in which each student group was assigned a patient case and instructed to formulate a recommendation supported by a published study with patient-oriented outcomes. The recommendation and supporting literature were then presented in a role-play situation, where the instructors acted as physicians and the students acted as the pharmacist delivering the recommendation.
- *Endocrinology*: Selected instructional materials from DM Educate® were incorporated and an increased emphasis was placed on women's health issues.
- *Profession of Pharmacy 6*: The faculty working group on epidemiology/public health analyzed the course and made changes. They assigned student groups current topics (such as the association of thimerisol-containing vaccines and autism) and asked them to describe related epidemiologic research and its impact on the problem.

- *Advanced Pharmaceutical Care 2*: This course integrates didactic lectures with problem-based learning sessions that build upon student experiences in *Advanced Pharmaceutical Care 1*, and uses computer-assisted learning modules developed specifically for this course in collaboration with the Center for Instructional Development and Distance Education. Focusing on patient scenarios in surgical care, medical intensive care, and nephrology, the course uses a capstone case experience.
- *Neurology-Psychiatry*: Dr. Christine Ruby-Scelsi served as a new course co-coordinator with Dr. David Edwards. Significant changes included expanded coverage of the pharmacology of muscle relaxants and anesthetics, and an enhanced emphasis on substance abuse. Guest speakers included the executive director of a pharmacist recovery assistance program and recovering pharmacists.
- *New elective courses*: Faculty developed and presented new professional elective courses for the P3 class including *Principles and Techniques for Teaching*, *Pediatric Pharmacotherapy*, *Smoking Cessation*, and *Immunizations*. Additionally, four new elective courses have been approved by the curriculum committee and will be offered for the first time in the spring 2008 and fall 2008 terms.
- *Interprofessional Team-based Care Experiential Learning Rotation*: Drs. Susan Meyer and Denise Howrie collaborated with faculty from the Schools of Medicine, Pharmacy, and Nursing to develop an interprofessional experiential learning elective offered February 2007. Working in interprofessional teams, students explore the meaning of interprofessional teamwork, are introduced to the backgrounds and contributions of different health care professions, reflect on their observations of highly functional and dysfunctional team interactions, consider the consequences of team behavior for patient care, and actively practice alongside interprofessional, teams treating cardiac and renal patients.
- *Profession of Pharmacy 3*: Patient cases designed to enhance student development of patient assessment skills were implemented using educational technology. Students conducted interviews with a patient role-played by the instructor using either synchronous or asynchronous communication methods. The difference in the two strategies was analyzed and results will be used to further improve the course in fall 2007.

Teaching Awards, Scholarship, and Innovations

As evidenced by faculty accomplishments in curriculum innovation, the School is moving toward its strategic plan of leadership in education. Notable accomplishments by faculty include:

- Dr. Amy Seybert continued her nationally recognized work in the innovative use of patient simulators in education at the WISER Center and published two related manuscripts, "Pharmacy Student Response to Use of Patient Simulation Mannequins to Teach Performance-Based Pharmacotherapeutics" and "Simulation-Based Learning to Teach Blood Pressure Assessment to Doctor of Pharmacy Students," in the *American Journal of Pharmaceutical Education*.
- Dr. Susan Meyer, associate dean for education and professor, has been appointed to the editorial board of *The International Journal of Pharmacy Education*.
- Dr. Denise Howrie received the Rho Chi Award for Teaching Innovations.

- Dr. Melissa Somma and Dr. Susan Meyer published a letter, “ Community of Learning” in Experiential Education in the *American Journal of Pharmaceutical Education*.
- At the recent AACP Annual Meeting, School of Pharmacy faculty served as authors or co-authors on five posters and were invited presenters at sessions including discussions of patient simulators (Dr. Seybert), student portfolios (Dr. Stoehr), and the integration of chemistry into the contemporary pharmacy curriculum (Dr. Gold).

Experiential Learning Program

Experiential Learning is the curricular program through which students learn and refine their patient care and pharmacy practice skills in a variety of practice environments. Experiential learning constitutes 35 percent of the PharmD curriculum. The School’s Experiential Learning Office:

- Develops and retains qualified preceptors to guide student learning;
- Maintains a system to assure quality student experiences;
- Manages student placement with preceptors;
- Facilitates communication among students, faculty, and preceptors; and
- Manages the process for evaluating students, preceptors, and learning sites.

In FY07, 405 students across the four professional years benefited from 1,248 learning experiences under the direction of a preceptor. The introductory pharmacy practice experiences (years one through three of the professional curriculum) are offered in Pittsburgh and across Western Pennsylvania. In the fourth professional year, a broad array of opportunities is available to students in Pittsburgh, across Pennsylvania, and in selected exemplary practices across the United States, including Arizona, California, New Mexico, New York, North Carolina, Ohio, and South Carolina. Opportunities for international experiences are available in Honduras and Palermo, Italy. Thirty-five percent of student placements are within the UPMC Health System.

Service Learning (P1 Year). Under the direction of community service workers in service organizations, students interact with patient populations that have special health care needs, such as the elderly, homeless, and terminally ill. Students increase their understanding of these patient populations, increase their awareness of circumstances affecting health and health care needs of different populations, and explore strategies to encourage public health through wellness and disease prevention programs and to address unmet medical needs within a community.

Scope of Service Learning Program

Community/Population Service Learning	Number of Students Assigned	Number of Experiences	Number of Sites
Children/Youth	40	42	2
Elderly	53	56	9
Disability/Chronically Ill	39	39	4
Drug/Alcohol/HIV/Crisis	15	15	1
Homeless	25	25	4
Mental/Physical Health	26	28	4
Total	101	205	24

Community Pharmacy Practice (P2 Year). Community pharmacy practice is the focus of the experiential learning program in the second professional year of the curriculum. Students participate in contemporary community pharmacy practice and develop skills to meet patient medication-related needs, including skills to effectively develop patient-care practices in the community.

Scope of Community Pharmacy Experiences

Type of Community Practice Environment	Number of Students Assigned	Number of Experiences	Number of Sites
Chain Pharmacies	77	154	43
Independent Pharmacies	24	48	16
Total	101	202	59

Hospital/Institutional Pharmacy Practice (P3 Year). The practice of pharmacy in hospitals and other unique institutional health care environments is the focus of the professional experience program in the third year of the curriculum. Student learning is focused on systems management (including drug distribution, quality assurance, formulary management and patient safety); use of aseptic techniques for medication preparation, dosage calculations; and clinical practice skills (including patient assessment, design and monitoring of medication therapies).

In addition to traditional hospital settings, students were also placed in 30 unique care settings. These sites included targeted acute care and ambulatory care settings (e.g., cardiology, internal medicine, transplant, pediatrics, oncology, NICU, and underserved clinics) as well as home infusion practices, compounding pharmacies, and managed care practices.

Scope of Hospital/Institutional Pharmacy Experiences

Type of Practice Setting	Number of Experiences	Number of Sites
Hospital Settings	84	17
Targeted acute/ambulatory care settings	57	22
Other Settings	40	13
Total	181	52

Advanced Pharmacy Practice (P4 Year). The fourth professional year of the PharmD curriculum is devoted in its entirety to intensive practice of the pharmaceutical care process with exposure to patients with increasingly complex pharmacotherapeutic problems. Students complete seven four-week rotations:

- One inpatient acute care rotation;
- One outpatient ambulatory care rotation;
- One advanced community pharmacy practice rotation;
- One advanced hospital/institutional pharmacy practice rotation;
- A second inpatient acute care rotation or outpatient ambulatory care rotation; and
- Two elective rotations.

Scope of Advanced Pharmacy Practice Experiences

Type of Practice Setting	Number of Experiences	Number of Sites
Acute Care	187	57
Critical Care	(112)	(26)
General/Internal Medicine	(75)	(25)
Ambulatory Care	137	42
Elective	123	51
Advanced Community	111	379
Advanced Institutional	102	77
Total	660	606

Enhancing the Professional Experience Program. A working group led by Dr. Denise Howrie completed an extensive analysis of the experiential learning program and provided recommendations to assure compliance with newly published and updated accreditation standards from the Accreditation Council for Pharmacy Education (ACPE). Areas of educational outcomes and assessment, preceptor development, and program management were identified for study and enhancement. Additionally, faculty working groups are studying the *Experiential Learning* and *Profession of Pharmacy* course sequences throughout the four professional years to identify key learning outcomes under practice skills, management, culturally responsive care, public health, and literature retrieval and evaluation.

In June 2007, James Pschirer, PharmD, joined the faculty and assumed the responsibilities as director of experiential learning and continuing professional development. Dr. Pschirer has administrative responsibility for the experiential learning program to ensure compliance with ACPE accreditation standards.

Preceptors. Pharmacists with patient care and other professional responsibilities serve as preceptors for Pitt students in the experiential learning program. While some preceptors are Pitt faculty, 80 percent of the 606 Pitt preceptors are volunteers. During FY07, there was a net gain of 60 preceptors and/or learning sites:

Patient Care Setting	Gain	Loss
Acute care	10 preceptors	1 preceptor lost due to relocation
Ambulatory care	2 sites	
Community practice	30 preceptors	4 preceptors lost due to promotions
Hospital practice	12 preceptors	1 preceptor/site loss due to promotion
Electives	12 preceptors	

Students in the P4 year have the opportunity to nominate a preceptor who is an exceptional role model and who has made outstanding teaching contributions during the year for the Roche Preceptor of the Year Award. The Experiential Learning Committee reviews nomination letters and makes the final selection. The 2006–07 awardees were:

- Dr. Sharon Connor, assistant professor, Department of Pharmacy and Therapeutics. Dr. Connor provides ambulatory care rotations with a focus on care to underserved populations.
- Dr. Luis Gonzalez, associate program director, Department of Medicine Residency Program; director, pharmacy practice residency program; chair, Memorial Medical Center IRB; and manager, clinical pharmacy services at Memorial Medical Center. Dr. Gonzalez provides acute care rotations for P4 students.

Special Features

Curricular Tracks and Combined Degree Options. Building on the work of the Curriculum Committee to develop criteria and a process for curriculum tracks within the PharmD program, proposals for tracks in management, advanced pharmacotherapy, and research were submitted by faculty, reviewed, and approved in FY07. Students may select a curriculum track at the end of their second or the beginning of their third professional year with elective didactic courses and planning experiential learning experiences to fulfill requirements to receive a certificate of completion by time of graduation.

Business Innovation. Behavioral, management, and leadership skills provide the basis for understanding and influencing human behavior in health and disease, and effective administration of pharmacy. Recent publications have revealed some concerning facts regarding a rapidly emerging demand for and shortage of pharmacy business leaders and renewed interest in business leadership on behalf of pharmacy students. During FY06, the School of Pharmacy initiated a plan, backed by resources, to enhance and broaden the business curriculum to meet this market demand. In FY07, further progress included:

- Continued refinement of curricular content and outcomes related to business management and leadership to facilitate progression from managing oneself in pharmacy school, to managing oneself in organizations, and to managing oneself within the pharmacy profession.
- Expansion of business education opportunities for future students by designing and proposing a focused business management curriculum track for the PharmD program.
- Planning for a potential combined PharmD/MS (pharmacy administration) and PharmD/MBA offering in collaboration with the Katz School of Business. Such dual degree programs will flow directly from the proposed business management curriculum track and may be integrated with the advanced management residency.
- Graduation of the first two Pharmacy Practice Management residents and redesign of the program to a two-year offering with a total of four resident positions allocated.
- Development and approval of a one credit-hour Executive Lecture course to be offered in spring 2008 as part of the curriculum track in the Doctor of Pharmacy program.

International Education. For the first time in FY07, four students had the opportunity to participate in an experiential learning elective rotation supervised by Dr. Heather Johnson in Palermo, Italy, at ISMETT (*Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione*). Students are supervised and educated jointly by Pitt faculty and ISMETT staff. The ISMETT pharmacy provides a fully integrated model of pharmacy operations and clinical services. The School has also established partnerships to provide experiential learning opportunities in Honduras with Dr. Sharon Connor serving as preceptor. In FY07, two students went to Honduras as part of the international primary health care rotation.

Assessment

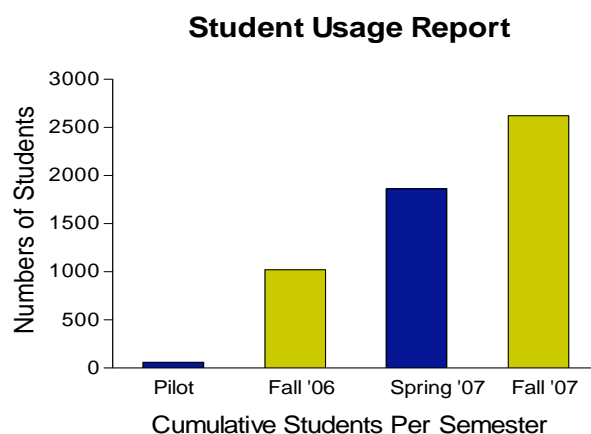
The Curricular Assessment Team is charged to conduct assessments that provide data to inform curricular quality enhancement decisions. The team was composed of five faculty members and three students. Faculty members included Drs. Gary Stoehr (chair), Teresa Donegan, Samuel Poloyac, Regis Vollmer, and Ms. Susan Skledar. Student members of the team were Robert Reynolds (P4), Kelly Gallagher (P3), and David Toma (P2). In FY07, the Curriculum Assessment Team focused on three issues:

Question/Issue	Results
Student Problem Solving	<ul style="list-style-type: none"> An inventory of problem-solving activities was developed; instructors were asked to reflect on observed student strengths and weaknesses in solving problems. Information that was gathered will be used by the Curriculum Committee and PharmD Council to enhance curriculum content and instructional processes.
Assessment Plan	<ul style="list-style-type: none"> The Education Team developed a plan for the systematic evaluation of the School's curricular outcomes in preparation for Middle States evaluation and the School's accreditation visit. The plan was submitted to the Provost's office.
Portfolio Process	<ul style="list-style-type: none"> A portfolio taskforce committee met to develop a curricular-based portfolio process to document students' progress in meeting the curricular outcomes. An e-portfolio platform (Taskstream) was piloted to determine the ease of use of electronic portfolios. Based on the pilot project, first-year students will be developing e-portfolios using the Taskstream platform.

Impacting the Nation: Improving Diabetes Education Worldwide

DM Educate® is a Web-based course that was designed by a team of educators at the University of Pittsburgh to provide faculty with the tools needed to deliver comprehensive diabetes management and education. The project was supported through a gift from Novo Nordisk. The project team includes: **Randall Smith, PhD, Project Leader**; Shelby Corman, PharmD, BCPS; Scott Drab, PharmD, CDE; Cheri Hill; Deanne Hall, PharmD, CDE; Dan Hummon; Susan Meyer, PhD; Thomas Waters.

