October 2012

Dear Friends,

Right now, our School of Pharmacy has momentum and it is wonderful. Only some of that momentum derives from specific accomplishments of FY12. Part of our momentum comes also from the visions, beliefs, and goals in Long Range Plan 2018 that we articulated this year. What feeds these visions and goals—and our momentum—is our cumulative progress and foundation built on two previous Long-Range Plans (2006 and 2012). Let’s look at the evidence. Data are from FY12 unless otherwise stated.

- The School’s reputation continues to rise, moving up in U.S. News and World Report rankings to #14 (of 125 schools) in 2012, an increase from #19 in 2009 and #23 in 2006. The rankings, which are based on our PharmD program, are the result of subjective survey data only and are therefore circumspect.

- We believe that pharmacists improve health outcomes in patients and that our superb faculty provides one of the finest educational PharmD programs in the country. Pitt is a leader in preparing students as patient care providers. Highly academically qualified students are trained to interact with patients from their very first semester, while they are also taking Biochemistry and Anatomy and Physiology.

- An amazing 100% of our PharmD graduates who sought residency positions placed in a residency and the number who sought residences (34 of 108 graduates, 31.5%) was the highest ever in FY12. The placement percentage and number are so impressive because nationally, only 50% of those seeking residencies are placed. The data demonstrates how well prepared Pitt PharmD students are to compete on a national scale.

- Our students and our faculty are increasingly globally and internationally engaged. In FY12, 15.7% (17 of 108) of our fourth year PharmD students completed five-week rotations in 5 countries at 6 locations. This compares with one international rotation for one student in 2005. Connections in London and in Beijing and Shanghai were made during FY12 for expansion in FY13. Faculty offered a Global Health Residency Program in FY12 for the first time. In FY13, the newly approved Area of Concentration in Global Health will be available to PharmD students.

- Our faculty members are innovators who, in FY12, were granted two Investigational New Drug (IND) applications (Lisa Rohan), one patent with provisional status (Song Li’s lab, Jianquin Lu, Yixian Huang), three patents (Sean Xie, Barry Gold), and three licenses (Alexander Doemling, Randy Smith, Xiang Gao). Two invention disclosures (Prema Iyer, Amy Seybert) were filed. The inventions and licenses spanned basic, clinical, and teaching applications.
• Our faculty members are also award-winning researchers and practitioners. Six faculty members received national awards and three were awarded five fellowships in five organizations. Now, 18 out of 73 faculty members (24.6%) have been elected as fellows in national organizations. More than 50% of our faculty members are board certified (clinical specialties), fellows, or both.

• Our graduate program, which includes our PhD and MS programs, reached an all-time high for numbers of students enrolled, with 52 PhD students and 4 MS students. This goal was driven by our Long-Range Plan expressed in 2002, when we stated that in order for the School to increase its impact, we needed to have at least 50 full-time PhD students (compared to 19 in 2002). Research capacity and funding to support tuition and stipends for PhD students had to be addressed in order to meet this goal. We exceeded 50 for the first time in FY12.

• The School of Pharmacy has one of the premier and largest residency programs in the country in partnership with 9 institutions that provide 13 types of residency programs for 40 residents in FY12. In addition, the School received an expansion grant from ASHP for the second consecutive year and graduated the first residents from four programs.

• We have unquestionably the finest community pharmacy program in the country. Supporting that claim are the facts that:
  o The School received the only NACDS Scholars Award to train a network of national community pharmacy faculty to conduct practice-based research.
  o The advances of the national Pharmacy Quality Alliance (PQA) five-partner project (our faculty member developed the intervention and pharmacist training and evaluated outcome) demonstrated a successful mechanism in a pharmacy chain for 300 community pharmacists to increase medication adherence. PQA sets the star ratings for CMS that affect reimbursement.
  o A faculty member from our School was selected as one of the 73 Center for Medicare and Medicaid Services Innovation Advisors—the only pharmacy faculty member to be selected nationwide.
  o A comprehensive transition of care medication review and education program for patients transitioning from hospital to community was a finalist for the American College of Clinical Pharmacy Best Practice Award. Two transitions programs, one in medicine and one in psychiatry, are finalists for the Fine Foundation Award.
  o Students are also agents of change. A group of P3 students who had learned the billing process for OutcomesMTM (a third party entity that facilitates the pharmacist billing procedure for patient care), took on a project to teach pharmacists to use OutcomesMTM and bill for patient care, thus helping to overcome the financial barrier to patient care in the community.
  o A form entitled, the PITT (Patient Intervention and Tracking Tool) Form allows students to submit a “bill” for patient interactions in a community setting. During FY12, a small group of students transformed the paper version to a computerized automated format for ease of use by students and faculty.

• Faculty members are impacting programs and policy to address the Prescription Drug Overdose problem in Allegheny County and the Commonwealth of Pennsylvania. They are:
  o Working with the Office of the Governor to establish a computerized state-wide Prescription Drug Monitoring Program;
• Establishing physician-pharmacist collaborative practice agreements with pain specialists;

• Making community access to naloxone through Project Lifeline to treat overdoses from heroin and other opiates.

• Major advances in drug delivery through the laboratories of Dr. Lisa Rohan and Dr. Song Li.
  o Dr. Rohan, the Co-Director of the Microbicide Clinical Trials Network, and her lab have developed a vaginal film product containing the anti-HIV agent, dapivirin, that is in clinical trials to prevent the spread of HIV. She has also developed a vaginal film dosage form for tenofovir that will enter clinical trials and evaluations in 2013.

  o Dr. Song Li and his colleagues are evaluating polymeric vectors for pulmonary gene therapy and a dual functional micellar delivery system that shows synergistic activity with co-delivered anticancer agents.

• Our loyal alumni were once again very engaged and ranked as #3 among the University’s schools and programs with more than 100 alumni. The School has ranked #1 or #3 in all the years of the rankings.

• Several important actions solidified our administrative foundation and made available new opportunities:
  o Amy Seybert was appointed as chair of the Department of Pharmacy and Therapeutics, a role in which she has dual responsibilities to the University of Pittsburgh and to UPMC.

  o The establishment of the Computational Chemical Genomics Screening Center was approved with Qiangqun (Sean) Xie as the founding director.

  o Four exceptional faculty members were recruited to join the School of Pharmacy for FY13.

  o We started our capital campaign entitled, “Honor our Past, Shape our Future” as a way to garner the much needed support for Salk Hall renovations and programmatic support.

  o Four wonderful and experienced staff members left in June through the Voluntary Early Retirement Program.

• And finally, momentum on new space is building—the retaining wall and foundation are in place. Soon steel beams will appear and Salk Pavilion and the Commons will take shape.

I hope that you now see why I started my letter by saying that our School of Pharmacy has momentum. I also hope that you share my sense of how wonderful it is. With your help, we can do even more.

Sincerely,

Patricia D. Kroboth
Dean
MISSION

The School of Pharmacy is committed to improving health through excellence, innovation, and leadership in education of pharmacists and pharmaceutical scientists, in research and scholarship, in care of patients, and in service to our communities.

Adopted July 2006
Revised July 2009

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
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## Long-Range Plan 2006-2012

- Long-Range Plan 2006–2012
- Progress At a Glance

## Long-Range Plan 2012-2018

- Long-Range Plan 2012–2018
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 teaching mission 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 its graduate programs.

By 2012, the School of Pharmacy will have:
• Become a national leader in pharmacy education.

This strategic outcome serves as the overall objective for the PharmD, residency, and graduate programs for the School of Pharmacy.

Education by the Numbers for FY12

PharmD Program
In FY12:
• 108 students enrolled in the PharmD Class of 2015 with average GPA and PCAT scores of 3.67 and 80%, respectively.

• 11.7 – The number of applicants per seat through open admission.

• 150 scholarships totaling $392,157 were awarded to 125 PharmD students.
• University of Pittsburgh pharmacy student organizations won 6 national or regional awards.

• PharmD students presented 2 papers/posters at national meetings.

• 310 pharmacists in 20 states and 4 countries provided 756 APPE rotations for 108 fourth professional year students.

• 92 students received the BS in pharmaceutical sciences at the end of their second professional year; April 2012 was the first time this degree was awarded to PharmD students.

• 108 students received PharmD degrees in the 2012 graduating class.

• 100% of the 34 PharmD graduates who sought a residency position placed in a residency.

**Residency Program**

In FY12:

• The School partnered with 9 institutions/entities that provided 13 residency programs.

• 25 PGY1 and 15 PGY2 residents participate in the residency training program.

• The 40 residents in our affiliated residency programs came from 21 schools of pharmacy in 13 states.

• 100% residents presented their research results at national or regional meetings.

• 17 residents were awarded certificates for completion of the Teaching Mastery Program, which includes development of skills in both clinical precepting as well as teaching within the pharmacy curriculum.

• 13 of 24 PGY1 pharmacy residents have been accepted into PGY2 specialty residency programs.

• 4 of 4 graduating management residents accepted hospital pharmacy management positions.

• 8 pharmacy residents continued their careers as clinical pharmacists with UPMC Health System.

• 3 residents accepted faculty positions at schools of pharmacy.

• 3 residents were recently board certified pharmacotherapy specialists.
**Graduate Program: Educating the Next Generation of Scientists**

**Graduate and Postdoctoral Program by the Numbers for FY12**

In FY12:
- **56** students were enrolled: **52** PhD students and **4** Master of Science students.
- **21** new students matriculated: **19** PhD students and **2** Master of Science students.
- **6** students received degrees in pharmaceutical sciences; **5** PhD degrees were awarded after successful defense of their dissertations and **1** student graduated with Master of Science degree.
- **37% (19/52)** of the PhD students are U.S. citizens or permanent residents.
- **52% (27/52)** of the PhD students have pharmacy degrees.
- **6** PhD students are in their second year of competitive fellowships.
- **5** students received regional or national awards for excellence in research.
- **18** peer-reviewed manuscripts were published by graduate students.
- Graduate students gave **28** presentations at national and international scientific meetings.
- **16** postdoctoral fellows were engaged in research in School of Pharmacy laboratories.

**PharmD Program: Educating the Next Generation of Practitioners**

As a recognized national leader in pharmacy education, the School of Pharmacy is building the rich tradition of excellence in education to provide world-class learning opportunities for our students. We contribute to the national dialogue about the scholarship of teaching, learning, and assessment through publications and presentations. We are empowering students to become practitioners with the necessary skills and knowledge to be leaders in patient-centered care and key contributors on the health care team. We provide student pharmacists and graduate pharmacists with support and resources through a life-time of professional development.

**Accreditation from the Accreditation Council for Pharmacy Education for the PharmD Program**

- The School’s doctor of pharmacy program is fully accredited by the Accreditation Council for Pharmacy Education (ACPE). The accreditation term granted extends until June 30, 2016, which represents the maximum of six years between comprehensive evaluations.

**Innovations in Student Learning**
We are investing in and committed to continually improving our teaching strategies, learning environments, and student experiences.

**Simulated Patient Care Experiences**

**Standardized Patients and Colleagues** – Students gain skills in patient interviewing, clinical reasoning, and therapeutic decision making through a variety of simulated patient care experiences that are woven throughout the curriculum. Actors trained as standardized patients provide students opportunities to practice patient care in a safe environment. Additionally, actors trained as standardized physicians provide student opportunities to practice interprofessional communication skills to effectively navigate through difficult conversations.

**Virtual Patient Simulation** – Faculty members are developing and using computer-based, virtual patients to integrate case-based teaching of complex therapeutic concepts and clinical decision-making processes into the curriculum. Their specific work with a branched-outcome decision-making model has enhanced the therapeutics component of the curriculum.

**Human Patient Simulators** – The Peter M. Winter Institute for Simulation, Education and Research (WISER) center remains a valuable resource for use in our courses. Equipped with 16 full-sized simulators in a bank of simulated environments, control centers, and debriefing rooms, the WISER center is staffed with full-time technicians and serves students across the health sciences as well as practitioners across the UPMC system. In addition, the School has invested in two simulation mannequins, four arms, and a wound care foot that are housed in Salk Hall for students’ use to improve their clinical skills.

**BS in Pharmaceutical Sciences**

In FY11, the Office of the Provost approved the School’s proposal to award the Bachelor of Science in Pharmaceutical Sciences (BSPS) degree to students enrolled in the PharmD degree program after the completion of a minimum of 120 credit hours. Typically, students will have completed the pre-professional component and the first four academic terms (semesters) of the nine-term (semester) PharmD program. Students cannot enroll in the BSPS program without admission to the PharmD program. With official graduate status, students are eligible to earn credit through selected electives toward University-approved certificates. Additionally, the award of the BSPS degree provides eligibility for training programs including the NIH National Service Award (NRSA) Institutional Training Grants (T32). The latter awards are intended to enhance research training opportunities for individuals who are training for careers in specified areas of biomedical, behavioral, and clinical research.

In April 2012, 92 students received the BS in pharmaceutical sciences at the end of their second professional year.

**Areas of Concentration (ARCO)**

During FY12, 26 students were enrolled in one of two existing ARCOs and one additional ARCO was approved that accepted an addition five students for a total of 31 students. In FY12:

- The area of concentration in global health (ARCO-GH) was approved by the University; five students have committed to the program of study.
- Fifteen students are engaged in the ARCO-Research (2-P2, 9-P3, and 3-P4 students).
- 6 new students were accepted into the ARCO-Pharmacy Business Administration, bringing the total to 11 students (6-P3 and 5-P4 students).
Strides in Curricular Improvement and Oversight

Through the efforts of the Curriculum Committee, the faculty evaluates all courses over a cycle of four years. Thus, each year one fourth of the courses are subjected to an in-depth course evaluation process. We have expanded our use of curricular mapping for curricular design, scheduling of courses, tracking of content and curricular assessment. The curricular mapping infrastructure and database are expanding and evolving into valuable tools for the tracking and organization of curricular content across the four years of the professional program. Faculty and staff are in the process of adapting our curricular map so that it can be used to generate course syllabi.

The School’s Curriculum Assessment Committee is responsible for monitoring the effectiveness of the PharmD curriculum and the achievement of student learning outcomes. As a result of the School’s successful self study and reaccreditation in 2009-10, the School has become nationally recognized for its assessment approaches and commitment to a culture of assessment.

Implementation of e-Portfolio - The School has a long tradition of students using portfolios to demonstrate achievement. Over time, faculty members have tested several e-portfolio platforms. In FY10, the School invested in the development of a customized e-portfolio platform in which students build an assessment portfolio to show integration of learning across courses and progressive development across the curriculum. In FY11, an adaptation of the platform was developed to support the creation of professional portfolios by students nearing the end of the curriculum and preparing for interviews. In FY12, more robust processes for faculty and peer evaluation of portfolios were implemented, supported by new rubrics to clearly communicate expectations and feedback.

Interprofessional Education - The School is a partner with the other health sciences schools across campus in developing interprofessional education and training experiences for health professions students. Dr. Susan Meyer is engaged in a number of national initiatives focused on advancing interprofessional education and preparation of future health care providers for team-based collaborative practice.

Selected Invited Presentations


Students

Great programs start with great students, and we continue to find the best and brightest to be the future leaders of pharmacy. Our faculty and staff are committed to ensuring a fair review and selecting students that fit with our strategic goal of graduating student pharmacists who will become leaders in pharmacy. Thirteen faculty and staff members participate on the PharmD admissions committee.
Two-thirds of our full-time faculty participated in interviewing applicants. Their work resulted in the selection of an excellent group of 111 students for the Class of 2016.

During FY12, we recruited the class of 2016 for fall enrollment.

- **Conditional admission Class of 2016**
  - 59 students applied for PharmD program after sophomore year
  - 59 were interviewed
  - 54 were qualified and admitted to the program

- **Open Enrollment Class of 2016**
  - 534 applied to the PharmD program
  - 98 were interviewed
  - 75 were offered admission
  - 57 accepted the offers

- **The entering Class of 2016**
  - 39% are men
  - 23% are out-of-state students
  - 8% have a college degree prior to entering the PharmD program
  - 1% were an underrepresented minority
First-Year Class Enrollments 2002-2012

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<th>Educational Institution or Type for Students Accepted through Open Admission</th>
<th>Students with 4-Year Degree (% of class)</th>
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<td></td>
<td>PA (%)</td>
<td>Non-PA (%)</td>
<td>Pitt</td>
<td>Community College</td>
</tr>
<tr>
<td>2002</td>
<td>92</td>
<td>8</td>
<td>37</td>
<td>37</td>
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<tr>
<td>2003</td>
<td>86</td>
<td>14</td>
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<td>2004</td>
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*Total across Applications Pathway sums to the total students enrolled.
Student National and Regional Awards and Recognition

- Lucas Berenbrock (P3) placed in the top 10 in the National Patient Counseling Competition hosted by the American Pharmacists Association-Academy of Student Pharmacists.
- Christina Elgin (P2) received the American Pharmacists Association Ron Williams Scholarship to attend the Utah School on Alcoholism and Other Drug Dependencies (Utah School). The Utah School is an internationally recognized program intended to increase awareness of the health and social problems of alcoholism and other drug dependencies among health professionals and students in the health professions.
- Shailly Shah (P4) received a travel award from the American College of Clinical Pharmacy (ACCP) Nephrology Practice and Research Network to attend the ACCP annual conference. ACCP is a professional and scientific society that provides leadership, education, advocacy, and resources for pharmacists to advance clinical practice and research.
- Anna Bondar (P2) was selected as a Paul Ambrose Scholar, a competitive interprofessional program through the Association for Prevention Teaching and Research focused on public and population health issues.
- Indrani Kar (P3) was elected as national member-at-large to the Phi Lambda Sigma Board of Directors.
- Daniel Yarabinec (P4) was awarded a Kappa Psi Pharmaceutical Foundation scholarship.
- Elyse Weitzman (P3) was selected as the Gloria N. Francke Scholar by the American Pharmacists Association Foundation.
- Elyse Weitzman (P3) was elected as the Region 2 delegate to the American Pharmacists Association-Academy of Student Pharmacists Nominating Committee.
- Ravi Patel (P2), Jessa Koch (P2), and Anna Bondar (P2) received Patient Safety Fellowships through an education program of the Jewish Healthcare Foundation. The program is organized under the auspices of the Pittsburgh Regional Health initiative. Students develop skills in team building, problem solving, and leadership, while studying systemic programs in health care delivery.
- Alicia Lichvar (P3), Jessa Koch (P2), and Lauren Cirrincione (P1) were selected as Pittsburgh Schweitzer Fellows.
- Anastasia Sidor (P4), Amanda Johnson (P4), Andrew Clark (P4), and Daniel Daily (P4) co-authored a paper presented to the Family Medicine Education Consortium in Boston, Massachusetts.
- Nicole Kovacic (P3), Erika Morgan (P3) and Tamiko Yamatani (P2) participated in the Government Relations Advocacy for Student Pharmacists (GRASP) program hosted by the Pennsylvania Pharmacists Association.
- Tamiko Yamatani (P2) was elected to serve as the student member of the Pennsylvania Pharmacists Association Board of Directors.
• Brahim Shettima (P2) and Erin Burke (P3) were elected as student officers on the Pennsylvania Pharmacists Association Student Board of Directors.

• The School’s chapter of the American Pharmacists Association-Academy of Student Pharmacists was one of five national winners of a Project CHANCE grant.

• The School’s chapter of the American Pharmacists Association-Academy of Student Pharmacists finished in the top 15 nationally in the PharmFlix video competition.

• The School’s Rho Chi chapter was recognized as national Chapter of the Year.

• The School’s Phi Lambda Sigma chapter was recognized as national Chapter of the Year.

• The School’s Kappa Psi chapter was recognized as Province 2 Chapter of the Year.

Experiential Learning Rotations

International Rotations
Students may complete APPE rotations at international sites as long as they are fulfilling an elective experience. This year a total of 17 students had international experiences including experiential rotations.

• UPMC ISMETT, (translated as Mediterranean Institute for Transplantation and High Specialization Therapies) facility in Palermo, Italy. (4 students; Amanda Nguyen, Megan Sculley, Julia Sasanko and Svetlana Goldman)

• UPMC Beacon Hospital in Dublin, Ireland. (2 students; Kristy Klima and Rebecca Fetzer)

• Farmer’s Pharmacy in Dublin, Ireland. (4 students; Kristina Sucic, Katelyn Schultz, Katherine Lynch and Kaytlin Sisco)

• Hombro a Hombro Pittsburgh-San Jose, San Jose de Negrito, Yoro District, Honduras. (3 students; Alisa Snyder, Katie Steward and Kristin James)

• Sir Charles Hospital, Nedlands, Western Australia. (2 students; Cortlyn Latsha and Justine Parker)

• Austin Health, Victoria Australia. (2 students; Chas Hoffmann and Jennifer Smith)

Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice APPE Rotations Experience (APPE) Rotations

IPPE Rotations
• 72 preceptors supervised 109 P1 students
• 72 preceptors supervised 106 P2 student
• 106 preceptors supervised 106 P3 students
APPE Rotations
• 310 preceptors supervised P4 students during 756 five- or six-week rotations for 108 students.

APPE Distribution by Rotation Type

Students in the P4 year have the opportunity to nominate a preceptor who is an exceptional role model and who has made outstanding teaching contributions during the year, for the University of Pittsburgh School of Pharmacy Preceptor of the Year Award. The Experiential Learning committee reviews nomination letters and makes the final selection. The 2011-12 awardees were:

• Dr. Neal Benedict, Assistant Professor, Department of Pharmacy and Therapeutics. Dr. Benedict provides acute care rotations at UPMC Presbyterian Hospital in the Medical Surgical/Trauma and Medical Intensive Care units for P3 and P4 students.

• Dr. Nancy Keefer, Clinical Pharmacist – Conemaugh Memorial Medical Center. Dr. Keefer provides an acute care rotation for P4 students.

National Recognition and Awards: Student Organizations

<table>
<thead>
<tr>
<th>Organization</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Pharmacists Association-Academy of Student Pharmacists (APhA-ASP)</td>
<td>One of five national winners of a Project CHANCE grant</td>
</tr>
<tr>
<td></td>
<td>Finished in top 15 nationally in PharmFlix Video competition</td>
</tr>
<tr>
<td>Rho Chi</td>
<td>Region 2 Chapter Achievement Award</td>
</tr>
<tr>
<td></td>
<td>National Chapter Achievement Award</td>
</tr>
<tr>
<td>Phi Lambda Sigma (PLS)</td>
<td>National Chapter of the Year</td>
</tr>
<tr>
<td>Kappa Psi</td>
<td>Province 2 Chapter of the Year</td>
</tr>
</tbody>
</table>
### Recognition and Awards: Individual Students

<table>
<thead>
<tr>
<th>Student</th>
<th>Award</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucas Berenbrok (P3)</td>
<td>Placed in Top 10 in National Patient Counseling Competition</td>
<td>Competition hosted by the American Pharmacists Association-Academy of Student Pharmacists</td>
</tr>
<tr>
<td>Christina Elgin (P2)</td>
<td>Received American Pharmacists Association Ron Williams Scholarship to attend the Utah School on Alcoholism and Other Drug Dependencies</td>
<td>Internationally recognized program is intended to increase awareness of the health and social problems of alcoholism and other drug dependencies among health professionals and students in the health professions</td>
</tr>
<tr>
<td>Shailly Shah (P4)</td>
<td>Received American College of Clinical Pharmacy Nephrology Practice and Research Network Travel Award</td>
<td>The American College of Clinical Pharmacy is a professional/scientific society that provides leadership, education, advocacy, and resources for pharmacists to advance clinical practice and research.</td>
</tr>
<tr>
<td>Anna Bondar (P2)</td>
<td>Paul Ambrose Scholar</td>
<td>Competitive interprofessional program focused on public and population health issues</td>
</tr>
<tr>
<td>Indrani Kar (P3)</td>
<td>Elected as national member-at-large to the Phi Lambda Sigma Board of Directors</td>
<td>Phi Lambda Sigma is the national pharmacy leadership society</td>
</tr>
<tr>
<td>Daniel Yarabinec (P4)</td>
<td>Won Kappa Psi Pharmaceutical Foundation Scholarship.</td>
<td>Kappa Psi is a professional co-ed pharmacy fraternity whose members engage in volunteer community service activities</td>
</tr>
<tr>
<td>Elyse Weitzman (P3)</td>
<td>Selected as Gloria N. Francke Scholar</td>
<td>Competitive scholarship awarded by the American Pharmacists Association Foundation</td>
</tr>
<tr>
<td>Elyse Weitzman (P3)</td>
<td>Elected Region 2 delegate for the APhA-ASP Nominating Committee</td>
<td>National committee within the American Pharmacists Association-Academic of Student Pharmacists</td>
</tr>
<tr>
<td>Anastasia Sidor (P4)</td>
<td>Co-authored a paper presented at the Family Medicine Education Consortium, Boston, Mass.</td>
<td>The Family Medicine Education Consortium, Inc. is a not-for-profit corporation that supports educational and scholarly needs related to the practice of family medicine</td>
</tr>
<tr>
<td>Nicole Kovacic (P3)</td>
<td>Selected to participate in Government Relations Advocacy for Student Pharmacists (GRASP) program</td>
<td>Advocacy training seminar hosted by the Pennsylvania Pharmacists Association</td>
</tr>
<tr>
<td>Erika Morgan (P3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamiko Yamatani (P2)</td>
<td>Elected to state-level office (director)</td>
<td>Student member of the Pennsylvania Pharmacists Association Board of Directors</td>
</tr>
<tr>
<td>Brahim Shettima (P2)</td>
<td>Elected to state-level office (Shettima-chair; Burke-corresponding secretary)</td>
<td>Student officers on the Pennsylvania Pharmacists Association Student Board of</td>
</tr>
<tr>
<td>Student</td>
<td>Award</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lauren Cirrincione (P1) Jessa Koch (P2) Alicia Lichvar (P3)</td>
<td>Selected as Pittsburgh Schweitzer Fellows</td>
<td>One-year fellowship focusing on reducing disparities in health and health care and on developing leaders in service</td>
</tr>
<tr>
<td>Ravi Patel (P2) Jessa Koch (P2) Anna Bondar (P2)</td>
<td>Received Patient Safety Fellowship</td>
<td>Patient Safety Fellowships are organized under the auspices of the Pittsburgh Regional Health Initiative with funding from the Jewish Healthcare Foundation (JHF). Students develop skills in team building, problem solving, and leadership, while studying systemic problems in health care delivery</td>
</tr>
<tr>
<td>Indrani Kar (P3)</td>
<td>Won first place in professional category for poster presented at Health Disparities Poster Session</td>
<td>Poster session sponsored by the University of Pittsburgh Schools of the Health Sciences</td>
</tr>
</tbody>
</table>

### Student Awards at Graduation

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Student Awardee</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPhA Academy of Student Pharmacists Recognition Certificate</td>
<td>Katie Steward</td>
</tr>
<tr>
<td>Facts and Comparisons Award of Excellence in Clinical Communication</td>
<td>Abbey Schram</td>
</tr>
<tr>
<td>John Herman Wurdack Award</td>
<td>Shannon Harrison</td>
</tr>
<tr>
<td>Lilly Achievement Award</td>
<td>Brad Stevens</td>
</tr>
<tr>
<td>Merck Award</td>
<td>Oriyomi Alimi</td>
</tr>
<tr>
<td>Merck Award</td>
<td>Amanda Johnson</td>
</tr>
<tr>
<td>Merck Award</td>
<td>Melissa Ruminski</td>
</tr>
<tr>
<td>Mylan Pharmaceutical Excellence in Pharmacy Award</td>
<td>Edward Paiewonsky</td>
</tr>
<tr>
<td>Natural Medicines Comprehensive Database Recognition Award</td>
<td>Marina Shkyeva</td>
</tr>
<tr>
<td>Pennsylvania Pharmacists Association Outstanding Student Award</td>
<td>Nicholas Wyliaz</td>
</tr>
<tr>
<td>Robert W. Taylor Award for Outstanding Performance in Patient Care Rotation</td>
<td>Laura Muchesko</td>
</tr>
<tr>
<td>TEVA Pharmaceuticals Outstanding Student Award</td>
<td>Oriyomi Alimi</td>
</tr>
<tr>
<td>U.S. Public Health Service Award for Excellence in Public Health Pharmacy Practice</td>
<td>Michele Doan</td>
</tr>
<tr>
<td>University of Pittsburgh School of Pharmacy Patient Care Award</td>
<td>Alisa Snyder</td>
</tr>
<tr>
<td>University of Pittsburgh School of Pharmacy – Pharmacy Communications Award</td>
<td>Shailly Shah</td>
</tr>
</tbody>
</table>
**Graduating Class of 2012**

108 students received their PharmD diplomas at the May 2012 Commencement Ceremony.

In calendar year 2011, 98% of students passed the North American Pharmacist Licensure Exam on their first attempt and 100% passed the Multistate Pharmacy Jurisprudence Examination on their first attempt. School graduates have consistently exceeded state and national averages for scores and pass rates on these two examinations.

Of the 108 graduates, 34 students (31.5%) continued training in a post-PharmD residency. An amazing 100% of those who pursued residencies placed. Other graduates obtained employment in a variety of pharmacy practice settings.

