University of Pittsburgh
School of Pharmacy

Annual Report

2005–06

October 2006

Dear Friends,

This was a year focused on building—building our strategic foundation for future growth, building faculty and administrative strength through recruitment, building an information technology platform for seamless file sharing between Pitt and UPMC facilities, and building our endowment and resources.

We developed partnerships that will provide opportunities for innovation and leadership in research, education, and patient care. We created an on-line national diabetes curriculum that serves as a model for future courses. We developed the plan for merging the Pittsburgh Poison and Drug Information Centers.

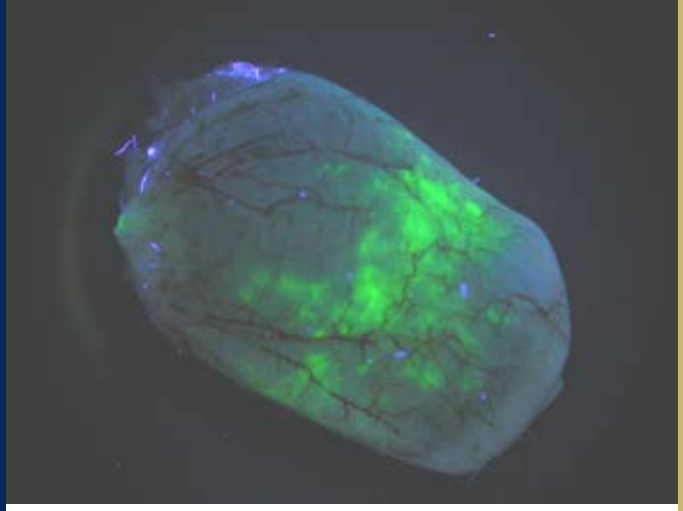
Each of these actions was focused on building strength and depth to establish a firm foundation for future growth. The strategic plan that will serve as the template for action through 2011 is included in this annual report along with accomplishments of the past year and comparisons with past performance. We have accomplished a great deal. We will accomplish much more. We will become, as our vision states, “renowned for excellence.”

I congratulate our faculty, staff, students, and alums, all of whom have taken our vision seriously and who improve “health through excellence, innovation, and leadership” in the research, teaching, and patient care that they do every day. Finally, I thank the administration of the University of Pittsburgh for the support that allows us to continue our trajectory of excellence.

Sincerely,

Patricia Dowley Kroboth
Dean

Table of Contents



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 urban campus that is home to sixteen schools. Like 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 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, a unique 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 Drug Information Center and the Pittsburgh Poison Center.

The School of Pharmacy'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.

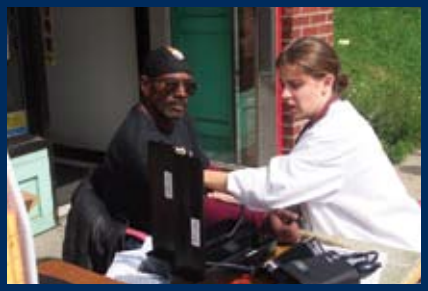
Organizationally, the School of Pharmacy is comprised of three units: the Office of the Dean, the Department of Pharmaceutical Sciences, and the Department of Pharmacy and Therapeutics. Instruction for the professional and graduate courses in the School of Pharmacy occurs mainly in Salk Hall, in shared 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.

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

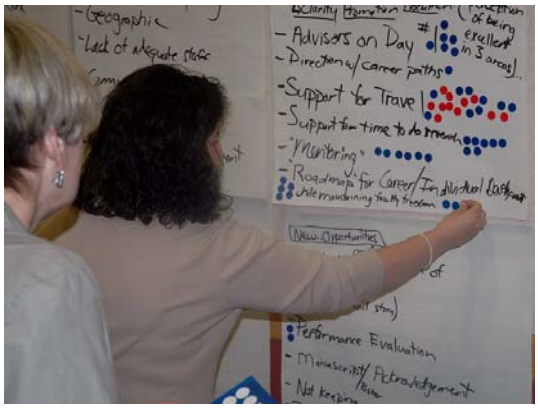
The School of Pharmacy first embarked on a new long-term strategic plan in 2001. The original plan extended through 2006. The plan was developed with faculty and staff and was therefore, highly participative in its design and implementation. The plan was aligned closely with the strategic focus areas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

PharmD 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. Thus, the statement adopted in 2001 was revised as we looked to 2011.

REVISED FROM

> By 2006, the School of Pharmacy will have gained university and national recognition for the quality of our PharmD program and for the excellence of our faculty and students.
>
> *Adopted 2001*

TO

> **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, or appointment to editorial or advisory board.

- 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.

- Enhanced the profession and encouraged life-long learning by providing innovative, quality, ACPE-accredited programs.

GRADUATE PROGRAM

REVISED FROM

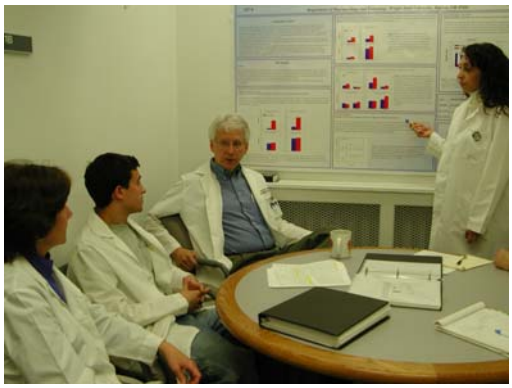
By 2006, the School of Pharmacy will have increased the impact and perceived quality of the graduate program.

Adopted 2001

TO

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 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.
- Re-established the Clinical Pharmaceutical Scientist Program as a nationally prominent program.

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 specialty residencies.
  Specialty residencies will be enhanced for 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.

- Enhanced the quality of the pharmacy practice residency experience and increased the size of the program.

- 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

REVISED FROM

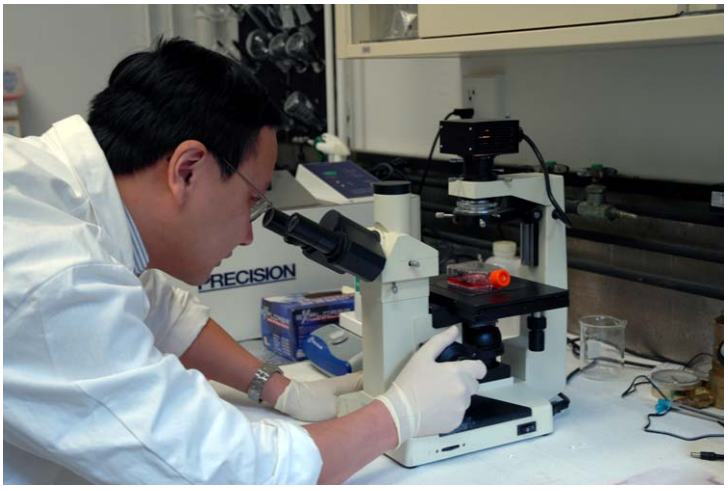
By 2006, we will have secured our place among the top 10 schools of pharmacy according to rankings determined by NIH funding.

Adopted 2001

TO

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

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 distinguished research school of pharmacy, by 2011 the School of Pharmacy will have:

- Secured a place in the top five schools of pharmacy based on NIH funding.
  This is a substantial challenge given that the School was ranked #11 and #12 based on FY04 and FY05 NIH funding, respectively. The School must build on the solid research foundation created over the last six years to reach the next level. The faculty will continue to successfully compete for NIH R01 grants and will participate in and lead multidisciplinary teams to compete for program project and NIH roadmap initiative funding.

  Measurable outcomes that will contribute to assuring a place in the top five have been defined. 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.

- 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.

- Taken advantage of the research opportunities within our environment, which may include:
  - Drug discovery.
  - Geriatrics.
  - Transplantation.
  - Community pharmacy research.
  - Clinical and translational research.

- Extended existing and developed new research collaborations.

- Established a research program that focuses on community pharmacy service models and health outcomes.

- Enhanced its reputation of research excellence through recognition including:
  - Membership in the Pharmacy Research Discussion Group (22 member schools).
  - Awards, fellowships, and editorial board appointments for individual faculty members.

Enhancing the Health of the Community Through Partnerships

REVISED FROM

By 2006, the School of Pharmacy will have:

- Gained recognition by the public for pharmacists as medication managers.

- Enhanced and created partnerships for the purpose of delivering and training pharmacists in advanced medication management therapy services.

Adopted 2001

TO

By 2011, the School of Pharmacy will have:

- **Developed a comprehensive system for the care of all UPMC patients that assures safety and efficacy of medications during their hospital stay and transition back to the community.**

- **Created a nationally accepted model for the practice of pharmacy in the community that enhances patient well-being through the effective and safe use of medications.**

Adopted 2005

INSTITUTIONAL PHARMACY

In order to have developed a comprehensive system for inpatient care that assures safety and efficacy of medications during their hospital stay and transition back to the community, 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 service model for UPMC inpatients.
  The new service model incorporates a distributed pharmacy service with clinical care. The goal is to have pharmacists evaluate all patients at least once during their inpatient stays 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.

- 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

In order to have created a nationally accepted model for the practice of pharmacy in the community that enhances patient well-being through the effective and safe use of medications, 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.

- Established a center of excellence that focuses on community-based pharmacy patient care.

  This center of excellence will be home to an interdisciplinary team that focuses on improving patient medication-related care in the community 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 in the community.

  Through the center, the School will:
  - Recruit faculty who have expertise in pharmacy service models, outcomes research, and health economics.
  - Create a national community pharmacy research network that will investigate the effects of new services, educational models, and best practices on patient safety and clinical outcomes.
  - Become the recognized leader in pharmacy care, services, research, and education.

- Appointed a visionary center director who will expertly lead the center of excellence and achieve recognition for the quality of the program.

  Additional faculty and staff will be recruited to provide core expertise in health economics, program evaluation, education program development, and outcomes research.

- 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 (e.g. appointment and promotion).

  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 that have been developed for about 40% of staff activities to date. After completion of work specifications, staff is challenged to continue to improve the work process through 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.

- Created leadership opportunities within the School for members of the staff.

STUDENT SERVICES

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:

- Improved efficiency and effectiveness in student affairs process and work.
  Student services completed an in-depth work reorganization using adaptive design principles over the last two years. As a result, the existing staff handled a 400% increase in the number of processed applications for the PharmD program.

- 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:
  - recruiting and retaining qualified preceptors.
  - increasing efficiency in the student site selection process.
  - measuring educational/behavioral outcomes from the training.
  - 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:

- 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. In order to increase efficiency and effectiveness, 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.
  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 the School.
  - Assured high-quality publications 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 as the number one school on campus for alumni engagement.

Securing an Adequate Resource Base

FINANCIAL RESOURCES

By 2011, we will have increased the financial resource base of the School of Pharmacy through philanthropic support.

Renewed 2005

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. The full financial projections through 2011 are attached.

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 $7 million in the capital campaign.
  These funds are essential to meet the critical need for state-of-the art research laboratories and for creating a learning environment that is rich with simulators and related technology.

- Increased the School of Pharmacy endowment by $5 million.
  Support is needed to increase the annual number of scholarships and total dollars awarded given that tuition increases have outpaced the ability of students to work their way through school.

  Endowed professorships are needed to retain our faculty, who have achieved successes that make them attractive to other institutions.

- Developed a stable fiscal base to assure that the School can meet the finance charges for research space.

PHYSICAL RESOURCES

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

- 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 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.

- 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

The Distinguished Lecture 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 Series Committee, chaired by Dr. Wen Xie, selects awardees from an eminent group of nominees. The awardees are innovators and leaders in research and speak about their most significant discoveries and challenges.

FY06 Distinguished Lecture Series

Date	Distinguished Lecturer	Lecture Topic
October 20, 2005	Robert T. Abraham, PhD Vice President for Oncology Research Wyeth Research	A Pharmacologist's Journey: From Cancer Drugs to Cancer Biology and Back Again
February 21, 2006	Erin G. Schuetz, PhD Department of Pharmaceutical Sciences St. Jude Children's Research Hospital	Interplay of Nuclear Hormone Receptors, Drug Metabolism, and Drug Transport
March 14, 2006	Pieter R. Cullis, PhD Professor, Dept. of Biochemistry and Molecular Biology The University of British Columbia	Liposomal Formulations of Nucleic Acid-Based Drugs: Applications in Immunotherapy and Gene Therapy
March 29, 2006	Charles D. Hepler, PhD Distinguished Professor Emeritus, Department of Pharmacy Health Care Administration University of Florida College of Pharmacy	The 50th Annual Koch Lecture It Takes A System

Alumni Engagement

Proudly, the School of Pharmacy placed #1 among the schools of the University in alumni engagement for FY05, the announcement for which was received in FY06. The term "engagement" includes contributions to the University and participation in events. Of the 4,359 living alumni, 33% were engaged with the School of Pharmacy in some way during FY05.

In FY06, the School engaged with alumni as follows:

- Hosted two events during Homecoming, which was celebrated on Friday, October 21, 2005:
  - Three alumni speakers gave presentations to pharmacy students during the day.
  - Approximately 75 alumni attended a fall festival homecoming party at the School in the evening.

- Nominated alumnus Dr. Robert Abraham, who ultimately was honored by Chancellor Nordenberg as a University Legacy Laureate.

- Hosted three receptions for alumni and friends at national meetings:
  - American Association of Pharmaceutical Scientists, November 7, 2005, in Nashville, Tenn.
  - American Society of Health-System Pharmacists, December 6, 2005, in Las Vegas, Nev.
  - American Pharmacists Association, March 18, 2006, in San Francisco, Calif.

- Collaborated with the Alumni Society to host Career Roundtables on February 15, 2006, with the help of 50 alumni participants.
- Hosted three alumni enrichment classes on topics concerning financial security, entrepreneurial skills, and career options.

- Sponsored its annual celebration with alumni and friends on June 9 and 10, 2006, which included:
  - The golf invitational on Friday; the event had 80 participants and raised $18,031 for the alumni scholarship fund.
  - A three-credit ACPE-accredited continuing education program in Salk Hall on Saturday morning.
  - The Gala dinner dance, which was attended by over 170 alumni and friends at Soldiers and Sailors Memorial Museum in Oakland.

International Initiatives

An important part of the School's new long-range strategic plan is establishing international initiatives and developing credit-based opportunities for students to obtain international study experiences. FY06 was an important year for bringing the numerous international functions of the faculty into the mainstream of the School's work including the following:

- Partnered with the University Center for International Study (UCIS) to assure connection with the University's international programs. Heather Johnson, PharmD, effectively managed the interaction with UCIS.

- Developed elective PharmD experiential courses in three countries with a focus on pharmacy and global health issues. Two students took advantage of the opportunity in FY06; at least four students plan for credit-based experiences during FY07.
  - Dr. Sharon Connor developed credit-based experiences in the Dominican Republic and in the British Honduras. Two students took advantage of the opportunities.
  - PharmD student Margie Snyder worked in Haiti at the Albert Schweitzer Hospital.
  - Dr. Heather Johnson developed an experiential rotation that will be hosted in Palermo at ISMETT, where four students plan to study in FY07.

- Continued the agreement with the University of Leiden for one of the School's PhD students to conduct jointly sponsored dissertation research. Gregor Bender, PharmD, is pursuing his PhD under the co-mentorship of Robert Bies, PharmD, PhD, of the University of Pittsburgh and Meindert Danhof, PhD, of the University of Leiden.

- Provided an intense curriculum in patient-oriented pharmacy oncology care at the Misr International University in Egypt through the effort of Rowena N. Schwartz, PharmD.

- Offered a scholarship through the generosity of the School's Alumni Society Board. This first-time award provided partial support of international study costs for one student.

- Established an active chapter of the International Pharmaceutical Student Federation, which represents students in 61 countries worldwide.

- Mentored two PhD students from the University of Palermo; they conducted research in the School of Pharmacy in the Neuroendocrine Research Laboratory of Dr. Robert Gibbs.

- Recognized the international experiences that pharmacy students obtained through other programs on campus:
  - Grant Bender studied in Tanzania and particularly focused on the HIV epidemic.
  - Jasmine Talemeh studied in Poland.
  - Diane Pinchevsky was awarded an opportunity to study in Russia through the Eastern European Studies Program.

School of Pharmacy-Sponsored Retreats

The School of Pharmacy hosted two retreats during FY06, using the School of Pharmacy Long-Range Strategic Plan as the inspiration for the planning agenda and programs.

Doctor of Pharmacy Teaching Program Retreat, September 2005

Selected faculty and staff representing key leadership positions and content and skill areas in the doctor of pharmacy program convened to discuss three focus areas identified in the strategic planning process: (1) dual/combined degree programs and curricular tracks; (2) international experiences and globalization in pharmacy education; and (3) pharmacy education opportunities outside the immediate Oakland area. Faculty and staff discussed and debated the issues for each item and reached consensus on the following:

- A combined PharmD/PhD program for pharmaceutical research should be developed.

- Dr. Gordon Vanscoy will be responsible for exploring opportunities for combined and/or joint programs with the Katz School of Business.

- Dr. Scott Mark will work to develop a combined residency program/master's program for pharmacy leadership, which will also provide a structure for a curriculum track in this area.

- Following additional discussions by the Leadership Team, a task force could be established for preliminary evaluation of partners, resources, and practice opportunities available to support distance education.

- Opportunities for international learning experiences should be further explored.

School of Pharmacy Faculty, Staff, and Student Retreat, June 2006

The School of Pharmacy Retreat was held at the University of Pittsburgh's Johnstown campus on May 31 and June 1, 2006. Using the School's Strategic Plan, the Retreat Planning Committee set goals for the retreat that would:

- Enhance skills of participants in technology and encourage experimentation in education. To accomplish this, programming included:
  - Dr. James Wolfgang, Chief Information Officer, Georgia College and State University, as the keynote speaker. He presented "A Pocketful of Learning in an iCommunity" through a video conference.
  - A collaborative presentation by a group of faculty (Drs. Hall, Yaramus, Schonder, Smith, Zemaitis), P2 students (Nicholas Kernich, Brittany DeVoge), and information technology specialists (Thomas Waters, Andrew Grossman). The group presented a pilot using Breeze technology to present a simulation of a self-care patient case to promote problem identification and case analysis.

  - Breakout sessions in which attendees had hands-on opportunities to learn about technological advances including iPods and podcasts, blogs, Voice-over Internet Protocol (VoIP), and audience response and smart board technologies.

- Discuss and identify strategies for successful interviewing—students, faculty, and staff.
  - Dr. Dennis P. Slevin, Professor of Business Administration, University of Pittsburgh Katz Graduate School of Business, presented an interactive workshop on "Exploring Dimensions for Successful Interviewing."
  - Attendees derived lists of desired dimensions to guide the development of enhanced recruitment and interviewing processes for faculty, staff, residents, and students. Related breakout sessions provided participants an opportunity to discuss strategies to enhance recruitment processes.

- Define the "ideal course" for student learning and explore faculty and staff contributions to such a course. Breakout-session discussions focused on successful teaching and learning methods, methods to measure success of a course offering, and needed resource support to develop and continually enhance effective courses.

Continuing Education

The School of Pharmacy is an Accreditation Council for Pharmacy Education (ACPE) accredited provider of continuing pharmacy education programs. There were several major advances during FY06:

- In April 2006, Dennis P. Swanson, MS, was appointed Director of Continuing Education. Under his direction, a new Advisory Board was appointed.

- The School of Pharmacy partnered with the University of Pittsburgh Center for Continuing Education in the Health Sciences, directed by Assistant Vice Chancellor for Continuing Education in the Health Sciences Barbara E. Barnes, MD, MS. The administrative aspects of the program are now housed at the Center. The School continues its full ACPE accreditation for its continuing education programs through June 2009.

  Through these changes, the School's CE program gained efficiency through access to an infrastructure and a sophisticated information technology platform that will allow the program to grow to the next level. The structure will also encourage the development of interdisciplinary continuing education and continuing professional development.

- The continuing pharmacy education program offerings had both a national and local impact during FY06.

The programs sponsored and co-sponsored by the School during FY06 are listed in the following table.

FY06 Continuing Education Programs

	Date(s)	Title	Program Number	Description	No. of Attendees
Accredited National Program	July 1, 2005 – June 30, 2006	Concisely Evaluating a Formulary Class Across Indication: The New Fibrinolytic Model	058-000-04-007-L01	Multiple Offerings Nationwide	299
Accredited School of Pharmacy Programs	July 2005 September 2005 February 2006	Comprehensive Chemotherapy and Biological Therapies Course	058-999-05-005-L01	Cosponsored with University of Pittsburgh Cancer Institute	5
	September 13, 2005	An Update on Pennsylvania Pharmacy Law	058-000-05-006-L03	Presented at Medco for Pharmacy Staff	69
	October 23, 2005	Managing the Aftermath of Natural Disasters: Policy, Participation, and Pharmacotherapeutics	058-000-05-007-L04	School of Pharmacy Annual Fall Seminar	51
	November 30, 2005	Drug Update–Evolving Issues in Cancer Therapy for Solid Tumors	058-999-05-008-L01	Cosponsored with University of Pittsburgh Cancer Institute	14
	April 9, 2006	Evidence-Based Pharmacological Management of Pulmonary Arterial Hypertension	058-000-06-001-L01	School of Pharmacy Annual Spring Seminar	66
	April 9, 2006	Update on the Understanding and Management of Hypertension: Focus on Pharmacogenetics	058-000-06-002-L01	School of Pharmacy Annual Spring Seminar	66
	April 9, 2006	A Systems Approach to Improving Medication Safety	058-000-06-003-L01	School of Pharmacy Annual Spring Seminar	66
	April 28, 2006	Pharmacology Oncology Update	058-999-06-004-L01	Cosponsored with University of Pittsburgh Cancer Institute	28
	June 10, 2006	Cardiac Transplantation: A True Change of Heart	058-000-06-005-L01	Alumni Weekend	14
	June 10, 2006	Diabetes Foot Compli-cations	058-000-06-006-L01	Alumni Weekend	13
Total					691

Board of Visitors

Dean Patricia Kroboth and faculty hosted the School of Pharmacy Board of Visitors on November 14 and 15, 2005. The Board held a series of discussions with faculty and students regarding progress made toward achieving the strategic goals in the areas of advancing human health through research, enhancing human health through partnerships, and educating the next generation of practitioners and scientists. Following an executive session on the second day, the Board met with Chancellor Mark Nordenberg, Senior Vice Chancellor for the Health Sciences Arthur Levine, and Vice Provost for Research George Klinzing.

2005–06 Board of Visitors

John P. Curran, PhD, Chair
Consultant
Briarcliff Manor, New York

Donald J. Abraham, PhD
Professor, Medicinal Chemistry, School of Pharm.
Director, Institute for Structural Biology
and Drug Discovery
Virginia Commonwealth University

William L. Bailey, PharmD
Senior Director, Medical and Scientific Affairs
Sankyo Pharma Inc.

Daniel J. Cobaugh, PharmD, FAACT, DABAT
Director of Research
ASHP Research and Education Foundation

Coleen M. Kayden, RPh
Consultant Pharmacist
Medication Information Services
A Division of Williams Apothecary, Inc.

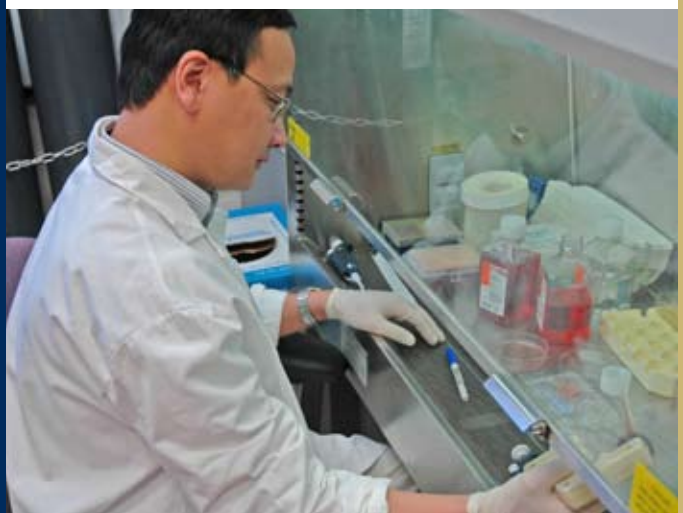
John A. Pieper, PharmD
Dean, College of Pharmacy
University of New Mexico

Victoria F. Roche, PhD
Senior Associate Dean
School of Pharmacy and Health Professions
Creighton University

Rosalie Sagraves, PharmD
Dean, College of Pharmacy
University of Illinois at Chicago

Raymond J. Townsend, PharmD
Senior Vice President
Pharmacoeconomics,
Epidemiology & Outcomes
Elan Pharmaceuticals, Inc.

Advancing Human Health Through Research



Advancing Human Health Through Research

By 2011, the School of Pharmacy will:

- **Be recognized as a distinguished research school.**

The overall goal of the School of Pharmacy's research programs is to advance human health through discovery. The School uses a number of markers of excellence in research; however, the one used as a national standard is the total research dollars supported by the National Institutes of Health, as well as total overall dollars and total dollars funded by other peer-reviewed grant programs. More importantly, however, are the quality and impact of discoveries.

For each of the past six years, the School of Pharmacy has ranked in the top 12 schools of pharmacy, and in four of those six years, the School ranked in the top 10. For the first time since 1999, the School saw a decline in its NIH funding from the $7.0 million in FY05 to $5.3 million for FY06 (University calendar, not NIH fiscal calendar). The large decline was primarily due to the departure of a key research faculty member who had a large NIH program project grant. The decline was also partly due to open faculty lines for which the school was recruiting under the efforts of the relatively newly appointed chair of the Department of Pharmaceutical Sciences, Dr. Barry Gold.

On the rise, however, is the number of faculty members who are principal investigators on NIH grants, which increased from 14 in FY05 to 16 in FY06. During this past year, Dr. Gold successfully completed two international searches to bring new faculty members with impressive research credentials to the Drug Discovery Institute of the University and to the Department of Pharmaceutical Sciences. Two faculty members were also recruited to the Center for Education and Drug Abuse Research (CEDAR). Each of these faculty members will join the faculty in FY07. The addition of the new faculty members and the continued success of our current faculty will enable the school to continue to grow our research productivity.