Seventy-six colleges and schools of pharmacy across the United States, Canada, Puerto Rico and Lebanon have integrated DM Educate® resources into their PharmD curricula. It is estimated that approximately 3,000 students learned from DM Educate® resources in the first year of availability.



In order to evaluate the impact of the course, the project team completed IRB-approved evaluations of instructor use and satisfaction, and student knowledge and satisfaction related to the use of the DM Educate® course. The results of these investigations indicated the following:

- The instructors felt that the information provided improved their ability to educate students about all areas of diabetes education and management. In addition, the instructors felt that the course has increased the interest of students in seeking out further diabetes education.
- Student knowledge of diabetes was significantly increased, as evidenced by a significant difference in scores on pre-course and post-course exams. Student satisfaction was also found to be high, with more than 90 percent of students indicating that after taking the course they feel more confident when speaking to patients about their diabetes and 70 percent indicating that they would seek out experiential learning/internship opportunities that include management of patients with diabetes.

The success of the course, along with interest expressed by practicing pharmacists and nurses, led the project team to pursue accreditation for continuing education (CE). The DM Educate® course has been approved for over 30 credit-hours by accredited providers of continuing education for pharmacists and nurses. More than 300 pharmacists have completed the course for continuing education credit since the CE launch in March 2007 with users from 26 different states. Rite Aid Pharmacy has contracted to use the course for pharmacists in its Diabetes Care Specialist program.

The DM Educate® course has also provided the involved faculty with opportunities for scholarly activity. A manuscript titled “DM Educate: Bringing Diabetes Experts to Every Classroom” has been accepted for publication to the *American Journal of Pharmaceutical Education*. The manuscript outlines the development and pilot use of the course.

Post-PharmD Residency Program

Program Description

The School of Pharmacy has been training pharmacy residents since 1990, with approximately 165 individuals having completed the program. The goal of the residency program is to train advanced practitioners who will become future leaders in the profession of pharmacy. Residencies are either advanced pharmacy practice or specialized residency training. Specialty residencies offered include critical care, family practice, cardiology, drug information, infectious disease, managed care, community care, pharmacy practice management, and primary care.

The School of Pharmacy partners with the University of Pittsburgh Medical Center, Rite Aid, PharmaCare, and the VA Pittsburgh Healthcare System to make the residency program a dynamic experience. This past year, 15 residents completed a one-year program in the School of Pharmacy residency program. These residents came from 10 schools of pharmacy. The incoming residency class for 2007–08 will have 22 residents entering the program.

Accomplishments

During FY07:

- Residents completed the School's orientation program, which includes a session on teaching, learning, and evaluation methods.
- Residents completed the School of Pharmacy Residency Research Series, comprised of didactic and interactive sessions focused on research skills. The residents were also certified in the fundamentals of research.
- One resident (Snyder) won the APhA Foundation 2007 Incentive Grant for Practitioner Innovation in Pharmaceutical Care.
- One resident (Pogue), presented at the Pharmacy Student Clinical Pearl session at the 2006 ASHP Midyear Clinical Meeting in Anaheim, Calif.
- All 15 residents presented their research projects through the Department of Pharmacy and Therapeutics Seminar Program.
- Fourteen (93%) residents presented their research at either regional (Eastern States Residency Conference) or national (APhA, AMCP, ACCP) conferences.
- Six (40%) residents (Bellamy, Cook, Deen, Palkovic, Pogue, Polisetty) presented posters at the 2006 ASHP Midyear Clinical Meeting in Anaheim, Calif.
- Fourteen (93%) residents are members of national pharmacy organizations.
- Of the seven pharmacy practice (first year) residents, four (57%) pursued advanced specialty residency training.
- Two residents accepted faculty positions at pharmacy schools.

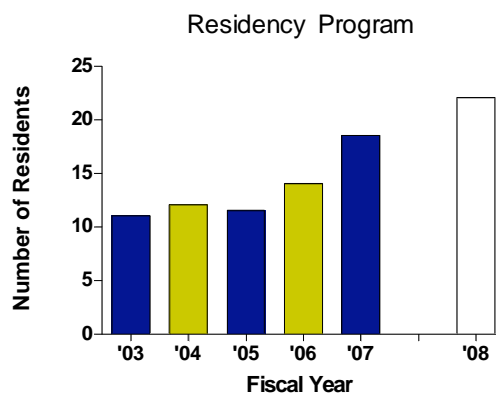
Resident Research Findings:

- The most common problems with antibiotic prescribing in patients with community-acquired pneumonia, sinusitis, and acute exacerbation of chronic bronchitis were impractical directions, incorrect dosage, and failure to select the most cost-effective agent. (Cook-Tobia, Aspinall)
- In small intestinal transplant patients experiencing acute rejection, tacrolimus dose normalize blood levels rose significantly and the magnitude of the increase was greater in severe rejection. (Deen, Capitano, Venkataramanan)
- In diabetic patients utilizing a free clinic, factors associated with poor diabetes control were younger age, use of insulin, and longer duration of diabetes. (Fields, Scipio, Connor)
- Real-time data reporting reduces late charging of medications. (Gonzaga, Weber, Mark, Saenz, Skledar)

- A comprehensive pharmacist-run health management program implemented at a pharmacy benefit management firm for patients with diabetes resulted in improved diabetes control while maintaining overall costs. (Heasley, Legal)
- Use of an electronic bid purchase process resulted in cost savings for both pharmaceuticals and medical supplies. (McMillen, Weber, Mark, Skledar)
- Predictors of inappropriate acid suppressive therapy (AST) in internal medicine patients include AST use prior to hospitalization, longer patient length of stay, and use of anticoagulants. (Palkovic, Coley, Sokos)
- Risk factors associated with linezolid resistance in vancomycin-resistant enterococcus were peripheral vascular disease, solid organ transplant, total parenteral nutrition, and use of piperacillin/tazobactam and cefepime. (Pogue, Potoski)
- For substrates of CYP2C9 and CYP2C19 the magnitude of inhibition by voriconazole will vary over a dosing interval and will be greatest for drugs with shorter half-lives since the inhibition is competitive in nature. (Polisetty, Capitano, Venkataramanan)
- 75% of INR results were within goal range when monitoring was conducted within 21 days of the preceding test. (Snyder, Hall)

Growth of Residency Training Programs

Our residency program grew by 25 percent during FY07, graduating 15 residents. We have surpassed our goals this upcoming year by enrolling the largest residency class in our program's history. There are 22 residents entering the program in July 2007, which represents a 47 percent increase over the previous resident class. The majority of our growth is due to expansion of existing programs. Some programs (e.g., pharmacy management and family medicine) that have been designed as two-year programs are now enrolling residents in both program years.



The following table provides information about post-residency positions for the 2006–07 residents.

**Residents Who Received Certificates in June 2007 and
Post-Residency Placement**

Name	Residency Program	Residency Institution	Post-Residency Appointment
David Deen	Pharmacy Practice	UPMC Presbyterian Shadyside	Critical Care Pharmacist, Memorial Health University Medical Center
Lindsay Palkovic	Pharmacy Practice	UPMC Presbyterian Shadyside	Critical Care Residency, Allegheny General Hospital
Jason Pogue	Pharmacy Practice	UPMC Presbyterian Shadyside	Infectious Diseases Residency, University of Michigan
Radhika Polisetty	Pharmacy Practice	UPMC Presbyterian Shadyside	Infectious Diseases Residency, University of Pittsburgh
Colleen Cook-Tobia	Pharmacy Practice	VA Pittsburgh Healthcare System	Clinical Pharmacist, VA Pittsburgh Healthcare System
Andrea Wilson	Pharmacy Practice	VA Pittsburgh Healthcare System	Clinical Pharmacist, Washington Hospital
Lauren Fields	Pharmacy Practice	UPMC St. Margaret	Family Medicine Residency, University of Pittsburgh
Joe Gonzaga	Pharmacy Practice Management	UPMC Presbyterian Shadyside	Pharmacy Practice Management Residency, University of Pittsburgh
Katie McMillen	Pharmacy Practice Management	UPMC Presbyterian Shadyside	Pharmacy Practice Management Residency, University of Pittsburgh
Christin Snyder	Primary Care	UPMC Presbyterian Shadyside	Assistant Professor, St. Louis College of Pharmacy
Saira Chourdry	Infectious Disease	UPMC Presbyterian Shadyside	Assistant Professor, Rutgers University
Shrina Patel	Oncology	UPMC Presbyterian Shadyside	Clinical Pharmacist, UPMC Cancer Center
Bethany Heasley	Pharmacy Benefits Management	PharmaCare	
Margie Snyder	Community Practice	Rite Aid	Community Pharmacy Fellowship, University of Pittsburgh
Cassandra Bellamy	Critical Care	UPMC Presbyterian Shadyside	Critical Care Pharmacist, Hospital of the University of Pennsylvania

During FY07, 22 residents were recruited nationally from 14 pharmacy schools or practice settings; they will enter the program in July 2007.

Residents Entering Program for 2007–08

	Name	Residency Program	Residency Institution	Originating Institution
1	Laura Jankovic	Pharmacy Practice	VA Pittsburgh Healthcare System	University of Pittsburgh
2	Laura Krugger	Pharmacy Practice	VA Pittsburgh Healthcare System	University of Pittsburgh
3	Erin Suhrie	Pharmacy Practice	VA Pittsburgh Healthcare System	Ohio Northern University
4	Stacey Lavsa	Pharmacy Practice	UPMC Presbyterian Shadyside	University of Pittsburgh
5	Pam Havrilla	Pharmacy Practice	UPMC Presbyterian Shadyside	University of Pittsburgh
6	Whitney Hung	Pharmacy Practice	UPMC Presbyterian Shadyside	Nova Southeastern University
7	Asma Lat	Pharmacy Practice	UPMC Presbyterian Shadyside	University of Texas at Austin
8	Megan Barkell	Pharmacy Practice	UPMC St. Margaret	University of Pittsburgh
9	Katherine Sullivan	Pharmacy Practice	UPMC St. Margaret	University of Rhode Island
10	Lauren Fields	Family Medicine	UPMC St. Margaret	University of Pittsburgh
11	Stephanie Harriman	Community Care Pharmacy Practice	Rite Aid	University of Pittsburgh
12	Gladys Garcia	Community Care Pharmacy Practice	Rite Aid	St. John's University
13	Jocelyn Diehl	Managed Care	UPMC Health Plan	Duquesne University
14	Ryan Steadman	Managed Care	PharmaCare	University of Cincinnati
15	Benjamin Anderson	Pharmacy Practice Management	UPMC Presbyterian Shadyside	University of Minnesota
16	Nicole Cerussi	Pharmacy Practice Management	UPMC Presbyterian Shadyside	University of Pittsburgh
17	Katie McMillen	Pharmacy Practice Management	UPMC Presbyterian Shadyside	University of Pittsburgh
18	Joedell Gonzaga	Pharmacy Practice Management	UPMC Presbyterian Shadyside	Northeastern University
19	Daniel Ford	Critical Care	UPMC Presbyterian Shadyside	University of California, San Diego
20	Radhika Polisetty	Infectious Diseases	UPMC Presbyterian Shadyside	University of Kentucky
21	Erik Abel	Cardiology	UPMC Presbyterian Shadyside	West Virginia University
22	Chris Wisniewski	Drug Information	UPMC Presbyterian Shadyside	University of the Sciences

Graduate Program

Goal:

- Gain University and national recognition for the quality of our graduate program and for the excellence of our students and faculty.

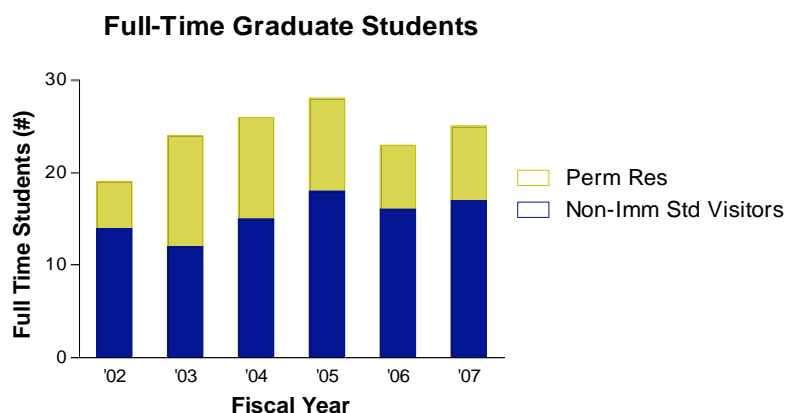
PhD Program in Pharmaceutical Sciences

Overview

The University of Pittsburgh PhD Program in Pharmaceutical Sciences prepares students to become independent researchers as either basic scientists or clinical pharmaceutical scientists.

Demographics

This past year, twenty-six students (25 full-time, 1 part-time) were enrolled in the PhD program. Of the full time students, nine (36%) were U.S. citizens or permanent residents and sixteen were non-immigrant student visitors. These numbers have remained relatively stable since 2004 (see graph below).



One of our goals is to have U.S. citizens or permanent residents comprise at least 50 percent of the students enrolled in the PhD program. The challenges are twofold: (a) the relatively low percentage of U.S. citizens in the applicant pool, and (b) increased competition with other programs. Recent strategies for increasing the applicant pool, and specifically the number of U.S. applicants, include the GEAR UP mini-graduate weekend and summer internship programs (described below), targeted recruitment of PharmD students into the Clinical Pharmaceutical Scientist Program, and targeted recruitment of basic science students via faculty visits to surrounding undergraduate institutions. Correspondingly, the number of U.S. applicants increased from 6-7 per year in 2003-2005 to 21 in 2006 and 17 this past admissions cycle.