![Bar chart]

**Class of 2012**

- Community Pharmacy: 49%
- Post-PharmD Training: 32%
- Hospital Pharmacy: 8%
- Other: 10%

**Comparison of NAPLEX Pass Rates: First-Time Candidates**

<table>
<thead>
<tr>
<th>Year</th>
<th>Pitt Candidates Pass/Total</th>
<th>Pitt Pass Rate (%)</th>
<th>State Pass Rate (%)</th>
<th>National Pass Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>103/105</td>
<td>98.0</td>
<td>97.8</td>
<td>96.6</td>
</tr>
<tr>
<td>2010</td>
<td>104/107</td>
<td>97.2</td>
<td>87.6</td>
<td>91.5</td>
</tr>
<tr>
<td>2009</td>
<td>102/102</td>
<td>100</td>
<td>98.0</td>
<td>97.5</td>
</tr>
<tr>
<td>2008*</td>
<td>26/27</td>
<td>96.3</td>
<td>93.5</td>
<td>92.2</td>
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<tr>
<td>2007</td>
<td>97/98</td>
<td>98.9</td>
<td>90.9</td>
<td>95.3</td>
</tr>
<tr>
<td>2006</td>
<td>90/95</td>
<td>94.7</td>
<td>87.3</td>
<td>93.6</td>
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<tr>
<td>2005</td>
<td>79/80</td>
<td>98.8</td>
<td>85.3</td>
<td>91.3</td>
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<tr>
<td>2004</td>
<td>81/86</td>
<td>94.2</td>
<td>95.6</td>
<td>95.0</td>
</tr>
<tr>
<td>2003</td>
<td>20/22</td>
<td>90.9</td>
<td>89.2</td>
<td>88.2</td>
</tr>
<tr>
<td>2002</td>
<td>81/84</td>
<td>96.4</td>
<td>96.5</td>
<td>95.5</td>
</tr>
</tbody>
</table>

*Jan–April 2008 scores
## Comparison Multistate Pharmacy Jurisprudence Examination® (MPJE®) Results:
### First-Time Candidates Any State

<table>
<thead>
<tr>
<th>Year</th>
<th>Pitt Candidates Pass/Total</th>
<th>Pitt Pass Rate (%)</th>
<th>State Pass Rate** (%)</th>
<th>National Pass Rate** (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>99/99</td>
<td>100%</td>
<td>97.3</td>
<td>92.2</td>
</tr>
<tr>
<td>2010</td>
<td>207/214</td>
<td>96.7</td>
<td>93.5</td>
<td>93.1</td>
</tr>
<tr>
<td>2009</td>
<td>180/187</td>
<td>96.3</td>
<td>91.3</td>
<td>90.5</td>
</tr>
<tr>
<td>2008+</td>
<td>104/108*</td>
<td>96.3</td>
<td>91.7</td>
<td>91.8</td>
</tr>
<tr>
<td>2007</td>
<td>102/106*</td>
<td>96.2</td>
<td>90.0</td>
<td>91.5</td>
</tr>
<tr>
<td>2006</td>
<td>96/104</td>
<td>92.3</td>
<td>84.5</td>
<td>89.4</td>
</tr>
<tr>
<td>2005</td>
<td>166/183</td>
<td>90.7</td>
<td>87.5</td>
<td>88.6</td>
</tr>
<tr>
<td>2004</td>
<td>157/165</td>
<td>95.0</td>
<td>86.0</td>
<td>87.5</td>
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<tr>
<td>2003</td>
<td>143/147</td>
<td>97.3</td>
<td>93.2</td>
<td>92.1</td>
</tr>
<tr>
<td>2002</td>
<td>110/113</td>
<td>97.3</td>
<td>93.2</td>
<td>92.1</td>
</tr>
</tbody>
</table>

*Jan–June 2008 scores
* Includes all University of Pittsburgh School of Pharmacy graduates taking the MPJE in any state as a first-time candidate for that state.
** For all first-time candidates.

## Professional Development: Educating the Next Generation of Practitioners

### Pennsylvania Project

The Pennsylvania Project (supported in 2010-11 by grants from the Highmark Foundation and the DSF Charitable Foundation) is an educational initiative led by Pitt in partnership with the Pennsylvania Coalition of Colleges and Schools of Pharmacy. With support from grants to Pitt, faculty from all seven schools of pharmacy in Pennsylvania partnered to develop a continuing education program that includes Web-based instruction (Part 1) and a one-day live course (Part 2) to assist pharmacists to develop and enhance pharmacist-led patient care practices in Pennsylvania. Hundreds of pharmacists have completed the online educational program; nine live training programs have been conducted throughout Pennsylvania.

The Pennsylvania Project educational program and its participants have spurred the establishment of the Pennsylvania Pharmaceutical Care Network that is under development by the Pennsylvania Pharmacists Association. The Network will connect pharmacists throughout Pennsylvania with payers, allowing more patients to be served.

### Major Accomplishments
- 335 pharmacists completed and received continuing education credit for The Pennsylvania Project–Part 1 (online program).
- 138 pharmacists completed and received continuing education credit for The Pennsylvania Project–Part 2 (live program).
- 15 faculty members drawn from across the seven schools of pharmacy in Pennsylvania have been trained to deliver the live training session.
- 9 live training sessions have been conducted.
DM Educate®: Comprehensive Diabetes Management

DM Educate on-line course has been available to schools of pharmacy since 2006 and for CE since 2007. Over 12,000 students and pharmacists have taken the course. For FY 2012, eight of the twenty-two modules are being updated with newly contracted faculty contributors.

Major Accomplishments

- 91 schools of pharmacy worldwide use the course in some fashion
- CE accreditation for three healthcare professions: pharmacists, nurses and dietitians

Grants

Smith, RB, Drab SR, Hill CL, Martin SS. “DM Educate Comprehensive Diabetes Management Course, Enhancements and Updates to Improve Diabetes Education.” Novo Nordisk. $110,000 April 2012-April 2013.

Continuing Education for Practitioners

The School of Pharmacy partnered with the UPMC Center for Continuing Education in the Health Sciences (CCEHS) to deliver live continuing education programs in FY12:

- Fall Continuing Education Seminar: “Current Topics in Pharmacy Practice” featured presentations by Patricia Epple, CAE, and assistant professors Tanya Fabian and Kristine Schonder in 402 Salk Hall with 64 attendees. The intent of this continuing education program was to educate attendees about legislative issues affecting pharmacy practice in Pennsylvania, recent advances in the management of depression, and current recommendations for pediatric immunizations.

Residency Program: Educating the Next Generation of Practitioners

The School of Pharmacy partners with health care provider organizations to support outstanding residency training programs in research and teaching. The School provides three programs to enhance the training provided at each residency site:

- Resident Seminars – Develop good presentation skills and present a seminar summarizing information on an important drug-related topic.
- Teaching Mastery – Develop and deliver effective educational programs including presentation of lectures in the PharmD program.
- Resident Research Series – Develop knowledge of the research process including the design, conduct and publication of results of a project.

Residency Program by the Numbers for FY12

- The School partnered with 9 institutions/entities that provided 13 types of residency programs.
- 25 PGY1 and 15 PGY2 residents participate in the residency training program.
• 40 residents participating in our affiliated residency programs came from 21 schools of pharmacy in 13 states.

• 100% residents presented their research results at national or regional meetings.

• 17 residents were awarded certificates for completion of the Teaching Mastery Program, which includes development of skills in both clinical precepting as well as teaching within the pharmacy curriculum.

• 13 of 24 PGY1 pharmacy residents have been accepted into PGY2 specialty residency programs.

• 4 of 4 graduating management residents accepted hospital pharmacy management positions.

• 8 pharmacy residents continued their careers as clinical pharmacists with UPMC Health System.

• 3 residents accepted faculty positions at schools of pharmacy.

• 3 residents were recently board certified pharmacotherapy specialists.

Residents 2011-2012

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Resident</th>
<th>Education</th>
<th>Plans for FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY1 Community Pharmacy</td>
<td>Jennifer Bacci</td>
<td>University of Pittsburgh</td>
<td>Rite Aid Pharmacist, Pittsburgh, PA</td>
</tr>
<tr>
<td></td>
<td>Michelle Macguire</td>
<td>The Ohio State University</td>
<td>PGY2 Ambulatory Care – The Ohio State University</td>
</tr>
<tr>
<td>PGY1 Managed Care Pharmacy</td>
<td>Sara Burnheimer</td>
<td>Duquesne University</td>
<td>UPMC Health Plan</td>
</tr>
<tr>
<td></td>
<td>Amy Patel</td>
<td>Rutgers University</td>
<td>UPMC Health Plan</td>
</tr>
<tr>
<td></td>
<td>Anokhi Shah</td>
<td>Philadelphia College of Pharmacy</td>
<td>TBD</td>
</tr>
<tr>
<td>PGY1 Pharmacy Practice</td>
<td>Maho Hibino</td>
<td>Michigan State University</td>
<td>PGY2 Oncology University of Washington Medical Center</td>
</tr>
<tr>
<td></td>
<td>Megan Kloet</td>
<td>University of Florida</td>
<td>PGY2 Critical Care –UPMC Presbyterian</td>
</tr>
<tr>
<td></td>
<td>Ian McGrane</td>
<td>University of Montana</td>
<td>PGY2 Psychiatric Pharmacy, North Chicago VA</td>
</tr>
<tr>
<td></td>
<td>Roshni Patel</td>
<td>University of Pittsburgh</td>
<td>PGY2 Ambulatory Care, University of Maryland</td>
</tr>
<tr>
<td></td>
<td>Stephanie Seaton</td>
<td>St Louis College of Pharmacy</td>
<td>PGY2 Geriatrics – UPMC Presbyterian</td>
</tr>
<tr>
<td></td>
<td>Michael Smith</td>
<td>University of Pittsburgh</td>
<td>PGY2 Internal Medicine – UPMC Presbyterian</td>
</tr>
<tr>
<td></td>
<td>Nicholas Campbell</td>
<td>Duquesne University</td>
<td>PGY2 Critical Care - AGH</td>
</tr>
<tr>
<td></td>
<td>Derek Evans</td>
<td>West Virginia University</td>
<td>PGY2 Critical Care – UPMC Passavant/Presbyterian</td>
</tr>
<tr>
<td></td>
<td>Taylor Miller</td>
<td>University of Pittsburgh</td>
<td>PGY2 Cardiology – UPMC Presbyterian</td>
</tr>
<tr>
<td></td>
<td>Kelli Phipps</td>
<td>Duquesne University</td>
<td>UPMC Mercy</td>
</tr>
<tr>
<td></td>
<td>David Portman</td>
<td>Ohio Northern University</td>
<td>Clinical Pharmacist, West Penn Hospital</td>
</tr>
<tr>
<td></td>
<td>Jamie Dalton</td>
<td>Virginia Commonwealth University</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>Amanda Reeve</td>
<td>University of Montana</td>
<td>TBD</td>
</tr>
<tr>
<td>Program Type</td>
<td>Resident</td>
<td>Education</td>
<td>Plans for FY13</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Combined PGY1 Pharmacy Practice &amp; PGY2 Health System Pharmacy Admin.</td>
<td>Hany Edward</td>
<td>Florida A&amp;M</td>
<td>Manager, Inova Fairfax Hospital, Washington DC</td>
</tr>
<tr>
<td></td>
<td>Jorge Garcia</td>
<td>Nova Southeastern University</td>
<td>Manager, Broward General Medical Center Fort Lauderdale, FL</td>
</tr>
<tr>
<td></td>
<td>Elaine Mebel</td>
<td>University of Georgia</td>
<td>Manager, Wes Penn Allegheny Health System</td>
</tr>
<tr>
<td></td>
<td>Leyner Martinez</td>
<td>LECOM School of Pharmacy</td>
<td>Operations Coordinator – Arnold Palmer Hospital for Children/Winnie Palmer Hospital for Women and Babies, Orlando, FL</td>
</tr>
<tr>
<td>PGY2 Ambulatory Care Pharmacy</td>
<td>Ibrahim A Sales</td>
<td>University of South Carolina</td>
<td>Assistant Professor King Saud University, College of Pharmacy, Riyadh, Saudi Arabia</td>
</tr>
<tr>
<td>PGY2 Cardiology Pharmacy</td>
<td>Accredited, not recruited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY2 Critical Care Pharmacy</td>
<td>Brian Lohr</td>
<td>Duquesne University</td>
<td>Clinical Pharmacist – UPMC Passavant</td>
</tr>
<tr>
<td>PGY2 Drug Information</td>
<td>Accredited, not recruited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY2 Family Medicine</td>
<td>Nicole D’Antonio</td>
<td>Duquesne University</td>
<td>UPMC McKeesport</td>
</tr>
<tr>
<td></td>
<td>Gia Russo-Alvarez</td>
<td>Duquesne University</td>
<td>Clinical Pharmacist, Cleveland Clinic</td>
</tr>
<tr>
<td>PGY2 Infectious Disease Pharmacy</td>
<td>Louise Gillis</td>
<td>University of Pittsburgh</td>
<td>Clinical Pharmacist - UPMC Shadyside</td>
</tr>
<tr>
<td></td>
<td>Meredith Jernigan</td>
<td>University of North Carolina</td>
<td>Assistant Professor – Auburn University Harrison School of Pharmacy</td>
</tr>
<tr>
<td>PGY2 Internal Medicine Pharmacy</td>
<td>Amanda Lin</td>
<td>The Arnold &amp; Marie Schwartz College of Pharmacy</td>
<td>Clinical Pharmacist – North Shore Long Island Jewish Medical Center, New York</td>
</tr>
<tr>
<td>PGY2 Oncology Pharmacy</td>
<td>Allison Stebbings</td>
<td>Northeastern University</td>
<td>Clinical Pharmacist – UPMC Shadyside</td>
</tr>
<tr>
<td>PGY2 Solid Organ Transplant Pharmacy</td>
<td>Gretchen Kipp</td>
<td>University of Pittsburgh</td>
<td>Clinical Pharmacist – UPMC Presbyterian</td>
</tr>
<tr>
<td>PGY2 Specialized Area of Pharmacy: Underserved Care</td>
<td>Ana Lupu</td>
<td>University of Pittsburgh</td>
<td>Pursuing clinical pharmacist position</td>
</tr>
<tr>
<td>PGY2 Specialized Area of Pharmacy: Underserved/Global Health</td>
<td>Yardlee Kauffman, MPH</td>
<td>University of Pittsburgh</td>
<td>Outcomes Fellowship – Kaiser Permanente, Colorado</td>
</tr>
</tbody>
</table>
## Residents Recruited for 2012-2013

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Location</th>
<th>Resident</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PGY1 Community Pharmacy</strong></td>
<td>University of Pittsburgh School of Pharmacy</td>
<td>Sarah Krahe-Dombrowski</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td><strong>PGY1 Managed Care Pharmacy</strong></td>
<td>CVS-Caremark</td>
<td>Brad Stevens</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td></td>
<td>UPMC Health Plan</td>
<td>Jessica Saunders</td>
<td>Hampton University</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stephanie Stoneham</td>
<td>St. John Fisher College Wegmans School of Pharmacy</td>
</tr>
<tr>
<td><strong>PGY1 Pharmacy</strong></td>
<td>UPMC Presbyterian-Shadyside, WPIC</td>
<td>Kristin Bohnenberger</td>
<td>Wilkes University Nesbitt School of Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mariam Bora</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amanda Johnson</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vanessa Millisor</td>
<td>South Carolina College of Pharmacy</td>
</tr>
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<td>Megan Fleischman</td>
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<td>Tiffany Chapman</td>
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<td>David Eplin</td>
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<td>Sarah Winter</td>
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**Residents in the School of Pharmacy Masters Program in Pharmacy Administration**

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<tr>
<th>Resident</th>
<th>Year</th>
<th>School Attended for PharmD</th>
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<tr>
<td>Hany Edward</td>
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<td>Florida A &amp; M</td>
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<td>Jorge Garcia</td>
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<td>Leyner Martinez</td>
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<td>LECOM School of Pharmacy</td>
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Graduate Program: Educating the Next Generation of Scientists

Graduate and Postdoctoral Program by the Numbers for FY12

In FY12:
• 56 students were enrolled: 52 PhD students and 4 Master of Science students.
• 21 new students matriculated: 19 PhD students and 2 Master of Science student.
• 6 students received degrees in pharmaceutical sciences; 5 PhD degrees were awarded after successful defense of their dissertations and 1 student graduated with Master of Science degree.
• 37% (19/52) of the PhD students are U.S. citizens or permanent residents.
• 52% (27/52) of the PhD students have pharmacy degrees.
• 6 PhD students are in their second year of competitive fellowships.
• 5 students received regional or national awards for excellence in research.
• 18 peer-reviewed manuscripts were published by graduate students.
• Graduate students gave 28 presentations at national and international scientific meetings.
• 16 postdoctoral fellows were engaged in research in School of Pharmacy laboratories.

Graduate Program in Pharmaceutical Sciences Details

This program prepares students for positions in academia, government, and industry. Three degrees are offered: the PhD, the Thesis-based Master of Science (MS) and the recently developed Non-Thesis based MS (NTMS). The PhD program provides students with the foundation to become independent researchers as either basic scientists or clinical pharmaceutical scientists. The MS provides students the opportunity to develop basic and/or clinical research skills preparing them for entry into a PhD program or employment. The NTMS degree is a one-year program designed to prepare students for employment in the pharmaceutical and biotechnology fields. Each degree program offers four tracks: Biochemical Pharmacology, Medicinal Chemistry, Pharmaceutics and Clinical Pharmaceutical Sciences (a specialized program to train students in clinical and translational science).

2011-2012 Admission Demographics
• 16 PhD students were selected from over 220 applicants for Fall 2011
  5 US citizens – 2 with PharmD degree
  11 non-US citizens – 9 with Pharmacy degrees
• 1 MS student was selected for Fall 2011.
• 1 PhD (non-citizen) student with a PharmD joined in May 2012
**2012-2013 Admission Demographics**

- 6 PhD students were selected from over 170 applicants for Fall 2012
  - 1 US citizen with a PharmD degree
  - 5 non-US citizens – 3 with Pharmacy degrees
- 3 MS students were selected for Fall 2012
- 14 NTMS students were selected for Fall 2012

**Full-Time PhD and MS Students**

During FY12, the School of Pharmacy had 56 full-time students enrolled in the Pharmaceutical Sciences Graduate Program.
- 52 PhD students and 4 Master of Science students.
- 37% (19/52) of the PhD students are U.S. citizens or permanent residents.
- 52% (27/52) of the PhD students have pharmacy degrees.
- 6 students passed their comprehensive examination and achieved PhD candidate status.

**Students Completing Graduate Degrees in 2011-2012**

**Yijun Huang, PhD**
Advisor: Alex Doemling, PhD
Graduation:
Dissertation Title: Discovery of Small Molecule Inhibitors of Protein-Protein Interactions.
Current Position: Post-Doctoral Fellow, University of Pennsylvania Medical School

**Jie Gao, PhD**
Advisor: Wen Xie, MD, PhD
Graduation: April 2012 (Defense completed January 2012)
Dissertation Title: The Role of Constitutive Androstane Receptor and Estrogen Sulfotransferase in Energy Homeostasis.
Current Position: Post-Doctoral Fellow, University of California Los Angeles Medical School
Jennifer Bonner, PharmD, PhD
Advisor: Raman Venkataramanan, PhD
Graduation: April 2012 (Defense completed January 2012)
Dissertation Title: Intestinal Drug Absorption, Cytochrome P450-Mediated Metabolism, and Transport after Small Bowel Transplantation.
Current Position: Research Scientist, Simcyp Ltd, Sheffield UK

Shashi Sriram, PhD
Advisor: Yong Tae Kwon, PhD
Graduation: December 2012 (Defense completed April 2012)
Dissertation Title: The N-End Rule Pathway: Molecular Principles of Structural Recognition and Rational Design Opportunities.
Current Position:

Rebecca Hammond, PhD
Advisor: Robert Gibbs, PhD
Graduation: December 2012 (Defense completed May 2012)
Dissertation Title: The Role of Gpr30 in Mediating Estrogen Effects on Neurons and Cognitive Performance.
Current Position: First Year Law Student, University of Pittsburgh School of Law

Ali Alshabi, MS
Advisor: Dexi Liu, PhD
Graduation: April 2012 (Defense completed December 2011)
Current Position: PhD student, Graduate Program in Pharmaceutical Sciences, University of Pittsburgh School of Pharmacy

Awards

National

- ZuWei Zhai received the 2012-2013 Student Initiated Programs Award American Association of Pharmaceutical Scientists, for "How we got here: Career development in basic and clinical pharmaceutical sciences. $4,000.00

Travel Awards

- Amin Akil won the International Microbicides Conference Travel Grant to present at the 2011 meeting in Sydney Australia, April 2012

- Shaik, Sadik Basha JafraSahik received a grant to attend and present at the Winter Eicosanoid Conference 2012, Baltimore, Maryland, March 2012

- Shashi Sriram won a scholarship to attend the 2012 National Meeting of the Federal Laboratory Consortium for Technology Transfer, Pittsburgh PA
Research or Presentation Awards

• Ananda Chowdhury’s poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 3rd Annual Research Retreat held at the O’Hara Student Center on campus.

• Mark Donnelly’s poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 3rd Annual Research Retreat held at the O’Hara Student Center on campus.

• Mengxi Jiang’s poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 3rd Annual Research Retreat held at the O’Hara Student Center on campus.

• Jianqin Lu’s poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 3rd Annual Research Retreat held at the O’Hara Student Center on campus.

• Xiongjie Shi’s poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 3rd Annual Research Retreat held at the O’Hara Student Center on campus.

Competitive Fellowships

• Mark Donnelly received an NRSA Pre-doctoral Fellowship (F31) for his proposal “Role of 20-HETE and EETs in Cerebrovascular Complications after aSAH” Mentor- Samuel Poloyac, PharmD, PhD. (Funded January 2011-January 2012)

• Lindsay Ferguson received an AFPE Pre-Doctoral Fellowship in Pharmaceutical Science for her proposal “Effects of Vaginal Fluid on the Stability of Microbicide Candidates: Preclinical Evaluations and Drug Delivery Strategy Development” Mentor-Lisa Rohan, PhD. (September 2011-August 2012)

• Rebecca Hammond received an NRSA Pre-doctoral Fellowship (F31) for her proposal “The Role of GPR30 in Mediating Estrogen Effects on Neurons and Cognitive Performance.” Mentor- Robert Gibbs, PhD. (April 1, 2011- March 31, 2013)

• Kareem Khoury received an American Chemical Society Medicinal Chemistry Fellowship for his proposal “Synthesis and Evaluation of potent small molecule p53/MDM2 antagonists” Mentor- Alexander Döemling, PhD. (August 2011-August 2012)

• Diana Pinchevsky received an AFPE Pre-Doctoral Fellowship In Pharmaceutical Science for her proposal “Identifying genetic factors that link depression and cardiovascular diseases to translate the findings to biomolecular pathophysiology research and patients’ outcomes.” Mentor- Tanya Fabian, PharmD, PhD. (September 2011-August 2012)

• Yifei Zhang has been awarded a two-year pre-doctoral fellowship from American Heart Association for her proposal “Novel Polymeric Vectors for Pulmonary uPA Gene Therapy.” Mentor- Wen Xie, MD, PhD. (July 2011-June 2013)

Other Awards

• Ananda Chowdhury won the Medicinal Chemistry Track Best Poster Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Mark Donnelly won the Clinical Pharmaceutical Scientist Track Best Poster Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.
• Sheila Grab won the Teaching Assistant of the Year Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Chibueze Ihunnah won the Graduate Student Excellence Award University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Mengxi Jiang won the Biochemical Pharmacology Track Best Poster Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Sung Tae Kim won the Teaching Assistant of the Year Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Jianqin Lu won the Pharmaceutics Track Best Poster Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Xiongjie Shi won the Post Doctorate Best Poster Award, University of Pittsburgh, School of Pharmacy, June 4, 2012.

• Yifei Zhang won the Norman R. and Priscilla A. Farnsworth Student Award, University of Pittsburgh. June 4, 2012.

Publications, Presentations
In FY12, graduate students:
• Published 17 papers in peer-reviewed journals.
• Made 28 presentations at national and international scientific meetings.

The School of Pharmacy hosted the Third Annual Graduate Student and Postdoc Research Retreat at O’Hara Student Center on campus in June 2012. Graduate student awards were announced at the banquet:
• Yifei Zhang Norman R. and Priscilla A. Farnsworth Student Award
• Chibueze Ihunnah Graduate Student Excellence Award
• Sung Tae Kim Teaching Assistant of the Year Award
• Sheila Grab Teaching Assistant of the Year Award
• Ananda Chowdhury Medicinal Chemistry Track, Best Poster Award
• Mark Donnelly Clinical Pharmaceutical Scientist Track, Best Poster Award
• Mengxi Jiang Biochemical Pharmacology Track, Best Poster Award
• Jianqin Lu Pharmaceutics Track, Best Poster Award
• Xiongjie Shi Post Doctorate, Best Poster Award

Clinical Pharmaceutical Scientist Program
The Clinical Pharmaceutical Scientist Program is a specialized track of the graduate program that trains students to be independent clinical and translational researchers. Students utilize contemporary research approaches to generate new discoveries applicable to the disposition and activity of drugs in humans. The newly formed Center for Clinical Pharmaceutical Sciences is now responsible for directing this program.
Major Accomplishments

- **Sam Poloyac** published a book chapter titled “Pharmacologic considerations in patients undergoing therapeutic hypothermia”.

- **Sam Poloyac** published the initial results from his currently funded project to determine biomarker predictors of delayed cerebral ischemia in subarachnoid hemorrhage patients (R01NR004339). These results were published in the journal *Stroke*.

- **Sam Poloyac** was appointed to the research committee of the Clinical Pharmacy and Pharmacology Section of the Society of Critical Care Medicine.

- **Sam Poloyac** was appointed to the programming committee to the Winter Eicosanoid Conference.

- **Jan Beumer** was awarded a Clinical Research Junior Scholar Award, Research, University of Pittsburgh Cancer Institute, University of Pittsburgh.

- **Kim Coley** Collaborating and Advancing Relationships: Pharmacist Advocates in Care Transitions (CARE PACT). PI, Active, JHF Foundation

- **Kerry Empey** A novel approach to treating infant respiratory syncytial virus (RSV) disease: therapeutic stimulation of immature alveolar macrophages to enhance anti-viral activity PI, Submitted, Central Medical Research Fund, University of Pittsburgh, Office of Research

- **Kerry Empey**, Maternal RSV vaccination of BALB/c mice using RSV F subunit and novel plant-derived adjuvant PI, Approved, Vaxine pty ltd. Sydney, Australia

- **Kerry Empey** is now a Graduate School Faculty member

- **Kerry Empey** was appointed to the Clinical Pharmaceutical Sciences Curriculum Committee, Pitt School of Pharmacy

- **Phil Empey** Implications of hypothermia on drug transport – 3-yr Competitive Renewal (2012-2015) PI, Approved, NIH

- **Phil Empey** was appointed Chair of Pharmacogenomics Working Group, School of Pharmacy

- **Sandy Kane-Gill** received a multicenter evaluation of off-label medication use and adverse drug events in adult intensive care unit patients. Co-PI, Approved, ASHP Foundation 2012 New Investigator Research Grant

- **Sandy Kane-Gill** was recognized for SCCM, Clinical Pharmacy and Pharmacology Section Technology Patient Safety, Research, Society of Critical Care Medicine, National, 463

- **Sandy Kane-Gill** was recognized for ACCP Critical Care PRN Research Award, Research, American College of Clinical Pharmacy, National, 465

- **Tom Nolin** is a Fellow (FCCP), Other, American College of Clinical Pharmacy, National, 490

- **Tom Nolin** is a Fellow (FCP), Other, American College of Clinical Pharmacology, National, 491
• Tom Nolin was appointed a member of Kidney Week 2012 Programming Committee, American Society of Nephrology, National

• Tom Nolin was appointed a member of the Editorial Advisory Board, American Journal of Kidney Diseases, National

• Lisa Rohan was awarded a grant Release Assays from EVA Ring Segments PI, Active, NIH

• Lisa Rohan was appointed a member of the Pharmacology Best Practices Working Group, NIH, National

• Lisa Rohan was appointed a member of the Scientific Programming Committee, International Microbicides Conference, National

• Carolyn Thorpe received the Optimizing Type 2 Diabetes Medication Therapy in Older Patients with Comorbid Dementia PI, Submitted, American Diabetes Association Career Development Award

• Carolyn Thorpe was a Co-investigator for Variation in Use of Glucose Test Strips among Older Veterans with Diabetes. Department of Veterans Affairs, Health Services Research & Development, Center for Health Equity Research & Promotion pilot grant

• Joshua Thorpe aided in Developing MIDUS Medication Data Via Linkage to the Multum Lexicon. Co-Investigator, Active, National Institute of Health, National Institute on Aging The Midlife in the United States (MIDUS) is an NIA sponsored survey to comprehensively evaluate the health and well-being of a nationally-representative sample of aging adults in the United States. The primary objective of this grant is to enhance the scope and quality of the medication data available to all users of the MIDUS data. It will also, thereby, enhance the capacity of researchers to examine questions about the influence of medication use on health and aging with greater precision via a focus on effects of specific active ingredients or therapeutic outcomes.

Combined PharmD-PhD Program

Initiated in 2007, this program is designed to give students the opportunity to enter the graduate program during the third professional year. It permits the students to complete some of the course requirements for the PhD with electives in their PharmD program. The goal is to recruit pharmacists to the PhD program and encourage them to become faculty at schools of pharmacy.

• Lindsay Ferguson, (PharmD 2009, University of Pittsburgh) completed the Certificate in Clinical and Translational Science, University of Pittsburgh, July 2011. L. Rohan laboratory.

2011–2012 Pharmaceutical Sciences Graduate Students

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<tr>
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<th>Advisor</th>
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### Students Selected for Pharmaceutical Sciences Graduate Program
Beginning in Fall 2012

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*CPS – Clinical Pharmaceutical Scientist Program

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<td>Altawalbeh, Shoroq</td>
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*Clinical Pharmaceutical Scientist Program and Pharmaceutics Track
Graduate Student Publications


**Graduate Student Accepted Presentations, Posters, and Podiums**


• American Association of Clinical Pharmacology (AACP) Annual Meeting, Pittsburgh, PA. Effect of CYP Eicosanoid CSF Levels on Delayed Cerebral Ischemia in SAH Patients. October 18, 2011. **Donnelly M.**

• 2nd University of Pittsburgh School of Pharmacy Research Retreat, Seven Springs, PA. Association between CYP Eicosanoid Levels and Delayed Cerebral Ischemia in Subarachnoid Hemorrhage Patients, June 7, 2011. **Donnelly M.**

• Magee-Women’s Research Institute, Pittsburgh PA. Vaginal Film Acceptability and Preferences in Pittsburgh Women. June 1, 2011, **Ferguson, L.**

• University of Pittsburgh. School of Pharmacy, Drug Development 3Lecture. Special Considerations for Biological Therapeutics, April 11, 2012. **Ferguson, L.**

• University of Pittsburgh. School of Pharmacy, Center for Pharmacogenetics. Thymoquinone Effects on Liver Fibrosis. April 19, 2012. **Ghazwani, M.**

• International Microbicides Conference, Sydney, Australia. Co-Solvent Strategy Applied in Film Formulation for a Hydrophobic NNRTI CSIC. April 16, 2012. **Gong, T.**

• 3rd Annual AAPS Pittsburgh Chapters Student Research Symposium, Duquesne University, Pittsburgh, PA. Dapivirine, Non-Nucleoside Reverse Transcriptase Inhibitor, Permeability and Concentration in Excised Human Cervical Tissue. October 20, 2011, **Akil A.**

• International Microbicides Conference, Sydney, Australia. Dapivirine Tissue Levels and Distribution in Human Cervical Tissue ex vivo After Exposure to Dapivirine Vaginal Film. April 16, 2012. **Akil, A.**

• International Microbicides Conference, Sydney, Australia. Development and Characterization of Tenofovir/Maranivio Combination Film for Vaginal Application. April 16, 2012. **Akil, A.**

• 3rd Annual AAPS Pittsburgh Chapters Student Research Symposium, Duquesne University, Pittsburgh, PA. The Impact of Commonly Used Excipients on Cervical Tissue Permeability. 10/20/2011. Hu, M.

