Fall 2015

Dear Friends,

PittPharmacy is truly one of the finest schools of pharmacy in the nation—in every way. A great school makes its impact through exceptional education, research, and patient care programs—and PittPharmacy is great. What may not be obvious is that we have accelerated our progress because together, the faculty and staff developed and evolved our Long Range Plan. The process that began in 2001 continues to the present time: the current plan is Long-Range Plan 2018. Our shared vision and goals guide our actions, and as new opportunities arise and our environment changes, we respond with new goals.

We personalize the education of our students—and to a student, they would use that term to describe their PittPharmacy experience. “Personalizing education” and “getting to expert faster” happens because we purposefully engage students in defining their personal paths in the first semester of P1 year, and facilitate the development of knowledge of opportunities and networks of professionals. I share a quote from our first-ever Fulbright Scholar (2015):

“I am honored to represent our school and profession through the Fulbright Grant. Your support, and the opportunity to "personalize" my experience in the PharmD program, certainly provided the foundation for a competitive application. I cannot fully express my gratitude for the hard work of faculty members . . . and their contributions during the Fulbright application process.”

Ranking ninth in NIH funding marks us as a “research school of distinction.” We stated that we would develop a translational pharmacogenomics program—and I am pleased to share that we have implemented a clinical pharmacogenetics program, with a research foundation, for patients at UPMC Presbyterian. We have also developed an award-winning (from AACP) educational program that enables practitioners—pharmacists, and other healthcare professionals, enabling to utilize genetic information in selecting medications.

In Long Range Plan 2018, we stated that we would build a PittPharmacy Innovation Lab—and we have. This annual report includes a first-time summary of accomplishments. Those accomplishments include developing a course into a semester-long Drug Development game to be implemented in January 2016, creating an advisory board, and offering a two semester creativity and innovation curriculum.

Finally, this academic year was truly historic. In May 2015, many of our faculty, staff and graduate students moved their research laboratories into Salk Pavilion—the first-ever new construction for our 137-year-old school. The Commons provides gathering space, and the vacancies in Salk Hall provide opportunities to provide office spaces for more of our faculty and additional learning spaces for students.

True to our mission, we are “excellent,” we are “innovative,” and we are “leaders.”

Hail to Pitt!

Patricia D. Kroboth, Dean
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### Long-Range Plan 2018

Long-Range Plan 2018
Leading Pharmacy Education
Leading Pharmacy Education

The School builds on its rich tradition of excellence in education, producing innovators to solve the complex medication-based problems of today and tomorrow and enhance the health and well-being of individuals and communities. The School prepares pharmacists of the future through the PharmD program and advanced practice residencies and prepares future scientists through its graduate program.

The School of Pharmacy has adopted two broad goals for our PharmD, residency, and graduate programs:

- Personalizing Education and
- Getting to Expert Faster.

The chart below shows the number of students and trainees in each of our programs; it also shows the usual pathways to each degree or training program.
EDUCATION BY THE NUMBERS FOR FY15

• Our total number of students in degree granting programs has reached the all-time high of **520**. The student body is 22% higher than a decade ago and 33% higher than FY02.

• The students were taught by **77** full-time faculty members.

![Total Number of Students Enrolled](image)

PharmD Program

In FY15:

• **114** students matriculated for the PharmD class of 2019; average SAT score of **1410** and GPA and PCAT scores of 3.58 and 81%, respectively.

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

• **231** scholarships totaling **$479,700** were awarded to **191** PharmD students.

• University of Pittsburgh pharmacy student organizations won **5** national or regional awards.

• PharmD students presented **58** posters at national and regional meetings.

• **314** pharmacists in **23** states and **9** countries provided **756** APPE rotations for **108** fourth professional year students.

• **106** students in the class of 2015 received PharmD degrees and

• **82** students elected to receive the Bachelor of Science in Pharmaceutical Sciences after their second professional year.

• **70 (21%)** of 331 students in the P2, P3, and P4 years were enrolled in Areas of Concentration.
Residency Program
In FY15:
• 44 residents (31 PGY1 and 16 PGY2) came from 23 schools of pharmacy in 17 states.
• Our 13 programs were in partnership with 14 institutions/entities.
• 36 residents presented their research results at national or regional meetings.
• 23 residents participated in training programs to enhance their teaching and clinical precepting—12 residents completed the “Mastery of Teaching Program” and 11 completed “Orientation to Learning and Teaching Program.”
• 16 residents were accepted into PGY2 specialty residency programs and 2 were accepted into a fellowship or stewardship programs.
• 8 residents accepted faculty positions at schools of pharmacy.
• 5 residents achieved board certification as pharmacotherapy specialists during their residencies.
• 8 PGY2 residents accepted a clinical position at an academic medical center, 4 of which were at the UPMC Health System.
• 2 residents earned Master of Health Administration degrees from the University of Pittsburgh School of Public Health.

Graduate Program
In FY15:
• 76 students were enrolled: 52 PhD students; 13 Master of Science students; 11 Non Thesis Master of Science students.
• 42 received degrees is pharmaceutical sciences; 12 PhD students; 13 Master of Science students; 17 Non Thesis Master of Science students.
• 28% (15/52) of the full-time PhD students are U.S. citizens or permanent residents.
• 50% (26/52) of the full-time PhD students have degrees from schools of pharmacy; 9 of 52 (17%) have PharmD degrees.
• 9 students received regional or national awards for excellence in research.
• 34 peer-reviewed manuscripts or book chapters were published by graduate students.
• Graduate students gave 35 presentations at regional and national scientific meetings.
• 14 postdoctoral fellows were engaged in research in School of Pharmacy laboratories.

BS in Pharmaceutical Sciences
In April 2015, 82 students elected to receive the Bachelor of Science in Pharmaceutical Sciences at the end of their second professional year.

The PharmD Program
As a recognized national leader in pharmacy education, the School of Pharmacy offers world-class learning opportunities for students. The School of Pharmacy:
• contributes to the national dialogue about the scholarship of teaching, learning, and assessment through publications and presentations;

• provides students with a rich array of opportunities to personalize their education, including areas of concentration; elective courses; independent study; research engagement; experiential rotations; travel to state, regional, and national meetings; and international pharmacy travel;

• empowers 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; and

• provides student pharmacists and graduate pharmacists with support and resources through a lifetime 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 January 31, 2017.

Increasing the Value of a PharmD Education: Getting to Expert Faster

Members of the faculty and staff have taken steps to increase the value of a PharmD education at Pitt through five mechanisms:

A. Adopting the philosophy of “cost of PharmD education” vs. the credit-based tuition. Students are permitted to take courses above a standard credit limit and during the summer with no additional tuition.

B. “Personalizing education.” See next major section.

C. Accelerating learning through active engagement.
   1. Facilities enhance active engagement. The Novo Nordisk Learning Center, which opened in fall 2013, is a state-of-the-art classroom that facilitates active and small-group learning in a large group setting. Up to 126 students can work in groups of six, each with its own work table and video monitor. Contemporary technology allows the instructor to project to the monitors while also allowing students to connect laptops and mobile devices to the monitors for targeted group work.

   2. Setting expectations and assessing performance. The FY15 implementation of a blended-simulation, readiness assessment sets student expectations and assesses student progress and readiness for Advanced Pharmacy Practice Experiences. P1 and P3 students plus PGY1 residents participate. Foundational knowledge, clinical decision making, patient communication skills, interprofessional communication skills, and attitudes of ownership for patient outcomes are all assessed in the performance-based assessment.

This assessment is now part of PittPharmacy's comprehensive assessment program. Data are used to inform student-specific education plans, as well as improvements to the curriculum to accelerate student development.
D. Developing, implementing, and increasing the number of learning situations that engage students in simulated clinical environments and with simulated patients and health care providers to accelerate the development of clinical decision-making, patient education, and interprofessional communication skills.

1. Standardized patients (trained actors)
2. Standardized colleagues (trained actors and faculty volunteers)
3. Computer cases with branched algorithms that utilize game theory
4. Human patient simulators (mannequins)

Simulated patient experiences have tremendous value for learning because each of the above:
- Provides immediate feedback to the student on performance.
- Protects patients from medication errors or students practicing first-time communication skills.
- Provides a known safe environment for student learning.
- Has “known correct” answers to patient situations.

1. **Standardized Patients.** 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 and to receive detailed feedback from faculty focused on continued development and refinement of skills.

2. **Standardized Colleagues.** Faculty and residents trained as standardized physicians and other health professionals provide student opportunities to practice communication skills to effectively engage in collaborative team-based care delivery and navigate potentially difficult conversations. All P1 students also participate in the fall Interprofessional Forum to learn alongside first-year students in other health sciences programs on campus about the emerging importance of interprofessional collaborative care in the current era of health care reform.

3. **Virtual Patient Simulation.** PittPharmacy faculty members are nationally recognized for their development and use of computer-based, virtual patients to integrate case-based teaching of complex therapeutic concepts and clinical decision-making processes into the curriculum. Their award-winning work with a branched-outcome decision-making model is based on game theory. These cases have enhanced clinical decision making in the therapeutics component of the curriculum.

4. **Human Patient Simulators.** The Peter M. Winter Institute for Simulation, Education and Research (WISER) Center remains a valuable resource for use in pharmacy 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 a full-time director of simulation, two simulation mannequins, four arms to train in blood pressure monitoring, and a wound care foot that are housed in Salk Hall for students’ use to improve their clinical skills.

E. Optimizing the use of required Introductory Pharmacy Practice Experiences (IPPEs) and Advanced Pharmacy Practice Experiences (APPEs), which require interactions with patients and other health care providers.
FY 15 Real Patient Care Experiences: Introductory Pharmacy Practice Experiences (IPPEs)

Student experiences with patients depend greatly on preceptors, some of whom are faculty.

- 42 preceptors supervised 114 P1 students.
- 77 preceptors supervised 111 P2 students.
- 104 preceptors supervised 109 P3 students

Students interact with real patients in the P1, P2 and P4 year; the focus in the P3 year is on operational aspects of pharmacy.

SilverScripts is a program through which Pitt student pharmacists interact with seniors at senior centers throughout the Pittsburgh. During the first visit, students talk with patients about their drug therapy. Two weeks later, after developing and reviewing a plan for the patient, each student pharmacist returns to visit with the same senior to talk with them and make recommendations. Students meet their patients in the spring of the P1 year, see them again in the fall of their P2 year, and then transition the patients to the P1 students in the following spring.

SilverScripts Program Impact during FY15

<table>
<thead>
<tr>
<th>SilverScripts Spring 2015 P1 Students</th>
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<tr>
<td>Blood Pressure Checks</td>
<td>730</td>
</tr>
<tr>
<td>Total Med Reviews</td>
<td>316</td>
</tr>
<tr>
<td>Medication Education w/out med review</td>
<td>59</td>
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Drug Therapy Problems (DTPs) Identified

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<tr>
<th>Drug Therapy Problems Identified</th>
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<tr>
<td>Unnecessary Drug Therapy</td>
<td>48</td>
</tr>
<tr>
<td>Needs Additional Drug Therapy</td>
<td>208</td>
</tr>
<tr>
<td>Needs Different Drug Product</td>
<td>49</td>
</tr>
<tr>
<td>Dosage Too Low</td>
<td>24</td>
</tr>
<tr>
<td>Adverse Drug Reaction</td>
<td>41</td>
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<tr>
<td>Dosage Too High</td>
<td>18</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>117</td>
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Referral to other health care provider | 52 |

Total # Drug Therapy Problems Identified | 505 |

P2 Community IPPE Patient Interactions and Collective Impact on Patients

<table>
<thead>
<tr>
<th>Year</th>
<th># Students</th>
<th># Patient Encounters</th>
<th># Drug Therapy Problems Identified</th>
<th># Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td></td>
<td>6,762</td>
<td>3720</td>
<td>4,006</td>
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REAL PATIENT CARE EXPERIENCES: ADVANCED PHARMACY PRACTICE EXPERIENCES (APPEs)

In their P4 year, students interact with patients in a variety of settings. Results from the PITT form for tracking show the impact of students on patients in various settings.

<table>
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<tr>
<th>Patient Impact FY15</th>
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<tr>
<td>Patient Interactions</td>
<td>20,385</td>
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<tr>
<td>Drug Therapy Problems Identified</td>
<td>14,296</td>
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<tr>
<td>Drug Therapy Recommendations</td>
<td>14,857</td>
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<tr>
<td>Adverse drug events identified</td>
<td>1,482</td>
</tr>
<tr>
<td>Adverse drug events averted</td>
<td>1,233</td>
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In FY15, 314 preceptors supervised 108 P4 students during 756 five- or six-week rotations. The types of proportions of rotations are shown in the pie chart below.

APPE Distribution by Rotation Type

Increasing the Value of a PharmD Education: Personalizing Education

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.

Long Range Plan 2018

The faculty is enabling students to personalize their education through a growing array of opportunities.
A. Areas of Concentration
B. Special Topics
C. Presentations of Research at Regional or National Meetings
D. International Rotations
E. Professional Development through Advising
A. AREAS OF CONCENTRATION (ARCOs)

During FY15, three additional areas of concentration (ARCOs) were approved, bringing the total number offered to six. Seventy (70) or 21% of 331 students in the P2, P3, and P4 years were enrolled in Areas of Concentration.

By spring 2015, a total of 70 students were enrolled, including 34 new students. Enrolled are:

- Ten students in the ARCO-Global Health (2 P2, 4 P3, 4 P4).
- Fourteen students in the ARCO-Research (1 P2, 8 P3, 5 P4).
- Twelve students in the ARCO-Pharmacy Business Administration (6 P3, 6 P4).
- Four students in the ARCO-Pediatrics (1P3, 3 P4).
- Twenty students in the ARCO-Community Leadership, Innovation, and Practice (10 P3, 10 P4).
- Ten students in the ARCO-Pharmacotherapy Scholars (10 P4).

B. SPECIAL TOPICS

Special Topics elective courses allow students the opportunity to personalize their education by engaging in a mentored experience in a particular area of pharmaceutical science, pharmacy practice, or pharmacy education through individual or small group work under the direction of a faculty member. Special Topics may take the form of immersion in a laboratory, a defined literature review, or other longitudinal experience, activity, or course co-designed by a student and a faculty mentor. Special Topics courses may be designed for one, two, or three credits each, depending on the nature of the experience, expected commitment of the student, and stated outcomes of the course.

C. STUDENT PRESENTATIONS AT NATIONAL AND REGIONAL MEETINGS

Student Presentations at National and Regional Meetings

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<td>Nick Farina, Kevin Ordons, Marissa Csovelak, Melissa Shook [P4’s]</td>
<td>Characterization of delirium in a medical ICU that emphasizes frequent delirium screening at a tertiary, academic medical center</td>
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<th>American Society of Health-System Pharmacists Midyear Clinical Meeting</th>
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<td>Anthony Boyd (P4)</td>
<td>USP chapter &lt;795&gt; gap analysis: Improving non-sterile compounding of pharmaceutical products in a tertiary academic medical center</td>
</tr>
<tr>
<td>Anthony Boyd (P4)</td>
<td>Evaluation of argatroban in patients with suspected or confirmed heparin-induced thrombocytopenia (HIT) in a large academic health system</td>
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<tr>
<td>Jamie Eckardt (P4)</td>
<td>Comparative effectiveness of aspirin based dual-antiplatelet therapies on major adverse cardiovascular events in the healthcare system</td>
</tr>
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<td>Carla Iasella (P4)</td>
<td>Evaluating the impact of incentives on smoking cessation success in a substance abuse population</td>
</tr>
<tr>
<td>Tyler Chanas (P4)</td>
<td>Safety of intravenous ketorolac and acetaminophen in laparoscopic donor nephrectomy</td>
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<tr>
<td>Kiersten Williams (P4)</td>
<td>Laura Bredenberg (P4)</td>
</tr>
<tr>
<td>Julia DiNardo (P3)</td>
<td>Valerie Nolt (P3)</td>
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</table>
Jamie Eckardt (P4) Pharmacy collaboration with nursing staff to increase HCAHPS scores at a large academic institution

Nicholas Farina (P4) Observation and analysis of inpatient pharmacist interventions regarding patients at an off-site ambulatory surgery center

Rachel Filaggi (P4) Kevin Ordons (P4) Antipsychotic use in delirious medical ICU patients

Michelle Hayes (P4) Timothy Stimach (P4) Safety evaluation of triple antithrombotic therapy at a large, academic medical center

Shea Liput (P3) A UPLC-MS/MS method for determination of serum phenytoin and levetiracetam concentrations in pediatric CA patients receiving therapeutic hypothermia

John Lyons (P4) Comparative safety analysis of aspirin-based dual antiplatelet therapies on incidence of major and minor bleeding events in a healthcare system

Cara Mazzarisi (P4) Concordance across published severity of illness criteria for clostridium difficile colitis and implications for initial therapy selection: Does it all add up?

Cameron Ninos (P3) Examining the strength of evidence associated with off-label drug use in the ICU setting

Valerie Nolt (P4) Alexandra Warble (P4) Assessment of second-generation antipsychotic utilization and metabolic parameter monitoring in an inpatient pediatric population

Timothy Stimach (P3) Development of a nomogram for nurse assessment of ertapenem dose appropriateness in an outpatient parenteral antimicrobial therapy clinic

Timothy Stimach (P3) Development of a standardized and effective technician training model at a large academic teaching facility

Robert Sutton (P3) Automated medication dispensing cabinets: Optimized

Georgina Waldman (P3) Development of a nomogram for nurse assessment of ertapenem dose appropriateness in an outpatient parenteral antimicrobial therapy clinic

Nan Wang (P4) Assessment of learner-perceived rigor and quality characteristics of advanced pharmacy practice experiences

Chelsea Zavilla (P3) Development of a system-wide hospital policy for anticoagulation laboratory monitoring

American Pharmacists Association Annual Meeting

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<td>Svetlana Avshalumov (P3)</td>
<td>Why are patients late to refill their maintenance medications?</td>
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<tr>
<td>Cassandra Bloor (P3)</td>
<td>Collaborative practice agreements: Potential for community pharmacists to more effectively resolve drug therapy problems</td>
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<tr>
<td>Aaron Devanathan (P3)</td>
<td>The evaluation of student-provided online resources for second-year student pharmacists to supplement classical didactic learning</td>
</tr>
<tr>
<td>Chelsea Henderson (P3)</td>
<td>Evaluating and improving a pharmacy student-led community outreach program at local senior centers</td>
</tr>
<tr>
<td>Brittney Knass (P3)</td>
<td>Patient attitudes toward pharmacogenomics testing in an independent community pharmacy</td>
</tr>
<tr>
<td>Jon Kovac (P3)</td>
<td>Blood pressure self-monitoring: Factors affecting compliance in community-dwelling hypertensive patients</td>
</tr>
<tr>
<td>Arthi Kumar (P3)</td>
<td>Characterizing patient experiences to out-of-stock medications in two community pharmacies</td>
</tr>
<tr>
<td>Primary Author</td>
<td>Poster Title</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Alyssa Kunkel (P3)</td>
<td>Exploring the relationship between patient activation and medication-related problems for patients with chronic diseases</td>
</tr>
<tr>
<td>Emily Linville (P3)</td>
<td>A comparison of hospital clinical pharmacist roles and attitudes in Shanghai, China and Pittsburgh, Pennsylvania</td>
</tr>
<tr>
<td>Emily Linville (P3)</td>
<td>Patient and community pharmacist perceptions regarding appropriate antibiotic use</td>
</tr>
<tr>
<td>Michelle (Myers P3)</td>
<td>Improving care coordination for patients on long-acting injectable antipsychotics transitioning from hospital to home: A work systems approach</td>
</tr>
<tr>
<td>Andrew Nguyen (P4)</td>
<td>Disparities in depressive symptoms and antidepressant and anxiolytic medication use among Asian American subgroups</td>
</tr>
<tr>
<td>Emily Smith (P3)</td>
<td>Patient perceptions and satisfaction with pharmacist integration in a physician-run cardiology clinic</td>
</tr>
<tr>
<td>Georgina Waldman (P3)</td>
<td>Characterizing medication needs and transitions of care process for newly discharged cardiology patients</td>
</tr>
<tr>
<td>Ryan Winstead (P3)</td>
<td>Exploration of clinical pharmacy practice and its relation to health care expenditure</td>
</tr>
</tbody>
</table>

**American Public Health Association Meeting**

<table>
<thead>
<tr>
<th>Primary Author</th>
<th>Poster Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kate Harrigan (P2)</td>
<td>Racial and ethnic disparities in analgesic prescribing for migraine in U.S. emergency departments</td>
</tr>
</tbody>
</table>

**Pennsylvania Pharmacists Association Mid-Year Conference**

<table>
<thead>
<tr>
<th>Primary Author</th>
<th>Poster Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maddie Adams (P2)</td>
<td>Outpatient pharmacy - conducted discharge medication bedside delivery service</td>
</tr>
<tr>
<td>Hunter Busansky (P2)</td>
<td>Outpatient pharmacy - conducted discharge medication bedside delivery service</td>
</tr>
<tr>
<td>Svetlana Avshalumov (P3)</td>
<td>Why are patients late to refill their maintenance medications?</td>
</tr>
<tr>
<td>Brandon Barry (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Dylan Ahrens (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Caroline Beck (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Carrece Faulknor (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Tyler Graham (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Bradley Wong (P1)</td>
<td>Thrifty White Pharmacy: Providing services via med sync</td>
</tr>
<tr>
<td>Nayanika Basu (P1)</td>
<td>What do pregnant females and mothers of newborns need from community pharmacists?</td>
</tr>
<tr>
<td>Cassandra Bloor (P3)</td>
<td>Collaborative practice agreements: Potential for community pharmacists to more efficiently resolve drug therapy problems</td>
</tr>
<tr>
<td>Kelsey Moss (P3)</td>
<td>Collaborative practice agreements: Potential for community pharmacists to more efficiently resolve drug therapy problems</td>
</tr>
<tr>
<td>Rebecca Campbell (P3)</td>
<td>Medical marijuana: a pharmacist’s perspective</td>
</tr>
<tr>
<td>Sophia Yang (P3)</td>
<td>Medical marijuana: a pharmacist’s perspective</td>
</tr>
<tr>
<td>Danielle Bellen (P3)</td>
<td>Medical marijuana: a pharmacist’s perspective</td>
</tr>
<tr>
<td>Christina Vaghetto (P3)</td>
<td>Medical marijuana: a pharmacist’s perspective</td>
</tr>
<tr>
<td>Gabby Dziuba (P1)</td>
<td>The age of the expanding pharmacist: partnering with the underserved</td>
</tr>
<tr>
<td>Nicolette Diehl (P1)</td>
<td>The age of the expanding pharmacist: partnering with the underserved</td>
</tr>
<tr>
<td>Olivia Marchionda (P1)</td>
<td>The age of the expanding pharmacist: partnering with the underserved</td>
</tr>
<tr>
<td>Katlyn Grossman (P3)</td>
<td>Pharmacy student outcomes in an underserved population setting</td>
</tr>
<tr>
<td>Sophia Yang (P3)</td>
<td>Pharmacy student outcomes in an underserved population setting</td>
</tr>
<tr>
<td>Elena Schaller (P3)</td>
<td>Pharmacy student outcomes in an underserved population setting</td>
</tr>
<tr>
<td>Danielle Bellen (P3)</td>
<td>Pharmacy student outcomes in an underserved population setting</td>
</tr>
<tr>
<td>Meera Vacchani (P3)</td>
<td>Perceptions and attitudes toward HPV vaccination among college students</td>
</tr>
<tr>
<td>Alyssa Kunkel (P3)</td>
<td>Perceptions and attitudes toward HPV vaccination among college students</td>
</tr>
<tr>
<td>Kaleen Hayes (P3)</td>
<td>Perceptions and attitudes toward HPV vaccination among college students</td>
</tr>
<tr>
<td>Stephanie Tchen (P2)</td>
<td>Use of mobile technology to improve patient education and medication adherence in pharmacy practices</td>
</tr>
</tbody>
</table>

| Harvey He (P2) | Use of mobile technology to improve patient education and medication adherence in pharmacy practices |
### D. INTERNATIONAL APPE ROTATIONS

P4 students may complete APPE rotations at international sites as long as they are fulfilling an elective experience. This year a total of 29 students had international APPE rotation experiences, more than double the number the previous year.

#### P4 International Rotations FY10 – FY15

<table>
<thead>
<tr>
<th>Year</th>
<th>Other</th>
<th>Philippines</th>
<th>China</th>
<th>Malawi</th>
<th>Australia</th>
<th>London</th>
<th>Dublin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010-2011</td>
<td>5</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2012</td>
<td>10</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-2013</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013-2014</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014-2015</td>
<td>35</td>
<td>11</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Locations of the P4 rotations and students who participated:

- Ashraf Pharmacy in West Bank, Palestine (1 student, Amanda Jaber).
- Austin Health in Australia (2 students, Rebecca Tokarski and Kathryn Wersosky).
- Malawi Children’s Village in Malawi (1 student, Leah Williams).
- Shanghai Hospital in Shanghai, China (2 students, Tyler Chanas and Andrew Nguyen).
- ISMETT in Palermo, Italy (3 students, Rebecca Fletcher, Rachel Jansen and Lindsay Rihtarchik).
- Hombro a Hombro, Honduras. (5 students, Anna Bondar, Stephanie Cotugno, Danielle Mayer, Katie McGuire, and Judy Ugwuegbu).
- Sir Charles Hospital in Australia (2 students, Hope Nakazato and Julia Zacchini).
- Philippine general Hospital in Manila, Philippines (4 students, Lauren Cirrincione, Trey Draude, Cara Mazzarisi and Natalie Valentino).
- King’s College in London, England (2 students, Laura Bredenburg and Michelle Hayes).