PhD Students Enrolled: FY06 and Applications for FY07

Nationality	Number	Percentage
U.S. permanent residents	10	38.5%
Non-immigrant student visitors	16	61.5%

Sex	Number	Percentage
Men	14	52%
Women	12	48%

Full/Part-time	Number
Full-time students	25
Part-time students	1
Total	26

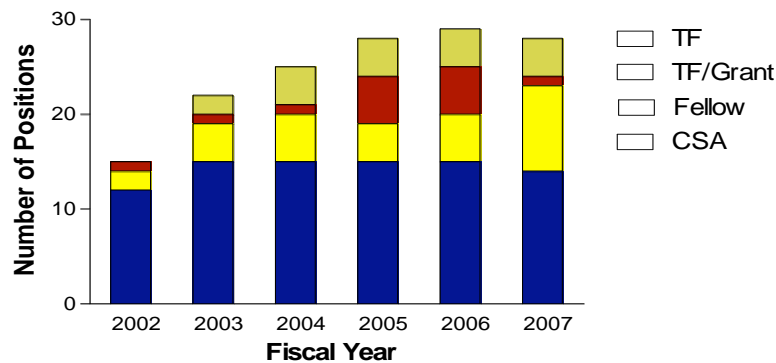
	Number
Applications for Fall 2007 enrollment	
Number of international applicants	103
Number of U.S. applicants	17
Total applicants	120

	Number
New students admitted Fall 2007	
Number of new international students admitted	4
Number of new U.S. students admitted	2
Total new students enrolled	6

Student Support

As of last year, the School increased its stipend for full-time students in the PhD program from less than \$14,000 for eight months of guaranteed support to a minimum of \$20,000 for 12 months of guaranteed support. In addition, all full-time students receive a full-tuition scholarship. This past year, of the 25 full-time students in the program, 14 (56%) received full or partial stipend support from mechanisms other than the traditional teaching assistantships (9 [28%] from grants; 1 [4%] from fellowships; 4 [16%] from support as Clinical Scientist Associates).

Graduate Student Funded Positions



Clinical Pharmaceutical Scientist Program

The Clinical Pharmaceutical Scientist Program is a longstanding program that provides a PhD degree in the area of clinical and translational research. It prepares students to become independent investigators with education and training in pharmacotherapy who generate new knowledge relevant to drug behavior in humans, therapeutic interventions, and patient outcomes. The program has been remarkably successful in developing faculty for schools of pharmacy, as almost 50 percent of the previous graduates from the program currently hold faculty positions.

Student Highlights for FY07

- Seven students are enrolled in the program; six are U.S. citizens or permanent residents.
- Two students completed the PhD program.
- Six students successfully competed for new or renewed fellowships:
 - Three were awarded fellowships from the American Foundation for Pharmaceutical Education (AFPE).
 - One was supported by Ruth L Kirshstein National Research Service Award
 - One was supported by a Pfizer Fellowship for research in Leiden
 - One received a six-month fellowship with Hoffman La Roche in Basel, Switzerland
- Students co-authored eight peer-review publications and one book chapter.
- Students made 10 presentations at five national scientific meetings.
- Two students received travel awards to attend the American College of Clinical Pharmacology Annual Meeting.
- One student received a Wal-Mart Annual Conference Scholarship to the American Association of Colleges of Pharmacy meeting.
- Three new students were accepted in the program for FY 2008 – two are enrolled in the PharmD/PhD track.

Recognition for Clinical Scientist Associate Position

Students entering the program with a PharmD degree are supported as Clinical Scientist Associates (CSA), working part-time as pharmacists in the UPMC system and receiving clinical training in the area of their dissertation research. The CSA model for financial support was recently published as a national model for supporting Clinical Pharmaceutical Scientist students: Tortorici MA, Skledar SJ, Zemaitis MA, Weber RJ, Kroboth PD, Smith RB and Poloyac SM. **The Clinical Scientist Associate: A Novel Method to Support and Train Clinical Pharmaceutical Scientist PhD Students.** *Am J Pharm Educ* 2006; 71(2) Article 32.

Participation in University's Clinical and Translational Science Institute

During FY07, the University of Pittsburgh received one of 12 Clinical and Translational Science Awards (CTSA) from National Institutes of Health. The University created a Clinical and Translational Science Institute to implement the award. Students and advisors within the Clinical Pharmaceutical Scientist Program are actively involved in integrating the Clinical Scientist Program with the aims and offerings of the CTSI at the University level.

Notably, one clinical scientist graduate student was awarded a 12-month Institutional Research Training Grant from the CTSI, and three PharmD students participated in summer research experiences with support provided by CTSI.

Combined PharmD/PhD Track

The combined PharmD/PhD track was initiated in FY06 to encourage more PharmD students to pursue PhD training. The program was well-received by students with two students entering the PhD program concurrently with completing their PharmD degree. In addition, three students entering their third professional year will be accepted into the combined PharmD/PhD track.

Graduate Students Enrolled FY 2007

Student	Mentor	Term of Entrance into the Program	Degree Sought	Highest Degree Earned	Citizenship	Former Institution of Highest Degree
Gregor Bender	Bies	01-1	PhD	PharmD	United States	University of Pittsburgh
Kristin Bigos	Bies/Pollock	03-1	PhD	BS	United States	Pennsylvania State University
Jennifer Bonner	Venkat	05-1	PhD	PharmD	United States	University of Maryland
Marci Chew	Poloyac/Bies	03-1	PhD	BS	United States	University of Pittsburgh
Nisanne Ghonem	Venkat	2061	PhD	PharmD	United States	Tufts University
Yuyan Jin	Bies	2064	PhD	MS	China	China Pharmaceutical University, China
Michael Tortorici	Poloyac		PhD	PharmD	United States	University of Pittsburgh

Students Completing Degrees in 2006–07

Michael Tortorici, PhD

Advisor: Samuel Poloyac, PharmD, PhD
 Graduated: May 2007
 Dissertation Title: The Effect of Therapeutic Hypothermia on CYP450-Mediated Drug Metabolism: Studies in Translational Research
 Current Position: Research Scientist, Pfizer, La Jolla, Calif.

Kristin Bigos, PhD

Advisor: Robert Bies, PhD and Bruce Pollock, PhD
 Graduated: May 2007
 Dissertation Title: Pharmacodynamics of IV Citalopram Using Functional MRI
 Current Position: Post-Doctoral Fellow, NIH, Bethesda, Md.

Student Fellowships (new or continuing)

Student	Award
Kristin Bigos	(1) Renewal of Ruth L. Kirschstein National Research Service Award Individual Pre-Doctoral Fellowship for project titled, "Pharmacodynamics of IV Citalopram Using Functional MRI"; (2) American Foundation for Pharmaceutical Education Pre-Doctoral Fellowship
Michael Tortorici	American Foundation for Pharmaceutical Education Pre-Doctoral Fellowship
Jennifer Bonner	(1) American Foundation for Pharmaceutical Education Pre-Doctoral Fellow; (2) A 12-month Institutional Research Training Grant from the Clinical and Translational Science Institute
Nisa Ghonem	Six-month fellowship with Hoffman La Roche in Basel, Switzerland
Gregor Bender	Pfizer Fellowship with Meindart Danhof, PhD, Leiden University

Clinical Pharmaceutical Science Awards (other than fellowships)

Student	Award
Yuyan Jin	Student Travel Award from the American College of Clinical Pharmacology (ACCP), for abstract/poster to be presented at ACCP annual meeting in September 2007
Jennifer Bonner	(1) Student Abstract Award from the American College of Clinical Pharmacology (ACCP), for abstract/poster presented at ACCP annual meeting in September 2006. Title: Metabolic functional assessment in living donor liver transplant recipients; (2) Randy P. and Renée Juhl Clinical Scientist Scholar Award
Marci Chew	2006 Wal-Mart Annual Conference Scholarship to attend the American Association of Colleges of Pharmacy (AACP) Mtg.

Clinical Pharmaceutical Science Student Publications FY07

Tortorici MA, Kochanek PM, and Poloyac SM. Effects of Hypothermia on Drug Disposition, Metabolism, and Response. A Focus of Hypothermia-Mediated Alterations on the Cytochrome P450 Enzyme System. *Crit Care Med*. 2007 Jul 24; Epub ahead of print.

Tortorici MA, Kochanek P, Bies RR, and Poloyac SM. Therapeutic Hypothermia Induced Pharmacokinetic Alterations on CYP2E1 Chlorzoxazone Mediated Metabolism in a Cardiac Arrest Rat Model. *Crit Care Med* 2006; 34: 785-791.

Tortorici MA, Skledar SJ, Zemaitis MA, Weber RJ, Smith RB, Kroboth PD, and Poloyac SM. The Clinical Scientist Associate: A Model for Supporting and Training Clinical Pharmaceutical Scientist PhD Students. *AJPE*, 2007 71(2); Article 32.

J. Bonner, R. Bies, R. Weber, S. Tischerman. Book chapter entitled "Clinical Pharmacology," published in the online version of the ACS Textbook of Surgery.

Bigos KL, Bies RR, Pollock BG. Population Pharmacokinetics in Geriatric Psychiatry. *Am J Geriatr Psychiatry* 2006;14:993-1003.

Fabian TJ, Schwartzman DS, Ujhelyi MR, Corey SE, **Bigos KL**, Pollock BG, Kroboth PD. Decreasing Pain and Anxiety Associated with Patient-Activated Atrial Shock: A Placebo-Controlled Study of Adjunctive Sedation with Oral Triazolam. *J Cardiovasc*.

Bigos KL, Pollock BG, Coley KC, Marder SR, Miller DD, Kirshner MA, Bies RR. Sex, Race, and Smoking Impact Olanzapine Exposure (Accepted to the *Journal of Clinical Pharmacology*).

Feng Y, Pollock BG, Coley KC, Marder S, Miller D, Kirshner M, Bies RR. Assessing sources of variability in risperidone pharmacokinetics: a population analysis of risperidone using sparse concentration sampling from the CATIE study. Society for Biological Psychiatry Annual meeting May 2006, Toronto, Canada. (Accepted *British Journal of Clinical Pharmacology*).

Chew ML, Mulsant BH, Pollock BG, Lehman ME, Greenspan A, Kirshner MA, Bies RR, Gharabawi G. A model of Anticholinergic Activity of Atypical Antipsychotic Medications. *Schizophrenia Research*. 2006; 88(1-3): 63-72.

Clinical Pharmaceutical Science Student Presentations

Student	Title of Presentation	Meeting
Kristin Bigos	Bigos K , Pollock BG, Coley KC, Marder S, Miller D, Kirshner M, Bies RR. Sources of Variability in Olanzapine Exposure from the CATIE study. Society of Biological Psychiatry Annual meeting May 2006, Toronto, Canada.	Society of Biological Psychiatry
Kristin Bigos	Bigos KL , Pollock BG, Coley KC, Marder SR, Miller DD, Kirshner MA, Bies RR. Sources of Variability in Olanzapine Exposure from the CATIE-AD Study. Society of Biological Psychiatry; Toronto, ON; May 2006.	Society of Biological Psychiatry
Michael Tortorici	Tortorici M , Kochanek P, Bies RR, Venkataramanan R, and Poloyac SM. The Chronic Effects of Therapeutic Hypothermia on the Regulation of CYP3A and CYP2E1 in a Cardiac Arrest Rat Model. American Association for Pharmaceutical Scientists, San Antonio, TX, November 2006; Published in: <i>The AAPS Journal</i> ; 8(S2): M1363.	American Association for Pharmaceutical Sciences
Michael Tortorici	Tortorici M , Kochanek P, Bies RR, Venkataramanan R, and Poloyac SM. Mild and moderate hypothermia alters CYP2E1 and CYP3A4 enzyme kinetics in human hepatic microsomes. American Association for Pharmaceutical Scientists, San Antonio, TX, November 2006; Published in: <i>The AAPS Journal</i> ; 8(S2): M1316.	American Association for Pharmaceutical Sciences

Yan Feng	Feng Y , Gastonguay MR, Pollock BG, Frank E, Kepple G, Bies RR. The impact of the concentration near or below the limit of quantitation on the model estimation/prediction efficiency. AAPS Annual Meeting (AAPS Pharmaceutical In Press) San Antonio TX, November 2006.	American Association for Pharmaceutical Sciences
Marci Chew	Chew ML , Mulsant BH, Bies, RR, Kirshner MA, Lehman M, Greenspan A, Pollock BG. Differential Anticholinergic Activity of 41 Psychotropic Medications. 5 th International Symposium on Measurement and Kinetics of <i>In Vivo</i> Drug Effects, Leiden, Amsterdam, April 2006.	International Symposium on Measurement and Kinetics of <i>In Vivo</i> Drug Effects
Marci Chew	Chew ML , Mulsant BH, Bies RR, Kirshner MA, Lehman M, Greenspan A, Pollock BG. Anticholinergic Activity of 107 Common Medications. AAPS Annual Meeting (AAPS <i>Pharmaceutica</i> In Press) San Antonio TX, November 2006.	American Association for Pharmaceutical Sciences
Marci Chew	Chew ML , Mulsant BH, Kirshner MA, Lehman M, Greenspan A, Pollock BG. Differential Anticholinergic Activity of 41 Psychotropic Medications. Society of Biological Psychiatry, Toronto, Ontario, Canada, May 2006.	Society of Biological Psychiatry
Jennifer Bonner	Bonner JJ , Marcos A, Shaw-Stiffel T, Wilson J and Venkataramanan R. Metabolic functional assessment in living donor liver transplant recipients. American College of Clinical Pharmacology. Abstract poster presentation presented at ACCP 2006.	American College of Clinical Pharmacology
Yuyan Jin	Jin, Y , Effect of different dosing report methods on estimation of pharmacokinetic parameters for Escitalopram.	American College of Clinical Pharmacology

Basic Pharmaceutical Sciences

Student Highlights for FY07

- Nineteen students were enrolled.
- Three students completed their degree program
 - One PhD
 - Two MS
- Students co-authored twelve research papers.
- Students made seven presentations at seven national scientific meetings.

- One student received Wal-Mart Annual Conference Scholarships to attend the American Association of Colleges of Pharmacy Meeting.
- The Student AAPS Chapter was selected to plan and host two sessions at the AAPS Annual meeting:
 - “Nanotechnology and Biomaterials for drug delivery systems.”
 - “How Safe are Drug Delivery Devices? An in vitro/in vivo approach for toxicity and efficacy determination of controlled release devices.”
- Four basic science students were admitted to the program for FY08.