• Pharmacology & Chemical Biology Research Retreat, University of Pittsburgh, PA. Gender-Specific Effect of Estrogen Sulphotransferase (EST) on Type 2 Diabetes. February 3, 2012. Gao, J.

• 2nd University of Pittsburgh School of Pharmacy Research Retreat, Seven Springs, PA. The Androgenized Female Liver: Regulation of Hepatic Glucose Homeostasis in Female by Estrogen Sulphotransferase. June 7, 2011. Gao, J.


• 3rd Annual AAPS Pittsburgh Chapters Student Research Symposium, Duquesne University, Pittsburgh, PA. Response Inhibition, Orbital Frontal Cortex Activity and Psychological Dysregulation in Early Adolescents. October 20, 2012. Zhai, Z.


Postdoctoral Fellows

School of Pharmacy Postdoctoral Associates FY12

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Degree/University</th>
<th>Field</th>
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<tr>
<td>Cao, Haiping</td>
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<td>Chinese Academy of Sciences</td>
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<td>Chithambarampillai, Venkateswaran</td>
<td>PhD</td>
<td>Texas Tech</td>
<td>Pharmacology and Toxicology</td>
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<td>Gao, Mingming</td>
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<td>China Pharmaceutical University</td>
<td>Microbial and Biochemical Pharmacy</td>
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<td>Hu, Nan</td>
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<td>Inaba, Yuka</td>
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<td>Kanefuji, Tsutsmu</td>
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Advancing Human Health Through Research
Advancing Human Health Through Research

The overall goal of the School of Pharmacy’s research programs is to advance human health through research supported by a diversified funding portfolio that ranges from the molecular to patient outcomes. School of Pharmacy investigators are using state-of-the-art techniques to answer important questions leading to new drug targets and improved drug therapy. Faculty are identifying sources of variability to improve patient outcomes and creating evidence-based guides for therapy. The quality of the science is shown through successful competition for NIH research support. As stated in Long-Range Plan 2012–2018:

By 2018, the School of Pharmacy will:
  • Be recognized as a research school of distinction.

Research by the Numbers for FY12

• 24 faculty members were principal investigators.
• 87: the number of active research projects.
• $39,095,717 in total active grants.
• Funded projects generated $9,478,368 in total costs.
• Faculty were awarded 2 INDs, 3 patents, 1 provisional patent, and 3 licenses.
• Faculty submitted 2 invention disclosures.

Our faculty members were recognized for their accomplishments and their expertise in ways outside of their grant awards.

• 24 faculty members served on scientific journal editorial boards.
• 9 faculty members served on NIH grant review committees.
• 69 – the number of invited research presentations by faculty.
• 149 publications
  o Cedar – 15
  o Pre-Clinical – 63
  o Education – 11
  o Clinical and Translational - 60

Research Funding

Research in the School of Pharmacy is focused on medication discovery, development, and delivery and drug use in improving human health.

Annual Grant Costs by Source

The annual costs for FY12 were $9.4 million with $6.9 million in direct costs (shown in the following graph) and $2.5 million in indirect costs. The graph and tables below provide the detail regarding FY12 sources of funding for direct costs.
Direct Costs: Research Funding

Direct Costs for Research by Funding Category

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<th>Source</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
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RESEARCH DETAILS

FY12 PHS Funding

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<td>Cyclooxygenase 2 and Ischemic Neuronal Injury</td>
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<td>B. Day</td>
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<td>Protein Protein Interaction Directed Libraries</td>
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<td>B. Day</td>
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<td>The Role of PKD3 in Prostate Carcinogenesis</td>
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<td>M. Donnelly</td>
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<td>Role of 20-HETE and EETs in Cerebrovascular Complications after aSAH</td>
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<td>R. Gibbs</td>
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<td>Environmental Enrichment and Cholinergic Mechanisms After TBI</td>
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<td>Role of GPR30 in Mediating Estrogen Effects on Neurons and Cognitive Performance</td>
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<td>S. Poloyac</td>
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<td>Understanding the Impact of Antipsychotic Drugs on Recovery after TBI</td>
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<td>S. Poloyac</td>
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<td>Longitudinal Modeling of SUD Etiology</td>
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<td>Univ. of Iowa</td>
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<td>D. Huryn</td>
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<td>P. Johnston</td>
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<td>Development of a High Content Screening Assay to Identify Inhibitors of STAT3 Nuclear Import</td>
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<td>S. Poloyac</td>
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<td>Compartment-Specific Topical Microbicide Form.</td>
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<td>R. Venkataraman</td>
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<td>W. Xie</td>
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<td>Evaluation of Rationally-designed Small Molecules Directed against the c-Myc Oncoprotein (TE 12)-Huryn</td>
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<td>K. Coley</td>
<td>Takeda</td>
<td>Reclassification of ICD-9 Coding for Patients with Gout: Evaluation of Patient Characteristics, Prescribing Patterns and Resource Use (NCE)</td>
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<td>L. Kirisci</td>
<td>EXACT</td>
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<td>J. Pringle</td>
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<td>Prospective Study to Assess the Effect of Adherence Interventions on Reducing Patients Non-Fulfillment and/or Non-Persistence to Chronic Medications</td>
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<td>L. Rohan</td>
<td>Film</td>
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<td>Development of a Continuity of Care Record: Bridging the Medication Use Gap from Hospital to Home</td>
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<td>K. Coley</td>
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<td>Pharmacists as Advocates in Care Transitions</td>
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<td>M. Maguire</td>
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<td>Pharmacist Provided Patient Care Service in an Outpatient Mental Health Setting: A Multi-stakeholder Qualitative Analysis</td>
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<td>S. Meyer</td>
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<td>T. Ridenour</td>
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<td>Screening During well-Child Check-Ups for Older Children at Risk for Substance Abuse</td>
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**TOTAL** 249,664 15,865 265,529
RESEARCH RECOGNITION OF FACULTY

Faculty members received various forms of recognition for their accomplishments and their expertise during FY12.

- 24 faculty members served on scientific journal editorial boards.
- 9 faculty members served on NIH grant review committees.
- 69 – the number of invited research presentations by faculty.
  - 25 presentations at 15 universities in 13 states
  - 27 Presentations at 25 scientific meetings in 12 states
  - 4 presentations at 4 universities in 2 countries
  - 13 presentations at 7 international scientific meetings in 6 countries

Members of Editorial Boards

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<td>The Open Chemical and Biomedical Methods Journal</td>
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<td>Journal of Chromatography and Separation Techniques</td>
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<td>Cancer Chemotherapy and Pharmacology</td>
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<td>Colleen M. Culley, PharmD, BCPS</td>
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<td>American Journal of Health-System Pharmacy</td>
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<td>Billy W. Day, PhD</td>
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<td>Robert B. Gibbs, PhD</td>
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<td>Hormones and Behavior</td>
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<td>Barry Gold, PhD</td>
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<td>Critical Care Medicine</td>
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<td>Annals of Pharmacotherapy-Adverse Reactions and Medication Panel</td>
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<td>Advances in Pharmacoepidemiology and Drug Safety</td>
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<td>Levent Kirisci, PhD</td>
<td>3</td>
<td>Bipolar Disorder: International Journal of Psychiatry and Neurosciences</td>
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<td>International Journal of Person-Centered Medicine</td>
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<td>Journal of Substance Abuse and Rehabilitation</td>
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<td>Edward P. Krenzelok, PharmD</td>
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<td>Lexi-Comp</td>
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<td>Clinical Toxicology</td>
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<td>Susan M. Meyer, PhD</td>
<td>1</td>
<td>American Journal of Pharmaceutical Education</td>
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<td>Thomas D. Nolin, PharmD, PhD</td>
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<td>American Journal of Kidney Diseases</td>
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<td>Journal of Clinical Pharmacology</td>
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<tr>
<td>Tara J. Pummer, PharmD</td>
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<td>Pennsylvania Pharmacist Association</td>
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<tr>
<td>Ty A. Ridenour, PhD</td>
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<td>Current Drug Abuse Reviews</td>
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<td>Prevention Science</td>
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<td>Lisa C. Rohan, PhD</td>
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<td>AIDS Research and Therapy</td>
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<td>Journal of Sexually Transmitted Diseases</td>
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<tr>
<td>Amy L. Seybert, PharmD</td>
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<td>American Journal of Pharmacy Education</td>
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<tr>
<td>Michael A. Shullo, PharmD</td>
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<td>International Society of Heart and Lung Transplant</td>
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<tr>
<td>Pamela Smithburger, PharmD</td>
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<td>Journal of Hospital Administration</td>
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### Faculty Membership

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Number</th>
<th>Editorial Board</th>
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</table>
| Ralph E. Tarter, PhD | 8 | Directions in Substance Abuse Counseling (Advisory Board)  
Journal of Developmental and Physical Disabilities  
American Journal on Addictions  
Journal of Child and Adolescent Substance Abuse (Book review editor)  
Drug and Alcohol Dependence  
Experimental and Clinical Psychopharmacology  
Clinical Psychology Review  
Prevention Science |
| Gordon J. Vanscoy, PharmD, CACP, MBA | 3 | American Journal of Oncology Review  
Journal of Thrombosis and Thrombolysis  
Drug Formulary Review |
| Raman Venkataramanan, PhD | 6 | Journal of Clinical Pharmacology  
Therapeutic Drug Monitoring  
The Open Clinical Chemistry Journal  
The Open Pharmacology Journal  
Current Clinical Pharmacology  
The Journal of Transplantation  
American Journal of Analytical Chemistry |
| Regis R. Vollmer, PhD | 1 | Editor, Clinical and Experimental Hypertension |
| Wen Xie, MD, PhD | 6 | Current Drug Metabolism  
World Journal of Gastroenterology  
Drug Metabolism Letters  
Drug Metabolism Reviews  
Molecular Endocrinology  
Drug Metabolism and Disposition |
| Xiang-Qun (Sean) Xie, MBA, PhD | 2 | American Journal of Molecular Biology  
The AAPS Journal |

### Faculty Participation in NIH Review Committees and Panels

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>No. of Panels</th>
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<tbody>
<tr>
<td>Billy W. Day, PhD</td>
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<tr>
<td>Barry Gold, PhD</td>
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<td>Song Li, MD, PhD</td>
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<td>Ty A. Ridenour, PhD</td>
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<td>Lisa C. Rohan, PhD</td>
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<td>Michael M. Vanyukov, PhD</td>
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<td>Raman Venkataramanan, PhD</td>
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<tr>
<td>Wen Xie, MD, PhD</td>
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<tr>
<td>Xiang-Qun (Sean) Xie, PhD</td>
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Invited Research Presentations

• 11th International Isotope Symposium on the Synthesis and Applications of Isotopes and Isotopically Labelled Compounds, Heidelberg, Germany, Human Mass Balance Studies, 09/09/2012, Beumer J.

• Pharmacogenomics and Population Pharmacology Committee, Alliance Group Meeting 2011 Fall Meeting, Chicago, IL, Busulfan Pharmacokinetics in Young and Older Patients with AML, 11/17/2011, Beumer J.

• University of Pittsburgh, School of Pharmacy, Department of Pharmaceutical Sciences - Wine and Whimsy, Pittsburgh, PA, Role of ABCG2 in Traumatic Brain Injury, 05/17/2012, Empey P.

• Division of Pulmonary, Allergy, and Critical Care Medicine, University of Pittsburgh, Overcoming an Immature Situation: Immunotherapy in a Neonatal Mouse Model of RSV Infection, 02/28/2012, Empey K.

• International Conference on Antimicrobial Agents and Chemotherapy, Chicago, IL USA, Monoclonal Antibodies and Immune Modulation in RSV Disease, 09/19/2011, Empey K.

• University of Pittsburgh, School of Pharmacy, Department of Pharmacy and Therapeutics, Immune Modulation for the Improvement of Infectious Disease Outcomes, 03/18/2011, Empey K.

• Center for Vaccine Research, University of Pittsburgh, Center for Vaccine Research, Pittsburgh, PA, Immune Enhancement Strategies for Fighting Infectious Diseases, 02/08/2011, Empey K.

• Pediatric Infectious Diseases Research Seminar Series, Children's Hospital of Pittsburgh, The Role of Infant Lung Macrophages in Respiratory Syncytial Virus., 01/21/2011, Empey K.


• University of Nebraska Medical Center, Omaha NE, Development of Inhibitors of AP Endonuclease 1, 09/08/2011, Gold B.

• Pittsburgh Chromatin Club Minisymposium, Pittsburgh PA, Finding DNA Damage - Looking for Waldo, 12/02/2011, Gold B.

• University of Georgia, Athens, GA, Electrostatic Potential of DNA, 02/01/2012, Gold B.

• American Chemical Society, Baltimore, MD, Adventures in Academic Drug Discovery, 6/1/2012, Huryn D.

• University of Pittsburgh Chemical Methodology and Library Design Center, Pittsburgh, PA, The Future of Alzheimer’s Disease Therapy: New Treatment for an ‘Old’ Disease, 05/18/2012, Huryn D.
• High Throughput Screening Session, Academic Screening Workshop, Select Biosciences, Bridgewater, NJ, Successful Drug Discovery in Academia: Need for Pharma's Best Practices?, 10/06/2011, Johnston P.

• High Content Screening Session, Academic Screening Workshop, Select Biosciences, Bridgewater, NJ, HCA 2011, a Personal Perspective., 10/06/2011, Johnston P.

• High Content Screening Session, at the 9th Annual CHI High Content Analysis Conference, San Francisco, CA., Development, Validation and Implementation of a 97,000 Compound HCS Campaign to Identify Selective Inhibitors of the STAT3 Signaling Pathway in a Head and Neck Squamous Cell Carcinoma Cell Line, 01/11/2012, Johnston P.

• Molecular Devices Incorporated Webex Presentation., Webex, Development, Validation and Implementation of a 97,000 Compound HCS Campaign to Identify Selective Inhibitors of the STAT3 Signaling Pathway in a Head and Neck Squamous Cell Carcinoma Cell Line , 04/25/2012, Johnston P.

• Molecular Devices Incorporated Scientific Advisory Board meeting., Santa Clara, CA, Emerging Trends in High Content Imaging and Cancer Biology , 05/24/2012, Johnston P.

• ACCP, Pittsburgh, PA, Severity and Preventability of Drug-Induced Hypotension, 10/23/2011, Kane-Gill S.

• International College of Person-Centered Care, Geneva, Switzerland, Bibliographical Clearinghouse and Data Base, 04/30/2012, Kirisci L.

• The University of Tennessee, Knoxville, TN, The N-end Rule Pathway: Its Functions and Mechanisms in Cellular Proteolysis, 08/22/2011, Kwon Y.

• Seoul National University School of Medicine, Seoul, Korea, The N-end rule pathway, 05/01/2012, Kwon Y.

• The 3rd Military Medical University, Chongqing, China, From Chongqing to Pittsburg – A Tale of FXR, 07/29/2011, Li S.

• Xijing Hospital, The 4th Military Medical University, Xi’an, China, Targeting the FXR in Hepatic Stellate Cells for the Treatment of Liver Fibrosis, 08/06/2011, Li S.

• BIT 1st Annual World Congress of Molecular & Cell Biology, Beijing, China, Targeting the FXR in Hepatic Stellate Cells for the Treatment of Liver Fibrosis, 08/08/2011, Li S.

• Department of Biochemistry and Molecular Biology, Mayo Clinic, Rochester, MN, Targeting of Farnesoid X Receptor for the Treatment of Cardiovascular and Hepatic Diseases, 11/01/2011, Li S.

• University of Pittsburgh Center for Medical Countermeasures against Radiation (CMCR) Seminar Series, Pittsburgh, PA, Rational Design of Delivery Systems for Mitochondria-Targeted Antioxidants, 12/07/2011, Li S.
• M.D. Anderson Cancer Center, Houston, TX, Targeting Hepatic Stellate Cells for the Treatment of Liver Fibrosis, 03/23/2012, Li S.

• University of Pittsburgh AKI Symposium, Pittsburgh, PA, Drug in AKI and RRT, 09/08/2011, Nolin T.

• University of Arkansas for Medical Sciences, College of Medicine, Department of Biochemistry and Molecular Biology Faculty Seminar Series, Little Rock, AR, Altered Drug Disposition and Response in Kidney Disease: The Role of Nonrenal Clearance, 11/16/2011, Nolin T.

• University of Florida, College of Pharmacy, Department of Pharmacotherapy and Translational Research/Center for Pharmacogenomics Seminar Series, Gainesville, FL, Unraveling the Effect of Kidney Disease on Nonrenal Drug Clearance, 02/24/2012, Nolin T.

• University of Alabama at Birmingham, School of Medicine, Department of Medicine, Division of Nephrology, Nephrology Research and Training Center Noon Conference, Birmingham, AL, Unraveling the Effects of Kidney Disease on Drug Disposition and Response: The Warfarin Conundrum, 03/19/2012, Nolin T.

• Winter Eicosanoid Conference, Baltimore, MD, Eicosanoids in the Brain, Mediators of Injury or Protection?, 03/15/2012, Poloyac S.

• Society of Critical Care Medicine, Houston, TX, Pharmacological Considerations in Patients Undergoing Therapeutic Hypothermia, 06/22/2011, Poloyac S.

• University of North Carolina, Division of Experimental Therapeutics Seminar, Chapel Hill, NC, Brain Cytochrome P450 Enzymes and Stroke: Discovering the Relationship with Patient Complications, 06/14/2011, Poloyac S.

• Healthcare Intelligence Network, Webinar, Improving Medication Adherence Benchmarks through Community Pharmacists, 05/02/2011, Pringle J.

• Substance Abuse and Mental Health Services Administration, Washington, DC, Screening and Brief Intervention (SBI) for Medication Adherence: Background and the PA Collaborative Project, 06/01/2011, Pringle J.

• Substance Abuse and Mental Health Services Administration, Rockville, MD, SBIRT State Medicaid Activation Strategies: The Never-Ending Story, 06/01/2011, Pringle J.

• American Diabetes Association Annual Meeting, San Diego, CA, Motivational Interviewing for Diabetes Self-Management, 06/01/2011, Pringle J.

• Pharmacy Quality Alliance, Washington, DC, Screening and Brief Intervention (SBI) for Medication Adherence: Background and the PA Collaborative Project, 06/01/2011, Pringle J.

• National Association for Media Literacy Education Conference, New Orleans, LA, Media Literacy for Family Medicine Trainees, 07/01/2011, Pringle J.
• Prevention Science Methodology Group, Tampa, FL, Comparison of Three Analytic Approaches for Small Sample Within-subject Prevention Research, 05/15/2011, Ridenour T.

• Research Triangle Institute, Durham, NC, Advancing Transdisciplinary Translation for Prevention of Drug Abuse and Addiction, 04/26/2012, Ridenour T.

• Virginia Academy of Science, Norfolk, VA, Testing the validity of the anticipated DSM-5 inhalant use disorder diagnosis: An item response theory analysis, 05/27/2012, Ridenour T.

• International Microbicide Conference, Sydney, Australia, Films as a Versatile Drug Delivery System, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Formulation Optimization and Characterization of a Vaginal Film Containing EFdA, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Development and Characterization of Tenofovir-Maraviroc Combination Film for Vaginal, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Dapivirine Tissue Levels and Distribution in Human Cervical Tissue ex vivo After Exposure to Dapivirine Vaginal Film, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Dapivirine and Maraviroc Topical Gels are Safe and Protect Ectocervical Tissue from HIV-1, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Pharmacokinetics of Vaginally Applied Tenofovir Formulations; Plasma Uptake, 04/18/2012, Rohan L.

• International Microbicide Conference, Sydney, Australia, Development and Assessment of Rectal Specific Combination Microbicide Gel containing Tenofovir and Griffithsin, 04/18/2012, Rohan L.

• American Geriatrics Society, Presidential Poster Session, Seattle, Washington, Anithypertensive Drug Class Use Associated with Urinary Incontinence in Community-Dwelling Older Women, 05/04/2012, Ruby-Scelsi C.

• American College of Clinical Pharmacy, Pittsburgh, PA, SCRIPT: Medical Home Initiative, 10/18/2011, Somma McGivney M.

• University of Pittsburgh Center for Research on Healthcare Health Services Research Seminar, Pittsburgh, PA, Receipt of Diabetes Monitoring in Older Medicare Beneficiaries with Co-Morbid Dementia, 01/03/2012, Thorpe C.

• VA Pittsburgh Healthcare System Geriatrics Research Education and Clinical Center (GRECC) Lecture Series, Pittsburgh, PA, Receipt of Diabetes Monitoring in Older Medicare Beneficiaries with Co-Morbid Dementia, 02/17/2012, Thorpe C.

• Center for the Study of Health System Change/VA CHERP/RAND Seminar Series, Pittsburgh, PA, Potentially Inappropriate Prescribing in Persons with Dementia, 02/15/2012, Thorpe J.
• AAPS PPDM Education Award lecture, University of Louisiana, Monroe, LA. April 2012, Drug Transporters in Kidney Transplant Patients – Bed to bench, 04/16/2012, Venkataramanan R.

• National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, NC, Endobiotic Function of Xenobiotic Receptors and Enzymes in Metabolic Disease, 09/07/2012, Xie W.

• Penn State Summer Symposium, State College, PA, Nuclear Receptors in Pathophysiology and Molecular Toxicology, 07/22/2012, Xie W.

• Beckman Research Institute, City of Hope, Duarte, California, The Endobiotic Function of Xenobiotic Receptors and Enzymes, 05/16/2012, Xie W.

• Experimental Biology 2012 Meeting/ASPET, San Diego, CA, PXR and CAR as Therapeutic Targets for Obesity and Type 2 Diabetes, 04/21/2012, Xie W.

• Case Comprehensive Cancer Center, Case Western Reserve University, Cleveland, OH, Nuclear Receptor-Mediated Sulfotransferase Regulation in Breast Cancer and Prostate Cancer, 04/10/2012, Xie W.

• University of Toledo, Toledo, OH, Nuclear Receptor-Mediated Sulfotransferase Regulation in Pathophysiology, 03/28/2012, Xie W.

• 51th Society of Toxicology Annual Meeting, San Francisco, CA, A Novel Function of the Xenobiotic Receptor CAR in Obesity and Type 2 Diabetes, 03/11/2012, Xie W.

• Pittsburgh Area Nuclear Receptor Coregulator Club (PANRC), Pittsburgh, PA, Nuclear Receptor Controlled Metabolic Homeostasis, 11/04/2011, Xie W.

• 17th North American ISSX Regional Meeting, Atlanta, GA, Nuclear Receptor-Mediated Sulfotransferase Regulation in Estrogen And Androgen Homeostasis, 10/16/2012, Xie W.

• Peking University Health Science Center, Beijing, China, Nuclear Receptor-Mediated Gene Regulation in Molecular Toxicology, 07/04/2012, Xie W.

• 4th International Conference on Drug Discovery & Therapy, Dubai, UAE, Novel Target and Novel Chemical Agents Potential for Multiple Myeloma Treatment, 02/14/2012, Xie X.

Patient Care Invited Talks

• UPMC-Emergency Room Professionals, Pittsburgh, Pa, Dabigatran Exilate, 04/22/2012, Benedict N.

• American Diabetes Association, Philadelphia, PA, Preparing Diabetes Patients for Hospital Discharge--A Standardized Team, 06/12/2012, Donihi A.

• Pennsylvania Academy of Family Physicians, Farmington, PA, Caring for Older Adults with Type 2 Diabetes: Real World Experiences with Insulin Therapy in Older Adults, 11/04/2011, Drab S.
• Mercy Hospital Grand Rounds, Miami, FL, Translating Evidence into Practice in Managing Inpatient Hyperglycemia, 11/17/2011, Drab S.

• Grand Rounds Presentation UPMC Hamot, Erie, PA, Management of Hyperglycemia in Acute-Care Settings and the Transition to Ambulatory Care, 05/09/2012, Drab S.

• Society of Critical Care Medicine, Houston, TX, Genes to predict drug response, 02/07/2012, Empey P.

• American College of Clinical Pharmacy, Pittsburgh, PA, Adverse Drug Events in the ICU: Learn Using High Fidelity Patient Simulation Cases, 10/18/2011, Empey P.

• UPMC - Pathology Grand Rounds, Pittsburgh, PA, Pharmacogenomics, 01/11/2012, Empey P.


• Children’s Hospital of Pittsburgh, Oncology Division, Pittsburgh, PA, Principles and Applications of Cancer Chemotherapy in Pediatric Oncology, 1/12/2012, Howrie Schiff D.

• Children's Hospital of Pittsburgh, Pediatric Physician Staff, Pittsburgh, Therapeutic Drug Monitoring, 12/11/2012, Howrie Schiff D.

• Internal Medicine Acute Management Series, House-staff Monthly Conference at Presbyterian, VA and Shadyside Hospitals, Department of Medicine, University of Pittsburgh, Pittsburgh, PA., Presbyterian and VA, Common Drug Errors, 08/24/2011, Kane-Gill S.

• ACCP, Pittsburgh, PA, The Great Masquerader: Recognizing ADRs in the ICU Learning Using Simulation, 10/23/2011, Kane-Gill S.

• ASHP, New Orleans, LA, Strategies for Improving the Safe Use of IV Medications in the Critical Care Setting, 12/06/2011, Kane-Gill S.

• SCCM, Houston, TX, Establishing a Safety Culture in the ICU: Making Systematic Changes Using ADE Data, 02/06/2012, Kane-Gill S.

• Austin Society of Health System Pharmacists, Austin, TX, Assessing and Managing Sedation, 05/08/2012, Kane-Gill S.

• University of Pittsburgh, Department of Medicine, Renal Electrolyte Division Noon Conference, Pittsburgh, PA, Antimicrobial Drug Use During RRT, 05/24/2012, Nolin T.


• AMCP, San Francisco, CA, Meeting the Challenges of Contemporary PAH Management, 04/20/2012, Seybert A.
• International Society of Heart and Lung Transplant, Prague, Czech Republic, Late Post-Transplant Journey: Immunosuppressive Challenges with the Development of Skin Cancer and Pre-cancerous Colon Polyp. An Approach to Innovative Immunosuppression in the Face of Malignancy, 04/19/2012, Shullo M.

• Hospital and Health-System Association of Pennsylvania, Lancaster, PA, Implementing Intravenous Infusion Smart Pumps Technology: Standardizing Practices and Care, 9/8/2011, Skledar S.

• Society of Critical Care Medicine, Houston, Texas, Sedation and Delirium Treatment: Optimization to Enhance Mobilization Efforts, 02/06/2012, Smithburger P.

• UPMC, Pittsburgh, PA, Antithrombin III, 01/09/2012, Smithburger P.

• First Latin American Congress on Hepato Pancreatic and Biliary Surgery, Argentina, Generic Substitution of Tacrolimus, 03/28/2012, Venkataramanan R.

Invited Education Talks

• University of Pittsburgh, School of Dental Medicine, Pittsburgh, PA, Educational Technologies in Higher Education, 04/30/2012, Benedict N.

• University of Nova Southeastern, Davie, FL (web conference), Virtual Patients Platform at the University of Pittsburgh School of Pharmacy , 05/07/2012, Benedict N.

• University of Pittsburgh, School of Pharmacy, Pittsburgh, Pa, Virtual Patient Technology in Higher Education: A Workshop, 08/05/2011, Benedict N.

• Asian Studies Center, University of Pittsburgh, Pittsburgh, PA, Mental Illness and Substance Abuse in Immigrants from the Indian Subcontinent to North America , 11/09/2011, Dixit B.

• Sri Venkatapeshwara Temple, Pittsburgh, PA, Mental Illness and Substance Abuse in Immigrants from the Indian Subcontinent to North America” , 06/16/2012, Dixit B.

• Drake University School of Pharmacy, Des Moines, IA, Blood Glucose Monitoring: The Importance of Pattern Management and Patient Engagement, 09/28/2011, Drab S.

• American Association of Colleges of Pharmacy Annual Meeting, San Antonio, TX, WIKI Workshop I - Using WIKI Technology, 7/11/2012, Falcione B, Howrie Schiff D.

• American Association of Colleges of Pharmacy Annual Meeting, San Antonio, TX WIKI Workshop II - Using WIKI Technology to Assess Individual Student Contributions to Group Work, 7/11/2012, Falcione B, Howrie Schiff D.

• ASHP, New Orleans, LA, Economic Implications of Postoperative Pain Management, 12/05/2011, Kane-Gill S.

• APhA, New Orleans, LA, Acetaminophen Poisoning, 03/09/2012, Krenzelok E.
• Am Society of Health-System Pharmacists, New Orleans, LA, Evaluation of Drug Information Databases by Specialists in Poison Information, 12/06/2011, Krenzelok E.

• American Association of Colleges of Pharmacy, San Antonio, TX, Integrating Interprofessional Education (IPE) into a PharmD Curriculum, 07/11/2011, Meyer S.

• American Association of Colleges of Pharmacy, San Antonio, TX, Curriculum and Educational Resources for Teaching Public Health: Application to the Practice of and Academic Pharmacy, 07/12/2011, Meyer S.

• Josiah Macy Jr. Foundation, Alexandria, Virginia, IPE Involving All Health Professional Schools in an Academic Health Center, 04/02/2012, Meyer S.