Students may also travel after their P1 and P2 years. Those data are not included here.

**E. STUDENT PROFESSIONAL DEVELOPMENT**

Advising and career development are key to the School’s goal of personalizing education. The School has a tradition of students using portfolios to demonstrate achievement since the 1990s. The School maintains 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. Students also use the platform to create a professional portfolio as they approach graduation and prepare for interviews. Robust processes for faculty and peer evaluation of portfolios have been implemented, including rubrics to clearly communicate expectations and direct feedback. Standardized training is provided for individuals serving as portfolio reviewers. Each term, every student in the P1 and P2 years meets individually with a faculty member to discuss progress in the curriculum. Every P3 and P4 student meets with either a faculty member or practitioner for focused career planning and mentoring.

Career Learning and Mentoring groups were established in FY14 to expand the School's commitment to student advising. Groups of six P1 students meet with faculty advisors to work with the students throughout the four years of the curriculum. Every fall, six students from the P1 class are added to each group to establish a community of learners and near-peer mentors.

**INDICATORS of EXCELLENCE**

**CURRICULAR IMPROVEMENT AND OVERSIGHT**

The School has become nationally recognized for its assessment approaches and commitment to a culture of assessment. School faculty members received the Award for Excellence in Assessment from the American Association of Colleges of Pharmacy in 2012. In addition, three projects were selected over two years (2013 and 2014) for presentation at the annual Assessment Institute, the nation’s oldest and largest event focused exclusively on outcomes assessment in higher education. The School’s Curriculum Assessment Committee is responsible for monitoring the effectiveness of the PharmD curriculum and the achievement of student learning outcomes.
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.

Students

RECRUITMENT AND ENROLLMENT
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 innovators and 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 114 students for the class of 2015.
In previous years, the Annual Report captured the average SAT scores for the entering PharmD students who submitted SAT scores. Since the SAT is not required for our open admission application, we have chosen to report the average scores for the early assurance matriculated students.

During FY15, we recruited the class of 2019 for fall enrollment.

- Early assurance admission to the class of 2019
  - 1 student applied for the PharmD program after freshman year.
  - 62 students applied for PharmD program after sophomore year.
  - 62 were interviewed.
  - 47 were qualified and were offered admission.
  - 46 accepted the offers.

- Open admission to the class of 2019
  - 490 applied to the PharmD program.
  - 148 were interviewed.
  - 101 were offered admission.
  - 71 accepted the offers.

Data for entering classes over time are summarized in the table below. Of the students in the class of 2019, 37% are men and 63% are women (31% and 69%, respectively, in the class of 2018); and 6% are from an underrepresented minority (5% in the class of 2018).

<table>
<thead>
<tr>
<th>Fall Term</th>
<th>Residency Status</th>
<th>Early Assurance</th>
<th>Application Pathway*</th>
<th>Students with 4-Year Degree (% of class)</th>
</tr>
</thead>
<tbody>
<tr>
<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>
</tr>
<tr>
<td>2003</td>
<td>86</td>
<td>14</td>
<td>36</td>
<td>38</td>
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<tr>
<td>2004</td>
<td>85</td>
<td>15</td>
<td>52</td>
<td>28</td>
</tr>
<tr>
<td>2005</td>
<td>92</td>
<td>8</td>
<td>60</td>
<td>28</td>
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<tr>
<td>2006</td>
<td>87</td>
<td>13</td>
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<td>44</td>
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<td>2007</td>
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<td>2008</td>
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</tr>
<tr>
<td>2009</td>
<td>85</td>
<td>15</td>
<td>51</td>
<td>39</td>
</tr>
<tr>
<td>2010</td>
<td>81</td>
<td>19</td>
<td>47</td>
<td>51</td>
</tr>
<tr>
<td>2011</td>
<td>73</td>
<td>27</td>
<td>49</td>
<td>44</td>
</tr>
<tr>
<td>2012</td>
<td>77</td>
<td>23</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td>2013</td>
<td>71</td>
<td>29</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>2014</td>
<td>75</td>
<td>25</td>
<td>43</td>
<td>46</td>
</tr>
<tr>
<td>2015</td>
<td>71</td>
<td>29</td>
<td>46</td>
<td>56</td>
</tr>
</tbody>
</table>

*Total across Applications Pathway sums to the total students enrolled
**Scholarship Support for Students**

The amount of scholarship funds awarded by the School of Pharmacy in FY15 was 167% more than the amount awarded FY04 as shown in the figure below.

---

**Graduating Class of 2015**

106 students received their PharmD diplomas at the April 2015 Commencement Ceremony.

99% of students in the Graduating Class of 2015 passed the North American Pharmacist Licensure Exam on their first attempt and 98.8% 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.

Forty-one percent (41%) of the class of 2015 continued training in a post-PharmD residencies or fellowships. Other graduates obtained employment in a variety of pharmacy practice settings.
Class of 2015

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>2015+</td>
<td>103/104</td>
<td>99.0</td>
<td>95.8</td>
<td>93.7</td>
</tr>
<tr>
<td>2014</td>
<td>102/102</td>
<td>100</td>
<td>95.9</td>
<td>94.4</td>
</tr>
<tr>
<td>2013</td>
<td>104/107</td>
<td>97.2</td>
<td>96.9</td>
<td>95.4</td>
</tr>
<tr>
<td>2012</td>
<td>106/106</td>
<td>100</td>
<td>98.0</td>
<td>96.4</td>
</tr>
<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>
</tbody>
</table>

*Jan–Aug scores

Comparison Multistate Pharmacy Jurisprudence Examination® (MPJE®) Results:

<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>2015+</td>
<td>82/83</td>
<td>98.8</td>
<td>95.2</td>
<td>93.5</td>
</tr>
<tr>
<td>2014</td>
<td>95/96</td>
<td>99.0</td>
<td>95.0</td>
<td>93.15</td>
</tr>
<tr>
<td>2013</td>
<td>83/84</td>
<td>98.8</td>
<td>95.0</td>
<td>92.8</td>
</tr>
<tr>
<td>2012</td>
<td>91/91</td>
<td>100</td>
<td>95.1</td>
<td>92.5</td>
</tr>
<tr>
<td>2011</td>
<td>89/89</td>
<td>100</td>
<td>96.6</td>
<td>95.6</td>
</tr>
<tr>
<td>2010</td>
<td>70/73</td>
<td>95.9</td>
<td>93.9</td>
<td>92.1</td>
</tr>
<tr>
<td>2009</td>
<td>77/77</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes University of Pittsburgh School of Pharmacy graduates taking the MPJE® in Pennsylvania as a first-time candidate.

**State pass rates by calendar year not able to be calculated prior to 2011.

* Jan–Aug scores
### Recognitions and Awards

#### Recognition and Awards: Student Organizations

<table>
<thead>
<tr>
<th>Organization</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Societies of Health-System Pharmacy (SSHP)</td>
<td>Outstanding Professional Development Project Award from American Society of Health-System Pharmacists</td>
</tr>
<tr>
<td>PittPharmacy Students</td>
<td>Student Government Relations Award by the Pennsylvania Pharmacists Association</td>
</tr>
<tr>
<td>PittPharmacy Students</td>
<td>Achieving Independence Competition by the Pennsylvania Pharmacists Association</td>
</tr>
<tr>
<td>PittPharmacy Students</td>
<td>National Challenge Award Medication Adherence Team Challenge. Part of the national <em>Script Your Future</em> public awareness campaign coordinated by the National Consumers League</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>Lauren Cirrincione (P4)</td>
<td>Selected for 2015-2016 Fullbright US Student Award</td>
<td>Highly competitive and based on factors that include quality and feasibility of an individually designed research project proposal, academic record, and personal qualifications. Fullbright scholars represent the US as cultural ambassadors</td>
</tr>
<tr>
<td>Sophia Yang (P3)</td>
<td>Awarded the George F. Archambault Scholarship</td>
<td>Awarded during the 2015 American Pharmacists Association Annual Meeting in recognition of active involvement in the School's American Pharmacists Association-Academy of Student Pharmacists Chapter</td>
</tr>
<tr>
<td>Karen Quach (P1)</td>
<td>Elected to participate in the 2015 Bridging the Gaps Summer Internship</td>
<td>Selected by Pitt Public Health to participate in an intensive eight-week community experience</td>
</tr>
<tr>
<td>Nicolette Diehl (P1)</td>
<td>Recipient of the 2015 Walmart Scholars Program</td>
<td>Selected at the American Association of Colleges of Pharmacy</td>
</tr>
<tr>
<td>Michelle Myers (P3)</td>
<td>Paul G. Cano Legislative Intern</td>
<td>Chosen from 100 applicants across the country throughout the American Society of Consultant Pharmacists</td>
</tr>
<tr>
<td>Dylan Atkinson (P2)</td>
<td>Selected as the Pittsburgh Schweitzer Fellows</td>
<td>One-year fellowship focusing on implementing medication management and education services at a free health clinic</td>
</tr>
<tr>
<td>Lauren Woolley (P2)</td>
<td>Awarded travel grants and registration to Annual Meeting</td>
<td>College of Psychiatric &amp; Neurologic Pharmacists Foundation</td>
</tr>
<tr>
<td>Andrea Evankovich (P2)</td>
<td>Awarded a Nationality Rooms Scholarship</td>
<td>Selected by the Polish Room Committee</td>
</tr>
<tr>
<td>Keito Hoshitsuki (P2)</td>
<td>Pediatric Oncology Education summer internship</td>
<td>St. Jude Children's Research Hospital in Memphis, Tennessee</td>
</tr>
</tbody>
</table>
### Student Awards

<table>
<thead>
<tr>
<th>Student</th>
<th>Award</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daisy Zhu (P2)</td>
<td>American Pharmacists Association-Academy of Student Pharmacists National Communications Standing Committee</td>
<td>Selected as a member of the American Pharmacists Association-Academy of Student Pharmacists National Communications Standing Committee</td>
</tr>
<tr>
<td>Michelle Myers (P3)</td>
<td>Awarded a Pennsylvania Pharmacists Association Project Grant</td>
<td>&quot;Pharmacist-led Improvements to Care Coordination for Patients on Long-Acting Injectable Antipsychotics Transitioning from Hospital to Home&quot;</td>
</tr>
<tr>
<td>Chelsea Henderson (P3)</td>
<td>Elected as Region 2 Midyear Regional Meeting Coordinator</td>
<td>Elected at the American Pharmacists Association-Academy of Student Pharmacists Region 2 Midyear Regional Meeting</td>
</tr>
<tr>
<td>Karen Hoang (P3)</td>
<td>Elected as Regional Vice Satrap</td>
<td>Elected at the Kappa Psi Mountain East Province Fall Assembly</td>
</tr>
<tr>
<td>Karen Hoang (P3)</td>
<td>Honored with the Kappa Psi Recognition Pin</td>
<td>Recognized for her work at Mountain East Province Planning Committee Co-chair</td>
</tr>
<tr>
<td>Karen Hoang (P3)</td>
<td>W. Bruce Philip Certificate of Commendation</td>
<td>Recipient for serving as Parliamentarian</td>
</tr>
<tr>
<td>Madeline Chavara (P2)</td>
<td>Elected International Pharmaceutical Students federation Corporate Relations Committee</td>
<td></td>
</tr>
<tr>
<td>Nick Farina (P4)</td>
<td>American College of Clinical Pharmacy Best Student Poster Competition finalists</td>
<td></td>
</tr>
<tr>
<td>Kevin Ordons (P4)</td>
<td>American College of Clinical Pharmacy Best Student Poster Competition finalists</td>
<td></td>
</tr>
<tr>
<td>Rachel Filiaggi (P4)</td>
<td>Awarded the American Pharmacists Association-Academy of Pharmacy Practice and Management Presentation Merit Award</td>
<td>Recognized exceptional poster presentation</td>
</tr>
<tr>
<td>Cassandra Bloor (P3)</td>
<td>Awarded the American Pharmacists Association-Academy of Pharmacy Practice and Management Presentation Merit Award</td>
<td>Recognized exceptional poster presentation</td>
</tr>
<tr>
<td>Kelsey Moss (P3)</td>
<td>Travel award to attend the American College of Clinical Pharmacy Annual Meeting.</td>
<td>Awarded to selected student pharmacists across the nation</td>
</tr>
</tbody>
</table>

### Student Awards at Graduation

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Student Awardee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lilly Achievement Award</td>
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<td>John Herman Wurdack Award</td>
<td>Tyler Chanas</td>
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<td>TEVA Pharmaceuticals Outstanding Student Award</td>
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<td>American Pharmacists Association-Academy of Students of Pharmacy Senior Recognition Certificate</td>
<td>Joshua Niznik</td>
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<td>Pennsylvania Pharmacists Association Outstanding</td>
<td>Kyle McGrath</td>
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### Award Title | Student Awardee
--- | ---
Pharmacy Student Award | 
Mylan Pharmaceutical Excellence in Pharmacy Award | Anthony Boyd
University of Pittsburgh, School of Pharmacy, Advancement of Patient Care Services Award | Rachel Jansen
Robert W. Taylor Award for Outstanding Performance in Patient Care Rotation | Andrew Nguyen
University of Pittsburgh, School of Pharmacy, Innovations in Community Practice Award | Ukwen Akpoji
Facts and Comparisons Award of Excellence in Clinical Communication | Nan Wang
Merck Award | Eric Hilty
US Public Health Service–Excellence in Public Health Pharmacy Practice Award | Trey Draude
Natural Medicines Comprehensive Database Recognition Award | Kiersten Williams

### Student Selections of Faculty for Awards
Students in the P4 year select 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 2014-15 awardees were:

- Dr. Christopher R. Ensor, Assistant Professor, Department of Pharmacy and Therapeutics. Dr. Ensor provides acute care rotations in the thoracic transplantation program at UPMC Presbyterian. He is a founding faculty member of the Pharmacotherapy Scholars Area of Concentration. Dr. Ensor offers rotations for P3 and P4 students.

- Dr. Luis S. Gonzalez offers acute care rotations in the medical/surgical intensive care unit, coronary care unit, and general medical/surgical areas of Conemaugh Memorial Medical Center in Johnstown, PA. An exemplary teacher, this is the second time he has been chosen to receive this award. Dr. Gonzalez offers rotations for P3 and P4 students.

P4 students also elect a Stanford I. Cohen Teacher of the Year.
- Dr. James J. Pschirer, Assistant Professor, Department of Pharmacy and Therapeutics, was the 2014-2015 recipient.

All students vote on a faculty member of the year and present it at the American Pharmacists Association-Academy of Student Pharmacists student formal.
- Dr. Lucas A. Berenbrok, Assistant Professor, Department of Pharmacy and Therapeutics, was the 2014-2015 recipient.
PROFESSIONAL DEVELOPMENT: EDUCATING THE NEXT GENERATION OF PRACTITIONERS

DM Educate® - 3rd Edition: Comprehensive Diabetes Management
After significantly updating DM Educate® to the 3rd edition in FY14, revised content was distributed to over 1,000 individuals. Approximately 128 health professionals registered for continuing education credit: 106 pharmacists, 14 nurses, 7 registered dieticians, and 1 other. Over 889 students were reached by the program at 46 different schools in the US and abroad.

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 FY15:

Fall Continuing Education Seminar
“Therapeutic Updates” featured presentations by Adrienne Cervone, PharmD, Heather Johnson, PharmD, BCPS, and Amy Calabrese Donihi, PharmD, BCPS. The program was attended by 66 pharmacists. The intent of this continuing education program was to educate attendees about new treatment options for diabetes and hepatitis C, as well as the latest recommendations on a variety of vaccines.

Spring Continuing Education Seminar
“Topics in Infectious Disease Management” featured presentations by Alison L. Galdys, MD, and Brian A. Potoski, PharmD. The program was attended by 70 pharmacists. The intent of this continuing education program was to educate attendees about the management of disease outbreaks caused by emerging infectious pathogens, and advances in the management of infectious diseases caused by gram negative antibiotic-resistant bacteria.

CLIP Workshop Series
- Feb. 6, 2015: “The Role of the Pharmacist in Advancing Public Health” featured a presentation by Krista Pedley, PharmD, MS, CDR, US Public Health Service. 130 pharmacists and student pharmacists attended.
- March 6, 2015: “The Future Is Now: Pharmacists Providing Care in their Communities” featured presentation by Troy Trygstad, PharmD, MBA, PhD, VP Pharmacy Services, Community Care of North Carolina. 135 pharmacists and student pharmacists attended.

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.
Residents 2014-2015

Total Residents: 44
Total Number of Types of Residency Programs: 13
Locations for the 3 PGY1 programs: 13
Locations for the 10 PGY2 programs: 4

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Pitt Residency Program</th>
<th>Year</th>
<th>PharmD School</th>
<th>Plans for FY15</th>
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<td>Teresa</td>
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<tr>
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<tr>
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<td>Year</td>
<td>PharmD School</td>
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## Residents Recruited for 2015-2016

Total Residents: 44  
Total Number of Types or Residency Programs: 13  
Locations for the 3 PGY1 programs: 13  
Locations for the 10 PGY2 programs: 5

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**Graduate Program: Educating the Next Generation of Scientists**

Graduate Program in Pharmaceutical Sciences

This program prepares students for positions in academia, government, and industry. The School of Pharmacy offers three degrees: the PhD, the thesis-based Master of Science (MS), and the 12-month, 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 five tracks: biochemical pharmacology, medicinal chemistry, pharmaceutics, and clinical pharmaceutical sciences (a specialized program to train students in clinical and translational science).

**Admission and Enrollment Demographics**

The total number of students enrolled in the graduate program for FY15 included **76** full-time and **3** part-time students enrolled in the pharmaceutical sciences graduate program. The part-time students included two in the MS program, and one in the non-thesis MS program.

Of the **76** full-time students: **52** are PhD students; **13** are Master of Science students; **11** are non-thesis MS students.

- 28% (15/52) of the PhD students are U.S. citizens or permanent residents.
- 50% (26/52) of the PhD students have degrees from schools of pharmacy.
- 8 students passed their comprehensive examination and achieved PhD candidate status.
At the beginning of the FY15, 79 students were enrolled in the graduate program: 76 full-time and 3 part-time students. Part-time students include 2 in the MS program and 1 in the non-thesis MS program.

Of the 76 full-time students: 52 are PhD students; 13 are Master of Science students; 11 are non-thesis MS students.

- **28% (15/52)** of the PhD students are U.S. citizens or permanent residents.

**2014-2015 (FY15) Admission Demographics**

For the class that enrolled in the fall of 2014:

- The school received 92 applications for the PhD program, 47 for the MS program and 6 for the non-thesis MS.
- 6 PhD students received admission offers and 5 enrolled (83% yield).
  - 1 of the 6 is a US citizen.
  - 1 of the 6 has a PharmD degree.
- 12 MS students received admission offers and 9 students enrolled.
- 14 NTMS students received admission offers (2 had applied through the PhD application, 8 through the MS and 4 through the NTMS); 6 enrolled.

**2015-2016 (FY16) Admission Demographics**

- The school received 60 applications for the PhD program, 43 for the MS program and 3 for the non-thesis MS.
- 10 PhD students were offered admission and 9 accepted for fall 2015 (90% yield).
  - 2 of the 9 are either a US citizen or permanent resident.
  - 1 holds a PharmD degree.
  - 1 holds a PhD degree
- 10 MS students were offered admission and 7 accepted for fall 2015 (70% yield).
- 17 NTMS students were offered admission (6 applied through the PhD application, 9 through the MS application, 2 through the NTMS); 4 accepted for fall 2015.
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*CPS – Clinical Pharmaceutical Scientist Program

Students Selected for the Pharmaceutical Sciences PhD and Research-based MS Graduate Program, Beginning in Fall 2015

<p>| Name                  | Advisor                | Track                          | Degree       |
|-----------------------|------------------------|                               |              |
| Franchetti, Yoko      | Nolin, Thomas          | CPS*                           | PhD          |
| Jhunjhunwala, Kunal   | Rohan, Lisa            | Pharmaceutics                  | PhD          |
| Ma, Shifan            | Xie, Sean              | Medicinal Chemistry            | PhD          |
| Niznik, Joshua        | Thorpe, Joshua         | Pharmaceutical Outcomes and Policy Research | PhD |
| Patel, Akhil          | Sant, Shilpa           | Pharmaceutics                  | PhD          |
| Shehu, Amina          | Ma, Xiaochao           | Pharmacology                   | PhD          |
| Silva Barbosa, Anne   | Xie, Wen               | Pharmacology                   | PhD          |
| Xu, Jieni             | Li, Song               | Pharmaceutics                  | PhD          |
| Zhang, Hongfei        | Venkataramanan, Raman  | CPS*                           | PhD          |
| Bian, Yuemin          | Xie, Sean              | Medicinal Chemistry            | MS           |
| Kondiparthi, Lavanya  | Sant, Shilpa           | Pharmaceutics                  | MS           |
| Pitale, Yohann        | Sant, Shilpa           | Pharmaceutics                  | MS           |
| Vasudevan, Vignesh    | Venkataramanan, Raman  | CPS*                           | MS           |
| Wang, Nanyi           | Xie, Sean              | Medicinal Chemistry            | MS           |</p>
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*Clinical Pharmaceutical Scientist Program and Pharmaceutics Track

**Students Selected for the Pharmaceutical Sciences Non-Research Based MS Graduate Program, Beginning in Fall 2015***

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*All Non-Research Based MS are advised by Dr. Vinayak Sant

**Students Completing Graduate Degrees in 2014-2015**

**Master of Science Graduates**

**Ellen Press, MS**
Advisor: Ryan Shields, PharmD and Samuel Poloyac, PharmD, PhD
Graduation: December 2014  (Defense completed October 2014)
Thesis Title: Biofilm Production and Susceptibility Among Candida albicans Isolates from Various Clinical Sites

**Junyi Li, MS**
Advisor: Robert Gibbs, PhD
Graduation: April 2015 (Defense completed )
Thesis Title: Effect of Ovariectomy, Estrogen and Cholinergic Input on Aromatase in Different Brain Regions

**Kunal Jhunjhunwala, MS**
Advisor: Lisa Rohan, PhD
Graduation: August 2015 (Defense completed May 2015)
Thesis Title: Design and Evaluation of a Topical Rectal Specific Microbicide for HIV prevention

**Shifan Ma, MS**
Advisor: Xiang-Qun (Sean) Xie, PhD, MBA
Graduation: April 2015 (Defense completed March 2015)
Thesis Title: Chemogenomics Knowledgebase and Targethunter for Polypharmacology Analysis of A Traditional Chinese Herbal Formula, "Sini Decoction".

**Xiaomeng Xu, MS**
Advisor: Xiang-Qun (Sean) Xie, PhD, MBA
Graduation: April 2015 (Defense completed March 2015)
Thesis Title: Chemogenomics Knowledgebase and Systems Pharmacology for Hallucinogen Target Identification - Salvinorin A as a Case Study

Xiaole Yang, MS
Advisor: Xiang-Qun (Sean) Xie, PhD, MBA
Graduation: April 2015 (Defense completed March 2105)
Thesis Title: CRC Platform: A Colorectal Cancer Domain-specific Chemogenomics Knowledgebase for Polypharmacology and Target Identification Research

Yuzhe Chen, MS
Advisor: Shilpa Sant, PhD
Graduation: August 2015 (Defense completed July 2015)
Thesis Title: A 3D Spheroid Model as a Platform to Study Non-Viral Gene Delivery System

Akhil Patel, MS
Advisor: Shilpa Sant, PhD
Graduation: April 2015 (Defense completed March 2015)
Thesis Title: Carbon Nanotube Functionalization and Scaffold Topography Guide Differentiation of Myoblasts

Amina Shehu, MS
Advisor: Xiaochao Ma, PhD
Graduation: August 2015 (Defense completed June 2015)
Thesis Title: The Role of Pregnane X Receptor In Ritonavir-Induced Liver Injury

Jieni Xu, MS
Advisor: Song Li, MD, PhD
Graduation: August 2015 (Defense completed May 2015)
Thesis Title: Preparation of Peg-Derivatized Pump as a Dual-Functional Carrier for Anticancer Drugs.

Hongfei Zhang, MS
Advisor: Raman Venkataramanan, PhD
Graduation: August 2015 (Defense completed July 2015)
Thesis Title: Posaconazole Pharmacokinetics in Lung Transplant Recipients with and Without Cystic Fibrosis.

Shilpaa Mukundan, MS
Advisor: Shilpa Sant, PhD
Graduation: August 2015 (Defense completed May 2015)
Thesis Title: A 3D Spheroid Model as a Platform to Study Non-Viral Gene Delivery System

Yuzhe Chen, MS
Advisor: Shilpa Sant, PhD
Graduation: August 2015 (Defense completed July 2015)
Thesis Title: A 3D Spheroid Model as a Platform to Study Non-Viral Gene Delivery System
PhD Graduates

**Almehizia, Abdulrahman, PhD**
Advisor: Xiang-Qun (Sean) Xie, PhD, MBA
Graduation: April 2015 (Defense completed March 2015)
Thesis Title: Design, Synthesis and Biological Evaluation of Novel Selective Cannabinoid Receptor 2 (Cb2) Ligands with Therapeutic Potentials

**Alshabi, Ali, PhD**
Advisor: Song Li, PhD
Graduation: August 2015 (Defense completed June 2015)
Thesis Title: Regulation of Phase I, II, and III Pathways by Pregnancy Related Hormones.