Graduate Students Enrolled Fiscal Year 2007

Student	Mentor	Term of Entrance into the Program	Degree Sought	Highest Degree Earned	Citizenship	Former Institution of Highest Degree
Jee Young An	Kwon	04-1	PhD	MS	Saudi Arabia	Sogang University, Korea
Weihsu Chen	Huang	04-1	PhD	MS	Taiwan	National Yang-Ming University, Taiwan
Mark Donnelly	Venkat	2071	PhD	BS	United States	Penn State
Yun Fan	Day	03-1	PhD	MS	China	West China University of Medical Science
Jie Gao	Xie, Wen	2071	PhD	MS	China	China Pharmaceutical University, China
Kelong Han	Venkat	2071	PhD	Vordiplom+2 semesters	China	
Jung Hoon Lee	Xie	05-1	PhD	MS	Korea	Seoul National University, Korea
Min Jae Lee	Kwon	03-1	PhD	MS	Korea	Seoul National University, Korea
Julie Miedlar	Amico	04-1	PhD	BS	United States	Pennsylvania State University
Jeremiah Momper	Venkat	2071	PhD	PharmD	United States	University of Pittsburgh
Robert Parise	Venkat	2061	PhD	BS	United States	Northern Illinois University
Alexandra Sassi	Rohan	05-1	PhD	BS	United States	University of Sao Paulo
Ashish Sharma	--	2061	PhD	MBBS	India	Government Medical College, Amristar, India
Shringi Sharma	Venkat	05-1	PhD	MS	India	Panjab University, Chandigarh
Yumin Song	--	2071	PhD	BS	China	Fudan University
Shashikanth Sriram	--	2074	PhD	MS	India	Sultan-Ul-Uloom Col. of Pharm., Jawaharlal Nehru Technological University
Haitao Yang	Rohan	04-1	PhD	MS	China	China Pharmaceutical University, China
Zhe Zhang	Day	02-1	PhD	MS	China	China Pharmaceutical University
Jiangquan Zhou	Poloyac	2071	PhD	MS	China	Peking Union Med Col

Students Completing Degrees in 2006–07

Yun Fan, PhD

Advisor: Billy Day, PhD
Graduated: May 2007
Dissertation Title: The In Vitro Metabolism of Three Anticancer Drugs
Current Position: Research Scientist, EMD-Serono, Drug Metabolism Group

Zhe Zhang, PhD

Advisor: Billy Day, PhD
Graduated: June 2007
Dissertation Title: Targeted Functional Proteomics to Study Protein Post-Translational Modification and Protein-Protein Interactions
Current Position: Post-Doctoral Fellow, University of Missouri

Julie Miedlar, MS

Advisor: Janet Amico, MD, PhD
Graduated: May 2007
Dissertation Title: Ingestion of Palatable Substances in Oxytocin Knockout Mice
Current Position:

Basic Pharmaceutical Sciences Fellowships, Publications, Presentations, and Awards

Fellowships (new or continuing)

Student	Award
Kelong Han	Summer internship with Pfizer
Haitao Yang	Summer internship with Bristol-Meyers Squibb

Publications

Song, JJ, **An JY**, Kwon YT, and Lee YJ. (2007) Evidence for two modes of development of acquired tumor necrosis factor-related apoptosis-inducing ligand resistance. Involvement of Bcl-xL. *J. Biol. Chem.* 282:319-328.

Sassi, AB, Isaacs C, Gupta P, Moncla B, Rohan, LC. "Effects of physiological fluids on physical-chemical characteristics and activity of vaginal microbicide products." *Journal of Pharmaceutical Sciences*. In Press.

Vangasseri D, Cui Z, **Chen W**, Hokey D, Falo L, Huang L. Immunostimulation of dendritic cells by cationic liposomes. *Mol Membr Biol.* 2006 Sep-Oct;23(5):385-95.

Yan W, **Chen W** and Huang L. Mechanism of adjuvant activity of cationic liposome: phosphorylation of a MAP kinase, ERK and induction of chemokines. *Mol Immunol.* In Press.

Beckner ME, **Zhang Z**, Agostino NR, Day BW, and Pollack IF, 2006. Albumin marks pseudopodia of astrocytoma cells responding to hepatocyte growth factor or serum. *Lab Invest*, 86(11):1103-14.

Parise RA, Egorin MJ, Eiseman JL, Joseph E, Covey JM, and Beumer JH, 2007. Quantitative determination of the cytidine deaminase inhibitor tetrahydrouridine (THU) in mouse plasma by liquid chromatography/electrospray ionization tandem mass spectrometry. *Rapid Commun Mass Spectrom*, 21(13):1991-7.

Ramalingam SS, **Parise RA**, Ramanathan RK, Lagattuta TF, Musguire LA, Stoller RG, Potter DM, Argiris AE, Zwiebel JA, Egorin MJ, and Belani CP, 2007. Phase I and pharmacokinetic study of vorinostat, a histone deacetylase inhibitor, in combination with carboplatin and paclitaxel for advanced solid malignancies. *Clin Cancer Res*, 13(12):3605-10.

Beumer JH, Eiseman JL, **Parise RA**, Joseph E, Holleran JL, Covey JM, and Egorin MJ, 2006. Pharmacokinetics, metabolism, and oral bioavailability of the DNA methyltransferase inhibitor 5-fluoro-2'-deoxycytidine in mice. *Clin Cancer Res*, 12(24):7483-91.

Parise RA, Holleran JL, Beumer JH, Ramalingam S, and Egorin MJ, 2006. A liquid chromatography-electrospray ionization tandem mass spectrometric assay for quantitation of the histone deacetylase inhibitor, vorinostat (suberoylanilide hydroxamic acid, SAHA), and its metabolites in human serum. *J Chromatogr B Analyt Technol Biomed Life Sci*, 840(2):108-15.

Parise RA, Egorin MJ, Kanterewicz B, Taimi M, Petkovich M, Lew AM, Chuang SS, Nichols M, El-Hefnawy T, and Hershberger PA, 2006. CYP24, the enzyme that catabolizes the antiproliferative agent vitamin D, is increased in lung cancer. *Int J Cancer*, 119(8):1819-28.

Fan Y, Schreiber EM, Giorgianni A, Yalowich JC, and Day BW, 2006. Myeloperoxidase-catalyzed metabolism of etoposide to its quinone and glutathione adduct forms in HL60 cells. *Chem Res Toxicol*, 19(7):937-43.

Miedlar JA, Rinaman L, Vollmer RR, and Amico JA, 2007. Oxytocin gene deletion mice overconsume palatable sucrose solution but not palatable lipid emulsions. *Am J Physiol Regul Integr Comp Physiol*, 293(3):R1063-8.

Basic Pharmaceutical Sciences Presentations

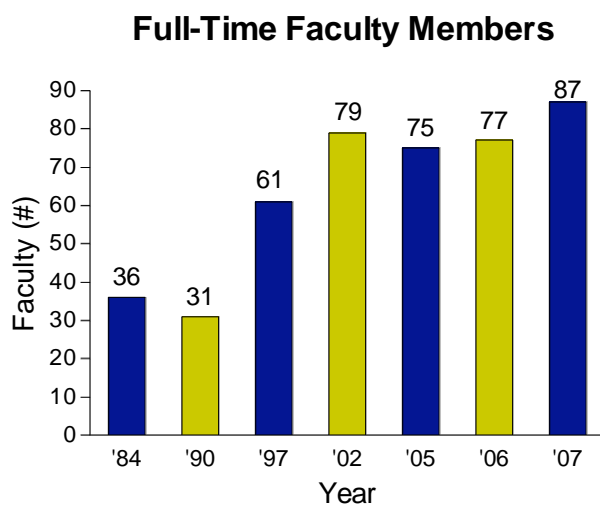
Student	Title of Presentation	Meeting
Sharma, Shringi	CYP 3A4 metabolizes 17- α -hydroxyprogesterone caproate (HPC), a new agent that prevents preterm labor	AAPS, 2006, San Antonio, Texas
Sharma, Shringi	CYP 3A metabolizes 17- α -hydroxyprogesterone caproate (HPC), A study in fresh human hepatocytes	Pharmaceutical Sciences World Congress, Netherlands. (Accepted; did not attend due to lack of funding)
Sharma, Shringi	Fetal Metabolism of 17- α -Hydroxyprogesterone Caproate; A New Agent for Preventing Pre-Term Labor	ACCP, 2007, San Francisco, Calif.
Sriram, Shashi	Polypeptide Multilayer Films as Artificial Extra Cellular Matrices	32nd Society for Biomaterials Annual Meeting, Chicago, IL. April 18-21, 2007.

Parise, Robert	A liquid chromatography electron ionization tandem mass spectrometry (LC-MS/MS) assay to quantitate the cytidine deaminase (CD) inhibitor, 3, 4, 5, 6-tetrahydrouridine (THU), in mouse plasma.	Proceedings of the American Association for Cancer Research, 2007
Min J Lee	Bivalent inhibitors of the N-end rule pathway.	Keystone Symposia 2007 Big Sky, Mont.
Min J Lee	Bivalent inhibitors of the N-end rule Pathway.	Pittsburgh Ubiquitin Meeting 2007, Pittsburgh, Pa.

Awards (other than fellowships)

Student	Award
Min J. Lee	Center for Pharmacogenetics Outstanding Research Award
Alex Sassi and Haitao Yang	Received Scholarships to attend the 2007 Massachusetts Institute of Technology (MIT) Professional program for the course "Advances in Controlled Release Technology: Polymeric Delivery Systems for Pharmaceuticals, Proteins and Other Agents" July 23-27, 2007. Cambridge, Mass.
Haitao Yang	Wal-Mart Annual Conference Scholarship to attend the American Association of Colleges of Pharmacy (AACCP) meeting

Faculty



Full-Time Faculty Rank by Department of Primary Appointment

Faculty Rank	Pharmaceutical Sciences	Pharmacy and Therapeutics	Total for School of Pharmacy
Professor	13	4	17
Associate Professor	7	9	16
Assistant Professor	7	31	38
Instructor	2	2	4
Research Associate Professor	1		1
Research Assistant Professor	11		11
All Faculty	41	46	87

New Administrative Appointments Pharmacy and Therapeutics

During the past year, the Department of Pharmacy and Therapeutics' Executive Committee has been restructured to include a broader scope of oversight to faculty academic planning and development. The Executive Committee is chaired by the department chair and includes: vice chair, clinical services (replaced by Susan Skledar, MPH); vice chair, pharmacy systems (new position – Scott Mark, PharmD, MS); interim vice chair, research (new position – Randall B. Smith, PhD, who is also the senior associate dean); Denise Howrie, vice chair, education and classroom innovation. Additional members include the School's associate dean for education (Susan Meyer, PhD), and two "at-large" elected faculty members, Drs. Shelby Corman and Michael Shullo.

One faculty member, Scott Mark, participated in the American Association of Colleges of Pharmacy Leadership Fellowship Program, which is designed to develop leadership qualities. Dr. Mark holds the position of director of pharmacy, UPMC and vice chair, pharmacy systems, in the School of Pharmacy.

Faculty Accomplishments

The accomplishments of the faculty serve as another indicator of the quality of Pitt educational programs. Recognitions of expertise and accomplishments are indicators of excellence. Professional accomplishments are summarized in this section, while research accomplishments and awards are presented in the Research section of this report.

Fellowships are honors conferred to recognize individuals for outstanding contributions that elevate the stature of the pharmaceutical sciences and for professional excellence. Board certifications are awarded to those who have met rigorous eligibility requirements demonstrating distinct and specialized knowledge and competency. Fifteen of the School's faculty, or 18.7 percent, have the honor of being fellows in one or more organizations; 19 or 23.8 percent are Board certified, resulting in 42.5 percent of the faculty holding either fellowship status or board certification.

Fellowships in Organizations

Name	Fellowship	Department
Janet Amico	ACP	Pharmaceutical Sciences
Judith Gavalier	FACN	Pharmaceutical Sciences
Randy Juhl	FAPhA	Pharmaceutical Sciences
Patricia Kroboth	FCCP, FAAPS	Pharmaceutical Sciences
Paul Schiff	FAAPS	Pharmaceutical Sciences
Randall B. Smith	FAAPS	Pharmaceutical Sciences
Ralph Tarter	ABPP	Pharmaceutical Sciences
Raman Venkataramanan	FACP, FAAPS	Pharmaceutical Sciences
Kim C. Coley	FCCP	Pharmacy and Therapeutics
Sandra Kane-Gill	FSCCM	Pharmacy and Therapeutics
Edward Krenzelok	FAACT, DABAT	Pharmacy and Therapeutics
Scott M. Mark	FASHP, FACHE	Pharmacy and Therapeutics
Ted Rice	FASHP	Pharmacy and Therapeutics
Christine Ruby-Scelsi	FASCP	Pharmacy and Therapeutics
Robert J. Weber	FASHP	Pharmacy and Therapeutics

Board Certifications

Name	Certification	Department
Jan Amico	ABIM	Pharmaceutical Sciences
Ralph Tarter	ABPP	Pharmaceutical Sciences
Sherrie Aspinall	BCPS	Pharmacy and Therapeutics
Shelby Corman	BCPS	Pharmacy and Therapeutics
Colleen Culley	BCPS	Pharmacy and Therapeutics
Amy Calabrese Donihi	BCPS	Pharmacy and Therapeutics
Scott R. Drab	CDE, BC-ADM	Pharmacy and Therapeutics
Roberta Farrah	BCPS	Pharmacy and Therapeutics
Deanne Hall	CDE	Pharmacy and Therapeutics
Heather Johnson	BCPS	Pharmacy and Therapeutics
Edward Krenzelok	ABAT	Pharmacy and Therapeutics
Colleen Lauster	CDE	Pharmacy and Therapeutics
Scott M. Mark	CHE	Pharmacy and Therapeutics
Ted Rice	BCPS	Pharmacy and Therapeutics
Christine Ruby-Scelsi	BCPS	Pharmacy and Therapeutics
Denise Sokos	BCPS	Pharmacy and Therapeutics
Melissa Somma	CDE	Pharmacy and Therapeutics
Dennis Swanson	BCNP	Pharmacy and Therapeutics
Lauren Trilli	BCPS	Pharmacy and Therapeutics

Faculty Honors, Recognition, and Professional Affiliations

DEPARTMENT OF PHARMACEUTICAL SCIENCES

Jan H. Beumer, PharmD, PhD

Hillman Fellows for Innovative Cancer Research Award, University of Pittsburgh Cancer Institute

Balwant N. Dixit, PhD

Seva Rathna Award (Distinguished Service Award). Presented on April 15, 2006, by Bhairavi Fine Arts Society of USA at the 29th Thyagaraja Music Festival, Cleveland, Ohio
Who's Who in Medicine and Healthcare, 2007

Ty Ridenour, PhD

Early Career Prevention Network (Society for Prevention Research) Early Career Researcher of 2006
Marquis Who's Who in American Education

Ralph E. Tarter, PhD

Rho Chi Society University of Pittsburgh: Outstanding Scholarly Contribution Award

DEPARTMENT OF PHARMACY AND THERAPEUTICS

Sherrie L. Aspinall, PharmD, MSc

Board Certified Pharmacotherapy Specialist, 292208, 1999 and 2006 Recertification

Kim C. Coley, PharmD

ISPOR Research Excellence Award Task Force
ISPOR Fellowship Standards Task Force, Member
ISPOR Contributed Research Abstract Review Committee
ACCP Publications Committee, Member
ASHP Foundation Literature Awards Selection Panel; ASHP Grants Review Panel
American Heart Association – Contributed Research Abstract Review Committee
American Heart Association – Annual QCOR Scientific Forum Program Committee
Fellow, American College of Clinical Pharmacy

Colleen Culley, PharmD

ASHP Annual Meeting Poster Competition, 3rd place, Patient Safety *Skledar SJ, Lavsa S, Hynicka L, Culley CM, Dunwoody CJ*. Monitoring acetaminophen dosing: a safety evaluation. Poster for American Society of Health Systems Pharmacists Annual Meeting. San Francisco, Calif.; 2007 Jun 25. [P14E]

Amy Calabrese Donihi, PharmD, BCPS

Pharmacy-Based Immunization Delivery, Certificate of Achievement from APhA
“2007 Quality Cup Winner” for Comparison of Insulin Discharge Instructions Provided to Patients Before and After Implementation of a Standardized Insulin Discharge Form. UPMC Presbyterian Quality and Innovation Fair, June 2007

Scott R. Drab, PharmD

Certified Diabetes Educator (#09820117), National Certification Board of Diabetes Educators.
Board Certified Advanced Diabetes Management Specialist (#0365430-45), The American Nurses Credentialing Center
Journal Reviewer: *The Journal of the American Pharmaceutical Association*.