• Thomas Jefferson University, Philadelphia, PA, Keynote Presentation: Interprofessional Care for the 21st Century: Redefining Education and Practice, 05/19/2012, Meyer S.

• Interprofessional Education Collaborative, Herndon, Virginia, Keynote Presentation: Building Your Foundation for Interprofessional Education, 05/21/2012, Meyer S.

• McKeesport Lion's Club, McKeesport Hospital, McKeesport, PA, Medication Safety: Annual Diabetes Update, 11/11/2011, Pater K.

• American Association of Colleges of Pharmacy Annual Meeting, San Antonio, TX, Model for Mass Dissemination of Pharmacist Motivational Interviewing Training (Poster), 07/10/2011, Pringle J.

• American Association of Colleges of Pharmacy Annual Meeting, San Antonio, TX, Teaching Pharmacy Students the Principles for Successful Implementing Pharmacy Care Innovations (Poster), 07/11/2011, Pringle J.

• Merck, Inc., Florida, Relationship-Centered Care: Engaging in Effective Communication with Patients, 04/01/2011, Pringle J.

• University of Pittsburgh, Schools of the Health Sciences, Pittsburgh, PA, Interprofessional Forum, 09/16/2011, Ruby-Scelsi C.

• Haine Middle School Career Day, Cranberry Township, PA, Choosing a Career in Pharmacy, 11/18/2011, Ruby-Scelsi C.

• ACCP, Pittsburgh, PA, Critical Care PRN Focus Session—Adverse Drug Events in the ICU: Learn Using High Fidelity Patient Simulation Cases- Drug-Induced Adverse Event Case 1, 10/18/2011, Seybert A.

• AACP, Webinar, Simulation in Pharmacy Education and Pharmacy Practice, 01/25/2012, Seybert A.

• UPMC- Lung CRNP lecture series, UPMC Presbyterian, Pittsburgh, PA, Overview of Transplant Immunosuppression, 05/15/2012, Shullo M.
• UPMC Cardiology Fellow Lecture Series, UPMC Presbyterian, Immunosuppression in Heart Transplant, 03/29/2012, Shullo M.

• American Pharmacists Association, New Orleans, LA, Writing and Research: Clinical Track Perspective, 03/12/2012, Somma McGivney M.

• Pennsylvania Pharmacists Association, King of Prussia, PA, Successful Research Examples in Community Practice, 09/23/2011, Somma McGivney M.

• UPMC Presbyterian Pain Management Resource Nurses, UPMC Presbyterian Conference Center, Pittsburgh, PA, Safe Use of Opioid Analgesics, 01/09/2012, Verrico M.

• AACP, San Antonio, TX, Integrating Science and Practice in the Pharmacotherapy of Cardiovascular Disease, 07/09/2011, Vollmer R.

• US Attorney, W&J University, Washington, PA, Prescription Drug Abuse and Diversion, 06/27/2012, Zemaitis M.

School of Pharmacy Publications in Peer-Reviewed Journals

CEDAR


**Clinical and Translational**


• Thorpe JM, Thorpe CT, Kennelly KA, Chewning BA. Depressive symptoms and reduced preventive care use in older adults: The mediating role of perceived access. Medical Care, 2012 Apr;50(4):302-10.


• Thorpe JM, Thorpe CT, Kennelly KA, Pandhi N. Patterns of perceived barriers to medical care in older adults: A latent class analysis. Boston Medical Center Health Services Research, 2011 Aug 3;11:181.

• Thorpe JM, Thorpe CT, Kennelly KA. Evidence for subtypes of perceived healthcare barriers in older adults: An application of latent class analysis. Boston Medical Center Health Services Research, 2011: 1(11).


**Education**


Preclinical


• He J, Lee JH, Febbraio M, **Xie W**. The emerging roles of fatty acid translocase/CD36 and the aryl hydrocarbon receptor (AhR) in fatty liver disease. *Experimental Biology and Medicine (Maywood)*, 2011 Oct 1;236(10):1116-21. Epub 2011 Sep 1.


Research Overview

Center for Pharmacogenetics

Faculty
Yong Tae Kwon, PhD, Associate Professor
Song Li, MD, PhD, Professor
Wen Xie, MD, PhD, Professor
Xiang Gao, PhD, Research Assistant Professor
Jiang Li, PhD, Research Assistant Professor
Jinhan He, PhD, Instructor

Graduate Students
Mohammed Ghazwani, BS
Chibueze Ihunnah, BS
Mengxi Jiang, BS
Sung Tae Kim, BS, MS
Jilong Li, BS
Jianqin Lu, BS
Peipei Lu, BS, MS
Peng Zhang, BS, MS
Xiaolan Zhang, BS, MS
Yifei Zhang, BS, MS

Postdoctoral Fellows
Xiongjie Shi, PhD
Yixin Huang, PhD

Major Accomplishments

• Takafumi Tasaki and colleagues in the Kwon lab found that mouse embryos lacking UBR4, a recognition component of the N-end rule pathway, die at midgestation associated with defects in vascular development of the yolk sac. The vascular development is arrested during remodeling of primary capillary plexus into mature vessels. These results elucidate a new function of the N-end rule pathway in mammalian development.

• Sung Tae Kim and colleagues in the Kwon lab found that UBR4 is a component of the autophagy-lysosome system, whose knockout results in autophagic induction and misregulation of the IKB/NF-kB pathway and cellular responses to amino acid starvation.
Yong Tae Kwon’s lab found that p62, the autophagic adaptor, is a component of the N-end rule pathway. P62 binds to N-end rule peptides through the ZZ domain, and this induces a conformational change, leading to autophagic induction of p62 function.

Yong Tae Kwon’s lab found that the N-end rule pathway operates in the endoplasmic reticulum (ER). A number of ER chaperones posttranslationally acquire the pro-N-degron Glu or Asp when their signal sequences are cleaved off upon translation of nascent polypeptides into the ER lumen. These pro-N-degrons are arginylated by ATE1 R-transferase upon exposure to the cytosol to mediate protein quality control through autophagy.

Yong Tae Kwon received a 4-year NIH R01 grant (04/01/12-03/31/16, NHLBL: $1,500,000) “Role of ubiquitin in cardiovascular system” (R01 HL083365).

Dr. Yixian Huang and Jianqin Lu from Song Li’s lab have developed a PEG-embelin conjugate-based dual functional micellar delivery system that shows synergistic activity with co-delivered anticancer agents in vitro and in vivo. This work has been published in Bioconjugate Chemistry. A provisional patent application has also been filed.

Dr. Xiang Gao from Song Li’s lab has developed a PEG-lipopeptide-based novel delivery system that may prove to be useful for delivery of a range of structurally dissimilar therapeutic agents.

Dr. Jiang Li from Song Li’s lab has identified a novel function for miR-122 in regulating collagen maturation in hepatic stellate cells.

Yifei Zhang from Song Li’s lab received an American Heart Association Predoctoral fellowship “Novel Polymeric Vectors for Pulmonary uPA Gene Therapy” (Yifei Zhang, P.I., Song Li, Mentor), Total cost: $46,000

Song Li was invited to serve for the NIH Developmental Therapeutics (DT) Study Section

Chibueze Ihunnah from Wen Xie’s lab received an NIH Predoctoral fellowship “Estrogen Sulfotransferases in Human Adipogenesis” (Chibueze Ihunnah, P.I., Wen Xie, Mentor), Total cost: $64,700

Wen Xie was invited to serve as a member of the Scientific Advisory Board, 17th North American ISSX Regional Meeting, Atlanta, GA. October 16-20, 2011.

Wen Xie was invited to serve as an Ad hoc Reviewer, DOD Prostate Cancer Preapplication-Clinical and Experimental Therapeutics-3 (PRE-CET-3) peer review (July, 2011)

Wen Xie was invited to serve as an Ad hoc Reviewer, Dutch Digestive Foundation research grants (July-August, 2011)

Wen Xie was invited to serve as an ad hoc member of the NIH special emphasis panel “Developmental Pharmacology.” August 2-3, 2011

Wen Xie was invited to serve as an Ad hoc Reviewer, Polish National Science Center (September 2011)
Wen Xie was invited to serve as an *Ad hoc* Reviewer, DOD Prostate Cancer Preapplication-Clinical and Experimental Therapeutics-1 (PRE-CET-1) peer review (May, 2012, on-line review)

Wen Xie was invited to serve as an *Ad hoc* Reviewer, “Research projects in the field of the effects of the exposure to environmental risk factors on cancer”, Cancer TMOI of the French National Alliance for Life and Health Sciences (AVIESAN) jointly with the French National Cancer Institute (INCa). May 2012

Wen Xie was invited to serve as an Editorial Board Member, *Drug Metabolism and Disposition*

Wen Xie was invited to serve as a Review Editor, Editorial Board of *Frontiers in Molecular and Structural Endocrinology*

Wen Xie was invited to serve as Guest Editor for *Drug Metabolism Reviews (DMR)*, to organize a Nuclear Receptor Thematic Issue of DMR

**Selected Publications**


- An, JY, E Kim, A Zakrzewska, YD Yoo, JM Jang, DH Han, MJ Lee, YJ Lee, TY Kim, DG de Rooij, BY Kim, and YT Kwon. (2012) UBR2 of the N-end rule pathway is required for chromosome stability via histone ubiquitylation in spermatocytes and somatic cells. *PLOS One* 7:e37414.


• Gao J, Xie W. Targeting xenobiotic receptors PXR and CAR for metabolic diseases. *Trends in Pharmacological Sciences* (Accepted) (Peer-reviewed review article).

Selected Invited Research Presentations


- “From Chongqing to Pittsburgh – A Tale of FXR”. The 3rd Military Medical University, Chongqing, China, July 29, 2011. (Li S)

- “Targeting the FXR in Hepatic Stellate Cells for the Treatment of Liver Fibrosis”. Xijing Hospital, The 4th Military Medical University, Xi’an, China, August 6, 2011. (Li S)

- “Targeting the FXR in Hepatic Stellate Cells for the Treatment of Liver Fibrosis”. BIT 1st Annual World Congress of Molecular & Cell Biology. Beijing, China, August 6-8, 2011 (invited speaker). (Li S)

- “Targeting of Farnesoid X Receptor for the Treatment of Cardiovascular and Hepatic Diseases”. Department of Biochemistry and Molecular Biology, Mayo Clinic, Rochester, MN 55905, November 1, 2011. (Li S)


- “Nuclear Receptor-Mediated Gene Regulation in Molecular Toxicology” The Third Hospital of the Peking University Health Science Center. Beijing, China. July 4, 2011. (Xie W)

- “Nuclear Receptor-Mediated Sulfotransferase Regulation in Estrogen And Androgen Homeostasis” 17th North American ISSX Regional Meeting (as Speaker and Session Chair), Atlanta, GA. October 16-20, 2011. (Xie W)

- “Nuclear Receptor Controlled Metabolic Homeostasis” Pittsburgh Area Nuclear Receptor Coregulator Club (PANRC), Pittsburgh, PA. November 4, 2011. (Xie W)

- “A Novel Function of the Xenobiotic Receptor CAR in Obesity and Type 2 Diabetes”, 51st Society of Toxicology Annual Meeting, San Francisco, CA. March 11-15, 2012. (Xie W)

- “Nuclear Receptor-Mediated Sulfotransferase Regulation in Pathophysiology” Department of Pharmacology, College of Pharmacy and Pharmaceutical Sciences, University of Toledo. Toledo, Ohio. March 28, 2012. (Xie W)
• “Nuclear Receptor-Mediated Sulfotransferase Regulation in Breast Cancer and Prostate Cancer” Case Comprehensive Cancer Center, Case Western Reserve University, Cleveland, Ohio. April 10, 2012. (Xie W)

• “PXR and CAR as Therapeutic Targets for Obesity and Type 2 Diabetes”, Experimental Biology 2012 Meeting/ASPET, San Diego, CA. April 21-25, 2012. (Xie W)

• “The Endobiotic Function of Xenobiotic Receptors and Enzymes”, Beckman Research Institute, City of Hope, Duarte, California. May 16, 2012. (Xie W)

• “Nuclear Receptor-Mediated Gene Regulation in Xenobiotic and Endobiotic Metabolism”, The Third Military Medical University, Chongqing, China. June 11, 2012. (Xie W)

• “Nuclear Receptor-Mediated Gene Regulation in Xenobiotic and Endobiotic Metabolism”, School of Medicine, Shantou University, Shantou, Guangdong, China. June 18, 2012. (Xie W)


• “The Endobiotic Function of Xenobiotic Receptors and Enzymes in Obesity and Type 2 Diabetes” College of Life Science, Beijing Normal University. Beijing, China. June 28, 2012. (Xie W)

Drug Discovery Institute

Faculty
Billy Day, PhD, Professor
Alex Doemling, PhD, Professor
Barry Gold, PhD, Professor
Donna Huryn, PhD, Professor
Prema Iyer, PhD, Research Assistant Professor
Paul Johnston, PhD, Research Associate Professor
Lee McDermott, PhD, Research Assistant Professor
Xiangqun (Sean) Xie, PhD, Professor

Graduate Students
Abdulrahman Almehizia, BPharm
Ananda Chowdhury, BS, MSc
Yijun Huang, BS, MS
Kareem Khoury, BS
Timothy R. Pouland, BS
Zhuxhu Wang, BS, MS
Ryan D. Whetstone, BS, MS

Postdoctoral Fellows
Manjori Ganguly, PhD
Ajay Srinivasan, PhD
Haiping Cao, PhD
Tadamichi Nagashima, PhD
Vasiliy Korotchenko, PhD
Jielu Zhao, PhD
Peng Yang, PhD
LiRong Wang, PhD
Kan Wang, PhD
Wei Wang, PhD

The Drug Discovery Institute (DDI) is an interdepartmental institute with faculty, pre-doctoral and postdoctoral students from the Departments of Pharmaceutical Sciences, Chemistry, Pharmacology and
Chemical Biology, and Computational and Systems Biology. The focus of the DDI is to identify small molecules that can be used as chemical probes for biological activities and as leads for new therapies for human diseases.

**Major Accomplishments**

- Submitted invention disclosure on small molecule antagonists of Nef as a therapy for HIV. **Iyer, P.**

- Awarded new NIH NCI RO1 grant to develop a novel assay to screen for disruptors of AR-TIF2 interactions. **Johnston, PA.**

- NCI NExT supported CBC project Task order 6. Completed a high content screening campaign of 97,000 compounds to identify selective inhibitors of the activation of the STAT3 signaling pathway, characterized the hits to assist with the selection of four chemically tractable leads series, and conducted bioassays to support the ongoing chemistry lead optimization effort. **Johnston, PA.**

- Established Computational Chemical Genomics Screening (CCGS) Center in the School of Pharmacy to promote interdisciplinary research, education and training, and foster collaborations by providing state-of-the-art computational-chemical-genomics-based in-silico drug screening and design approaches. **Xie, X-Q.**


- Named Fellow of the American Chemical Society. **Huryn, DM.**

- Patent application: Compounds and methods for inhibition of AP endonuclease-1/redox factor-1. **Gold B.**

- Licensed Anchor Query, created by Alex Doemling (Pharmacy) and Carlos Comacho to a new startup company that will provide services to pharmaceutical companies in computational discovery of molecules to block protein-protein interactions. **Domling AS.**

- Completed the development, optimization and validation of a high throughput screening assay to identify small molecule inhibitors of the HIV Nef-dependent activation of Hck tyrosine kinase activity. Six Nef:Hck leads have been identified that reproducibly block Nef-dependent HIV-1 replication, dock to a site in the Nef dimerization interface model, and work against SIV in the same concentration range. **Johnston, PA.**

- Developed and validated a panel of biochemical assays to investigate the more likely intracellular target(s) of the Dex-induced GR-GFP translocation inhibitors. **Johnston PA.**

**Selected Publications**


**Selected Invited Research Presentations**


• Department of Pharmaceutical Sciences, University of Georgia, Athens, GA. Gold B.

• University of Nebraska Medical Center Eppley Cancer Center, Omaha, NE Gold B.

• Pittsburgh Chromatin Club Mini-symposium, Pittsburgh, PA, Gold B.

• “Adventures in Academic Drug Discovery,” *ACS Mid-Atlantic Regional Meeting (MARM) 2012*, University of Maryland, Baltimore County (UMBC), Baltimore, MD Huryn, DM.


• HCA 2011, a Personal Perspective. (6-OCT-2011) High Content Screening Session, ACADEMIC SCREENING WORKSHOP, Select Biosciences, Bridgewater, NJ. PA Johnston.
• Development, Validation and Implementation of a 97,000 Compound HCS Campaign to Identify Selective Inhibitors of the STAT3 Signaling Pathway in a Head and Neck Squamous Cell Carcinoma Cell Line (11-JAN-2012). High Content Screening Session, at the 9th Annual CHI High Content Analysis Conference, San Francisco, CA. PA Johnston.

• Development, Validation and Implementation of a 97,000 Compound HCS Campaign to Identify Selective Inhibitors of the STAT3 Signaling Pathway in a Head and Neck Squamous Cell Carcinoma Cell Line (25-APR-2012). Molecular Devices Incorporated Webex Presentation. PA Johnston.

• Chair/Speaker, February 14, 2012, 4th International Conference on Drug Discovery & Therapy: “Novel Target and Novel Chemical Agents Potential for Multiple Myeloma Treatment” Dubai, UAE.

• Invited seminar speaker, April 24, 2012, “Computational Chemical Genomics Screening Center” Department of Immunology, University of Pittsburgh School of Medicine, Pittsburgh, PA

• Invited speaker, March, 28, 2012, “Computational Chemical Genomics Screening Center”, Department of Developmental Biology, University of Pittsburgh School of Medicine, Pittsburgh, PA

• Invited speaker, December 19, 2011 “GPCR Chemical Genomics for Drug Discovery”, Shanghai JiaoTong University, College of Pharmacy, Shanghai, China

• Invited speaker, December 28, 2011 “Computational GPCR Chemical Genomics for Drug Discovery”, Sun-Yat Sen University, College of Life Sciences, Guangzhou, China

• Invited speaker, July 28, 2011 “GPCR Chemical Genomics for Drug Discovery”, Shanghai NanKai University, College of Pharmacy, Tianjin, China

• Invited speaker, June, 10, 2012, “Cloud computing and High Throughput Experimental Chemical Genomics Screening Approaches for Lead Discovery”, Jinan University, GuangZhou, China

• Invited speaker, June, 20, 2012, “Cloud computing and High Throughput Experimental Chemical Genomics Screening Approaches for Natural Product Target Identification and Lead Discovery”, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China

• Invited speaker, June, 23, 2012, “Computational Chemical Genomics Screening Approaches for Natural Product Target Identification and Lead Discovery”, XiShuanBanNan Tropical Botanic Garden, Chinese Academy of Sciences, XiShuanBanNan, China
Microbicide Product Pharmaceutics Group and Microbicide Clinical Trials Network Central Laboratory Core

The Pharmaceutics Group is involved with formulation development and design of drug delivery systems for microbicide products to prevent the spread of HIV and other sexually transmitted infections. This group also contributes to the development of in vitro models for formulation assessment to predict clinical outcome. The laboratory has experience with the development of microbicide products utilizing many dosage form platforms. Delivery systems are being designed for small molecule, protein and peptide, and genetically modified bacteria microbicide drug candidates.

Faculty
Lisa C. Rohan, PhD, Associate Professor

Research Staff
Marilyn R. Cost, MS
Phillip W. Graebling, BS
Lin Wang, MS
Yuan Shi, MS

Graduate Students
Ayman Akil, BS
Lindsay M. Ferguson, PharmD
Tiantian Gong, BS, MS
Sheila M. Grab
Minlu Hu, BS
Galit Regev
Tian Zhou, BS, MS

Postdoctoral Fellows
Hrushikesh Agashe, PhD
Wei Zhang, PhD

Major Accomplishments
• Successfully filed an IND for a vaginal film product designed in the lab containing the anti-HIV agent Dapivirine. The film is being evaluated in the clinic. This clinical trial is the first to look at the vaginal film as a potential dosage for HIV prevention drugs.

• Successfully filed an IND for the rectal specific microbicide product for HIV prevention containing the antiviral tenofovir which was developed in the pharmaceutics lab. The clinical trial planned to be initiated later this year will be the first rectal specific microbicide to be evaluated in the clinic. The group has successfully developed a series of combination rectal specific products which are being evaluated in animal studies for efficacy through a collaboration with the CDC.

• Funding for the Pharmaceutics Group over the past year has been provided through 10 separate NIH grants and several grants from not for profit organizations, foundations, and individual donors. 4 of these were newly funded within the past year. These new projects include an NIH contract to evaluate a novel combination vaginal ring formulation developed by a major pharmaceutical company, an NIH grant to fund the development of design for product to restore natural expression of an innate anti-HIV agent, a Gates Foundation grant which supports a clinical trial for an injectable HIV product developed by a major pharmaceutical company, and a CTSI grant to develop preliminary data demonstrating the utility of a new anti HIV drug candidate.

• Developed a vaginal film dosage form for tenofovir. This product is being evaluated and clinical evaluations are planned for 2013.

• Dr. Rohan was selected as a member of the Pharmacology Best Practices Working Group developed by the National Institute of Allergy and Infectious Diseases (NIAID), Division of AIDS (DAIDS), Prevention Sciences Program (PSP) & The Bill and Melinda Gates Foundation (BMGF).
Selected Publications


- Ferguson L, Rohan LC. The importance of the vaginal delivery route for anti-retrovirals in HIV prevention. Therapeutic Delivery. Ther Deliv. 2011 Dec; 2(12):1535-1550. PMID:22468220


Selected Invited Presentations

- The main international microbicides conference was held in Sydney Australia this year. The work of the Pharmaceutics group was well represented with involvement with 18 invited poster or oral presentations at the meeting. Additionally Dr. Rohan was invited to chair several sessions at the meeting.


• International Microbicides Conference, Sydney, Australia. “Development and Assessment of Rectal Specific Combination Microbicide Gel containing Tenofovir and Griffithsin”. April 15-18, 2012. Wang, L.

• HIV Vaccine and Prevention Meeting, Bangkok, Thailand. “Ring Formulated NNRTI 5-chloro-3-(phenylsulfonyl)indole-2-carboxamide (CSIC) Showed No Cytotoxicity When Applied to the Vagina of Macaques and Retained Anti-Viral Activity”. September, 2011. Gupta, P.


International Impact

The Pharmaceutics Group continues to have international impact. Major activities over the past year include working with international pharmaceutical companies to generate data in support of their HIV prevention products. They have also been called upon to evaluate funding proposals for the Bill & Melinda Gates Foundation as well as the Medical Research council (MRC) in the United Kingdom. Dr. Rohan also served as part of the Scientific Programing committee for the International Microbicides conference held in Sydney Australia. The Pharmaceutics group continues to train scientists in this research area.
Center for Education and Drug Abuse Research

The year 2012 marked the 22nd anniversary of the Center for Education and Drug Abuse Research (CEDAR). The Center has enrolled 775 families from the Pittsburgh metropolitan area in a longitudinal study of substance abuse. These families are in varying stages of follow-up. Our overarching mission is to understand the development of addiction between childhood and adulthood.

Faculty
Ralph E. Tarter, PhD, Professor and Center Director
Galina P. Kirillova, PhD, Research Assistant Professor
Levent Kirisci, PhD, Professor
Maureen D. Reynolds, PhD, Research Assistant Professor
Ty A. Ridenour, PhD, Research Associate Professor
Michael Vanyukov, PhD, Professor

Graduate Student          Postdoctoral Fellow
ZuWei Zhai, BA            Michelle Horner, DO

Major Accomplishments
• Ralph Tarter received a Senior Scientist Development Award (K05) from NIDA.

• Levent Kirisci received a Phase II SBIR contract funded by NIDA.

Selected Publications


• Tarter, R, Kirisci, L, Mezzich, A, Ridenour, T, Fishbein, D, & Vanyukov, M (2012). Does the “gateway” sequence increase prediction of cannabis use disorder beyond deviant socialization? Implications for Prevention and Policy. Drug and Alcohol Dependence, 123, S72-S79.

Center for Clinical Pharmaceutical Sciences

Faculty
Samuel M. Poloyac, PharmD, PhD, Associate Professor and Center Director
Jan H. Beumer, Pharm D, PhD, Assistant Professor
Kerry M. Empey, PharmD, PhD, Assistant Professor
Philip E. Empey, PharmD, PhD, Assistant Professor
Mary M. Folan, PharmD, Assistant Professor
Margaret Beth Minnigh, PhD, Assistant Professor
Thomas D. Nolin, PharmD, PhD, Assistant Professor
Lisa C. Rohan, PharmD, PhD, Associate Professor
Ryan K. Shields, PharmD, Instructor, School of Medicine
Susan J. Skledar, MPH, Associate Professor
Carolyn T. Thorpe, PhD, MPH, Assistant Professor
Joshua Thorpe, PhD, MPH, Associate Professor
Raman Venkataramanan, PhD, Professor

Graduate Students
Osama Y. Alshogran, BS, MS
Kacey B. Anderson, BS
Jennifer J. Bonner, BA, PharmD
Mark K. Donnelly, BS
Lindsay M. Ferguson, PharmD
Nisanne S. Ghonem, PharmD
Tiantian Gong, BS, MS
Jeremiah D. Momper, PharmD
Robert A. Parise, BS
Diana N. Pinchevsky, PharmD
Sadik Basha Jafar Shaik, MPPharm
Mohammad S. Shawaqfeh, MS, PharmD
Jiangquan (Jocelyn) Zhou, MA

Major Accomplishments
- **Sam Poloyac** published a book chapter titled “Pharmacologic considerations in patients undergoing therapeutic hypothermia”.

- **Sam Poloyac** published the initial results from his currently funded project to determine biomarker predictors of delayed cerebral ischemia in subarachnoid hemorrhage patients (R01NR004339). These results were published in the journal *Stroke*.

- **Sam Poloyac** was appointed to the research committee of the Clinical Pharmacy and Pharmacology Section of the Society of Critical Care Medicine.

- **Sam Poloyac** was appointed to the programming committee to the Winter Eicosanoid Conference.

- **Jan Beumer** was awarded a Clinical Research Junior Scholar Award, Research, University of Pittsburgh Cancer Institute, University of Pittsburgh.

- **Kim Coley** Collaborating and Advancing Relationships: Pharmacist Advocates in Care Transitions (CARE PACT). PI, Active, JHF Foundation

- **Kerry Empey** A novel approach to treating infant respiratory syncytial virus (RSV) disease: therapeutic stimulation of immature alveolar macrophages to enhance anti-viral activity PI, Submitted, Central Medical Research Fund, University of Pittsburgh, Office of Research
• **Kerry Empey**, Maternal RSV vaccination of BALB/c mice using RSV F subunit and novel plant-derived adjuvant PI, Approved, Vaxine pty ltd. Sydney, Australia

• **Kerry Empey** is now a Graduate School Faculty member

• **Kerry Empey** was appointed to the Clinical Pharmaceutical Sciences Curriculum Committee, Pitt School of Pharmacy

• **Phil Empey** Implications of hypothermia on drug transport – 3-yr Competitive Renewal (2012-2015) PI, Approved, NIH

• **Phil Empey** was appointed Chair of Pharmacogenomics Working Group, School of Pharmacy

• **Sandy Kane-Gill** received A multicenter evaluation of off-label medication use and adverse drug events in adult intensive care unit patients. Co-PI, Approved, ASHP Foundation 2012 New Investigator Research Grant

• **Sandy Kane-Gill** was recognized for SCCM, Clinical Pharmacy and Pharmacology Section Technology Patient Safety, Research, Society of Critical Care Medicine, National, 463

• **Sandy Kane-Gill** was recognized for ACCP Critical Care PRN Research Award, Research, American College of Clinical Pharmacy, National, 465

• **Tom Nolin** is a Fellow (FCCP), Other, American College of Clinical Pharmacy, National, 490

• **Tom Nolin** is a Fellow (FCP), Other, American College of Clinical Pharmacology, National, 491

• **Tom Nolin** was appointed a member of Kidney Week 2012 Programming Committee, American Society of Nephrology, National

• **Tom Nolin** was appointed a member of the Editorial Advisory Board, American Journal of Kidney Diseases, National

• **Lisa Rohan** was awarded a grant Release Assays from EVA Ring Segments PI, Active, NIH

• **Lisa Rohan** was appointed a member of the Pharmacology Best Practices Working Group, NIH, National

• **Lisa Rohan** was appointed a member of the Scientific Programming Committee, International Microbicides Conference, National

• **Carolyn Thorpe** received the Optimizing Type 2 Diabetes Medication Therapy in Older Patients with Comorbid Dementia PI, Submitted, American Diabetes Association Career Development Award

• **Carolyn Thorpe** was a Co-investigator for Variation in Use of Glucose Test Strips among Older Veterans with Diabetes. Department of Veterans Affairs, Health Services Research & Development, Center for Health Equity Research & Promotion pilot grant.
• **Joshua Thorpe** aided in Developing MIDUS Medication Data Via Linkage to the Multum Lexicon. Co-Investigator, Active, National Institute of Health, National Institute on Aging

The Midlife in the United States (MIDUS) is an NIA sponsored survey to comprehensively evaluate the health and well-being of a nationally-representative sample of aging adults in the United States. The primary objective of this grant is to enhance the scope and quality of the medication data available to all users of the MIDUS data. It will also, thereby, enhance the capacity of researchers to examine questions about the influence of medication use on health and aging with greater precision via a focus on effects of specific active ingredients or therapeutic outcomes.