**Alshogran, Osama, PhD**
Advisor: Song Li, PhD
Graduation: December 2014 (Defense completed November 2014)
Thesis Title: Characterization of the Effect of Chronic Kidney Disease on Hepatic Drug Reduction: In-Vitro and In-Vivo Studies of Warfarin

**Donnelly, Mark K., PhD**
Advisor: Samuel M. Poloyac, PharmD, PhD
Graduation: December 2014 (Defense completed September 2014)
Thesis Title: Role of Cytochrome P450 Fatty Acid Metabolism in the Pathophysiology of Subarachnoid Hemorrhage

**Ihunnah, Chibueze, PhD**
Advisor: Wen Xie, MD, PhD
Graduation: August 2014 (Defense completed May 2014)
Thesis Title: The Role of Estrogen Sulfotransferase in Human Adipogenesis

**Jiang, Mengxi, PhD**
Advisor: Wen Xie, MD, PhD
Graduation: August 2014 (Defense completed July 2014)
Thesis Title: The Role of Steroid Sulfatase in Energy Homeostasis and Inflammation

**Lu, Jianqin, PhD**
Advisor: Song Li, PhD
Graduation: December 2014 (Defense completed November 2014)
Thesis Title: Targeted Delivery of Anticancer Agents to Cancer

**Shawaqfeh, Mohammad S., PhD**
Advisor: Raman Venkataramanan, PhD
Graduation: August 2014 (Defense completed July 2014)
Thesis Title: Potential Contributors to the Decreased Vitamin B6 Levels after Transplantation

**Whetstone, Ryan, PhD**
Advisor: Barry Gold, PhD
Graduation: December 2014 (Defense completed November 2014)
Thesis Title: The Effect of Inflammation on Stem Cell Mutagenesis and Carcinogenesis Induced by Azoxymethane in Wild type and Immune Compromised Mice
Zhai, Zu Wei, PhD
Advisors: Ralph Tarter, PhD
Graduation: April 2015 (Defense completed February 2015)
Thesis Title: The Role of Attachment to Parents in the Etiology of Substance Use Disorder

Zhang, Yifei, PhD
Advisor: Song Li, PhD
Graduation: August 2014 (Defense completed May 2014)
Thesis Title: Targeted Therapy for Liver Fibrosis and Cancer

Zhang, Peng, PhD
Advisor: Song Li, PhD
Graduation: August 2014 (Defense completed July 2014)
Thesis Title: Rational Design of Nanocarriers with Enhanced Carrier-Drug Interaction for Improved Cancer Therapy.

Non-Thesis MS Graduates

Graduation: August 2014
Ziheng Hu, MS       Bibissara Kulmanova, MS
Daniel Mason, MS    Odunze Uchechukwu, MS
Danfeng Shen, MS    Xiaohuan Sun, MS
Liwei Wang, MS      Yijun Wu, MS
Xinyan Xie, MS

Graduation: December 2014
Jennifer Mehrens, MS

Graduation: April 2015
Jamal Almowalad, MS Guanxing Hu, MS
Hewen Li, MS        Nouzhou Wang, MS

Graduation: August 2015
Ying-Yu Lin, MS     Shin Lan Liu, MS
Tianyu, Sun, MS

Awards to Graduate Students

Research or Presentation Awards

• Sung Tae Kim won the Best Poster Award at the KSBMB International Conference 2015, Seoul, South Korea for his poster “Role of UBR4, a Substrate Recognition Component of the N-End Rule Pathway, in the Endo-Lysosomal System.”
Minlu Hu was selected as one of five New Investigator Award recipients for the HIV Research for Prevention 2014: AIDS Vaccine, Microbicide and ARV-based Prevention Science (HIV R4P), the first global scientific conference focused exclusively on HIV prevention research, held on October 28 – 31 in Cape Town, South Africa. Her presentation was entitled “Expression, Activity, and Regulation of Phosphorylating Enzymes in Genital and Colorectal Tissues and Immune Cells.”

Katie Eichinger won a travel award to attend the National Multiple Sclerosis Society 2014 Autumn Immunology Conference 2014 in Chicago, IL. The title of her presentation was “Immunity Facilitates Interferon- (Ifn) Mediated Clearance of Respiratory Syncytial Virus (RSV) Independent of Cellular Immunity”.

Xiaolan Zhang won one of five Best Poster Awards at the School of Pharmacy Research Retreat for her poster "Targeted Delivery of Anticancer Agents via a Dual Functional Nanomicellar Carrier".

Mohammed Alqarni won one of five Best Poster Awards at the School of Pharmacy Research Retreat for his poster “Structural and Functional Study of Human Cannabinoid Receptor 2 Expressed from Insect Cells”.

Rujuta Joshi won one of five Best Poster Awards at the School of Pharmacy Research Retreat for her poster “Continuous Infusion Dosing of Mycophenolate Mofetil for Graft versus Host Disease Prophylaxis in Pediatric Hematopoietic Stem Cell Transplant Recipients”.

Lingjue Li won one of five Best Poster Awards at the School of Pharmacy Research Retreat for her poster “The Alterations of Cerebral Microcirculation after Asphyxial Cardiac Arrest in Developing Rats”.

Jiong Yan won one of five Best Poster Awards at the School of Pharmacy Research Retreat for his poster “CAR Promotes Cullin1-mediated Ubiquitination and Degradation of PGC1 in PML Nuclear Bodies”.

Akhil Patel was a member of the First Place Team in Pitt's 1st Annual Student Startup Competition sponsored by the Innovation Institute. The title of the winning product was ‘myHealth’.

Harini Venkata Krishnan won the 2014-2015 Global Academic Competition (Pharmaceutical Sciences) from the Catalent Applied Drug Delivery Institute for her project entitled “Three Dimensional Cell Cultures: Opportunities for Drug Discovery and Development”.

Firuz Feturi won the Best Poster Awards at the 3th Annual Regional Pharmacy Research Forum West Virginia University and 6th Annual Pittsburgh AAPS Student Chapter Research Symposium for her poster, “Locally Implantable Tacrolimus loaded Disc for Allograft Targeted Immunosuppression after Vascularized Composite Tissue Allotransplantation”.

Lingjue Li won the Young Investigator Travel Bursary to attend the XXVIIth International Symposium on Cerebral Blood Flow, Metabolism and Function in Vancouver, Canada. Her poster was entitled “Alterations of the Cerebral Microvascular Circulation after Asphyxial Cardiac Arrest in Developing Rats”.

Firuz Feturi won the TERMIS A_M Travel Award to attend the 2014 Tissue Engineering and Regenerative Medicine World Congress in Washington, DC.

Rujuta Joshi won the Best Poster at the 2015 Regional Pharmacy Research Forum sponsored by the AAPS Student Chapter West Virginia University for her poster entitled “Pharmacokinetic based MMF dosing in Pediatric Hematopoietic Stem Cell Transplant Recipients”.
Competitive Fellowships

- Kacey Anderson received an AFPE Pre-Doctoral Fellowship in Pharmaceutical Sciences for her proposal "Drug Disposition in Critical Illness: Effects of Disease and Targeted Temperature Management" Mentor-Samuel Poloyac PharmD, PhD. (September 2015-August 2016).

- Kacey Anderson was awarded the Jonas Salk Fellowship from the Jewish HealthCare Foundation for the 2014-15 academic year.

- Katherine Eichenger received an AFPE Pre-Doctoral Fellowship in Pharmaceutical Science for her proposal "Immunomodulation of the neonatal response to Respiratory Syncytial Virus (RSV) using inhaled interferon gamma (IFN α)" Mentor-Kerry Empey, PharmD, PhD. (September 2014-August 2015).

- Tao Long was awarded the Jonas Salk Fellowship from the Jewish HealthCare Foundation for the 2014-15 academic year.

Other Awards

- Peipei Lu won the Pharmaceutical Sciences Graduate Student Excellence Award from the University of Pittsburgh, School of Pharmacy.

- Xiaolan won the Norman R. and Priscilla A. Farnsworth Student Award from the University of Pittsburgh, School of Pharmacy.

- Dustin Walsh won the Randy and Renee Juhl Pharmacy Graduate Scholar Award from the University of Pittsburgh, School of Pharmacy.

- Hari Kalluri won the Graduate Student Teaching Assistant Award from the University of Pittsburgh, School of Pharmacy.

- Solomon Adams won the School of Pharmacy Dean’s award for his professional and academic accomplishments in the Graduate Program.

Travel Awards

- Jiong Yan received a Graduate Program Council travel award to attend the 6th Great Lakes Nuclear Receptor Conference Program at the University of Wisconsin, Madison.

- Akil Patel received a Graduate Program Council travel award to attend the Biomaterials 2015 Annual Meeting and Exposition in Charlotte, NC.

- Osama Alshogran received a Graduate Program Council travel award to attend the American Society of Nephrology (ASN) Annual Meeting 2014 in Philadelphia, PA.

- Hari Kalluri received a Graduate Program Council travel award to attend the 2014 World Transplant Congress Meeting in San Francisco, CA.

- Jianqin Lu received a Graduate Program Council travel award to attend the 2014 Annual Meeting and Exposition of the Controlled Release Society in Chicago, IL.

- Peipei Lu received a Graduate Program Council travel award to attend the Experimental Biology 2015 Meeting in Boston, MA.
Ryan Whetstone received a Graduate Program Council travel award to attend the 16th Annual Midwest DNA Repair Symposium in Detroit, MI.

ZuWei Zhai received a Graduate Program Council travel award to attend the 2014 Meeting of the Society for Prevention Research in Washington, DC.

Peng Zhang received a Graduate Program Council travel award to attend the 41st Annual Meeting and Exposition of the Controlled Release Society in Chicago, IL.

Tian Zhou received a Graduate Program Council travel award to attend the 41st Annual Meeting and Exposition of the Controlled Release Society in Chicago, Illinois.

Graduate Student Publications and Presentations

PUBLICATIONS


**PRESENTATIONS, POSTERS, AND PODIUM PRESENTATIONS**

• Society of Neuroscience, Washington, DC. Cholinergic Regulation of Aromatase in Brain. **Li, J.** November 10, 2014.


• International Conference on Protein Metabolism and Diseases, Yangyang, South Korea. Role of UBR4, a Substrate Recognition Component of the N-end Rule Pathway, in endo-lysosomal System. **Kim, S.** July 10, 2014.


• HIV Research for Prevention Conference, Cape Town, South Africa. Imaging and Visual Evaluation for the Confirmation of Vaginal Film Spreading and Retention. **Grab, S.** October 29, 2014.


• Society of Critical Care Medicine, Phoenix, AZ. ABCG2 rs2231142 c.421C>A is Associated with Outcomes Following Severe Traumatic Brain Injury. **Adams, S.** January 17, 2015.


• 6th Annual Pittsburgh AAPS Student Chapter Research Symposium, Pittsburgh, PA. Small Molecule Perturbogens of the Motor Protein Cytoplasmic Dynein Heavy Chain 1. **Pouland, T.** October 17, 2014.

• 3th Annual Regional Pharmacy Research Forum, Morgantown, WV. Locally Implantable Tacrolimus loaded Disc for Allograft Targeted Immunosuppression after Vascularized Composite Tissue Allotranplantation. **Feturi, F.** June 20, 2015.

• Resident Research Day, University of Pittsburgh Department of Plastic Surgery, Pittsburgh, PA. Locally Implantable Tacrolimus loaded Disc for Allograft Targeted Immunosuppression after Vascularized Composite Tissue Allotranplantation. **Feturi, F.** June 20, 2015.


• 2015 School of Pharmacy Annual Retreat, Pittsburgh, PA. Self-Assembled Polyelectrolyte Hydrogels as In Vitro 3D Models to Recapitulate In Vivo Biomineralization. Patel, A. June 1, 2015.


• 2015 AAPS Regional Research Forum, Morgantown, WV. Regulation of Drug Metabolism and Disposition by Trauma. Xie, Y. June 19, 2015.


• 6th Annual Pittsburgh AAPS Student Chapter Research Symposium, Pittsburgh, PA. CAR Assembles Cullin1 Ubiquitination Complex and Promotes PGC1 Degradation in PML Nuclear Bodies. Yan, J. October 17, 2014.

• Great Lakes Nuclear Receptor Conference, Madison, WI. CAR Assembles Cullin1 Ubiquitination Complex and Promotes PGC1 Degradation in PML Nuclear Bodies. Yan, J. October 18, 2014.

• University of Pittsburgh School of Pharmacy Research Retreat, West Virginia. CAR Assembles Cullin1 Ubiquitination Complex and Promotes PGC1 Degradation in PML Nuclear Bodies. Yan, J. June 1, 2015.


• University of Pittsburgh School of Pharmacy Research Retreat, West Virginia. Targeted Delivery of Anticancer Agents via a Dual Functional Nanomicellar Carrier. Zhang, X. June 1, 2015.


• University of Pittsburgh Center of Pharmacogenetics, Pittsburgh, PA. Novel Farnesylthiosalicylate (FTS)-based Solid Lipid Nanoparticles for Improved Targeted Delivery of Paclitaxel. Ghazwani, M. May 12, 2015.

• University of Pittsburgh School of Pharmacy Research Retreat, West Virginia. Optimization of an Isolated Perfused Rat Kidney Model to Evaluate Ischemic Reperfusion Injury and Function After Cold Storage. Thanukrishnan, H. June 1, 2015.


## Postdoctoral Fellows

School of Pharmacy Postdoctoral Associates FY15

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Degree/University</th>
<th>Field</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bastian, Jaime</td>
<td>PharmD</td>
<td>University of Florida</td>
<td>Pharmacy</td>
<td>USA</td>
</tr>
<tr>
<td>Espinoza, Martha Bustos</td>
<td>PhD</td>
<td>Universidad Nacional Autonoma de Mexico</td>
<td>Biomedical Sciences</td>
<td>Mexico</td>
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<tr>
<td>Feng, Zhiwei</td>
<td>PhD</td>
<td>Soochow University</td>
<td>Materials Science</td>
<td>China</td>
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<tr>
<td>Garbacz, Wojciech</td>
<td>PhD</td>
<td>University of Dundee in Dundee</td>
<td>Toxicology</td>
<td>UK</td>
</tr>
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<td>Jiang, Mengxi</td>
<td>PhD</td>
<td>University of Pittsburgh</td>
<td>Pharmaceutical Sciences</td>
<td>USA</td>
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<tr>
<td>Liu, Ke</td>
<td>PhD</td>
<td>Chinese Academy of Sciences</td>
<td>Bioanalysis, Drug Metabolism and Pharmacokinetics</td>
<td>China</td>
</tr>
<tr>
<td>Patel, Sravan</td>
<td>PhD</td>
<td>Duquesne University</td>
<td>Pharmaceutics</td>
<td>USA</td>
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<tr>
<td>Shaik, Imam</td>
<td>PhD</td>
<td>Texas Tech University</td>
<td>Pharmaceutical Sciences</td>
<td>USA</td>
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<tr>
<td>Sun, Jingjing</td>
<td>PhD</td>
<td>Chinese Academy of Sciences</td>
<td>Polymer Chemistry and Physics</td>
<td>China</td>
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<td>Wang, Peng-Cheng</td>
<td>PhD</td>
<td>Chinese Academy of Sciences</td>
<td>Medicinal Chemistry</td>
<td>China</td>
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<td>Wang, Zehua</td>
<td>PhD</td>
<td>Yunnan University</td>
<td>Biochemistry and Molecular Biology</td>
<td>China</td>
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<tr>
<td>Zhang, Wei</td>
<td>PhD</td>
<td>Fudan University</td>
<td>Pharmaceutics</td>
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<tr>
<td>Zhao, Yueshui</td>
<td>PhD</td>
<td>The Chinese University of Hong Kong</td>
<td>Biomedical Sciences</td>
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<td>Zhu, Junjie</td>
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<td>Medicinal Chemistry</td>
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</table>
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 FY15

• In FY15, funded research projects generated $13,315,498 in total support ($9,714,833 million direct costs and $3,600,655 million indirect costs).
• FY15 School of Pharmacy PHS research funding is $6,450,467 in direct costs and $2,801,413 in indirect costs.
• 93: the number of active research projects.
• #9 among schools of pharmacy in NIH support for FY14 with $10.62 million in funding (#10 in overall funding and #13 in non-federal funding).
• 30 faculty members were principal investigators.
• 4 principal investigators or co-investigators on multi-institutional grants.
• 18 international research presentations in 8 countries.
  • 3 at universities or hospitals
  • 15 at conferences or academies

Research Funding

Annual Grant Costs by Source
Active project funding for FY15 was $13.32 million, with $9.71 million in direct costs and $3.6 million in indirect costs. The graph and tables below and on the next page provide detail regarding FY15 sources of funding for direct costs.

<table>
<thead>
<tr>
<th>Source</th>
<th>FY7</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
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<td>PHS</td>
<td>$6,934,873</td>
<td>$9,083,208</td>
<td>$7,229,748</td>
<td>$4,967,911</td>
<td>$6,006,199</td>
<td>$6,058,477</td>
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<td>Federal-Oth</td>
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<td>856,030</td>
<td>1,268,055</td>
<td>1,469,405</td>
<td>2,143,548</td>
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<tr>
<td>Source</td>
<td>FY7</td>
<td>FY10</td>
<td>FY11</td>
<td>FY12</td>
<td>FY13</td>
<td>FY14</td>
<td>FY15</td>
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<td>--------</td>
<td>--------</td>
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<td>Industry</td>
<td>156,419</td>
<td>60,226</td>
<td>518,140</td>
<td>289,323</td>
<td>1,253,199</td>
<td>$1,649,131</td>
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<td>Found/Assoc</td>
<td>351,468</td>
<td>296,641</td>
<td>305,600</td>
<td>249,664</td>
<td>584,447</td>
<td>$1,347,135</td>
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<td>Other</td>
<td>222,110</td>
<td>187,737</td>
<td>111,157</td>
<td>0</td>
<td>0</td>
<td>$180,224</td>
<td>$507,487</td>
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<td>TOTAL</td>
<td>$8,511,456</td>
<td>$10,483,842</td>
<td>$9,432,700</td>
<td>$6,976,303</td>
<td>$9,987,393</td>
<td>$10,937,673</td>
<td>$9,714,833</td>
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</table>

**Direct Costs: Research Funding**

![Bar chart showing direct costs by source and fiscal year from 1999 to 2015. The chart illustrates the increase in total direct costs from 1999 to 2015, with a significant peak in 2012. The sources are categorized as Industry, Found/Assoc, Other, and TOTAL. The chart highlights the contributions from categories such as PHS, Fed-Other, and Industry.](chart.png)
RESEARCH OVERVIEW

Center for Pharmacogenetics

Faculty
Song Li, Professor
Xiaochao Ma, Associate Professor
Wen Xie, Professor
Da Yang, Assistant Professor
Jiang Li, Research Assistant Professor
Yixian Huang, Research Associate

Graduate Students (PhD students)
Yuhan Bi
Yichao Chen
Mohammed Ghazwani
Peipei Lu
Madhav Sachar
Amina Shehu

Yuan Wei
Yang Xie
Jieni Xu
Jiong Yan
Peng Zhang
Xiaolan Zhang

Postdoctoral Fellows
Wojciech Garbaz
Jingjing Sun
Lei Liang
Bo Yang
Pengcheng Wang
Zehua Wang
Junjie Zhu

Visiting Scholars
Yukun Huang
Lei Liang
Qiongfeng Liao
Min Zhao
Zanmei Zhao

Major Accomplishments

• **Song Li** and his associates Yichao Chen, and Yixian Huang filed a patent application titled “Immunostimulatory Nanocarrier” (Provisional application 62/199,455, filed on July 31, 2015).

• **Xiaochao Ma** was invited to serve as an *ad hoc* reviewer for The Wellcome Trust DBT India Alliance Fellowship, July 2015.

• **Wen Xie** is the co-Investigator of a new NIH R01 grant titled “IRE1/XBP1s Signaling: A Novel Essential Regulator For Bone Marrow Microenvironment.” (Hongjiao Ouyang/School of Dental Medicine, P.I.).
  • Named Guest Professor, Second Military Medical University, Shanghai, China.
  • Invited to serve as a Charter member of the NIH Systemic Injury by Environmental Exposure (SIEE) Study Section (09/01/2014-06/30/3017)
  • Invited to serve as an *Ad hoc* Reviewer, Scientific Assessment and Workforce Development, Oak Ridge Associated Universities (ORAU), on behalf of the
Nazarbayev University Research Council in Astana, Kazakhstan (December 2014).
• Invited to serve as an Ad hoc Reviewer (Mail review), National Science Foundation of China (NSFC) (Digestive Diseases) (May 2015).
• invited to serve as an Ad hoc Reviewer, Chang Jiang Scholars Program, Ministry of Education, China (September 2015).
• Named Guest Editor for *Biochimica et Biophysica Acta - Gene Regulatory Mechanisms (BBA-GRM)*, to organize a Thematic Issue on xenobiotic receptors (2015-2016)
• Named Member, Scientific Advisory Board, *Microsomes and Drug Oxidations Meeting*, Davis, CA. October 2-6, 2016.

• **Da Yang** was selected to be the recipient of Elsa U. Pardee Foundation grant and Awarded UPCI-RPCI Ovarian Cancer SPORE Early Career Award.

**Selected Publications**


**Selected Invited Research Presentations**

- “The opportunities and challenges of metabolomics in drug safety evaluation”. 19th North American ISSX Meeting / 29th JSSX Meeting. San Francisco, California, October 2014. **Ma X**.

- “Genetically Engineered Mouse Models in Preclinical Studies of Drug Metabolism & Toxicity”. The Delaware Valley Drug Metabolism Discussion Group. West Chester, Pennsylvania, March 2015. **Ma X**.


- “Improved Delivery of Anticancer Agents via A Dual Function Nanocarrier”. International Conference on Nanomedicine and NanoBiotechnology, ChinaNanomedicine 2015, Hangzhou, China, April 6-9, 2015. **Li S**.

- “*The Hepatic Function of AhR, the Expected and Unexpected.*” NIH/NIEHS Tamburro Liver Symposium (Symposium on Environmental Liver Disease). Louisville, Kentucky. September 11-12, 2014. **Xie W**.
• “Nuclear Receptors in Xeno- and Endobiotic Metabolism”, Departments of Environmental Medicine & Pharmacology, New York University Langone Medical Center. Tuxedo, NY. November 7, 2014. Xie W.

• “Nuclear Receptors in Liver Metabolism and Liver Diseases”, Microbiology and Immunology, School of Medicine, Virginia Commonwealth University. Richmond, Virginia. November 11, 2014. Xie W.

• “The Hepatic Function of AhR, the Expected and Unexpected”, Northeast Ohio Medical Research Forum 2014 (Joint Retreat of Departments of Pharmaceutical Sciences and Integrative Medical Sciences), Northeast Ohio Medical University (NEOMED), Rootstown, Ohio. December 5, 2014. Xie W.

• “The Perinatal Pharmacology of FXR”, Experimental Biology 2015 Meeting/American Association of Pharmacology and Experimental Therapeutics (ASPET), Boston, MA. March 28-April 1, 2015. Xie W.

• “Nuclear Receptors in Liver Metabolism and Liver Diseases”, Department of Pharmacology, School of Pharmacy, Second Military Medical University, Shanghai, China. April 10, 2015. Xie W.

• “Nuclear Receptors, Drug Metabolism, Energy Metabolism, and Disease Effect on Drug Metabolism”, 1st Sunrise Symposium for Drug Metabolism, Pharmacokinetics and Dynamics, Nanjing, China. April 11-13, 2015. Xie W.

• “Nuclear Receptors as Novel Therapeutic Targets in Obesity and Diabetes” Annual Meeting of the Canadian Society of Pharmaceutical Sciences (CSPS), Toronto, Ontario, May 26-29, 2015. Xie W.
Center for Clinical Pharmaceutical Sciences

Faculty
Samuel M. Poloyac, PharmD, PhD, FCCM, Associate Professor and Center Director
Kim C. Coley, PharmD, FCCP, Professor
Kerry M. Empey, PharmD, PhD, Assistant Professor
Philip E. Empey, PharmD, PhD, BCPS, Assistant Professor
Margaret Beth Minnigh, PhD, Assistant Professor
Thomas D. Nolin, PharmD, PhD, Assistant Professor
Carolyn T. Thorpe, PhD, MPH, Assistant Professor
Raman Venkataramanan, PhD, Professor

Kerry Empey, PharmD, PhD, Assistant Professor
Phil E. Empey, PharmD, PhD, BCPS, Assistant Professor
Margaret Beth Minnigh, PhD, Assistant Professor
Thomas D. Nolin, PharmD, PhD, Assistant Professor
Carolyn T. Thorpe, PhD, MPH, Assistant Professor
Raman Venkataramanan, PhD, Professor

Graduate Students
Solomon M. Adams, PharmD
Omar A. Almazroo, BSc, MSc
Ali Mohamed Alshahi, BS, MS
Osama Y. Alshogran, BS, MS
Shoroq Altawalbeh, PharmD
Kacey Anderson, BS
Katherine Eichinger, PharmD, MS
Fanuel Hagos, BS, MS
Rujuta Joshi, BS Pharm
Hari V Kalluri, PharmD
Lingjue Li, MS
Alexander J. Prokopienko, PharmD
Mohammad S. Shawaqfeh, PharmD, MS
Harisudhan Thanukrishnan, M Pharm.
Dustin R. Walsh, PharmD
Hongfei Zhang, MS

Major Accomplishments
• Sam Poloyac received the following funding:
  • Department of Defense “Operation Brain Trauma Therapy” (Extended) Role: Co-I; 5/01/14-4/30/16.