Bonnie Falcione, PharmD

Associate Editor, *Diabetes Forecast*.
Society of Critical Care Medicine
Membership Committee 2006
Pennsylvania Society of Health-Systems Pharmacists
Council on Organizational Affairs
Society of Infectious Diseases Pharmacists
Membership Committee 2004-2005

Denise Howrie, PharmD

Rho Chi Faculty Award for Teaching Innovation

Sandra Kane-Gill, PharmD

Society of Critical Care Medicine, Presidential Citation
American College of Clinical Pharmacy
Chair, Publication Committee
Society of Critical Care Medicine
Member, Advocacy Committee
International Society of Pharmacoeconomics and Outcomes Research
Co-Chair, Fellowship Standards Taskforce
United States Pharmacopeia
Member, Therapeutic Decision Making Expert Committee
Fellow Society of Critical Care Medicine

Edward P. Krenzelok, PharmD

American Association of Poison Control Centers
(Board of Directors, 2003-2006, 2006-2009)
(Chair, Ethics Committee 2004-)
American Board of Applied Toxicology
(Board of Examiners, 1988-91)
(Board of Directors, 1990-91)
(Chairman Credentialing Committee, 1988-90)
American Society of Health-System Pharmacists
Emergency Medical Service Institute of SW PA
European Association of Poisons Centres and Clinical Toxicologists
(Scientific Review Committee, 1998-2002)
(Eastern European Committee, 2005-)
Krakow (Poland) Medical Society-Clinical Toxicology Branch
Rho Chi Society
St. Petersburg (Russia) Association of Clinical Pharmacology and United States Pharmacopeia
Advisory Panel on Clinical Toxicology/Substance Abuse 1990-1995
Advisory Panel on Clinical Toxicology/Substance Abuse 1995-2000
Council of Experts 2000-2005
Chair, Expert Committee on Clinical Toxicology/Substance Abuse 2000-2005
Nominating Committee, 2004-2005
Model Guidelines Expert Committee
Council of Experts 2000-2005
Council of Experts 2005-2010
Rotary International-Paul Harris Fellow

Colleen Lauster, PharmD, CDE

Quality Cup Winner” for Improving Insulin Discharge Instructions: Comparison of Insulin Discharge Instructions Before and After Implementation of a Standardized Insulin Discharge Form, Quality and Innovation Fair, University of Pittsburgh Medical Center, June 2007
First Prize: “Presidents Award for Performance Improvement” for Comparison of Insulin Discharge Instructions Before and After Implementation of a Standardized Insulin Discharge Form, Quality and Innovation Fair, University of Pittsburgh Medical Center, June 2007
Certified Diabetes Educator (CDE)
Pharmacy-Based Immunization Delivery, Certificate of Achievement

Scott Mark, PharmD, MS, Med, CHE, FASHP

National Capitol Healthcare Executives Healthcare Mentorship Award
Faculty Honoree, University of Pittsburgh Honors Convocation
Fellow, American College of Healthcare Executives
Marquis’ Who’s Who in Science and Engineering 10th Edition
Pharmacy Leadership Institute Alumni in Residence
Member of an Interdisciplinary Team that received 2nd Place for Innovation at the UPMC American Association of Colleges of Pharmacy
Academic Leadership Fellow 2006-2007
Section of Teachers of Pharmacy Practice
Nominating Committee 2006-2007
Alternate Delegate to the Annual Meeting 2007
Phi Lambda Sigma National Pharmacy Leadership Society
Academic Advisor
Kappa Psi Pharmaceutical Fraternity
Hospital Counselor for Beta Kappa Chapter (University of Pittsburgh)

Susan Meyer, PhD

Member, Distance Education Advisory Board, Creighton University School of Pharmacy and Health Sciences
Member, Board of Directors, Association for Prevention Teaching and Research
Member, Editorial Board for *International Journal of Pharmacy Education and Practice*
Member, Planning Committee for the Joint Canadian-American Interprofessional Education Conference, University of Minnesota
Member, Academic Affairs Committee, American Association of Colleges of Pharmacy
Member, Council of Deans Healthy Student Task Force, American Association of Colleges of Pharmacy

James J. Pschirer, PharmD

Member of multi-disciplinary team that won 1st place award for Innovation in the 2007 UPMC Shadyside Quality Fair for "Nursing-Pharmacy Team: Improving Regulatory AcuDose Event Analysis"

Ted Rice, PharmD

Member, Senate Bylaws and Procedures Committee University of Pittsburgh (elected position)
Committee G -Institutional Review Board (IRB), University of Pittsburgh
Pharmacy-based Immunization Delivery Certificate. CPN #202-0011
National Disaster Medical System (NDMS) Distinguished Member Award. National Pharmacy Response Team – Region III. Awarded during the 2007 NDMS Conference, March 2007
PSHP Past-President Gavel Award. (Presented 10-12-06)
Merck Outstanding Achievement in the Profession of Pharmacy Award. (Presented 10-12-06)
Bristol-Myers Squibb Leadership Award. (Presented 10-12-06)
Rho Chi Honor Society

Christine Ruby, PharmD, BCPS

Gerontological Society of America, Program Committee for Clinical Medicine Section
American College of Clinical Pharmacy Advocacy Program, Geriatric PRN delegate

Kristine S. Schonder, PharmD

National Quality Forum Steering Committee

National Voluntary Consensus Standards for End Stage Renal Disease Care

National Quality Forum Technical Advisory Panel

End Stage Renal Disease Measure Evaluations for Anemia

Amy Seybert, PharmD

Academy of Students of Pharmacy, Faculty of the Year

American Association of Colleges of Pharmacy, Faculty Delegate

Michael Shullo, PharmD

Cohen Teacher of the Year, University of Pittsburgh School of Pharmacy

Susan Skledar, RPh, MPH

Pharmacy-Based Immunization Delivery Certification

UPMC-P President's Performance Improvement Team Quality Award, 1st place Patient Safety.

"Balancing Safety and Variation in Practice: Standardizing Continuous Infusions at UPMC." Ervin KC, *Skledar SJ*, George B, Tasota F, Kowiatek JG, Gross PR, Rutter P, Guttendorf S, Malich C, Michalec D, Caldwell D, Martinelli B, Quinlan J, DeVita M, Simmons R et al.

National Association of Healthcare Quality, San Diego, Calif., 2nd place

Poster competition. Recognizing Innovation and Improvement: the Quality and Innovation Fair. 31st Annual Educational Conference. San Diego, Calif. September 17-19, 2006.

Skledar SJ, Richards M, Kowiatek JG, Guentner K.

ISMP Cheers! Award

ISMP Medication Safety Alert® Subscriber Award, Institute for Safe Medication Practices

UPMC Presbyterian Pharmacy Medication Safety/Formulary Management Team (Drug Use and Disease State Management Program)

Circle of Excellence in Patient Safety Award

American Association of Critical Care Nurses, Atlanta Ga.

"Balancing Safety and Variation in Practice: Standardizing Continuous Infusions" George E, *Skledar SJ*, Tasota F, Malich C, Michalec D, Gross P, Guttendorf S, Ervin KC, Kowiatek J, Martinelli B, Shearn D.

UPMC-P President's Performance Improvement Team Quality Award, 1st place Sustained Achievement in Continuous Quality Improvement

"Improving the Care of the Patient With Pneumonia: the Focus Continues"

Dinella J, *Skledar SJ*, Ervin KC, Santarelli D, Towers A, Sheth H, Yealy D, Kusajewski M, Bertoty D, Richards P, Fritzley S.

UPMC-P President's Performance Improvement Team Quality Award, 4th place Patient Safety "Heparin Hazards: Decreasing Heparin Administration and Monitoring Errors" Dinella J, Shatzer M, Richards P, *Skledar SJ*, Janov C, Santarelli D, Towers A, Sheth H.

ASHP Annual Meeting Poster Competition, 3rd place

Skledar SJ, Lavsa S, Hynicka L, *Culley CM*, Dunwoody CJ. Monitoring acetaminophen dosing: a safety evaluation. ASHP Annual Meeting. San Francisco, Calif., June 25, 2007.

Chairman's Award, 2007, University of Pittsburgh School of Pharmacy, Department of Pharmacy and Therapeutics, Resident Research Series faculty mentor award.

Denise Sokos, PharmD, BCPS

Task Force on Advancement of Residency and Fellowship Training
 Abstract reviewer for 2006 Annual Meeting and 2007 Spring Practice and Research Forum
 Abstract reviewer for 2007 Annual Meeting
 Recognition: Editorial Board, Journal of Managed Care Pharmacy

Melissa Somma, PharmD, CDE

Pitt Band Alumnae of Distinction
 APhA-APPM Professional Merit Award

Gary Stoehr, PharmD

The Rho Chi Society, President-Elect, President, Past President

James Tsikouris, PharmD

National Advisory Panel for the Society of Hospital Medicine: Consensus Panel Evaluating the use of Acute Heart Failure Observation Units

Margaret Verrico, BS

Co-Chair, University of Pittsburgh Medical Center (UPMC) Presbyterian Adverse-Drug Event (ADE) Subcommittee
 Co-Chair, UPMC Presbyterian Extravasation Management Guideline Task Force, Co-Chair
 Co-Chair, Allergy Communication Task Force
 School of Pharmacy Preceptor, Special Recognition
 Member, National Golden Key Honor Society
 Member, Rho Chi Pharmacy Honor Society

Robert J. Weber, MS

Editorial Advisory Board for Hospital Pharmacy; Co-Editor, "Director's Forum" monthly column
 Pharmacy-Based Immunization Delivery Certification
 ISMP Cheers! Award
 ISMP Medication Safety Alert® Subscriber Award
 Institute for Safe Medication Practices
 UPMC Presbyterian Pharmacy Medication Safety/Formulary Management Team (Drug Use and Disease State Management Program)

Faculty Changes**New Faculty**

Name	Current Rank	Department	Prior Institution/Rank
Jan Beumer	Research Assistant Professor	Pharmaceutical Sciences	University of Pittsburgh Cancer Institute/Post Doctoral Associate
Kerry Empey*	Assistant Professor <i>Start date 8/1/07</i>	Pharmacy and Therapeutics	University of Kentucky Graduate Student
Xiang Gao	Research Assistant Professor	Pharmaceutical Sciences	Private Industry
Stanton Jonas	Senior Lecturer	Pharmaceutical Sciences	Allegheny County Public Health Department
Jiang Li	Research Assistant Professor	Pharmaceutical Sciences	Former Postdoctoral fellow

Name	Current Rank	Department	Prior Institution/Rank
Yong Li	Assistant Professor	Pharmaceutical Sciences	Van Andel Research Institute, Grand Rapids/Research Scientist
Sripal Mada	Research Assistant Professor	Pharmaceutical Sciences	Former Research Associate
James Pschirer	Assistant Professor	Pharmacy and Therapeutics	UPMC PUH SHY, Director, Pharmacy Operations
Karen Pater*	Assistant Professor <i>Start date 8/1/07</i>	Pharmacy and Therapeutics	University of Illinois Chicago, Assistant Professor
Ty Ridenour	Research Associate Professor	Pharmaceutical Sciences	Penn State University Prevention Research Center/Research Associate Professor
Rafael Saenz	Instructor	Pharmacy and Therapeutics	UPMC PUH SHY, Mgr., Pharmacy Operations
Xiang-Qun Xie	Professor	Pharmaceutical Sciences	University of Houston/ Associate Professor
Yuxun Zhang	Research Assistant Professor	Pharmaceutical Sciences	University of Houston

*Recruited in FY07

Promotions

Name	Previous Rank	New Rank	Department
Billy Day	Associate Professor	Professor	Pharmaceutical Sciences
Wen Xie	Assistant Professor	Associate Professor /Tenure	Pharmaceutical Sciences
Michael Vanyukov	Associate Professor	Associate Professor/Tenure	Pharmaceutical Sciences

Departing Faculty

Name	Previous Rank	Department	Position Accepted
Ryan Bookout	Assistant Professor	Pharmacy and Therapeutics	Clinical Pharmacist, H.Lee Moffitt Cancer Center, Tampa, Fla.
Teresa Donegan	Assistant Professor	Pharmacy and Therapeutics	
Karen Laughlin	Assistant Professor	Pharmacy and Therapeutics	Medical Info Liaison, Mylan Labs, Morgantown, W.Va.
Rhonda Rea	Assistant Professor	Pharmacy and Therapeutics	Sanofi Aventi
Rowena Schwartz	Associate Professor	Pharmacy and Therapeutics	Johns Hopkins Univ. Hospital

Pre-Doctoral Fellows

Name	Degree/Title	Department
Tina M. Scipio	PharmD/Research Associate	Pharmacy and Therapeutics



Enhancing the
Health of the
Community
Through
Partnerships



Enhancing the Health of the Community Through Partnerships

During the last year, the School of Pharmacy continued to improve the health of the people of the Commonwealth of Pennsylvania, particularly Western Pennsylvania, through ambulatory and hospital programs with its partners in patient care: UPMC, VA, Rite Aid and PharmaCare. The health and well-being of patients were improved in very direct ways because faculty:

- Provided pharmaceutical care to over 30,000 hospital and community patients.
- Reduced the resistance of “super bugs” to antibiotics by 20%.
- Increased by 30% the number of pharmacy clinics that serve the homeless, uninsured, and under-insured.
- Conducted the first pharmacy-based immunization clinic in Western Pennsylvania and vaccinated over 80 patients with influenza and pneumococcal (“pneumonia”) vaccine.
- Managed anticoagulant medication for over 950 patients and 65% of the patients achieving blood levels of anticoagulant in the safe range.
- Facilitated early discharge from the hospital for 135 patients receiving anticoagulation.
- Trained 67 pharmacists, students and other health care professionals to provide medication therapy management through the conceptual framework of the Pittsburgh Model.