**Selected Publications**


• **Kane-Gill SL**, Kirisci L, Verrico MM, Rothschild JM *Identification of risk factors for adverse drug events in critically ill patients*. Critical Care Medicine, , 40, 2012

• Nyman HA, Dowling TC, Hudson JQ, St. Peter WL, Joy MS, Nolin TD. Use of the Cockcroft-Gault vs. MDRD Study equation to dose medications: An opinion of the Nephrology Practice and Research Network of the American College of Clinical Pharmacy Pharmacotherapy, 31, 11, 2011


• Fan M, Ferguson L, Rohan LC, Chang J, Meyn LA, Hillier SL Preferred Physical Characteristics of Vaginal Film Microbicides for HIV Prevention in Pittsburgh Women AIDS and Behavior, ,

• Thorpe CT, Flood GE, Kraft SA, Everett CM, Smith MA. Effect of patient selection method on provider group performance estimates. Medical Care, 8, 49, 2011

• Thorpe CT, Thorpe JM, Kind AJ, Bartels C, Everett CM, Smith MA. Receipt of recommended monitoring for diabetes mellitus in Medicare beneficiaries with diabetes and comorbid dementia. Journal of the American Geriatrics Society, 4, 60, 2012


• Thorpe JM, Thorpe CT, Kennelty KA, Chewning BA. Depressive symptoms and reduced preventive care use in older adults: The mediating role of perceived access. Medical Care, 50, 4, 2012

• Thorpe JM, Thorpe CT, Kennelty KA. Evidence for subtypes of perceived healthcare barriers in older adults: An application of latent class analysis. BMC Health Services Research, 11, 1, 2011

Selected Invited Presentations

• **Sam Poloyac** served as symposium coordinator and moderator for a session titled “Eicosanoids in the brain, mediators of injury or protection?” at the 2012 Winter Eicosanoids Conference.

• **Sam Poloyac** presented at the Society of Critical Care Medicine Annual Congress 2012; Houston, TX. “Pharmacological Considerations in Patients Undergoing Therapeutic Hypothermia” February 2012.

• **Sam Poloyac** presented at the University of North Carolina Division of Experimental Therapeutics Seminar, Chapel Hill, NC. “Brain Cytochrome P450 Enzymes and Stroke: Discovering the Relationship with Patient Complications.” June 2011.

• Monoclonal Antibodies and Immune Modulation in RSV Disease, International Conference on Antimicrobial Agents and Chemotherapy, Chicago, IL USA, 09/19/2011. **Empey KM.**

• Genes to predict drug response, Society of Critical Care Medicine, Houston, 02/07/2012. **Empey PE.**

• Pharmacogenomics, UPMC - Pathology Grand Rounds, Pittsburgh, 01/11/2012. **Empey PE.**

• Pharmacogenomics: moving towards personalized drug therapy, UPMC Nursing Magnet Fair, Pittsburgh, 03/01/2012. **Empey PE.**

• Probenecid co-administration increases n-acetylcysteine concentrations and improves cognitive outcomes following experimental pediatric traumatic brain injury., Association for Clinical Research Training (National K12 meeting), Washington, DC, 04/19/2012. **Empey PE.**

• The Great Masquerader: Recognizing ADRs in the ICU Learning Using Simulation, ACCP, Pittsburgh, 10/23/2011. **Kane-Gill SL.**

• Strategies for Improving the Safe Use of IV Medications in the Critical Care Setting., ASHP, New Orleans, 12/06/2011. **Kane-Gill SK.**

• Unraveling the Effect of Kidney Disease on Nonrenal Drug Clearance, University of Florida, College of Pharmacy, Department of Pharmacotherapy and Translational Research/Center for Pharmacogenomics Seminar Series, Gainesville, FL, 02/24/2012. **Nolin TD.**

• Unraveling the Effects of Kidney Disease on Drug Disposition and Response: The Warfarin Conundrum, University of Alabama at Birmingham, School of Medicine, Department of Medicine, Division of Nephrology, Nephrology Research and Training Center Noon Conference, Birmingham, AL, 03/19/2012. **Nolin TD.**

• Approach for Drug Dosage Adjustments in an Era of Standardized Creatinine, Equation Overload, and Real Patients, National Kidney Foundation 2012 Spring Clinical Meeting, Washington, DC. **Nolin TD.**

• films as a versatile drug delivery system, International Microbicide Conference, sydney australia, 04/18/2012. **Rohan LC.**

• Formulation Optimization and characterization of a vaginal film containing EFdA, International Microbicide Conference, sydney australia, 04/18/2012. **Rohan LC.**
• CoSolvent Strategy Applied in Film formulation development for a hydrophobic NNRTI CSIC, International Microbicide Conference, Sydney, Australia, 04/18/2012. **Rohan LC.**

• Development and characterization of Tenofovir-Maraviroc Combination Film for Vaginal, International Microbicide Conference, Sydney, Australia, 04/18/2012. **Rohan LC.**

• Dapivirine Tissue Levels and Distribution in Human Cervical Tissue ex vivo After Exposure to Dapivirine Vaginal Film, International Microbicide Conference, Sydney, Australia, 04/18/2012. **Rohan LC.**

• Pharmacokinetics of Vaginally Applied Tenofovir Formulations; Plasma Uptake, International Microbicide Conference, Sydney, Australia, 04/18/2012. **Rohan LC.**

• Development and Assessment of Rectal Specific Combination Microbicide Gel containing Tenofovir and Griffithsin, International Microbicide Conference, Sydney, Australia, 04/18/2012. **Rohan LC.**

• Receipt of Diabetes Monitoring in Older Medicare Beneficiaries with Co-morbid Dementia, University of Pittsburgh Center for Research on Healthcare Health Services Research Seminar, Pittsburgh, PA, 01/03/2012. **Thorpe CT.**

• Receipt of Diabetes Monitoring in Older Medicare Beneficiaries with Co-morbid Dementia, VA Pittsburgh Healthcare System Geriatrics Research Education and Clinical Center (GRECC) Lecture Series, Pittsburgh, PA, 02/17/2012. **Thorpe CT.**

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**Computational Chemical Genomics Screening (CCGS) Center**

**Faculty**
Xiang-Qun (Sean) Xie, MBA and PhD, Professor and Director
Lirong Wang, PhD, Research Associate and Scientific Administrator

** Graduate Students**
- Kyaw Myint, BS, MS
- Chao Ma, BS, MS

** Postdoctoral Fellows**
- Lin Fu, PhD
- Peng Yang, PhD

**Major Accomplishments**

- CCGS center was officially approved January, 2012 with Dr. Sean Xie as Director and Dr. Lirong Wang as a Scientific Administrator (his appointment begins August 1, 2012). Once the center is fully functioning, more faculty members and their students/postdoc fellows will participate. The center was established to promote interdisciplinary research, education and training, and foster collaborations by providing our developed state-of-the-art computational-chemical-genomics-based in-silico drug screening and design approaches ([http://www.ebligand.org/CCGS](http://www.ebligand.org/CCGS)).
• Currently, the center has four NIH funding supports:
  o NIH P50 GM067082 (Xie, co-PI and Core Co-Director)
  o NIH NCI/SAIC 29XS127 Task Order 6 (Xie, co-PI and Core Director)

• Dr. Xie currently also serves as a PI on two additional NIH funded projects
  o NIH R01 DA025612 (Xie, PI)
  o NIH R21 HL109654 (Xie, PI)

• Two submitted grant applications (pending):
  o Novel Chemical Agents for Multiple Myeloma Intervention by Targeting New Pathway.
    J&J Invited grant (submitted on July 1, 2012)
  o A new R01 submitted NIH R01 “Cannabinoid Receptor-2 Pathway Modulation in
    Multiple Myeloma”

• The CCGS Director Dr. Xie has been serving as a **Regular Study Section Member** of NIH
  Biophysics of Neural Systems (BPNS) Study Section, Center for Scientific Review, NIH. He was
  invited as an **Ad hoc reviewer** for Special Emphasis Panel NIH ZRG1 CB-P (02). He is serving as
  **Guest Editor** of AAPS Journal, Theme Issue “New Paradigms in Pharmaceutical Sciences: In
  Silico Drug Discovery”. Since 2011. He was invited to serve as a member of the **Editorial Board**
  of **American Journal of Molecular Biology.** He was also invited as an **Expert Panel Reviewer**
  for Chinese Natural Sciences Foundation (CNSF) grant review panel for Pharmaceutical Sciences
  Program.

• New patents filed/approved (using the discovery technologies developed in the center):
  o **Xie, X-Q, Feng, RT, and Peng Yang** “Novel CB2 Inverse Agonists and Therapeutic
    Potential for Multiple Myeloma and Osteoporosis Bone Diseases”. (2012) Patent USSN:
    61/576,041.
    with Therapeutic Potential for Multiple Myeloma Treatment,” (2012) U.S. Patent
    61/521,287.
  o **Gold, B. and Xie, X-Q,** Lirong Wang “Compounds and Methods for Inhibition of AP

**Selected Publications**

- Peng Yang, Lirong Wang and **Xiang-Qun Xie.** Latest advances in novel cannabinoid CB2

- **Wang, LR; Ma, C; Wipf, P and Xie, XQ.** “**Linear and Non-linear Support Vector Machine for**
  the Classification of Human 5-HT1A Ligand Functionality”, *Molecular Informatics*, 31(2012),
  85-95.

- **Ma, C, Wang, LR, Xie, XQ.** “GPU Accelerated Chemical Similarity Calculation for Compound

- Zhang YX, Xie, ZJ, Wang, LR, Lazo, JS, Gertsch, J, Sibibeat B, **Xie XQ**: Mutagenesis and
  computer modeling studies of a GPCR conserved residue W5.43(194) in ligand recognition and


• Wang, L.R.; Ma, C.; Wipf, P. and Xie, X-Q.*, “TargetHunter™, an online web server for target prediction of small chemical molecules based on annotated chemogenomics data”. *J. of Chem. Inf. and Modelings* (2012)

• Feng, R. Tong, Q, Lentzsch, S, Roodman, GD, Sfeir, C and Xie, X-Q “Targeting cannabinoid receptor-2 pathway by phenylacetylamide suppresses the proliferation of human myeloma cells through mitotic dysregulation and cytoskeleton disruption”, *Blood* (submitted).


• Kyaw-Zeyar Myint, Lirong Wang, Qin Tong and Xiang-Qun Xie*. “Fingerprint-based Artificial Neural Networks QSAR (FANN-QSAR) for Ligand Biological Activity Predictions”. *Mol Pharmaceutics (submitted).*

**Meetings and Invited Speaker**

• Chair/Speaker, February 14, 2012, 4th *International Conference on Drug Discovery & Therapy*: “Novel Target and Novel Chemical Agents Potential for Multiple Myeloma Treatment” Dubai, UAE

• Invited seminar speaker, April 24, 2012, “Computational Chemical Genomics Screening Center” Department of Immunology, University of Pittsburgh School of Medicine, Pittsburgh, PA

• Invited speaker, March, 28, 2012, “Computational Chemical Genomics Screening Center”, Department of Developmental Biology, University of Pittsburgh School of Medicine, Pittsburgh, PA
- Invited speaker, December 19, 2011 “GPCR Chemical Genomics for Drug Discovery”, Shanghai JiaoTong University, College of Pharmacy, Shanghai, China

- Invited speaker, December 28, 2011 “Computational GPCR Chemical Genomics for Drug Discovery”, Sun-Yat Sen University, College of Life Sciences, Guangzhou, China

- Invited speaker, July 28, 2011 “GPCR Chemical Genomics for Drug Discovery”, Shanghai NanKai University, College of Pharmacy, Tianjin, China

- Invited speaker, June, 10, 2012, “Cloud computing and High Throughput Experimental Chemical Genomics Screening Approaches for Lead Discovery”, Jinan University, GuangZhou, China

- Invited speaker, June, 20, 2012, “Cloud computing and High Throughput Experimental Chemical Genomics Screening Approaches for Natural Product Target Identification and Lead Discovery”, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China

- Invited speaker, June, 23, 2012, “Computational Chemical Genomics Screening Approaches for Natural Product Target Identification and Lead Discovery”, XiShuanBanNan Tropical Botanic Garden, Chinese Academy of Sciences, XiShuanBanNan, China

**Posters**


- Lirong Wang, Chao Ma, Kyaw Zeyar Myint, Kay Brummond, Matthew LaPorte, Peter Wipf and Xiang-Qun Xie “Chemogenomics/Chemoinformatics Tools for Facilitating the Chemical Research in UPCMLD” Poster in 2012 CMLD Meeting on Frontiers in Accelerated Chemical Discovery, June 12, Bethesda, MD

- Peng Yang, Kyaw-Zeyar Myint, Qin Tong, Abdulrahman A. Almehizia, Rentian Feng, Alqarni Mohammed Hamed, Lirong Wang, and Xiang-Qun Xie “Osteoclast inhibitor: discovery, synthesis and QSAR study of novel bi-amide derivatives as selective CB2 receptor inverse agonists” Poster in 2012 CMLD Meeting on Frontiers in Accelerated Chemical Discovery, June 12, Bethesda, MD


**Patents Approved and Filed**


Web Publications - Molecular information libraries and Data-mining Tools

- [www.CBLigand.org/CBID](http://www.CBLigand.org/CBID) the largest cannabinoid ligand database in the world. Web-interfaced drug or chemical repository architecture

- [www.CBLigand.org/gdb13](http://www.CBLigand.org/gdb13): World largest online chemical database (1 billion)


- [www.CBLigand.org/HTDocking](http://www.CBLigand.org/HTDocking) High through put docking virtual screening for quick lead discovery

- [www.CBLigand.org/LiCABEDS](http://www.CBLigand.org/LiCABEDS) Novel machine learning algorithm for compound biological classification prediction. Ligand Classifier of Adaptively Boosting Ensemble Decision Stumps (LiCABEDS)

- [www.CBLigand.org/5HT1A](http://www.CBLigand.org/5HT1A) Web-interfaced GPCRs functionality predictor designed using machine learning SVM and KNN algorithms

- [www.CBLigand.org/FPR](http://www.CBLigand.org/FPR) False Positive Remover. Help to identify the false positive hits from high throughput screen experiments

- [www.CBLigand.org/TargetHunter](http://www.CBLigand.org/TargetHunter) Off-target Predictor to help characterization of off-target activities of a drug molecule or new target identification

- [www.CBLigand.org/BBB](http://www.CBLigand.org/BBB) BBB-permeability predictor to predict drug or chemical compound permeability to cross blood brain barrie

- [www.CBLigand.org/gpu](http://www.CBLigand.org/gpu) GPU-accelerated molecular property calculation
Advancing the Health of the Public Through Partnerships
Advancing the Health of the Public Through Partnerships

The School of Pharmacy is committed to improving health by developing and standardizing models of patient-focused practice, working in conjunction with our primary partner, UPMC, and other partners. This component of the School’s mission is primarily driven by members of the Department of Pharmacy and Therapeutics. Our faculty members serve a broad spectrum of patients including ambulatory clinics, physician practices, underserved care settings, pharmacist run diabetes services, inpatient medicine, critical care units, and transplant services. We are committed to advancing optimal patient care by leading medication therapy.

By 2018, the School of Pharmacy will have:
• Become a leader in standardizing the elements of practice so that pharmacists enhance the care of patients in the community, in institutions, and during transitions of care.

PATIENT CARE BY THE NUMBERS FOR FY12

In FY12, School of Pharmacy faculty members:
• Provided care to more than 4,400 underserved and underinsured patients through the Grace Lamsam Pharmacy Program for the Underserved.

• Gave 55 invited presentations on patient care or professional training.

• Received PGY2 Expansion Grant from the American Society of Health-System Pharmacists (ASHP) Research and Education Foundation to expand our existing critical care residency program to UPMC Passavant.

• Graduated the first residents from four programs: PGY1 Pharmacy at WPIC, PGY1 Pharmacy with emphasis in Pediatrics at Children’s Hospital of Pittsburgh of UPMC, PGY2 Underserved, and PGY2 Underserved/Global Health resident at the School of Pharmacy in a partnership with UPMC Matilda Theiss Health Center, a federally qualified health center.

• Expanded the UPMC residency program to UPMC McKeesport.

• Led the program that administered > 3,491 seasonal influenza vaccines during influenza season.

• Developed comprehensive pharmacy services for patients of all stages of abdominal transplantation.

• Led efforts to implement pharmacist documentation within the electronic medical record.

• Received 4 awards for contributions to community pharmacist practice development.

• Were recognized with 4 fellowships in national organizations.

• Educated more than 1,428 high-risk hospitalized patients including more than 578 patients newly started on warfarin and 240 patients newly started on insulin.
PROGRAMS FOR COMMUNITY-DWELLING PATIENTS

Faculty
Sharon E. Connor, PharmD, Assistant Professor
Scott R. Drab, PharmD, Associate Professor
Bobbie Farrah, PharmD, Assistant Professor
Deanne L. Hall, PharmD, Associate Professor
Lauren J. Jonkman, PharmD, Instructor
Melissa S. McGivney, PharmD, Associate Professor
Stephanie H. McGrath, PharmD, Assistant Professor
Karen S. Pater, PharmD, Assistant Professor
Janice L. Pringle, PhD, Research Associate Professor
Michael Zemaitis, PhD, Professor

Residents
Jennifer Bacci, PharmD, PGY1 Community
Yardlee S. Kauffman, PharmD, PGY2 Underserved/Global Health
Ana M. Lupu, PharmD, PGY2 Underserved Care
Michelle Maguire, PharmD, PGY1 Community
Ibrahim Sales, PharmD, PGY2 Ambulatory Care

Major Accomplishments
In FY12, School of Pharmacy faculty members:

• In partnership with UPMC Matilda Theiss Health Center were chosen as a 340B Leading Practice Site (Peer to Peer Leader) for 2012 and were awarded $25,000 toward a resident stipend. The award was from the Pharmacy Services Support Center in partnership with Health Resources and Service Administration, Health Systems Bureau, Office of Pharmacy Affairs. Connor SE, Jonkman LJ, Lupu AM and Kauffman YS.

• Developed a new residency program, the Caring for Underserved/Global Health Track residency. Connor SE and Jonkman LJ

• Received 4 awards for contributions to community pharmacist practice development McGivney MS:
  o Community Residency Excellence in Precepting Award (American Pharmacists Association: 2012);
  o Wiederholt Prize (co-author) Best Paper in Social and Administrative Sciences (American Pharmacists Association 2012);
  o Pharmacist of the Year (Pennsylvania Pharmacists Association 2011);
  o Community Faculty of the Year (National Association of Chain Drug Stores 2011).

• Awarded a grant to develop and lead the NACDS Foundation Community Faculty Scholars Program. McGivney MS.

• Election as President, Pennsylvania Pharmacists Association Education Foundation 2012-2014. McGivney MS.

• Secured $20,000 grant from Jewish Healthcare Foundation to support P4P (Pay for Performance) model development. Pringle JL.
• Selected as a SAMHSA (Substance Abuse and Mental Health Services Administration) Committee Member on CMS waivers. **Pringle JL.**

• Presented at Kings College in London England the results of the PQA-funded study demonstrating improved patient adherence following the application of brief screening and interventions. **Pringle JL.**

• Selected as CMMI Innovation Advisor. **Pringle JL.**

• Developed and licensed automated system for training pharmacists to provide effective brief interventions (EBI). **Pringle JL.**

• Led the administration of 3491 seasonal influenza vaccines. **Hall DL.**

**Selected Publications (related to community dwelling patients)**


• **Pringle JL,** Melezak M, Johnjulio W, Campopiano M, Gordon A, Costlow M. Pennsylvania SBIRT Medical and Residency Training: Developing, Implementing, and Evaluating an Evidence-Based Program. Accepted for publication, Substance Abuse. 2012.


• Hall DL, **Pater KS.** Implementation of a medication therapy management program in a hospital-based outpatient pharmacy. *Hosp Pharm* 2011;46(7):512-518.

**Community Practice Grants Awarded**

• **Drab SR,** Smith RB, Martin SS. DM Educate Course Updates. $110,000.00, Novo Nordisk Professional Education Services Grant, Princeton, NJ, 2012.

• **Pringle JL.** “The Strategic Prevention Framework State Incentive Grant (SPF SIG)” Annual contract award with the University of Pittsburgh, School of Pharmacy. ($147,500/year. 2006-2011.

• **Pringle JL.** “New Lease on Life” SAMHSA (Substance Abuse and Mental Health Services Administration). $300,000. 2009-2014.

• **Pringle JL.** “A Patient Clinical Team Collaborative Model of Diabetes Self-Management” Annual contract award with the University of Pittsburgh, School of Pharmacy. $127,886. 2009-2011.
• **Pringle JL.** “Development, Implementation, and Evaluation of an Evidence-Based Screening, Brief Intervention, Referral to Treatment (SBIRT) Curriculum in Medical Residency Training Programs” Annual contract award with the University of Pittsburgh, School of Pharmacy. $1,875,000. 2008-2013.


• **Pringle JL.** “Pharmacy Outcomes for Chronic Medication Use” Pharmacy Quality Alliance (PQA). $119,500.


**Selected Invited Presentations (National/International)**

• **Pater KS.** Special Session: Mischief Managed: Spells and Charms to Make Team-Based Learning More Magical. AACP Annual Meeting, July 16, 2012.


• **Pringle JL.** National Association of State Mental Health Program Directors, Inc. (NASMHPD). Organizational Development and Strategic Planning Webinar. September, 2011.

• **Pringle JL.** ScriptMed Conference. Las Vegas, NV. Putting the Patient First in Pharmacy Care Models and Research. November 8, 2011.


• **Pringle JL.** King’s College, London UK. Transforming Community Pharmacy Practice using a Scalable Web-based Platform with Focused Interventions to Improve Medication Adherence. March 2012.

• **Pringle JL.** Seventh National Pay for Performance Summit. Los Angeles, CA. Integrating Quality Metrics with Focused Interventions to Improve Medication Adherence. March 2012.


• Drab S. Caring for Older Adults with Type 2 Diabetes: Setting Appropriate Targets in Older Patients. American Society of Consultant Pharmacists Annual Meeting; Phoenix, AZ, November 16, 2011.

HOSPITAL-BASED PROGRAMS

UPMC Pharmacy Transplant Group

Faculty
Michael A. Shullo, PharmD, Associate Professor
Heather J. Johnson, PharmD, Assistant Professor
Kristine S. Schonder, PharmD, Assistant Professor
Raman Venkataramanan, PhD, Professor

PhD Students
Jeremiah Momper, PhD Candidate

Residents
Gretchen Kipp, PharmD

Major Accomplishments
In FY12, School of Pharmacy faculty members:

• Served as Co-Chair of the National Quality Forum Steering Committee for the Renal Consensus Standards Endorsement Maintenance Project. The Committee develops quality measures used by organizations including the Centers for Medicare and Medicaid Services (CMS) and the Centers for Disease Control (CDC). Schonder

• Developed comprehensive pharmacy services for the peri-operative and post-operative management of abdominal transplant patients. The newly developed service could serve as a model of care that is in compliance with CMS regulations. Schonder

• Served as a Session Chair for: “Heart Transplantation in 2012.” American College of Cardiology (ACC) Annual Meeting. Shullo

• Were elected as Vice Chair/Chair Elect for the Pharmacy and Pharmacology Council of the International Society of Heart and Lung Transplant (ISHLT). Shullo

Selected Publications


**Invited Presentations**

• Late Post-Transplant Journey: Immunosuppressive challenges with the development of Skin Cancer and Pre-cancerous Colon Polyp. An approach to innovative immunosuppression in the face of malignancy. International Society of Heart and Lung Transplantation. Annual Meeting. Prague, Czech Republic. April 2012 Shullo

**UPMC Pharmacy Critical Care Group**

**Faculty**

Amy L. Seybert, PharmD, Associate Professor
Sandy L. Kane-Gill, PharmD, Associate Professor
Neal J. Benedict, PharmD, Assistant Professor
Bonnie Falcone, PharmD, Assistant Professor
Pamela L. Smithburger, PharmD, Assistant Professor
Philip Empey, PharmD, PhD, Assistant Professor
Samuel M. Poloyac, PharmD, PhD, Associate Professor
Residents
Brian Lohr, PharmD, PGY2 Critical Care Resident

Major Accomplishments
In FY12, School of Pharmacy faculty members:

- Selected as Society of Critical Care Medicine Program Committee Chair for 2012 Annual Congress, **Kane-Gill SL**

- Served as the UPMC system-wide Committee Chair sedation guideline and interruption protocol development for Medical Intensive Care Unit Mobility Project, **Smithburger PL**

- Won first place in the UPMC Quality and Safety Fair, “MICU Mobility”, **Smithburger PL**

- Co-authored the 2010 Alcohol Withdrawal Guidelines “Guidelines for the management of alcohol withdrawal for nursing and medical staff of the Surgical/Trauma ICU for use in patient care.” **Benedict N**

- Member of the ACCP committee to develop a guide for health professionals on “Educating Patients About Pharmacogenomics and Genetic Testing.” **Empey PE**

Awards
- 2012 Finalist for the “Simmy Award”, Simulation Journal Club at the International Meeting for Simulation in Healthcare **Seybert AL**, **Kane-Gill SL**, **Smithburger PL**

- 2012 SCCM, Clinical Pharmacy and Pharmacology Section Technology Patient Safety Award for using simulation-based learning to reduce medication errors in critically ill patients. **Seybert AL**, **Kane-Gill SL**, **Smithburger PL**

- 2012 SCCM, Clinical Pharmacy and Pharmacology Section Medication Safety Award for impact of pharmacist-conducted admission medication reconciliation program on unintended medication discrepancies. **Kane-Gill SL**, **Smithburger PL**

- 2011 ACCP Critical Care PRN Research Award **Kane-Gill SL**

- American College of Clinical Pharmacy Fellow, **Seybert AL**

- American Society of Health System Pharmacists, Fellow, **Seybert AL**

Selected Critical Care Publications


• **Smithburger PL, Kane-Gill SL**, Ruby-Scelsi CM, Seybert AL. Comparative effectiveness of three teaching methods to teach seizure management to third professional year pharmacy students. *Simul Healthc*. 2012 Jan 30. PMID: 22293664

**Grants**

- Grant Total: $175,000. “Simulation-Based Learning in Pharmacy Education.” Peter M. Winter Center for Simulation Education and Research, 2011-12, **Seybert AL** Principal Investigator.

- Grant Total: $40,000. “Pharmacy Practice Residency Expansion Grant,” ASHP Foundation, 2011, Residency Program Director of Pharmacy, **Seybert AL**

- Grant Total: $591,195. Interactive search and review of clinical records with multilayer semantic annotation. Co-Investigator (salary support 5%), Chapman (PI), Subcontract UCSD. National Library of Medicine, 2011 (09/30/11- 09/29/15) **Kane-Gill SL**

- Grant total $20,000. A multicenter evaluation of off-label medication use and adverse drug events in adult intensive care unit patients. Principal Investigator. ASHP New Investigator Research Grant, 2012 , **Smithburger PL, Kane-Gill SL**


- Grant total: $2,500. Evaluating the impact of a dose range-checking alert for opioids in elderly patients requiring acute pain management. Principal Investigator Mentor. Cumberland Pharmaceuticals Resident Grant, 2011 (11/1/12-06/30/12) **Kane-Gill SL, Smithburger PL**

- Implications of hypothermia on drug transport - 3 yr KL2 Competitive Renewal (2012-2015) PI, Approved, **Empey P**

**Selected Invited Presentations**

- Meeting the Challenges of contemporary PAH Management. Academy of Managed Care Pharmacy 24th Annual Meeting 2012, San Francisco, CA, April 2012, **Seybert AL**


- Establishing a Safety Culture in the ICU: Making Systematic Changes Using ADE Data Presented at the 41st SCCM Critical Care Congress, Houston, TX. **Kane-Gill SL**
• Strategies for Improving the Safe Use of IV Medications in the Critical Care Setting. Presented at the 44th ASHP Midyear Clinical Meeting, New Orleans, LA. **Kane-Gill SL**

• Economic Implications of Postoperative Pain Management Presented at the 44th ASHP Midyear Clinical Meeting, New Orleans, LA **Kane-Gill SL**

• October 2011 The Great Masquerade: Recognizing ADRs in the ICU Learning Using Simulation Presented at the ACCP 2011 Annual Meeting, Pittsburgh, PA. **Kane-Gill SL**

• Genes to predict drug response, Society of Critical Care Medicine, Houston. **Empey P**

• Temporal changes and cell-type specific localization of ATP-binding cassette/multi-drug resistance transporters after traumatic brain injury in mice. Society of Critical Care Medicine, Houston. **Empey P**

**UPMC Pharmacy General Inpatient (Internal Medicine and Medication Education Program) Group**

School of Pharmacy faculty members provide care to patients on the general units at UPMC Presbyterian in a variety of ways. They precept students and residents on internal medicine units, where they manage patients’ medication therapy as members of the patient care team. They lead the hospital-wide Medication Education Program that involves a team of pharmacists and pharmacy students who provide medication education for hospitalized patient with complex medication regimens and those who are newly started on anticoagulants and insulin. They contribute to system-wide interdisciplinary teams with the goal of optimizing the inpatient management of patients, such as those with diabetes or at risk for hyperglycemia. They also contributed with outpatient management of patients, especially in patients with hepatitis C virus.