• Sam Poloyac served as a reviewer for:
  • The National Institutes of Health NSD-K Regular Study Section Member – Primary Reviewer.
  • The American Heart Association Spring 2015 Region I Brain Peer Review Committee.

• Sam Poloyac was given the 2015 PLS/Rho Chi Innovations Teaching Award.

• Kerry Empey was awarded a R03 grant from the NIH Eunice Kennedy Shriver National Institute of Child Health & Human Development. “Immature infant alveolar macrophage clearance of cell debris during RSV infection.” Role: PI; 4/1/15 – 3/31/17.

• Philip Empey was given the following teaching awards:
  • AACP Innovations in Teaching Award from the American Association of Colleges of Pharmacy, April 2015.
  • The Outstanding Scholarly Contribution Award from the Rho Chi Society, 2015.

• Philip Empey has received several grants and awards including:


• University of Pittsburgh, Advisory Council on Instructional Excellence (ACIE) Grant Award. “Using personal genome testing to teach pharmacogenomics in a large lecture course”. Role: PI; 2014 – 2015.

• University of Pittsburgh, Clinical and Translational Science Institute, project funding (Empey) MEDIvate: achieving great medication outcomes together”. Role: PI; direct costs and Center for Assistance in Research using eRecord (CARe) support; 2014.


• Mitochondrial Disease Foundation (Bell) “Improving CNS delivery of brain antioxidants after acute metabolic decompensation in mitochondrial disease.” Role: Co-I.

• Tom Nolin was awarded a R01 grant from the NIH National Institute of General Medical Science for his research entitled “Drug Metabolizing Enzyme and Transporter Function in Chronic Kidney Disease. Role: PI; 9/15/14 – 8/31/19.

• Tom Nolin was named an associate editor for the tenth edition of “Pharmacotherapy: A Pathophysiologic Approach”. This text is the most frequently utilized textbook within schools of pharmacy nationwide.

• Tom Nolin developed and co-chaired new ACCME/ACPE continuing education program titled “Nephro-Pharmacology across the Spectrum of Kidney Diseases”. Full-day early program at the American Society of Nephrology Annual Meeting, Kidney Week 2014, Philadelphia, PA, November 12, 2014.

• Jim Stevenson was a New Investigator Award Winner based on his research entitled “Genome-wide association study of antipsychotic response in first episode psychosis” Abstracts for the 15th International Congress on Schizophrenia Research (ICOSR). Schizophr Bull (2015) 41 (suppl 1):S1-S341.

• Carolyn Thorpe received the following funding:
  • Veterans Health Administration. “Safety of Opioid Use among Veterans Receiving Care in Multiple Health Systems.” Role Co-I; 2/1/2015 – 1/31/2018.
• **Joshua Thorpe** received a grant from the Department of Veteran Affairs, Health Services Research & Development. “Dual Use of VA/Medicare Part D and Unsafe Prescribing in Veterans with Dementia.” Role: PI; 6/1/15 – 12/31/17.

• **Raman Venkataramanan’s** funding from NIH National Institute of Child and Human Development was renewed for a third cycle – Obstetric Pharmacology Research Center. Co-PI; Funding renewed for year 11-15, July 2015 – June 2020.

• **Raman Venkataramanan** acquired a NIH National Institute of Child and Human Development - T-32 Fellowship in OB Pharmacology: only one in the country who recruited a PharmD. Student currently on PhD path.

• **Raman Venkataramanan** was honored by:
  - Being awarded the “Graduate Faculty of the Year Award” by the University of Pittsburgh, School of Pharmacy May 2015.
  - Being asked to serve as a speaker in “Agents of Change”. He was one of 7 alumni from 35 years selected to give a talk at the University of British Columbia, Vancouver Canada. Sep 2014.

**Selected Publications**


- Nolin TD. A synopsis of clinical pharmacokinetic alterations in advanced CKD. Semin Dial 2015 April 8 PMID: 25855244.


Selected Invited Presentations


• American Society of Nephrology Annual Meeting, Philadelphia, PA. “DAM! It’s not all about Excretion (E), Distribution (D), Absorption (A), and Metabolism/Transport (M) Can also change in Kidney Diseases.” November 2014. T Nolin.


Computational Chemical Genomics Screening (CCGS) Center
The Computational Chemical Genomics Screening (CCGS) Center has completed its third successful year since it was launched on September 1, 2012. The Center’s mission is 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 design approaches. In addition, Sean Xie is directing a NIH Center of Excellence for Computational Drug Abuse Research (CDAR) into its second funding year.

Faculty
Xiang-Qun (Sean) Xie, MD, PhD EMBA, Associate Dean for Research Innovation
- Professor of Pharmaceutical Sciences/Drug Discovery Institute
- Director of Computational Chemical Genomics Screening (CCGS) Center
- NIH Center of Excellence for Computational Drug Abuse Research (CDAR)
Lirong Wang, PhD, Assistant Professor
Terence Francis McGuire, PhD, Research Assistant Professor and Scientific Administrator

Graduate Students
Abdulrahman A. Almehizia
Mohammed H. Alqarni
Ziheng Hu
Xiaole Yang
Xiaomeng Xu
Shifan Ma
Guanxing Hu
Nuozhou Wang
Haizi Cheng
Yan Zhang
Changrui Xing
Yu Zhang (visiting scholar)

Graduate Students
Abdulrahman A. Almehizia
Mohammed H. Alqarni
Ziheng Hu
Xiaole Yang
Xiaomeng Xu
Shifan Ma
Guanxing Hu
Nuozhou Wang
Haizi Cheng
Yan Zhang
Changrui Xing
Yu Zhang (visiting scholar)

Postdoctoral Fellows
Peng Yang, PhD
Zhiwei Feng, PhD
Xucying Liu, PhD (visiting scholar)
Xisha Wang, PhD (visiting scholar)
Jianping Hu, PhD (visiting scholar)

Major Accomplishments

- During last fiscal year, Dr. Sean Xie and his team have published 11 peer-reviewed publications and two additional new invention patents. Dr. Sean Xie was an invited speaker by 9 local, national, and international conferences or institutes.

- Reported the discovery of the first p18 chemical probes that can be used in stem cell research to lead to development of human stemcell drugs that may broaden use of stem cells in transplantation and regenerative medicine. Published in *Nature Communication* (Impact Factor 11.47).

- Discovered the first potential drugs that target the p62-ZZ domain for Multiple Myeloma pathogenesis. Published in *Leukemia* (Nature) (Impact Factor: 10.43).
• Three invention discovery patents have been successfully licensed to Biotech/pharma. The licensing company is in process of signing a Sponsor Research Agreement with the University and will invest $4 million to fund anti-multiple myeloma drug development.

• Dr. Sean Xie has successfully led the NIH Center of Excellence into its second year after the first CDAR center annual meeting accomplished on May 14, 2015. The CDAR center focused on advancing quantitative systems pharmacology technologies for translational research in the area of drug abuse addiction and neuro-disorder diseases in collaboration with researchers/colleagues both in the Pittsburgh area and nationwide.

• Continued 2 NIH funded grants:
  
  • NIH R01DA025612  P.I.: X.-Q. Xie  4/1/2010-03/31/2016  
  Structure/Function of the GPCR CB2 Receptor Binding and G-protein Recognition Pockets

  • NIH NIDA P30 DA035778-01A1 (Xie and PI/Center Director)  
  7/1/2014 - 6/30/2019  $5,960,391  
  NIDA Center of Excellence for Computational Drug Abuse Research (CDAR)

• Center faculty supervised and trained 7 undergraduates, 12 graduate students, and 5 post-doctoral fellows.

Selected Publications


• Zhiwei Feng, Stanton Kochanek, David Close, LiRong Wang, Ajay Srinivasan, Abdulrahma A. Almehizia, Prema Iyer, Xiang-Qun Xie*, Paul Johnston* and Barry Gold*. "Design and Activity


**Selected Invited Presentations**

- **XQ Xie** as Invited Speaker 2015 April 10, “Diseases-Specific Chemogenomics Knowledgebases and TargetHunter© for System Pharmacology and Alzheimer’s Disease Drug Discovery Research”, FDA - Center for Devices and Radiological Health, Office of Science and Engineering Laboratories , Division of Biology, Chemistry, and Materials Science, Silver Spring, MD.

- **XQ Xie** as Invited Speaker 2015 Feb “Diseases-Specific Chemogenomics Knowledgebases and Drug TargetHunter© Center for Drug Discovery (CDD), School of Pharmacy, Northeastern University, Boston, MA USA.

- **XQ Xie** as Invited Speaker 2014 "Cloud Computing Target Hunter and Disease-Specific Chemogenomics Knowledgebase for System Pharmacology Drug Discovery and Personalized Medicine”. June 23, 2014 University of Florida, Gainseville, Florida, USA

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 pharmaceutical products which include products intended for prevention of the spread of HIV and other sexually transmitted infections, probiotics, practical vaccine products for use in low resource settings globally, and gynecologic oncology application. This group also contributes to the development of in vitro models for formulation assessment to predict clinical outcome and characterization of vaginal and rectal biological barriers to successful drug delivery. They are also studying transporters and metabolizing enzymes within tissues relevant for HIV prevention and are employing pharmacology in human disease relevant tissue to support pharmaceutical discovery in inflammatory bowel disease. The laboratory has experience with the development of pharmaceutical products utilizing many dosage form platforms. Delivery systems are being designed for small molecule, protein and peptide, and bacteria drug candidates.

The Pharmaceutics Group continues to have international impact. Their role within the Microbicide Trials Network provides protocol product support for the multitude of clinical sites within the network throughout the world.

Faculty
Lisa Rohan, PhD, Associate Professor
Vinayak Sant, PhD, Assistant Professor

Research Staff
Lin Wang
Lindsay Ferguson, PharmD, PhD
Phillip Graebing
Michael De Miranda
Andrew Pearlman

Graduate Students (PhD)
TianTian Gong
Minlu Hu
Galit Regev
Sheila Grab
Jing Li
Kunal Jhunjhunwala

Postdoctoral Fellow
Sravan Patel, PhD

Undergraduate Students
Emily Pond (CMU)
Erin Gorse (Duquesne)
Kathryn Ching (Pitt)

Graduate Students (MS)
Yafei Lyu

Major Accomplishments

• Completed a Phase I clinical trial evaluating a novel vaginal film product containing the antiretroviral drug tenofovir that was developed by the Pharmaceutics Group. This clinical trial is one of the first to evaluate the use of the thin film drug delivery platform as an option for HIV prevention in humans. (supported by NIAID.)

• A rectal specific HIV prevention enema product containing the antiretroviral drug tenofovir was developed in the lab. An Investigational New Drug (IND) Application for this product is being compiled to support first in human clinical trials which will be conducted at Magee and Johns Hopkins University.

• The group, in collaboration with Universal Stabilization Technologies in California, has successfully formulated quick dissolve film and tablet vaccine formulations which can potentially overcome the current requirements for cold chain storage for worldwide vaccine distribution.
• Filed for a patent entitled “2nd generation griffithsin mutants for improved stability and solubility”. This patent is a joint filing of the University of Pittsburgh, NCI, and University of Louisville. Filed a second patent entitled “Polymeric films and patches incorporating thermostable biotherapeutical powders for needle-free delivery.”

• Funding for the Pharmaceutics Group over the past year has been provided through 12 separate grants awarded from NIH, FDA, the Bill & Melinda Gates Foundation, and Janssen Pharmaceuticals.

• The pharmaceutics group initiated a program to develop tissue models to aid in Drug Discovery and Development for Inflammatory bowel disease (IBD). IBD includes patients with ulcerative colitis (UC) and Crohn’s Disease (CD).

Selected Publications


Selected Invited Presentations

• Lisa Rohan Chaired the session entitled “Novel Formulations & Sustained Delivery of Antiretrovirals” at the “HIV Research for Prevention Meeting” held in Capetown, South Africa in Oct 2014.
• Minlu Hu, a PhD graduate student, was selected as one of five New Investigator Award recipients for the HIV Research for Prevention 2014: AIDS Vaccine, Microbicide and ARV-based Prevention Science (HIV R4P), October 28 – 31 in Cape Town, South Africa.

• Lisa Rohan was invited to present their work on two antiretroviral drugs (EFdA and MK-2048) at Merck & Co. in Philadelphia, PA.

• Lisa Rohan serves as a scientific advisor for the CRIMP program within NIAID at the NIH.

Center for Education and Drug Abuse Research
February 28, 2015 marked the completion of a 25-year longitudinal multidisciplinary investigation of over 700 families having the overarching goal of understanding the origins and developmental pathways to addiction. The past year has focused on deriving and validating predictive models having a research to practice focus. One practical product of this research, the Transmissible Liability Index (TLI) has been shown to be an accurate tool to screen addiction and risk in 5 minutes. This Web-based instrument was standardized this past year.

Faculty
Ralph E. Tarter, PhD, Professor and Center Director
Levent Kirisci, PhD, Professor
Maureen D. Reynolds, PhD, Research Assistant Professor
Michael Vanyukov, PhD, Professor

Graduate Student
ZuWei Zhai received his Ph.D. and is currently a post-doctoral Fellow at Yale University.

Postdoctoral Fellow
Michelle Horner completed her Fellowship and is currently Assistant Professor of Psychiatry at Johns Hopkins University.

Major Accomplishments
• A standardization study of the Transmissible Liability Index (TLI), a brief measure used to quantify risk for addiction, was completed on a nationally representative sample of youths.

• Research with the TLI has shown that the genetic component of its variance largely accounts for the development of addiction by young adulthood.

• Suicide potential is significantly related to the transmissible risk for addiction.

Selected publications


**RESEARCH DETAILS**

**FY15 PHS Funding**

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<tr>
<th>Investigator</th>
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<td>Nanomicellar Formulation for Synergistic Targeting Prostate Cancer</td>
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<td>Rational Design of Lipidic Vectors for Mitochondria-Targeted Antioxidants</td>
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<td>J. Beumer</td>
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<td>Preclinical Pharmacokinetic and Pharmacological Studies with Anticancer and Other Therapeutic Agents</td>
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<td>J. Beumer</td>
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<td>Sr. Leadership - NCI ET-CTN with Phase I Emphasis at UPCI</td>
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<td>Immature Infant Alveolar Macrophage Clearance of Cell D</td>
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<td>P. Empey</td>
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<td>R01 LM011838</td>
<td>Addressing gaps in clinically useful evidence on drug-drug interactions</td>
<td>4,207</td>
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<td>R. Gibbs</td>
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<td>Impact of Estrogens and Menopause on Interacting Monoamine Neurotransmitters in the Brain</td>
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<td>Development of a Novel HCS Assay to Screen for Disruptors of AR-TIF2 Interactions</td>
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<td>STAT Mediated TGF-α/EGFR Signaling in Squamous Cell Carcinomas of Head &amp; Neck</td>
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<td>HCS to Identify Inhibitors and Disruptors of AR-TIF2</td>
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<td>Identifying Synergy between APE1 DNA Repair Inhibitors and Approved Melanoma Cancer</td>
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<td>L. Kirisci</td>
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<td>Validating Consumption-Based Brief Screening for Youth</td>
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<td>L. Kirisci</td>
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<td>R21 AA022863</td>
<td>Treatment of Young Adults with Comorbid AUD/MDD</td>
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<td>L. Kirisci</td>
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<td>Double-blind pilot trial of mirtazapine for treatment</td>
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<td>L. Kirisci</td>
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<td>Rapid Throughput Standardized Evaluation of Transmissible Risk for SUD in Youth</td>
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<td>S. Li</td>
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<td>Role of Ubiquitin in Cardiovascular System</td>
<td>246,250</td>
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<td>Targeted Combination Therapy for Breast Cancer</td>
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<td>Mitochondrial Targets for Radiation Mitigation</td>
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<td>Mitochondrial Targeting Against Radiation Damage</td>
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<td>Mechanisms of adverse effects of anti-tuberculosis drugs</td>
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<td>L. McDermott</td>
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<td>Development of a Novel HCS Assay to Screen for Disruptors of AR-TIF2 Interactions</td>
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<td>T. Nolin</td>
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<td>Drug Metabolizing Enzyme and Transporter function in Chronic Kidney Disease</td>
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<td>S. Poloyac</td>
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<td>Developing Goal-Directed Perfusion Therapy for Neurocardiac Injury in Sub-Arachnoid Hemorrhage (Hravnak- Nursing)</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>CYP 450-mediated CBF Dysregulation and Neurotoxicity in Pediatric Cardiac Arrest - Manole</td>
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<td>S. Poloyac</td>
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<td>Epigenomics of Patient Outcomes after Aneurysmal SAH</td>
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<td>M. Reynolds</td>
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<td>Substance Use Screening and Prevention for Adolescents</td>
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<td>Core B: PREVENT: Product Development Core - MWRIF and Pitt awards</td>
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<td>L. Rohan</td>
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<td>RFA-AI-13-023</td>
<td>Delivery of Rectal Enema as Microbicide (DREAM) - Rohan - Roll Up</td>
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<td>Film Antirotroviral Microbicide Evaluation (FAME II) - Roll Up</td>
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<td>Thermostable Vaginal Probiotic Microbicide - MWRIF and Pitt awards</td>
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<td>UPSOM-14005-002-140</td>
<td>Release Assays from EVA Ring Segments</td>
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<tr>
<td>L. Rohan</td>
<td>NIH</td>
<td>UM1 AI106707</td>
<td>MTN - Laboratory Center (LC): Leadership Group for a Clinical Research Network on Microbicides to Prevent HIV - Year 2</td>
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<td>S. Sant</td>
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<td>Engineered Microenvironments to Model Effect of Size in Tumor Progression</td>
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<td>M. Somma</td>
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<td>State Public Health Actions to Prevent and Control Diabetes</td>
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<td>Longitudinal Modeling of SUD Etiology</td>
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<td>Guideline Adherence and Short/Long-term Health Outcomes in Patients with Diabetes</td>
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<td>R. Venkataramanan</td>
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<td>Impact of Pregnancy on Drug Absorption, Disposition and End Organ Response (Caritis)</td>
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<td>R. Venkataramanan</td>
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<td>All-Human Microphysical Model of Metastasis Therapy</td>
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<td>R. Venkataramanan</td>
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<td>A Novel Regulation of the Phase II Enzyme Estrogen Sulfotransferase</td>
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<td>RE/XBP1s signaling: an novel essential regulator for bone marrow microenvironment support of multiple myeloma bone disease</td>
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**FY15 Federal Other Funding**

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## FY 2015 Industry Funding

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<td>Millennium Pharm</td>
<td>A Phase I Pharmacokinetic Study of Intraperitoneal CTEP-Supplies Agent Bortezomib (PS-341, NSC 681239, IND#58443) and Caboplatin (SNC#241240) in Patients with Persistent or Recurrent Ovarian, Fallopian Tube, or Primary Peritoneal Cancer</td>
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<td>J. Beumer</td>
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<td>Saladax Quantitation of Gemcitabine in Human Plasma</td>
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<td>J. Beumer</td>
<td>BMS</td>
<td>Central Pharmacokinetic Referenced Laboratory for Ixabepilone Investigator Sponsored Research (ISR) Trials</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>Janssen Pharmaceuticals</td>
<td>Employing Pharmacology in Human Disease Relevant Tissue to Support Pharmaceutical Discovery in Inflammatory Bowel Disease</td>
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<td>V. Sant</td>
<td>North American Hoganas, Inc</td>
<td>Conversion of elemental iron (Reduced Iron Powder) to white iron (Fe-White) using food grade polymers</td>
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<td>L. Berenbrok</td>
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<td>Impact of Pharmacist Coaching on Targeted Medication Review Completion Rates in a Traditional Chain Community</td>
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<td>C. Thorpe</td>
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<td>Impact of Healthcare Utilization and Informal Caregiving for Primary Systemic Vasculitis: A National Perspective</td>
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**FY15 Other Funding**

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**RESEARCH RECOGNITION OF FACULTY**

Faculty members received various forms of recognition for their accomplishments and their expertise during FY15.

- 25 faculty members served on scientific journal editorial boards.
- 10 faculty members served on NIH grant review committees.
- 74 – the number of invited research presentations by faculty.
  - 4 presentations at 2 universities in 2 states
  - 47 presentations at 33 scientific meetings in 15 states
  - 3 presentations at 3 universities in 2 countries
  - 15 presentations at 9 international scientific meetings in 6 countries
- 18 international presentations in 8 countries.
  - 3 at universities or hospitals
  - 15 at conferences or academies

**Members of Editorial Boards**

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<td>3</td>
<td>Journal of Chromatography and Separation Techniques</td>
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<td>Kim C. Coley, PharmD</td>
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<td>Colleen M. Culley, PharmD</td>
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<td>Scott R. Drab, PharmD, CDE, BC-ADM</td>
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<td>Sandra L. Kane-Gill, PharmD, MS, FCCM</td>
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<td>Amy L. Seybert, PharmD</td>
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<td>International Scholarly research Network Critical Care</td>
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<td>Ralph E. Tarter, PhD</td>
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<td>Directions in Substance Abuse Counseling (Advisory Board)</td>
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<td>Journal of Child and Adolescent Substance Abuse (Book review editor)</td>
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<td>American Journal of Drug and Alcohol Abuse</td>
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<td>Gordon J. Vanscoy, PharmD, CACP, MBA</td>
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<td>American Journal of Oncology Review</td>
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<td>Drug Formulary Review</td>
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<td>Raman Venkataramanan, PhD</td>
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<td>Journal of Clinical Pharmacology</td>
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<td>Therapeutic Drug Monitoring</td>
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<td>Open Transplantation</td>
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<td>American Journal of Analytical Chemistry</td>
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<td>LiRong Wang, PhD</td>
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<td>Cancer Translational Medicine</td>
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<td>Enliven: Biosimilars and Bioavailability</td>
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<td>Pharmaceutical Science and Drug Designing</td>
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### Faculty Member Participation in NIH Review Committees and Panels

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<tr>
<th>Faculty Member</th>
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<tbody>
<tr>
<td>Barry Gold, PhD</td>
<td>Pharmaceutical Sciences</td>
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<td>Donna M. Huryn, PhD</td>
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<td>Paul A. Johnston, PhD</td>
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<td>Levent Kirisci, PhD</td>
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<td>Song Li, MD, PhD</td>
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<td>Samuel M. Poloyac, PharmD, PhD</td>
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<td>Lisa C. Rohan, PhD</td>
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<td>Shilpa Santl, PhD</td>
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<td>Randall B. Smith, PhD</td>
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<td>Xiang-Qun (Sean) Xie, PhD</td>
<td>Pharmaceutical Sciences</td>
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### School of Pharmacy Publications in Peer-Reviewed Journals

#### Research


• Brochhausen, M, Schneider J, Malone D, Empey PE, Hogan WR, Boyce RD. Towards a


• Ghannoun M, Yates C, Galvao TF, Sowinski KM, Vo TH, Coogan A, Gosselin S, Lavigerne V,


• Kirisci L, Tarter R, Ridenour T, Reynolds M, Horner M, Vanyukov M. Externalizing behavior and emotion dysregulation are indicators of transmissible risk for substance use disorder. Addict


2015 Jul.


2013 Dec 22.


- Newman EM, Morgan RJ, Kummar S, **Beumer JH**, Blanchard MS, Ruel C, El-Khoueiry AB, Carroll MI, Hou JM, Li C, Lenz HJ, Eiseman JL, Doroshow JH. A phase I, pharmacokinetic, and pharmacodynamic evaluation of the DNA methyltransferase inhibitor 5-fluoro-2'-deoxycytidine,


- Ouyang Q, Wang L, Mu Y, Xie XQ. Modeling skin sensitization potential of mechanistically hard-to-be-classified aniline and phenol compounds with quantum mechanistic properties. *BMC*


• Pruskowski J, Arnold RM. A comparison of pregabalin and gabapentin in palliative care #289. *J


• Wallace ML, Magnan EM, Thorpe CT, Schumacher JR, Smith MA, Johnson HM. Diagnosis and Treatment of Incident Hypertension Among Patients with Diabetes: a U.S. Multi-Disciplinary


• Zhao Y, Alshabi AM, Caritis S, Venkataramanan R. Impact of 17-alpha-hydroxyprogesterone


**Patient Care**


- Skledar SJ, Doedyns A, Yourich B. Building an outpatient cancer center pharmacy program across a tristate region. Am J Health Syst Pharm. 2015 Jan 15;72(2):126-32. doi:
10.2146/ajhp140233.


**Education**


Enhancing the Health of the Communities in Which We Live and Work
Enhancing the Health of the Communities in Which We Live and Work

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, as well as 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 programs, critical care units, transplant services and transitions in care. We are committed to advancing optimal patient care by leading medication therapy.

The School of Pharmacy will be a leader in standardizing the elements of practice so that pharmacists enhance the care of patients in the community, in institutions, and during the transitions of 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.