These accomplishments move the School closer to its vision for patient care:

By 2011, the School of Pharmacy will have:

- **Developed a model system for comprehensive care that is implemented for all UPMC patients, assuring safety and efficacy of medications during their hospital stay and transition back to the community.**
- **Created national acceptance of standardized pharmacy care in the community that enhances patient well-being through the effective and safe use of medications.**

Programs Providing Care to Hospital Patients

University of Pittsburgh Medical Center

The University of Pittsburgh Medical Center is the largest academic health center in the country and is the primary partner of the School of Pharmacy. Through our partnership with UPMC, Pharmacy and Therapeutics faculty members provide direct patient care consultations in both general and specialty

practice settings, including internal medicine, transplantation, cardiology, critical care, pediatrics, oncology, surgery, trauma, geriatrics, ambulatory care, and diabetes care. During FY07, faculty members at UPMC:

- Provided care to patients during approximately 25,000 patient visits;
- Made over 20,000 changes to patients' medication regimen;
- Prevented medication errors due to improper dose or drug in 49% of patients.

UPMC Medication Patient Safety Program

The medication safety program has a number of measurable clinical outcomes. As a result of deliberate actions by faculty to improve quality and safety during FY07:

- Medication error reporting rates at UPMC continue to be maintained at 25% above the national average;
- Computerized physician order entry systems were installed in two UPMC hospitals;
- Inpatient influenza and pneumococcal polysaccharide vaccination rates are 25 percentage points above the national average; see graph later in this section;
- The incidence of drug-resistance to highly used antibiotics has declined by almost 20%;
- Medication errors in prescribing antibiotics have been held in check to reduce the rate of *C. difficile* infections by 10%;
- The use of drugs considered to be dangerous in the elderly has been significantly reduced;
- Patient awareness of medication education is significantly improved by 50% over the last two years;
- Over 25% of medication regimens for high-risk hospitalized patients being discharged to home have been simplified to minimize confusion and decrease the risk of medication errors (part of a project funded by the Agency for Healthcare Research and Quality).

UPMC St. Margaret Family Medicine Program

Clinical pharmacy education has been an integral part of the Family Practice Residency Program at UPMC St. Margaret for over 20 years. Pharmacy faculty members work closely with the medical team to educate the family practice residents on evidence-based medication utilization, collaborative patient care, and patient/public health education.

During the past year, faculty:

- Received accreditation by the American Society of Health-System Pharmacists (ASHP) for a PGY-1 Pharmacy Practice Residency program, and expanded the number of pharmacy residency positions;
- Cared for approximately 800 patients in the three UPMC St. Margaret Family Health Centers (Lawrenceville, Bloomfield/Garfield, and New Kensington). The faculty provide clinical

pharmacy services primarily in the areas of anticoagulation, smoking cessation, hypertension, diabetes, hyperlipidemia, asthma, and patient adherence;

- Assisted well over 500 indigent patients in obtaining their medication through a collaborative effort between the health centers, the UPMC St. Margaret inpatient pharmacy, and Falk Pharmacy.

UPMC Presbyterian Patient Medication Education Program

Under the guidance of pharmacy faculty members, pharmacists at UPMC Presbyterian Shadyside provide individualized education for patients who:

- are expected to be discharged on 10 or more total oral medications or five or more new medications;
- are admitted for a drug-related problem (e.g., wrong medication, wrong dose, drug interaction, adverse drug reaction);
- possess educational needs that are not sufficiently met by nursing-directed efforts.

In addition, pharmacists provide medication management recommendations in the medical record to communicate care recommendations.

Through this program last year:

- Nearly 1,600 high-risk hospitalized patients were instructed on their medication;
- In 480 patients (30%), pharmacists made at least one recommendation for optimizing the patient's medication regimen. The types of interventions were classified as: dose optimization (27%), optimal drug selection (23%), untreated indication (18%), medication reconciliation (15%), safety (5%), therapeutic duplication (5%), lack of indication (4%), and route optimization (3%);
- Of the 480 patients in whom interventions were recommended, over 45% of the interventions were implemented by the prescribing physician.

UPMC Presbyterian Internal Medicine

Pharmacists provide direct patient care for adult patients with multiple medical issues in collaboration with team members from other professions. Commonly encountered disease states include diabetes, pneumonia, urinary tract infections, COPD, asthma, seizures, CAD, CHF, HTN, renal disease, liver disease, DVT/PE, inflammatory bowel disease, and electrolyte abnormalities. During the year, faculty caring for patients on the UPMC Presbyterian Internal Medicine service:

- Provided expert medication management for over 1,00 patients (>7200 patient-days);
- Developed and conducted an elective advanced practice rotation in medication education for four P4 PharmD students.

Diabetes Service. The Diabetes Service of the Internal Medicine Division provides a focused approach to inpatient diabetes care to prevent hypoglycemia and improve patients' understanding of insulin therapy. During the last year, faculty working on the diabetes service:

- Developed a patient safety project that received the President's Cup for Quality. This project involved developing a "Discharge Instructions for Insulin Form" (DIFI) for patients to use to assure for the safe use of insulin. The DIFI form was provided to 52% of patients discharged on insulin. No patients in the DIFI group were readmitted for diabetes-related reasons compared to 6% in the group that did not receive the DIFI;
- Developed inpatient initiatives for managing patients with hyperglycemia;
- Implemented a pilot Targeted Glycemic Management Program on select patient care units at UPMC Presbyterian;
- Implemented a protocol for transitioning patients from IV to SQ insulin in the ICU setting.

Transitional-Care Unit and Intermediate-Care Service

Faculty members from Pharmacy and Therapeutics have responsibility for providing individualized pharmaceutical care for the patients admitted to the 58 beds of the UPMC Presbyterian Transitional Care Unit (TCU) and Intermediate-Care Service. Patients on these services are generally geriatric, internal medicine, or post-surgery (especially gastrointestinal, cardiothoracic, and orthopedic surgery).

During FY07, faculty:

- Managed medication therapy in approximately 4,000 patient-days on an inter-professional team in the TCU;
- Provided comprehensive patient evaluation and drug therapy interventions, DUDSM guideline implementation/compliance, and interdisciplinary education, including presentations to new TCU and nurse practitioners, and student nurse orientation;
- Educated 20 nursing practitioners on geriatric pharmacotherapy;
- Conducted "Ask the Pharmacist" sessions with patients and their families to discuss medications and drug-related problems.

Children's Hospital of Pittsburgh and UPMC

Faculty at Children's Hospital of Pittsburgh and UPMC provided pharmaceutical care for nearly 500 pediatric oncology patients. As part of the patient care team, faculty also:

- Developed supportive care regimens for chemotherapy-induced nausea and vomiting (CINV) for the Children's Oncology Group and Pediatric Brain Tumor Consortium of Children's Hospital. These guidelines were used successfully in over 200 pediatric patients.

UPMC Critical Care

The Critical Care Pharmacy team has continued to improve the standard of care for intensive care patients. The team works closely with operational pharmacy, DUDSM program, Center for Pharmacoinformatics and Outcomes Research, and the department's administration to achieve the goals

of providing cutting-edge service, teaching and research in the care of the critically ill. During the last year faculty:

- Provided pharmaceutical care for 7,700 inpatients totaling 52,000 patient days on eight intensive care units;
- Coordinated a patient safety effort to identify over 5,000 “at-risk” patients treated with the anticoagulant medication heparin. Anticoagulant adverse events were prevented in 5% of those patients by anticoagulant medication being changed or modified;
- Cared for approximately 1,500 heart failure patients through the interdisciplinary effort at UPMC Presbyterian.
- Trained 34 students and residents in critical care pharmacotherapy;
- Hosted a visiting pharmacist from Australia

UPMC Transplant

School of Pharmacy faculty members provided a comprehensive pharmacy service to transplant patients at UPMC Presbyterian. As part of the patient care team, faculty members:

- Provided care to transplant patients during 7,100 patient visits during the year as well including 550 new patients;
- Made over 17,500 medication changes;
- Trained 26 students and residents;
- Developed innovative methods for immunosuppressant medication dosing that preserved renal function in all “high risk” heart transplant patients;
- Through a collaborative approach, improved the cholesterol values by 66% in heart transplant patients;
- Developed a protocol for aggressive discontinuing of steroids that resulted in 85% of heart transplant patients being “steroid free” after one year.

UPMC Antibiotic Management Program

The antibiotic management program is collaboration of School of Pharmacy faculty with the School of Medicine’s Division of Infectious Diseases physicians that monitors the selection and dosing of antibiotics at UPMC Presbyterian.

Highlights of FY07 include:

- Faculty members of the AMP reviewed and optimized antibiotic therapy for more than 12,500 patients during FY07;
- The Antibiotic Management Team, in order to better identify risks for bacterial resistance to newer Gram-positive antimicrobials, conducted the largest study to date determining risks for isolation of Linezolid-resistant Vancomycin-resistant Enterococci;

- Published the 3rd edition of the UPMC Guide to Antimicrobial Chemotherapy distributed to over 2,500 clinicians at UPMC;
- Reduced resistance of antibiotics to “super bugs” by 20%;
- Reduced antibiotic costs by \$350,000.
- Trained 12 students and residents.

Oncology Pharmacy Program at UPMC Magee-Womens Hospital

Pharmacists and pharmacy technicians provide comprehensive clinical services for the Magee-Womens Hospital oncology program. The Oncology Clinical Pharmacy program provides care for patients on the following services at Magee-Womens Hospital. During the year, faculty:

- Implemented a new clinical oncology pharmacy service;
- Cared for over 1,100 patients in the inaugural year (FY07).

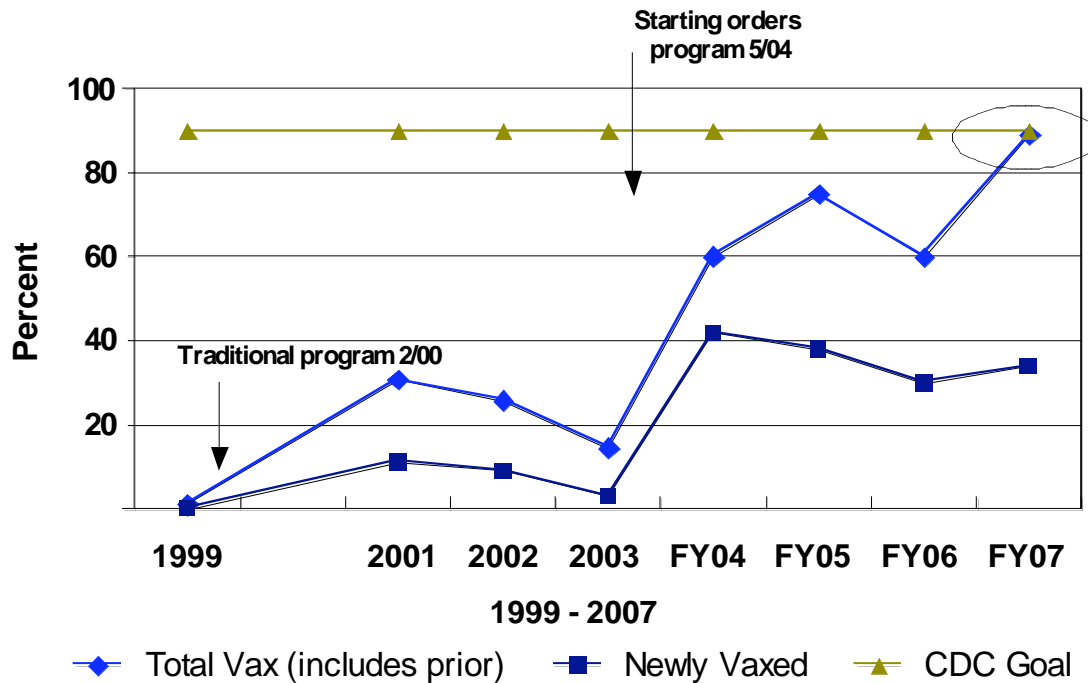
UPMC Drug Use and Disease State Management (DUDSM) Program

Faculty members continue to create innovation in medication use through the DUDSM Program by supporting infrastructure for evidence-based, safe, and cost-effective use of medications across UPMC. During the last year, faculty, along with other staff members of the DUDSM program:

- Developed and approved 33 UPMC medication safety guidelines and formulary reviews. These guidelines include: patient safety/new drug practice (70%); innovative off-label use (12%); disease management (9%); therapeutic class reviews accounted for 9%;
- Trained a total of 58 students, residents, nursing students and pharmacists on using evidence-based medicine in drug prescribing;
- Developed over 100 standing orders for use in the computerized physician order entry system for UPMC;
- Performed over 10,000 medication therapy management interventions in over 5,500 inpatients including automatic renal drug dosing;
- Assured for compliance rate of 90% for evidence-based drug use initiatives;
- Provided training on formulary management guidelines, reviews and resources to new pharmacists and current pharmacists, including pharmacy residents, practicing at UPMC Presbyterian;
- Assisted in the design and implemented a new computerized critical alert and clinical documentation program throughout the UPMC called Theradoc[®]. This program is integrated with UPMC’s electronic health record and identifies opportunities for medication therapy intervention by using an expert alert system;
- Improved compliance by 60% to the guidelines as set forth by the National Surgical Care Improvement Project (SCIP), which is a national core quality measure through the Centers for Medicare and Medicaid Services, Centers for Disease Control and Prevention.

As demonstrated in the figure below, the pharmacy-driven UPMC Presbyterian inpatient vaccination program for pneumococcal polysaccharide and influenza vaccination is increasing, with elderly vaccination rates that are now nearing the national goal set by the Centers for Disease Control (CDC). Vaccination rates are a UPMC Presbyterian quality performance measure for patients admitted with pneumonia. UPMC Presbyterian's vaccination rates average 94% and exceed Pennsylvania and national rates by as much as 25%.

Pneumococcal Vaccination Rate



VA Pittsburgh Healthcare System

Comprehensive clinical pharmacy services for the VA Pittsburgh Healthcare System (VAPHS) are provided by a coordinated program including pharmacists, PGY1 residents, and pharmacy technicians. The VAPHS patient population is mainly a male geriatric population; however, it is a center of excellence for Women's Health and is a VA transplant center. The faculty at the VA:

- Cared for patients during an estimated 8,500 inpatient and outpatient visits;
- Coordinate a national traineeship for anticoagulation services for the American Society of Health-System Pharmacists (ASHP);
- Prevented approximately \$1 million dollars in unnecessary drug expense during the last year by automating an electronic prescribing program for the anti-platelet drug clopidogrel.

Programs Providing Care to Patients in the Community

Under the direction of School of Pharmacy faculty members and with the support of administration, this initiative has led to the development of new and the strengthening of existing community-based programs and partnerships that provide care for patients and educational experiences for students.