**Faculty**
Amy Calabrese Donihi, PharmD, Associate Professor
Rima A. Mohammad, PharmD, Assistant Professor

**PGY2 Resident**
Amanda Lin, PharmD, PGY2 Internal Medicine Resident

**Major Accomplishments**
In FY12, School of Pharmacy faculty members:

• Elected Chair-Elect of the American College of Clinical Pharmacy GI/Liver/Nutrition PRN. **Mohammad RA**

• Led efforts to implement pharmacist documentation within the electronic medical record across the UPMC Health System. **Donihi AC**

• Educated 1428 high-risk hospitalized patients including 578 patients newly started on warfarin and 240 patients newly started on insulin. In approximately 25% of these patients, pharmacists also made at least one recommendation for optimizing the patient’s medication regimen. **Donihi AC**, Colega C
• Led efforts to develop and implement pharmacy services for treating patients with hepatitis C using direct-acting antivirals within the UPMC Center of Liver Disease Clinic. Mohammad RA, Lin A, Johnson H

Selected Publications


Selected Invited Presentations


UPMC Infectious Diseases and Antibiotic Management Program (AMP)

Faculty
Brian A. Potoski, PharmD, Assistant Professor and Associate Director AMP
Gregory A. Eschenauer, PharmD, AMP Pharmacist
Ryan K. Shields, PharmD, Instructor, School of Medicine, and AMP Pharmacist

Resident
Louis Gillis, PharmD, PGY2 Infectious Diseases Resident
Meredith Jerigan, PharmD, PGY2 Infectious Diseases Resident

Publications


**Presentations and Published Abstracts**


  
  o *Selected for oral presentation*
  o *Selected for oral presentation

  o *Selected for oral presentation

  o *Selected for oral presentation

  o *Selected for oral presentation † Selected for ICAAC press release

  o ‡Selected for topical poster walk

  o *Selected for oral presentation

• *Shields RK, Nguyen MH, Kwak EJ, Silveira FP, Abdel Massih RC, Pilewski J, Crespo M, Toyoda Y, Bermudez C, Bhama J, Clancy CJ. Extensive- and pandrug-resistant *Acinetobacter baumannii* and KPC-producing *Klebsiella pneumoniae* primarily cause pneumonia among lung and heart transplant recipients and outcomes may be improved by treatment with a carbapenem and colistin. Presented at the 32nd annual ISHLT meeting (Prague, Czech Republic), 2012.
  o *Selected for oral presentation

  o *Selected for oral presentation
• *Johnson L, Shields RK, Clancy CJ. Diseases due to Scedosporium in the first year following solid organ transplantation often stem from pre-transplant colonization or surgical seeding and are associated with high mortality. Presented at the American Transplant Congress (Boston), 2012.
  o *Selected as Poster of Distinction

• *Shields RK, Clancy CJ, Kwak EJ, Silveira FP, Abdel Massih RC, Minces LR, Bogdanovich T, Nguyen MH. Extreme- and Pan-drug resistant Acinetobacter baumannii and Carbapenemase-producing Klebsiella pneumoniae infections following transplantation are associated with poor outcomes but respond best to combinations that include colistin and a carbapenem. Presented at the American Transplant Congress (Boston), 2012.
  o *Selected as Poster of Distinction

Drug Use and Disease State Management (DUDSM) Program

School of Pharmacy faculty members lead the DUDSM program to develop evidence-based guidelines to promote safe and cost-effective use of medications for patients at UPMC. Faculty and hospital-based clinical pharmacists in DUDSM are critical in designing and implementing strategies to incorporate guidelines into daily practice. Pharmacists at UPMC, including the clinical faculty, unit-based clinical pharmacists, operations-based pharmacists, and PGY1 and PGY2 UPMC residents use these guidelines in the care of patients at all UPMC hospitals.

Faculty
Susan J. Skledar, RPh, MPH, Associate Professor and Director
Colleen M. Culley, PharmD, Associate Professor
Shelby L. Corman, PharmD, MS, Assistant Professor
Tara L. Pummer, PharmD, Assistant Professor

PhD Students
Mohammad Shawaqfeh, PharmD
Dustin Walsh, PharmD
Hari Kalluri, PharmD
Katherine Eichinger, PharmD
Jeremiah Momper, PharmD, PhD (graduated Fall 2011)

Major Accomplishments
DUDSM Program designed and implemented 45 guidelines and 26 electronic health record protocols for use of medications in the hospital setting across UPMC. The group led the revision and implementation of 38 local hospital policies and Presbyterian Shadyside and Western Psychiatric Institute and Clinics, as well as four system-wide policies, including two new policies Skledar SJ, Corman SL, Culley CM, Pummer TL, other faculty.

During FY12, Faculty:
• Received the 2011 American Society of Health-System Pharmacists’ National Best Practice Award for work with smart pumps in the hospital setting Skledar SJ, Niccolai

• ASHP Best Practices Award in Health-System Pharmacy. Niccolai C, Skledar SJ.
  “Keeping our Smart Pumps Smart.”
• Created criteria for evidence-based review and formulary consideration for complementary and alternative medications for UPMC. Skledar SJ, Corman SL.

• Expanded intravenous intelligent infusion (“smart”) pump devices and safety technology to >28 UPMC Cancer Center sites. Safety functionality of pumps now span over 6,000 pumps across 19 UPMC facilities.

• Created and facilitated 16 drug shortage action plans to maintain medication supplies for hospitalized patients across UPMC Skledar SJ, Gross PR, Guttendorf S.

• Averaged 99% compliance with Surgical Care Improvement Project (SCIP) national core quality measure for the postoperative duration of antibiotics for UPMC Presbyterian surgical patients through daily surveillance and intervention (top national compliance tier is 100%). Culley CM, Carroll BA, Skledar SJ.

• Improved TheraDoc® data quality in UPMC programs that extend to skilled nursing facilities, including UPMC Senior Communities, Rx Partners, and UPMC Enterprise.

• Received UPMC System Awards to Pharmacy. This year’s theme was “Improving the Score.” An example of one of pharmacy’s award-winning pharmacy entries:

Selected Publications


Selected Invited Presentations


Geriatrics (Benedum and Shadyside Senior Care Institute) Program

The mission of care is the:

- identification and resolution of drug-related problems in the population which is highly susceptible to adverse drug outcomes,
- enhanced adherence of medication regimens through education of patients and family members,
- improved drug prescribing by physicians through pharmacy faculty advice and intervention.

Faculty
Christine M. Ruby-Scelsi, PharmD, Assistant Professor
Zachary A. Marcum, PharmD, MS, Assistant Professor
Joseph T. Hanlon, PharmD, MS, Professor (secondary pharmacy appointment)

Pharmacy Fellows
Emily P. Peron, PharmD, Pharmacy Geriatrics Fellow

Major Accomplishments

- Recipient of Leadership in Education Award, American Society of Consultant Pharmacists. Ruby, CM.
- Created one of twelve post-graduate residency programs nationally in geriatric pharmacy practice. Ruby CM.
- Created one of two existing pharmacy geriatrics fellowships in the country, with first graduate in June 2011, and second graduate in June 2012. Ruby CM, Hanlon JT.
- Created an interprofessional course at Asbury Heights Nursing Center. Enrolled medical, nursing and pharmacy students. Led by: Ruby, CM.

Selected Publications

- Marcum ZA, Pugh MJ, Amuan ME, Aspinall SL, Handler SM, Ruby CM, Hanlon JT. Prevalence of potentially preventable unplanned hospitalizations caused by therapeutic failures...


**UPMC – Western Psychiatric Institute and Clinic**

**Faculty**
Tanya J. Fabian, PharmD, PhD, Assistant Professor

**Graduate Students**
Diane Pinchevsky, PharmD, PhD Candidate
Salwa Albusaysi, BS

**PGY-1 Pharmacy Residents**
Community Practice – Forbes Pharmacy: Michelle Maguire, PharmD
Pharmacy Practice – WPIC: Ian McGrane, PharmD

**Major Accomplishments**
During FY12, faculty:
- Developed a new PGY1 residency with grant funding from the American Society of Health-System Pharmacists (ASHP) Research and Education Foundation. This residency is in partnership with UPMC Presbyterian Shadyside.
- Redesigned the WPIC Pharmacy to include high-performance technology and automation in an entirely new location.
- Increased the number of preceptors by hiring three psychiatric clinical pharmacists and expand clinical services across inpatient and outpatient care. This expansion serves as the foundation for the development of a PGY2 Psychiatric Pharmacy Residency.
- Expanded the WPIC Transitions in Care program to all inpatient units and completed four times as many transitions compared to FY11.
- Were nominated as a Transitions in Care Program Finalist for the Fine Award for Excellence in Healthcare Teamwork that will be awarded in November 2012.

**Pittsburgh Poison and Drug Information Center (PPDIC)**
**Pittsburgh Poison Center**

**Faculty**
Edward P Krenzelok, PharmD
Major Accomplishments
In FY12, faculty and staff of the Poison Center:

- Managed 113,151 poison exposure and poison information calls.

- Responded to over 3200 requests for poison prevention materials and provided in excess of 725,000 sheets of Mr. Yuk stickers, brochures, and other materials to the residents of the PPC 44 county service region.

- Partnered with Giant Eagle pharmacies to distribute Mr. Yuk poison prevention and poison center awareness materials at 177 stores.

- Succeeded in having state funding increased from zero to $350,000 for FY 2013.

In FY12, faculty and staff of the Drug Information Center:

- Responded to 5,708 total calls and drug information questions.

- Initiated the Medication Management Discharge Program in collaboration with UPMC Solano & Kokales Internal Medicine Associates Practice. Overall goals of the program include improvement in transition of care from the inpatient to the outpatient setting and prevention of medication related readmissions to the hospital.

- Produced six newsletters that were distributed to all healthcare practitioners throughout the UPMC Health System. Newsletters contained information about new medication approvals, adverse drug event alerts, and a selected drug information question and its response.

- Produced five evidence-based medication reviews through the P&T Committee/DUDSM Program formulary development process.

Selected Publications


Invited Presentations


The Grace Lamsam Pharmacy Program for the Underserved

The Grace Lamsam Program serves primarily homeless and low-income patients. Pharmacists work in an interdisciplinary model of care with a team of health care providers that includes physicians, nurses, and other allied-health professionals. The Grace Lamsam Pharmacy Program works to enhance access to cost-effective medicines for patients served by our collaborator groups. The program contributes expertise to reduce cost and assure safe and effective drug therapy.

The Grace Lamsam Pharmacy Program partners with Health Care for the Homeless (HCH) and North Side Christian Health Center, UPMC Matilda Theiss and collaborates with the Program for Health Care to Underserved Populations (PHCUP).

Faculty:
Sharon Connor, PharmD, Assistant Professor
Lauren Jonkman, PharmD, Assistant Professor

Residents:
Ana Lupu, PharmD
Yardlee Kauffman, PharmD

Major Accomplishments

In FY12, the Grace Lamsam Program:

• Was selected in partnership with UPMC Matilda Theiss Health Center as a 340B Leading Practice Site (Peer to Peer Leader) by the Pharmacy Services Support Center in partnership with Health Resources and Service Administration, Health Systems Bureau, Office of Pharmacy Affairs. An award of $25,000 provided a partial stipend for a resident.

• Established a new residency program in Global Health and Underserved Care.

• Provided oversight of the pharmacy program for Health Care for the Homeless Clinic, dispensing almost 9000 prescriptions to uninsured patients through the efforts of 15 faculty members, residents, and volunteers.

• Provided care for approximately 400 patient care visits at the North Side Christian Health Center Pharmacy Services Clinic.

• Established longitudinal patient-care experiences for one global health resident, one underserved care resident and one pharmacy practice resident at the North Side Clinic.

• Participated in the HRSA Patient Safety and Clinical Pharmacy Services Collaborative through the Mathilda Theiss Center and provided care for approximately 300 patient care visits.

• Presented a Special Session at the July 2011 AACP Annual Meeting entitled, “Incorporating Service Learning into the Patient Safety and Clinical Pharmacy Services Collaborative.” San Antonio, Texas. Jonkman L, Connor S.
Securing an Adequate Resource Base
Securing an Adequate Resource Base

Achieving the vision of the School of Pharmacy requires a financial and space resource base that supports faculty, staff, and students in their endeavors. The people of the School of Pharmacy are one of its greatest resources. This section includes the resource of people—the faculty, staff, and alumni of the School.

By 2012, the School of Pharmacy will have:
- Increased the resource base of the School of Pharmacy.

Resources by the Numbers for FY12

- **$20 million**: The total School of Pharmacy expenditures in FY12 from all sources.
- **$19,509,764**: The market value of the School’s endowment at the end of FY12.
- **$22,731,282**: The Capital Campaign total at the end of FY12.
- Gifts in FY12 totaled **$739,923**, 23% of which was contributed by corporations.
- Of the total FY12 gifts, **$106,284** was from annual gifts.
- The School of Pharmacy has an allocation of and/or leases a total of 81,880 SF of space in 9 locations in Oakland and the South Side. Space allocation has decreased by 3.4% (-2,863 SF) since FY08.
- In FY12, the School of Pharmacy had 73 full-time faculty members who received:
  - 13 national recognitions/awards for educational accomplishments
  - 8 recognitions/awards for research
  - 10 recognitions/awards for practice
  - 14 national recognitions/awards for service

Of our 73 faculty members,
- 17 (23.3%) have been elected to fellowship in one or more organizations.
- 22 (30.1%) are board certified.
- 36 (49.3%) are either board certified or fellows, or both!

- Number of staff: **66**: 34 are administrative staff and 32 are research staff.
- Number of living alumni: **5,034**
- The School of Pharmacy’s alumni ranked:
  - #1 in life memberships in the Pitt Alumni Association in schools and programs with more than 100 alumni
  - #3 among all University schools and programs in alumni engagement
- **37.05** percent of the alumni were engaged with the School of Pharmacy and/or University in some way
FINANCIAL RESOURCES

Budget

Sources of funding for the School of Pharmacy include allocation from the University of Pittsburgh, UPMC, continuing education and auxiliary accounts, gifts and endowments, and sponsored project awards. The graph below represents financial expenditures for fiscal years ’00 through ’12.

Expenditures by Source

The graph demonstrates the overall growth of financial resources, particularly since 2000. The total expenditures for FY12 were $20,000,121 with sponsored projects accounting for 29% of the expenses. Together, the University (39.9%), sponsored project awards (29%), and UPMC (16.4%) accounted for over 85% of the School’s funding.

Institutional Advancement

The value of the School of Pharmacy is recognized in many ways, including philanthropic support.

Capital Campaign

On July 1, 1997, the University launched the Capital Campaign to support students, teaching and learning, and the research of faculty. To date, the School of Pharmacy has raised $22,731,282 in gifts and pledges for the School’s portion of the Capital Campaign. Of this amount, a total of $19,732,123 has been received and $2,999,159 is due in pledges and gifts. At the close of FY12 the School of Pharmacy successfully achieved 85% of the goal. We continue to strive to raise the final $4,180,265 to close the university capital campaign goal for the School of Pharmacy.
School of Pharmacy Capital Campaign by Gift Designation
Gifts and Pledges*
July 1, 1997 – June 30, 2012

<table>
<thead>
<tr>
<th>Designation</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Major Gifts</td>
<td>$5,779,939</td>
</tr>
<tr>
<td>Foundations</td>
<td>1,373,519</td>
</tr>
<tr>
<td>Corporations</td>
<td>5,392,778</td>
</tr>
<tr>
<td>Other Organizations</td>
<td>1,792,929</td>
</tr>
<tr>
<td>Planned Giving</td>
<td>6,542,836</td>
</tr>
<tr>
<td>Individual Other Gifts</td>
<td>1,849,281</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$22,731,282</strong></td>
</tr>
</tbody>
</table>

*Includes Voluntary Support (gifts) received during FY11

The book value of the School of Pharmacy endowment has continued to grow through gifts as shown in the graph below. It is not surprising that the market value of the endowment has fluctuated with the economic situation of the nation. As the economy has begun to recover, so has the market value of the endowment.
In FY12, the School of Pharmacy received charitable gifts, pledges, and grants totaling $739,923 from a total of 789 individuals, foundations, corporations, and other organizations. A significant decrease, the result of 13.5% decrease in total donors and a drastic 90% reduction of support from corporations. Organizational support diminished by 57% as well as “friends of the school” support falling nearly 82%. Vacancies in the development and alumni offices are also contributing factors.

The total dollar amount in gifts and pledges decreased—a change due largely to decreases in corporate and foundation support. As shown in the graphs below, the annual gift amount was $106,824, 60% decrease from FY11. The total number of annual donors in FY12 decreased over 30% to 585.
PHYSICAL FACILITIES

By 2012, we will have:
• Increased the physical space allocated to the School of Pharmacy.

At the close of FY12, the School of Pharmacy occupied a total of 81,880 SF, including:
• 47,466 SF in Salk Hall
• 4,305 SF in BSTIII
• 2,704 SF in UPMC Montefiore
• 6,514 SF in UPMC Presbyterian
• 1,091 SF in Falk Clinic
• 13,590 SF (leased) in Birmingham Towers
• 1,896 SF (leased) in Parkvale Building
• 3,557 SF in Victoria Street offices
• 757 SF in South Presby Tower

As shown in the graph below, the space allocation to pharmacy has decreased by 2.6% since 2008.
THE RESOURCE OF PEOPLE

We formally recognize that the people of the School are its most valuable resource, and therefore include people in this section.

Faculty

There are 73 full-time and 8 part-time faculty members in the School of Pharmacy, all of whom hold faculty appointments in either the Department of Pharmaceutical Sciences or the Department of Pharmacy and Therapeutics. The changes in number of faculty since 1984 are shown in the graph.

In the Department of Pharmaceutical Sciences, three faculty members earned promotions during FY12; Jan Beumer, PharmD, PhD was promoted to assistant professor, Song Li, MD, PhD was promoted to professor and Jinhan He, PhD was promoted to research instructor. After many years with the University of Pittsburgh, John Alvin, PhD retired in September 2011. Also in September 2011, Alexander Doemling, PhD accepted a position in Germany at the University of Groningen. In August 2011, Yong Li, PhD resigned and returned to China. Takafumi Tasaki, PhD resigned in January 2012 to return to Japan. Both Ulrike Feske, PhD and Frank Vitale are no longer with the School.

In the Department of Pharmacy and Therapeutics, three faculty members were promoted to associate professor, Michael A. Shullo, PharmD, Deanne Hall, PharmD, CDE, BCACP and Scott Drab, PharmD, CDE, BC-ADM. The Department recruited James Coons, PharmD as an associate professor of Cardiology who joined the faculty in July 2012.
Full-Time Faculty Rank by Department of Primary Appointment*

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>Pharmaceutical Sciences</th>
<th>Pharmacy and Therapeutics</th>
<th>Total for School of Pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>17</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>3</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>3</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Instructor</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Research Associate Professor</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Research Assistant Professor</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Research Instructor</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All Faculty</td>
<td>31</td>
<td>42</td>
<td>73</td>
</tr>
</tbody>
</table>

*Part-time Faculty (numbers not in table) include:
  Department of Pharmaceutical Sciences: 4
  Department of Pharmacy and Therapeutics: 4

Fellowships in Organizations and Board Certification

Election to fellowship and board certification are two characteristics of faculty members who have distinguished themselves. Of the 73 faculty members, 18 (24.6%) have been elected to fellowship in one or more organization, 22 (30.1%) are board certified, and 37 (50.7%) are elected fellows, board certified, or both. The names, letters indicating the fellowship, and department of affiliation are shown in the table. The organization of the fellowship is indicated at the first use of the initials in the table.

**FY12: Faculty Elected to Fellowship in Professional or Scientific Organizations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Fellowship</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim Coley</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Judith Gavaler</td>
<td>FACN</td>
<td>American College of Nutrition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Barry Gold</td>
<td>AAAS</td>
<td>American Association for the Advancement of Science</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Donna Huryn</td>
<td>FACS</td>
<td>American Chemical Society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Randy Juhl</td>
<td>FAPhA</td>
<td>American Pharmacists Association</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Sandra Kane-Gill</td>
<td>FCCM</td>
<td>American College of Critical Care Medicine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td></td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td>Joanne Kowiatek</td>
<td>FASHP</td>
<td>American Society of Health-Systems Pharmacists</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics (Adjunct)</td>
</tr>
<tr>
<td>Edward Krenzelok</td>
<td>FAACT</td>
<td>American Association of Clinical Toxicology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Patricia Kroboth</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td></td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
</tr>
<tr>
<td>Melissa Somma McGivney</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Thomas Nolin</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td>FCP</td>
<td>American College of Clinical Pharmacology</td>
</tr>
<tr>
<td></td>
<td>FASN</td>
<td>American Society of Nephrology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Name</td>
<td>Fellowship</td>
<td>Department</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Christine Ruby-Scelsi</td>
<td>FASCP</td>
<td>American Society of Clinical Pharmacists</td>
</tr>
<tr>
<td>Paul Schiff</td>
<td>FAPhA</td>
<td>American Pharmacists Association</td>
</tr>
<tr>
<td>Amy Seybert</td>
<td>FASHP</td>
<td>American Society of Health-System Pharmacists</td>
</tr>
<tr>
<td>Susan Skledar</td>
<td>FASHP</td>
<td>American Society of Health-System Pharmacists</td>
</tr>
<tr>
<td>Randall Smith</td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
</tr>
<tr>
<td>Ralph Tarter</td>
<td>FAPS</td>
<td>American Psychological Society</td>
</tr>
<tr>
<td>Raman Venkataramanan</td>
<td>FACCP</td>
<td>American College of Clinical Pharmacology</td>
</tr>
<tr>
<td></td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
</tr>
</tbody>
</table>

| FY12: Faculty Board Certifications |

<table>
<thead>
<tr>
<th>Name</th>
<th>Certification</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janet Amico</td>
<td>ABIM</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>Sherrie Aspinall</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Shelby Corman</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Colleen Culley</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Amy Calabrese Donihi</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Scott Drab</td>
<td>CDE</td>
<td>Diabetes Educator</td>
</tr>
<tr>
<td>Philip Empey</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Tanya Fabian</td>
<td>BCPP</td>
<td>Psychiatric Pharmacy</td>
</tr>
<tr>
<td>Bonnie Falcone</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Roberta Farah</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Deanne Hall</td>
<td>CDE</td>
<td>Diabetes Educator</td>
</tr>
<tr>
<td>Heather Johnson</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Edward Krenzelok</td>
<td>DABAT</td>
<td>Toxicology</td>
</tr>
<tr>
<td>Lindsay Lippman</td>
<td>BCOP</td>
<td>Oncology</td>
</tr>
<tr>
<td>Rima Mohammad</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Karen Pater</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>CDE</td>
<td></td>
<td>Diabetes Educator</td>
</tr>
<tr>
<td>Brian Potoski</td>
<td>BCPS (AQ-ID)</td>
<td>Pharmacotherapy/Added Qualification in Infectious Diseases</td>
</tr>
<tr>
<td>Christine Ruby-Scelsi</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Pamela Smithburger</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>Ralph Tarter</td>
<td>ABPP</td>
<td>Clinical Psychology</td>
</tr>
<tr>
<td>Lauren Trilli</td>
<td>BCPS</td>
<td>Pharmacotherapy</td>
</tr>
</tbody>
</table>
Alumni and Alumni Engagement

In the six years that the University of Pittsburgh has been ranking its 18 schools and programs in alumni engagement, the School of Pharmacy has held the #1 spot in FY07 and FY09, ranking second in FY08 and FY10 and third in FY11 and FY12. The term “engagement” includes contributions to the University and participation in events, University support functions, percentage of email addresses available, and online participation.

In FY12:

- 37.05 percent of the 5,034 School of Pharmacy living alumni were engaged with the School of Pharmacy and/or University in some way.

- School of Pharmacy alumni ranked:
  - first (11.94 percent) in life and in regular memberships in the Pitt Alumni Association in schools and programs with more than 100 alumni.
  - third (37.05 percent) in participation in School and University programs (among schools and programs with more than 100 alumni).

- Alumni demonstrated their commitment to the University and the School in many ways, including participation in events hosted by the School and/or the Alumni Society:
  - Pharmacy alumni celebrated Homecoming 2011 with a Banana Split Homecoming Party.
  - Receptions at national professional and scientific meetings:
    - American Pharmacists Association Annual Convention, Pennsylvania Pharmacy Association Reception (jointly hosted by the Pennsylvania Schools of Pharmacy), March 27, 2011, Seattle, Wash.
  - The Twentieth Annual Career Roundtables, February 22, 2012, William Pitt Union Ballroom. Thirty-six alumni participated in this student event. Alums from 21 practice areas met with the P1 students and answered questions about their individual practice area giving the students a better perspective of the many opportunities a degree in pharmacy can offer.
  - The Joseph A. Gatto Scholarship Golf Invitational, May 18, 2012, Quicksilver Golf Course. Eighty golfers participated, and the event raised $20,266.85 for the Alumni Scholarship Fund. In the past nine years, more than $159,000 has been raised for student scholarships.
  - Rextravaganza Gala 2012...All Aboard, an annual celebration for alumni and friends, June 9, 2012, Soldiers and Sailors Memorial Hall in Oakland. More than 230 alumni and friends enjoyed the Saturday evening dinner and dancing extravaganza to benefit scholarships. Through the event, an additional $27,595 was raised.
  - The School’s Alumni Society recognized two Distinguished Alumni at Rextravaganza:
    - Daniel J. Cobaugh, BS ’87, vice president of the American Society of Health-System Pharmacists (ASHP) Research and Education Foundation
    - David Rotella, BS ’81, Margaret and Herman Sokol Professor of Medicinal Chemistry at Montclair State University
Board of Visitors

Dean Patricia Kroboth and the faculty hosted the School of Pharmacy Board of Visitors on May 14 and 15, 2012. The overarching focus of the visit was the draft of Long-Range Plan 2018, *Providing the Innovators and the Discoveries to Solve Complex Medication-Based Problems of Today and Tomorrow*, with a focus on the appropriateness of the goals, current strengths of the School and capacity to achieve those goals, and necessary resources. Board members had the opportunity to meet with selected faculty, as well as students.

The visit culminated with a meeting at which the Board members presented their report to Vice Provost for Research George Klinzing and Senior Vice Chancellor for the Health Sciences Arthur Levine.

| Board of Visitors |
| 2011–12 |
| Herbert S. Shear, Chair |
| Chief Executive Officer |
| GENCO ATC |
| William L. Bailey, PharmD |
| Senior Director, Field Medical Affairs |
| Daiichi Sankyo, Inc. |
| Richard J. Bertz, PhD |
| Executive Director, Virology and Neurosciences |
| Discovery Medicine and Clinical Pharmacology |
| Research and Development, Bristol-Myers Squibb |
| Daniel J. Cobaugh, PharmD, FAACT, DABAT |
| Vice President, ASHP Research & Education Fdn. |
| Leaf Huang, PhD* |
| Fred N. Eshelman Distinguished Professor and Chair, Division of Molecular Pharmaceutics |
| Eshelman School of Pharmacy |
| University of North Carolina at Chapel Hill |
| Krista M. Pedley, PharmD, MS, CDR, USPHS |
| Director, Office of Pharmacy Affairs |
| Health Resources and Services Administration |
| Patrick Quinn |
| Senior Director of Trade |
| Novo Nordisk Inc. |
| John T. Tighe III |
| Founder, President and CEO |
| TMG Health, Inc. |
| Albert L. Wright, Jr., FACHE |
| Vice President of Operations |
| UPMC Presbyterian Shadyside |

* Did not attend in 2012
**ENHANCING OUR RESOURCE BASE THROUGH EFFICIENCY AND EFFECTIVENESS**

**By 2012, the School of Pharmacy will have:**
- Increased effectiveness and efficiency and will have enhanced the personal growth and professional development of the staff.

Fostering philanthropic support, assuring the efficient utilization of space, acquiring space for new and/or growing programs, and providing the faculty and students with the best teaching technologies are critical to our future success. Those elements are core to the goals of efficiency and effectiveness.

**Staff**

In FY12:
- Sixty-six staff members served in the following roles:
  - administrative staff (34)
  - research staff (32)
- All 34 administrative staff members met the goal of attending at least one internal professional development program and one external professional development program. The goal was set to enhance the administrative and technical capabilities of the staff as well as the potential for personal job satisfaction.
- Administrative staff members enhance the reputation of the school by attending meetings, presenting at meetings, serving on committees, conducting training sessions both within the University and at the national level.
- Implementation of a new Staff Technology And Resource Session (STARS). STARS is a monthly meeting for administrative staff to enhance skills, improve communication and develop best-practices.

**Information Technology**

FY12, the Information Technology staff:
- Handled 1,357 Technology Help Tickets
  - Web and online technology: 308
  - Network/Server Administrator: 310
  - Desktop and Classroom Support: 739
- Expanded mobile device and technology skills program called “Tech brown-bag sessions,” formerly the iPad Coffee Hour.
  - Opened the program to graduate students and residents.
  - Provided more sessions at varying times to better meet the scheduling needs of faculty, staff, graduate students and residents.
- Created a map that illustrates all places where faculty are asked to provide data to the school, and the path of information to various school reports and other uses. The map will serve as a basis for making data more accessible and require less duplication of efforts.
• Expanded Curricular Map to include:
  o Drug classes and Disease states per course
  o The weekly schedule for the course

• Created a visitor log database.

• The PharmD IT committee drafted social media guidelines for student engagement in social media.

• Developed an Annual Review webapp for graduate students to report their yearly progress and successes similar to the webapp used by faculty.

• Implemented a new prescription management software in the 810 Pharmacy lab to better simulate tasks relating to compounding, and prescription filling.

**Communications**

The websites of the school received an average of 16,000 visitors per month. This includes the public site, student portal, faculty and staff portal, and online museum.

There are three major updates/ additions to the websites begun within FY12 to be completed by October 2012:

• Create a specialized site to highlight the construction of Salk Pavilion and renovation of Salk Hall. This project includes an innovative video component, and increased social media opportunities.

• The Curriculum Committee, working with Thomas Waters, developed a revised PharmD section to the website. Similarly, the Graduate Program web content was redesigned. These new sections were based upon a review of the strategic goals for the programs, and organizing and selecting page content to meet those goals.
School of Pharmacy
Long-Range Plan 2012
School of Pharmacy
Vision for 2012

Long-Range Plan 2006–2012

During FY06, faculty and staff of the School of Pharmacy adopted revised mission, vision, and values statements and finalized a long-range strategic plan that extended through 2011; modifications were made with the input of faculty and staff to extend the plan through 2012.

Mission

The School of Pharmacy is committed to improving health through excellence, innovation, and leadership in education of pharmacists and pharmaceutical scientists, in research and scholarship, in care of patients, and in service to our communities.

Adopted July 2006, Revised July 2009

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
The School of Pharmacy first embarked on a new long-range planning process in 2001. The plan was developed and implemented with extensive faculty and staff participation, as well as input from students and other stakeholders. By design, the 2001 plan was outcome and mission driven, and closely aligned with the strategic focus areas of the University.

Based on the successful execution of the 2001 - 2006 Long-Range Plan, the leadership of the School of Pharmacy committed to continuing the disciplined planning process. In 2005, the faculty and staff embarked on planning for the current plan that originally extended through 2011, and was subsequently extended to 2012 to coincide with University planning. The Plan serves as a guide for our decisions; it determines what we aspire to become and what we are committed to achieving. Since 2001, the Long-Range Plan has helped our extended School of Pharmacy family discuss opportunities using common language, and make choices based on a common set of strategic priorities and values. The Plan is our framework for resource allocation and ensures that everyone is working toward the same outcomes.

The strategic outcomes are expressed in terms of what we will have become. By 2012, we will have become:

- A leader in pharmacy education;
- A research school of distinction;
- A leader in standardizing the elements of practice so that pharmacists enhance the care of patients in institutions, in the community, and during transitions of care.

Long-Range Plan Organization

Recognizing the wisdom of aligning our School with the University, our Plan coincides with the University’s five strategic outcome areas. Our focus areas include:

- 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.