PATIENT CARE BY THE NUMBERS FOR FY15

In FY15, School of Pharmacy faculty members:

• Contributed to care of underserved communities by:
  • Providing oversight of the pharmacy program for the Program for Health Care to Underserved Populations which includes the Birmingham Free Clinic and the Women’s Center and Shelter, provided over 200 disease state management encounters providing management of diabetes, hypertension, dyslipidemia, and asthma; dispensing almost 9000 prescriptions to uninsured patients through the efforts of 3 faculty members, 8 residents, and 5 volunteers. Pharmacists provided 1266 hours of direct service.
  • Supervised the establishment of the Interprofessional Student-Run Free Clinic at the Birmingham Clinic.
  • Optimized the use of medications and stemmed the misuse, abuse, and diversion of medications by:
    • Continued to lead the pharmacist run diabetes care center (UDCA) staffed by an interdisciplinary team of health care professionals. This year, UDCA treated 710 patients referred by 43 primary care physicians to resolve 1516 drug related problems.
    • Oversaw all transitions of care education, assistance, and discharge planning for the UPMC Adult Heart Transplant Program and provided direct outpatient care during >1500 patient visits.
    • Facilitated care transitions by performing a total of 5,499 medication-related interventions including resolving 3,655 prescription insurance issues and providing patient-specific medication education for 1,151 patients at WPIC.
    • Facilitated 124 students attending Pennsylvania Legislative Day with 82 legislative visits.
Continued the Development, Implementation, and Evaluation of an Evidence-Based Screening, Brief Intervention, Referral to Treatment (SBIRT) Curriculum in Medical Residency Training Programs. (SAMHSA).

Providing medication management and education during >500 Family Medicine Clinic Visits at UPMC Matilda Theiss Health Center.

The family medicine residency program consists of three community-based family health centers that are models for academic interprofessional primary care practice. All three have received Level 3 Patient Centered Medical Home (PCMH) status by the National Committee for Quality Assurance (NCQA). The family health centers see a patient volume of up to 2,500 visits per month, as a mix of pediatric and adolescent, adult, and geriatric medicine.

Educated over 300 hospitalized patients who went home new to insulin

Collaborated with a multidisciplinary team at the UPMC Advanced Heart Failure/Pulmonary Hypertension Outpatient Clinic to improve patients’ transitions of care. This included over 200 patient encounters.

Provided clinical pharmacy support to: 10 hospital-based palliative care teams, 4 palliative care focused CRNPs within UPMC Senior Communities, and 6 outpatient and home-based palliative care teams.

Over 1100 Drug-Drug Interactions Screens for HCV therapy candidates, with an average of 8 meds/patient and 1.6 interactions per patient – interactions identified in about 50% of patients.

Organized the University of Pittsburgh and UPMC Pharmacy Based Influenza Vaccination Clinics providing over 4000 influenza vaccines to over 2485 University Employees, 1009 UPMC Employees and 300 university students.

Promoted residency programs and fellowship training by:

- Developing 1 new transplant outcomes fellowship and transplant fellow for FY16.
- Training 44 pharmacy residents for FY15 and accepting 44 pharmacy residents for FY16.

Pioneered and managed patient care programs, including:

- Management of Patient Medication Assistance Programs (PMAPs) for over 80 patients at UPMC Matilda Theiss Health Center with significant cost savings to patients and site.

- Providing pharmacist-led medication-reconciliation program for over 150 patients through specialty hypertension.

- Provided pharmacist led medication reconciliation programs for specialty hyperlipidemia providing medication reconciliation for over 100 patients in the year.
• Provided pharmacist led medication reconciliation programs for specialty heart failure providing medication reconciliation for over **500** patients in the year.

• Lead a Free Medication Program for family health center patients to improve access to medications.

• Provide leadership and management of naloxone initiative prescribing, dispensing and education initiative for at-risk patients and caregivers.

• Led the daily multidisciplinary process for ensuring that hospitalized patients receive their mealtime insulin at an appropriate time in relation to their meals.

• Assisted a total of **2,736** patients in FY15 and provided nearly a third of eligible WPIC patients with medication education and medications “in hand” prior to discharge.

• Developed UPMC system-wide policies and protocols, including:
  • **155** guidelines/reviews and **6** electronic health record protocols for medication use across UPMC hospitals.
  • **9** medication therapeutic class/safety interchanges to ensure medication safety and promote cost-effectiveness for UPMC patients.
  • Developed UPMC system-wide policies that allow alert patients to continue wearing their home subcutaneous insulin pump and to continue to self-manage their mealtime insulin via carbohydrate counting while they are hospitalized.
  • Developed a formulary review on oral long-acting opioids for the use of these medications in the hospital settings across UPMC.

• Assumed leadership roles, including faculty appointments as/election to:
  • Associate Director of Cardiac Transplantation Program, UPMC
  • Vice-Chair for the Critical Care Practitioners as Educators Task Force for the Society of Critical Care Medicine, Chair of the ACCP Program Committee, and elected At-Large Member of the SCCM Council
  • Associate Editor for the tenth edition of “Pharmacotherapy: A Pathophysiologic Approach
  • Chair-Elect of the ACCP Endocrine and Metabolism PRN
  • Chair-Elect and Programming Chair, AACP Self-Care Therapeutics and Nonprescription Medicines Special Interest Group
  • ASHP Invited Ambulatory Care Webinar Series Program Chair
  • Chair-Elect, American College of Clinical Pharmacy Immunology/Transplantation Practice and Research Network
  • Workforce Co-chair: ISHLT Core Competencies of the Thoracic Pharmacist, International Society of Heart and Lung Transplant
• Workforce Chair: ISHLT Core Competencies of the Thoracic Pharmacist
• International Society of Heart and Lung Transplant
• Chair of AAPS Foundation New Investigator Award Committee
• President of the ACCP Critical Care PRN
• Chair of the American Society of Health-System Pharmacists’ (ASHP) Section of Inpatient Care Practitioners
• Cabinet Secretary for the Geriatric Special Interest Group (SIG) of the American Association of Colleges of Pharmacy

• Received an Innovation Award from the University of Pittsburgh’s Clinical and Translational Science Institute (CTSI) for MEDIvate (Intelligent Medication Management; www.medivate.me). MEDIvate is a smartphone application that uses QR-code technology to enable portability of accurate medication lists that can be shared with healthcare providers to improve transitions of care. Also recognized as Top 10 Finalist for proposal at The Pitt Innovation Challenge (PInCh): Sponsored by Pitt CTSI, Office of the Provost, and Innovation Institute.

COMMUNITY-BASED PROGRAMS

Community Partnerships: Chain Community Pharmacy and Community-based Pharmacist Care

Faculty
Lucas Berenbrok, PharmD, Assistant Professor
Kim C. Coley, PharmD, Professor
Melissa S. McGivney, PharmD, Associate Professor, Associate Dean for Community Partnerships

Research Fellow
Jennifer L. Bacci, PharmD, MPH, BCACP

Residents
Brandon Antinopolous, PharmD-PGY1 Community Pharmacy Resident – University Pharmacy/PPA
Gale Garmong, PharmD – PGY1 Community Pharmacy Resident – Rite Aid Pharmacy
Christine Jordan, PharmD-PGY1 Community Pharmacy Resident – Giant Eagle Pharmacy
Kyle McCormick, PharmD – PGY1 Community Pharmacy Resident – Gatti Pharmacy (Indiana, PA)

Major Accomplishments
In FY15, School of Pharmacy faculty members:

• Facilitated 124 students attending Pennsylvania Legislative Day with 82 legislative visits: Jennifer L. Bacci, Melissa S. McGivney, Luke Berenbrok

• Awarded Chancellors Distinguished Teaching Award: Melissa S. McGivney
• Awarded American Pharmacists Association – Advanced Pharmacy Practice & Management Presentation Merit Award (APhA Annual Meeting) – team award with co-investigators from UPMC St. Margaret including Jennifer L. Bacci, Melissa S. McGivney

• APhA-APPM Presentation Merit Award (Student Category) Cassandra Bloor, Kelsey Moss, Kim Coley, Brandon Antinopolous, Melissa S. McGivney


• Awarded: AACP Walmart Scholar and PPA Ten Under Ten Award: Jennifer L. Bacci

• Leading the development of the Pennsylvania Pharmacist Care Network (PPCN) Research Network: Kim C. Coley, Melissa S. McGivney

• Successfully graduated the 9th class of Community Residents, Brandon Antinopolous, Gale Garmong, Christine Jordan, and Kyle McCormick. Total residents graduated to date: 20

• Partnered with Gatti Pharmacy, Indiana, PA, University Pharmacy, Pittsburgh, PA, and the Pennsylvania Pharmacists Association to develop two additional community pharmacy residency positions for 2014-15.


Programmatic Accomplishments

• Pennsylvania Pharmaceutical Care Network Training (2014-present) – Melissa S. McGivney, Jennifer L. Bacci, Brandon Antinopolous
  • Leading the re-development of on-line and live training content with faculty from all seven Pennsylvania Schools of Pharmacy.

• NACDS Foundation Faculty Scholars Program (2012-present) – Melissa S. McGivney, Kim C. Coley
  • Developed training and mentoring program for community-based faculty selected by NACDS Foundation via nomination of their Dean.
  • Coordinate content experts in research and community practice to train faculty.
  • Facilitated learning for 5 Scholars (2012-13); 8 Scholars (2013-14); 8 Scholars (2014-15); 5 Scholars (2015-16).

• Statewide Community Residency Research Coalition – TOP TIER (Training Outpatient Pharmacists Techniques In Evidence-Based Research) 2009-present – Luke Berenbrok, Jennifer L. Bacci, Kim C. Coley, Melissa S. McGivney
  • Co-developer and co-coordinator of residency research coalition.
• Progressive on-line education with regular group discussions.
• Includes 3 community residency programs from Wilkes University, Temple University and University of Pittsburgh: 5 residents 2009-10; 6 residents 2010-11, 6 residents 2011-12, 5 residents 2012-13, 7 residents in 2013-14.
• Residents present work at PPA and APhA and are all required write and submit a grant application: 27/27 abstracts accepted to APhA, 11/14 received grants to support research.

  • Integrated preceptors, alumni, chain pharmacy leadership and students to learn together in a series of 4 CLIP Workshops embedded with Experiential Learning 4.
  • Invited in 4 nationally recognized Keynote Lecturers and provided CE.
  • Organized 3 additional small group interactive sessions for CE.
  • Engaged chain pharmacy leadership (Rite Aid, Walgreens, CVS, Giant Eagle) and independent pharmacy owners who are alumni to meet and talk with students.

• Poster Presentations: Student and Resident Research in the Community
  • 22 innovative community practice posters at PPA: February, 2015 – Harrisburg, PA
  • Nine research presentations for community-dwelling geriatric patients: Society of Teachers of Family Medicine, North American Primary Care Research Group, American Geriatric Society – all in partnership with UPMC St. Margaret
  • Nine community research posters at APhA: March, 2015 – San Diego, CA.
  • Two community research poster at Pittsburgh Conference on the Science of Medication Adherence: June, 2015 – Pittsburgh PA

Selected Publications (related to programmatic development and community dwelling patients)


**Community Practice Grants Awarded**


• The impact of a pharmacist coaching program on targeted medication review completion rates in a traditional chain community pharmacy. PPA Educational Foundation. $1,000. December 2014. Garmong GE, Bacci JL, Berenbrok LA, McGrath SH, Ossman KL, Odukoya OK.


• NACDS Foundation Community Residency PREP Grant with Giant Eagle Pharmacy. NACDS Foundation $50,000. July 2013-2016. Somma McGivney MA, McGrath SH, DeJames J, Richardson R.


Selected Invited Presentations (National/International)
• “Utilizing patient encounters to personalize advanced pharmacy practice experience (APPE) rotation selection. AACP Experiential Education Section Webinar. April, 2015. Bacci JL, Colley KC, McGivney MS.


University Diabetes Care Associates

UDCA is a pharmacist run diabetes care center staffed by an interdisciplinary team of health care professionals. Over the past 24 years, UDCA has offered a wide range of services to patients and referring physicians including disease state management, patient education and training, medical nutrition counseling, care plan development, and pharmacokinetic consults.

Faculty
Scott R. Drab, PharmD, Associate Professor

Major Accomplishments
In FY15, School of Pharmacy faculty members:

• Treated 710 patients referred by 43 primary care physicians to resolve 1516 drug related problems.

• Precepted 11 Doctor of Pharmacy students in an ambulatory care rotation.

• Precepted 2 residents.

• The curricular objectives permit students and residents to gain a comprehensive knowledge of the practice of pharmaceutical care while allowing flexibility for individualization to specific needs or interests.

Selected Publications
• Drab SR. Glucagon-Like Peptide-1 Receptor Agonists for Type 2 Diabetes: A Clinical Update of Safety and Efficacy. Submitted: Journal of Clinical Pharmacy and Therapeutics, June 2015.

Selected Invited Presentations (National/Local)
• Type 2 Diabetes in the Pediatric Population. Virginia Peninsula Pharmacist Association; Newport News, VA, June 22, 2014. Drab SR.

• Reducing Chronic Complications of Diabetes. Washington County Pharmacists Association; Hagerstown, MD, September 24, 2014. Drab SR.

• Type 2 Diabetes in the Pediatric Population. Allegheny County Pharmacists Association; Pittsburgh, PA, October 8, 2014. Drab SR.

• Diabetes Challenges: Improving Outcomes in Older Adults. Inquisit Continuing Education Program; Pittsburgh, PA, November 5, 2015. Drab SR.


• Optimizing Outcomes for Older Adults with Type 2 Diabetes. Program Management Long-term Care Webinar; Pittsburgh, PA, November 12, 2014. Drab SR.

• Pattern Management: The Key to Excellent Glycemic Control. Program Management Long-term Care Webinar; Pittsburgh, PA, December 17, 2014. Drab SR.

• Foundations to Managing Inpatient Hyperglycemia. Fulton County Medical Center Grand Rounds; McConnellsburg, PA, March 18, 2015. Drab SR.

• Management of Special Situations in Inpatient Hyperglycemia: Case Studies in Action. Fulton County Medical Center Grand Rounds; McConnellsburg, PA, April 29, 2015. Drab SR.

• Pattern Management: The Key to Excellent Glycemic Control. Allegheny County Pharmacists Association; Pittsburgh, PA, April 29, 2015. Drab SR.

• Advances in Outpatient Diabetes Care: Algorithms for Care and the Role of Injectable Therapies. United Samaritans Medical Center Grand Rounds; Danville, IL, May 1, 2015. Drab SR.

• Identification and Resolution of Injection Technique Barriers in Patients with Diabetes. American Health Resources Continuing Education Program; Melville, NY, June 10, 2015. Drab SR.

• Managing Hyperglycemia in the Transition from Inpatient to Outpatient Care. Fulton County Medical Center Grand Rounds; McConnellsburg, PA, June 17, 2015. Drab SR.

Grants
• Diabetic Monitoring and Education Grant. $520.00, LifeScan Inc, a Johnson & Johnson Company, Milpitas, CA, 2014. Drab SR.

• Diabetic Monitoring and Education Grant. $480.00, Roche Diagnostics, Indianapolis, IN, 2014. Drab SR.

• Diabetic Monitoring and Education Grant. $435.00, Novo Nordisk, Pittsburgh, PA, 2014. Drab SR.
Program Evaluation Research Unit (PERU)

Faculty
Janice L. Pringle, PhD, Associate Professor

Selected Publications (related to community dwelling patients)


Community Practice Grants Awarded

- Development, Implementation, and Evaluation of an Evidence-Based Screening, Brief Intervention, Referral to Treatment (SBIRT) Curriculum in Medical Residency Training Programs. (SAMHSA). Annual contract award with the University of Pittsburgh, School of Pharmacy. $1,875,000. 2008-2014. **Pringle JL.**

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

- Prospective Study on a Pharmacist-led Intervention to Improve Medication Adherence. (Merck). $902,357. 2011-2014. **Pringle JL.**


- Pennsylvania Screening, Brief Intervention, and Referral to Treatment (SBIRT) Interdisciplinary Training Program. (SAMHSA). $437,000. 2013 – 2016. **Pringle JL.**

- Evaluation of a Cloud-based Application that will facilitate Patient Transition from Inpatient Stay to Primary Care Physician Engagement (PCP). (Department of Veteran Affairs). $55,489. 2013-2014. **Pringle JL.**

- Pharmacy Readmissions Project Task Order. (Department of Veterans Affairs). $92,955. 2014 – 2015. **Pringle JL.**

- Circlebacks. (Pitt Innovation Challenge). $25,000. 2014. **Pringle JL.**


- Implementation of Screening, Brief Intervention, and Referral to Treatment within the Medical Community of Blair County. (Pennsylvania Commission on Crime and Delinquency). $97,433.

• Blair County Drug and Alcohol Partnerships SBIRT Consultation and Data Collection. (Blair County Drug and Alcohol Partnerships). $18,466. 2015 – 2016. Pringle JL.

• Screening, Brief Intervention, and Referral to Treatment Implementation Project for Clearfield and Jefferson Counties. (Behavioral Health Alliance of Rural Pennsylvania). $28,129. 2014 – 2016. Pringle JL.


Selected Invited Presentations (National/International)

• Conference Chair for Medication Adherence and MTM Innovations Summit. Developing Personalized Adherence Programs to Initiate Patient-Specific Interventions that Drive Behavior Change and Optimize Return on Investment. October 2014.


• Implementing and Sustaining SBIRT. National Association of Social Workers SAMHSA Region III. February 2015.

• Providing SBIRT and Substance Use Disorder Education in the Medical School Setting. SAMHSA-COPE III Medical Education Summit. February 2015.

• Overdose Prevention Efforts. University of Pittsburgh, School of Pharmacy Lecture. March 2015.

• SAMHSA Screening, Brief Intervention, Brief Treatment, and Referral to Treatment Expert Panel. Substance Abuse and Mental Health Services Administration. March 2015.

• Developing Personalized Adherence Programs to Initiate Patient-Specific Interventions that Drive Behavior Change and Optimize Return on Investment. 2015 Biannual MTM and Medication Adherence Innovations Summit. April 2015.


• External Landscape for Pharmacy Medication Therapy Management (MTM). Pennsylvania Medical Director’s Meeting. June 2015.


The Grace Lamsam Pharmacy Program for the Underserved

The Grace Lamsam Program serves primarily homeless and low-income patients, as well as under-insured 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, MPH, Assistant Professor
Karen Pater, PharmD, Assistant Professor

Resident
Rebecca Cope, PharmD-PGY2 Advanced Practice Residency with an Emphasis in Underserved Care & Global Health

Major Accomplishments
In FY15, the Grace Lamsam Program for the Underserved:

• Continued in partnership with UPMC Matilda Theiss Health Center with funding (~$20,000 in HRSA funding from Matilda Theiss) to support a PGY-2 Resident in Global Health.

• Provided oversight of the pharmacy program for the Program for Health Care to Underserved Populations which includes the Birmingham Free Clinic and the Women’s Center and Shelter.

• Provided over 200 disease state management encounters providing management of diabetes, hypertension, dyslipidemia, and asthma; dispensing almost 9000 prescriptions to uninsured patients through the efforts of 3 faculty members, 8 residents, and 5 volunteers. Pharmacists provided 1266 hours of direct service.

• Provided experiences for 249 pharmacy students through IPPEs and APPEs.

• Continued partnership with Health Care for the Homeless to provide pharmacy oversight at clinics housed in homeless shelters and drop-in centers.

• Provided care for approximately 200 patient care visits at the North Side Christian Health Center Pharmacy Services Clinic.
• Provided service at the Salvation Army Harbor Light Center to improve health through medication evaluations and consultations with over 50 clients and smoking cessation services to over 30 clients through P3 student pharmacists in an elective course.

Education
• Provided longitudinal clinical training opportunities for 2 PGY1 community residents, 2 PGY1 pharmacy practice residents, and 1 PGY2 ambulatory care resident at the Birmingham Clinic and UPMC Matilda Theiss.

• Supervised the establishment of the Interprofessional Student-Run Free Clinic at the Birmingham Clinic (Coordinated by Cara Mazzarisi [P4] and Yoav Karpenshif [MS4], and faculty preceptor Lauren Jonkman. These students provided care to 34 patients over the course of the year.

• Graduated 9 students with an Area of Concentration in Global Health (Bondar, Draude, Cirrincione, Janse, Jantzi, Mayer, Mazzarisi, Ugwuegbu, Valentino). Those graduates will go on to roles as Fulbright Scholar, Pharmacy Practice Residency, Public Health Service, Community and Health System Pharmacy practice in the upcoming year.

• Graduated one Global Health/Care to Underserved Resident who has accepted a position as an Assistant Professor at the Touro College of Pharmacy in New York City, New York.

• Received funding for:
  • Thomas H Nimick, Jr. Competitive Research Fund: Addressing Deficiencies and solutions in medication forecasting, medication prescribing, and epidemiologic health surveillance in a low-resource setting - $9,460. Co-investigator (Jonkman & Connor)

Selected Publications

Invited Presentations


UPMC Ambulatory Clinics and Retail Pharmacies

UPMC Presbyterian Ambulatory Clinics and Outpatient Pharmacy

UPMC Ambulatory Care - Matilda Theiss, Heart and Vascular and UPMC Presbyterian Outpatient Pharmacies
Faculty
Deanne L. Hall, PharmD, Associate Professor
Karen S. Pater, PharmD, Assistant Professor

Adjunct Faculty
Bethany Helms, PharmD
Sharon Miller, PharmD

Resident
Emily Chan, PharmD-PGY2 Ambulatory Care Pharmacy Resident

UPMC Presbyterian Ambulatory Clinics and Outpatient Pharmacy
Optimized the use of medications and stemmed the misuse, abuse, and diversion of medications by:
- Providing medication management and education during >500 Family Medicine Clinic Visits at UPMC Matilda Theiss Health Center.
- Provisioning of DM Education and medication management to >200 patients with DM and related cardiovascular disease.
- Managing of Patient Medication Assistance Programs (PMAPs) for over 80 patients at UPMC Matilda Theiss Health Center with significant cost savings to patients and site.
- Organizing the University of Pittsburgh and UPMC Pharmacy Based Influenza Vaccination Clinics providing over 4000 influenza vaccines to over 2485 University Employees, 1009 UPMC Employees and 300 university students.
- Providing pharmacist led medication reconciliation programs for specialty hypertension providing medication reconciliation for over 150 patients in the year.
- Providing pharmacist led medication reconciliation programs for specialty hyperlipidemia providing medication reconciliation for over 100 patients in the year.
- Providing pharmacist lead medication reconciliation programs for specialty heart failure providing medication reconciliation for over 500 patients in the year.
- Establishing partnership with Nurse Practitioner lead heart failure discharge clinic.
- Initiating development of a pharmacist specific documentation tracking tool within EPIC

Assumed leadership roles, including:
- Chair-Elect and Programming Chair, AACP Self-Care Therapeutics and Nonprescription Medicines Special Interest Group. Pater KS

Pater KS
• ASHP Invited Ambulatory Care Webinar Series Program Chair. **Hall DL**

**Selected Publications**


**Professional and Community Service**

• 2014- present  Advisory Council, Allegheny County Health Department

• 2012-2014  Faculty Mentor, University of Pittsburgh School of Pharmacy Achieving Independence Team **State Winners 2012, 2013, 2014, 2015**

• 2014 – present  Membership Committee, Pennsylvania Pharmacist Association

• 2014 - present  Faculty Mentor to newly established Student College of Clinical Pharmacy Chapter

• Member UPMC Health System Flu Group

• Member UPMC EPIC Operations Committee

**Other**

• Engaged students in practice enhancement projects at UPMC Matilda Theiss Health Center related to Transitions of Care.

• Engaged students in practice enhancement projects at UPMC Matilda Theiss Health Center related to Depression Screenings.
UPMC St. Margaret Family Medicine

Faculty
Roberta Farrah, PharmD, Assistant Professor

Residents
Sarah Rindfuss, PharmD, PGY2 Ambulatory Care Pharmacy Resident
Lucas Hilli, PharmD, PGY2 Ambulatory Care Pharmacy Resident
Ashley Higbea, PharmD, PGY2 Ambulatory Care Pharmacy Resident

Patient Care Activities for FY14
• The family medicine residency program consists of three community-based family health centers that are models for academic interprofessional primary care practice. All three have received Level 3 Patient Centered Medical Home (PCMH) status by the National Committee for Quality Assurance (NCQA). The family health centers see a patient volume of up to 2,500 visits per month, as a mix of pediatric and adolescent, adult, and geriatric medicine.

• Pharmacists practice in face-to-face scheduled office encounters for acute and chronic conditions, telephone recent ER/inpatient transitions-of-care encounters, group visits, home visits, quality measure reports, and drug policy development and review.

• Pharmacists practice alongside family medicine and psychiatry physicians, nurses, social workers, behavioral health specialists, nutritionists, and patient case managers to provide comprehensive patient-centered care.

• Pharmacist-as-educators in precepting UPMC St. Margaret Family Medicine physician residents on required rotations, UPMC St. Margaret PGY1 pharmacy practice residents, and the University’s Community Pharmacy Practice residents, and medical/pharmacy IPPE and APPE student learners.

• Initiated a private practice initiative (PPI) of incorporating a PGY2 Ambulatory Care pharmacy resident into a non-academic community physician practices in the Pittsburgh.