This section summarizes major research findings, funded grants, study section participation, and publications, all of which are markers of excellence of a research program.

Selected Research Highlights

The quality of the research conducted by faculty in the School of Pharmacy is illustrated by the following highlights.

Center for Pharmacogenetic Research

- A functional proteomic approach was used to identify substrates that are targeted by the N-end rule pathway. These include RGS4, RGS5, and RGS6 that are regulatory proteins involved in G-protein signaling associated with cardiac growth and angiogenesis. The N-end rule pathway is associated with the proteolytic degradation of proteins and functions as an important regulatory mechanism for controlling the steady-state levels of many proteins. (Kwon)

- Identified a set of E3 ubiquitin ligases (termed UBR1 through UBR7) of the N-end rule pathway by employing affinity-based proteomics. The UBR family of proteins targets different proteins

for degradation and is involved in neurogenesis and cardiovascular development in embryogenesis. Thus, previously unknown functions of the N-end rule pathway have been characterized. (Kwon)

- Demonstrated for the first time that FXR is expressed in pulmonary vasculature including endothelial cells (EC) and smooth muscle cells. Treatment of EC with FXR-specific ligands (bile acids) led to increased expression of vasodilatators (e.g, nitric oxide) and decreased expression of vasoconstrictors (e.g., endothelin-1). This study may shed new insights into a novel role of bile acids/FXR in the pathogenesis of hepatopulmonary syndrome. It also suggests a potential of FXR ligands-based novel therapy for the treatment of pulmonary hypertension. (Li in collaboration with Xie)

- Developed a novel EC-specific vector that is highly efficient and selective in the delivery of nucleic acids (genes, antisense oligonucleotides, and siRNA) to pulmonary endothelium. Targeted delivery of ET-1 siRNA led to inhibition of ET-1 biosynthesis in cultured EC. Currently testing the efficiency of this approach in inhibiting ET-1 expression in mouse lungs for the treatment of pulmonary hypertension. (Li)

- Traditional Chinese medicines Wu Wei Zi (*Schisandra chinensis Baill*) and Gan Cao (*Glycyrrhiza uralensis Fisch*) activate PXR and increase warfarin clearance in vivo. The herbal medicine-induced and PXR-mediated drug-drug interaction reinforces concerns over the safety or taking herbal medicines or other nutraceuticals with prescription medicines. (Xie)

- The orphan nuclear receptor, PXR, sensitizes oxidative stress responses in transgenic mice and cancerous cells. Activation of PXR in mice or cultured cells increased sensitivity to paraquat, an oxidative xenobiotic toxicant. The current study reveals a novel function of PXR in mammalian oxidative stress response; this regulatory pathway may be implicated in carcinogenesis by sensitizing normal and cancerous tissues to oxidative cellular damage. (Xie)

- Identified a novel PXR-mediated and SREBP-independent lipogenic pathway. Expression of an activated PXR in the livers of transgenic mice resulted in an increased hepatic deposit of triglycerides without activating the lipogenic transcriptional factor SREBP-1c. This endobiotic role of PXR is opposite to to its xenosensor role in regulating xenobiotic responses. (Xie)

Center for Education and Drug Abuse Research

- Youths at high risk for substance use disorder are distinguishable from their peers on fMRI measures of cortical activation. (McNamee)

- Childhood hyperactivity independent of conduct problems amplifies the risk for substance use disorder. (Tarter)

- Testosterone level and the timing and rate of pubertal development in early adolescence predict behavioral and social deviancy portending substance use disorder. (Kirisci)

- Youth who do not make a good social adjustment transition from childhood to adolescence are at sharply increased risk for substance use disorder. (Kirisci)

- Children with poor behavioral control are less responsive to prevention that in turn augments the risk for substance use disorder. (Kirisci)

- Quality of parenting interacts with the characteristics of children to determine the trajectory toward good or poor adjustment in children. (Mezzich)

- Genes regulating MAO-A activity impact on the propensity for risky and reckless behavior leading to substance abuse. (Vanyukov)

- Women who meet criteria for a personality disorder featured by impaired self-regulation of emotion are prone to violence, substance abuse and disrupted child-rearing. (Feske)

Pharmacodynamic Research Center

- In a study assessing the sources of variability in risperidone pharmacokinetics, race, sex and concomitant medications (paroxetine and fluoxetine) were significant covariates on risperidone clearance. No age effect was detected in this population analysis of risperidone using sparse sampling measurements from the CATIE study. (Feng, Bies, Coley)

- A population pharmacokinetic model of quetiapine was developed using highly sparse data from the CATIE study. The model adequately described the quetiapine data and the estimated predicted means for clearance and volume of distribution were similar to those reported previously using dense plasma sampling. This base model can be used for future pharmacokinetic-pharmacodynamic studies investigating effectiveness and tolerability of quetiapine. (Chew, Bies, Coley)

- A population pharmacokinetic model for olanzapine was developed using highly sparse data from the CATIE study. The model adequately described the olanzapine pharmacokinetics in this population of patients with Alzheimer's disease and schizophrenia. Sex, race, and smoking status impact olanzapine clearance and therefore impact drug exposure. (Bigos, Bies, Coley)

- Demonstrated that chemical inhibitors of 20-HETE formation significantly decrease brain lesion size in the rat model of ischemic stroke. (Poloyac)

- Demonstrated that brain selective inhibition of 20-HETE formation can be achieved at select concentrations of the formation inhibitor, HET0016. (Poloyac)

- Demonstrated that ET-1 concentrations in the cerebrospinal fluid of patients with subarachnoid hemorrhage is associated with the development of cerebral vasospasm. (Poloyac)

- Demonstrated that cardiac arrest induced production of IL-6 in the plasma is dramatically attenuated by therapeutic hypothermia in the rat model. (Poloyac)

- Demonstrated that cardiac arrest reduces CYP450 mediated metabolism 24 hours after injury and that this reduction is attenuated by therapeutic hypothermia. (Poloyac)

- Demonstrated that acute exposure to therapeutic hypothermia dramatically reduces the metabolic elimination of the CYP2E1 substrate chlorzoxazone in the cardiac arrest rat model. (Poloyac)

Neuroendocrinology Focus Group

- A recent study showed that in monkeys, long-term treatment with conjugated equine estrogens (CEE) with or without medroxyprogresterone acetate (MPA) did not produce effects on monoaminergic systems in the brain that would have been comparable to reported effects of 17-ß-estradiol and progesterone. The implication is that effects produced by CEE and MPA (the most common forms of hormone therapy used by postmenopausal women in the United States) are not the same as effects produced by estradiol and progesterone. (Gibbs)

- In rats, both estradiol and testosterone have effects on specific cognitive processes, and the effects of the two hormones are not the same. We are in the process of evaluating the role of specific basal forebrain cholinergic projections in mediating these responses in males and females. (Gibbs)

- Established a new role for oxytocin in influencing food tastes and limiting intake of sweetened liquids. Oxytocin-deficient mice showed markedly greater intake of the sugar or saccharin solution than their wild-type counterparts. Whether oxytocin also plays this same role in humans is not yet known, but abnormalities in the production of oxytocin may lead to inappropriate (excessive) ingestion of sweet tasting substances in humans. (Amico, Vollmer)

Center for Pharmacoinformatics and Outcomes Research

- Inadequate staffing, fragmented and time-consuming information systems, and inappropriate use of medication error data by hospital administrators were identified as the main obstacles for reporting of medication errors. (Coley, Weber, Pringle)

- Acetaminophen exposures in children <6 years are most likely to be unintentional, whereas those in children >12 years are more likely to be intentional overdoses. Intentional overdoses are more likely to be reported in females in this age group. (Angalakuditi, Coley, Krenzelok)

- In a case-control study evaluating risk of in-hospital fall for inpatients with chronic kidney disease, the largest health risk factors for falling were dementia and treatment with antidepressants and anticonvulsants. (Angalakuditi, Coley, Saul)

- Inpatients with chronic kidney disease, dementia, and diabetes and those treated with benzodiazepines, antiarrhythmics, antipsychotics, antidepressants and anticonvulsants were more likely to experience an in-hospital fall. Anemia did not contribute to the likelihood of having an in-hospital fall. (Angalakuditi, Coley, Kirisci)

- Liver transplant patients receiving long-term treatment with tacrolimus experienced only small changes in GFR over time. Patients with diabetes mellitus and females are at the highest risk of experiencing a clinically significant decline in renal function. (Corman, Coley, Schonder)

- In patients hospitalized for mental illnesses treated with aripiprazole, the majority (71%) continue treatment on discharge and do not experience significant side effects. Lower doses in children have been observed and weight-based dosing should be investigated. (Coley)

- In elderly psychiatric inpatients prescribed aripiprazole, the treatment continuation rate was 53%. Side effects were the most common reason for drug discontinuation, and were more common in

male patients and those with schizophrenia. Increased activation/agitation was reported most frequently. (Coley, Scipio, Fabian)

- Prescribing of atypical antipsychotics in elderly inpatients has increased significantly in the last five years, with quetiapine use increasing the most. Diagnoses of Alzheimer's Disease/dementia and psychotic disorders were independent predictors of NA use. (Coley, Weber)

- The expanding use of NAs has impacted the cost of care in this psychiatric facility. Substantive evidence is needed to clarify these increasingly common, inadequately researched and increasingly costly psychopharmacological practices. (Coley, Weber, Gim)

- When teaching students health-related quality-of-life concepts, hands-on use of an established general health instrument was an effective method to teach psychometric principles. (Kane, Coley, Donegan)

- A significant amount of hospital resources are used in patients presenting to the emergency department with noncardiac chest pain and possible panic attack. Improving screening and recognition of panic disorder may reduce unnecessary costs to the healthcare system. (Coley, Saul, Seybert)

- Evaluated a regional Addiction Technology Transfer Center covering three states: New Jersey, Pennsylvania, and New York. (Pringle)

- Computer-generated heparin-induced thrombocytopenia (HIT) alert system allows clinicians to make frequent interventions and provides early detection of HIT. Evaluation of interventions on patient outcomes would be useful but logically, early identification of HIT should improve patient safety. (Benedict, Seybert, Rea, Kane-Gill)

- Total heart failure hospitalization costs are the same whether it is a new diagnosis, known diagnosis or readmission. New onset heart failure uses more resources from ECHO and less from pharmacy departments compared to heart failure readmission. (Kane-Gill, Seybert)

- Among statin-treated patients admitted for unstable angina, the majority are not reaching goal LDL-C. In those patients at goal LDL-C, two-thirds have suboptimal HDL-C. This represents an opportunity for intervention to improve adherence to unstable angina management guidelines with respect to lipids that may improve quality outcomes. (Seybert, Kane-Gill)

- ADE rates for high-cost and frequently used drugs in the ICU do not differ. Pharmacists' time toward ADE prevention efforts should be on frequently used medications, not just high-cost medications. (Kane-Gill, Kirisci, Verrico, Weber)

- Despite higher number of ADEs occurring in intensive care unit (ICU) areas, adverse event reporting and assessment strategies differ little between ICU and non-ICU areas. Implementation of ICU-specific adverse event detection and prevention strategies should be considered and their impact on patient safety evaluated. (Kane-Gill)

- The dose of enoxaparin should be individualized to the patients' renal function and weight. There is some evidence to support slightly lower doses of enoxaparin in patients in the ICU setting. (Bies, Kane-Gill)

- Inpatients with cardiac arrest may have different benefits from lidocaine and amiodarone than previously demonstrated. (Rea, Kane-Gill, Seybert, Kirisci)

- Bivalrudin improves mortality, bleeding rates and shortens length of stay compared to unfractionated heparin in patients undergoing percutaneous coronary intervention. However, differences in the use of glycoprotein inhibitors between patient groups are a potential confounding factor. (Seybert, Kane-Gill)

- Conducted research on a bar-code medication system showing that 67% of intercepted medication errors sampled had the potential to cause an adverse drug event (ADE). Over 50% of these potential ADEs involved high-risk medication such as insulin, antibiotics, anticoagulants and narcotics. (Ogbuokiri, Weber, Saul)

- Developed and validated a grading system for drug literature that can be applied to an evidence-based model of drug prescribing. (Ansani, Skledar, Weber)

- Conducted research on bar-code medication administration that showed that nursing time in administering medications was not significantly increased using the bar-code system. (Weber, Mihalko)

- Developed a patient care process that significantly reduced the use of medication "override" from automated drug dispensing devices. (Weber, Kowiatek)

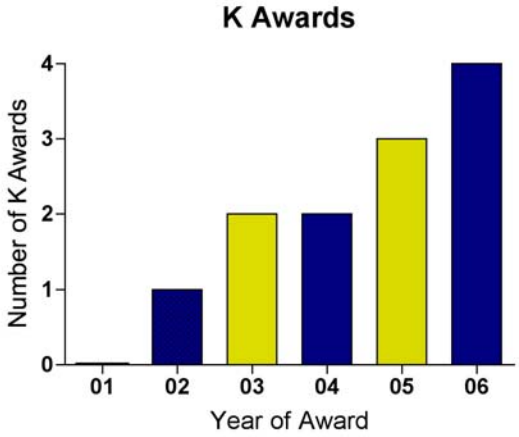
- Conducted a region-wide patient safety culture survey of regional hospitals and determined that perceptions of safety cultures in hospitals differed widely in hospitals and by workers' positions, implying that several strategies must be taken to integrate an organization's patient safety culture. (Weber, Pringle, Rice)

- An analysis of adverse drug events (ADEs) in the ICU showed no difference in ADE rate for high-cost or high-use medications, suggesting a focus on the potential for severity of an ADE as an indicator for drug monitoring in ICU pharmacy practice. (Kane, Rea, Weber, Verrico)

Research Funding

Direct Costs for Research by Funding Category

Source	FY00	FY01	FY02	FY03	FY04	FY05	FY06
PHS	$3,367,359	$4,155,442	$5,269,880	$5,905,214	$6,534,485	$7,013,478	$5,338,778
Federal-Other	50,000	127,733	257,268	376,042	519,572	974,624	1,024,805
Industry	2,008,535	2,654,632	2,277,596	1,049,399	190,418	359,881	232,777
Foundation/Association	3,500	91,444	86,523	366,780	272,805	313,274	369,428
Other	6,000	41,057	261,494	174,049	811,652	380,527	355,421
Total	**$5,435,394**	**$7,070,308**	**$8,152,761**	**$7,871,484**	**$8,328,932**	**$9,041,784**	**$7,321,209**



FY06 PHS Funding

Investigator	Agency	Agency #	Title	Direct $	Indirect $	Total
J. Amico	NIH	K01 MH64144	Biobehavioral Mechanisms of Depression in Women	12,481	999	13,480
J. Amico	NIH	R01 HD044898	Anxiety and Stress Responses in Oxytocin Deficient Mice	219,713	96,257	315,970
R. Bies	NIH	P30 MH071944	Advanced Center for Interventions and Services Research for Late-Life Mood Disorders - Operations Core	4,947	2,399	7,346
R. Bies	NIH	P30 MH071944	Advanced Center for Inter-ventions and Services Research for Late-Life Mood Disorders - Research Methods Core	31,214	11,292	42,506
R. Bies	NIH	R01 MH043832	Maintenance Therapies in Late Life Depression III	4,806	2,332	7,138
R. Bies	NIH	R25 CA63548	Educational Resource for Tumor Heterogeneity	6,600	528	7,128
K. Bigos	NIH	F31 MH076420	Pharmacodynamics of IV Citalopram Using Functional MRI	35,820	-	35,820

Investigator	Agency	Agency #	Title	Direct $	Indirect $	Total
T. Blackson	NIH	K01 DA018143	Acute and Chronic Stress, Neurobehavior and Drug Abuse	31,589	8,267	39,856
K. Coley	NIH	R01 MH64173	Atypical Antipsychotics: Determinants of Concentration	17,473	8,547	26,020
B. Day	NIH	P01 CA101944	Integrated NK and DC into Cancer Therapy	5,003	2,426	7,429
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	R01 CA90787	Mechanisms and Prevention of Etoposide-Induced Leukemia	38,495	16,933	55,428
B. Day	NIH	R21 CA099024	Modulators of T Antigen Mediated Chaperone Action	19,240	7,062	26,302
R. Gibbs	NIH	R01 AG21471	Cholinergic Lesions and Age-Related Cognitive Impairment	225,000	71,022	296,022
R. Gibbs	NIH	R01 HD046700	Novel Rehabilitative Approaches for Recovery from TBI	6,008	2,914	8,922
R. Gibbs	NIH	R01 HD13254	Molecular and Structural Bases of Hypothalamic Puberty	5,790	2,808	8,598
R. Gibbs	NIH	R21 NS46292	A New Tool for Targeted Antisense Knockdown in Brain	122,972	44,696	167,668
R. Gibbs	NIH	S10 RR022515	LSM 510 Confocal Microscope	296,279	-	296,279
R. Gibbs	NIH	U54 HD041749	Project IV - Morehouse	27,274	13,228	40,502
R. Gibbs	NIH	U54 HD861030	Cell Imaging Core	36,142	17,574	53,716
R. Gibbs	NIH	U54 HD008610	Physiology and Pathophy-siology of the Primate Gonad	5,845	2,835	8,680
B. Gold	NIH	R01 GM068430	Sequence Specific Triple Helix Forming Molecules	221,578	64,648	286,226
B. Gold	NIH	R01 CA029088	DNA Damage: Role in Toxicity and Mutagenicity	66,562	28,958	95,520
L. Kirisci	NIH	K02 DA017822	Quantifying and Tracking Risk for Substance Use Disorder	115,016	9,201	124,217
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	212,541	83,388	295,929
S. Li	NIH	R01 HL068688	Pharmacogenetic Therapy of Pulmonary Hypertension	250,000	117,360	367,360
D. Liu	NIH	R01 EB002946	Bifunctional Compounds for Targeted Gene Delivery	192,083	91,705	283,788
D. Liu	NIH	R01 HL075542	New Polymeric Carriers for Pulmonary Gene Delivery	225,000	107,703	332,703

Investigator	Agency	Agency #	Title	Direct $	Indirect $	Total
. Liu	NIH	K01 DK065964	Non-Viral Vectors for Liver Gene Transfer	6,485	3,519	10,004
R. McNamee	NIH	K25 DA14568	FMRI Methods Research in Children at Risk for Drug Abuse	104,805	8,152	112,957
Y. Mu	NIH	F05 AT002029	Traditional Chinese Medicines (TCMs) as Ligands for PXR	60,808	-	60,808
S. Poloyac	NIH	R01 CA095239	Fatty Acid Synthase in Prostate Tumorigenesis	20,189	9,792	29,981
S. Poloyac	NIH	R01 NR004339	Role of 20 HETE on Vasospasm Induced Ischemia after SAH	35,964	17,443	53,407
S. Poloyac	NIH	R01 NS052315	The Role of 20 HETE in the Pathogenesis of Stroke	208,125	93,180	301,305
R. Schwartz	NIH	U01 CA99168	Phase I Clinical Trial of Novel Anticancer Agents	7,238	3,510	10,748
G. Stoehr	NIH	R01 AG023651	Mild Cognitive Impairment: Prospective Community Study	7,672	3,721	11,393
R. Tarter	NIH	P50 DA005605	Drug Abuse Vulnerability; Mechanisms and Manifestations	1,302,590	450,421	1,753,011
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	15,978	7,749	23,727
R. Tarter	NIH	R01 NR009878	Adherence and Health Outcomes after Liver Transplantation	16,615	8,058	24,673
M. Vanyukov	NIH	K02 DA018701	Phenogenetics of Liability to Substance Use Disorders	110,515	8,841	119,356
M. Vanyukov	NIH	R01 DA019157	Substance Use Disorder Liability: Candidate Gene Systems	305,652	140,622	446,274
R. Venkataramanan	NIH	N01 CM52202	Preclinical Pharmacological Studies of Antitumor and Other Therapeutic Agents	13,631	6,611	20,242
R. Venkataramanan	NIH	R41 ES013799	Novel Transcription Profiling in Toxicologic Assays (STTR)	7,052	3,420	10,472
R. Weber	NIH	U18 HS015851	Enhanced Patient Safety Intervention to Optimize Medication Education	24,717	11,988	36,705
W. Xie	NIH	R01 CA107011	Orphan Nuclear ReceptorPXR 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
Total				**$5,338,778**	**$1,876,839**	**$7,215,617**

FY06 Other Federal Funding

Investigator	Agency	Title	Direct $	Indirect $	Total
J. Amico	UnivAriz	Longitudinal Effects of Intimate Partner Relationship Quality on Serum Oxytocin Levels in Newly Diagnosed Breast Cancer Patients	21,506	10,430	31,936
J. Amico	UnivNC	Cardiovascular Benefits of Family Support and Oxytocin	8,804	4,309	13,113
J. Amico	UnivUtah	Cardiovascular-Oxytocin Links in Social Interactions	10,265	4,979	15,244
R. Bies	UnivWash	Resource Facility for Population Kinetics	22,550	10,937	33,487
B. Day	CHP	New Advanced Technology to Improve Prediction and Prevention of Type I Diabetes	68,255	31,745	100,000
B. Day	DARPA	A Small Volume Mitochondrial Preservation Cocktail to Delay Development of Irreversibility in Combat Casualties with Hemorrhagic Shock	45,637	22,133	67,770
B. Day	DOD	A Novel Approach for the Identification of Pharmacophores Through Differential Toxicity Analysis of Estrogen Receptor Positive and Negative Cell Lines	22,896	11,104	34,000
B. Day	DOD	Proteomics and Bioinformatic Core Facilities TATRC	74,434	26,141	100,575
B. Day	IPA	Application of Metabolomics in Psychosis and Therapeutic Monitoring	6,300	-	6,300
A. Donihi	DOD	Diabetes Prevention and Treatment Programs for Western PA	45,382	10,892	56,274
J. Pringle	Allegh Cty	Screening Brief Intervention Referral and Treatment Initiative	161,190	78,177	239,367
J. Pringle	PA	Screening Brief Intervention Referral and Treatment Initiative	74,691	35,105	109,796
J. Pringle	PA	State Incentive Grant	183,341	86,170	269,511
M. Sarachine	DOD	Design, Synthesis and Biological Evaluation of Focused Combinatorial Libraries of Antiestrogens	27,777	2,223	30,000
R. Venkataramanan	Magee	Metabolism and Metabolic Interactions of 17 Alpha hydroxyprogesterone Caproate	109,298	53,009	162,307
R. Venkataramanan	Magee	Obstetric-Fetal Pharmacology Research Units (OPRU) Network	80,568	35,195	115,763
R. Venkataramanan	Magee	Obstetric-Fetal Pharmacology Research Units (OPRU) Network	13,812	6,699	20,511
R. Venkataramanan	Magee	HPLC MS Analysis and Plasma Protein Binding of 17 Alpha Hydroxyprogesterone Caproate HPC	26,520	12,862	39,382
R. Venkataramanan	Magee	17 OHCP Study Expression and Activity of Drug Metabolizing Enzymes and Transporters in Pregnancy	21,579	10,466	32,045
Total			**$1,024,805**	**$452,576**	**$1,477,381**

FY06 Industry Funding

Investigator	Source	Title	Direct $	Indirect $	Total
B. Potoski	Elan Pharm	Are Pharmacodynamic Parameters Clinically Relevent a Randomized Trail Using Two Different Doses of Cefepime	19,221	4,805	24,026
B. Potoski	Pfizer	Intravenous Voriconazole in Patients with Renal Compromise	12,917	2,583	15,500
A. Seybert	ProIX	Frequency of Suboptimal HDL-C Levels in Satin Treated Patients with Unstable Angina at the University of Pittsburgh	20,102	10,788	30,890
R. Smith	RiteAid	Medication Therapy Management Service Training	87,426	6,994	94,420
M. Vanyukov	Glaxo	Craving and the Dopamine System in Substance Use Disorder Liability	67,500	7,500	75,000
R. Venkataramanan	Enzon	A Comparison of Pharmacokinetic and Deposition Profiles of Inhaled Amphotericin Deoxycholate and Lipid Complex Amphotercin B (Albecet) in Lung Transplant Recipients	25,611	13,702	39,313
Total			**$232,777**	**$46,372**	**$279,149**

FY06 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
B. Day	TRUE	Role of Disrupted Iron in the Lung Injury Seen After Blast Injury and Hemorrhagic Shock/Resuscitation	95,950	46,536	142,486
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
S. Skledar	ATPM	Standing Orders for Vaccination of Hospitalized Elderly	5,367	2,603	7,970
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			**$369,428**	**$62,663**	**$432,091**

FY06 Other Funding

Investigator	Agency	Title	Direct $	Indirect $	Total
R. Bies	PA DOH	Commonwealth Center of Excellence for Bipolar Disorder	9,011	1,802	10,813
B. Gold	PA COMMON	Keystone Innovation Starter Kit (KISK) Grant	208,335	-	208,335
J. Pringle	IRETA	2005 Scaife Fellowship	14,692	2,938	17,630
J. Pringle	IRETA	2006 Scaife Advanced Medical Fellowship in Alcohol and Other Drug Dependency	14,934	2,987	17,921
J. Pringle	IRETA	Cooperative Agreements for Addiction Technology Center	46,296	3,704	50,000
J. Pringle	IRETA	Peer Review of Half-Way House	13,333	2,667	16,000
J. Pringle	IRETA	Performance Measurement System PMS for Substance Abuse Treatment Access Retention and Clinical Progress	31,250	6,250	37,500
R. Venkataramanan	CHP	HSCT for Hemoglobinopathy with Non-Myelobiative Therapy	17,570	-	17,570
Total			**$355,421**	**$20,348**	**$375,769**

Faculty Recruitment and Changes

During FY06, considerable effort was expended in the recruitment of faculty members who will join our ranks officially during FY07. These faculty members, along with those who were recruited in FY06 and participated in our programs in the last year, are listed in the table below.