The Pittsburgh Model

The Pittsburgh Model for community medication therapy management has three elements: a private patient-pharmacist visit, the creation of individualized patient-care teams (the patient, the physician, and the pharmacist), and written communication to the patient and to the physician. The School's partners in patient care have implemented or are refining this comprehensive care model.

Rite Aid Corporation

The relationship with Rite Aid officially began in FY04 with an agreement to establish Medication Therapy Management (MTM) Services in Rite Aid Centers of Excellence where the Rite Care™ brand of the Pittsburgh Model is now practiced. Since then, the program has flourished so that during the past year:

- The first Community Pharmacy Resident graduated and three other residency positions were approved;
- 37 students, pharmacy and physician residents were trained in the Rite Care™ Centers;
- 30 Rite Aid and 4 University/UPMC pharmacists from three states were trained in the Pittsburgh Model to provide MTM services.

Family Medicine Residency Program (UPMC St. Margaret)

Through this partnership that was established in FY06, faculty created an inter-professional training program with the Family Medicine Residency program. Second-year physician residents experience patient care delivery in a community pharmacy in conjunction with a Rite Care™ pharmacist; there is a strong emphasis on mechanisms for achieving inter-professional collaboration in the community once the resident is in practice.

University Diabetes Care Associates

University Diabetes Care Associates (UDCA) offers a wide range of services to patients and referring physicians (36 practices) including disease state management, patient education and training, medical nutrition counseling, care plan development, and pharmacokinetic consults. In FY07, faculty:

- Conducted 700-800 visits with primarily elderly patients;
- Trained 8-10 Doctor of Pharmacy students and pharmacy residents;
- Developed a community education outreach program called *Know Your Health Professional: A Guide to Better Diabetes Management*.

The Grace Lamsam Pharmacy Program

Formerly the Program for Pharmaceutical Care to Underserved Populations (PPCUP)

The Grace Lamsam Pharmacy Program partners with the Health Care for the Homeless Project (HCHP), North Side Christian Health Center, and the RxCouncil of Western Pennsylvania, and collaborates with the Program for Health Care to Underserved Populations and Operation Safety Net to provide medication access to the underinsured and the uninsured. Area volunteer pharmacists and students provide pharmacy services at free primary care clinics, shelters, and drop-in centers in Pittsburgh. Mostly homeless and uninsured patients are served through these clinics with the most common disease states being hypertension, diabetes, asthma, depression, upper respiratory tract infection and pain.

Grace Lamsam Pharmacy Program Summary

Service	Description of service activities	Location	How often is service provided & at what times	Providers involved in delivering service	# of individuals served/ # attendees
Health Care for the Homeless Project	<ul style="list-style-type: none"> •On-site pharmacy services •Pharmaceutical Care Quality Assurance •Formulary development and maintenance •Cost-effectiveness Outcomes •Inventory Management Protocols •Development of Clinical Practice Guidelines-Best Practices 	Birmingham Free Clinic Women's Center Pleasant Valley Bethlehem Haven Light of Life Salvation Army North Side	Monday – Saturday Ten clinics that meet half-day at various times	Community Volunteers P2, P3 and P4 students SOP Faculty Pharmacy residents - 15 volunteer pharmacists	Total patient encounters: approximately 3800 Prescriptions: 5000
<ul style="list-style-type: none"> • Preventive Care Clinic (Smoking Cessation) 	--blood pressure screening --consultation --smoking cessation counseling --blood glucose testing --heart disease screening --diabetes screening	Birmingham Clinic	Thursdays 9am-11:30am	Pharmacy students Medical students SOP faculty Medical residents Pharmacy residents	Total patients: 50 Patient encounters: 250
North Side Christian Health Center Pharmacy Services Clinic	<ul style="list-style-type: none"> •Medication Management Service •Access to medications through Pharmaceutical Manufacturer Patient Assistance Programs 	North Side Christian Health Center, Community Health Center	Tuesday and Wednesday from 1:00pm-5:00pm	1 Pharmacist P4 students on rotation	Total patient encounters: 420
Rx Council of Western Pa.	<ul style="list-style-type: none"> •Assist with activities of Rx Council such as phoning patients, paperwork to access medications, formulary development •Affordability assessments for clients 	Rx Council	Wednesday 1:00pm-4:00pm during fall and spring semesters	P3 Students	Paperwork for approximately 30 patients per session

Other highlights for the year include:

- Expanded Medication Therapy Management Services at North Side Christian Health Center and the Birmingham Free Clinic to an additional 50 patients;
- Filled over 4,800 prescriptions using approximately \$120,000 in donated pharmaceuticals;
- Finalized an agreement to expand services with pharmacy students to the federally qualified health centers on the 9th Street Clinic in McKeesport and the Squirrel Hill Health Center.

Center for Minority Health

For the fourth year in a row, the School of Pharmacy partnered with the Center for Minority Health for “Take a Health Professional to the People Day.” The School of Pharmacy was the major partner, and:

- Provided services to nine barbershops located throughout the city of Pittsburgh;
- Cared for 200 patients through blood pressure exams, distribution of medication cards, and referral to urgent or emergent care facilities.

UPMC Falk Pharmacy

School of Pharmacy faculty members supports the operational and clinical missions of Falk Pharmacy, a hospital-based retail pharmacy located on the UPMC Presbyterian campus. During FY07, Falk Pharmacy faculty and staff:

- Filled approximately 132,000 prescriptions by increasing the pharmacy space by five-fold and through installing a “State-of-the-Art” bar-code filling system;
- Implemented the Falk Pharmacy Community Care Medication Therapy Management Service based on the Pittsburgh Model. In the first six months of the program ending in June 2007, faculty pharmacists:
 - Identified 233 patients as “high risk” for medication problems
 - Identified 16 patients who presented with an adverse drug reaction at the point-of-dispensing
 - Made 65 interventions during 25 patients visits, identifying 1.9 medication problems per visit
- Conducted the first pharmacy-based immunization clinic in Western Pennsylvania administering 76 influenza and 5 pneumococcal vaccines;
- Managed anticoagulant medication for over 950 patients with 65% of the patients achieving blood levels of anticoagulant in the safe range;
- Facilitated early-discharge from the hospital in 135 patients who had been started on home low-molecular-weight-heparin;
- Cared for over 230 patients in the Benedum Geriatric Center, identifying and resolving at least one drug-related problem per patient;

- Set up medication boxes for seven “high risk” elderly patients that involved an intensive review of reordering medication and loading of pill-boxes by the pharmacist. These patients see the pharmacy faculty member on a bi-weekly or monthly basis.

Pittsburgh Poison Center and Drug Information Center

Pittsburgh Poison Center

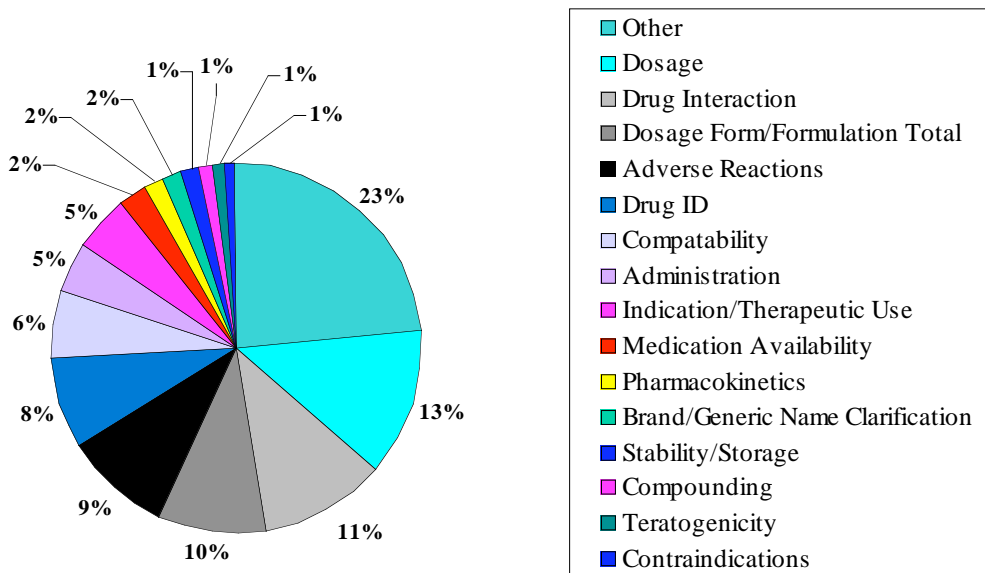
The Pittsburgh Poison Center (PPC), a division of the Pharmacy Department at the University of Pittsburgh Medical Center, is under the direction of Dr. Edward P. Krenzelok, professor of pharmacy and pediatrics. During FY07:

- The activities of the Poison Center and the UPMC Drug Information Center were formally integrated;
- The PPC and UPMC Drug Information Center relocated to a newly renovated state-of-the-art space in the Birmingham Towers in the South Side (a neighborhood of Pittsburgh);
- The Center answered 132,923 calls and had a total call volume of 181,387, a 12.3% increase over FY06;
- Provided poison and bio-terrorism preparedness information to the community.

Drug Information Center (DIC)

As a patient-care service of UPMC, the Drug Information Center:

- Answered 1,416 questions from health care professionals at UPMC and in the community. The figure below shows the distribution of these questions.



Highlighted Educational Activities of the Pittsburgh Poison Center

Task	Activity	Partners	Comment
Information to the Public	Distribution of Mr. Yuk Stickers	Pediatricians, hospitals, state health education centers, general public	Over 750,000 sheets of stickers and 250,700 other pieces of poison prevention and poison center awareness material were distributed
		Giant Eagle Pharmacies	Approximately 350,000 stickers distributed and 63,000 brochures
	Poison prevention/education materials	Variety of public groups	2,625 individual requests filled
	Invited presentations	Variety of public groups including: area elementary schools, summer camps, county fairs, and senior groups	58 expert talks provided
Health Professional Education	Invited presentations on Medication Overdoses, Biological and Chemical Terrorism, and Contemporary Substances of Abuse, and others	Many including: North American Congress of Clinical Toxicology, American Society of Health System Pharmacists, PA Health System Pharmacists, University of Pittsburgh Schools of Nursing, Pharmacy, and Medicine, Conferences throughout the United States and in Europe.	111 expert talks
Media Contacts	Various requests to response to drug abuse and overdose cases, biochemical terrorism, and environmental/occupational toxicity incidents	Regional/National/International television, radio, and newspapers.	35 media contacts
Medical Literature	Contributed papers at national and international meetings		13 papers
	Published papers and book chapters		19 total
	Manuscripts in progress		14



Securing an Adequate Resource Base



Securing an Adequate Resource Base

Achieving the School of Pharmacy vision requires a financial, space, and technology resource base that supports the faculty, staff, and students in their endeavors. Fostering philanthropic support, efficiently utilizing space, acquiring space for new programs, and providing the faculty, students, and staff with the best technologies for research, education, and administration are critical to the School's success.

By 2011, the School of Pharmacy will have:

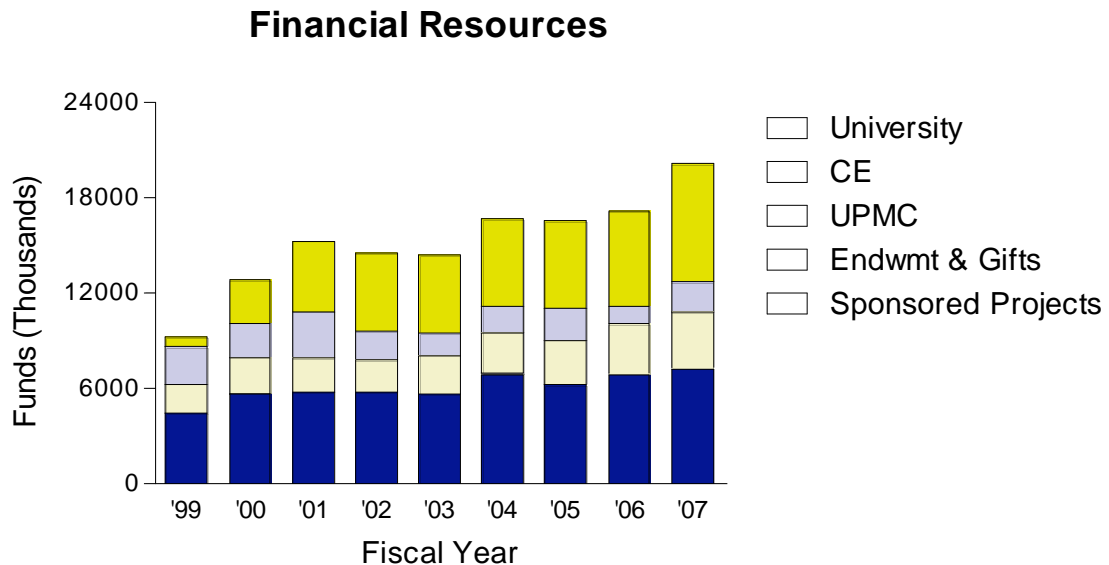
- Increased the resource base of the School of Pharmacy.

Financial

Budget

Sources of funding for the School of Pharmacy include allocation from the University of Pittsburgh, the University of Pittsburgh Medical Center, continuing education and auxiliary accounts, gifts and endowments, and sponsored project awards.

The graph below shows financial data for fiscal years '99 through '07.

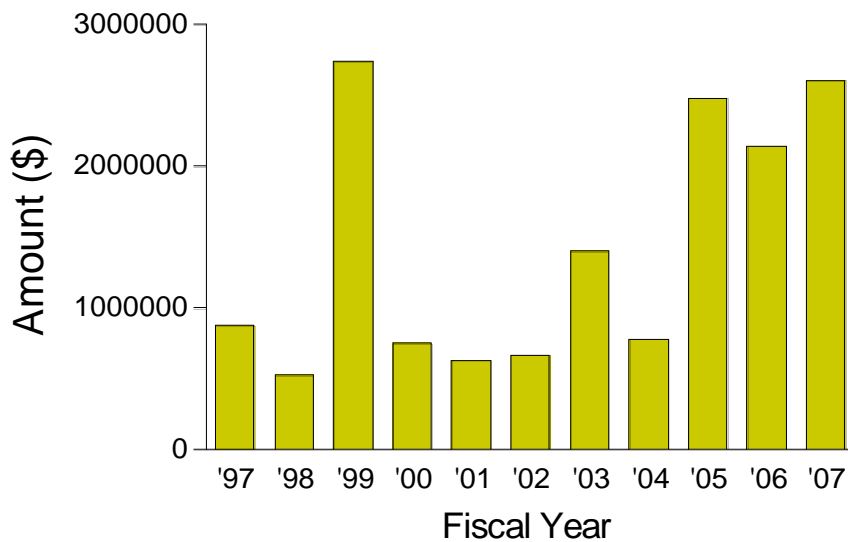


The graph demonstrates the growth of financial resources, particularly since 1999, when the total budget was \$9,181,870 and sponsored projects accounted for 6% of the budget. The total budget for FY07 was \$20,118,907. Together, the University (36%), UPMC (17%), and sponsored project awards (37%) accounted for 90% of the School's funding in FY07.