• Lead a Free Medication Program for family health center patients to improve access to medications.

• Provide leadership and management of naloxone initiative prescribing, dispensing and education initiative for at-risk patients and caregivers

• Dr. Stephen Wilson MD, MPH, FAACP Director of UPMC St. Margaret Faculty Development Fellowship contribution and participation (along with his physician fellows) in the School’s curriculum with regards to physician communication.

Selected Publications

• Hill LG, PharmD; Chee JS, MD; Haugh AJ, MLS; Wilson SA, MD. Effect of time of day on lipoprotein measurement. Evidence-Based Practice. Accepted for publication. [Review]


• Rindfuss S, Wilson SA. Are selective serotonin reuptake inhibitors associated with gastrointestinal bleeding in adults. Accepted for publication. *Evidenced-Based Practice.*

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

• Scholarly contributions of pharmacist educators in family medicine in North America: A five-year review. Presentation at the Association for Medical Education in Europe (AMEE) Annual Conference. Glaskow, UK. Sept 5, 2015. Co-presenters: Rindfuss SR, Jarret JB.


Transitions of Care

Faculty
Kim Coley, PharmD, Professor
Sharon Connor, PharmD, Assistant Professor
James Coons, PharmD, Assistant Professor
Amy Donihi, PharmD, Associate Professor
Tanya Fabian, PharmD, PhD, Assistant Professor
Melissa McGivney, PharmD, Associate Professor
Karen Pater, PharmD, Assistant Professor
Christine Ruby, PharmD, Assistant Professor
Michael Shullo, PharmD, Associate Professor

Pharmacy Fellow
Jennifer Greene Naples, PharmD

Major Accomplishments
In FY15, School of Pharmacy faculty members:

• Expanded the BULK Meds to Home program at UPMC to include eye products and topicals (in addition to insulin and inhalers). In addition, the program was expanded to all UPMC hospitals. Donihi AC.

• Led the daily multidisciplinary process for ensuring that hospitalized patients receive their mealtime insulin at an appropriate time in relation to their meals. Donihi AC

• Educated over 300 hospitalized patients who went home new to insulin. Donihi AC

• Developed UPMC system-wide policies that allow alert patients to continue wearing their home subcutaneous insulin pump and to continue to self-manage their mealtime insulin via carbohydrate counting while they are hospitalized. Donihi AC

• Elected as Chair-Elect of the ACCP Endocrine and Metabolism PRN. Donihi AC

• Oversaw all transitions of care education, assistance, and discharge planning for the UPMC Adult Heart Transplant Program and provided direct outpatient care during >1500 patient visits. Shullo M
• The WPIC MEDPACT (Medication and Education at Discharge – Pharmacist Assisted Care Transitions) led by T. Fabian program has:
  • Facilitated transitions of care for over 8,000 patients by identifying and resolving barriers to medication access and adherence since program inception in 2008
  • Assisted a total of 2,736 patients in FY15 and provided nearly a third of eligible WPIC patients with medication education and medications “in hand” prior to discharge
  • Facilitated care transitions by performing a total of 5,499 medication-related interventions including resolving 3,655 prescription insurance issues and providing patient-specific medication education for 1,151 patients.
  • Reduced 30-day psychiatric readmission rates for patients with a schizophrenia diagnosis (ICD-9 295.xx) by 52.6% compared to patients who did not participate in MEDPACT (7.4% vs 15.6%).
    (7.4% vs 15.6%). Patients who left the hospital with “meds in hand” had a 52.6% reduction in psychiatric readmission rate compared to usual care.
  • Collaborated with a multidisciplinary team at the UPMC Advanced Heart Failure/Pulmonary Hypertension Outpatient Clinic to improve patients’ transitions of care. This included over 200 patient encounters. Coons J.
  • Received an Innovation Award from the University of Pittsburgh’s Clinical and Translational Science Institute (CTSI) for MEDIvate (Intelligent Medication Management; www.medivate.me). MEDIvate is a smartphone application that uses QR-code technology to enable portability of accurate medication lists that can be shared with healthcare providers to improve transitions of care. Also recognized as Top 10 Finalist for proposal at The Pitt Innovation Challenge (PInCh): Sponsored by Pitt CTSI, Office of the Provost, and Innovation Institute. Empey P, Coons J.
  • The Geriatric clinics are models for interprofessional geriatric pharmacy practice. Both have received Level 3 Patient Centered Medical Home (PCMH) status by the National Committee for Quality Assurance (NCQA). The pharmacists practice in face-to-face scheduled office encounters for acute and chronic conditions and telephonic care for transitions-of-care encounters. Ruby CM.
  • Led a pharmacist driven transitions-of-care program focusing on Senior Care patients discharged from UPMC affiliated nursing homes (such as Heritage, Charles Morris, Cantebury) and several non-UPMC facilities (such as Asbury Heights and Health South). This program includes medication reconciliation, comprehensive medication review, sharing of discharge information across sites, and confirmation of home care services. Ruby CM.
  • Added new sites (Arden Court and Harmarville) to the Senior Care Transitions of Care program facilities and provided at least 100 patient transition-of-care encounters. Ruby CM.
  • Initiated two quality improvement projects relating to the transition-of-care protocols at Senior Care. Ruby CM.
  • Developed three student specific Special Topics elective courses focusing on transitions-of-care. Ruby CM.
Invited Presentations and Published Abstracts

- “Update in Treatment Options for Diabetes” an invited CE presentation for the University of Pittsburgh School of Pharmacy Fall Continuing Education Seminar. Program #0481-0000-14-055-L04-P. October 19, 2014. **Donihi AC**

- “Educating Hospitalized Patients with Diabetes: Perspectives of Staff Nurses on Barriers and Opportunities”. Poster at the American Diabetes Association 75th Scientific Sessions, Boston, Massachusetts; June 8, 2015. **Donihi AC**

- “Transitions of Care: Identifying patients at risk for drug-related problems in an urban health center.” Poster presentation at the University of Pittsburgh Schools of the Health Sciences Health Disparities Poster Competition, Pittsburgh, PA; April 6, 2015. **Connor S; Pater K.**


- “The impact of pharmacists caring for geriatric patients across the healthcare continuum on the identification, resolution, and prevention of drug therapy problems: A subset of the PIVOTS group.” Presented as a poster at the American Geriatrics Society Annual Scientific Meeting, Washington, DC. May 15-17, 2015. **Coley KC, Thorpe C, McGivney M**

- “Evaluation of a Medication Access and Adherence Tool (MAAT) to identify patients at risk for medication nonadherence after hospital discharge.” A platform presentation at the SMA 2015 Conference, Pittsburgh, PA 2015. **Coley KC**

- “Quality Improvement of Transition of Care Follow-up Process.” Presented at the 9th Annual Aging Institute Research Day, Pittsburgh, PA; March 31, 2015. **Ruby CM.**


- “Complexities with Transitions of Care in Older Adults. Presented at the Health Disparities.” Poster presented at the Graduate School of Public Health, Pittsburgh, PA April 2015. **Ruby, CM.**

Grants

- **Donihi AC and Coley KC** continued to partner with clinicians from UPMC for “Implementation of an Inpatient Bulk Meds to Home Program at a Large Academic Medical Center.” This program was awarded $25,000 by the ASHP Foundation.

- **Coley KC, Thorpe C, and McGivney M** continued to work with clinicians from UPMC St. Margaret Hospital on the transitions of care research program, “PIVOTS: Pharmacist led InterVention On Transitions of Seniors.” This program places geriatric clinical pharmacists in a direct patient care role that manages elderly patients as they transition across different levels of geriatric care. This program was awarded a $60,000 grant from the Jewish Healthcare Foundation.
• Coley KC partnered with UPMC St. Margaret Hospital to evaluate provider and staff perceptions of a geriatric pharmacist conducting transitions of care activities. This evaluation was funded by the Pennsylvania Pharmacists Association for $1000.

HOSPITAL-BASED PROGRAMS

UPMC Palliative and Supportive Institute

Faculty
Jennifer Pruskowski, PharmD, Assistant Professor, Palliative Care Clinical Pharmacy Specialist

Major Accomplishments
During FY15, School of Pharmacy faculty members achieved the following:

• Provided clinical pharmacy support to: 10 hospital-based palliative care teams, 4 palliative care focused CRNPs within UPMC Senior Communities, and 6 outpatient and home-based palliative care teams

• Created and launched Palliative Care Pharmacy Phast Phact weekly electronic newsletter, to be distributed throughout UPMC Palliative and Supportive Institute

• Established a quality improvement project to streamline medications for patients with life-limiting illnesses entitled the DE-PHARM (Discussion to Ensure the Patient-centered, Health-focused, prognosis-Appropriate, and Rational Medication regimen) to be performed in UPMC Senior Communities

• Developed a formulary review on oral long-acting opioids for the use of these medications in the hospital settings across UPMC

Selected Publications


UPMC Pharmacy Transplant Group

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

**PhD Students**
Omar Almazroo, PhD Candidate  
Ali Alshabi, PhD Candidate  
Fairuz Feturi, PhD Candidate  
Rujuta Joshi, PhD Candidate  
Hari Kalluri, PhD Candidate  
Mohammad Shawafeq, PhD Candidate  
Hari Thanukrishnan, PhD Candidate

**MS Student**
Hongfei Zhang

**Postdoctoral Fellows**
Cody Moore, PharmD – Transplant Outcomes Research  
Martha Bustos, PhD  
Maisa Feghali, MD  
Chithambaram Pillai Venkateswaran, PhD  
Vikram Raghu, MD  
Imam Shaik, PhD  
Yang Zhao, PhD

**Resident**
Alicia Lichvar, PharmD-PGY2 Solid Organ Transplant Pharmacy Resident

**Visiting Scholars**
Huijun Chen  
Mimi Li

**Research Associate**
Wencheng Zhao

**Major Accomplishments**
In FY15, School of Pharmacy faculty members:

- Preceptor of the Year, 2014-15. School of Pharmacy. **Ensor CR.**
- Chair-Elect, American College of Clinical Pharmacy Immunology/Transplantation Practice and Research Network. **Ensor CR**  
  2016 ACCP Scientific Program Committee Member. **Ensor CR**
- Workforce Co-chair: ISHLT Core Competencies of the Thoracic Pharmacist International Society of Heart and Lung Transplant, **Ensor CR**
- Standards and Guidelines Committee Member, ISHLT. **Ensor CR**
- Workforce Chair: ISHLT Core Competencies of the Thoracic Pharmacist International Society of Heart and Lung Transplant, **Shullo MA**
• Session Chair: Kinetics, coagulation, and cardiology. 35th Annual Meeting and Scientific Sessions. International Society of Heart and Lung Transplant, Shullo MA

• Appointed Associate Director of Cardiac Transplantation Program, UPMC. Shullo MA

• Over 1100 Drug-Drug Interactions Screens for HCV therapy candidates
  Average of 8 meds/patient and 1.6 interactions per patient – interactions identified in about 50% of patients Johnson HJ


• NICHD - T-32 Fellowship in OB Pharmacology: Only one in the country recruited a Pharm.D. student currently on Ph.D. (Lara Siminerio, Pharm.D.) Venkataramanan R

• Chair of AAPS Foundation New Investigator Award Committee Venkataramanan R

• Graduate Faculty of the Year Award, School of Pharmacy May 2015 - Venkataramanan R

• Director of Therapeutic Drug Monitoring, UPMC, Venkataramanan R

• Editor, American Journal of Analytical Chemistry, Venkataramanan R

• Editorial Board Member – Therapeutic Drug Monitoring and Journal of Clinical Pharmacology, Venkataramanan R

• Reviewer: Several journals including J. Clinical Pharmacology, British Journal of Clinical Pharmacology, Therapeutic Drug Monitoring, Venkataramanan R

• Graduated one Ph.D. student; one MS student; one PGY-2 resident project, Venkataramanan R

• Mentored 9 graduate students; 2 visiting scholars; 6 fellows; one PharmD student, Venkataramanan R

• Honored as a speaker in “Agents of Change” – one of 7 alumni from 35 years selected to give a talk at the University of British Columbia, Vancouver Canada. Sep 2014, Venkataramanan R

Grants/Research


UH 2TR000496, **Venkataramanan R**, 7/1/12-6/30/17, National Institute of Health, $47,813.00. All-Human Microphysical Model of Metastasis Therapy, Optimization of Drug Dosing in Pregnant Women through Research and Education – OPRC Administrative Core.

ProStrakan, Inc, **Venkataramanan R**, 06/20/12 – 06/19/15, Pharmacokinetics and Bioavailability of Granisetron Transdermal System (Sancuso) in Pregnancy.

**Selected Publications**


• Jan H Beumer, Venkateswaran C Pillai, Robert A Parise, Susan M Christner, Roberto Gramignoli, Stephen C Strom, Michelle A Rudek, Raman Venkataramanan. Ritonavir and Efavirenz Interaction with Dasatinib in Primary Cultures of Human Hepatocytes with Clinical Predictions. BJCP (Accepted).

• Duong SQ, Lal AK, Joshi R, Feingold B, Venkataramanan R. Transition from brand to generic tacrolimus is associated with a decrease in trough blood concentration in pediatric heart transplant recipients. Pediatric Transplantation

Invited Presentations and Published Abstracts

• Respiratory viral infections after lung transplantation: not just the common cold. Lung transplantation grand rounds, University of Pittsburgh School of Medicine. July 2015. **Ensor CR.**

• Donor-specific antibodies and antibody-mediated rejection in thoracic transplantation. Transplant Infectious Diseases grand rounds, Division of Infectious Diseases, University of Pittsburgh School of Medicine. February 2015. **Ensor CR.**

• Cellular rejection after thoracic transplantation: East of the rock and west of the hard place. Transplant Infectious Diseases grand rounds, Division of Infectious Diseases, University of Pittsburgh School of Medicine. December 2014. **Ensor CR.**


• Zeevi A, McDyer JF, Yousem SA, Morrell MR, D’Cunha J, Pilewski J, Bermudez C, **Ensor CR**. Carfilzomib-based therapy depletes anti-HLA antibody in lung transplant patients with


- What was nice from Nice: an update from the ISHLT 2015 Annual Meeting. ACCP IMTR prn Webinar June 2015, Shullo M.


- Brown MA, Johnson HJ, Lichvar AB, Chopra KB, Dunn MA. Effect of simeprevir administration on dose-normalized concentration of calcineurin inhibitors in solid organ transplant recipients with hepatitis C infection. Submitted for presentation at the American Association for the Study of Liver Diseases (AASLD) The Liver Meeting 2015, San Francisco, CA, November 2015. - accepted

- Lichvar AB, Johnson HJ, Rustgi V. The effect of ledipasvir/sofosbuvir on dose-normalized levels of immunosuppression in liver transplant recipients. Submitted for presentation at the American Association for the Study of Liver Diseases (AASLD) The Liver Meeting 2015, San Francisco, CA, November 2015. - accepted


- HCV-New and Emerging Therapies. University of Pittsburgh School of Pharmacy Fall Continuing Education Seminar, Pittsburgh, October 19, 2014. Johnson HJ
• Rivosecchi RM, Kane-Gill SL, MacLasco A, Garavaglia J, Johnson HJ. The effectiveness of intravenous vitamin K in cirrhotic patients with coagulopathy.


• Martha L Bustos, Yang Zhao, Huijun Chen, Steve N Caritis and Raman Venkataramanan. Granisetron clearance and antiemetic efficacy are influenced by SNPs in CYP1A1, CYP3A4, CYP3A5 and ABCB1 genes in pregnant women treated for nausea and vomiting. Presented at The Annual Graduate Student Research Retreat, School of Pharmacy. June 1st 2015. Wheeling, WV.

• Chen HJ, Zhao Y, Caritis S, Venkataramanan R. Pharmacokinetics of ranitidine in pregnant and non-pregnant women. Present at Fourth Annual University of Pittsburgh-Tsinghua University Joint Symposium, April 2015 Pittsburgh, PA.


Zhao Y, Alshabi AM, Caritis SN, Venkataramanan R. Seventeen Alpha Hydroxyprogesterone Caproate May Cause Drug Interactions in Pregnant Women Based on Data in Primary Cultures of Human Hepatocytes. Presented at The Society for Gynecologic Investigation 61st Annual Scientific Meeting, Florence, Italy (Abstract S-089 in the final program).


Alicia B. Lichvar PharmD, David P. Deen PharmD, Heather J. Johnson PharmD, Jennifer J. Bonner PharmD PhD, Geoffrey Bond MD, Guilherme Costa MD, Ruy Cruz Jr MD PhD, Kareem Abu-Elmagd MD PhD, and Raman Venkataramanan PhD² Tacrolimus Trough Concentrations Increase in Intestinal Transplant Recipients During Episodes of Acute Cellular Rejection Presented at the ATC meeting in Philadelphia May 2014

Omar M Young MD, Imam H Shaik PhD, Roxanna Twedt MD, Anna Binstock MD, Andrew D Althouse PhD, Raman Venkataramanan PhD, Hyagriv N Simhan MD MSCR, Harold Wiesenfeld MD, Steve N Caritis MD Pharmacokinetics of cefazolin prophylaxis in obese gravidae at time of cesarean delivery. SMFM meeting March 2015

UPMC Pharmacy Critical Care Group

Faculty
James C. Coons, PharmD, Associate Professor
Neal J. Benedict, PharmD, Associate Professor
Philip E. Empey, PharmD, PhD, Assistant Professor
Bonnie A. Falcione, PharmD, Assistant Professor
Sandy L. Kane-Gill, MS, PharmD, Associate Professor
Thomas D. Nolin, PharmD, PhD, Assistant Professor
Samuel M. Poloyac, PharmD, PhD, Professor
Amy L. Seybert, PharmD, Associate Professor
Pamela L. Smithburger, MS, PharmD, Associate Professor

Residents
Amanda Korenoski, PharmD, MHA, PGY2 Critical Care Resident
Ryan Rivosecchi, PharmD, PGY2 Critical Care Resident
Nathan Verlinden, PharmD, PGY2 Cardiology Pharmacy Resident

International Trainees-1 Year Program
Chai Ling Ong, MS
Graduate Students
Solomon M. Adams, PharmD
Shoroq Altawalbeh, PharmD
Kacey Anderson, BS
Fanuel Hagos, BS, MS
Lingjie Li, MS
Alexander Prokopienko, PharmD
Dustin Walsh, PharmD

Major Accomplishments
In FY15, School of Pharmacy faculty members were:

• Selected for continued service as Faculty for the American Society of Health-System Pharmacists (ASHP) Foundation Critical Care Trainee Program. Benedict NJ

• Appointed vice-chair for the Critical Care Practitioners as Educators Task Force for the Society of Critical Care Medicine, Chair of the ACCP Program Committee (2012-2014), and elected At-Large Member of the SCCM Council (2014-2017). Kane-Gill S

• Selected as a member of the Center for Critical Care Nephrology; Department of Critical Care Medicine, University of Pittsburgh School of Medicine. Nolin T, Kane-Gill S

• Awarded a National Institutes of Health grant 1 R01 GM107122-01A1 “Drug metabolizing enzyme and transporter function in chronic kidney disease.” Role PI; $1.9 million direct costs; 2014-2019. Nolin T.

• Named an associate editor for the tenth edition of “Pharmacotherapy: A Pathophysiologic Approach.” Nolin T

• Promoted to Professor with Tenure, University of Pittsburgh, School of Pharmacy, Department of Pharmaceutical Sciences. Poloyac S.

• Named as a standing member to the Neurological Sciences and Disorders K, National Institutes of Health grant reviewer. Poloyac S.

• Elected as President of the ACCP Critical Care PRN. Smithburger PL

• Implemented the first International Advanced Clinical Training Program with Singapore. Seybert AL, Smithburger PL, Coons JC, Kane-Gill S

Awards
• American Association of Colleges of Pharmacy (AACP) Innovations in Teaching Award. Empey PE

• Outstanding Scholarly Contribution Award, Rho Chi Society. Empey PE

• Society of Critical Care Medicine (SCCM) Patient and Family Support Specialty Award and invited oral presentation for this research. Kane-Gill SL, Smithburger PL
- SCCM, Clinical Pharmacy and Pharmacology Section Medication Safety Award. **Kane-Gill SL**, **Smithburger PL**
- American Society of Health-System Pharmacists (ASHP) Best Practice Award for the Impact of a Clinical Pharmacist Acid Suppression Therapy Management Program on Inappropriate Use in Intensive Care Unit and General Ward Patients. **Kane-Gill SL**
- American College of Clinical Pharmacy (ACCP) - Mentored the Best Student Poster Award, Characterization of delirium in a medical ICU that emphasizes frequent delirium screening. **Kane-Gill SL, Smithburger PL**
- 2015 Phi Lambda Sigma/Rho Chi Innovations in Teaching Award. **Poloyac S**

**Selected Critical Care Publications**


Grants
• University of Pittsburgh Advisory Council on Instructional Excellence (ACIE) Grant Award. Using personal genome testing to teach pharmacogenomics in a large lecture course. Role: PI; $18,708 direct costs; 2014-2015. Empey PE, Coons JC, Smith R

• University of Pittsburgh, Institute of Personalized Medicine/Clinical and Translational Science Institute demonstration project. PreCISE-Rx: Pharmacogenomics-guided care to improve the safety and effectiveness of medications. Role: PI $679,500; 2014-2016. Empey PE


• Mitochondrial Disease Foundation (Bell). Improving CNS delivery of brain antioxidants after acute metabolic decompensation in mitochondrial disease. Role: Co-I. Empey PE
• National Institutes of Health. Developing goal-oriented perfusion therapy for neurocardiac injury in sub-arachnoid hemorrhage. Role: Co-PI; 2/5/14 – 1/31/18. **Poloyac S**

• Department of Defense. Operation brain trauma therapy (Extended). Role: Co-I; 5/1/14 - 04/30/16. **Poloyac S**


**Selected Invited Presentations**

• Integrated progress testing through blended simulation to assess clinical readiness. 13th Annual Safar Symposium, University of Pittsburgh; Pittsburgh, PA. **Benedict N**

• Select topics in prevention and supportive care in critical care patients. ASHP Critical Care Pharmacy Preparatory Review Course: Core Therapeutic Modules Series. **Benedict N**

• Sepsis for the critical care pharmacist. ASHP Critical Care Traineeship Program “Distance Training Webinar”; Pittsburgh, PA. **Benedict N**

• Curricular integration of virtual patients: eight years of simulation. Presented at AACP Annual Conference Innovations in Teaching Special Session; Grapevine, TX: July 29, 2014. **Benedict N**


• Pharmacogenomics in critical care. SCCM Critical Care Congress; San Francisco, CA. January 2014. **Empey P**

• Pharmacogenomics: Pitt’s prescription for personalized medicine. University of Pittsburgh Winter Academy; West Palm Beach, FL and Naples, FL: March 2015. **Empey PE**

• Testing considerations for the application of pharmacogenomics. ASHP Midyear Meeting; Anaheim, CA. December 2014. **Empey PE**

• Pharmacological implication of targeted temperature management. Neurocritical Care Society; Seattle, WA. September 2014. **Empey PE**

• Improving medication safety strategies in the ICU: Maximizing adverse drug event surveillance with automation. 44th SCCM Critical Care Congress; San Francisco, CA: January 2015. **Kane-Gill SL**

• What do we know about patients at risk for drug associated AKI? 4th AKI Symposium, University of Pittsburgh; Pittsburgh, PA: October 2014. **Kane-Gill SL**

• Quantitative lipidomics in aneurysmal subarachnoid hemorrhage. Presented at SCCM Annual Meeting; Phoenix, AZ: January 2015. **Poloyac S**
• Pharmacokinetics in CRRT: from research to regulatory policy. 4th Annual AKI symposium, University of Pittsburgh; Pittsburgh, PA: October 2014. Nolin T


• Simulation in Pharmacy Education-European Association of Hospital Pharmacists 20th Annual Congress, Hamburg, Germany, March 2015. Seybert AL

• Get Smart: Know When Antibiotics Work” Public Health Outreach Project, Pennsylvania Department of Health, Harrisburg, PA. Falcione BA

UPMC Infectious Diseases and Antibiotic Management Program (AMP)

Faculty
Brian A. Potoski, PharmD, Associate Professor and Associate Director AMP
Bonnie A. Falcione, PharmD, Assistant Professor, AMP Pharmacist

Resident
Deanna Buehrle, PharmD, PGY2 Infectious Diseases Pharmacy Resident

Selected Publications


UPMC Health System Formulary Management and Drug Use Policy

School of Pharmacy faculty members led the development of medication formulary management and drug use policy/protocol work to create evidence-based guidelines that promote safe and cost-effective use of medications for inpatients at UPMC. Continuing to build on the rigorous foundation of the nationally recognized UPMC formulary management work, 15 hospitals of the UPMC are integrated as part of the UPMC System Pharmacy Service Line infrastructure. Faculty and hospital-based clinical pharmacists across UPMC sites 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 postgraduate year (PGY) 1 and PGY2 hospital-based UPMC residents use these guidelines in the interdisciplinary care of patients throughout the UPMC System.