New Faculty

Name	Prior Institution/Rank	Current Rank	Department
John Alvin	University of Pittsburgh, School of Dental Medicine	Associate Professor	Pharmaceutical Sciences
Neal Benedict	UPMC Critical Care Resident	Assistant Professor	Pharmacy and Therapeutics
Jan Beumer*	University of Pittsburgh/Cancer Institute/Post Doctoral Associate	Research Assistant Professor *start date 10/1/06*	Pharmaceutical Sciences (UPCI)
Ryan Bookout	The University Hospital-Health Alliance of Greater Cincinnati/ Oncology Resident	Assistant Professor	Pharmacy and Therapeutics
Alexander Doemling*	ABC Pharma, Munich, Germany/Director	Associate Professor *start date 10/1/06*	Pharmaceutical Sciences (Drug Discovery)
Bonnie Falcione	UPMC/Infectious Diseases Resident	Assistant Professor	Pharmacy and Therapeutics
Ulrike Feske*	WPIC/Assistant Professor	Research Assistant Professor *start date 7/1/06*	Pharmaceutical Sciences (CEDAR)
Tara Gesior*	Hospital of University of Pennsylvania at Philadelphia Drug Information Resident	Assistant Professor *start date 8/7/06*	Pharmacy and Therapeutics

Name	Prior Institution/Rank	Current Rank	Department
Colleen Lauster	William Beaumont Hospital/ Clinical Specialist	Assistant Professor	Pharmacy and Therapeutics
Yong Li*	Van Andel Research Institute, Grand Rapids/Research Scientist	Assistant Professor *start date 2/1/07*	Pharmaceutical Sciences, Center for Pharmacogenetics
Scott Mark	UPMC/Director of Pharmacy	Assistant Professor	Pharmacy and Therapeutics
Susan Meyer	Senior Vice President, American Association of Colleges of Pharmacy (AACP)	Associate Dean for Education and Professor	Pharmacy and Therapeutics
Beth Minnigh	Private Industry	Senior Lecturer	Pharmaceutical Sciences
Ty Ridenour*	Penn State University Prevention Research Center/ Research Associate Professor	Research Associate Professor *start date 7/1/06*	Pharmaceutical Sciences (CEDAR)
Christine Scelsi	Duke University/Assistant Research Professor, Dept. of Medicine, Div. of Geriatric Med.	Assistant Professor	Pharmacy and Therapeutics
Xiang-Qun Xie*	University of Houston, Dept. of Pharmaceutical Sciences/ Associate Professor	Professor *start date 8/7/06*	Pharmaceutical Sciences (Drug Discovery)
Maria Yaramus	UPMC Cancer Center/Clinical Research and Education Director	Assistant Professor	Pharmacy and Therapeutics

* Recruited in FY06

Promotions

Name	Previous Rank	New Rank	Department
Song Li	Assistant Professor	Associate Professor/ Tenure	Pharmaceutical Sciences
Susan Skledar	Assistant Professor	Associate Professor	Pharmacy and Therapeutics
Margaret Verrico	Instructor	Assistant Professor	Pharmacy and Therapeutics

Departures

Name	Previous Rank	Position Accepted	Department
Carlene Baum	Assistant Professor	Resigned	Pharmaceutical Sciences
Timothy Blackson	Visiting Associate Professor	Resigned	Pharmaceutical Sciences
Richard Lithgow	Senior Lecturer	Retired	Pharmaceutical Sciences
Feng Liu	Research Assistant Professor	Research Associate Professor, UNC School of Pharmacy	Pharmaceutical Sciences
Gary Matzke	Professor	Associate Dean for Research and Public Policy, Virginia Commonwealth Univ. School of Pharmacy	Pharmacy and Therapeutics
Michael Mokotoff	Professor	Retired Emeritus	Pharmaceutical Sciences
Phillip Pulsinelli	Associate Professor	Retired Emeritus	Pharmaceutical Sciences
Terry Schwinghammer	Professor	Department Chair, West Virginia Univ. School of Pharmacy	Pharmaceutical Sciences

Seminars

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 series 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.

Date	Speaker	Seminar Topic
September 13, 2005	Jeffrey Brodsky, PhD Associate Professor, Department of Biological Studies University of Pittsburgh	Co-Opting Yeast to Identify Genetic Modifiers of Protein Conformational Diseases
September 27, 2005	Craig Svensson, PharmD, PhD Lyle & Sharon Bighley Professor in Pharmaceutical Sciences and Head, Division of Pharmaceutics University of Iowa College of Pharmacy	How Do Systemically Administered Drugs Provoke Immune Reactions in the Skin?
October 18, 2005	David Flockhart, MD, PhD Professor and Chief, Division of Clinical Pharmacology School of Medicine, Indiana University	Pharmacogenomics in the Treatment of Breast Cancer
November 1, 2005	Loren Williams, PhD Professor, School of Chemistry and Biochemistry Georgia Institute of Technology	Single Nucleotide RNA Choreography
November 22, 2005	Paul Floreancig, PhD Associate Professor, Department of Chemistry University of Pittsburgh	Synthesis of Cytotoxic Agents that Contain Latent Electrophiles
November 29, 2005	Chris Schafmeister, PhD Assistant Professor, Department of Chemistry University of Pittsburgh	Bis-Amino Acids: A New Technology for Synthesizing Macromolecules with Designed Shapes
December 13, 2005	David Myles, PhD Executive Director, Chemistry Kosan Biosciences, Inc.	New Polyketide Drugs Through Engineered Biosynthesis and Medicinal Chemistry
January 10, 2006	Erik Weiner, PhD Associate Professor of Radiology University of Pittsburgh Cancer Institute and Department of Bioengineering, University of Pittsburgh	New Reagents for Targeting the High Affinity Folate Receptor
January 24, 2006	Jill Siegfried, PhD Professor of Pharmacology and Co-Director UPCI Lung Cancer Program School of Medicine, University of Pittsburgh	Targeting the Estrogen Receptor for the Treatment of Lung Cancer
January 31, 2006	Ilyas Kamboh, PhD Professor, Department of Human Genetics Graduate School of Public Health, University of Pittsburgh	Molecular Genetics of Alzheimer's Disease
February 7, 2006	Youhua Liu, PhD Department of Cellular and Molecular Pathology School of Medicine, University of Pittsburgh	Pathogenesis and Therapeutic Intervention of Chronic Renal Fibrosis
February 14, 2006	Tianyi Wang, PhD Assistant Professor, Infectious Diseases and Microbiology Graduate School of Public Health, University of Pittsburgh	A Proteomic Study of TLR4-MyD88-Dependent Host Response
February 28, 2006	Philip Felgner, PhD Director, Proteomics Laboratory, Molecular Biology and Biochemistry School of Biological Sciences, Univ. of California Irvine	High-Throughput Vaccine and Diagnostic Antigen Discovery with Proteome Microarrays

Date	Speaker	Seminar Topic
March 28, 2006	Paul Ortiz de Montellano, PhD Professor of Chemistry, Pharmaceutical Chemistry and Pharmacology, University of California San Francisco	Circumventing Drug Resistance in Mycobacterium Tuberculosis
April 4, 2006	Scott Young, MD, PhD Neural Gene Expression Section Laboratory of Cellular and Molecular Regulation National Institute of Mental Health, NIH	What Do Mouse Knockouts of Vasopressin and Oxytocin Receptors Teach Us?
April 11, 2006 (co-sponsored with the Dept. of Chemistry)	Milton Brown, MD, PhD Associate Professor, Department of Chemistry University of Virginia	Voltage Gated Sodium Channels: A Therapeutic Target for Human Prostate Cancer
April 18, 2006	Mary Jeanne Kreek, MD Director of Laboratory on Biology of Addictive Disease Rockefeller University	Endorphins, Dopamine, Stress, and Addiction

NIH/NCI Study Section Participation

Janet A. Amico, MD
NIH (NIDDKD) Correspondent Ad Hoc Referee

Robert R. Bies, PhD
National Cancer Institute; Ad-hoc Committee for review of the ICMIC Program Submissions

Billy W. Day, PhD
Drug Development PO1 Cluster Review Panel, National Cancer Institute
NIH, Center for Scientific Review, Special Emphasis Panel, PAR-05-056 (Targeting Diseases Caused by Protein Misfolding or Misprocessing, ZRG1 BST-L 50)
NIH, Developmental Therapeutics (DT) Study Section, Center for Scientific Review, ad hoc

Robert B. Gibbs, PhD
Reviewer for NIH Study Section NDBG (formerly MDCN-2)

Song Li, PhD
NIH Nanoscience and Nanotechnology Review Panel

Dexi Liu, PhD
NIH Musculoskeletal Tissue Engineering (MTE) Study Section
Gene and Drug Delivery (GDD) Study Section, Member

Michael M. Vanyukov, PhD
NIH, Center for Scientific Review, Behavioral Genetics and Epidemiology Study Section (BGES), Chartered Member
National Institute on Drug Abuse Centers Review Committee Meeting, ZDA1 RXL-E 16 P
National Institute on Drug Abuse Treatment Research Subcommittee, NIDA-E (1)

Bibliography of Peer-Reviewed Publications

DEPARTMENT OF PHARMACEUTICAL SCIENCES

Published Papers

Rinaman L, Volmer RR, Karam JR, Li X, *Amico JA***.** Attenuation of dehydration anorexia in oxytocin deficient mice. *Am J Physiol. Regulatory, Integrative, Comp Physiol* 2005; 288:R1791-R1799.

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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 FY06:

By 2011, the School of Pharmacy will have:
- **become a national leader in pharmacy education.**

For the next academic year and beyond, this strategic outcome becomes 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 some elements thought to 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

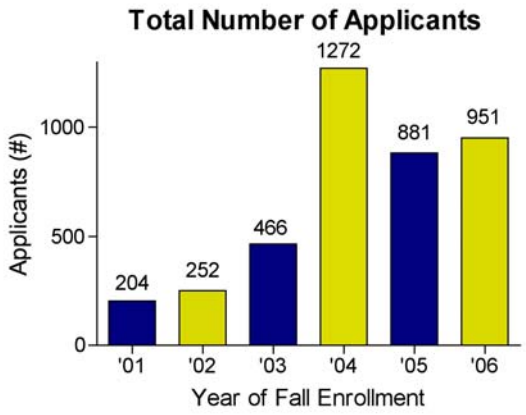
Because of the high demand for admission, high academic qualifications of applicants, and technology installed in classrooms, the class size was increased from 102 to 108 students. Admission to the School of Pharmacy was highly competitive for the 108 positions in the class of 2010. Data are summarized in the graphs on the following page.

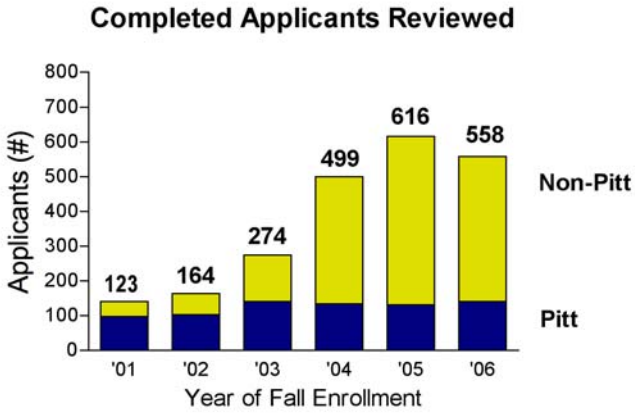
- Materials were received from 951 applicants, 558 of whom completed the entire application process.

- Fifty 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. Selected

students accepted to the University of Pittsburgh upon graduation from high school received a conditional acceptance to the School of Pharmacy pending successful completion of pre-pharmacy college course.

- There were nine applications for every one of the 58 open enrollment slots in the class.
- Competitive applicants had an overall GPA of 3.54 and a science GPA of 3.47.





Applicants* for Fall Enrollment 2001–2006

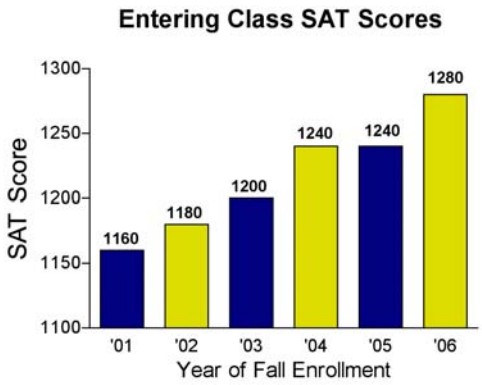
	Applications Received			Applicants Reviewed			Average GPA	Average Math/Science GPA
	Men (%)	Women (%)	Total	Pitt	Non-Pitt	Total		
Fall 2001	33	67	204	97	44	141	3.40	3.21
Fall 2002	35	65	252	103	61	164	3.50	3.42
Fall 2003	28	72	466	140	134	274	3.37	3.23
Fall 2004	38	62	1272	134	1138	499	3.16	3.01
Fall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

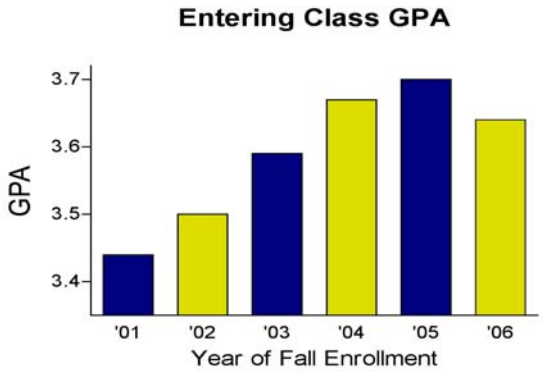
* Unless otherwise indicated, data reflect the reviewed applicants.
** Average Science GPA

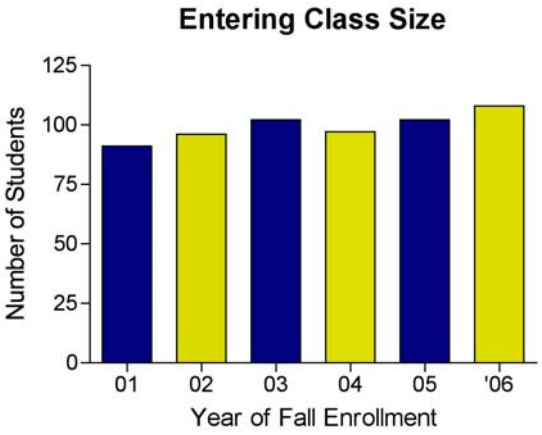
Enrolled Students

The 108 students selected in 2005–06 to begin the pharmacy program in fall 2006 (the class of 2010) are academically strong and represent the largest entering class in recent history.

Women continue to constitute the majority of the students in the class, having increased to 64 percent in the class entering in fall 2006 from 61 percent the previous year. Over the past six years, women have constituted anywhere from 61 percent to 72 percent of the entering class.







Efforts to increase the racial and ethnic diversity continue to have an impact as evidenced by a 43 percent increase in the number of minority students enrolling. Under-represented minorities (African American, Hispanic, and Native American) increased from one student in fall 2005 to six students in fall 2006.

First-Year Class Enrollments 2001–2006

Fall Term	Residency		Application Pathway					Students with 4-Year Degree (% of class)
				Open Admissions				
	PA (%)	Non-PA (%)	Conditional Acceptance	Pitt	Community College	AAU-member institution	Other	
2001	95	5	34	37	2	4	14	14
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

Graduates

Engagement. Pitt School of Pharmacy alumni are an accomplished group of professionals who are committed to the University and to the School. The School of Pharmacy ranks first among the 16 University of Pittsburgh schools and four regional campuses in percent engaged with 34 percent of the School's living alumni (4,359) engaged in some element of campus life.

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 (%)
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
2001	73/75	97.3	NA	96.7
2000	87/88	98.9	92.3	95.4
1999	97/99	98.0	95.6	97.0
1998	94/97	96.9	93.1	95.2

* Based on best information available.

Multistate Pharmacy Jurisprudence Exam® (MPJE®)

Year	Pitt Candidates* Pass/Total	Pitt Pass Rate (%)	State Pass Rate (%)	National Pass Rate (%)
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	86.0	82.7
2002	110/113	97.3	93.2	92.1
2001	134/139	96.4	94.5	92.4
2000	123/126	97.6	94.9	92.6
1999	127/131	97.0	90.1	91.8

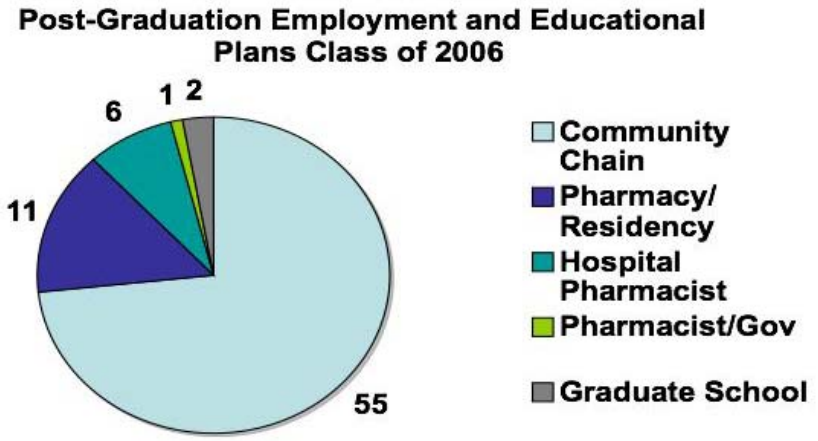
* Numbers include all University of Pittsburgh pharmacy graduates taking the MPJE in any state as a first time candidate for that state.

The first-time candidate MPJE® passing rate for the Class of 2006, which includes December 2005 and April 2006 graduates, was 89.4 percent for all states and the first-time candidate MPJE® passing rate for only Pennsylvania state eligibility was 84.5 percent.

At the time of graduation, each member of the Class of 2006 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.

Post-Graduation Employment and Education Plans for the Class of 2006. Those graduates entering the workforce were offered starting salaries averaging $90,100, with a range of $72,000 to $108,000. Based on survey data, it is estimated that approximately 73 percent of the Class of 2006 graduated with educational debt, ranging from $20,000 to $120,000, with an average of $63,633.

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.



Organizations and Activities

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

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. Nearly 97 percent of the School's 369 students are members of ASP, making it the largest student organization at the School. All of the School's student organizations report monthly at ASP meetings. ASP hosts a variety of volunteer, professional, and social activities during the year.

Operation Immunization focuses on immunizations in the elderly, underserved, high school seniors, children, and healthcare professionals. Pharmacy students distributed information to local assisted-living homes and to clinics for the underserved; provided more than 3,000 information packets on childhood vaccinations, including an immunization schedule, to be distributed by child daycare facility personnel throughout Allegheny County; and sent meningitis vaccine awareness flyers to high school guidance counselors to be distributed to juniors and seniors throughout Allegheny County.

Operation Diabetes, sponsored nationally by Rite Aid, increases awareness of diabetes and the dangers associated with the disease, with the goal of preventing long-term manifestations of diabetes in the community. Pharmacy students distributed information to patients with diabetes and fielded questions at local community pharmacies; helped to coordinate the annual Juvenile Diabetes Research Fund Walk for the Cure; and raised funds for diabetes research by participating in the Walk for the Cure on the RxRoad Runner Team.

Associated with the APhA-ASP is the International Pharmaceutical Students Federation (IPSF). These students informed colleagues of opportunities to study abroad; coordinated a smoking cessation program for the Great American Smoke Out; and raised awareness of Pennsylvania SWAT (Students Working Against Tobacco).

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 Academy of Student Pharmacists 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.
Student National Pharmaceutical Association	An educational service association of students who are concerned about pharmacy and healthcare-related issues, the welfare of the nation's underserved populations, and minority representation in pharmacy and other health-related professions.
Academy of Managed Care Pharmacy	Provides students with information about career opportunities in managed care pharmacy.
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
Kristen Topolsky (P2) David Julian (P3) Christine Huber (P4) Janine Bucci (P4)	National Community Pharmacists Association (NCPA) Pruitt-Schutte Student Business Plan Competition	Team placed 12th in nation. Competition focused on design of business plan to purchase an existing or develop a new community pharmacy.
Alpha Omicron Chapter of Rho Chi Society	Rho Chi (pharmacy honor society)	Received $500 chapter award for proposal to establish two faculty awards to recognize scholarship and teaching.
Jennifer Stover (P4) Emily Dornblaser (P3) Stephanie Harriman (P3) Nina Sonbolian (P1)	Academy of Managed Care Pharmacy (AMCP) Pharmacy and Therapeutics Competition	Team finished 2nd in the nation in a competition that focused on an analysis of a medication for formulary inclusion and was awarded $1500 in scholarship funds.
Nickolas Kernich (P2)	National Association of Chain Drug Stores (NACDS) Foundation	Awarded a scholarship based on career goals, interest in chain community pharmacy practice, leadership activities, and professional and community involvement.
Jennifer Friedl (P2)	Wal-Mart	One of 10 students selected from a national pool to receive a $300 scholarship to implement a week-long community outreach program on Medicare Part D for senior citizens in her community.
Jennifer Stover (P4)	Pitt Chapter of American Pharmacists Association Academy of Student Pharmacists (APhA-ASP)	Recognized as student of the year.

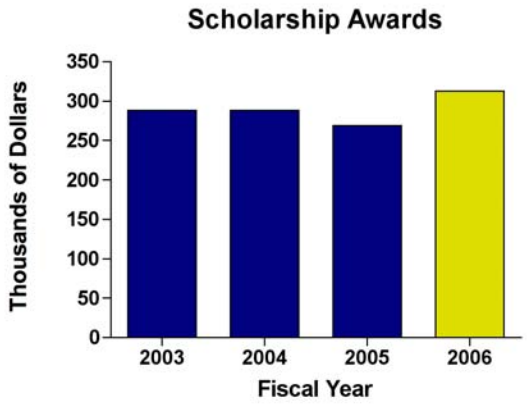
Student Awards at Graduation

Award Title	Student Awardee
The Lilly Achievement Award	Lindsay Palkovic
TEVA Pharmaceuticals Award	Katherine Francis
GlaxoSmithKline Patient Care Award	Renee MacKenzie
The Roche Award for Communication	Margie Snyder
The Robert W. Taylor Memorial Award	Jennifer Stover
The Merck Award	Margie Snyder Jennifer Livingstone
The Academy of Student of Pharmacy Certificate of Recognition	Margie Snyder
The John Herman Wurdack Award	Jon Bannon
The Pennsylvania Pharmaceutical Association Student Award	Lauren Fields
The Mylan Excellence in Pharmacy Award	Talia Kleeb
McNeil/APhA-ASP Mortar and Pestle Professionalism Award	Amit Duggal
Facts and Comparisons Award of Excellence in Clinical Communication	Christine Huber
Natural Medicines Comprehensive Database Recognition Award	Tamika Leftwich
Perrigo Award of Excellence in Non-prescription Medication Studies	Rita Reese
U.S. Public Health Service-Excellence in Public Health Pharmacy Practice Award	Lauren Fields (2006)
U.S. Public Health Service-Excellence in Public Health Pharmacy Practice Award	Margie Snyder (2005)

Scholarship Awards

The School of Pharmacy awarded a total of $312,900 in scholarships to 134 students. The breakdown by class was:

P4–Class of 2006 = $111,500 awarded to 41 students
P3–Class of 2007 = $92,900 awarded to 45 students
P2–Class of 2008 = $47,500 awarded to 28 students
P1–Class of 2009 = $61,000 awarded to 20 students



White Coat Ceremony

As a means of instilling professionalism, the School of Pharmacy sponsored the White Coat Ceremony for P1 students (now named the Dr. Gordon J. Vanscoy Annual White Coat Ceremony) in January 2006. Families of the Class of 2009 were invited to attend this symbolic event, which marks the entry of first-year pharmacy students into a profession committed to serving humanity. During the ceremony, students are individually garbed in a white clinician's coat, the symbol of clinical service and care. Students recite the pledge of professionalism declaring a commitment to integrity, ethical behavior, and honor before faculty, family members, and friends. Over 450 people attended the fourth annual event, which was held in Scaife Hall.

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

In January 2006, the faculty completed the revision and approval of 13 curricular outcomes for the doctor of pharmacy program, which included an increased emphasis on public health and systems management.

Curricular Outcomes of the PharmD Program

General Outcomes	
Critical Thinking	Working with data and information to solve problems
Development of Knowledge and Skills	Use of the scientific method and scientific knowledge in practice
Oral and Written Communication Skills	Use of tools and strategies to communicate effectively with varied audiences
Professional Responsibility and Ethics	Responsibility for care outcomes and provide culturally responsive and ethical care
Social Interaction, Citizenship, Leadership, and Professionalism	Professional commitment and collaboration with others to achieve quality patient care
Life-long Learning	Commitment to maintaining contemporary competence and professional development

Practice Outcomes	
Patient Assessment	Collection and interpretation of patient data
Pharmaceutical Care Plan Development	Formulation of care plans to maximize pharmacotherapeutic outcomes and to prevent or resolve drug-related problems
Medication Therapy Management	Patient progress monitoring and optimization of pharmacotherapeutic outcomes
Pharmacodynamic Decision Making	Integration of science and practice to make evidence-based therapy recommendations
Pharmaceutical Product Preparation, Dispensing, and Administration	Preparation and distribution of pharmaceuticals
Management	Management and use of human, physical, medical, informational, and technological resources
Public Health	Clinical prevention and population health

With leadership from Dr. Denise Howrie, assistant dean for academic affairs, the Curriculum Committee evaluated and recommended process changes for managing the curriculum, including more systematic data collection related to teaching resource needs and course inventories. The Curriculum Committee also affirmed collaborative learning as a foundation of the curriculum structure.

During 2005–06, 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 faculty expertise. The 10 new courses or courses undergoing substantive changes in FY06 included:

- *Pharmacotherapy of Cardiovascular Diseases*: case-based instruction and use of the Peter M. Winter Institute for Simulation, Education and Research (WISER) for patient simulations.

- *Advanced Pharmaceutical Care 1*: problem-based learning (PBL) course using cases in infectious diarrheas, hypertension, emergency preparedness, and HIV to challenge students in collaborative learning exercises.