The strategic outcomes within the Plan are organized using the subheadings of excellence, and innovation and leadership, where excellence refers to the organizational or operational recurring outcomes; innovation and leadership outcomes are strategic. The exception is “assuring an adequate resource base,” which is exclusively focused on excellence.
Annual retreats at the Johnstown and Greensburg campuses and at Southpointe along with half-day sessions on campus have been the major force for developing the Plan, measures, and tactics. PharmD student leaders engage with the process at their selected Annual Student Leadership Retreats and through the Dean’s Advisory Board. It has been the firm belief of the School of Pharmacy leadership that the engagement of faculty, staff, students and trainees, and alumni of the School will result in the best possible chances for achieving the stated outcomes of our Long-Range Plan.

Environment: Assessment and Opportunities

Healthcare Issues

Despite technological advances in the ability to diagnose disease and the myriad of sophisticated and expensive medications available, there is a need for increased attention to the care management of individual patients, particularly those with chronic illnesses. Reports on the current state of health care in the United States show that:

- Only about 50% of individuals with chronic illness are treated according to accepted standards, and therapeutic outcomes are often suboptimal.
- 40% to 50% of patients discontinue their medications for chronic disease within one year of initiation of treatment.
- 34% of English-speaking adults aged 65 or older have inadequate health literacy to effectively use the U.S. healthcare system.
- 65% of U.S. adults are either overweight or obese.
- 10% of Americans suffer from chronic disabling conditions.
- The number of persons aged ≥65 years is expected to increase from approximately 35 million in 2000 to an estimated 71 million in 2030, and the number of persons aged ≥80 years is expected to increase from 9.3 million in 2000 to 19.5 million in 2030.
- Medical errors result in nearly 100,000 deaths annually, with medication errors claiming 7,000 lives yearly. Insulin, narcotics (pain killers), antibiotics, and anticoagulants are responsible for over 50% of those medication-related deaths.

In the report “Crossing the Quality Chasm: A New Health System for the 21st Century” (2001, p 117), the Institute of Medicine identified six redesign imperatives for health care organizations:

- Redesigning care processes;
- Effective use of information technologies;
- Knowledge and skills management;
- Development of effective teams;
- Coordination of care across patient conditions, services, and settings over time;
- Use of performance and outcome measurement for continuous quality improvement and accountability.
Currently, the predominant form of interaction between pharmacists and patients does not meet the needs of people with chronic diseases, particularly those with complicated and expensive drug regimens. In order for therapy to be effective, patients must understand the regimen, accept the responsibility for appropriate self-care, know how to monitor their response to therapy, and have the confidence to communicate with their various healthcare providers. Pharmacists have the knowledge and skill to make a difference, but are currently working in a service delivery model that focuses on the product, not on the information or care process.

Opportunities for the School of Pharmacy:

- Take the lead on a national basis to standardize the pharmacy patient care practice and prepare practicing pharmacists and student pharmacists to care for patients in a standardized way.
- Develop multi-disciplinary training programs for health professionals and disseminate nationally.
- Improve pharmacists’ patient-education skills so that patients understand their drug therapies and leading health indicators.
- Partner with nurses and physicians to develop strategies and tactics to improve patient adherence and safety.
- Develop systems and practice models that:
  - improve access to health care;
  - educate consumers about the leading health indicators;
  - are team based;
  - reduce medication errors and increase safety;
  - empower patients to take responsibility for their daily care;
  - improve health outcomes.

Health Disparity

There is disparity in access to and quality of health care for racial and ethnic minorities and low socioeconomic status patients. For example:

- Patients of low socioeconomic position are less likely to receive recommended diabetes services and more likely to be hospitalized for diabetes and its complications.
- Many racial and ethnic minorities and persons of low socioeconomic position are more likely to die from HIV than others in the population. Minorities also account for a disproportionate share of new AIDS cases.
- African Americans and poorer patients have higher rates of avoidable hospital admissions (i.e., hospitalizations for health conditions that, in the presence of comprehensive primary care, rarely require hospitalization).

The Institute of Medicine (IOM) reported that the makeup of healthcare providers does not reflect the diversity in the population in the United States. Although 12% of the population is Latino, only 3.5% are physicians and less than 2% are nurses and pharmacists. African Americans make up 12.5% of our population, but only 5% are physicians and pharmacists. (IOM Report: “In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce”, 2004).
Opportunities for the School of Pharmacy:

- Develop a curriculum that promotes cultural competency
- Recruit a more diverse faculty and student population.
- Develop patient awareness and education tools for patients with low health literacy, language barriers, and cultural diversity issues.
- Develop pharmacy care programs for diverse population.

Global Health Issues
The global nature of health care and health products was dramatically demonstrated by the shortfall in influenza vaccine in 2004 resulting from an American company’s production facility in the United Kingdom being closed by regulatory actions. The differential cost of drugs among countries has made re-importation of drugs a high visibility political issue in the United States. Harmonization of regulatory requirements for drug development has been on-going for more than 15 years. Now the discovery and development process of new drugs by pharmaceutical companies is international. Most drugs are available globally within a few years of their introduction.

Health care in the United States is also affected by international health issues and developments such as the potential for a global epidemic of a new infection, including SARS, avian influenza, or pandemic influenza. Most experts agree that an influenza pandemic is inevitable and possibly imminent. (WHO report: Avian Influenza). In addition, recent outbreaks of Marburg virus in Africa represent potential future threats given the ease and rapidity of travel between countries. It is also important for United States health and government organizations to continue to partner with international agencies and sister organizations in other countries to address global health issues such as AIDS, tuberculosis and malaria. These partnerships can help improve health and well-being globally.

The terrorist activities in the world over the past decade and particularly the events on September 11, 2001, have greatly increased attention and resources to preparations for biological or chemical terrorism. Pharmacists play a key role in these activities ranging from detection, maintenance of stockpiles of antidotes and drugs for treating patients, and participation in the emergency response. The need for these activities and responsibilities will not, unfortunately, decline over the next five years.

Opportunities for the School of Pharmacy:

- Create international training experiences and partner with other schools on campus to enhance understanding of the threats to global health.
- Exchange faculty and students with universities in other countries.
- Create programs for faculty to experience teaching, research, and practice internationally.
- Include training for management of infectious disease outbreaks.
- Enhance the School of Pharmacy’s role in regional emergency preparedness.
- Develop systems and training to assist pharmacists in taking a major role in immunizations.
Research

The National Institutes of Health (NIH) has a major role in setting the national research agenda and is the primary source of competitive research funding. The NIH will be faced with difficult budgeting issues over the next five years with the government’s goal to cut the national deficit in half. In FY 2006, NIH has proposed a budget increase of only 0.7%, and it is unlikely that increases over the next five years will be much larger. This comes after a decade during which the NIH budget doubled. A review of the budget allocations by disease area over the last four years indicates that there have not been major shifts in the allocations over this time, and for the most part this will remain true. The NIH Director has begun a process of focusing on multidisciplinary approaches to problem solving, NIH Roadmap Initiative, and two other strategic initiatives—the NIH strategic plan for obesity research and the NIH neuroscience blueprint. Each of these initiatives will affect distribution of funds and have priority over some existing programs.

The progress made by the Human Genome Project has laid the groundwork for a better understanding of how genetics influences disease processes. Over the next five years, research on new technologies is needed to identify and validate functional elements that do not encode protein; monitor gene expression and gene products in real time; determine modulation of gene products in relevant cell types; determine protein abundance; develop non-invasive molecular phenotyping; and correlate genetic variation to human health and disease using haplotype information.

The existing and new methods will generate extensive databases of information requiring new computational biology approaches to effectively manage and use data. There will be increasing focus on identifying genetic contributions to disease and drug response.

The NIH Director has asked for increased funding for research project grants to preserve the ability of scientists to obtain individual funding. The small increase in funding will greatly intensify competition for the available grants. Increases in NIH funding at the School will require careful selection of new faculty to ensure competitiveness and focus on support mechanisms to enhance their chances of funding. The School will need to engage in interdisciplinary research programs and projects with other schools of the health sciences and departments in the University. Research developments in the schools of the health sciences and the new research infrastructure will facilitate the development of these interdisciplinary programs.

The increased competitiveness will make other peer-reviewed research funding sources more attractive to faculty. The Department of Defense, National Science Foundation, and other federal agencies will become more important.

Health services research will be very important in evaluating new pharmacy services, economic impacts, and outcomes from the application of evidence-based medicine. This interdisciplinary research will require expertise in operations, clinical and economic outcomes, business, education, and health policy.

Opportunities for the School of Pharmacy:

- Increase NIH-funded research awards to the School of Pharmacy by recruiting new faculty members who are prepared to be independent or who already are funded investigators to participate in pharmacogenetics, the multi-disciplinary drug discovery program, and other emphasis areas of the school.
• Increase the scope and funding for translational and clinical research, especially hospital-based research conducted by faculty members who have clinical backgrounds.
• Develop health services and health economics research programs on pharmacy care and systems.
• Enhance partnerships with other schools on campus to better position the faculty of the School of Pharmacy and the schools of the health sciences to compete for federal and foundation funding.

The Changing Role of Pharmacists

The Pharmacy Manpower Project reported that community pharmacists in the United States filled three billion prescriptions in 2001. Another 1.98 billion drug orders were fulfilled in hospitals. The number of prescriptions filled by community pharmacists is expected to reach 4 billion by 2010. While the number of prescriptions has continued to increase, there has been a shortage of community pharmacists to provide the service.

One report estimates the community pharmacist shortage today is about 7%-8% and could increase to 25%-27% (38,000) by 2010; this projection was based solely on fulfillment of prescriptions. Currently, the role of the pharmacist is diversifying to include not only order fulfillment, but also drug utilization review, administration, and direct patient care to enhance medication safety and effectiveness. The Pharmacy Manpower Project took into account the changing roles of pharmacists in its projections. The table shows that the increased number of prescriptions is expected to be filled by fewer pharmacists and that by 2020, a projected shortfall of 157,000 pharmacists is expected.

<table>
<thead>
<tr>
<th>2001 Estimated Deployment</th>
<th>2020 Forecast Need for Pharmacists</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order Fulfillment</strong></td>
<td></td>
</tr>
<tr>
<td>(Dispensing)</td>
<td></td>
</tr>
<tr>
<td>Patient Care</td>
<td>136,400</td>
</tr>
<tr>
<td>Other</td>
<td>48,000</td>
</tr>
<tr>
<td><strong>Total Need</strong></td>
<td>196,700</td>
</tr>
<tr>
<td><strong>Total Supply</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Projected Shortfall</strong></td>
<td>100,000</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>295,000</td>
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<tr>
<td></td>
<td>22,000</td>
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<tr>
<td></td>
<td>417,000</td>
</tr>
<tr>
<td></td>
<td>260,000</td>
</tr>
<tr>
<td></td>
<td>157,000</td>
</tr>
</tbody>
</table>

The dramatic change in forecast is due to the number of pharmacists involved in patient care in community and institutional settings.

The shortfall in pharmacists has been addressed to some extent by increasing the number of pharmacists graduated each year. Fifteen new schools of pharmacy have been created since 1996, and more new schools are currently in development. In addition to new schools of pharmacy, at least four schools have increased to two or more campuses. There are currently six schools of pharmacy in Pennsylvania. One additional program will be developed in Philadelphia.

The shortage of pharmacists is also being addressed by application of technology and technical staff to prescription order fulfillment. The goal of the application of technology is to reduce the need for a pharmacist in the dispensing function and to provide decision support for drug interactions and
potential adverse drug events. An Arthur Anderson report (Pharmacy Activity Cost and Productivity Study on pharmacist activity suggested that 68% of a community pharmacist time was spent on order fulfillment and recommended the industry seek ways to reduce the amount of time spent by pharmacists in prescription processing. As much as 60%-80% of a pharmacist’s time could be freed to apply to patient care. Technology applications include computer physician order entry (CPOE), e-health records, automated fill stations, bar coding, and robotics. In addition to technology, employment of pharmacy technicians to assist in prescription processing is increasing.

Community Pharmacy in Transition
Applications of technology and technical support staff may permit the pharmacist to spend more time on patient-care activities. How the pharmacist will use the time and identify the appropriate parameters of patient care are issues currently being discussed by pharmacy organizations. This discussion has been fueled by recent legislation. The Medicare Prescription Drug Improvement and Modernization Act of 2003 requires the provision of Medication Therapy Management (MTM) services as part of the Medicare part D drug benefit effective January 2006. MTM services must be available to patients with multiple chronic conditions or multiple medications to ensure appropriate medication use and to reduce adverse drug events. The Center for Medicare and Medicaid Services (CMS) is allowing providers to propose the services to be provided. No generally accepted model providing these services in the community currently exists. Parameters of the services and measures to evaluate results including reimbursement and financial issues need to be quickly established.

Opportunities for the School of Pharmacy:
- Develop systems and practice models that:
  - create a healthcare team in the community
  - improve awareness of health concerns;
  - improve access to health care;
  - reduce medication errors and increase safety;
  - improve health outcomes;
  - empower patients to take responsibility for their daily care.
- Provide leadership in defining MTM.
- Develop educational programs for practicing pharmacists to enhance their ability to provide patient care and MTM.
- Enhance the current PharmD curriculum to improve graduates readiness to provide care and improve patient interactions.
- Develop systems and training mechanisms to enable pharmacists to take a major role in immunizations.
- Evaluate alternative service models that include pharmacy service extenders to improve efficiency and volume of patients served.

Institutional Pharmacy Developments
Pharmacists in institutional practice have become the driving force for evidence-based medication usage and medication safety. Drug use review (DUR) programs will increase with the emphasis on defining the evidence-based use of new drugs and counteracting the advertising and detailing efforts of the pharmaceutical companies. Pharmacists will be under pressure to hold drug budget increases to a minimum and to maintain the quality of clinical outcomes.
Growing evidence of the number of medical errors that occur throughout the U.S. healthcare system has prompted increased interest in using technology to improve safety. A significant concern of patients, healthcare organizations and clinicians is medication errors, that occur at a rate ranging from 19%-36% in hospitals; over half of these errors occur during medication administration. In the United States Pharmacopeia Convention’s recently published report, almost 2% of all medication errors (approximately 4,000) reported in hospitals during 2003 resulted in significant harm to patients. Pharmacists in hospitals are uniquely positioned to implement and evaluate technology to improve safety. Examples of this technology include bar coding systems, automated dispensing devices, and computerized physician order entry.

Specifically, the Food and Drug Administration’s voluntary recall of the COX-2 inhibitors seriously questions the rigor of post-marketing safety monitoring required by the FDA. To respond to these pressures, government and the public will demand more safety data than could ever be collected in clinical trials. Effective post-marketing safety data collection methods will be developed to meet this demand. It is likely that institutional pharmacists will be recruited to monitor side effects and adverse drug events as new drugs enter the market and their health systems. Automation of drug distribution and improved information systems will allow large integrated institutions such as UPMC to develop databases with large numbers of patients for newly approved drug products that will provide an important source for safety analyses.

The increasing complexity of drug therapy and number of drugs prescribed for patients have increased the incidence of adverse drug events and created a need for effective medication management for inpatients. Clinical pharmacists’ review and management of medication therapy will be increasingly required for safe and effective therapy. Efficient staffing, combined with effective strategies for determining the level of intervention needed based on medication parameters and patient acuity, will be developed to meet this need.

The American Society of Health System Pharmacists has created a long-range plan called “ASHP 2015”, patterned after Healthy People 2010. This plan is based on six strategic goals with 31 objectives to address the medication effectiveness and safety issues. The six goals of this plan are to increase the extent to which:

1. Pharmacists help individual hospital inpatients achieve the best use of medications.
2. Pharmacists help individual non-hospitalized patients achieve the best use of medications.
3. Pharmacists actively apply evidence-based methods to the improvement of medication therapy.
4. Pharmacy departments in health systems have a significant role in improving the safety of medication use.
5. Health systems apply technology effectively to improve the safety of medication use.
6. Pharmacy departments in health systems engage in public health initiatives on behalf of their communities.

Pharmacy organizations and regulatory agencies will continue a national effort to increase the number of health systems that engage in pharmacy services that meet these objectives.
Opportunities for the School of Pharmacy:

- Become the leader in evaluating drug therapies and generating evidence-based guidelines for effective and safe use of medications. More importantly, the School, in partnership with the Schools of Nursing and Medicine, can develop and evaluate how to implement guidelines in different clinical settings.
- Become one of the first hospital systems in the country to achieve the objectives of ASHP 2015.
- Develop systems of care that ensure all patients receive appropriate pharmacist interventions and patient education.
- Develop a post-marketing surveillance program to track safety of FDA-approved medications.
Strategic Outcomes

Educating the Next Generation of Practitioners and Scientists

By 2012, the School of Pharmacy will have become a leader in pharmacy education.

Adopted 2005

PHARM D PROGRAM

By 2012, the School of Pharmacy will have:

**Excellence**

1. Met or exceeded the standards for accreditation by ACPE, earning accreditation for the maximum interval of six years
   - Measure:
     a. Years of accreditation granted

2. Consistently demonstrated the excellence of our students and their organizations by the awards and national recognitions they have received.
   - Measures:
     a. national and regional awards to individual students (#)
     b. student organization applications for regional and national awards (#)
     c. regional and national awards to student organizations. (#)
     d. graduates who pursue residency training (#)
     e. graduates who pursue PhD or MS education (#)
     f. NAPLEX pass rate (%)
     g. MJPE pass rate (%)

3. Recruited and retained a diverse community of students.
   - Measures:
     a. students admitted with degrees (%)
     b. men admitted (%)
     c. minorities admitted (%)
Innovation and Leadership

4. Developed a culture of innovation and scholarship in teaching and assessment.
   Measures:
   a. peer review publications (#)
   b. textbooks and chapters (#)
   c. presentations
   d. faculty total producing scholarly work (#)
   e. seeking grants (#)
   f. faculty learners in training programs through Pitt or other organizations (#)
   g. faculty teachers in training programs through Pitt or other organizations (#)

5. Developed credit-based opportunities for students to obtain international study experiences
   Measures:
   a. courses/rotations developed (#)
   b. students/year (#)

6. Created curricular tracks/areas of concentration for specialization within the PharmD program.
   Measures:
   a. created the opportunity for curricular tracks (yes/no)
   b. curricular tracks/areas of concentration (#)
   c. students enrolled in tracks (#)
   d. students who pursue additional training in AOC after graduation

7. Developed elective and required interprofessional education opportunities and courses within our curriculum.
   Measures:
   a. opportunities (elective, required) (#)
   b. courses (#)
   c. students who access interprofessional opportunities (#)

8. Been recognized as a leader in defining and providing innovative curricula that enhances pharmacy-provided patient care.
   Measures:
   a. pharmacy-patient care courses/modules developed/implemented (#)
   b. number of courses, degree programs, or certificate programs developed (e.g. CTSI, other non-pharmacy-care)
   c. schools who access the program(s) each year (#) (track each program developed)
   d. people who access the program(s) per year (#)
   e. joint degree programs developed(#)
   f. MTM curriculum developed: (yes / no)
   g. pharmacists utilizing curriculum as continuing education (#)

9. Explored and potentially developed an “out-of-Pittsburgh” curricular program
   Measure:
   a. opportunities explored (#)
By 2012 the School of Pharmacy will have:

**Excellence**

10. Achieved recognition for the quality of the graduate students and graduate program.
   **Measures:**
   a. PhD students in the program (\#)
   b. competitive fellowships e.g. AFPE, NRSA, T32, F31 awarded (\#)
   c. student awards and honors from external entities (\#)
   d. peer-reviewed publications authored by graduate students (\#)
   e. students who present at national or international meetings (\#)
   f. PhD graduates per year (\#)
   g. graduate students who take post-doctoral fellowships (\#)
   h. graduate students who take academic, government and industry positions (\#)
   i. publications about program (\#)
   j. faculty as primary mentors (\#)

11. Recruited and retained highly academically qualified graduate students.
   **Measures:**
   a. U.S. citizens or permanent residents admitted (\%)
   b. stipend as a % of NIH stipend as a standard (\%)

12. Educated graduate students who are highly sought after.
   **Measures:**
   a. graduate students who take positions in industry (\#)
   b. graduate students who take positions in government (\#)

13. Maintain the excellence of the Clinical Pharmaceutical Scientist Program as a national model for clinical and translational research in the pharmaceutical sciences.
   **Measures:**
   a. faculty as primary mentors in the program (\#)
   b. graduate students in the program (\#)
   c. invited presentations by faculty about the program (\#)
   d. graduates who enter academia (\#)
   e. graduate students receiving national awards (\#)
   f. graduate students receiving fellowships (\#)
   g. presentations at national or international meetings (\#)
   h. publications about the program (\#)
   i. graduate student publications (\#)
Innovation and Leadership

14. Partnered with the Clinical and Translational Science Institute to develop learning opportunities for our students.
   Measures:
   a. opportunities available (#)
   b. participating students (#)
   c. courses attended by graduate students (#)

15. Developed MS program in pharmacy administrative sciences, including institutional and community practice administration.
   Measures:
   a. programs (#)
   b. students (#)

16. Advanced the graduate program in order to successfully compete for a PHS training grant.
   Measures:
   a. applications for a PHS training grant submitted (#)

Residency Program

By 2012 the School of Pharmacy will have:

Excellence

17. Participated in the creation of accredited residency program and training of residents.
    Measures:
    a. residency programs (#)
    b. programs accredited that are eligible for accreditation (%)
    c. partners for residency training (#)
    d. residents total (#)

18. Achieved national recognition for the excellence of our residency programs.
    Measures:
    a. universities from which residents were recruited (#)
    b. residents who present at a national/regional meeting (%)
    c. residents who published their research in peer-reviewed journals (%)
    d. first-year residents continuing to PGY-2 program (%)
    e. residents who earn an MS MPH or PhD(#)
    f. residents who take academic positions (%)
19. Trained residents who compete successfully for national grants and awards.
   Measures:
   a. # grants received by residents (#)

**Innovation and Leadership**

20. Defined the criteria for and established “Residencies of Excellence” in targeted areas of focus.
   Measures:
   a. develop criteria (yes / no)
   b. residencies that meet the criteria for a “Residency of Excellence” (#)

21. Partnered in the development and implementation of a residency program model that emphasizes the commonality of community and ambulatory programs.
   Measures:
   a. community/ambulatory program developed/implemented (yes / no)
   b. residents in community/ambulatory program

**Advancing Human Health through Research**

*By 2012, the School of Pharmacy will become a research school of distinction.*

Adopted 2005

By 2012 the School of Pharmacy will have:

**Excellence**

22. Enhanced our reputation of research excellence.
   Measures:
   a. ranking based on NIH funding (# rank)
   b. scientific conferences hosted (# per year)
   c. scientific organization program committees chaired by School faculty (#)
   d. faculty with peer-reviewed funding (%)
   e. peer reviewed publications (#)
   f. faculty participation in program committees of scientific organizations (#)

23. Diversified our portfolio of research funding.
   Measure:
   a. non-NIH funding (%)
      1. NSF
      2. DOE
      3. DOD
      4. industry
24. Trained a cadre of PhD and postdoctoral PhD fellows who are highly sought after for careers in academia, industry, and the government.
   Measures: postdoctoral fellows:
   a. in training annually (#)
   b. who take academic positions (#)
   c. who take positions in industry (#)
   d. who take positions in government (#)

   **Innovation and Leadership**

25. Competed successfully for a PHS training grant.
   Measures:
   a. Funded faculty participating in the graduate program (#)

26. Competed successfully for a program project grant and center grants
   Measures:
   a. applications submitted (#)
   b. applications funded (#)

27. Established a program for research that focuses on pharmacy service models and health care outcomes to favorably improve patient care.
   Measures:
   a. publications (#)
   b. grants (#)

28. Developed research collaborations through the Clinical and Translational Science Institute at the University of Pittsburgh.
   Measures:
   a. grants to School faculty/students funded through the CTSI (#)
   b. programs funded (#)
By 2012, the School of Pharmacy will have:

- Become a leader in standardizing the elements of practice so that pharmacists enhance the care of patients in the community, in institutions, and during transitions of care.

Adopted 2007

By 2012 the School of Pharmacy will have:

**Excellence**

29. Engaged in significant corporate partnerships for the purpose of providing patient care.

Measures:
- a. hospital partnerships e.g. UPMC Presby/Shadyside, Childrens, VA, St. Margaret, Magee (#)
- b. faculty who have patient-care practices at UPMC (#)
- c. faculty (total) who have patient-care practices (#)
- d. non-institutional partners for MTM and direct patient care (#)

30. Maintained and enhanced our reputation of practice excellence through honors and recognitions of our programs and our faculty.

Measures:
- a. faculty invited to make presentations at national and regional meetings (#)
- b. faculty members invited to consult about patient-care programs (#)
- c. national/regional program awards and recognitions (e.g. Cheers) (#)
- d. UPMC Quality and other awards (#)
- e. peer-reviewed publications about patient care, service models, and/or outcomes (#)
- f. grants for pharmacy service models/patient outcomes (#)
- g. learning visits/calls to our programs (#)

31. Developed evidence-based medication protocols and collaborative practice agreements that improve clinical outcomes, enhance patient safety, and reduce costs.

Measures:
- a. protocols developed (#)
- b. hospitals in which the protocols are implemented (#)
- c. UPMC collaborative practice agreements (#)
32. Provided poison and medication information to the public and to health professionals through our Pittsburgh Poison Center and Drug Information Center.
   Measures:
   a. calls answered by Poison Center (#)
   b. calls answered by Drug Information Center (#)

**Innovation and Leadership**

33. Provided leadership in the safe and effective use of medications for the care of all UPMC patients through development and implementation of a comprehensive system for hospital care and transition to the community.
   Measures:
   a. Immunizations administered (#)
   b. Anticoagulation patients treated (INRs handled) # thousands (# thousands)
   c. Medication use guidelines developed and approved (#)
   d. Surgical Care Improvement quality measures (SCIP-1, SCIP-2, SCIP-3) (#, #, #)
   e. Low-molecular weight heparin early discharges (#)

34. Created and implemented a pharmacy service model that integrates faculty and staff pharmacists in provision of care for UPMC patients.
   Measures:
   a. Yes / no
   b. patient-care units served by the model (#)
   c. units served by the model per hospital (%)

35. Participated in the care of underserved patients in local and global communities through the Grace Lamsam Pharmacy Program for Underserved Patients.
   Measures:
   a. Lamsam Program patients and patient visits (# patients, # visits)
   b. patients who receive MTM/direct patient care (%)
   c. prescriptions provided (#)
   d. locations served (#)
   e. prevention and chronic disease programs (e.g. smoking cessation, immunizations) (#)
   f. collaborative practice agreements in place (#)
   g. grant and gift support ($ thousands)
   h. students who gain IPPE or APPE experiences through the Program (#)
   i. students who volunteer at Program sites (#)
   j. volunteer pharmacists (#)

36. Partnered to create a state-of-the-art combined Pittsburgh Poison Center and Drug Information Center.
   Measures:
   a. Created combined Poison and Drug Information Center: (yes / no)

37. Partnered to provide remote care for patients through technology.
   Measures:
   a. developed remote patient care program with a partner: (yes / no)
   b. program implemented: (yes / no)
Enhancing Our Capabilities through Increased Efficiency and Effectiveness

By 2012, the School of Pharmacy will have:
• increased effectiveness and efficiency and will have enhanced the professional growth of faculty and staff

Renewed 2005

By 2012 the School of Pharmacy will have:

38. Efficiently applied technology to optimize utilization of staff and faculty time and financial resources.
   Measures:
   a. programs offered for training faculty and staff on expanded use of technology (#)
   b. faculty and staff trained (#)
   c. applications of commercial and self-built programs and databases (#)
      (e.g. School-wide adoption of Outlook for scheduling meetings, room or equipment reservations, Coursecast for capturing video, PENS Software for experiential education, Admissions PharmCas/Pharmadmit, online view of applicant data for admissions committee, Department Manager, Task Stream, Blackboard, Turning Point)

39. Applied technology to effectively and efficiently deliver quality education to facilitate student learning.
   Measures:
   a. software applications applied to teaching (#) (e.g. audience response, Pharmacal, Taskstream, Rotation assignment program)
   b. technological platforms (# courses in which they have been adopted)
   c. staff able to support adoption of technology within courses (#)

40. Improved efficiency and cost savings through initiatives identified and lead by the staff.
   Measure:
   a. cost savings through bundling software and securing group licenses ($)
   b. costs saved through channeled spending and related opportunities ($)

41. Enhanced communication for internal stakeholders
   Measures:
   a. Presence of a student portal: (yes / no)
   b. Presence of a faculty and staff portal: (yes / no)
42. Adopted a proven and effective technology platform that serves faculty, staff, students and others
   Measures:
   a. calls to technology help desk (#)
   b. satisfactory responses within 24 hours (%)
   c. utilization of School’s technology platform for support (# people)
   d. Web page visits( #)

Innovation and Leadership

43. Enhanced faculty and staff knowledge of new technologies for teaching
   Measures:
   a. teaching technologies available (ARS, video taping, course cast, etc.) (#)
   b. training sessions offered (#)

44. Application of Lean and Toyota Productions System principles and practices, and value stream
    mapping for staff and some faculty processes.
    Measures:
    a. application of principles: (yes / no)
    b. work processes specified (total # of work specifications developed)
    c. work specifications revised (#)

45. Consistently partnered with CSSD in testing the application of technology.
    Measure:
    a. early adopter or beta-testing partnerships with CSSD (# times)
By 2012, we will have increased the resource base of the School of Pharmacy.