Faculty
Susan J. Skledar, MPH, Associate Professor
Colleen M. Culley, PharmD, Associate Professor

Major Accomplishments
During FY15, School of Pharmacy faculty members achieved the following:

• In the past year, developed UPMC system-wide medication use guidelines, protocols, and policies, including the following:
  • 155 guidelines/reviews and 6 electronic health record protocols for medication use across UPMC hospitals. Skledar SJ, Culley CM, other faculty, clinical pharmacists, and PGY1/PGY2 residents mentored by the faculty.
  • 9 medication therapeutic class/safety interchanges to ensure medication safety and promote cost-effectiveness for UPMC patients. Skledar SJ, Culley CM
• Led the revision and/or creation of 10 UPMC-wide hospital policies, which are guidance documents for pharmacy institutional practice and meet standards of internal and external regulatory and accreditation bodies. Skledar SJ
• Created a new UPMC system-wide policy for management of intravenous medication extravasation, which must be managed safely and swiftly to prevent skin and limb damage. Skledar SJ
• Collaborated with interdisciplinary clinicians and informatics specialists across the UPMC to create electronic health record rules and alerts based on formulary decisions that resulted in cost-avoidance exceeding $2.4 million for fiscal year 2015. Skledar SJ, Culley CM
• Mentored 11 Carnegie Mellon University Heinz College graduate students in data analytics and health policy on a project entitled, “Comparative effectiveness of prophylactic anticoagulation modalities in orthopedic joint replacement surgery: an observational, retrospective analysis.” Post-surgical thrombotic and bleeding occurrences were quantified and evaluated to recommend the safest preventative anticoagulation regimens at UPMC. Skledar SJ, Culley CM
• Served as Chair of the American Society of Health-System Pharmacists’ (ASHP) Section of Inpatient Care Practitioners for 2014-2015. Skledar SJ
• Invited member of the Pharmacy Quality Alliance (PQA) National Quality Measures Update Panel to help ensure PQA-endorsed measures align with current evidence and remain viable in the accountable care and health care marketplace. **Skledar SJ**

• Educated pharmacists preparing to obtain their national critical care board certified pharmacotherapy specialist (BCPS) certification in the topic area of Pharmacy Practice Management at a two-day ASHP-sponsored review course. **Skledar SJ**

• Evaluation of adverse event detection system developed as part of an AHRQ-sponsored clinical trial in the UPMC-owned skilled nursing facilities using TheraDoc®, clinical surveillance system. **Culley CM** (UPMC Corporate Pharmacy Supertrainer)

**Selected Publications**


• Henao JP, Peperzak KA, **Lichvar AB (PGY1 Resident)**, Orebaugh SL, **Skledar SJ**, Williams BA. The incidence of extrapyramidal symptoms following administration of oral perphenazine 4 or 8 mg: an 11-year retrospective analysis. *Eur J Anaesthesiol* 2014; 31: 1-5.


**Selected Invited Presentations**


• “Mentoring: What’s It All About?” UPMC St. Margaret’s Preceptor Development Series. Continuing Education Session. ACPE Program #0481-0000-14-038-L04-P. UPMC St. Margaret’s, University of Pittsburgh Medical Center, Pittsburgh PA. October 7, 2014. **Skledar SJ**

• Change across a health system via a progressive pharmacy and therapeutics committee. ASHP 49th Midyear Clinical Meeting, Anaheim, CA. December 9, 2014. **Skledar SJ**, **Culley CM**

Selected Poster Presentations


- Algorithm for continuation of specialty medications with extended dosing intervals during inpatient stay. ASHP 49th Midyear Clinical Meeting, Anaheim CA. December 9, 2014. Williams L (student pharmacist), Skledar SJ.


Geriatrics (Benedum and Shadyside Senior Care Institute) Program

The mission of care is the:

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

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

Pharmacy Fellow
Jennifer Greene Naples, PharmD

Major Accomplishments
During FY15, School of Pharmacy faculty members achieved the following:

- Received full American Society of Health System Pharmacy (ASHP) Accreditation for one of twelve post-graduate residency programs nationally in geriatric pharmacy practice, successfully graduating the second PGY2 geriatric resident in 2014. Ruby CM.
• Created one of two geriatric pharmacy fellowship programs nationally; successfully recruiting the third fellow for this T-32 funded program. Hanlon JT and Ruby CM.

• The Geriatric clinics are models for interprofessional geriatric pharmacy practice. Both have received Level 3 Patient Centered Medical Home (PCMH) status by the National Committee for Quality Assurance (NCQA). The pharmacists practice in face-to-face scheduled office encounters for acute and chronic conditions and telephonic care for transitions-of-care encounters. Ruby CM.

• Led a pharmacist driven transitions-of-care program focusing on Senior Care patients discharged from UPMC affiliated nursing homes (such as Heritage, Charles Morris, Cantebury) and several non-UPMC facilities (such as Asbury Heights and Health South). This program includes medication reconciliation, comprehensive medication review, sharing of discharge information across sites, and confirmation of home care services. Ruby CM.

• Added new sites to the Senior Care Transitions of Care program (Arden Court and Harmarville) facilities and provided at least 100 patient transition-of-care encounters. Ruby CM.

• Participated as a pharmacy faculty member for the HRSA-funded Geriatric Education Center at the University of Pittsburgh. Ruby CM.

• Initiated two quality improvement projects relating to the transition-of-care protocols at Senior Care. Ruby CM.

• Organized and led three pharmacist provided immunization clinics at Senior Care. Ruby CM.

• Mentored the geriatric pharmacy resident’s quality improvement project which was subsequently utilized for our Level 3 PCMH reaccreditation. Ruby CM.

• Developed three student specific Special Topics elective courses focusing on transitions-of-care. Ruby CM.

• Trained numerous pharmacy learners (3 PGY2, 2 PGY1, 16 APPE, 8 IPPE and 6 Special Topic students) and medical residents over the last 2 years. Ruby CM.

• Mentored pharmacy students who created several medication education materials for geriatric patients and in services for house staff and nurses. Ruby CM.


Awards
• Elected and served as cabinet Secretary for the Geriatric Special Interest Group (SIG) of the American Association of Colleges of Pharmacy for a 2-year term. Ruby CM.

• Elected and served as the faculty delegate for the American Association of Colleges of Pharmacy Annual Meeting, July 2015. Ruby CM.

• Inducted as a life-time fellow of the American Society of Consultant Pharmacists. Ruby CM.
Selected Presentations- Invited Speaker

- Interprofessional Case Discussion. An invited speaker for the Interprofessional Forum, University of Pittsburgh Schools of the Health Sciences, Pittsburgh, PA; October 24, 2014. Ruby CM.

- Inappropriate Medications in the Older Adult. An invited speaker for the Advances in Geriatric Health Symposium sponsored by the Aging Institute; Robert Morris University; Corapolis, PA; May 20, 2015. Ruby CM.


Selected Presentations


- Kaashyap H, Connor SE, Ruby, CM. Complexities with Transitions of Care in Older Adults. Presented at the Health Disparities Poster Session at the Graduate School of Public Health, Pittsburgh, PA April 2015.

Selected Publications


Pharmacy Innovation Program

We have spent the past three years creating the foundation for a Pharmacy Innovation Lab that we described in Long Range Plan 2018, which stated that:

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 the many disciplines, including those external to health, sparks innovation and leads to novel solutions to complex problems.

We have developed a curriculum that works and engage students in developing innovations through an innovation cycle. We know our innovation cycle works based on the successes of the initial cohort of ten students. Individually, our students/graduates are starting a company, developing serious games for delivering educational content, have developed an “app,” creating a network of pharmacy providers throughout the Commonwealth, and created a training program for health care professionals to learn to apply pharmacogenetics to personalize medication therapy. Our focus, whether in education or health care delivery, is to enhance the patient experience and empower patients to participate in their care and make healthy choices.

In FY15, the innovation laboratory expanded during the year to become an official program within the School of Pharmacy. The curriculum for all students will begin in the P1 year with an introduction to creativity and design thinking. Students will also be invited to join the innovation laboratory to develop ideas and products outside of formal classes. During the P2 year, all students will propose new patient services or ways to improve patient services in community pharmacy as part of their experiential learning curriculum. At the end of the P2 year, students will have the opportunity make a pitch for funding for their project. Successful projects will receive funding to create a prototype of their idea during their P3 year. The program will be fully implemented in the Spring Semester 2016.

**Faculty**
Ameer Ali, PharmD
Philip Empey, PharmD, PhD
Melissa McGivney, PharmD
Randall Smith, PhD

**Post-Doctoral Fellow**
Ravi Patel, PharmD

**Major Accomplishments**
During FY15, the Pharmacy Innovation Program:
- Formed new partnerships for working on innovations with:
  - School of Business,
  - School of Engineering
  - Computer Science Program
  - School of Public Health
  - School of Information Sciences.
• Initiated a collaborative project with the School of Information Sciences to redesign the Drug Development 1 course into a semester-long drug development game with a target of January 2016 for implementation.

• Created and implemented the Innovation Fellowship, with Ravi Patel, PharmD, as the first Innovation fellow.

• Created a development plan with PittPharmacy alumnus, Jim Mastrian and advisory board. Developed philanthropy and corporate partnerships strategy to fund the program.

• Garnered support from Skipta, the first corporate sponsor, which has alumnus Ted Search, PharmD as its CEO, CEO of Skipta.

• Engaged 13 P3 students in a two semesters of innovation in a curriculum dedicated to teaching creativity, design thinking, and new technologies.

• Engaged one second-year student pharmacist to take a 3-credit special topics course on Innovation in healthcare.

• Created a concept video demonstrating the potential role of GoogleGlass in a community pharmacy setting. The team met with Google engineers to demonstrate the power of technique.

• Presented a fall workshop for students to learn more about Innovation was provided to all students through a workshop in the fall, attended by thirty students across all years.

• Partnered with UPMC Enterprises and Center for Connected Medicine; five P4 students completed elective rotations under the supervision of Program faculty.

• Arranged for one P4 student to participate in a blended rotation between Presbyterian Pharmacy and UPMC’s Technology Development Center to manage the development of an education tool for new Hospital Pharmacy employees.

• Arranged for site visits that included all innovation laboratory students to:
  - Carnegie Mellon University Entertainment Technology Center to learn about new engaging technology presented through games.
  - UPMC Technology Development Center to understand how software is developed.
  - TechShop (Bakery Square), where students had access for a year to test the tools for prototyping in the maker space.
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. Because the people of the School of Pharmacy are one of its greatest resources, information about faculty, staff, and alumni appears in this section.

We will partner with our stakeholders and communities to develop the resources to advance our mission.

RESOURCES BY THE NUMBERS FOR FY15

- **$22.8 million**: The total School of Pharmacy expenditures in FY15 from all sources.
- **$24.07 million**: The market value of the School’s endowment at the end of FY15.
- **$1,168,319**: Gifts in FY15; **$186,519** from annual gifts.
- The School of Pharmacy has an allocation of and/or leases **93,624 SF** of space in **nine (9) locations** in Oakland, the South Side, and the East End.
- **$244 per SF**: Efficiency measured as expenditures divided by total number of square feet occupied.
- In FY15, the School of Pharmacy had **77 full-time faculty members** who received **14** awards for their accomplishments, 9 of which are national or regional awards.

Of our 77 faculty members,
- **16 (20%)** have been elected to fellowship in one or more organizations.
- **23 (28.8%)** are board certified.
- **36 (45.0%)** are board certified, fellows, or both.
- **69**: The number of staff, of whom 31 are administrative and 38 are research.
- Number of living alumni: **5,147**
- 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.
  - **#2** among all University schools and programs in alumni engagement.
- **33.61 percent** of the alumni were engaged with the School of Pharmacy and/or University in some way.
- **8** major print communications were each mailed to **6,100** stakeholders and 8 others to a more limited distribution list.
- **5,760** users visited the School’s Web site monthly (average of 12 months).
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 '15.

The School of Pharmacy’s total expenditures are 1.4 times higher in FY15 ($22,785,329 million) than they were in FY05 ($16,547,383). Sponsored projects accounted for 25% of the expenses in FY15 and 33% in FY05. Together, the University (40%), sponsored project awards (25%), and UPMC (15%) accounted for over 80% of the School’s funding in FY15.

Institutional Advancement

The value of the School of Pharmacy is recognized in many ways, including philanthropic support.
In FY15, the School of Pharmacy received charitable gifts, pledges, and grants totaling $1,168,319 from a total of 640 individuals, foundations, corporations, and other organizations. Of the total, $43,322 was from corporations and organizations and was primarily designated to benefit technological renovations and research.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Dollars (Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997-1998</td>
<td>1,500</td>
</tr>
<tr>
<td>1999-2000</td>
<td>1,800</td>
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<tr>
<td>2001-2002</td>
<td>2,000</td>
</tr>
<tr>
<td>2003-2004</td>
<td>2,400</td>
</tr>
<tr>
<td>2005-2006</td>
<td>2,800</td>
</tr>
<tr>
<td>2007-2008</td>
<td>3,200</td>
</tr>
<tr>
<td>2009-2010</td>
<td>3,600</td>
</tr>
<tr>
<td>2011-2012</td>
<td>4,000</td>
</tr>
<tr>
<td>2013-2014</td>
<td>4,400</td>
</tr>
<tr>
<td>2015</td>
<td>4,800</td>
</tr>
</tbody>
</table>

**FY15 Giving to the School of Pharmacy by Source**

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumni</td>
<td>$859,488</td>
<td>73.5%</td>
</tr>
<tr>
<td>Foundations</td>
<td>$232,969</td>
<td>19.94%</td>
</tr>
<tr>
<td>Corporations</td>
<td>$40,827</td>
<td>3.49%</td>
</tr>
<tr>
<td>Organizations</td>
<td>$2,495</td>
<td>.21%</td>
</tr>
<tr>
<td>Friends</td>
<td>$32,540</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

In spite of an increase in total gifts & pledges from the previous year, the graphs below demonstrate a decrease in total annual gifts ($186,519) and in annual donors (640 donors).
PHYSICAL FACILITIES

At the close of FY15, the School of Pharmacy occupied a total of 93,624 SF, including:

- 56,625 SF in Salk Hall*
- 22,852 SF in Salk Pavilion* (May occupancy)
- 1,561 SF Commons in Salk Pavilion
- 3,607 SF in BST III**
- 1,366 SF (leased) The Offices at Baum
- 3,691 SF (leased) in Birmingham Towers
- 2,074 SF (leased) in Parkvale Building
- 1,091 SF in Falk Clinic
- 757 SF in South Presby Tower

*University space
** Leased University space

Space allocation to pharmacy increased significantly in FY15. The increase in space largely reflects the impact of the opening of Salk Pavilion, which we began occupying in May, 2015.

THE RESOURCE OF PEOPLE

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

Faculty

Seventy-seven full-time and six part-time faculty members comprise 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:
- Da Yang, PhD was recruited as an assistant professor (tenure stream) from the UT M.D. Anderson Cancer Center, TX; Terrence McGuire, PhD was recruited as a Research Assistant Professor to fill the role of Scientific Administrator for Dr. Xiang-Qun (Sean) Xie’s NIH P30 Center grant.
- Samuel M. Poloyac, PharmD, PhD, was promoted to professor.
- Haitao Yang, PhD took a position at the University of Florida.
- Randy Juhl, PhD retired from the faculty and his position as vice chancellor.

In the Department of Pharmacy and Therapeutics:
- Irene Gathuru, PhD, Sean Kim, PhD and Lindsay Lippman, PharmD left the University.
- James Stevenson, PharmD and Bridget Walker, MBA joined the faculty
- Thao Hyunh, PharmD and Amanda Korenoski, PharmD were recruited to join the faculty.
- Lauren Jonkman, PharmD was promoted to assistant professor.
- Tanya Fabian and Pamela Smithburger, PharmD were promoted to associate professor.
- Joshua Thorpe, PhD, associate professor, was awarded tenure.

### 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>15</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>7</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td>Instructor</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Research Professor</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Research Associate Professor</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Research Assistant Professor</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Visiting Research Assistant Professor</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
In FY15, School of Pharmacy faculty members earned a total of 14 major awards and one recognition for their work. Details of the awards are in the table. The categories of awards/honors are research (5), education (3), practice (4), and service (3).

**FY15: Faculty Awards, Honors, and Recognitions**

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Award</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neal J. Benedict</td>
<td>Innovations in Teaching Award</td>
<td>American Association of Colleges of Pharmacy (AACP)</td>
</tr>
<tr>
<td>Lucas A. Berenbrok</td>
<td>2015 Faculty of the Year</td>
<td>University of Pittsburgh School of Pharmacy APhA-ASP Chapter</td>
</tr>
<tr>
<td>Phillip E. Empey</td>
<td>Innovations in Teaching Award</td>
<td>American Association of Colleges of Pharmacy (AACP)</td>
</tr>
<tr>
<td>Christopher Ensor</td>
<td>2015 Preceptor of the Year</td>
<td>University of Pittsburgh School of Pharmacy</td>
</tr>
<tr>
<td>Tanya J. Fabian</td>
<td>Rising Star Award</td>
<td>University of Pittsburgh School of Pharmacy Alumni Board</td>
</tr>
<tr>
<td>Sandra Kane-Gill</td>
<td>Clinical Pharmacy and Pharmacology Section Medication Safety Award</td>
<td>Society of Critical Care Medicine (SCCM)</td>
</tr>
<tr>
<td></td>
<td>Clinical Pharmacy and Pharmacology Section Patient Safety Technology Award</td>
<td>Society of Critical Care Medicine (SCCM)</td>
</tr>
<tr>
<td>Olufunmilola K. Odukoya</td>
<td>Inaugural New Investigator Small Grant Award</td>
<td>Academy Health</td>
</tr>
<tr>
<td>Samuel M. Poloyac</td>
<td>PLS/Rho Chi Innovations in Teaching Award</td>
<td>University of Pittsburgh, PLS/Rho Chi</td>
</tr>
<tr>
<td>James J. Pschirer</td>
<td>Stanford Cohen Teacher of the Year Award</td>
<td>University of Pittsburgh School of Pharmacy</td>
</tr>
<tr>
<td>Lisa C. Rohan</td>
<td>Grantee Spotlight</td>
<td>Bill and Melinda Gates Foundation</td>
</tr>
<tr>
<td>Pamela L. Smithburger</td>
<td>Critical Care Practice and Research Network Leadership Award</td>
<td>American Association of Colleges of Pharmacy (AACP)</td>
</tr>
<tr>
<td></td>
<td>Patient and Family Support Specialty Award</td>
<td>Society of Critical Care Medicine (SCCM)</td>
</tr>
<tr>
<td></td>
<td>Clinical Pharmacy and Pharmacology Section Medication Safety Award</td>
<td>Society of Critical Care Medicine (SCCM)</td>
</tr>
<tr>
<td>Melissa Somma McGivney</td>
<td>APhA-APPM Presentation Merit Award</td>
<td>American Pharmacists Association (APhA)</td>
</tr>
<tr>
<td></td>
<td>Chancellor's Distinguished Teaching Award</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td>Raman Venkataramanan</td>
<td>Graduate Faculty of the Year</td>
<td>University of Pittsburgh School of Pharmacy</td>
</tr>
<tr>
<td>Xiang-Qun Xie</td>
<td>Outstanding Research Achievement Award in Drug Discovery and Development interface (Allergan)</td>
<td>American Association of Pharmaceutical Sciences (AAPS)</td>
</tr>
</tbody>
</table>
Fellowships in Organizations and Board Certification

Election to fellowship and board certification are two characteristics of faculty members who have distinguished themselves. Of the 80 faculty members, 16 (20.0%) have been elected to fellowship in one or more organization, 23 (28.8%) are board certified, and 36 (45.0%) 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.

**FY15: 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>Barry Gold</td>
<td>AAAS</td>
<td>American Association for the Advancement of Science</td>
</tr>
<tr>
<td>Donna Huryn</td>
<td>FACS</td>
<td>American Chemical Society</td>
</tr>
<tr>
<td>Randy Juhl</td>
<td>FAPhA</td>
<td>American Pharmacists Association</td>
</tr>
<tr>
<td>Sandra Kane-Gill</td>
<td>FCCM</td>
<td>American College of Critical Care Medicine</td>
</tr>
<tr>
<td></td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td>Patricia Kroboth</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
</tr>
<tr>
<td>Melissa Somma</td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</td>
</tr>
<tr>
<td></td>
<td>FAPhA</td>
<td>American Pharmacists Association</td>
</tr>
<tr>
<td>McGivney</td>
<td></td>
<td></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>Samuel M. Poloyac</td>
<td>FCCM</td>
<td>American College of Critical Care Medicine</td>
</tr>
<tr>
<td>Christine Ruby-Scelsi</td>
<td>FASCP</td>
<td>American Society of Consultant Pharmacists</td>
</tr>
<tr>
<td>Paul Schiff</td>
<td>FAPhA</td>
<td>American Pharmacists Association</td>
</tr>
<tr>
<td></td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
</tr>
<tr>
<td>Amy Seybert</td>
<td>FASHP</td>
<td>American Society of Health-System Pharmacists</td>
</tr>
<tr>
<td></td>
<td>FCCP</td>
<td>American College of Clinical Pharmacy</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>Name</td>
<td>Fellowship</td>
<td>Department</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Ralph Tarter</td>
<td>FAPS</td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td></td>
<td>FAPA</td>
<td>American Psychopathological Association</td>
</tr>
<tr>
<td>Raman Venkataramanan</td>
<td>FACC P</td>
<td>American College of Clinical Pharmacology</td>
</tr>
<tr>
<td></td>
<td>FAAPS</td>
<td>American Association of Pharmaceutical Scientists</td>
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</tbody>
</table>

### FY15: Faculty Board Certifications

<table>
<thead>
<tr>
<th>Name</th>
<th>Certification</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sherrie Aspinall</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>James Coons</td>
<td>BCPS (AQ-CV) Pharmacotherapy (Added Qualification in Cardiology)</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Colleen Culley</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Amy Calabrese Donihi</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Scott Drab</td>
<td>CDE Diabetes Educator, BC-ADM Advanced Diabetes Management</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Philip Empey</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Christopher R. Ensor</td>
<td>BCPS (AQ-CV) Pharmacotherapy (Added Qualification in Cardiology)</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Tanya Fabian</td>
<td>BCPP Psychiatric Pharmacy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Bonnie Falcione</td>
<td>BCPS (AQ-ID) Pharmacotherapy (Added Qualification in Infectious Disease)</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Roberta Farah</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Deanne Hall</td>
<td>CDE Diabetes Educator, BCACP Ambulatory Care Pharmacy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Heather Johnson</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Lauren Jonkman</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Karen Pater</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td></td>
<td>CDE Diabetes Educator</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Brian Potoski</td>
<td>BCPS (AQ-ID) Pharmacotherapy/Added Qualification in Infectious Diseases</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Jennifer A. Pruskowski</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td></td>
<td>CGP Geriatric Pharmacist</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Christine Ruby-Scelsi</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Amy L. Seybert</td>
<td>CHSE Certified Healthcare Simulation Educator</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Pamela Smithburger</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Dennis Swanson</td>
<td>BCNP Nuclear Pharmacy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Ralph Tarter</td>
<td>ABPP Clinical Psychology</td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Lauren Trilli Carradine</td>
<td>BCPS Pharmacotherapy</td>
<td>Pharmacy and Therapeutics</td>
</tr>
<tr>
<td>Gordon J. Vanscoy</td>
<td>CACP Certified Anticoagulation Care Provider</td>
<td>Pharmacy and Therapeutics</td>
</tr>
</tbody>
</table>
Alumni and Alumni Engagement

The School of Pharmacy ranks second in the University in overall alumni engagement for FY15. PittPharmacy ranks #1 in Life Members in the Alumni Association. In the nine years that the University of Pittsburgh has been ranking its schools and programs in alumni engagement, the School of Pharmacy has held the number one spot in FY07 and FY09, ranking second in FY08, FY10, FY15, and third in FY11, FY12, and FY14. “Engagement” is the percentage of alumni who make gifts to the School/University, participate in events, are Life Members in the Alumni Association, participate in online forums, and have provided active email addresses.

In FY15:

- 33.61 percent of the 5,147 School of Pharmacy living alumni were engaged with the School of Pharmacy and/or University in some way.

- School of Pharmacy alumni ranked:
  - First (10.86 percent) in life and in regular memberships in the Pitt Alumni Association in schools and programs with more than 100 alumni.
  - Second (33.61 percent) in participation in School and University programs in 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 sponsored by the School and/or the Alumni Society:
  - Pharmacy alumni celebrated Homecoming 2014 with a Tailgate Homecoming Party held at the O’Hara Student Center. Over 120 alumni were in attendance.
  - School of Pharmacy hosted two receptions at national professional and scientific meetings:
    - American Society of Health-System Pharmacists Midyear Clinical Meeting and Exposition on December 8, 2014 in Anaheim, California.
    - American Pharmacists Association Annual Convention, March 28, 2015, San Diego, California. The Pennsylvania Pharmacy Association and Pennsylvania Schools of Pharmacy jointly hosted the reception.

- The School of Pharmacy also hosted:
  - The Twenty Third Annual Career Roundtables, October 25, 2014, O’Hara Student Center Ballroom. Thirty-five alumni participated in this student event. Alumni from twenty-one 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 15, 2015, Quicksilver Golf Course. Seventy-six golfers participated, and the event raised $28,330 for the Alumni Scholarship Fund. In the past twelve years, more than $222,330 has been raised for student scholarships.