- *Pharmacotherapy: Gastroenterology:* transition to P2 course that integrates with patient self-care focus in *Experiential Learning* and *Professional of Pharmacy* courses.

- *Profession of Pharmacy 3*: focus on self care in community practice while introducing essential skills of patient assessment, cultural sensitivity, and evidence-based medicine as applied to complementary and alternative therapies.

- *Profession of Pharmacy 4*: group project to design a clinical trial that improves on the existing literature; emphasis on public health to complement assignments in *Experiential Learning*; management component with discussions on entrepreneurship and business plans.

- *Experiential Learning 3 and 4*: new focus on building patient care in the community; use of standardized rubrics for grading; and the addition of first aid training from the American Red Cross, an individual public health outreach project at each community practice site, and an evaluation of professionalism.

- *Immunology*: discrete sections for emphasis on allergy, HIV, transplantation, oncology, and immunizations.

- *Profession of Pharmacy 5:* expanded focus on literature retrieval and evaluation through evaluation of clinical practice guidelines and applications of journal articles to assigned case scenarios.

- *Drug Development 2*: added emphasis in areas of population pharmacokinetic approaches and pharmacogenomics, as well as increased case-based learning for clinical pharmacokinetics, especially in areas of infectious disease.

- *Profession of Pharmacy 6*: increased emphasis on pharmacoepidemiology and the effects of clinical Phase 3 and 4 research on public policy; student-derived continuous quality improvement exercises focused on ASHP 2015 Health System Objectives such as Smoking Cessation, Technology in Medication Safety, and Discontinuation of Antibiotics Post-Surgery, as well as other contemporary, local topics including Traffic in Pittsburgh Tunnels and Yielding to Pedestrians in Oakland.

Teaching Awards, Scholarship, and Innovations

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

- Dr. Amy Seybert received the University of Pittsburgh Chancellor's Distinguished Teaching Award, recognizing her work in the classroom and as experiential teacher, as well as the innovative use of patient simulators at the WISER Center. Dr. Seybert has published her experience: Seybert AL, Laughlin KK, Benedict NJ, et al. Pharmacy Student Response to Patient-Simulation Mannequins to Teach Performance-based Pharmacotherapeutics. Am J Pharm Educ 2006; 70: (article 48).

- Dr. Rhonda Rea was awarded a University of Pittsburgh Bowman Grant to support work at the University of Edinburgh under the direction of Dr. Phillip Evans to learn foundations and applications of problem-based learning.

- Dr. Rhea also received a $25,000 grant from the Provost's Advisory Council on Instructional Excellence that will allow her to continue her work on problem-based learning. She received one of only eight "Innovations in Education" awards for her proposal "A Systematic Approach to Ill-Defined Problem Solving Using a Computer-Aided Learning Branched-Tree Algorithm in Combination with Problem-Based Learning." Her project will use computer-aided learning technology to teach a systematic approach to resolving ill-defined problems in pharmacotherapy as part of the planned *Advanced Pharmaceutical Care II* course in spring 2007. Other collaborating faculty include Drs. Gary Stoehr, Denise Howrie, Bonnie Falcione, and Kristine Schonder.

- Ms. Susan Skledar described an internship program for doctor of pharmacy students to better understand the roles of pharmacists in drug use and disease state management, building upon the successful Drug Use and Disease State Management Program (DUDSM) program at UPMC where students assessed clinical practice guidelines through patient monitoring and clinical intervention techniques. Her experience was reported in Am J Pharm Educ, 2006.

- Dr. Samuel Poloyac reviewed the GEAR UP Program experience in informing PharmD students of pharmaceutical research opportunities, with 31 percent of participating students enrolling in graduate studies. The paper was published in Am J Pharm Educ, 2006.

- Drs. Susan Meyer and Denise Howrie collaborated with faculty from the Schools of Medicine, Pharmacy, and Nursing to develop an interprofessional experiential learning elective that will explore the unique contributions of the different professions to patient care in the selected settings of cardiac care and nephrology. Targeted for spring 2007, the course will use problem-based learning exercises, direct observations of interprofessional care for hospitalized and ambulatory patients, team-building exercises, and a summative project to meet course objectives.

- Faculty (Drs. Smith, Hall, Yaramus, Schonder, Zemaitis), students [Nicholas Kernich (P2), Brandy Pingatore (P2)] and information technology specialists (Thomas Waters, Andrew Grossman) developed a preliminary pilot using Breeze technology to present a simulation of a self-care patient case to promote problem identification and case analysis study. The short pilot was presented at the School of Pharmacy retreat.

Professional Experience Program

The Experiential Learning Program, also known as the Professional Experience Program (PEP), is the program through which students learn and refine their patient care and pharmacy practice skills in a variety of practice environments. PEP constitutes 35 percent of the PharmD curriculum. The School's PEP 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
- Manages the process for evaluating students, preceptors, and learning sites

In FY06, 395 students across the four professional years benefited from 1,097 learning experiences under the direction of a preceptor. The early practice experiences (years one through three of the curriculum) are offered in the Pittsburgh and Western Pennsylvania area. In the P4 year, local sites and sites outside of Allegheny County are used. Distant sites are located in California, Arizona, New Mexico, New York, North Carolina, South Carolina, and Ohio. Opportunities for international experiences are available in Honduras and Palermo, Italy. Thirty-five percent of student placements are within the UPMC system.

Service Learning (P1 Year). Under the direction of community service workers in service organizations, students interact with patient populations that have special healthcare 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 healthcare 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 Served	Number of Sites Used	Number of Students Assigned
Children/Youth	3	37
Elderly	10	52
Disability/Chronically Ill	3	27
Drug/Alcohol/HIV/Crisis	1	14
Homeless	4	14
Mental/Physical Health	3	28
Total	**24**	**101**

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

Scope of Community Pharmacy Experiences

Type of Community Practice Environment	Number of Sites Used	Number of Students Assigned
Chain Pharmacies	50	72
Independent Pharmacies	20	25
Total	**70**	**97**

Hospital/Institutional Pharmacy Practice (P3 Year). The practice of pharmacy in hospitals and other health care institutions 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, and patient safety; aseptic technique and calculations; and clinical practice skills, including patient assessment and medication therapy. Students participate in drug delivery systems and develop and enhance skills necessary for providing pharmaceutical care.

Scope of Hospital/Institutional Pharmacy Experiences

Type of Setting	Number of Sites Used	Number of Students Assigned
Hospital Settings	17	76
Other Institutional Settings	8	24
Total	**25**	**100**

Pharmacy Practice (P4 Year). The fourth 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 as follows:

- 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
- Two elective rotations (e.g., consulting pharmacy, FDA)

Scope of Pharmacy Practice Experiences

Type of Practice Setting	Number of Sites Used	Number of Student Experiences
Acute Care	50	176
Critical Care	(17)	(82)
General/Internal Medicine	(33)	(94)
Ambulatory Care	34	161
Elective	53	96
Advanced Community	377	159
Advanced Institutional	77	101
Total	**591**	**693**

Enhancing the Professional Experience Program. A working group led by Dr. Denise Howrie completed an extensive analysis of the Professional Experiential Program and provided recommendations to assure compliance with newly-published and updated accreditation standards and guidelines from the Accreditation Council for Pharmacy Education. 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 *Professional 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.

Preceptors. Pharmacists with patient care and other professional responsibilities serve as preceptors for Pitt students throughout the professional experience program. While some of these preceptors are Pitt faculty, 80 percent of the 591 Pitt preceptors are volunteers. During FY06, there was a net gain of 39 preceptors and sites:

Gain	Loss
5 acute care clinical preceptors	1 due to hospital closure
24 community preceptors	1 due to preceptor relocation
8 hospital preceptors	
4 preceptors for elective rotations	

Students in the P4 year have the opportunity to nominate for the Roche Preceptor of the Year Award a preceptor who is an exceptional role model and who has made outstanding teaching contributions during the year. The PEP Committee reviews nomination letters and makes the final selection. The 2005–06 awardees were:

- Dr. Melissa A. Somma, Assistant Professor of Pharmacy and Therapeutics and Director, University of Pittsburgh/Rite Aid Patient Care Initiative. Dr. Somma provides ambulatory care rotations in the Rite Care® Practice setting and was nominated by Talia Kleeb.

- Dr. Paul W. Ament, Assistant Manager of Pharmacy Services at Excela Health Latrobe Area Hospital. He provides ambulatory care rotations for P4 students and was nominated by Julie Kent.

For the first time in FY06, the School of Pharmacy gave Preceptor Appreciation Awards to preceptors that make exceptional commitments to the professional experience program and Pitt pharmacy students. During FY06, 52 preceptors received a special letter of appreciation and a pen engraved with their name.

Assessment

The Curricular Assessment Team (CAT) is charged to conduct assessments that provide data to inform curricular quality enhancement decisions. The team comprises five faculty members and four students. Faculty members included: Drs. Gary Stoehr (chair), Teresa Donegan, Samuel Poloyac, Regis Vollmer and Ms. Susan Skledar. Student members of the team were: John Cherry (P4), Robert Reynolds (P3), Kelly Gallagher (P2), and David Toma (P1). In FY06, the CAT focused on three specific questions.

Question	Results
How well do the students assess patients?	• Activity log developed for use in experiential education rotations to document patient medication history-taking opportunities. • Information gathered to guide Curriculum Committee and PharmD Council consideration and action related to curriculum content and process enhancements.
How effective is collaborative learning in meeting its objectives?	• Working in groups stimulates students to meet others in the class. • Development of interpersonal communication skills is enhanced. • Information gathered to guide Curriculum Committee and PharmD Council consideration and action related to curriculum content and process enhancements.
How well do students meet the management outcome?	• Analysis of curriculum revealed gaps in content. • Information gathered to guide Curriculum Committee and PharmD Council consideration and action related to curriculum content and process enhancements.

Special Features

Curricular Tracks and Combined Degree Options. During FY06, a combined PharmD/PhD program was proposed and approved by the Curriculum Committee, Graduate Program Council, and Leadership Team of the School. Students with interest in pharmaceutical research as a career may apply for the combined degree program in the second professional year, completing elective didactic courses in the graduate curriculum, graduate seminar, and complete elective PharmD experiences in research settings while receiving credit for both degrees. Two students are currently following the combined program curriculum, with a formal application and screening process to be used in the 2006–07 year.

Also during 2005–06, the Curriculum Committee approved the criteria and process for the development of curriculum tracks within the PharmD program. Students may select one of several curriculum tracks at the end of their second or beginning of third professional year, selecting elective didactic courses and planning experiential learning experiences to fulfill requirements to receive a certificate of completion in the track by time of graduation.

The following tracks are targeted for development:

- Community Pharmacy
- International Study
- Research
- Pharmacy Leadership/Management
- Advanced Practice
- Education
- Management and Business of Pharmacy

Cultural Competence. The School's mission statement was revised at the 2006 faculty retreat, in part to acknowledge the value that the faculty places on recruiting a diverse student body and faculty. Coupled with the recent report from the Institute of Medicine that points out the need for practitioners to be culturally responsive, new accreditation standards that emphasize the need to prepare pharmacists for practice in diverse environments, and the faculty's desire to prepare graduates of the School of Pharmacy capable of delivering culturally responsive care, the Curriculum Committee formed a task force to examine the curriculum's diversity content and outcomes.

After the curricular content was analyzed, a series of practica were designed for inclusion in the P1 and P2 years to enable students to practice and discuss cross-cultural skills and the following curricular enhancements planned:

P1 Year	• Additional instruction in culturally responsive care. • Instruction in health literacy with a focus on literacy in diverse populations.
P2 Year	• Students will evaluate the strengths of the cultural groups in proximity to assigned community experiential learning sites and assess community needs. • Additional cultural encounters in experiential learning to provide opportunities for students to practice skills learned in first year.
P3 Year	• Students assigned to sites servicing culturally diverse groups. • Opportunities to work with a medical interpreter. • Participation in a local Latino health fair.
P4 Year	• Increased student experience in providing care to minority populations. • Interactions with patients from diverse cultures and participation in community-based health improvement efforts.

Business Innovations. 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. The significant accomplishments during this period include:

- Creation of the position of Associate Dean for Business Innovation. Gordon J. Vanscoy, PharmD, MBA, assumed this new part-time position effective January 2006.

- Enhancement 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.

- Mentoring students who successfully submitted an entry into the National Community Pharmacy Association (NCPA) Business Plan Competition.

- Expansion of business education opportunities for future students by designing and proposing a focused business management curriculum track for the PharmD program.

- Development and implementation of practice management experiential rotations.

- 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. Work will continue with Katz once the new dean of that school is in Pittsburgh.

- Graduation of the first two Pharmacy Practice Management residents and redesign of the program to a two-year offering.

- Development and implementation of a Management/Leadership Topic Discussion Series for pharmacy practice residents.

International Education. Dr. Heather Johnson, a faculty member who recently returned from several years as clinical specialist in organ transplantation at UPMC-Palermo, has developed an experiential learning elective rotation in Palermo, Italy at ISMETT (*Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione)*, where 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.

Instructional Technology. Exploration of technology in education took two directions in FY06 with a focus on an improved Web presence that allows for interactive dissemination of information between the School, potential students, and current students and a focus on pilot projects for the innovative use of instructional media. Information technology projects were designed to complete the School's goal to create a state-of-the-art information technology (IT) infrastructure to facilitate effective and efficient integration of technology as an educational delivery and learning management tool. To enable the School to work within the larger University system and in conjunction with UPMC systems, a base structure of file server, user authentication, security, and backup technology has been implemented. The structure accommodates current use patterns and volume and will accommodate expansion using newer technologies.

Impacting the Nation

DMEducate™ is a Web-based comprehensive diabetes management course for health professionals designed to be used by many schools. Developed by a team of educators at the University of Pittsburgh, the project was supported through a gift from Novo Nordisk. The project team at Pitt included:

Randall Smith, PhD	Project Leader
Scott Drab, PharmD, CDE	Design Team Leader
Deanne Hall, PharmD, CDE	Course Evaluation Lead
Cheri Hill	Project Coordinator

Contributing faculty members from across the United States were identified by diabetes expertise in their respective fields of pharmacy, nursing, medicine, behavioral psychology, nutrition, and exercise physiology. The multimedia course provides students with a multidisciplinary foundation in the principles of diabetes management. In addition, the modular design and Internet-based distribution of the course permits unparalleled flexibility for faculty.

The course was piloted with 60 students at the University of Pittsburgh School of Pharmacy and Washington State University College of Pharmacy in the Spring '06 semester. Results were reported in a poster presentation entitled "Diabetes experts in every classroom: A pilot of an integrated Web-based comprehensive diabetes elective" that was presented by Deanne Hall, Scott Drab, and Randall Smith, at the 2006 American Associations of Colleges of Pharmacy meeting in San Diego, Calif..

In the three months after the AACP meeting in July 2006, sixty colleges and schools of pharmacy across the United States and Puerto Rico registered to use DMEducate™ resources within their curricula during 2006–07; it is estimated that DMEducate will reach over 5,000 PharmD students in its first year of availability. Educational researchers at the School of Pharmacy will study the impact and effectiveness of the DMEducate™ instructional resources student learning, instructor attitudes towards teachnology-based instructional resources, and student attitudes towards diabetes care and technology-based instructional resources.

Residencies

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 at Pitt include critical care, family practice, cardiology, drug information, infectious disease, pharmacy benefits management, oncology, community care, pharmacy practice management, and primary care. The School of Pharmacy partners with three institutions to make the residency program the dynamic experience that it is: UPMC Presbyterian/Shadyside, VA Pittsburgh Healthcare System, and UPMC St. Margaret.

Accomplishments

During FY06:

- 13 residents completed a one-year program in the School of Pharmacy residency program. These residents came from seven schools of pharmacy.

- Residents completed the School's orientation program which includes a session on teaching, learning, and evaluation methods.

- Faculty continued the School of Pharmacy Residency Research Series composed of didactic and interactive sessions focused on research skills. This program certified all 13 residents in the fundamentals of research.

- All 13 residents presented their research projects at the Department of Pharmacy and Therapeutics Seminar Program, which was held at the UPMC-Presbyterian Conference Center.

- Of the four pharmacy practice (first year) residents, two (50 percent) pursued advanced specialty residency training.

- Eight (62 percent) of the residents presented their research at the 25th Annual Eastern States Conference for Pharmacy Residents and Preceptors or other national pharmacy meetings.

- One resident presented her resident research abstract entitled, "Does prescriber compliance with a prospective approval procedure of an antibiotic management program affect medication ordering process time?" at the American College of Clinical Pharmacy's 2006 Spring Practice and Research Forum in Monterey, Calif. (Saunders, Capitano, Potoski)

- One resident submitted her resident research entitled, "Outcomes in patients treated with recombinant human activated protein C (rhAPC) at an academic medical center versus the ENHANCE US Trial" to the Society of Critical Care Medicine's 2007 Annual Congress in Orlando, Fla. (Bollinger, Coley, Rea)

Resident Research Findings:

- Non-steroidal anti-inflammatory agents (NSAIDS) should be avoided in patients at high-risk for developing acute renal failure. Providers should be educated on this risk to help avoid NSAID-associated renal dysfunction. (Benedict, Trilli)

- Patients with severe sepsis treated with recombinant human activated protein C at UPMC have a higher mortality rate than patients enrolled in the ENHANCE US Trial, however, they also have a significantly higher severity of illness score. (Bollinger, Coley, Rea)

- Patients with cancer have numerous and varied drug therapy problems. Development of a patient-centered medication-therapy-management service may significantly reduce these problems and improve patient care. (Duggal, Schwartz)

- Mean time to engraftment following autologous stem cell transplant using melphelan as a conditioning regimen was similar in elderly and young patients. Arbitrary reductions in melphalan doses in elderly patients based on age alone should be discouraged. (George, Schwartz)

- Simulation-based learning increases knowledge and clinical performance in pharmacy students. (Murray, Seybert)

- A bar-code medication administration system has the potential to prevent serious adverse drug reactions. (Ogbuokiri, Weber)

- Only 15-30 percent of patients utilizing a free medicine program pick up their prescriptions within a one-month period. Low pick-up rates were impacted primarily by the lack of a consistent process for patient notification. (Sanford, Farrah)

- A pharmacist-initiated protocol for screening patients with severe sepsis who meet criteria for recombinant human activated protein C did not result in a significant increase in the utilization of the agent. (Sanner, Rea)

- Prescriber non-compliance with the antibiotic management program prospective approval process significantly lengthened the medication ordering process time. (Saunders, Potoski)

- An evaluation of enoxaparin dosing and incidence of bleeding in patients with renal dysfunction will be utilized to educate prescribers and develop dosing recommendations in this patient population. (Veltry, Hall)

- Patients who were educated about their medications two-three days prior to hospital discharge had better information recall than those educated on the day of discharge. This study has important implications on the timing of discharge medication counseling in hospitals. (Yang, Donihi)

- Implementation of erythropoietin guidelines will increase provider awareness of the optimal dosing and monitoring for this agent. (Yoder, Trilli)

The following resident preceptors hold board certifications or other specialty certificates:

Sherrie Aspinall, PharmD, BCPS
Colleen Culley, PharmD, BCPS
Amy Donihi, PharmD, BCPS
Scott Drab, PharmD, CDE
Roberta Farrah, PharmD, BCPS
Deanne Hall, PharmD, CDE
Heather Johnson, PharmD, BCPS
Patricia Klatt, PharmD, BCPS
Colleen Lauster, PharmD, CDE
Scott Mark, PharmD, MS, CHE
Ted Rice, PharmD, BCPS
Denise Sokos, PharmD, BCPS
Melissa Somma, PharmD, CDE
Lauren Trilli, PharmD, BCPS

Growth of Residency Training Programs

During FY06, a new residency program in Pharmacy Practice Management was implemented. Scott Mark, PharmD, director of operations for UPMC Presbyterian, serves as the residency director. The goal of this program is to teach the necessary skills and provide the extensive experience that is needed to oversee the daily operations of a pharmacy department, develop a vision and set goals and objectives for a department, lead initiatives that promote pharmaceutical care and develop leaders in health-system pharmacy. This residency program will be converted to a two-year program next year and will be combined with a Master of Sciences degree in hospital pharmacy administration.

Sixteen residents and one fellow were recruited nationally from nine schools or practice settings and will complete their experiences at four School of Pharmacy partnership sites during the FY07 residency year.

The following table provides information about post-residency positions for the 2005–06 class of residents.

FY06 Residents and Future Placement

Name	Residency Program	Residency Institution	Post-Residency Appointment
Shrina Duggal	Pharmacy Practice	UPMC Presbyterian-Shadyside	Oncology Specialty Resident, UPMC Presbyterian-Shadyside
Jessica Bollinger	Pharmacy Practice	UPMC Presbyterian-Shadyside	Critical Care Specialty Resident, Ohio State University Medical Ctr.
Jeanette Yoder	Pharmacy Practice	VA Pittsburgh Healthcare System	Outpatient Pharmacist, VA Pittsburgh Healthcare System
Melissa Benedict	Pharmacy Practice	VA Pittsburgh Healthcare System	Clinical Pharmacist, St. Clair Hospital
Ozioma Ogbuokiri	Pharmacy Practice Management	UPMC Presbyterian-Shadyside	Clinical Manager, Cook Children's Health System
Eunjin Yang	Pharmacy Practice Management	UPMC Presbyterian-Shadyside	Director of Pharmacy, Graduate Hospital in Philadelphia
Lauren Veltry	Primary Care	UPMC Presbyterian-Shadyside	Exenda Health Care,Tampa Fla.
Annette Sanford	Family Medicine	UPMC St. Margaret	Undecided
Patricia Saunders	Infectious Disease	UPMC Presbyterian-Shadyside	Infectious Disease Clinical Specialist, Dartmouth-Hitchcock Medical Center
Timothy George	Oncology	UPMC Presbyterian-Shadyside	Inpatient Hematology Pharmacist, H. Lee Moffitt Cancer Center
Brian Miller	Oncology	UPMC Presbyterian-Shadyside	Clinical Pharmacist, Hillman Cancer Center
Cory Murray	Cardiology	UPMC Presbyterian-Shadyside	Clinical Pharmacy Specialist, Sentara Norfolk General Hospital
Casey Sanner	Critical Care	UPMC Presbyterian-Shadyside	Regional Medical Scientist, Glaxo SmithKline

Graduate Program

To be a national leader in pharmacy education requires that the graduate program contribute to that goal. Thus, the explicit goals are to:

- Increase the perceived quality of the graduate program
- Increase the impact of the graduate program

Program Description

The University of Pittsburgh PhD Program in Pharmaceutical Sciences is recognized for the quality of its graduates and their contributions to science. Past graduates are decision-makers and program leaders in the pharmaceutical industry, Food and Drug Administration, National Institutes of Health, and universities in the United States and around the world. The exciting expansion of the School's faculty and innovative research has created a tremendous opportunity for interdisciplinary research and graduate training.

The PhD Program in Pharmaceutical Sciences prepares students to become independent researchers in one of four major focus areas:

- Genomics, Proteomics, and Drug Discovery
- Drug Delivery and Targeting
- NeuroEndocrine Pharmacology
- Drug Disposition and Response

Each of these focus areas builds on the basic knowledge base in pharmaceutical chemistry, pharmacogenetics, pharmacology, and statistics that all graduate students learn as part of the program.

In addition, the Clinical Pharmaceutical Scientist Program is nationally recognized for its nearly 20-year history of training clinical scientists. This specialized program exists as a track within the broader PhD program and emphasizes patient-oriented and translational research, requiring that student dissertation projects include both clinical and basic research components. Students in each of the focus areas can participate in the Clinical Pharmaceutical Scientist Program.

Increasing the Visibility of the PhD Program

Public perception of the program is affected largely though advertising, presence and participation at national meetings, success at competing for national awards, the quality of research grants and publications, and the success and impact of matriculated students. Steps that have been taken to enhance awareness and appreciation of the program include the following:

- A new Web site was launched in August 2005 with improved content and much improved navigability. This has increased awareness of the program by students seeking training opportunities, as evidenced by increased applications to both the GEAR UP program and the PhD program.

- A student chapter of the American Association of Pharmaceutical Sciences (AAPS) was established in July 2004 to enhance student participation in AAPS activities, and representation at the annual national AAPS meeting and to provide educational opportunities regarding careers, drug development, and advances in the pharmaceutical sciences. This past year, 15 students attended the national meeting in Nashville, Tenn., and six students presented research abstracts at the meeting.

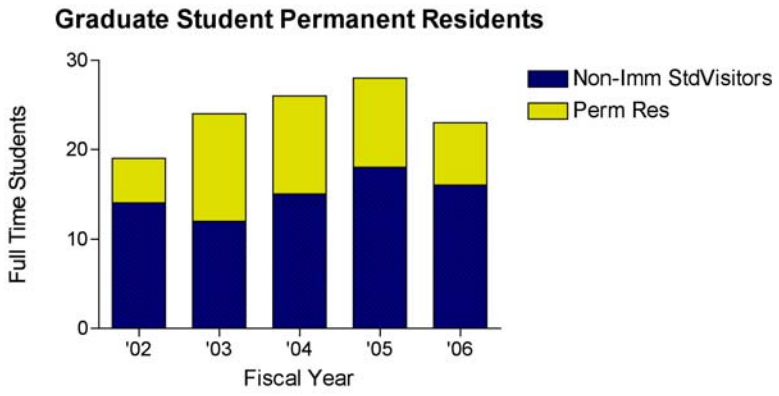
- A new recruiting effort was initiated supporting faculty visits to surrounding undergraduate institutions to inform students majoring in chemistry, biology, bioengineering, and neuroscience about the PhD program. Presentations were made at five institutions in 2005–06.

- A research presentation and publication tracking system was implemented to measure such activity by students. In 2005–06, students made 16 presentations at nine scientific conferences, and co-authored a total of 16 research publications. A new student travel award program was created to provide additional opportunities for students to present their research at national conferences.