Institutional Development

The value of the School of Pharmacy is recognized in many ways, including philanthropic support. In FY07, the School of Pharmacy received charitable gifts, pledges, and grants totaling \$2,603,049 from a total of 900 individuals, foundations, corporations and other organizations. FY07 was the School of Pharmacy's second highest giving total since the start of the campaign in 1997. Fundraising totals for fiscal years 2005, 2006 and 2007 accounted for over 46% of the dollars raised over the past eleven years.

Total Gifts & Pledges By Year



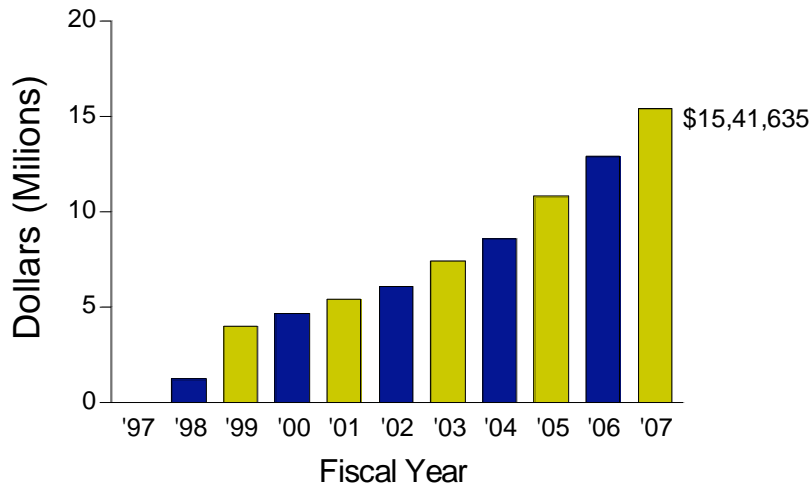
FY07 Giving to the School of Pharmacy by Source

	Alumni	Foundations	Corporations	Organizations	Friends
Amount	\$295,619	\$547,871	\$691,685	\$100,510	\$967,364
Percentage	11%	21%	27%	4%	37%

Capital Campaign

On July 1, 1997, the University launched the Capital Campaign for the University of Pittsburgh to support students, teaching and research. For the period July 1, 1997, through June 30, 2007, the School of Pharmacy raised a total of \$15,411,635 in gifts and pledges. Of this amount, a total of \$13,143,116 has been received and \$2,268,519 is due in pledges and planned gifts. Alumni, friends, corporations and foundations, faculty and staff have provided the philanthropic support. Securing endowed funds to provide scholarship and professorship support is the primary goal for the School of Pharmacy Capital Campaign.

Capital Campaign Total Gifts and Pledges



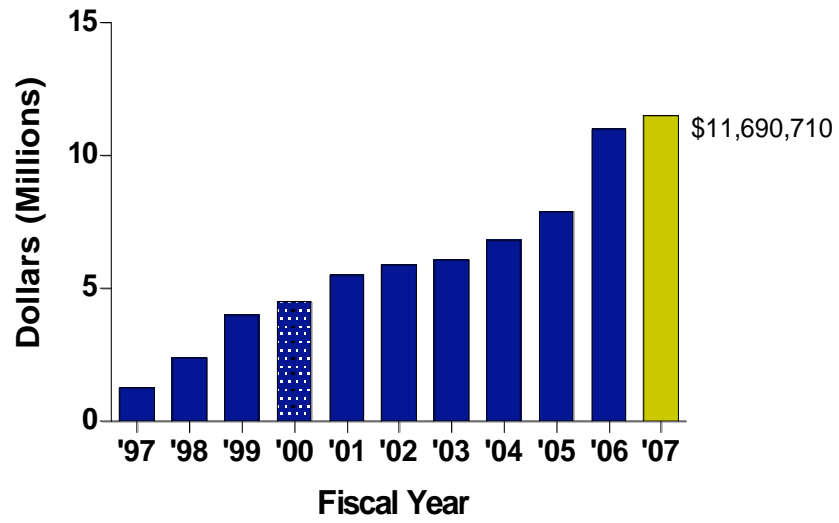
School of Pharmacy Capital Campaign by Gift Designation Gifts and Pledges* July 1, 1997 – June 30, 2007

Designation	Amount
Endowed Scholarships and Awards	\$ 3,515,096
Endowed Professorships (1)	\$ 3,000,000
Renovation: Seminar, Student Lounge, Labs	\$ 433,404
Programs and Research	\$ 4,334,745
Other	\$ 4,128,390
Total	\$ 15,411,635

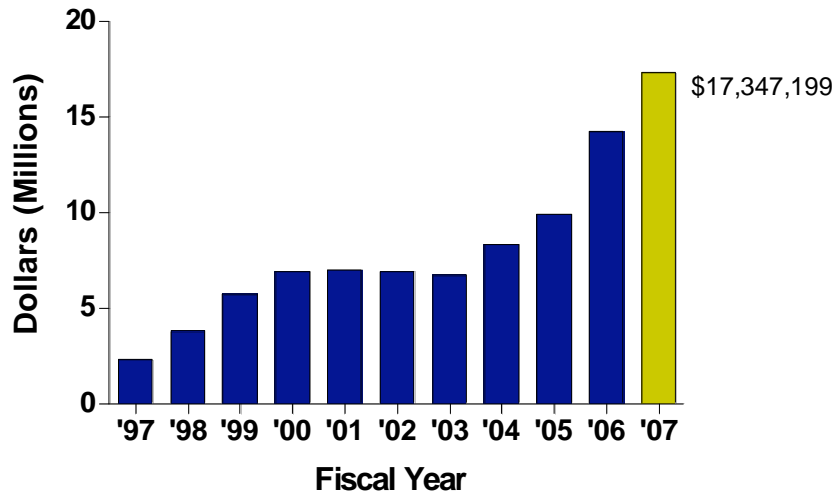
*Includes Voluntary Support (gifts) received during FY07

The market value for the School of Pharmacy endowment as of June 30, 2007, is \$17,347,199.

School of Pharmacy Endowment - Book Value



School of Pharmacy Endowment - Market Value



Physical Facilities

By 2011, we will have:

- **Increased the physical space of the School of Pharmacy.**

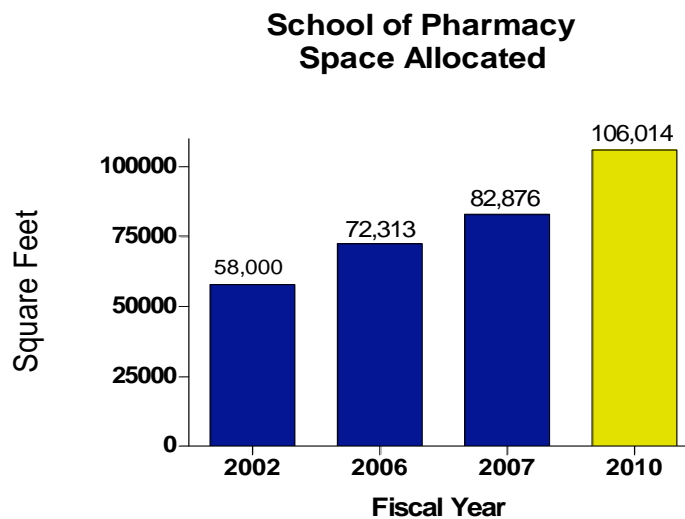
During the past year, the physical space of the School was affected as follows:

Renovation of the eleventh floor was completed for the Office of the Dean and administrative offices. A total of 2,402 sq. ft. was renovated.

The Drug Information Center, the Data Coordinating Center, and the Pittsburgh Poison Center moved into 10,570 sq. ft. of newly renovated space in Birmingham Towers.

An addition to Salk Hall to accommodate laboratory and research needs is in the planning stages. The need for an addition of approximately 80,000 sq. ft. in size has been identified. The project is to be designed and constructed within the next three to four years.

At the close of FY07, the School of Pharmacy occupied 47,571 sq. ft. in Salk Hall, 5,611 sq. ft. in BST3, 2,744 sq. ft. in UPMC Montefiore, 5,627 sq. ft. in UPMC Presbyterian, 898 sq. ft. in Lothrop Hall, 2,369 in Scaife Hall, 1,110 sq. ft. leased on Craig Street, 810 sq. ft. leased on Fifth Avenue and 16,136 leased in Birmingham Towers for a total of 82,876.



Enhancing Our Resource Base Through Efficiency and Effectiveness

By 2011, the School of Pharmacy will have:

- **Increased effectiveness and efficiency and will have enhanced the personal growth and professional development of the staff.**
- The School of Pharmacy continued participation in the University of Pittsburgh Channeled Spending Program in FY07, a program that maximizes spending power by purchasing through University-wide contracted suppliers. The staff goal was to reach 50% on-contract spending targeted commodities. Each year the on-contract spending continues to exceed the goal. Through this program the School:
 - Increased its overall on-contract spending from 76% in FY06 to 87% in FY07.
 - Saved approximately \$132,000 by purchasing through contracted suppliers during FY07.
- The School of Pharmacy continued to focus on developing problem-solving techniques to empower staff to improve work processes and efficiencies.
 - A staff retreat in August 2006 focused on diversity and multi-cultural issues in the workplace. Staff actively participated in workshops led by facilitators trained in these areas.
 - A peer-mentoring program was implemented for all new staff employees. The mentoring program was developed to improve efficiencies and increase productivity during the training period, integrate new staff into the School, and increase staff retention rate. Through FY07, three staff members were trained as mentors for the program.
 - Several staff members attended national meetings to participate in training and represent the School. Staff attended national AAPS, ACPE, EDUCAUSE, and ASHP meetings not only to receive training but also to present information, recruit students, and serve as representatives of the School of Pharmacy.

Information Technology

Accomplishments of the School of Pharmacy Information Technology Team during FY07 included:

- Implementation of new help desk software that allows:
 - tracking help tickets by the end users (help desk requesters);
 - analyzing data related to ticket handling;
 - assigning varying ticket problem types to different technicians.
- Facilitating the increased application of technology for educational purposes as a result of the School of Pharmacy Retreat in spring 2006:
 - Video projects: In an attempt to inform potential graduate students about ongoing research in the School, a video presentation of the research by several members of the faculty was made. This was used at the Graduate Education and Research at the University of Pittsburgh (GEAR UP) meeting in February 2007.
 - In a course titled “Teach Me to Teach You,” graduate students were required to give a “micro teaching unit” on a concept of their choice. This presentation was videotaped and provided to students for feedback.
 - Collaboration with Rich Orvetz at CIDDE and the School of Pharmacy technology team using CourseWeb to create online virtual patient case discussion boards and “chats” to be incorporated into subsequent classroom simulation, role-playing, videotaping, and uploading onto student portal for podcast. The use of this technology in Self Care and Nonprescription

Drug practica sessions enhances problem solving, critical thinking, clinical judgment, communication skills, active learning, and ultimately proficiency in managing self-treating patients through the use of technology, simulation, and virtual practice scenarios that could not be otherwise achieved in the classroom.

- Successful coordination with CSSD and CIDDE to implement services for faculty and staff of the School of Pharmacy:
 - Re-organized security VLANS for the Drug Discovery Institute (DDI) in BST3. Previously, the VLAN structure did not allow our faculty to work with and share IT resources with other faculty in the DDI. The result of the work with CSSD security is that now School of Pharmacy faculty members in the DDI and the other faculty of the institute share data and applications within a secure and stable firewalled network.
 - Worked with CIDDE and faculty members funded by the Provost's Innovations in Teaching Award so that software developed as part of that grant would function on servers within the School of Pharmacy.
 - Worked with CSSD to develop a secure network for 128 N. Craig Street, the clinical research site occupied by a School of Pharmacy faculty member.
 - Spearheaded a pilot project with CSSD to test wireless connectivity in Salk Hall. This pilot assisted CSSD in the planning for their current implementation of Wireless Pittnet, which became fully accessible in fall 2007.
- Planning and implementation of the hardware and software support for the DM Educate® Continuing Education course, a unique Web-based course that offers 45 credit hours of continuing education for pharmacists and other health professionals. The endeavor required coordinated efforts with CECity and members of the School's IT Team to create the DM Educate® CE course and bring it online.
- Spearheading efforts with CSSD to become one of the first schools on campus to offer network access to services via Pitt's SSLVPN, which allows faculty and staff to connect to data on the School of Pharmacy server from remote locations.
- Revision in the handling of mailing lists as an example of one element of the overall project to use fewer data sources so as to eliminate duplicate data, and expedite data sharing.

Communications

The communications within and outside the School of Pharmacy are distributed through various media including print and Web technology. During FY07, members of the Communications Team:

- Developed the Faculty and Staff Portal on the School's Web site as a means of enhancing intraschool communication and information.
- Enhanced the School of Pharmacy Web site to handle secure registration and ticket payment for Gala 2007.
- Developed the print campaign for Gala 2007, which resulted in highest attendance since 2004 and increased the number of individual donations to the School of Pharmacy.
- Reached School of Pharmacy alumni, faculty, staff, students, and friends through nine large-scale mailings and numerous small-scale mailings.

- Orchestrated the logistics of over 52,000 print pieces delivered to alumni, faculty, staff, students, and friends.
- Produced over 25 print pieces promoting the School of Pharmacy within the University campus and nationally.
- Educated and supported the transition between printed and electronic communications within the School of Pharmacy with the use of Web Help Desk, faculty and staff portal, and registration via Web for Gala 2007.

Event Notification Process

In June 2002, the School of Pharmacy initiated an event notification protocol to assure that the awards, appointments, and other honors received could be communicated with the School and to our broader community. Notification may be submitted by any faculty member, staff member, or student. The goal is to increase and maintain positive awareness of the accomplishments of the School of Pharmacy and its faculty, staff, and students:

1. Within the University of Pittsburgh and the UPMC community.
2. Among health care professionals; relevant researchers; federal, state, and private funding agencies; and prospective students and parents.
3. Among the public of the region and the country.
4. Within the local and national media so that the School of Pharmacy is contacted when an expert opinion on a health care or research discovery topic is desired.

Through the event notifications, news about faculty and student accomplishments and awards and other newsworthy items are posted to the School's Web site. In addition, the UPMC News Bureau liaison uses the information submitted through event notifications to generate placements in the University publications and in local and regional media. The following graphs show the number of event notifications and placements in the media for FY03 through FY07.