Renewed 2005

Human Resources

By 2012, the School of Pharmacy will have:

Excellence

Faculty

46. Recruited and retained faculty who are recognized for scholarly, educational, service and practice distinctions.

   Measures:
   a. faculty (# full time, # part time)
   b. board certifications earned (# ever)
   c. elected fellows (# faculty ever, # fellowships)
   d. nominations of faculty for awards (#)
   e. research awards to faculty from external organizations (#)
   f. teaching/mentor awards to faculty from external organizations (#)
   g. patient care awards to faculty from external organizations (#)
   h. honors awards to faculty for outstanding service (#)
   i. distinguished alumnus designation, other awards from universities (# ever)
   j. faculty national or regional awards (# ever)
   k. faculty appointments to NIH study sections (#)
   l. editorial board appointments (#)
   m. faculty on non-industry advisory boards (#)
   n. faculty who participate in Office of Research, CTSI and other training modules/programs within (name time) of joining the faculty (%)
   o. faculty who participate in University Teaching Excellence programs (#)
   p. faculty who participate in development programs of professional and scientific organizations (#)

47. Enhanced faculty participation in programs that support achievement of professional and academic potential.

   Measures:
   a. ACES and other skill development programs sponsored by the School (#)
   b. Faculty participation in University programs (e.g., survival skills program, K award series) (#)
   c. faculty who participate in Office of Research, CTSI and other training modules/programs within (name time) of joining the faculty (%)
   d. faculty who participate in University Teaching Excellence programs (#)
   e. faculty who participate in development programs of professional and scientific organizations (#)

48. Faculty who are engaged as citizens in serving the profession of pharmacy and the academic community.

   Measures:
   a. faculty on at least one School of Pharmacy committee (%)
   b. faculty who participate in faculty governance, e.g. faculty assembly or senate (#)
   c. faculty members on University committees in past five years (#)
   d. faculty serving on committees in other Schools or Institutes at the University (#)
   e. elected leaders in local, regional and national organizations
   f. local, regional, and national committee memberships (#)
   g. publications or scholarly article concerning practice or service (#)
   h. presentations of educational programs to academic, institutional, industry, government, and community groups (#)
   i. # of honors and awards received in recognition of outstanding service contributions
   j. % of faculty pharmacists who volunteer for the Lamsam Program
Staff
49. Recruited and retained staff who contribute to the strategic goals of the School and to the culture of teamwork and collaboration.
   Measures:
   a. administrative staff who attend biannual staff retreats (# and %)
   b. administrative staff who attend faculty/staff retreats (# and %)

50. Created and implemented individualized development plans for all staff members.
   Measures:
   a. internal development programs offered (#)
   b. staff who have attended internal development programs (#)
   c. staff who have attended external development programs (#)

Alumni, Friends, and Other Constituencies
51. Delivered high-quality and timely print and digital publications to internal and external stakeholders
   Measures:
   a. times stakeholders received communication from the School (#)
   b. distinct print or electronic pieces developed (#)
   c. on-time production of communication materials (%)
   d. event notifications submitted (#)
   e. press release placements (#)

52. Created a Web site that is easily navigated, features high-quality imaging and that provides up-to-date information.
   Measure:
   a. # of times error message on Web site

53. Retained our place among the top schools on campus for alumni engagement.
   Measure:
   a. alumni total (#)
   b. rank for alumni engagement
   c. alumni participating in School and University events (#)
   d. email addresses obtained (%)

54. Engaged and supported non-faculty preceptors who support our educational programs.
   Measures:
   a. non-faculty preceptors for at least one student (#)
   b. rotations offered by non-faculty preceptors (#)
   c. preceptors who attend preceptor development programs (#)
Financial Resources

By 2012, we will have:

55. Met the goals for the Capital Campaign.
   Measure:
   a. total dollars raised toward the $27 million Capital Campaign School goal ($ total in millions)
   b. programs that develop new resource base/increase funding (#)

56. Increased the book value of the School of Pharmacy endowment from $11 million to $21 million.
   Measure:
   a. Book value of the endowment

57. Increased total dollars and number of contributors through all sources of gifts.
   Measures:
   a. total donors including organizations (#)
   b. annual giving ($)
   c. total gifts and pledges ($ million)

Physical Resources

By 2012, we will have:

58. Renovated and refurbished existing space to meet programmatic needs
   Measure:
   a. Sq ft renovated/refurbished (# SF)

59. Secured our place in the Master Plan for Oakland, assuring adequate space for the School's programs.
   Measures:
   a. Total # assignable square feet of space allocated for School use
   b. Availability of state-of-the art research space in immediate proximity to Salk Hall
### National leader in pharmacy education

<table>
<thead>
<tr>
<th>Measure</th>
<th>Target</th>
<th>FY02 - Strateg Plan 02</th>
<th>FY06 - Strateg Plan 06</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
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<tr>
<td>Excellence</td>
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<tr>
<td>Years of ACPE accreditation granted</td>
<td>6</td>
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<tr>
<td>Graduates who take residency position (%)</td>
<td>15%</td>
<td>25%</td>
<td>16 (19%)</td>
<td>11</td>
<td>13</td>
<td>21</td>
<td>26 (24%)</td>
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<tr>
<td>Graduates who pursue Ph.D or MS training</td>
<td>12%</td>
<td>5%</td>
<td>2</td>
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<td>3 (3%)</td>
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<td>NAPLEX pass rate 1st attempt (%)</td>
<td>=&gt;95%</td>
<td>98.4%</td>
<td>90.1%</td>
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<tr>
<td>NAPLEX pass rate (%)</td>
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<td>91.6%</td>
<td>96.6%</td>
<td>100.0%</td>
<td>98.0%</td>
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<td>Students admitted with degrees (%)</td>
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<td>16%</td>
<td>11%</td>
<td>14.8%</td>
<td>18.5%</td>
<td>14.7%</td>
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<td>Men admitted to PharmD program (%)</td>
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<td>31%</td>
<td>36%</td>
<td>38.9%</td>
<td>34.3%</td>
<td>52.3%</td>
<td>37 (34.2%)</td>
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<td>Minorities admitted to PharmD program (%)</td>
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<td>4%</td>
<td>5.50%</td>
<td>4.6%</td>
<td>1.9%</td>
<td>4.6%</td>
<td>6 (7.4%)</td>
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### Innovation and Leadership

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<thead>
<tr>
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<th>Target</th>
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<th>FY08</th>
<th>FY09</th>
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<td>Peer Review Publications - teaching/assessment (#)</td>
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<td>Textbooks and book chapters</td>
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<td>Presentations re: innovation in teaching/assessment/education (#)</td>
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<td>0</td>
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<td>1</td>
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<td>23</td>
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<td>14</td>
<td>→</td>
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<td>Faculty learners in training programs (#)</td>
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<td>Faculty teachers in training programs (#)</td>
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<td>International rotations (##)</td>
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<td>-</td>
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<td>3</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Students participating in international rotations/year (#)</td>
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<td>-</td>
<td>→</td>
<td>7</td>
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<tr>
<td>Create opportunity for curricular tracks/areas of concentration</td>
<td>Yes</td>
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<td>Curricular tracks/areas of concentration (#)</td>
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<td>Students enrolled in curricular tracks/areas of concentration (#)</td>
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<td>→</td>
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<td>→</td>
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<td>Students: pursue training in OAC area after graduation (%)</td>
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<td>Interprofessional education courses, experiences (#)</td>
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### Graduate Program

**Excellence**

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<td>32</td>
<td>42</td>
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<td>Fellows awarded (AFPE, T32) (#)</td>
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<tr>
<td>Student awards, honors - external entities incl. travel(#)</td>
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<td>3</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>16</td>
<td>8</td>
<td>11</td>
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<tr>
<td>Peer-reviewed publications by graduate students (#/year)</td>
<td>15</td>
<td>7</td>
<td>16</td>
<td>21</td>
<td>14</td>
<td>16</td>
<td>19</td>
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<tr>
<td>Residents who presented at national/international meetings (#)</td>
<td>15</td>
<td>9</td>
<td>10</td>
<td>12</td>
<td>28</td>
<td>17</td>
<td>15</td>
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<td>PhD Graduates/year (#)</td>
<td>Track data</td>
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<td>6</td>
<td>3</td>
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<td>Graduates who take post-doctoral fellowships (%)</td>
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<tr>
<td>Residents who take academic positions (#)</td>
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<tr>
<td>Publications about the program (#)</td>
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<tr>
<td>Faculty as primary mentors (#)</td>
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<td>17</td>
<td>14</td>
<td>18</td>
<td>19</td>
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<tr>
<td>U.S. citizens or permanent residents in program (%)</td>
<td>Track data</td>
<td>30%</td>
<td>36%</td>
<td>35%</td>
<td>25%</td>
<td>47%</td>
<td>50%</td>
<td>45%</td>
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<tr>
<td>Stipend (% of NIH stipend)</td>
<td>&gt;= NIH stipend</td>
<td>75%</td>
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<td>R</td>
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<tr>
<td>Graduate students who take positions in industry #</td>
<td>Track data</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Graduate students who take positions in government #</td>
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<td>0</td>
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<td>1</td>
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<tr>
<td>Clinst Sci Program: faculty as primary mentors (#)</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
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<tr>
<td>Clin Pharm Sci Pgm: students enrolled (#)</td>
<td>12</td>
<td>9</td>
<td>6</td>
<td>9</td>
<td>6</td>
<td>12</td>
<td>19</td>
<td>17</td>
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<tr>
<td>Clin Pharm Sci Pgm: invited presentations about program (#)</td>
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<tr>
<td>Clin Pharm Sci Pgm: graduates who enter academia (#)</td>
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<tr>
<td>Clin PharmSci Pgm: students receiving national awards (#)</td>
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<td>2</td>
<td>4</td>
<td>6</td>
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<td>3</td>
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<tr>
<td>Clin PharmSci students receiving fellowships incl NRSA, AFPE (#)</td>
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<td>11</td>
<td>15</td>
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### Innovation and Leadership

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<tr>
<th>Measure</th>
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<th>FY09</th>
<th>FY10</th>
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<td>Learning opportunities available through CTSI (#)</td>
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<td>1</td>
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<td>Students who learn through CTSI partnership (#)</td>
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<td>MS programs (#)</td>
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<td>Students enrolled in MS program (#)</td>
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<td>7</td>
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### Residency Program

**Excellence**

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<td>Affiliations with residency programs (#)</td>
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<td>8</td>
<td>12</td>
<td>16</td>
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<td>17</td>
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<tr>
<td>Accredited programs (% of eligible programs)</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>Residency program partners (#)</td>
<td>Track data</td>
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<td>4</td>
<td>6</td>
<td>7</td>
<td>7</td>
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<tr>
<td>Residents (total #)</td>
<td>Track data</td>
<td>12</td>
<td>13</td>
<td>22</td>
<td>31</td>
<td>31</td>
<td>33</td>
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<tr>
<td>Residents who present at a national meeting (%)</td>
<td>100%</td>
<td>11 (85%)</td>
<td>21 (95%)</td>
<td>71.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100%</td>
<td></td>
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<tr>
<td>Residents who publish residency projects within 3 years (%)</td>
<td>100%</td>
<td>19.40%</td>
<td>→</td>
<td>27</td>
<td>(2.5%)</td>
<td></td>
<td></td>
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<tr>
<td>PGY-1 residents pursuing PGY-2 - incl management (%)</td>
<td>60%</td>
<td>3 (25%)</td>
<td>2 (50%)</td>
<td>8 (56%)</td>
<td>48.3%</td>
<td>60.0%</td>
<td>77.3%</td>
<td>13/22 (59%)</td>
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<tr>
<td>Residents who earn MS, MPH, PhD (%)</td>
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<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
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<tr>
<td>Residents who take academic positions (#)</td>
<td>25%</td>
<td>3 (17%)</td>
<td>0</td>
<td>3 (21%)</td>
<td>2</td>
<td>2</td>
<td>2 (12.5)</td>
<td>3/16 (18.75%)</td>
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<tr>
<td>Grants received by residents (#)</td>
<td>Track data</td>
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<td>2</td>
<td>2</td>
<td>3</td>
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### Research school of distinction

<table>
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<th>FY09</th>
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<td>Excellence</td>
<td>80%</td>
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### Leader in standardizing pharmacy patient care in community, institutions, and during transitions of care.

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### Increased effectiveness and efficiency

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#### Excellence

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<td>Technology training programs offered for faculty/staff (#)</td>
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<td>Faculty and staff trained on technology (%)</td>
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<td>Commercial &amp; self-built programs &amp; databases applied (#)</td>
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<td>Technological platforms adopted (% courses)</td>
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<td>Staff able to support adoption of course technology (# staff)</td>
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<td>Cost savings/bundling software &amp; group licenses ($)</td>
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<td>Savings through channeled spending/other opportunities ($)</td>
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#### Innovation and Leadership

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### Securing an adequate resource base

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#### Faculty

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#### Excellence

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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Staff who attend faculty/staff retreats (%)</td>
<td>30%</td>
<td>48%</td>
<td>57%</td>
<td>58%</td>
<td>71%</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Internal development programs: sessions offered (#)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Staff who attend internal development programs (#)</td>
<td>25</td>
<td>18</td>
<td>23</td>
<td>26</td>
<td>27</td>
<td>26</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Staff who attended external development programs (#)</td>
<td>25</td>
<td>23</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>18</td>
<td>-</td>
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</table>

### Alumni, Friends, and Others

<table>
<thead>
<tr>
<th>Measure</th>
<th>Target</th>
<th>FY02</th>
<th>FY06</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Times stakeholders received communication from School (#)</td>
<td>Track data</td>
<td>51a</td>
<td>51b</td>
<td>51c</td>
<td>51d</td>
<td>51e</td>
<td>51f</td>
<td>51g</td>
</tr>
<tr>
<td>Distinct print or electronic pieces developed (#)</td>
<td>30</td>
<td>11</td>
<td>30</td>
<td>23</td>
<td>24</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>On-time production of communication materials (%)</td>
<td>100%</td>
<td>100%</td>
<td>99%</td>
<td>99%</td>
<td>90%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Event notifications (#)</td>
<td>120</td>
<td>140</td>
<td>132</td>
<td>136</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Media placements (#)</td>
<td>32</td>
<td>38</td>
<td>39</td>
<td>65</td>
<td>51</td>
<td>48</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alumni Total (#)</td>
<td>4567</td>
<td>4567</td>
<td>4774</td>
<td>4887</td>
<td>5034</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rank for alumni engagement (%)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Alumni that participate in School and University events (#)</td>
<td>40.30%</td>
<td>38.10%</td>
<td>37.90%</td>
<td>36.14%</td>
<td>90%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E-mail addresses obtained (%)</td>
<td>49.90%</td>
<td>49.40%</td>
<td>60.90%</td>
<td>69.00%</td>
<td>69.73%</td>
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### Financial Resources

<table>
<thead>
<tr>
<th>Measure</th>
<th>Target</th>
<th>FY02</th>
<th>FY06</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dollars raised for capital campaign ($ cumulative total)</td>
<td>$27 million</td>
<td>55a</td>
<td>56a</td>
<td>57a</td>
<td>58a</td>
<td>59a</td>
<td>60a</td>
<td>61a</td>
</tr>
<tr>
<td>Programs developed that generate new revenue (#)</td>
<td>-</td>
<td>55b</td>
<td>56b</td>
<td>57b</td>
<td>58b</td>
<td>59b</td>
<td>60b</td>
<td>61b</td>
</tr>
<tr>
<td>Book value of endowment ($ million)</td>
<td>$5.937</td>
<td>$11.00</td>
<td>$11.800</td>
<td>$13.841</td>
<td>$14.524</td>
<td>$15.204</td>
<td>62</td>
<td>63</td>
</tr>
<tr>
<td>Total donors including organizations (#)</td>
<td>-</td>
<td>-</td>
<td>928</td>
<td>1013</td>
<td>882</td>
<td>910</td>
<td>789</td>
<td>64</td>
</tr>
<tr>
<td>Annual giving amount ($ thousands)</td>
<td>$0.67</td>
<td>$2.140</td>
<td>$2.044</td>
<td>$1.391</td>
<td>$1.077</td>
<td>$2.625</td>
<td>65</td>
<td>66</td>
</tr>
<tr>
<td>Total gift and pledge contributions ($ million)</td>
<td>$0.67</td>
<td>$2.140</td>
<td>$2.044</td>
<td>$1.391</td>
<td>$1.077</td>
<td>$2.625</td>
<td>67</td>
<td>68</td>
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### Physical Resources

<table>
<thead>
<tr>
<th>Measure</th>
<th>Target</th>
<th>FY02</th>
<th>FY06</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sq ft renovated/refurbished (#)</td>
<td>Track data</td>
<td>58a</td>
<td>58b</td>
<td>58c</td>
<td>58d</td>
<td>58e</td>
<td>58f</td>
<td>58g</td>
</tr>
<tr>
<td>Assignable Sq Ft allocated for School use (#SF-thousands)</td>
<td>113.8</td>
<td>63.5</td>
<td>71.4</td>
<td>84.7</td>
<td>83.4</td>
<td>80.7</td>
<td>82.5</td>
<td>69</td>
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<tr>
<td>Space assigned for laboratory research (# SF)</td>
<td>51.4</td>
<td>18.353</td>
<td>23121</td>
<td>23121</td>
<td>23121</td>
<td>21523</td>
<td>22025</td>
<td>70</td>
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Long-Range Plan 2018
School of Pharmacy
Adopted June 2012

“Providing the Innovators and the Discoveries to Solve the Complex Medication-Based Problems of Today and Tomorrow”

We will provide students with a personalized education that will efficiently prepare them to innovate, lead, and identify opportunities to improve health using the clinical and research principles of the pharmaceutical sciences.

We will build educational opportunities for non-pharmacy students and health care providers to learn about drugs, drug mechanisms, the use and abuse of medications, therapeutic applications, and the pharmaceutical sciences.

We will bridge the drug development gap for new therapies by integrating and expanding our strengths in drug development, drug delivery and biomarker research.

We will develop a translational pharmacogenomics research program to utilize patient-specific information as a component of personalized patient care.

We will impact the lives of the people in the communities in which we live and work through pharmacists who are health care providers promoting health and wellness, optimizing use of medications, and stemming the misuse, abuse, and diversion of medications.

We will create a Pharmacy Innovations Lab that will be the incubator and concept testing environment where multidisciplinary teams come together to address complex problems of medication use.

We will leverage existing and evolving technologies to enhance learning, to improve patient care, to enhance research, to engage stakeholders, and to become more efficient.

We will partner with our stakeholders and communities to develop the resources to advance our mission.
We will **provide students with a personalized education** that will efficiently prepare them to innovate, lead, and identify opportunities to improve health using the clinical and research principles of the pharmaceutical sciences.

We believe that personalized education will enrich individual student experiences and will better prepare them for success as they navigate the rapidly changing health care landscape and post-graduate environment.

By 2018, we will have:

- Evolved the curriculum of each degree program so that students achieve the “generalist” mastery and have had the opportunity to personalize their learning.
  - **Actions:**
    - Review and revise the curricular **outcomes** for the PharmD program to reflect contemporary and evolving practice and research. (FY13)
    - Personalize and contextualize learning by revising PharmD curriculum to create efficiency and flexibility for vertical integration of in-depth experiences, exposures, and knowledge in practice, in cultures, and in communities.
    - Develop teaching and advising strategies that allow students to build progressively on their strengths and interests and identify career aspirations.

- Embedded learning strategies to enhance educational effectiveness and efficiency and rapidly propel students to defined levels of mastery.
  - **Actions:**
    - Inventory current teaching strategies, approaches and resources (e.g., peer-learning, high-fidelity simulations, portfolios, educational support, and technology tools). (FY12)
    - Conduct educational programs, including online programs, for faculty and staff to prepare us to deploy educationally sound teaching, learning, and assessment strategies that are based on learning science. (FY13 and beyond)
    - Define a cross-school or cross-university multidisciplinary education support team to develop, deploy, and study strategies to rapidly propel students to defined levels of mastery. (FY13)
    - Build educational processes by which all students develop and demonstrate expertise in problem identification and problem solving.
    - Address the affordability of education through efficiencies in learning.

- Built learning experiences for students to become engaged in medication discovery, development, manufacture, distribution—including procurement and supply chain management, dispensing, clinical application, and clinical outcomes. (FY14)
  - **Actions:**
    - Develop partnerships that will facilitate opportunities for a student to pursue experiences in the areas that impact drug development, distribution, and use.
    - Develop an outcomes research track to the PhD program that will be available by fall 2014.
We will **build educational opportunities for non-pharmacy students and healthcare providers** to learn about drugs, drug mechanisms, the use and abuse of medications, therapeutic applications, and the pharmaceutical sciences.

We believe that greater depth of knowledge and understanding positively affects non-pharmacist attitudes about pharmacies, pharmacy-centered care, and the use and abuse of medications.

By 2018, we will have:

- Evaluated and potentially developed at least two interdisciplinary certificate programs and short courses.
  
  **Actions:**
  - Charge a taskforce to develop guidelines that will facilitate and guide options for new program (certificate, degree, short course) development. (FY13)
  - Draft and submit proposals for review:
    - At least one short course, including use of simulation in education or medication management in transplant patients (FY13)
    - At least one undergraduate and/or graduate certificate program (FY14) including pharmaceutical sciences (undergraduate) and research (graduate).

- Evaluated and potentially developed dual-degree, joint degree, or combined degree programs.
  
  **Actions:**
  - Obtain approval for a PharmD/MBA program as a model for the development of other two-degree programs. (FY13)
  - Draft guidelines for the process for partnering with other schools to create two-degree programs and other cross-disciplinary programs (FY13).

- Developed new or opened existing courses to non-pharmacists/non-pharmaceutical scientists who are engaged in the discovery, development, manufacture, distribution — including procurement and supply chain management, — dispensing, and clinical application.
  
  **Actions:**
  - Draft and submit proposals for review:
    - At least one course in an area of opportunity and need (FY13). Areas to consider include graduate and undergraduate courses in: medications of abuse, physiology, and drug discovery/development, pharmacogenomics.
    - Offer one or more courses during the summer, fall, or spring terms on an ongoing basis (FY13, 14).
We will **bridge the drug development gap for new therapies** by integrating and expanding our strengths in drug development, drug delivery and biomarker research.

We believe that the faculty of the School of Pharmacy has expertise to bridge the drug discovery, development, and delivery gap, sometimes known as the “Valley of Death” for the chemical to drug transition.

By 2018, we will have:

- **Become the “knowledge experts”** for campus researchers and external entities to pursue the development of chemicals into drugs or to repurpose currently approved drugs.
  
  **Actions:**
  
  o Develop a Center for Drug Development and Delivery that integrates the continuum of research spanning from delivery to the clinic.

  o Charge a task force to develop a proposal for the center, including identification of specific goals, administrative structure, and performance metrics.

  o Establish an outside advisory group that provides direction and guidance regarding development plans and selection of projects to be undertaken within the center.

  o Achieve focused growth particularly in pharmacogenomics, metabolomics, and PK/PD modeling.

- **Moved one or more compounds across the “Valley of Death” to the point of licensing the formulation or drug.**
  
  **Actions:**
  
  o Develop a new or apply an existing algorithm for moving potential candidate molecules through the development and/or delivery process.

  o Expand the biomarker core to include biomarker discovery (metabolomics) and validation (modeling) as it relates to drug effect and disease progression.

- **Developed partnerships with external sources including industry partners.**
  
  **Actions:**
  
  o Develop a mechanism to engage expertise outside the School of Pharmacy.

  o Work with the Office of Technology Management to identify and engage with industry partners.
We will **develop a translational pharmacogenomics research program** to utilize patient-specific information as a component of personalized patient care.

We believe that pharmacogenomics is central to the role of pharmacists in the healthcare team to make personalized medicine a reality for each individual patient.

We believe that pharmacy is uniquely positioned to determine drug response and genetic profile systematically in individual patients and to assess variability in drug response among patients.

We believe pharmacy should be the primary driver of research aimed at understanding drug response/pharmacogenetic relationships and diffusing this knowledge into clinical practice.

By 2018, we will have:

• **Established a translational pharmacogenomics research program.**
  **Actions:**
  o Recruit at least one faculty member who has translational pharmacogenomics/epigenetics expertise and at least one faculty member who has a pharmacogenomics clinical research focus.
  o Define resources needed to collect outcomes and to design/test interventions.
  o Integrate School of Pharmacy researchers into genetics-focused initiatives such as the Personalized Medicine Institute and the NIH-funded Pharmacogenomics Research Network.
  o Generate and access genetic information for the purpose of personalizing drug therapy.

• **Established processes for incorporating pharmacogenomics into new and existing drug use protocols and measuring the clinical outcomes from these implementations.**
  **Actions:**
  o Charge a task force with external expert representatives to recommend mechanisms for establishing pharmacogenomic testing services at UPMC.
  o Build pharmacist-based systems to define and measure drug and patient outcomes.

• **Become the identifiable source for information about the application of pharmacogenomics to patient care.**
  **Actions:**
  o Build a web-based pharmacogenomics information resource housed in the School of Pharmacy.
  o Lead the diffusion of understanding regarding the drivers of drug response, including the application of pharmacogenetics, throughout inpatient and community patient-care sites; this includes pharmacists and other health care providers.
We will **impact the lives of the people in the communities in which we live and work** through pharmacists who are health care providers promoting health and wellness, optimizing use of medications, and stemming the misuse, abuse, and diversion of medications.

We believe that pharmacies can become the home of health and wellness within communities through interprofessional models of care.

We believe that pharmacists, who are among the most trusted professionals, can play an essential role in the prevention and treatment of illness and in the promotion of health and wellness.

By 2018, we will have:

- **Partnered with UPMC and UPMC Health Plan and other entities to continually pilot, implement, evaluate, and disseminate pharmacist-based patient care programs.**
  - **Action:**
    - Design, implement, and evaluate a telepharmacy or remote pharmacy program.

- **Created pharmacy-centric community health zones that are scalable.**
  - **Actions:**
    - Evaluate the Pharmacy Practice Act for legality of pharmacists providing pharmacy care when not associated with a dispensing pharmacy; pursue a pharmacy license if needed.
    - Establish a partnership with the Oak Hill Neighborhood Association in Pittsburgh with the goal of improving overall health and wellness.

- **Addressed America’s prescription drug abuse crisis and improve the safety of the public through policy, research, and patient care demonstration programs.**
  - **Actions:**
    - Develop scalable prescription drug programs that partner physicians, dentists, pharmacists, and patients to address the use, misuse, abuse, and diversion of medications.
    - Engage in collaborative practices in chronic pain and palliative care.

- **Created global partnerships that will advance pharmacy care to promote health, wellness, and the appropriate use of medications.**
  - **Actions:**
    - Create Memoranda of Understanding with international partners—including schools of pharmacy and non-governmental organizations.

- **Gained recognition from the public for pharmacists as health care providers who promote health, wellness, and the appropriate use of medications.**
  - **Actions:**
    - Maximize collaborative practice opportunities ambulatory care and community settings, including dental practices.
    - Create programs and tools that can promote health and wellness.
    - Engage student pharmacists in an organized approach to address medication-based needs of patients.
    - Host an Invitational Conference on implementation of effective pharmacy care models.
We will **create a Pharmacy Innovations Lab** that will be the incubator and concept-testing environment where multidisciplinary teams come together to address complex problems of medication use.

We believe that bringing together expertise and perspectives from many disciplines, including those external to health, sparks innovation and leads to novel solutions to complex problems.

By 2018, we will have:

- **Created innovative patient care models that have become clinical “game changers” and the foundation for policy.**
  - **Actions:**
    - Systematically incorporate pharmacy and non-pharmacy stakeholders into planning, conducting, and communicating our work.
    - Take on the risk to design, implement, and evaluate system interventions with partners, including self-insured companies, to improve health outcomes.
    - Define effective mechanism for diffusion of innovative findings into inpatient, outpatient and community-based settings.
    - Establish and host recurring partner colloquia where research questions and research in-progress are shared to identify and extend opportunities to improve health outcomes.
    - Use technologies to improve pharmacy-based care of patients.

- **Become the “knowledge experts” for creative solutions to systems-related medication problems.**
  - **Actions:**
    - Create a white paper for the Pharmacy Innovations Lab that includes recent accomplishments and the case for development of the Lab. (FY13)
    - Create a portfolio of projects and programs that demonstrate improved care and make it available on-line in print. (FY13)
    - Organize symposia at Pitt and at national health care meetings.
    - Create a Web-site that showcases the available expertise.
We will leverage existing and evolving technologies to enhance learning, to improve patient care, to enhance research, to engage stakeholders, and to become more efficient.

We believe that technology can magnify the impact of a single person.

We believe that pharmacists must successfully utilize vast and growing amounts of health information to inform prescribing decisions regarding individual patients and populations of patients.

By 2018, we will have:

• Enriched the student experience by applying technology and web-based content that augments innovative teaching and assessment strategies and supports our goals.
  Actions:
  o Establish “Educational Technology Committee” to guide and recommend the efficient application of technology, web-based content, and assessment strategies. (FY13) For example:
    a. Implementation of systematic capture of course content, i.e., lecture.
    b. Develop additional VPSim cases with variable difficulty and development of new simulations and applications for the hi-fidelity human simulator.
    c. Develop additional multi-university courses so that students can interact through media with students and faculty at other universities.

• Created a technology “help team” that supports education and the other elements of our mission.
  Actions:
  o Charge a faculty-staff-student technology advisory committee with external participants to continually evaluate technologies that will support and advance our mission and goals.

• Created systems for capturing and readily retrieving patient-specific information about medication outcomes to support practice-based research.
  Action:
  o Use national claims data and link to health outcomes.
  o Develop systems or work with partners to develop “add-ons” to existing systems, e.g. EpiCare, EMR, Cerner.
  o Obtain a data-capture system to support School of Pharmacy patient-care programs.

• Become the “knowledge experts” or referral group for technology implementation.
  Action:
  o Evaluate and publish results of technology implementation, offer short courses, and license or share technology developed internally.

• Efficiently applied technology to optimize utilization of staff and faculty time and financial resources.
  Actions:
  o Implement a mechanism for making internal and external video calls and conferences.
We will **partner with our stakeholders and communities to develop the resources to advance our mission.**

We believe that the members of the extended School of Pharmacy family are united in our pride in our past and in our ability to shape our future.

By 2018, we will have:

- Partnered with individuals, companies, and organizations who will open their network of colleagues to provide opportunities for students to personalize their education.

- Recruited and retained faculty and staff who are critical to achieving the goals stated in Long-Range Plan 2018.

- Designed and built new effective “neighborhoods” within Salk Hall and Salk Pavilion for:
  - teaching and learning, including simulation, practice laboratories, and large and small classrooms.
  - laboratory research.
  - practice- and computer-based research in Salk Hall.

- Met our internal Capital Campaign goal so that the funds raised support this Long-Range Plan.
  - Create a Technology Development Fund.