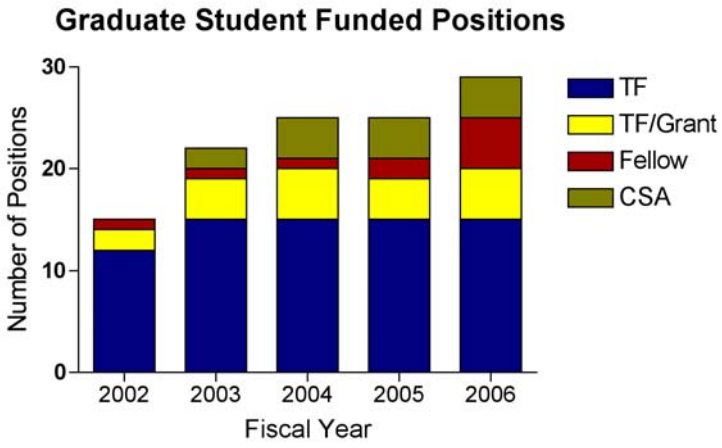
- Students continue to be encouraged to apply for competitive awards and fellowships. Five students received new or continuing fellowships this past year, and five students received competitive awards of other types.

Increasing the Impact of the PhD Program

One of the major outcomes of the PhD program is to double the number of full-time graduate students from 19 in 2002 to 38 by 2007. In 2005–06, there were 23 full-time students and two part-time students. The graph below shows the change in size of the graduate program since 2002 and the relative numbers of permanent residents and non-immigrant student visitors. Note that seven new students will enter the program which brings the projected number of students in the program to 26 for the upcoming year.



A key to increasing the number of graduate students is increasing financial support for the program. Below is a graph that shows the increase in funded positions for graduate students. During this past year, of the 23 full-time students in the program, 15 (65.2 percent) received stipend support from mechanisms other than the traditional teaching assistantships (seven [30.4 percent] from grants; five [21.7 percent] from fellowships; three [13.1 percent] from support as Clinical Scientist Associates [CSA mechanism described below]).



Additional goals are to increase national recognition and extramural support for the PhD program. This is accomplished primarily by increasing participation at national meetings, by successfully competing for fellowships and awards, by publishing in highly respected peer-reviewed journals, and by graduating students. During FY06:

- Five students were awarded new or continuing pre-doctoral fellowships.
  - One student received a National Research Service Award from NIH.
  - Two of the four students were recipients of the American Foundation for Pharmaceutical Education Fellowship Award. Only 75 are awarded nationally in any one year.
  - One student was supported via continuation of a Pfizer postdoctoral fellowship.
  - One student received a DOD breast cancer research pre-doctoral fellowship.
- Students made 16 presentations at nine scientific conferences.
- Two students received awards for abstracts and posters presented at these nine meetings.
- Students co-authored 16 manuscripts in peer-reviewed journals.
- Six students earned the Doctor of Philosophy degree.
- Five students received competitive awards (apart from fellowships).

Summary of Fellowships, Awards, Publications, and Presentations

Fellowships and Awards

Student	Fellowship
Kristin Bigos*	Ruth L. Kirschstein National Research Service Award Individual Pre-Doctoral Fellowship for "Pharmacodynamics of IV Citalopram Using Functional MRI"
Mike Tortorici*	American Foundation for Pharmaceutical Education Pre-Doctoral Fellowship for "The Effects of Therapeutic Hypothermia on Drug Metabolism"
Marci Chew*	American Foundation for Pharmaceutical Education Pre-Doctoral Fellowship for "Anticholinergic Activity and Cognition in Elderly"
Greg Bender*	Pfizer Postdoctoral Fellowship for Study at the University of Leiden
Jelena Janjic	DOD 3-Year Breast Cancer Research Pre-doctoral Fellowship

Student	Award
Haitao Yang	South Africa Travel Award to attend the Microbicides 2006 (biannual meeting)
Mike Tortorici*	Randy P. Juhl Scholarship
Marci Chew*	Pharmaceutical Sciences Graduate Student Excellence Award
Marci Chew*	Wal-Mart Annual Conference Scholarship to attend the American Association of Colleges of Pharmacy (AACP) meeting
Yun Fan*	AACR/NFCR/CICR Scholar in Training/Travel Award to attend the AACR (American Association for Cancer Research) meeting in Washington, DC
Rama Sivasubramanian*	Travel award from the Pharmacokinetics, Pharmacodynamics and Drug Metabolism (PPDM) Section of the AAPS to attend annual meeting in Nashville for her poster, "Valerian Does Not Alter Acetaminophen Glucuronidation"

* Clinical Pharmaceutical Scientist Program

Publications of Graduate Students

- *An JY*, Seo JW, Tasaki T, *Lee MJ*, Varshavsky A, and Kwon YT. (2006) Impaired neurogenesis and cardiovascular development in mice lacking the E3 ubiquitin ligases UBR1 and UBR2 of the N-end rule pathway. *Proc. Natl. Acad. Sci. USA* 103:6212-6217.
- Ouyang Y, Kwon YT, *An JY*, Eller D, Tsai SC, Diaz-Perez S, Troke JJ, TeitellMA, and Marahrens Y. (2006) Loss of Ubr2, an E3 ubiquitin ligase, leads to chromosome fragility and impaired homologous recombinational repair. *Mutat. Res.* 596: 64-75.
- *Min Jae Lee*, Takafumi Tasaki, Kayoko Moroi, *Jee Young An*, Sadao Kimura, Ilia V. Davydov, and Yong Tae Kwon. (2005) RGS4 and RGS5 Are *In Vivo* Substrates of the N-end Rule Pathway. *Proc. Natl. Acad. Sci. USA* 102, *15030-15035.*
- *Tortorici MA*, Kochanek PM, Bies RR, and Poloyac SM. (2006) Therapeutic Hypothermia Induced Pharmacokinetic Alterations on CYP2E1 Chlorzoxazone Mediated Metabolism in a Cardiac Arrest Rat Model. *Crit Care Med*; 34(3): 785-791.
- Ramanathan, R.K., Fakih, M., Mani, S., Deutsch, M., Perez, R.P., Ritter, M.A., Eiseman, J.L., Ivy, S.P., Trump, D.L., Belani, C.P., *Parise, R.A.*, Potter, D.M., Egorin, M.J. (2006) "Phase I and pharmacokinetic study of the novel redox-active agent, motexafin gadolinium, with concurrent radiation therapy in patients with locally advanced pancreatic or biliary cancers." *Cancer Chemotherapy and Pharmacology*, 57: 465-474.
- Zamboni, W.C., Goel, S., Iqbal, T., *Parise, R.A.*, Strychor, S., Repinski, T.V.W., Egorin, M.J., Mani, S. (2006) "Clinical and Pharmacokinetic Study Evaluating the Effect of Food on the Disposition of 9-Nitrocamptothecin and its 9-Aminocamptothecin Metabolite in Patients with Solid Tumors." *Cancer Chemotherapy and Pharmacology*, 57: 631-639.
- Zamboni, W.C., Ramanathan, R.K., McLeod, H.L., Mani, S., Potter, D.M., Strychor S., Maruca, L.J., King, C.R., Jung, L.L., *Parise, R.A.*, Egorin, M.J., Davis, T.A., Marsh, S. (2006) "Disposition of 9-nitrocamptothecin and its 9-aminocamptothecin metabolite in relation to ABC transporter genotypes." *Investigational New Drugs*, in press.

- Lichtman, S.M., Hollis, D., Miller, A.A., Rosner, G.L., Rhoades, C.A., Lester, E.P., Millard, F., Byrd, J., Cullinan, S.A., Rosen, D.M., *Parise, R.A.*, Ratain, M.J., Egorin, M.J. (2006) "Prospective Evaluation of the Relationship of Patient Age and Paclitaxel Clinical Pharmacology: Cancer and Leukemia Group B (CALGB 9762)." *Journal of Clinical Oncology*, in press.
- *Parise, RA.*, Egorin, MJ, Nichols, M, El-Hefnawy, T, Hershberger, PA. (2006) "CYP 24, the enzyme that catabolizes the anti-proliferative agent vitamin D, is increased in lung cancer." *International Journal of Cancer*, in press.
- *Parise, RA*, Holleran, JA, Beumer, JH, Ramalingam, S, Egorin, MJ. (2006) "A Liquid Chromatography-Electrospray Ionization Tandem Mass Spectrometric Assay for Quantitation of the Histone Deacetylase Inhibitor, Vorinostat (Suberoylanilide HydroxamicAcid, SAHA), and its Metabolites in Human Serum." *Journal of Chromatography B*, in press.
- *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. (2006) *Schizophrenia Research,* in press.
- Fabian TJ, Schwartzman DS, Ujhelyi MR, Corey SE, *Bigos KL*, Pollock BG, Kroboth PD. (2006) Decreasing Pain and Anxiety Associated with Patient-Activated Atrial Shock: A Placebo-Controlled Study of Adjunctive Sedation with Oral Triazolam. *J Cardiovasc Electrophysiol,* 17:1-5.
- *Bigos KL*, Bies RR, Pollock BG. (2006) Sex Differences in the Pharmacokinetics and Pharmacodynamics of Psychotropics. *Mental Fitness*, in press.
- *Bigos KL*, Bies RR, Pollock BG. (2006) Population Pharmacokinetics in Geriatric Psychiatry. *Am J Geriatr Psychiatry*, in press.
- Khanday FA , Yamamori T, Mattagajasingh I, *Zhang Z*, Bugayenko A, Naqvi A, Santhanam L, Nabi N, Kasuno K, Day BW, Irani, K. "Rac1 Leads to Phosphorylation-dependent Increase in Stability of the p66shc Adaptor Protein: Role in Rac1-induced Oxidative Stress." *Molecular Biology of Cell*. 2006 Jan;17(1):122-9. Epub 2005 Oct 26.
- Atkins JL, Day BW, Handrigan MT, *Zhang Z*, Pamnani MB, and Gorbunov NV. "Brisk Production of Nitric Oxide and Associated Formation of S-Nitrosothiols in Early Hemorrhagic Shock" *Journal of Applied Physiology*, 2006 Apr;100(4):1267-77. Epub 2005 Dec 8.

Graduate Student Presentations (at national or international conferences)

Student	Title of Presentation	Meeting
Haitao Yang	The in Vitro Studies and Computational Modeling of EGCG Against HSV Infection	The Microbiocides 2006 (biannual meeting): April 23-26, 2006. Cape Town, South Africa
Haitao Yang	Effect of β-cyclodextrin and Its Derivatives on the Apparent Aqueous Solubility and Anti-HIV Activity of UC781	AAPS Annual Meeting: Nashville, Tenn., November, 2005
Michael Tortorici*	Evaluation of the Pneumococcal Polysaccharide Vaccine in Patients with Community Acquired Pneumonia	ASHP Mid-year Meeting, Las Vegas, Nev.

Student	Title of Presentation	Meeting
Michael Tortorici*	Therapeutic Hypothermia Induced Alterations on CYP2E1 Chlorzoxazone Mediated Metabolism	AAPS Annual Meeting: Nashville, Tenn., November, 2005
Shringi Sharma	Metabolism of 17-α-hydroxyprogesterone Caproate by Human Liver Microsomes	AAPS Annual Meeting: Nashville, Tenn., November, 2005
Marci Chew*	Differential Anticholinergic Activity of 41 Psychotropic Medications	Society of Biological Psychiatry: Toronto, Ontario, Canada, May, 2006
Marci Chew*	Population Pharmacokinetic Model of Quetiapine Using Highly Sparse Data from the CATIE Study	Society of Biological Psychiatry: Toronto, Ontario, Canada, May, 2006
Marci Chew*	Differential Anticholinergic Activity of 41 Psychotropic Medications	5th International Symposium on Measurement and Kinetics of *In Vivo* Drug Effects: Leiden, Amsterdam, April, 2006
Marci Chew*	Differential Anticholinergic Activity of Antipsychotic Medications	International College of Geriatric Psychoneuropharmacology: Pittsburgh, Pa., November, 2005
Marci Chew*	Does the Pupillary Response to Anticholinergic Drugs Correspond to Serum Anticholinergic Activity? A Hypothesis and Proposed Experiment	25th Pupil Colloquium: Bear Mountain, N.Y., August, 2005.
Marci Chew*	Anticholinergic Activity of 107 Common Medications	AAPS Annual Meeting: Nashville, Tenn., November, 2005
Kristin Bigos*	Sources of Variability in Olanzapine Exposure from the CATIE-AD Study	Society of Biological Psychiatry: Toronto, Ontario, May 2006
Alex Sassi	Effects of Physiological Fluids on Physico-chemical Characteristics and Activity of Vaginal Microbicide Products	AAPS Annual Meeting: Nashville, Tenn., November, 2005
Jennifer Bonner	Failure of Heparin Dosing Guidelines in Obese Patients: Time for Reevaluation	American College of Chest Physicians: Montreal, Quebec, Nov. 1, 2005
Jenny Zheng	Identification of Direct Binding Partners of Serum Response Factor During Myoblast Cell Differentiation Using Nano-LC-MS/MS and MALDI-TOF-TOF	American Society of Mass Spectrometry 2006 Annual Meeting
Rama Sivasubramanian*	Valerian Does Not Alter Acetaminophen Glucuronidation	AAPS Annual Meeting: Nashville, Tenn., November, 2005

* Clinical Pharmaceutical Scientist Program

Demographics

In addition to increasing the number of enrolled students, the School of Pharmacy is committed to increasing the percentage of students that are U.S. citizens or permanent residents. The five-year goal is to have U.S. citizens or permanent residents constitute at least 50 percent of the students enrolled in the program. During this past year, U.S. citizens or permanent residents accounted for 36 percent of the students enrolled. This coming year, two of the seven incoming students are U.S. citizens or permanent residents, which will raise the percentage to 38.5 percent.

Note that in the previous year, only 12 percent (8 out of 66) of the students that applied to the PhD program were U.S. citizens or permanent residents. Clearly, increasing the number of U.S. students in the program requires an increase in the number of U.S. students that apply. To enhance the recruitment of U.S. students, the School has undertaken three recruitment strategies. The first is a special recruitment program called GEAR UP (Graduate Education and Research at the University of Pittsburgh), which includes a mini-graduate school weekend experience and a summer research internship program. The description of GEAR UP and results are found later in this document. The second strategy targets recruitment of PharmD students into the Clinical Pharmaceutical Scientist Program. The third strategy targets recruitment of basic science students by supporting faculty visits to surrounding undergraduate institutions to inform students majoring in chemistry, biology, bioengineering, and neuroscience about the PhD program. Presentations were made at five institutions this past year:

- Westminster College
- Carnegie Mellon University
- University of Pittsburgh (Bioengineering Department)
- Indiana University of Pennsylvania
- Juniata College

Students from three of these institutions applied to the GEAR UP program to learn more about graduate program in the pharmaceutical sciences.

The success of these strategies is evidenced in part by changes in the demographics of the applicant pool. In FY06, there was a 30 percent increase (from 66 to 86) in the number of completed applications to the PhD program, and a 263 percent increase (from 8 to 21) in the number of applications from students from the United States.

Applications to and Enrollments in the PhD Program FY06

Nationality	Number	Percentage
U.S. permanent residents	9	36
Non-immigrant student visitors	16	64

Sex	Number	Percentage
Men	9	36
Women	16	64

Full/Part-time	Number
Full-time students	23
Part-time students	2
Total	25

	Number
Applications for Fall 2006 enrollment	
Number of international applicants	65
Number of U.S. applicants	21
Total applicants	86

	Number
New students enrolled Fall 2006	
Number of new international students enrolled	5
Number of new U.S. students enrolled	2
Total new students enrolled	7

Graduate Students Completing Degrees in FY06

Charitha Madiraju, PhD

Advisor:	Billy Day, PhD
Graduated:	May 2006
Dissertation Title:	Pharmacological and Structure-Activity Relationship Evaluation of Microtubule-Stabilizing Agents
Current Position:	Postdoctoral Associate, Burnham Institute for Medical Research

Aarati Ranade, PhD

Advisor:	Raman Venkataramanan, PhD
Graduated:	May 2006
Dissertation Title:	The Effect of Endogenous and Exogenous Chemicals on Drug Metabolizing Enzymes and Drug Transporters in Human Hepatocytes
Current Position:	Research Associate, Dept. of Pathology, University of Pittsburgh

Yan Feng, PhD

Advisor:	Robert Bies, PhD
Graduated:	May 2006
Dissertation Title:	Modeling and Simulation Approach to Characterize the Magnitude and Consistency of Drug Exposure Using Sparse Concentration Sampling
Current Position:	Research Investigator, Bristol-Myers Squibb

Rama Sivasubramanian, PhD

Advisor:	Raman Venkataramanan, PhD
Graduated:	May 2006
Dissertation Title:	Effect of Valerian Root Extracts (Valeriana Officinalis) on Acetaminophen Glucuronidation: in Vitro and in Vivo Studies
Current Position:	Scientist, Nektar Therapeutics India Private Limited

Jelena Janjic, PhD

Advisor:	Billy Day, PhD
Graduated:	Dec 2005
Dissertation Title:	Design, Synthesis and Biological Evaluation of New Agents Targeting Estrogen Receptor-alpha and -beta
Current Position:	Research Biologist, Carnegie Mellon University, Dept. of Biological Science

Bill Zamboni, PhD

Advisor:	Raman Venkataramanan, PhD
Graduated:	Dec 2005
Dissertation Title:	Preclinical and Clinical Pharmacologic Studies of 9-Nitrocamptothecin and its 9-Aminocamptothecin Metabolite
Current Position:	Assistant Professor, University of Pittsburgh School of Pharmacy

Special Programs

Clinical Pharmaceutical Scientist Program

The University of Pittsburgh School of Pharmacy has been an international leader in bridging the gap between the clinical and pharmaceutical sciences with its Clinical Pharmaceutical Scientist Program, which has been in existence since the mid-1980s. The program exists as a specialized track within the broader PhD program in Pharmaceutical Sciences. The increasing interest in such programs has been fueled by the recent NIH clinical and translational science award roadmap initiative. Based on the history of the Clinical Pharmaceutical Scientist Program, the School is poised to serve as a key contributor to the development of clinical and translational science programs within the University and to serve as a model for schools of pharmacy at a national level.

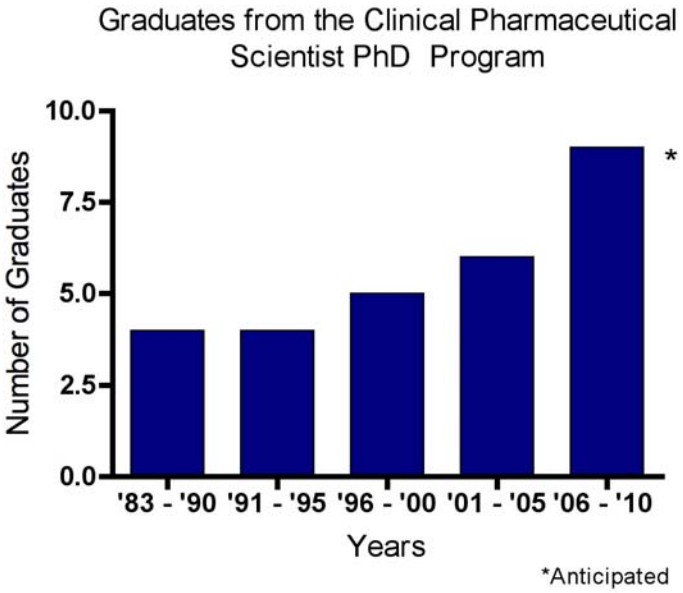
The primary goal of the Clinical Pharmaceutical Scientist Program is to develop independent investigators with education and training in pharmacotherapeutics to generate new knowledge relevant to drug behavior in humans, therapeutic interventions, and patient outcomes. Students entering the program with 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 following are the demographics and outcomes of the program:

Graduate Demographics and Outcomes

- A total of 22 students have graduated from the Clinical Pharmaceutical Scientist Program with a PhD and one an MS in pharmaceutical sciences.
- Of these 22 graduates, 17 (77 percent) were U.S. citizens or permanent residents.
- Eleven currently hold academic positions, eight are working in the pharmaceutical industry, one graduate is employed by a governmental agency, and two are undetermined.

Current Student Demographics and Outcomes

- In FY06, there were six students enrolled in the program, all of whom are U.S. citizens or permanent residents.
- These six students constitute 67 percent of the U.S. citizens or permanent residents (nine total) currently enrolled in the PhD Program in the Pharmaceutical Sciences.
- Three of these six students have been awarded fellowships from the American Foundation for Pharmaceutical Education (AFPE), one student was awarded a National Research Service Award (NRSA) from the National Institutes of Health, and one holds a fellowship from Pfizer.



From these demographics, it is evident that the Clinical Pharmaceutical Scientist Program is a key component to maintaining a balanced representation of U.S. citizens and permanent resident students. In addition, Clinical Pharmaceutical Scientist students were awarded five of the six fellowships received by graduate students in the pharmaceutical sciences, including AFPE and NRSA awards. Finally, graduates of the Clinical Pharmaceutical Scientist Program have been successfully employed by academic, industrial and governmental agencies, thereby, contributing to the pressing need for clinical and translational scientists.

Combined PharmD/PhD Track

One of the hurdles to the growth of the Clinical Pharmaceutical Scientist Program is identifying and recruiting PharmD graduates to pursue PhD training in the pharmaceutical sciences. Few formal options existed to allow students to sustain their interests and to expedite their research training during their time in the professional program. In response to this need, a PharmD/PhD offering was designed to optimize the students' training experience and to sustain the students' interest in graduate research during their

years in the professional program. The current goal is to develop a combined PharmD/PhD curricular track that will allow students to complete a maximum of two terms of PhD graduate courses upon completion of their PharmD degree.

The committee consists of faculty from Pharmaceutical Sciences and Pharmacy and Therapeutics Departments with representation by members of the PharmD curriculum committee. The following list summarizes the accomplishments to date:

- Curricular requirements for students in the PharmD/PhD track have been developed.
- Admission criteria and timing of application to the PhD program are being developed.
- Financial projections have been completed to help determine overall cost/benefit of the program.
- Two professional students have entered the PharmD/PhD track.

Based on initial interest, two students are anticipated to enter the PharmD/PhD track per year. After completion of the PharmD degree, these students will likely enter the Clinical Pharmaceutical Scientist Program and will have completed up to two terms of PhD coursework.

Graduate Education and Research at the University of Pittsburgh (GEAR UP)

GEAR UP is an innovative School of Pharmacy program that was implemented in 2001 in an effort to increase applications from citizens and permanent residents and minority students. The program consists of a mini-graduate school weekend and a summer internship program. GEAR UP has been offered using grant support, totaling $68,582, from the Merck Foundation and Johnson and Johnson Pharmaceuticals. The 2006 GEAR UP program was supported in its entirety by University of Pittsburgh School of Pharmacy funds. Twenty-nine students attended this year's mini-graduate school weekend and seven students completed the summer internship program. Since the program's inception, a total of 122 students have attended the mini-graduate school weekend and 36 students have participated in the summer internships.

The goals of the GEAR UP program are to:

- Educate undergraduate and professional students about graduate training opportunities in the pharmaceutical sciences
- Provide research internship opportunities to students from non-research intensive colleges and universities
- Recruit highly qualified students for graduate studies in pharmaceutical sciences
- Increase the number of minority students, women, and U.S. citizens and permanent residents in the School of Pharmacy graduate program

This innovative program exposes undergraduate pharmacy and life science students to opportunities in graduate pharmaceutical science research. Using a personalized approach to recruiting students, GEAR UP is designed to identify talented students, including minorities and women, who may have not considered pursuing graduate research training.

Program evaluations from students who have participated in these experiences have been overwhelmingly positive. The challenge for the future is to sustain funding for the program.

Mini-Graduate School: Demographics and Impact on Career Development

- Twenty-nine students from ten universities and one Web-based university attended the mini-graduate school weekend in February 2006.
- 14 (48 percent) were from the University of Pittsburgh, seven (24 percent) were from other universities within Pennsylvania, and eight (28 percent) were from outside Pennsylvania. Nineteen (65.5 percent) were women.

Participants were asked to complete a survey regarding the GEAR UP program. The responses are summarized in the table below.

Participant Response*

Questions (1-not at all or low; 5-to a large degree or high)	Average	Range
Overall quality of this program	4.67	(4-5)
Increased interest in graduate school	4.38	(3-5)
Had significant role in my decision to pursue graduate school	3.96	(2-5)
Program demonstrated multiple aspects of graduate education	4.69	(4-5)
Value of graduate posters	4.27	(3-5)
Value of graduate panel discussion	4.24	(2-5)
I would recommend the program to others	4.85	(4-5)

* 26 questionnaires completed

Summer Internship: Demographics and Impact on Career Development

- Seven students completed the summer internship program in July 2006.
- Five (71 percent) students attended universities in Pennsylvania: Three (60 percent) from the University of Pittsburgh: two from other universities in the state.
- Three (43 percent) of the seven students were women.

Similarly, students who participated in the summer internship completed a survey; responses are summarized below.

Participant Response

Questions (1-not at all or low; 5-to a large degree or high)	Average	Range
Overall quality of this program	4.29	(3-5)
Increased interest in graduate school	4.57	(3-5)
Had significant role in my decision to pursue graduate school	4.29	(3-5)
Program demonstrated multiple aspects of graduate education	4.86	(4-5)
Research mentor was actively involved in my research internship	4.14	(2-5)
Value of lunch discussion	4.57	(3-5)
I would recommend the internship to others	4.86	(4-5)

* Seven questionnaires completed

Impact on Summer Intern Career Development. A total of 36 students have participated in the GEAR UP Summer Internship Program over the past four years. Thirteen of these 36 students are planning to pursue a research career or have begun to pursue post-graduate research training in the form of a fellowship or PhD training program. Of these 13 students:

- three will be enrolled in PhD programs as of fall 06
- two have pursued fellowship research training
- five are planning to pursue a PhD upon graduation
- two are planning to attend fellowships after completing their residency or professional education

All of these students have credited the GEAR UP program as a major factor in determining their interests in research. In addition, the students who have entered into PhD or fellowship training emphasized the value of GEAR UP in providing them the experience necessary for competitive application to these positions.

Outcomes. To date, 52 percent of the summer interns have presented their research posters at the Merck Pharmacy Student Research Conference. The majority of these interns presented at the West Virginia University Meeting, and two students presented at the University of Colorado meeting.

Publication. A manuscript describing the GEAR UP Program has been published in the American Journal of Pharmaceutical Education:

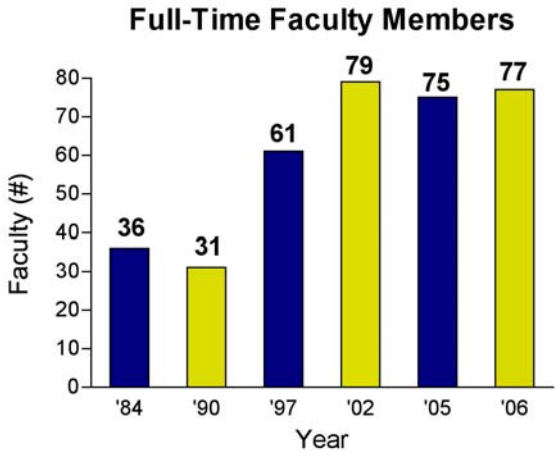
> Poloyac SM, Rohan LC, Janjic JM, Gibbs RB, Kroboth PD, and Smith RB. GEAR UP (Graduate Education And Research at the University of Pittsburgh) A Program to Educate Students about Pharmaceutical Research. *Am J Pharm Educ* 2005; 69(5): Article 91

Faculty

The excellence of our faculty influences our ability to be a national leader in pharmacy education. This section describes our faculty, their credentials, and their accomplishments. Research accomplishments are summarized in the "Securing an Adequate Resource Base" section of this annual report.

Description

The 77 full-time faculty members of the School of Pharmacy are organized into two departments: Pharmaceutical Sciences and Pharmacy and Therapeutics, which have 31 and 46 full-time faculty members, respectively. Three part-time and 119 adjunct faculty members constitute the remainder of the faculty. The School also has over 300 clinical associate non-faculty preceptors who teach in the experiential learning segment of the curriculum.



Department of Pharmaceutical Sciences

The Department of Pharmaceutical Sciences, led by Chair Barry Gold, PhD, comprises 31 full-time, 2 part-time, and 18 adjunct faculty members, as well as 11 individuals with secondary appointments in the department. Of the full-time faculty members, distribution across ranks is as follows:

- Professor: 13
- Associate professor: 6
- Assistant professor: 8
- Research assistant professor: 3
- Senior lecturer: 1

Department of Pharmacy and Therapeutics

The Department of Pharmacy and Therapeutics, led by Chair Robert Weber, MS, comprises 46 full-time, 1 part-time, and 101 adjunct faculty members, as well as 5 individuals with secondary appointments in the department. Of the full-time faculty members, distribution across ranks is as follows:

- Professor: 4
- Associate professor: 9
- Assistant professor: 31
- Instructor: 2

Administrative Appointments

Two administrative appointments occurred during the year.

- A search committee recommended Susan M. Meyer, PhD, as the associate dean for education. Dr. Meyer assumed responsibilities in May 2006.
- Gordon J.Vanscoy, PharmD, MBA, accepted the new position as associate dean for business innovation effective January 2006.

Two faculty members participated in the American Association of Colleges of Pharmacy Leadership Fellowship Program, which is designed to develop leadership qualities. Denise Howrie, PharmD, and Robert Weber, MS, completed the one-year program. Both hold leadership positions: Denise Howrie, assistant dean for academic affairs, vice chair for educational and classroom innovation, pharmacy and therapeutics; Robert Weber, department chair, pharmacy and therapeutics.

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.

- Three faculty members were promoted in academic rank:
  Susan Skledar, MPH, to associate professor, pharmacy and therapeutics
  Margaret Verrico, RPh, to assistant professor, pharmacy and therapeutics
  Song Li, MD, PhD, to associate professor with tenure, pharmaceutical sciences

- 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. Thirteen of the School's faculty, or 16.9 percent, have the honor of being fellows in one or more organizations; 18 or 23.4 percent are Board certified, resulting in 37.7 percent of the faculty holding either fellowship status or board certification.

Fellowships

Faculty Member	Fellowship
Janet Amico	ACP
Judith Gavaler	FACN
Randy Juhl	FAPhA
Edward Krenzelok	FAACT, DABAT
Patricia Kroboth	FACCP, FAAPS
Paul Schiff	FAAPS
Scott Mark	FASHP, FACHE
Ted Rice	FASHP
Christine Ruby-Scelsi	FASCP
Randy Smith	FAAPS
Ralph Tarter	ABPP
Raman Venkataramanan	FACP, FAAPS
Robert Weber	FASHP

Board Certifications

Name	Certification
Janet Amico	ABIM
Sherrie Aspinall	BCPS
Shelby Corman	BCPS
Colleen Culley	BCPS
Amy Calabrese Donihi	BCPS
Scott Drab	CDE, BC-ADM
Roberta Farrah	BCPS
Deanne Hall	CDE
Heather Johnson	BCPS
Edward Krenzelok	ABAT
Colleen Lauster	CDE
Scott Mark	CHE
Ted Rice	BCPS
Christine Ruby-Scelsi	BCPS
Rowena Schwartz	BCOP
Denise Sokos	BCPS
Melissa Somma	CDE
Dennis Swanson	BCNP
Ralph Tarter	ABPP
Lauren Trilli	BCPS

Faculty Honors, Recognition, and Professional Affiliations

DEPARTMENT OF PHARMACEUTICAL SCIENCES

Janet A. Amico, MD
The Best Doctors in America: Northeastern Regions
America's Top Doctors

Balwant N. Dixit, PhD
Chhadayan Jyotsna National Award
Seva Rathna Award (Distinguished Service Award)

Patricia D. Kroboth, PhD
ACCP Research Institute Trustee, 2005–2007

Ada C. Mezzich, PhD
NIDA Research Scientist Award

Paul L. Schiff, PhD
Cohen Teacher of the Year
The United States Pharmacopeial Convention
Dietary Supplements-Botanicals Expert Committee

Ralph E. Tarter, PhD
Outstanding Scholarly Contribution Award, Rho Chi Society, University of Pittsburgh
Society for Prevention Research, Board of Directors
National Association for Children of Alcoholics-Scientific Advisory Board
Center for Substance Abuse Prevention: Prevention Enhancement Protocols Systems (PEPS)

DEPARTMENT OF PHARMACY AND THERAPEUTICS

Amy Calabrese Donihi, PharmD
Third Prize: "Outstanding Achievement in Performance Improvement 2006" UPMC Presbyterian Quality and Innovation Fair
"2006 Quality Cup Winner" UPMC Presbyterian Quality and Innovation Fair

Scott R. Drab, PharmD
Associate Editor, *Diabetes Forecast*

Denise L. Howrie, PharmD
AACP Academic Leadership Program Fellow

Sandra Kane-Gill, PharmD, MS
Society of Critical Care Medicine/Tap/Joseph F Dasta Outcomes Research Award
United States Pharmacopeia Therapeutic Decision Making Expert Committee
Elsevier National Pharmacy Advisory Council
Society of Critical Care Medicine
SCCM Excellence in Quality & Safety in Critical Care Taskforce
Clinical Pharmacy and Pharmacology Section Past Chair

Scott M. Mark, PharmD
Phi Lambda Sigma Beta Delta Chapter Honored Faculty Member
Rho Chi Alumni Award
Marquis' Who's Who in Medicine and Healthcare 6th Edition
The Ohio State University College of Pharmacy Josephine S. Failer Alumni Award
UPMC Quality Fair. 2nd Place for Innovation "Optimization of Controlled Substances Stock in Automated Med Stations"
UPMC Quality Fair. 3rd Place for Innovation "Reducing Cost Through the Implementation of a 340b Drug Program"
American Society of Health-System Pharmacists
- Chair, Membership Development Advisory Group
- Chair, Committee on Nominations
- Immediate Past Section Chair

Pharmacy Technician Certification Board
- Stakeholder Policy Council, 2006

Eastern States Residency Conference for Residents and Preceptors
- Advisory Board
- Finance Chair

Brian A. Potoski, PharmD
Academy of Health-System Pharmacists
- Committee on Business and Practice Models

Society of Infectious Diseases Pharmacists
- Annual Report Committee Member

Rhonda S. Rea, PharmD
"2006 Quality Cup Winner" UPMC Presbyterian Quality and Innovation Fair

Christine Ruby-Scelsi, PharmD
Frontier's Award, American College of Clinical Pharmacists Research Institute

Rowena Schwartz, PharmD
University of Pittsburgh, Stanley E. Cohen Teacher of the Year Award

Amy L. Seybert, PharmD
University of Pittsburgh Chancellor's Distinguishing Teaching Award, 2006
Rho Chi Innovations in Teaching Award, University of Pittsburgh School of Pharmacy
American Association of Colleges of Pharmacy, Innovations in Teaching, Honorable Mention
Faculty Honoree, University Honors Convocation, University of Pittsburgh

Susan J. Skledar, RPh, MPH
American Society of Health-System Pharmacists
- Section of Clinical Specialists and Scientists Committee on Nominations
- Ad-Hoc Panel on Population-Based Medicine
- Reviewer, Annual and Midyear Clinical Meeting poster and abstract submission committee

Member of interdisciplinary team that received the UPMC-Presbyterian Performance Improvement Quality Award, 1st place in Patient Safety category for "Balancing Safety and Variation in Practice: Standardizing Continuous Infusions at UPMC"
Manchester Who's Who Among Female Professional Pharmacists (lifetime achievement): "Honors Ed."

Denise R. Sokos, PharmD
Editorial Advisory Board of the *Journal of Managed Care Pharmacy*

Melissa A. Somma, PharmD
Distinguished Young Pharmacist Award presented by Pennsylvania Pharmacists Association
University of Pittsburgh School of Pharmacy Preceptor of the Year
American Pharmacists Association
Task Force on Credentialing
APhA/NACDS Medication Therapy Management Training Advisory Panel

Gary P. Stoehr, PharmD
2005 Pharmacist of the Year, Pennsylvania Society of Health-System Pharmacists

Gordon J. Vanscoy, PharmD, MBA
National Advisory Committee, Accreditation Council for Pharmacy Education
Board of Directors, National Certified Anticoagulation Care Providers
American Red Cross, Westmoreland County Chapter, Greensburg, Pa.
Vice Chairman of the Board
Chairman of the Board of Directors Development, Nominating, and Community Committee

Margaret M. Verrico, BS
Listed in "Who's Who in Medicine and Health Care," Marquis
Reviewer, Pennsylvania Society of Health-System Pharmacists for ISMP Quarterly Action Agenda Continuing Education Program

Robert J. Weber, RPh, MS
AACP Academic Leadership Program Fellow
Editorial Advisory Board for Hospital Pharmacy; Co-Editor, "Director's Forum" monthly column

Faculty Changes

New Faculty

Name	Prior Institution/Rank	Current Rank and Department
John Alvin	University of Pittsburgh, School of Dental Medicine	Associate Professor, Pharmaceutical Sciences
Neal Benedict	UPMC/Critical Care Resident	Assistant Professor, Pharmacy and Therapeutics
Ryan Bookout	The University Hospital-Health Alliance of Greater Cincinnati/Oncology Pharmacy Practice Resident	Assistant Professor, Pharmacy and Therapeutics
Bonnie Falcione	UPMC/Infectious Diseases Resident	Assistant Professor, Pharmacy and Therapeutics
Colleen Lauster	William Beaumont Hospital/Clinical Specialist	Assistant Professor, Pharmacy and Therapeutics
Scott Mark	UPMC/Director of Pharmacy	Assistant Professor, Pharmacy and Therapeutics

Name	Prior Institution/Rank	Current Rank and Department
Susan Meyer	American Association of Colleges of Pharmacy/Senior Vice President	Associate Dean for Education and Professor, Pharmacy and Therapeutics
Beth Minnigh	Private Industry	Senior Lecturer, Pharmaceutical Sciences
Christine Ruby-Scelsi	Duke University/Assistant Research Professor, Department of Medicine/Division of Geriatric Medicine	Assistant Professor, Pharmacy and Therapeutics
Maria Yaramus	UPMC Cancer Center/Clinical Research and Education Director	Assistant Professor, Pharmacy and Therapeutics

Departing Faculty

Name	Previous Rank	Position Accepted
Gary Matzke	Professor, Department of Pharmacy and Therapeutics	Associate Dean for Research and Public Policy, Virginia Commonwealth University School of Pharmacy, Richmond, Virginia
Carlene Baum	Assistant Professor, Pharmaceutical Sciences	Resigned
Timothy Blackson	Visiting Associate Professor, Pharmaceutical Sciences	Resigned
Jian-Sen Li	Research Assistant Professor	Industry
Richard Lithgow	Senior Lecturer, Pharmaceutical Sciences	Retired
Michael Mokotoff	Professor, Pharmaceutical Sciences	Professor Emeritus, University of Pittsburgh
Philip Pulsinelli	Associate Professor, Pharmaceutical Sciences	Associate Professor Emeritus, University of Pittsburgh
Sheel Patel	Assistant Professor, Department of Pharmacy and Therapeutics	Medical Science Liaison, Eli Lilly and Company
Terrence Schwinghammer	Professor, Pharmaceutical Sciences	Professor and Chair, Department of Clinical Pharmacy West Virginia University School of Pharmacy

Enhancing the Health of the Community Through Partnerships

Enhancing the Health of the Community Through Partnerships

The School has a rich history and experience collaborating with healthcare providers to improve the health of the public. The School, with its primary partner UPMC, has begun many successful initiatives in patient care and safety. The School has provided pharmaceutical care to the underserved as part of a community service partnership for more than ten years. Building on these experiences, the School has developed a unique partnership with the Rite Aid Corporation to improve community care by developing and implementing a financially viable model for medication therapy management.

The significant advances made during the last three years resulted in the faculty defining new strategic outcomes at the strategic planning meeting in January 2006.

By 2011, the School of Pharmacy will have:

- **Created a nationally accepted model for the practice of pharmacy in the community that enhances patient well-being through the effective and safe use of medications.**

- **Developed a comprehensive system for the care of all UPMC patients that assures safety and efficacy of medications during their hospital stay and transition back to the community.**

Community-Based Programs

Currently, one of the School's strategic initiatives is to enhance the health of the community through existing and new partnerships. Under the direction of the School's faculty 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 pharmacy care in the community is based on improving communications between pharmacists, physicians, and patients. Three elements are critical to the model: 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 are committed to providing the best patient care possible and have helped make the program a great success.

The School of Pharmacy's current partners for implementing and refining the Pittsburgh Model are:

- Rite Aid Corporation
- Humana Inc., one of the nation's largest health insurers. The School established this relationship during FY06.
- Pittsburgh City Parks
- University Diabetes Care Associates
- The Grace Lamsam Pharmacy Program (formerly the Program for Pharmaceutical Care to Underserved Populations)

- UPMC St. Margaret
- the Center for Minority Health
- UPMC Presbyterian Shadyside

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 FY06, the School:

1. Was recognized nationally and locally for the unique contribution of the Pittsburgh Model to improving patient care.
   - Dr. Somma, project director, was invited to speak at conferences sponsored by the following:
     American Health Quality Association
     American Pharmacists Association
     National Association of Chain Drug Stores
     American College of Clinical Pharmacy
     American Society of Health-System Pharmacists
     Pennsylvania Pharmacists Association
   - The *Pittsburgh Business Times* has described the program and partnership.
   - Dr. Somma has been invited to serve on the American Pharmacists Association/National Association of Chain Drug Stores Advisory Panel for national Medication Therapy Management training.

2. Established the School's first Community Pharmacy Residency Program and recruited the first resident: Margie E. Snyder, PharmD '06.

3. Developed experiential training rotations for students in the Rite Care Centers.

Training Future Pharmacists and Physicians Through Rite Care Practices

Trainee	2005-06	2006-07*
Student Pharmacist – P2 year	4	6
Student Pharmacist – P4 year	12	12
Pharmacy Resident	1	3
Physician Resident	0	12
Total	**17**	**33**

* Scheduled

4. Developed a specialized training program and trained 27 Rite Aid pharmacists to provide MTM services.

Delivering Training to Establish MTM Practices

Organization	Training Date	Number of Trainee Pharmacists	Number of Practices Established	States
Rite Aid	November 2004	5	4	PA
	February 2006	19	3 plus corporate drug information center	PA, VA
	July 2006	4	3	WV
	September 2006	2*	1*	PA
Humana	September 2006	10*	8*	FL*
Total		**40**	**19**	**4**

* Scheduled

5. Created an electronic documentation program to support the MTM service.

6. Developed, in collaboration with Rite Aid, marketing and outreach materials for patients and healthcare providers, a business plan, and mechanisms to collect and report patient-care outcomes. During the last six months of FY06, Rite Care pharmacists provided MTM for 554 patients in the community and identified 311 drug therapy problems. Some of the salient features of these patients and the significance of the interventions are captured in the tables below.

Rite Care Patient Demographics (January 2005–July 2006)

Patients (n=554)
- Average Age: 69
- Men (47%); Women (53%)
- Average # meds/pt: 6.7
- Average # diseases/pt: 3.4

Common Diagnosis:
- Hypertension
- Hyperlipidemia
- Diabetes
- Osteoporosis
- GERD

Drug Therapy Problems Identified

Drug Therapy Problem	Number Identified
Non-Compliance	93
Needs Additional Drug Therapy	80
Adverse Drug Reaction	45
Needs Different Drug Product	34
Unnecessary Drug Therapy	27
Dosage Too Low	24
Dosage Too High	8
Total	**311**

Pharmacist Interventions

Interventions	Number (%)
Patient Education	354 (58%)
Treatment Recommendations	141 (23%)
Consultation with Other Provider	66 (11%)
Identification of Adverse Drug Event	47 (8%)
Total	**608**

Patient Care Outcomes (n=463)

Selected Outcomes	Number
Prevented Adverse Drug Event	36
Solved Adverse Drug Event	26
Saved Additional Office Visit	9
Saved ER Visit	3
Total	**74**

Humana

The School of Pharmacy is assisting Humana in developing MTM programs with pharmacists in their Humana-owned pharmacies in South Florida. The School has trained the lead pharmacist for the Humana group and is currently negotiating a contract to provide additional training, the electronic documentation program, and outcomes evaluation services to pharmacists in the 22 Humana-owned pharmacies. Humana is the second largest national provider of Medicare Part D coverage in the United States.

Pittsburgh City Parks

Through a contract with the School of Pharmacy, Rite Care pharmacists identify and resolve drug therapy problems in elderly patients at eight senior centers every other month through funding from City Parks. Forty seniors have taken part in the program over seven months. Approximately 35% of the seniors have drug therapy problems that were discovered during the sessions with the Rite Care pharmacists.

Family Medicine Residency Program (UPMC St. Margaret)

Through this partnership that was established in FY06, an interprofessional training program was created 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 interprofessional collaboration in the community once the resident is in practice.

University Diabetes Care Associates

University Diabetes Care Associates (UDCA), located in Jeanette, Pa., was one of the first pharmacist-run diabetes care centers located in a community independent pharmacy.

During FY06, the practice:

- Recorded 835 patient visits as result of patient referrals from 36 primary care physicians in local area.
- Offered ten PharmD students and one pharmacy resident this advanced ambulatory care rotation.

Community Pharmacy Advisory Group

The School established the Community Pharmacy Advisory Group consisting of independent pharmacy owners to advise the School on community pharmacy issues. The group met for the first time in February 2006. The members of the Community Pharmacy Advisory Group are shown below.

Community Pharmacy Advisory Group

Name	Pharmacy
Joseph Bettinger	Heiber's Pharmacy Pittsburgh, Pa.
Jennifer Cohen	Lincoln Pharmacy Pittsburgh, Pa.
Tim Davis	Brighton Pharmacy Beaver Falls, Pa.
Gary Garofoli	Med Center Pharmacy Tyrone, Pa.
Jane Garofoli	Altoona, Pa.
Jamie Holowka	Mervis Professional Pharmacy Beaver Falls, Pa.
Peter Kreckel	Kopp Drug Inc Tyrone, Pa.
Jeff Roseweir	Potomac Pharmacy Pittsburgh, Pa.
David Smith	Dba Means & Lauf Drug Co. Brookville, Pa.

The Grace Lamsam Pharmacy Program

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

The Program for Pharmaceutical Care to Underserved Populations was renamed the Grace Lamsam Pharmacy Program to honor Grace D. Lamsam, PharmD, PhD, the founder of the program and champion of service-learning as a required component of our curriculum. Now known as Sister Mary Grace, CP, she is currently continuing her service as a cloistered nun. The volunteers, faculty, staff, and alumni are pleased to honor her outstanding contribution to the Pittsburgh region by naming the program after her. The program now continues under the direction of Sharon Connor, PharmD, a faculty member in the Department of Pharmacy and Therapeutics.

The program, established in 1995, consists of area volunteer pharmacists and students who provide pharmacy services at free primary care clinics, shelters, and drop-in centers in Pittsburgh. The program serves primarily homeless and low-income people. Pharmacists work in an interdisciplinary model of care with a team of healthcare providers that includes physicians, nurses, and other allied-health professionals.

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. The program provides volunteer pharmacists to enhance access to cost-effective medicines for patients served by Health Care for the Homeless Project and North Side Christina Health Center. Those in the program contribute expertise to reduce cost and assure safe and effective drug therapy.

Health Care for the Homeless Project (HCHP) Clinic
Faculty and volunteer pharmacists:

- Provided medication therapy during 3,600 patient visits and dispensed 4,000 prescriptions at the following clinics:
    - Birmingham Clinic
    - Women's Center
    - Beth Haven
    - Pleasant Valley
    - Light of Life
    - Miryams
    - WellSpring
    - Salvation Army North Side

- Provided experiences in the community for 3 pharmacy residents and 122 PharmD students.

- Obtained a gift from the Rite Aid Foundation to implement Medication Therapy Management to improve care for patients with diabetes and hypertension at Birmingham Clinic. Alumni, faculty members and fellows who provide care at the clinics include:
    Sharon Connor, Director
    Meredith Rose
    Barbara Bryant
    Shelby Corman
    Timothy Davis
    Susan Lenhart
    Kristine Schonder, Faculty
    Tina Scipio, Fellow
    Melanie Stanish
    Chuck Ward, Faculty
    Maria Yaramus, Faculty

North Side Christian Health Center Pharmacy Services Clinic
Pharmacists:

- Provided care for approximately 400 patients by:
    - Evaluating patients for eligibility for various assistance programs available in the city, county, state and through Pharmaceutical Manufacturer Patient Assistance Programs.
    - Evaluating drug therapy for appropriateness and make recommendations that integrate the resources available to attain the best treatment for the patient.
    - Assuring access to medication services,
    - Assuring patient understanding about medication adherence and management of their specific diseases and symptoms.
- Provided experiences for 10 PharmD clerkship students and 8 first-year pharmacy students.

Faculty volunteers: Sharon Connor, Maria Yaramus

RxCouncil of Western Pennsylvania Service-Learning Partnership
The RxCouncil provides emergency prescription care through direct services to the disenfranchised. The Grace Lamsam Pharmacy Program partners with the RxCouncil to reach this goal through service-learning, a structured learning experience that combines community service with preparation and reflection.

Through this partnership, pharmacy students:

- Provided the paperwork for access to prescription drugs for approximately 30 patients per week for 30 weeks.
- Evaluated patients for eligibility for various assistance programs available in the city, county, state and through Indigent Programs.
- Provided experiences for 4 PharmD students who were matriculated in the elective course.

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	•On-site pharmacy services •Pharmaceutical Care Quality Assurance •Formulary development and maintenance •Cost-effectiveness Outcomes •Inventory Manage-ment Protocols •Development of Clinical Practice Guidelines-Best Practices	Birmingham Clinic Women's Center Pleasant Valley Bethlehem Haven Light of Life Miryams WellSpring 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 - 17 volunteer pharmacists	Total patient encounters: approximately 3600 Prescriptions: 4000
• 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: 60 Patient encounters: 300
North Side Christian Health Center Pharmacy Services Clinic	•Medication Management Service •Access to medica-tions 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 patients: 400
Rx Council of Western Pa.	•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

Community Heart Failure and Hypertension Awareness Project

Drs. Amy Seybert and Kristine Schonder initiated the Helpful Hands for Healthy Hearts community education program with $22,000 in support from NitroMed Inc. The funding, obtained in 2005, was used to offer programs during FY06. The initiatives engaged pharmacy students of SNPhA, a minority pharmacy student organization, as they provide verbal and written patient education. Faculty developed "Helpful Hands for Healthy Hearts" to target patients with hypertension and heart failure, two leading causes of cardiovascular disease and mortality in minority populations. The Helpful Hands for Healthy Hearts program has provided patient-focused education to minority communities throughout the Pittsburgh region.

During this very aggressive awareness campaign, Drs. Seybert and Schonder, with students, talked with patients about their medication, conducting blood pressure exams, and distributed educational materials. Together, they reached over 15,000 African-American citizens of western Pennsylvania through the following venues:

July 5, 2005	Cathedral of Learning, Pittsburgh, Pa. "Understanding Your Medications" – Amy Seybert, PharmD Participants: 15 patients or family members
July 30, 2005	Calvary AME Church, Braddock, Pa. Pastoral Wellness Conference "Hypertension & Heart Failure: Focus on Medications" – Amy Seybert, PharmD Participants: 45 Pastors or church leaders
September 20, 2005	Holy Cross Greek Orthodox Church, Mt. Lebanon, Pa. Congressman Tim Murphy's Senior Citizen Health Expo Performed blood pressure assessments and individual patient counseling Participants: 150
September 26, 2005	Forbes Regional Hospital, Monroeville, Pa. Congressman Tim Murphy's Senior Citizen Health Expo Performed blood pressure assessments and individual patient counseling Participants: 100
October 29, 2005	East Liberty Presbyterian Church, East Liberty, Pa. Community Health Fair "Cardiovascular Risk: Focus on Your Medications" – Amy Seybert, PharmD Performed blood pressure assessments and individual patient counseling Participants: 25
January 21, 2006	Baptist Temple, Homewood, Pa. Health and Wellness Conference "Understanding your Medications" – Amy Seybert, PharmD Performed blood pressure assessments and individual patient counseling Participants: 60
February 12, 2006	Mt. Aarati Baptist Church, Pittsburgh, Pa. Health and Wellness Conference Performed blood pressure assessments and individual patient counseling Participants: ~100 individuals, membership 5,000

February 25, 2006 Macedonia Baptist Church/Mt. Aarat Baptist Church, Hill District, Pa.
Men's Health Conference
"Understanding your Medications" – Amy Seybert, PharmD
Performed blood pressure assessments and individual patient counseling
Participants: ~400 participants, combined membership 10,000

Center for Minority Health

For the third 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, providing faculty and students to nine barbershops located throughout the city of Pittsburgh. During that day, over 200 patients met with the pharmacy faculty and students, where a variety of wellness programs included blood pressure exams, distribution of medication cards, and referral to urgent or emergent care facilities.

University of Pittsburgh Medical Center

The School of Pharmacy is exceptionally fortunate to have a structure of a shared leadership for the academic clinical department of the School and the pharmacy department of UPMC Presbyterian Shadyside. Robert J. Weber, MS, holds two sets of responsibilities and titles: department chair (of pharmacy and therapeutics) and executive director of pharmacy services; this structure is unique among academic health centers and schools of pharmacy. This structure is the basis for the commitment to our strategic outcome that states:

By 2011, the School of Pharmacy will have:

- **Developed a comprehensive system for the care of all UPMC patients that assures safety and efficacy of medications during their hospital stay and transition back to the community.**

This section of the annual report provides a summary of the progress made toward the strategic outcome focused on UPMC. Accomplishments through strategic partnerships with UPMC St. Margaret and the Department of Veterans Affairs Pittsburgh Healthcare System are also included. When present, names in parentheses indicate the faculty members primarily responsible for the accomplishments.

UPMC Presbyterian

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.

On average, each pharmacy faculty member cares for approximately 1,500 individual patients during the year, recommending at least 1,000 changes in a patient's medication regimen to improve the cost and quality of pharmaceutical care. The types of medication regimen changes include proper drug and dose (25%); preventing a medication error (25%), medication reconciliation (10%) and focused education or pharmacotherapy consultation (40%).

Medication Patient Safety Program

The School of Pharmacy's efforts are assisted through mutually beneficial relationships since 1999 with some of the leading medication patient safety organizations in the country to include the Institute for Safe Medication Practices, National Patient Safety Foundation, United States Pharmacopeia Center for the Advancement of Patient Safety, and the Agency for Healthcare Research and Quality.

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

- Medication error reporting rates increased by 50%.
- Drug dispensing and administration errors using bar-coding were reduced by 50%–65%.
- A patient safety culture survey was conducted and identified three key factors to improve organizational safety attitudes.
- Medications are now packaged and labeled according to the FDA's Good Manufacturing Practices (C-GMP compliance) at UPMC Presbyterian. This C-GMP facility is unique compared to other hospitals and health systems.
- Preventable adverse drug events (ADEs) to narcotics in patient-controlled analgesia dropped from 3% to less than 0.5%.
- Influenza and pneumococcal vaccination rates are 25 percentage points above the national average; see graph later in this section.
- Drug-resistance to highly used antibiotics has significantly improved, medication errors in prescribing antibiotics have been held in check to reduce the rate of *C. difficile* infections.
- The use of dangerous drugs in the elderly have been significantly reduced.
- Patient awareness of medication education is significantly improved.
- Over 25% of medication regimens for high-risk hospitalized patients have been simplified to minimize confusion and decrease the risk of medication errors.

Ambulatory Care

The School of Pharmacy faculty provided a more comprehensive medication management program throughout the year as new faculty assumed roles in other ambulatory care clinics (e.g., Geriatrics). Specific accomplishments include the following:

- The Diabetes Consult Service, initiated in 2005 through the Internal Medicine Clinic provided care to 70 patients through direct physician consults. This service is also part of the PITT-DM Study (Pharmaceutical Intensive Treatment of Type 2 Diabetes) that concluded this year. Data analysis on pharmacist impact in this program is forthcoming.

- The Anticoagulation Service under the direction of Drs. Deanne Hall and Scott Mark consulted on 900 patients. One hundred and fifty-five patients started on home low-molecular-weight-heparin bridge therapy to warfarin allowing a 3-4 day early discharge from the hospital providing an estimated $250,000 in healthcare cost savings for the year.

- Benedum Geriatric Center serves approximately 2,500 elders from the Greater Pittsburgh area. In the first six months of service (during FY06), 125 patients received pharmacy care (Ruby).

- Faculty members on the Transplant Service provided care to transplant patients during 3,100 patient visits during the year. Each patient has an average of 2.5 interventions per visit resulting in more than 7,500 interventions per year in this high-risk population. The average number of new liver, kidney and heart transplants at UPMC Presbyterian is 400 liver, 300 kidney and 50-60 heart transplants per

year. Clinical faculty members Drs. Kristine Schonder, Michael Shullo, Karen Laughlin, and Heather Johnson provide laboratory data review and direct medication management for transplant recipients. All newly transplanted patients receive complete, in-depth discharge medication education from the clinical pharmacists. The clinical pharmacists also investigate patient-specific drug information questions from the transplantation team, including physicians, transplant coordinators and nurses. They support the inpatient transplantation teams via staff and faculty education programs and development of treatment protocols/algorithms.

- The Falk Clinic Pharmacy re-design project was planned and implemented during the past year, with the goal of putting a new face on the pharmacy and the service provided. This project focuses on School of Pharmacy faculty providing state-of-the-art pharmacy fulfillment consultation in expanding the flow plan of the pharmacy from 500 square feet currently to 2,500 square feet. During FY06, this has involved:
    - Planning a complete renovation of the physical space
    - Conducting a survey of 198 faculty and staff. Results revealed that 21.1 percent would like more time to spend with the pharmacists at Falk to discuss their medication regimens.
    - Planning for the implementation of a comprehensive, replicable medication therapy management (MTM) service for patients and employees of the University of Pittsburgh and the University of Pittsburgh Medical Center. The MTM model is the Pittsburgh Model, which is used in the RiteCare Program.

Pittsburgh Poison Center

The Pittsburgh Poison Center, 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. In a significant administrative change, the Pittsburgh Poison Center moved officially from The Children's Hospital of Pittsburgh to UPMC.

The Center serves to provide poison information services 24 hours a day, 7 days a week to the residents and health professionals of 44 of Pennsylvania's 67 counties. In addition to responding to information requests, the Center provides poison and bio-terrorism preparedness information to the community. The Pittsburgh Poison Center enjoys a national reputation and has recently assumed leadership roles in education and systems development related to bio-terrorism preparedness. The table below summarizes a number of activities the director and staff at the Center have participated in over the past year.

From July 1, 2005 to June 30, 2006:

- The staff of the Center, which includes 18 critical care registered nurses, answered 118,393 calls.

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 882,000 sheets of stickers and 347,700 other pieces of poison prevention and poison center awareness material were distributed
		Giant Eagle Pharmacies	Over 315,000 stickers distributed and 58,000 brochures
	Poison prevention/education materials	Variety of public groups	3,320 individual requests filled
	Invited presentations	Variety of public groups including: area elementary schools, summer camps, county fairs, and senior groups	24 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 U.S. and in Europe.	70 expert talks
Media Contacts	Various requests to response to drug abuse and overdose cases, biochemical terrorism, and environmental/occupational toxicity incidents	Region/National/International TV, radio, and newspapers.	56 media contacts
Medical Literature	Contributed papers at national and international meetings		16 papers
	Published papers and book chapters		12 total
	Manuscripts in Progress		11

A major strategic initiative for FY07 is to integrate the activities of the Poison Center and the Drug Information Center to take advantage of the strengths and resources from both areas and develop a comprehensive drug and poison information clinical service. Finally, the combined center will move into a renovated facility that provides state-of-the-art information technology to use for patient care.

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. Dr. Roberta Farrah, PharmD, BCPS, serves as the director of Outpatient Pharmacologic Education, and Dr. Trish Klatt, PharmD, BCPS (adjunct faculty), serves as the director of Inpatient Pharmacologic Education. Together they 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:

- Mentored a pharmacy resident in the Family Medicine/Primary Care specialty residency.
- Assisted well over 200 patients, with continued growth expected through the Medication Assistance Program for the three UPMC St. Margaret Family Health Centers (Lawrenceville, Bloomfield/Garfield, and New Kensington), a collaborative effort between the health centers, the UPMC St. Margaret inpatient pharmacy, and the Falk Clinic Pharmacy.
- Hired two PharmD students, Kamile Whiters and Sarah Taylor, to assist with the running of the program that provides specific medications free of charge to patients that meet pre-determined criteria at the health centers.

UPMC Presbyterian Patient Medication Education Program

In September 2005, EPITOME (Enhanced Patient Safety Intervention to Optimize Medication Education) was fully implemented at the University of Pittsburgh Medical Center under the direction of faculty member Amy Donihi, PharmD. The goal of EPITOME is to implement a sustainable, evidenced-based, multidisciplinary medication education program. Through the program, nurses and respiratory therapists provide medication education to ALL patients on regular (non-ICU) units of the hospital at the time of each medication administration.

Pharmacists educate patients who are expected to be discharged on 10 or more total oral medications or five or more new medications, patients who are admitted for a drug-related problem (e.g., wrong medication, wrong dose, drug interaction, adverse drug reaction), and patients who possess educational needs that are not sufficiently met by nursing-directed efforts. In addition, pharmacists provide medication management recommendations within the permanent medical record to optimize patients' medication regimen. Highlights of the program include the following:

- Under the direction of Dr. Amy Donihi, pharmacists provided medication education to nearly 1,500 high-risk hospitalized patients during 2005-2006.
- In 20% of patients educated, pharmacists made at least one recommendation for optimizing the patient's medication regimen. The types of interventions were classified as: medication reconciliation (44%), dose optimization (17%), optimal drug selection (12%), untreated indication (10%), safety (7%), therapeutic duplication (5%), route optimization (3%), and lack of indication (2%).

UPMC Presbyterian Division of Internal Medicine Hospitalist Physicians

- Faculty members provided expert medication management for over 7,200 patient-days during FY06.

Drs. Colleen Lauster and Denise Sokos and two pharmacy practice residents (Drs. Shrina Duggal and Jessica Bollinger) provided expert medication management for patients admitted to the Internal Medicine services. These faculty members provide direct patient care in a collaborative way with team members

from other professions. The faculty support DUDSM initiatives by helping to enforce the formulary, establishing criteria for medication use and enforcing drug-use policies.

Education and training included:

- Advanced practice rotation for six Doctor of Pharmacy students (Drs. Lauster and Sokos)
- Clinical training to two pharmacy practice residents in internal medicine (Dr. Sokos)
- Clinical training to three International Fellowship pharmacists from Palermo, Italy, and France (Drs. Lauster and Sokos)

Committee Involvement, Research, Publication, and Other Activities

- Expert Reviewer for the QI project entitled "The Effect of an Insulin Order Set on Frequency of Orders for Scheduled vs Correctional Insulin Alone and Glycemic Control in Hospitalized Patients with Diabetes" (Dr. Lauster)
- Active member of Diabetes Patient Safety Committee (Dr. Lauster)
- Active participant in community outreach project entitled "Take a Health Professional to the People Day" for the Center for Minority Health (Dr. Lauster)
- Internal Medicine Pharmaceutical Care Model Development team – joint effort with UPMC Pharmacy Department (Dr. Sokos – Chair, Dr. Lauster – Member)
- Two peer-reviewed publications (Dr. Sokos)
- Appointed to the Editorial Board for the Journal of Managed Care Pharmacy (Dr. Sokos)
- Appointed to the Task Force on Advancement of Residency and Fellowship Training in the American College of Clinical Pharmacy (Dr. Sokos)
- Presented posters at the American College of Clinical Pharmacy Annual Meeting and the American Society of Health-System Pharmacists Midyear Clinical Meeting (Dr. Sokos)
- Program Coordinator, Pharmacy Practice Residency UPMC / University of Pittsburgh School of Pharmacy (Dr. Sokos)
- Pharmaceutical Care Model: Education and Competency Steering Committee (Dr. Sokos)

Endocrine Division

- Drs. Amy Donihi and Rhonda Rea won the 2006 Quality Cup at the UPMC Presbyterian Quality and Innovation Fair for "Improving Glycemic Control in the MICU: The Development and Implementation of a Safe and Effective Standardized IV Insulin Protocol Targeting Blood Glucoses between 80-150 mg/dL." Outcomes associated with this protocol included a reduction in the time MICU patients on IV insulin infusions experienced hyperglycemia while maintaining a low rate of hypoglycemia.
- Dr. Amy Donihi collaborated with endocrinologists and other medical staff to create and implement several diabetes management protocols for use in the hospital through her membership on the Diabetes Patient Safety Committee. She is co-investigator in the inpatient initiatives for Management of Patients with Hyperglycemia Grant sponsored by the Department of Defense/U.S. Air Force,
- The faculty implemented several diabetes management protocols during FY06:
    - Policy, guidelines and an orderset to facilitate the use of patients' own subcutaneous insulin pumps during hospitalization. The purpose of this project was to allow for the continued consistent diabetes management of those patients who use subcutaneous insulin infusion pumps prior to hospital admission.
    - Redesign of the intravenous insulin infusion protocol used in the medical and trauma intensive care units. The new protocol targets a tighter blood glucose range (80-130 mg/dL) from the previous version.

- Protocol for transitioning patients from intravenous to subcutaneous insulin after patients improve from critical illness. The purpose of this protocol is to promote euglycemia following transfer from the intensive care unit.

Critical Care

The Critical Care Pharmacy team has restructured its resources and made numerous strides to improve the standard of care for intensive care patients. Amy Seybert, PharmD serves as the Pharmaceutical Care Coordinator for the team. Faculty members included Neal Benedict, PharmD, Bonnie Falcione, PharmD, Karen Laughlin, PharmD, Rhonda Rea, PharmD, Ted Rice, MS, BCPS, and James Tsikouris, PharmD. Clinical pharmacists include Kimberly Maslonek, PharmD. The Critical Care Pharmacy team has established the following program goals:

This team has worked closely with operational pharmacy, DUDSM program, Center for Pharmaco-informatics 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.

Clinical Services/Patient Care

- Members of the Department of Pharmacy and Therapeutics practicing in critical care provided pharmaceutical care for 6,000 inpatients totaling 35,000 patient days on six intensive care units.

The faculty members provide expert medication management for critically ill patients at UPMC Presbyterian. Some of their activities include therapeutic drug monitoring, antibiotic management, nutrition support and provision of drug information. All faculty members within the critical care team are available via pager as a resource to their respective teams 24 hours/day, seven days a week. They are responsible for medication error and adverse drug reaction prevention, management and reporting. They provide patient education; manage heparin-induced thrombocytopenia alerts; manage Amiodarone, TFT and LFT alerts; and, provide extensive training for pharmacy residents at UPMC Presbyterian.

The faculty support DUDSM initiatives by helping to enforce the formulary, establishing criteria for medication use and enforcing drug-use policies. They also support and contribute to the Clinical Education Competency Program (Pharmacy Grand Rounds) as committee members and educators. They work closely with the Department of Medicine, Divisions of Critical Care Medicine, Neurology, Neurosurgery, Pulmonary Allergy and Critical Care Medicine, Endocrinology, General Surgery, Cardiology, Cardiothoracic Surgery, Transplant, Trauma and Infectious Disease.

The faculty developed and/or revised Drug Use and Disease State Management initiatives/guidelines, including:

- Nesiritide Utilization Guidelines (Dr. Seybert)
- Cholesterol Management Guidelines (Dr. Seybert)
- Pulmonary Hypertension Guidelines (Dr. Benedict, Dr. Seybert)
- Sepsis First Dose Antibiotics Guidelines and Operational Process (Dr. Rea)
- Recombinant activated protein C Guidelines and Research Presentation (Dr. Rea)
- Aggressive Phophate Infusions in the Intensive Care Unit (Dr. Rea)
- Conivaptan Review of Guidelines (Dr. Rea)
- Intensive IV Insulin Guidelines in the MICU (Dr. Rea)
- Dexmedetomidine (Dr. Rice)
- Rifaximin guidelines (Dr. Falcione)

The team has continued their dedication to the patient safety goals within UPMC by maintaining the computer-generated alerting program through UPMC's *e*Record. This patient safety program has recognized over 3,500 "at-risk" patient scenarios where the members of the Critical Care Pharmacy Team have evaluated each case. Also, the team has maintained the Heart Failure Disease Management program and has assisted in the medication management of over 1,000 patients with heart failure.

Finally, the Critical Care Team has resumed its clinical support in the Surgical/Trauma Units. In addition, the Surgical/Trauma, Medical, and Neuro ICU's have expanded to over 70 beds.

Education and Training activities this year have included:

- Clinical training over a 12 rotation period for one Critical Care/Cardiology Specialty resident (Drs. Benedict, Falcione, Rea, Rice, and Seybert)
- Clinical training over a 12 rotation period for one Cardiology Specialty resident (Drs. Seybert, Benedict, and Tsikouris)
- Advanced practice rotation for 12 PharmD students (Drs. Benedict, Falcione, Laughlin, Rea, Rice, Seybert, and Tsikouris)
- Clinical training for 4 international pharmacist visitors (Team)
- Educational training for 2 specialty residents (Drs. Seybert and Rea)
- Educational/clinical training for 1 visiting pharmacist from the Pittsburgh Region (Drs. Falcione and Seybert)
- Clinical training for 2 pharmacy practice residents
- Clinical training for 2 oncology specialty residents (Dr. Rea)
- Clinical training for 1 infectious diseases specialty resident (Dr. Falcione)
- Served as course coordinator for one course (Dr. Seybert)
- Served as residency director for two programs (Dr. Seybert)
- Provided a total of over 60 contact hours for 5 courses within the School of Pharmacy curriculum (Team)
- Attended University of Edinburgh, Medical Teaching Organization in Edinburgh, Scotland to be enrolled in "Tutor Training Program, Problem-Based Learning" workshop (Dr. Rea)
- Multiple pharmacology lectures to Presbyterian and Shadyside Nursing, as well as Cardiology, Cardiothoracic Surgery, Critical Care Medicine and Pulmonary Physicians as part of a formal Lecture Series (Drs. Rea and Seybert)
- Facilitated classes for the "Basic Science of Care" course within in the School of Medicine curriculum (Drs. Rea and Benedict)
- Served as faculty advisors for 12 students (Drs. Benedict, Falcione, Rea, Rice, Seybert, and Tsikouris)
- Served as faculty mentor for 2 student organizations (Dr. Seybert)
- Served on the curriculum committee (Dr. Seybert)
- Developed two new problem-based learning courses (Drs. Benedict, Falcione, Rea, and Tsikouris)
- Continuing Education Steering Committee (Dr. Seybert)
- Faculty for the Clinical Education Competency Program (Team)

Awards and Recognition:

- University of Pittsburgh Chancellor's Distinguished Teaching Award (Dr. Seybert)
- American Association of Colleges of Pharmacy, Innovations in Teaching, Honorable Mention (Dr. Seybert)
- Rho Chi Innovations in Teaching Award (Dr. Seybert)
- Simulations in Pharmacy Education, $150,000 grant (Dr. Seybert)

- A Systematic Approach to Ill-Defined Problem Solving Using a Computer Aided Learning Branched Tree Algorithm in Combination with Problem Based Learning. Innovation in Education Awards, 2006. Amount: $25,000 (Dr. Rea, Principle Investigator and Drs. Benedict and Falcione)
- Optimizing Aminoglycoside Cmax/MIC to Improve Clinical Outcomes in ICU Patients with Gram-Negative Infections. CLINICAL RESEARCH FEASIBILITY FUNDS (CReFF) PROGRAM Grant Funding: $20,000 (Dr. Rea, Principal Investigator and Dr. Falcione)
- "2006 Quality Cup Winner" at the University of Pittsburgh Medical Center for Improving Glycemic Control in the MICU: The Development and Implementation of a Safe and Effective Standardized IV (Dr. Rea)

Professional Organizations:

- Vice Chair, Education Committee, Society of Critical Care Medicine, Clinical Pharmacy and Pharmacology Section (Dr. Rea)
- Pharmacotherapy Conference Committee Member (Dr. Rea)
- President, Pennsylvania Society of Health System Pharmacists (Mr. Rice)
- Section Chair, ASHP Clinical Specialist and Scientists Section (Mr. Rice)
- Team commander, National Pharmacists Response Team (NPRT) East region (Mr. Rice)
- Secretary, American College of Clinical Pharmacy, Cardiology PRN (Dr. Seybert)
- President, University of Pittsburgh Alumni Society (Dr. Seybert)
- Clinical Pharmacy and Pharmacology Section Membership Committee, Society of Critical Care Medicine (Dr. Falcione)
- Membership Committee, Society of Infectious Diseases Pharmacists (Dr. Falcione)

Scholarly Activity:
The critical care faculty members have been involved in a number of scholarly activities this year. The team has collectively published 2 review articles and submitted or published 13 research articles/abstracts. In total, the team has submitted 7 grant proposals with funding received for 4 proposals while one submission is still pending. Overall, the team has achieved all scholarly goals set forth for the 2005-06 year.

Transitional-Care Unit and Intermediate-Care Service

Dr. Charles Ward provides individualized pharmaceutical care to the 58 beds of the UPMC Presbyterian Transitional Care Unit (TCU) and Intermediate-Care Service. As clinical pharmacist on these services, Dr. Ward:

- Managed medication therapy in approximately 4,000 patient-days on an interprofessional team in the TCU.
- Provided comprehensive patient evaluation and drug therapy interventions, DUDSM guideline compliance, and interdisciplinary education, including presentations to new TCU and nurse practitioners, and student nurse orientation.
- Educated 20 nursing practitioners this year on geriatric pharmacotherapy.
- Provided experiential learning sites for PharmD students,
- Served as the "welcome wagon" for the UPMC pharmacy, serving as a shadowing mentor for prospective students and orienting new unit-based pharmacists (eight during FY06) and new pharmacy residents (six during FY06).

UPMC Antibiotic Management Program (AMP)/ Infectious Diseases

- Faculty members of the AMP reviewed and optimized antibiotic therapy for more than 12,000 patients during FY06.

The antibiotic management program (AMP):

- Restricts use of broad-spectrum antimicrobials, in an attempt to curtail or reverse resistance trends at this institution.
- Ensures appropriate use of antimicrobials.
- Controls *C. difficile* epidemic by restricting antibiotics that predispose patients to *C. difficile* associated disease.
- Manages costs so that if equal efficacy is documented a less costly antibiotic is used.

The AMP has a collaborative practice agreement with the Division of Infectious Diseases physicians at UPMC Presbyterian including the I.D. fellows who participate actively in providing AMP services. The AMP provides service 24 hours/day, 7 days/week. AMP program affects all interns, residents, fellows, and attending physicians that require approval for restricted antimicrobial and antifungal agents. This also includes nurse practitioners and physicians' assistants.

Faculty involved in the Service include: Brian A. Potoski, PharmD; Blair Capitano, PharmD; Bonnie Falcione, PharmD; all infectious diseases fellows.

During FY06, faculty of the AMP provided education and training to:

- An Infectious Diseases Specialty pharmacy resident, who participates as a core member of the AMP program under the mentorship of Drs. Potoski and Capitano. The resident during FY06 was Patricia Saunders, PharmD.
- All pharmacy practice residents as a part of an AMP longitudinal year-long rotation Approximately 10%/week is devoted to AMP. Seven pharmacy practice residents have completed these rotations.
- Nine pharmacy students who selected the AMP as a P4 experiential learning rotation.
- Medical residents and students in monthly two-hour lectures through the Division of Infectious Diseases. These lectures focus on appropriate antibiotic use and antimicrobial monitoring.

Oncology Pharmacy Program at UPMC Shadyside

Pharmacists, specialty pharmacy residents and pharmacy technicians provide comprehensive clinical services for the UPCI hematology and oncology program.

Oncology Clinical Pharmacy program provides care for patients on the following services at UPMC Shadyside:

- oncology / hematology services (3 medical teams)
- hematopoetic stem cell transplantation program (1 team)
- attending service (1 team)
- consultation services are provided upon request:
  - oncology patients in the Hillman Cancer Center
  - oncology patients at UPCI affiliate institutions
  - oncology patients that are not on designated oncology teams (off-service patients)

Clinical services include the following in collaboration with the patient-care team:

- participation in care team round (Monday – Friday/Saturday)
- provision of pharmaceutical care for patients while in the hospital with limited coordination of outpatient care

- drug information (routinely for patients on designated services and upon request from Hillman Cancer Center/UPCI Cancer Centers)
- clinical coverage on weekends and holidays (onsite coverage: 1 clinician)
- clinicians on call for questions (24 hours coverage)
- healthcare team staff education (formal and informal)
- patient and caregiver education

Support of the educational and training programs of the University of Pittsburgh School of Pharmacy
  - Doctor of Pharmacy Program (18 students)
  - Pharmacy Practice Residents (2 rotations in FY06)
  - Oncology Pharmacy Specialty Resident(s) (2 residents)
  - Critical Care Specialty Resident (1 month)

DUDSM/DIC

Drug Use and Disease State Management (DUDSM) Program

The DUDSM Program provides the infrastructure for evidence-based, safe, and cost-effective use of medications across the UPMC and coordinates the functions of the UPMC Presbyterian Shadyside and Health System P&T Committees. Faculty and staff involved in the program developed and approved 29 formulary/safety guidelines and performed nearly 10,000 evidence-based interventions in over 5,000 patients. These guidelines include the following types: therapeutic interchange (5%); operational (10%); innovative off-label use (15%); practice guidelines (55%); therapeutic optimization (2%); generic conversion (5%) and patient safety (8%).

Formulary development during FY06:

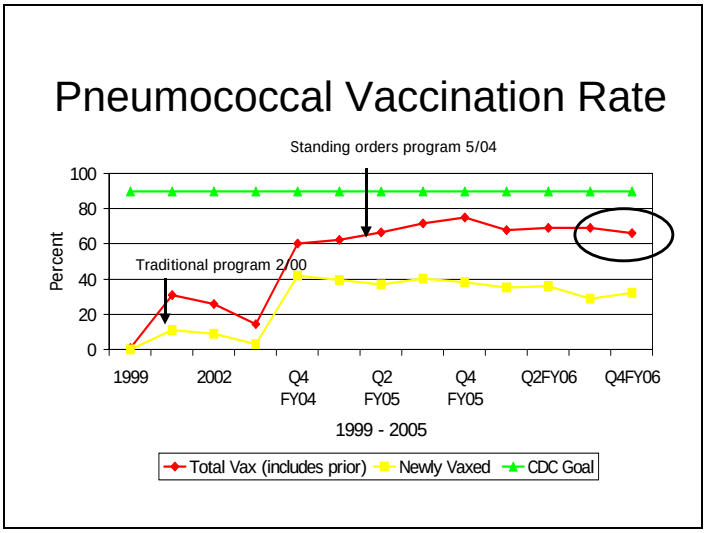
- Morphine Sulfate Extended-Release Liposomal Injection (C. Culley, S. Skledar)
- Ziconotide intrathecal infusion (C. Culley, S. Skledar)
- Standard Infusion: Reducing Options to Increase Patient Safety (S. Skledar, S. Guttendorf, P. Gross)
- Pulmonary Hypertension Guidelines (N. Benedict, S. Corman)
- IVIG Guidelines Update (S. Corman)
- Acute Insomnia Guidelines (S. Corman)
- Fluocinolone acetonide intravitreal implant (S. Corman)
- Acamprosate (S. Lavsa [student intern], S. Corman)
- Pregabalin (Lyrica) (S. Corman)
- Meningococcal Polysaccaride Diptheria Toxoid Conjugate Vaccine (Menactra) (O. Ogbuokiri [resident], D. Sokos, S. Corman)
- Exenatide (Byetta) (L. Veltry [resident], D. Hall, A. Donihi, S. Corman)
- Pramlintide (Symlin) (E. Yang [resident], A Donihi, C. Lauster, S. Corman)
- Epidural Administration of Depo-Medrol (S. Skledar, C. Culley)
- Buprenorphine (Subutex) and Buprenorphine/Naloxone (Suboxone) (J. Bollinger [resident], S. Corman)
- Entecavir (Baraclude) (S. Duggal [resident], S. Corman)
- Dexmedetomidine for Sedation in Neurosurgery Patients (S. Corman, T. Rice)
- Pharmaceutical Manufacturer Representative Policy (S. Skledar)
- Emergency Use of Non-FDA Approved Drugs and Biologics (S. Skledar)
- Pharmacy Review of Radiology Protocols (S Skledar)
- Therapeutic Interchange Order Form (S Skledar, C Culley, S Guttendorf, P Gross)

- *Clostridium difficile* Associated Disease Guidelines/Order Set (Lauren Hynicka [student intern], S. Skledar)
- Design of on-line formulary order sentences for computerized physician order entry (6,000 sentences)

Patient Care:
The DUDSM Program provide direct clinical services as a population-based medicine program, specifically focusing on ensuring prescriber compliance to guidelines approved by the P&T Committees for UPMC Presbyterian and UPMC Shadyside. In the last year, the DUDSM team has performed over 10,000 medication management interventions in over 5,000 patients. Faculty and staff worked together on the following programs:

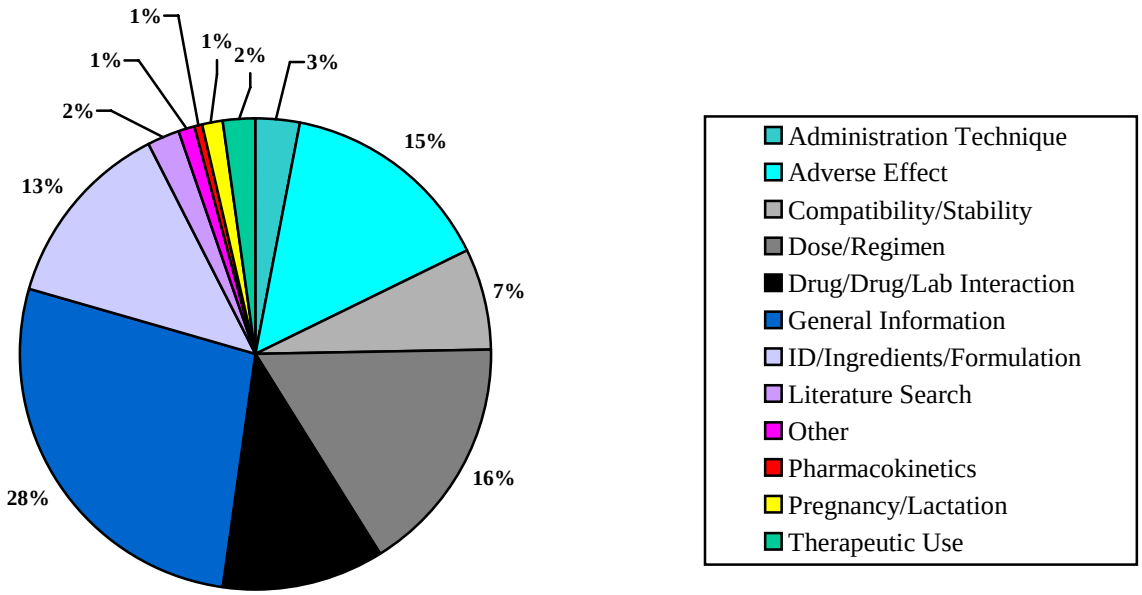
- Inpatient standing orders vaccination program
  - Pneumococcal polysaccharide and influenza vaccines
- Avoiding dangerous drugs in the elderly (e.g., meperidine, diphenhydramine, promethazine)
- IV-to-oral switch automatic program
- Renal dosing automatic program
- Factor concentrate dosing and safety
- Patient-controlled analgesia (PCA) safety (naloxone monitoring, PCA safety indicators)
- Community-acquired pneumonia management
- Anticoagulation adverse event monitoring (protamine tracer drug alert)
- High-cost/ high-use drug regimen review for safety, clinical appropriateness, and inventory tracking
- Unit-based patient profile (medication regimen) review and intervention
- Innovative off-label drug use protocol evaluations
- Ensuring safe handwriting practices
- Appropriate use of intravenous proton pump inhibitors

Successful programs included the UPMC Presbyterian inpatient vaccination program. This pharmacy-driven program for pneumococcal polysaccharide and influenza vaccination is increasing elderly vaccination rates that are nearing the national goal. Vaccination rates are a UPMC Presbyterian quality performance measure for patients admitted with pneumonia, with UPMC Presbyterian's vaccination rates exceeding Pennsylvania and national rates.



Drug Information Center (DIC)

The DIC responded to approximately 1,200 questions from healthcare professionals at UPMC during the year. Physicians, nurses, and pharmacists consulted the DIC with a variety of requests (see graph below).



Drug Information Requests by Category of Request

DUDSM and DI Center Contributions to Student Learning and Profession of Pharmacy

Faculty and staff of DUDSM and DIC mentor pharmacy residents, medical students, and PharmD students through the formulary review process and guideline implementation processes at UPMC Presbyterian. Students learn to prepare formulary reviews and professional presentations. They learn strategies for implementation and use of process/clinical outcomes to evaluate effectiveness. Faculty and staff guide students on professional writing, speaking, and continuous quality improvement principles.

The table summarizes the DIC and DUDSM commitment to student learning at the professional, graduate and post-professional level during the last academic year.

Student/Practitioner Teaching	
PharmD Students (Experiential Learning)	17–P4;4 DUDSM; 7 DIC; 2 safety; 4 geriatrics; 5–P3: experiential
PharmD Student Interns (Longitudinal DUDSM/safety)	10
Student shadowing experiences	6
Nursing students	2
Residents	5
Clinical Scientist Associates	3
Nurse Practitioners	2
New Staff Pharmacists	7

VA Healthcare System

Comprehensive clinical pharmacy services for the VA Healthcare System are provided by a coordinated program including pharmacists, specialty pharmacy residents and pharmacy technicians. University of Pittsburgh faculty members include Drs. Lauren Trilli, Melissa Crawford, Bernadette Heron, and Sherrie Aspinall.

Dr. Lauren Trilli directs the Ambulatory Care Area Clinic and the Anticoagulation Clinic. The VA serves as a certified national traineeship for anticoagulation services for the American Society of Health-System Pharmacists (ASHP). Dr. Bernadette Heron coordinates oncology pharmacy services for the VA Healthcare System.

Securing an Adequate Resource Base

Securing an Adequate Resource Base

The achievement of the vision of the School of Pharmacy requires a resource base consisting of money, space, and technology adequate to support the vision. Fostering philanthropic support, efficiently utilizing space, acquiring space for new programs, and providing the faculty and students with the best teaching technologies are critical to the School's future success.

By 2011, the School of Pharmacy will have:

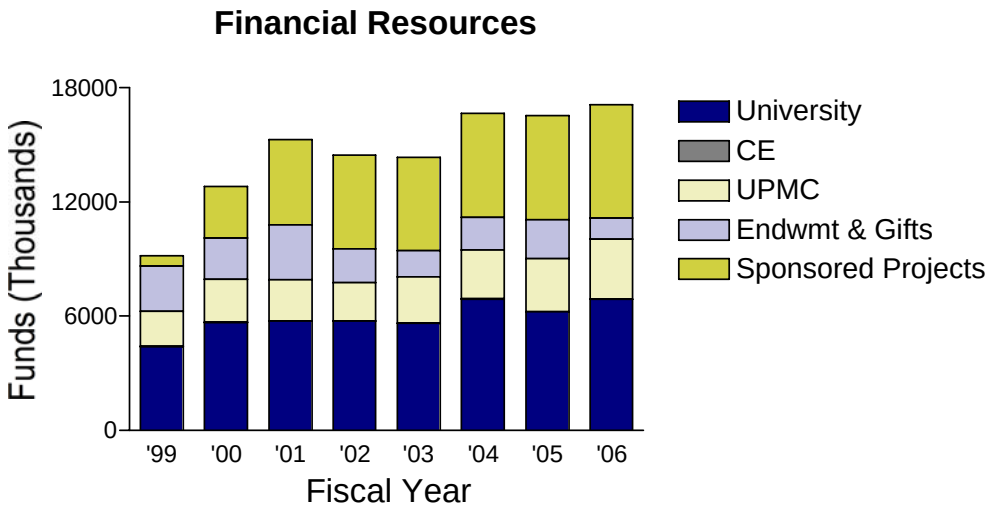
- **Increased the resource base of the School of Pharmacy.**

Financial

Budget

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

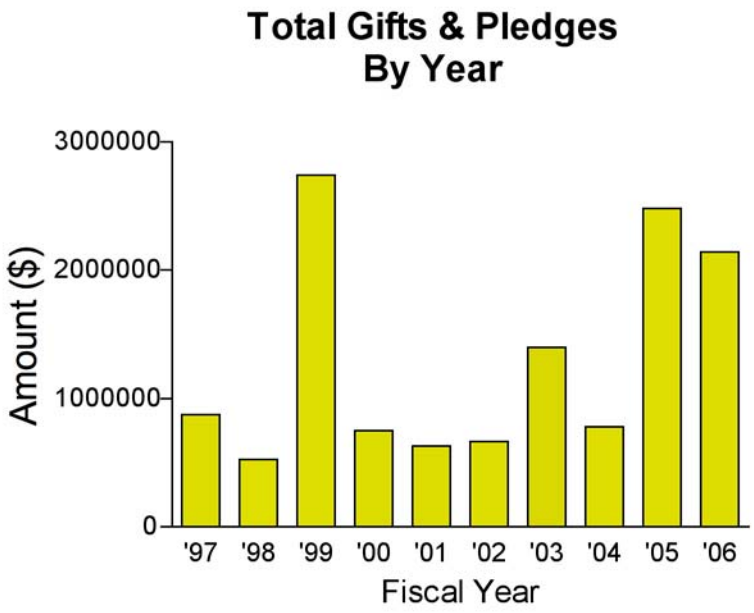
The graph below shows financial data for fiscal years '99 through '06.



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 FY06 was $17,130,955, with sponsored projects accounting for 35% of the budget. Together, the University (40%), UPMC HS (18%), and sponsored project awards (35%) accounted for 93% of the School's funding.

Institutional Development

The value of the School of Pharmacy is recognized in many ways, including philanthropic support. In FY06, the School received charitable gifts, pledges, and grants totaling $2,140,254 from a total of 1,005 individuals, foundations, corporations and other organizations. FY06 was the School of Pharmacy's third highest giving total since the start of the campaign in 1997. Fundraising totals for FY05 and FY06 account for over 35% of the dollars raised over the past ten years.

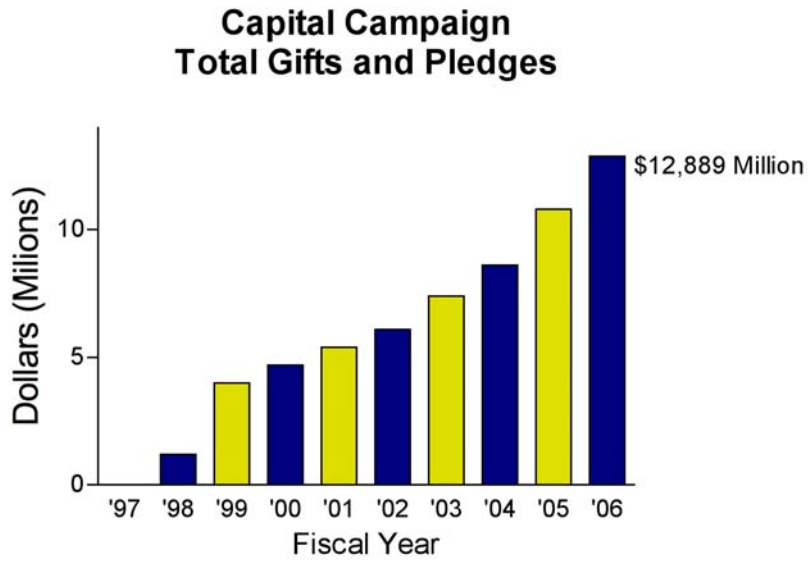


FY06 Giving to the School of Pharmacy by Source

	Alumni	Foundation	Corporations	Organizations	Friends
Amount	$1,663,356	$1,500	$276,340	$149,693	$49,366
Percentage	78%	Less than 1%	13%	7%	2%

Capital Campaign

On July 1, 1997, the University of Pittsburgh launched the Capital Campaign. For the period July 1, 1997, through June 30, 2006, the School of Pharmacy raised a total of $12,888,782 in gifts and pledges for the School's portion of the Capital Campaign. Of this amount, a total of $11,497,497 has been received and $1,390,985 is due in pledges. Alumni, friends, corporations and foundations, faculty and staff have provided the philanthropic support. Securing endowed funds to provide scholarship and professorship support are primary goals for the School of Pharmacy Capital Campaign. Since the initial goal of $12,000,000 has already been met, a new goal of an additional $15,000,000 has been set for the School.



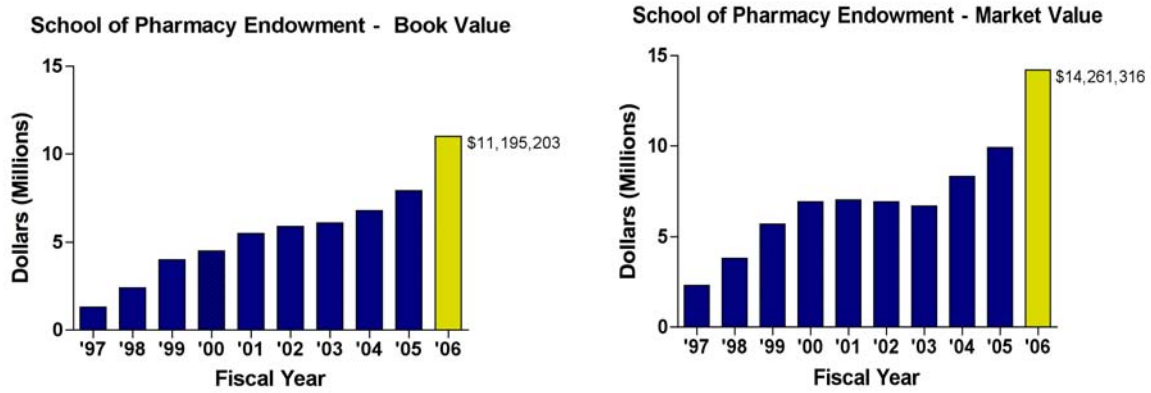
School of Pharmacy Capital Campaign by Gift Designation
July 1, 1997—June 30, 2006 Gifts and Pledges*

Designation	Amount
Endowed Scholarships and Awards	$ 3,455,096
Endowed Professorships (1)	3,000,000
Renovation: Seminar, Student Lounge, Labs	433,404
Programs and Research	2,516,000
Other	3,151,527
Total	**$12,888,782**

* Includes Voluntary Support (gifts) received during FY06

The market value for the School of Pharmacy endowment as of June 30, 2006, is $14,261,316. As indicated in the table below, the market value has increased significantly since 1997.

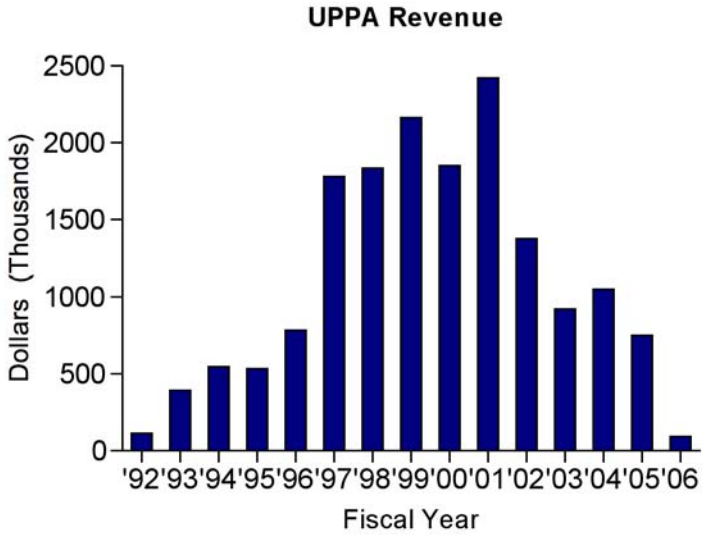
School of Pharmacy Endowment Values

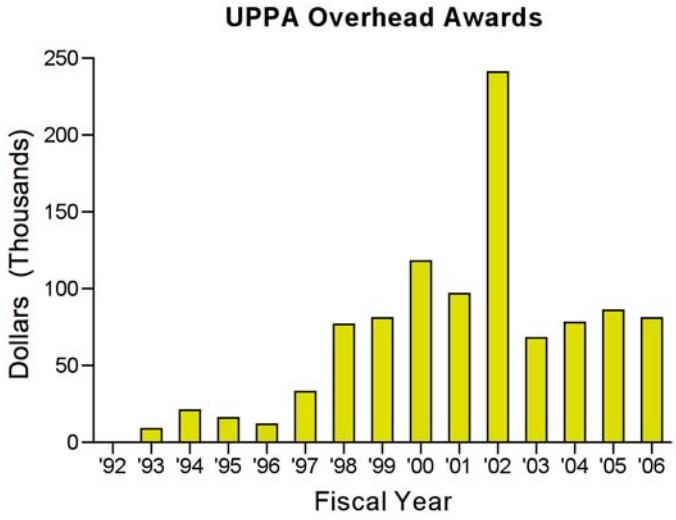


University of Pittsburgh Pharmacy Associates

The University of Pittsburgh Pharmacy Associates (UPPA) was the practice plan for the School of Pharmacy faculty. The plan encouraged and facilitated faculty consulting activities and provided funds for projects that support the research mission of the School. The plan was granted University approval in 1992. UPPA has been very beneficial for individual faculty members and for the School of Pharmacy overall.

The following graphs represent the income brought in to the practice plan and the overhead awards since its inception.





By agreement of the University of Pittsburgh administration and the Advisory Board of UPPA, the Advisory Board dissolved UPPA during FY05. Recommendations from the Board included contributing overhead funds to the School of Pharmacy endowment funds. Some faculty likewise chose to contribute. As a result of the close of the practice plan in December 2005 and the fiscal year closing of the account, there is a substantial increase in the School's endowment funds.

Through funds formerly in UPPA, the endowment funds grew by a total of $2,364,885. The following table summarizes endowments by name or type resulting from the closing of the UPPA.

Endowments Established as Result of Close of UPPA

Endowment Name	Amount
General Endowment (Quasi)	$ 447,075
Dr. Gordon J. Vanscoy Endowed Chair	1,500,000
Pharmacodynamic Research & Education Fund	100,000
The Arthur and Bernice Coccodrilli Pharmacy Research Fund	145,526
Pharmacoeconomics and Outcomes Endowment	108,274
Gary Haberle Scholarship Fund	50,000
The Pharmaceutical Sciences Graduate Student Excellence Award	9,474
Carl and Virginia Stoehr Memorial Scholarship	4,536
Total	**$2,364,885**

Physical Facilities

By 2006, 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 ninth floor was completed for the new student services area, which has been named for Dr. John P. and Constance A. Curran and is known as the Curran Center for Pharmacy Students. A total of 1,761 sq ft was renovated to improve workflow, accommodate more people, and consolidate student-related functions to one area.

- Plans for renovating the Office of the Dean and administrative offices located on the eleventh floor were finalized. Renovations will commence in early fall of 2006. A total of 2,402 sq ft has been redesigned, with construction to occur during FY07.

- Plans were finalized for the Department of Pharmacy and Therapeutics to move from the third floor of Scaife Hall to Falk Clinic, where it will occupy a total of 2,192 sq ft. The move will occur in the fall of 2006.

- The Drug Information Center, the Data Coordinating Center, and the Pittsburgh Poison Center will move into 10,570 sq ft of newly renovated space in Birmingham Towers in the fall of 2006.

- At the close of FY06, the School of Pharmacy occupied 46,456 sq ft in Salk Hall, 5,566 sq ft in Birmingham Towers, 2,192 sq ft in Falk Clinic, 2,744 sq ft in UPMC Montefiore, 5,627 sq ft in UPMC Presbyterian, 2,369 sq ft in Scaife Hall, 850 sq ft leased on Fifth Avenue, and 5,611 sq ft in BST-3 for a total of 72,313 sq ft. The School has a net increase this year at the BST-3 of 6,461 sq ft. and has negotiated in FY06 space at the Birmingham Towers to be occupied in FY07, for a projected net gain of 8,201 sq ft for FY07. Looking further into the future, the School expects to occupy 106,014 sq ft of space by FY10.

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 2006, a program that maximizes spending power by purchasing through University-wide contracted suppliers. The staff goal was to reach 50% on-contract spending by 2007 on targeted commodities. The staff exceeded the goal by achieving the following:
  - Increased its overall on-contract spending from 32% to 63% from fiscal year FY04 to FY06
  - Saved approximately $141,000 during FY06

- The School of Pharmacy has focused on increasing effectiveness and developing problem-solving techniques to empower staff to improve work processes and efficiencies. As part of the plan to improve work processes, all of the staff attended at least one development course during the past year.
  - Staff in the Office of Student Services received training for PeopleSoft, PharmAdmit, and AY Recruiting.

- Research office staff and project coordinators participated in training and gained proficiency with Electronic Research Administration for the electronic submission of grant proposals.
- Many supervisors attended the Human Resources Development Track and the Leadership Track programs offered by the University.
- Internal training classes related to technology and generational influences in the workplace were held for all staff in the School.

Information Technology

Information technology projects during the last year were designed to complete goals set in 2001 to create a state-of-the-art professional information technology infrastructure for the School of Pharmacy that would efficiently and effectively support the advancement of research, teaching, and patient-care enterprises.

In order enable the School to work within the larger University system and with UPMC, we have implemented a base LAN/WAN structure of file server, user authentication, security, and backup technology during FY06. The new structure was developed to allow for expansion to newer technologies such as gigabit ethernet to the desktop, and wireless connectivity. The technological advancements during FY06 include:

- New File Server that provides 3.8 TB of file storage over gigabit transfer
- Single sign-on/ authentication connecting all users and computers to the Pitt AD tree
- The purchase and implementation of state-of-the art multimedia technology in the Curran Center Conference Room
- A wireless pilot project in Salk Hall
- Creation and implementation of a 4-year cycle faculty and staff computer replacement program
- Enhanced relationship with CSSD through aggressive implementation of technology

Communications

The communications of the School of Pharmacy are handled by the Communication and Information Services Team that also handles the technology aspects described above. During FY06, the team:

- Developed an alumni Web site
- Sent out nine large-scale and numerous small mailings that included over 49,300 pieces of mail to alumni and friends
- Entered 1,850 instances of alumni engagement into Advance, which is the University's database for alumni and friends. Result: School named #1 in alumni engagement!
- Overhauled the School of Pharmacy's entire Web site
- Produced over 55 printed/viewed materials, 65% of which were new items for the School
- Developed an "In the Community" section of Web site
- Enhanced the School's relationship with University Marketing and Communications through the number of pieces produced and published

Event Notification Process

In June 2002, an event notification protocol was established to address the process by which the School handles events that may be newsworthy or worthy of special recognition or disposition. Notification of events may be initiated by any faculty member, staff member, or student. The goals of the process are to increase and maintain positive awareness of the accomplishments of the School of Pharmacy and its faculty, staff, and students:

1. Within University of Pittsburgh and UPMC community

2. Among healthcare 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 healthcare or research discovery topic is desired

Through the system of event notifications, news about the School is posted to the Web site. Additionally, the UPMC News Bureau liaison has used the event notification form information to generate placements in 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 FY06.