Board of Visitors

Dean Patricia Kroboth and select faculty hosted the School of Pharmacy Board of Visitors on October 9 and 10, 2014. Discussion focused on new strategies for PittPharmacy education and the implementation of the MS Pharmacy Business Administration program, the Center for Pharmacogenetics, productivity and support, and emerging opportunities. The Board toured the newly under-construction Salk Pavilion and future space renovations for Salk Hall were identified.


**Board of Visitors**

**2014-15**

Herbert S. Shear, Chair  
Chief Executive Officer  
GENCO ATC

Richard J. Bertz, PhD '95  
Vice President and Head  
Clinical Pharmacology & Pharmacometrics  
Exploratory Clinical and Translational Research, Bristol-Myers Squibb

Daniel J. Cobaugh, BS ’87, PharmD, FAACT, DABAT  
Vice President, ASHP Research & Education Fdn.

Timothy A. Kagle, MBA  
Vice President of Operations  
UPMC Presbyterian Shadyside

Krista M. Pedley, PharmD ‘00, MS, CDR, USPHS  
Director, Office of Pharmacy Affairs  
Health Resources and Services Administration

John T. Tighe III, BS ’78  
Founder, President and CEO,  
TMG Health, Inc.

**Enhancing Our Resource Base through Efficiency and Effectiveness**

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

**Staff**

In FY15:
- Kellie Mitchell served as Chair, Administrative and Financial Officers Special Interest Group of the American Association of Colleges of Pharmacy.
- Sixty-nine staff members served in:
  - administrative roles (31)
  - research roles (38)
- Administrative staff member Larry Kobulinsky co-authored an abstract that was accepted for presentation at the 2015 ACCP Global Conference; he is currently co-authoring a manuscript on an ongoing Cross-Training study.
• Administrative staff presented at national meetings including presentations at the AACP Annual Meeting and the Society of Research Administrators (SRA).

• Several administrative staff members serve as leaders on committees and councils external to the School of Pharmacy. Service in leadership roles and participation on national committees provides opportunity to enhance the reputation of the school and allows for professional development.

• Seven staff members received service awards from the School of Pharmacy for their tenure and commitment to the School.

Information Technology

FY15, the Information Technology staff:
• Handled 1,345 Technology Help Tickets
  • Web and online: 438
  • Network/Server Administration: 301
  • Desktop and Classroom Support: 606

• Implemented a database to track documentation of students’ Special Topics electives.

Communications

The Web site continues to be a primary tool by which varied constituents learn about the School of Pharmacy, with an average 5,760 monthly users. PittPharmacy is active in social media and has a presence in Twitter, Facebook, YouTube, and LinkedIn.

In FY15, the Communications Team:

• Produced and mailed eight major print communications to the School of Pharmacy’s 6,100 stakeholders. Another 16 print pieces were produced and mailed in a more limited distribution. Limited distribution pieces include materials the new Master of Science in Pharmacy Business Administration (MSPBA) program brochure and the Making Medicines Work booklet, a report and thank you to our donors.

• Developed electronic publications to enhance both efficiency and effectiveness. ePittPharmacy is the current news medium on the PittPharmacy Web Site for the School. Faculty, student, and school awards, accomplishments, grants and events are publicized weekly on the Web site.

• ePittPharmacy email blasts are sent quarterly and more often for special events. Blasts to stakeholders include current news, CE programs, and special events, e.g. Homecoming, RxGala. Our email list has 3,891 active recipients.
Extending Our Global Reach
Extending Our Global Reach

The University of Pittsburgh Board of Trustees formally adopted the “Statement of Aspiration and Strategic Priorities” on February 28, 2014. Abstracted from the document is the statement that “Our overarching goal to be among the best in all that we do. . . . In the pursuit of that perpetual goal, the University’s work in the years ahead will be centered on efforts to: . . . Extend Our Global Reach.”

In 2012, however, the University of Pittsburgh articulated its vision for “Living Globally.”

By 2020, the University of Pittsburgh will be a community of faculty, students, and staff “Living Globally.” The Living Globally commitment will influence all aspects of our research, teaching, and service missions and will serve to enhance the University’s reputation as a leader in global education. We will:

• Pursue research and scholarship that increase global understanding.
• Develop our students into global citizens and leaders.
• Improve people’s lives by studying and solving the world’s most critical problems.

The faculty and staff of the School of Pharmacy embraced the University’s goals and vision in order to provide diverse learning opportunities for our students and to advance research and patient care through meaningful collaborations with international partners whose strengths and interests complement our own.

Global Reach by the Numbers for FY15

During FY15:

• The School of Pharmacy engaged in partnerships with 25 international organizations on 6 continents, including Africa, Asia, Australia, North America/Central America, and Europe. The agreements include:
  • 13 Memoranda of Understanding for inter-institutional exchange of faculty and students
  • 10 Affiliation Agreements for the purposes of student and resident rotations
  • 2 Research Collaboration Agreements between faculty or students and a host site.

• 28 international visiting scholars studied at the School of Pharmacy.

• 29 P4 PharmD students participated in 30 rotations in 10 different countries at 11 different sites.

• 5 P2 and P3 students and 5 residents also completed international rotations.

• 65 international students are enrolled in degree programs and comprise 12.9% of our students: 4 PharmD students; 37 PhD students; 13 Master of Science students; 11 Non-Thesis Master of Science Students.
GLOBAL AND INTERNATIONAL PARTNERSHIPS

Partnerships
As part of the relationship-building process, the School of Pharmacy signs agreements with institutions to declare our intentions to explore possibilities for collaboration and to formalize our partnership. These agreements include:

- Memoranda of Understanding (MOU), which are broad-based expressions of interest in exploring opportunities for student and faculty exchange, research collaboration, and program development.

- Affiliation Agreements that provide structured expectations of both entities for international rotations for PharmD students and residents.

- Research Agreements between specific faculty or students and international organizations for the purposes of research collaboration.

The graph below illustrates the proportion of each agreement type. The table provides a comprehensive list of organizations with which we have active signed agreements.

### Proportion of International Agreements FY15

<table>
<thead>
<tr>
<th>MOUs for Inter-Institutional Exchange</th>
<th>Affiliation Agreements for Student/Resident Rotations</th>
<th>Research Collaboration Agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td>52%</td>
<td>40%</td>
<td>8%</td>
</tr>
</tbody>
</table>

### FY15: Agreements with International Organizations

<table>
<thead>
<tr>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin Health Hospital</td>
<td>Perth, Australia</td>
</tr>
<tr>
<td>Sir Charles Hospital (Nedlands)</td>
<td>Nedlands, Australia</td>
</tr>
<tr>
<td>Botanical Society of Yunnan</td>
<td>Yunnan Province, China</td>
</tr>
<tr>
<td>Changhai Hospital</td>
<td>Shanghai, China</td>
</tr>
<tr>
<td>Fudan University</td>
<td>Shanghai, China</td>
</tr>
<tr>
<td>Institution</td>
<td>Location</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Kunming Institute of Botany, Chinese Academy of Sciences, State Key Laboratory of Phytochemistry and Plant Resources</td>
<td>Yunnan Province, China</td>
</tr>
<tr>
<td>Peking University, Health Science Center</td>
<td>Beijing, China</td>
</tr>
<tr>
<td>Second Military Medical University</td>
<td>Shanghai, China</td>
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<tr>
<td>Shanghai Jiao Tong University</td>
<td>Shanghai, China</td>
</tr>
<tr>
<td>Sun Yat-Sen University</td>
<td>Guangzhou, China</td>
</tr>
<tr>
<td>West China Hospital</td>
<td>Chengdu, China</td>
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<tr>
<td><strong>England</strong></td>
<td></td>
</tr>
<tr>
<td>King’s College</td>
<td>London, England</td>
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<tr>
<td><strong>Honduras</strong></td>
<td></td>
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<tr>
<td>Hombro a Hombro Pittsburgh-San Jose</td>
<td>San Jose de Negrito, Yoro District, Honduras</td>
</tr>
<tr>
<td><strong>Hong Kong</strong></td>
<td></td>
</tr>
<tr>
<td>The Chinese University of Hong Kong</td>
<td>Shatin, Hong Kong</td>
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<tr>
<td><strong>Ireland</strong></td>
<td></td>
</tr>
<tr>
<td>Farmer’s Pharmacy</td>
<td>Dublin, Ireland</td>
</tr>
<tr>
<td>Beacon Hospital</td>
<td>Dublin, Ireland</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td></td>
</tr>
<tr>
<td>Universita degli Studi di Palermo/ UPMC ISMETT, (translated as Mediterranean Institute for Transplantation and High Specialization Therapies)</td>
<td>Palermo, Italy</td>
</tr>
<tr>
<td><strong>Malawi</strong></td>
<td></td>
</tr>
<tr>
<td>Baobab Health Trust</td>
<td>Lilongwe, Malawi</td>
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<tr>
<td><strong>Singapore</strong></td>
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<tr>
<td>National University of Singapore</td>
<td>Singapore</td>
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<tr>
<td><strong>Palestine</strong></td>
<td></td>
</tr>
<tr>
<td>Ashraf Pharmacy</td>
<td>West Bank, Palestine</td>
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<tr>
<td><strong>Philippines</strong></td>
<td></td>
</tr>
<tr>
<td>Philippine General Hospital</td>
<td>Manila, Philippines</td>
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<tr>
<td>University of Philippines</td>
<td>Manila, Philippines</td>
</tr>
</tbody>
</table>
### Programs

**Summer Visiting Research Program**

Initiated in summer 2014 and led by Professor Wen Xie, the School of Pharmacy designed a summer research program in partnership with the Sun Yat-Sen University School of Pharmaceutical Science in Guangzhou, China. The admissions committee composed of faculty from both universities selected six competitive third year bachelor’s students from Sun Yat-Sen University to participate as summer research interns at the University of Pittsburgh during July 2014, who were chaperoned by faculty advisors from Sun Yat-Sen University. In FY15, the program continued and five competitive bachelor’s students were chosen to participate in July 2015.

The goal of the program is to attract academically qualified and scientifically prepared MS and PhD students from top tier schools of pharmacy. The summer internship offers potential students an opportunity to learn more about our graduate program, our faculty, the University of Pittsburgh, and living in Pittsburgh. The internship also provides an opportunity for our faculty to evaluate participants and the match of their research interests to individual laboratories.

Students must apply to our graduate program using the regular application process and must meet all requirements for graduate study at the University of Pittsburgh. Students have the option of choosing the two-year thesis-based master’s program, the one-year non-thesis master’s program, or the PhD program. Students admitted to the MS programs must be self-supported.

One of the six students from the FY14 group enrolled in the one-year non-thesis master’s program for Fall 2015 and works under the supervision of Dr. Wen Xie.

**Clinical Training Program**

In FY15, in collaboration with organizations in Singapore, the School of Pharmacy developed a 12-month fee-based clinical training program similar to a PGY2 speciality clinical pharmacy residency. Under the leadership of Department Chair Amy Seybert, the program accepted its first paying trainee in July 2014, clinical pharmacist Ong Chai Ling from the National Heart Centre in Singapore. Ms. Ling received a scholarship from the Singapore Ministry of Health to support her for one year and completed her training in June 2014.

With the goal to extend this fee-based training program to other organizations in Singapore, three new trainees were accepted for FY15. Clinical pharmacists Janice Li from National University Hospital System and Michelle See from Changi General Hospital will focus on critical care while pharmacist
Yashi Saw from National University Hospital System will specialize in clinical cardiology. All three pharmacists will begin their training in summer 2015, under the direction of Dr. Amy Seybert.

**PharmD Student International Learning and Experiences**

Interest in international pharmacy experiences remains strong among our PharmD students. Students seek a wide range of opportunities and their goals are diverse, including passion for serving communities, inquisitiveness to learn about health care in other nations through both research and practice, and an adventurous spirit to become well rounded and engaged global citizens.

In FY15, a total of 37 PharmD students were the direct beneficiaries of the growing number of international partnerships.

- 29 PharmD students completed 30 P4 APPE rotations abroad including:
  - 1 P4 student who was selected for a Howard Hughes Fellowship research experience in Durban, South Africa
  - 4 students with international experiences through IPSF exchange
  - 4 P2 students to Shanghai
  - 5 P4 students were selected for Students Global Travel Scholarships to support research in the Philippines and Honduras. Two additional P4 students received a mini-award from the Center for Global Health to conduct research on interprofessionalism from international work

Examples of the student work include:

- Investigation of adverse drug reactions occurring among individuals living with HIV at the Philippine General Hospital.
- Evaluation of the differences between clinical pharmacy practice at Second Military Hospital Pharmacy and Pharmacy School in Shanghai and UPMC Presbyterian Hospital.
- Investigation of antibiotic medication taking behaviors among patients at a rural community health center in Honduras.

**Howard Hughes Medical Institute Program**

In FY15, P4 student Lauren Cirrincione spent 10-weeks participating in a summer research fellowship with KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) in Durban, South Africa. K-RITH is a collaborative program offered between the Howard Hughes Medical Institute and the University of KwaZulu-Natal. Cirrincione received support in the form of a Nationality Room Scholarship and from the Office of the Dean to support this research experience. The research focus of her the laboratory of her mentor (Dr. Alex Pym) is to understand how the tuberculosis bacterium tolerates certain antibiotics – the ultimate goal is to develop novel therapies for tuberculosis that can reduce the length of treatment.

**Fulbright Fellow**

Based on her Howard Hughes Medical Institute experience and others, Lauren Cirrincione was selected as a 2015-2016 Fulbright Fellow to continue work in Durban South Africa with Dr. Pym.

**International Pharmacy Scholarly Experiences Course**

A course entitled International Pharmacy Scholarly Experiences was developed to provide academic support for P2 and P3 students who elect to complete international research experiences during the summer. It was offered for the first time in FY1; in FY15, five students completed the elective.
Global Health Area of Concentration
In FY15, a total of 22 students were enrolled in the Global Health Area of Concentration (GH-ARCO). The co-directors of the GH-ARCO are Sharon Connor, PharmD and Lauren Jonkman, PharmD. Nine students in the class of 2015 graduated, each having participated in at least one global health APPE rotation and each having completed a mentored independent research project.

International Advanced Pharmacy Practice Experiences (APPEs)
In FY15, 29 P4 students completed 30 separate international advanced pharmacy practice rotations. Two students arranged international rotations using personal relationships (Palestine and South Africa). The remaining rotations are long-lasting School of Pharmacy partnerships.

- Farmer’s Pharmacy in Dublin, Ireland: 7 students
- Shoulder to Shoulder Pittsburgh-San José, San José del Negrito, Honduras: 5 students
- Kamuzu Central Hospital in Lilongwe, Malawi: 1 student
- Sir Charles Gairdner Hospital in Nedlands, Australia: 2 students
- Austin Health in Heidelberg, Australia: 2 students
- Philippine General Hospital, Philippines: 4 students
- ISMETT, Palermo, Italy: 3 students
- Kings College Hospital, London, United Kingdom: 2 students
- Changhai Hospital, Shanghai, China: 2 students
- Community rotation in Palestine: 1 student
- KwaZulu-Natal Research Institute for Tuberculosis and HIV, South Africa: 1 student

Number of Students Completing P4 International APPEs
**Global Health Residency and Rotations**

The University of Pittsburgh School of Pharmacy is one of only two PGY2 residency programs in the country to offer pharmacist training to practice in global health. The directors of the PGY2 global health residency are Sharon Connor, PharmD and Lauren Jonkman, PharmD, MPH.

As part of the global health residency experience, the resident practices in limited-resource settings in Pittsburgh; in addition, he or she completes a minimum of two international global health experiences. In FY15, the PGY2 resident conducted a home assessment of families involved in an asthma treatment program to evaluate asthma knowledge. In Pittsburgh, the resident conducted a qualitative evaluation of the needs of underserved patients in transitions of care.

Five pharmacy residents, including the global health resident, completed global health rotations:

- Kamuzu Central Hospital in Lilongwe, Malawi: 1 PGY2 global health resident at the University of Pittsburgh School of Pharmacy and 1 PGY1 Pharmacy Practice resident at UPMC Shadyside
- Shoulder to Shoulder Pittsburgh-San José, San José del Negrito, Honduras: 2 residents: 1 PGY2 global health resident and 1 PGY1 UPMC St. Margaret pharmacy practice resident
- Friends of Ocote Paulino, Ocote Paulino, Honduras: 1 UPMC Presbyterian PGY2 transplant resident

**International Visiting Scholars**

In total, the School of Pharmacy hosted 28 international visiting scholars at differing levels of training during FY15. In FY15, the array of international visitors to the School of Pharmacy began to diversify. We hosted larger numbers of trainees interested in clinical pharmacy and continued to welcome scholars to conduct pharmaceutical sciences research.

The visiting scholars are listed in the table below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Home Institution</th>
<th>Hosted By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibishan Balasubramanian</td>
<td>SASTRA University, India</td>
<td>Dr. Shilpa Sant’s Lab</td>
</tr>
<tr>
<td>Hua-Lin Cai, PhD</td>
<td>The Second Xiangya Hospital of Central South University</td>
<td>Dr. Jeffrey K. Yao’s Lab</td>
</tr>
<tr>
<td>Xinran Cai</td>
<td>Sun Yat-Sen University</td>
<td>Dr. Wen Xie’s Lab</td>
</tr>
<tr>
<td>Sicong Chen</td>
<td>Sun Yat-Sen University</td>
<td>Dr. Xiang-Qun Xie’s Lab</td>
</tr>
<tr>
<td>Nuo Cheng</td>
<td>Second Military Medical University, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Nan Ding</td>
<td>Shanghai Hospital, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Prithvirajan Durairajan</td>
<td>SASTRA University, India</td>
<td>Dr. Shilpa Sant’s Lab</td>
</tr>
<tr>
<td>Yue Gao, MS</td>
<td>Second Military Medical University, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Yan Guo, MS</td>
<td>Shanghai Jiao-Tong University School of Medicine</td>
<td>Dr. Wen Xie’s Lab</td>
</tr>
<tr>
<td>Bingfang Hu, BS</td>
<td>Sun Yat-Sen University, China</td>
<td>Dr. Wen Xie’s Lab</td>
</tr>
<tr>
<td>Jianping Hu, PhD</td>
<td>Leshan Normal University, China</td>
<td>Dr. Xiang-Qun Xie’s Lab</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>Lab</td>
</tr>
<tr>
<td>-----------------------------</td>
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</tr>
<tr>
<td>Yu-Kun Huang, MD, PhD</td>
<td>Xiangya Hospital, China</td>
<td>Dr. Song Li’s Lab</td>
</tr>
<tr>
<td>Tianqun Lang</td>
<td>Sun Yat-Sen University</td>
<td>Dr. Song Li’s Lab</td>
</tr>
<tr>
<td>Janice Xuanhui Li, BS, MS</td>
<td>National University Hospital, Singapore</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Panlin Li</td>
<td>Sun Yat-sen University, China</td>
<td>Dr. Xiang-Qun Xie’s Lab</td>
</tr>
<tr>
<td>Ong Chai Ling, BS</td>
<td>National Heart Centre, Singapore</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Xueying Liu, PhD</td>
<td>Fourth Military Medical University, China</td>
<td>Dr. Xiang-Qun Xie’s Lab</td>
</tr>
<tr>
<td>Meihua Luo</td>
<td>Sun Yat-Sen University</td>
<td>Dr. Lisa Rohan’s Lab</td>
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<tr>
<td>Lohit Pandoria</td>
<td>King’s College, London</td>
<td>Dr. Jan Pringle’s Lab</td>
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<tr>
<td>Wellin Qian</td>
<td>Fudan University, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Danying Qin</td>
<td>Sun Yat-Sen University</td>
<td>Dr. Paul Johnston’s Lab</td>
</tr>
<tr>
<td>Abdul Sami, BS, MS</td>
<td>University of Arid Agriculture Rawalpindi, Pakistan</td>
<td>Dr. Shilpa Sant’s Lab</td>
</tr>
<tr>
<td>Kishor Sarkar, PhD</td>
<td>Indian Institute of Science, India</td>
<td>Dr. Shilpa Sant’s Lab</td>
</tr>
<tr>
<td>Yashri Saw</td>
<td>National University Hospital, Singapore</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Michelle See</td>
<td>Changhi Hospital, Singapore</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Manjulata Singh, PhD</td>
<td>Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India</td>
<td>Dr. Shilpa Sant’s Lab</td>
</tr>
<tr>
<td>Miao Sun</td>
<td>Second Military Medical University, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Ki Sa Sung, PhD</td>
<td>SungKyunKwan University</td>
<td>Dr. Song Li’s Lab</td>
</tr>
<tr>
<td>Xisha Wang, PhD</td>
<td>Guangdong Pharmaceutical University.</td>
<td>Dr. Xiang-Qun Xie’s Lab</td>
</tr>
<tr>
<td>Pingping Yan</td>
<td>Changhai Hospital, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Bo Yang, PhD</td>
<td>Wuhan University, College of Life Sciences, China</td>
<td>Dr. Da Yang’s Lab</td>
</tr>
<tr>
<td>Libo Zhao, PhD</td>
<td>Peking University People’s Hospital, China</td>
<td>Dr. Amy Seybert</td>
</tr>
<tr>
<td>Zheng Zhou</td>
<td>Second Military Medical University, China</td>
<td>Dr. Amy Seybert</td>
</tr>
</tbody>
</table>

**International Invited Presentations**

Faculty and students are invited to speak at international meetings and sites each year. Examples of recent international invited presentations include:

- 18 international research presentations in 8 countries.
- 3 at universities or hospitals
- 15 at conferences or academies

**Additional Accomplishments during FY15**

- The School extended our 12-month fee-based clinical training program similar to a PGY2 specialty clinical pharmacy residency to three new clinical pharmacists from Singapore in FY15. The pharmacists’ specializations range from critical care to clinical cardiology.
The School hosted a delegation of 5 visitors from Peking University Health Sciences Center in September 2014 who represented key leadership, including Luwen Shi, the Chair of the Department of Pharmacy Administration and Clinical Pharmacy at Peking University Health Science Center and several professors of Pharmacy from Peking University First Hospital. In addition to touring the Center for Pharmacogenetics and meeting our faculty, the group discussed opportunities for training and collaboration with the School and hosted a PharmD student in May 2015 rotation.

Several groups of PharmD students traveled to partner sites in China for rotations in FY15, primarily in Shanghai. In return, the School welcomed two groups of visitors from our hosts in Shanghai in April 2015.

Professor Yue Gao from Second Military Medical University School of Pharmacy led a group of three undergraduate students for a one month observation of clinical pharmacy education and practice in the United States.

Two clinical pharmacists from Changhai Hospital observed clinical pharmacy practice sites for one month. Drs. Amy Seybert and Deanne Hall served as preceptors for both groups of visitors.

Chuanbin Wu, PhD, Vice-Dean and Professor of Pharmaceutics, School of Pharmaceutical Sciences at Sun Yet-Sen University visited for the purpose of expanding our relationship with that University. He also presented a special seminar for the Department of Pharmaceutical Sciences entitled, "Novel Pharmaceutical Technologies for Macromolecule Drugs" in May 2015.
School of Pharmacy

Our Excellence, Innovation and Leadership Journey

Building our Long-Range Plan is a journey that began in 2001 and continues to this day in the form of Long-Range Plan 2018. To date, we have forged three long-range plans that have unified the faculty, staff, students, and alumni around goals and their achievement.

From the beginning our plans have been:
- Mission and vision driven;
- Aligned with the strategic direction of the University;
- Highly participative;
- Outcome driven.

One of the first orders of business in 2001 was to align our plan with the University of Pittsburgh goals, we used the five statements articulated in “Pitt in the Year 2000: Pursuing Our Full Potential” to structure our plan. In 2014, the University modified its “Statement of Aspiration and Strategic Priorities.” The School of Pharmacy embraced those priorities. In parallel with the University and it stated priorities, the School of Pharmacy’s work in the years ahead will be centered on efforts to:

- Consistently Deliver Excellence in Pharmacy and Pharmaceutical Education;
- Make Contributions of Impact to Health through Pioneering Research;
- Build Community Health through Pharmacist-Provided Care of Patients in the Community, in Institutions, and During Transitions of Care;
- Extend Our Global Reach
- Secure an Adequate Resource Base.

The School has folded the University’s statement to “Provide Top Value” into “Securing an Adequate Resource Base,” so only five appear above. Within the first year, we developed measurable outcomes within each of the above broad categories. By 2008, we had developed and continue to use “Progress At a Glance” (PAGE) as the dashboard to standardize the presentation of our accomplishments.

The characteristics of excellence, innovation, and leadership have become a hallmark of the School of Pharmacy and are articulated in our mission statement that was adopted in 2006. Simultaneously, we took a fresh look at our values and developed a more succinct statement. The year of intermittent and thoughtful discussions forged cohesiveness among the faculty and staff. See Mission and Values statements attached.

From the very first planning session at a retreat in 2001, both administrative and office staff and faculty members have engaged in goal setting and planning. Our Board of Visitors, students and alumni also had opportunities for input. Our process is sustainably “highly participative.”

In 2012, we began developing the third iteration of our plan. We chose to make a few bold statements that could be easily remembered and have integrated into the overall framework with measurable outcomes started in 2001 as shown on pages 13 through 20.
The images show the Research Pavilion, the Brick Walkway, the Commons, and a research laboratory in the Pavilion.
Long-Range Plan 2018
School of Pharmacy

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

The School of Pharmacy will be a leader in pharmacy and pharmaceutical science education.

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.

The School of Pharmacy will be a research school of distinction.

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.

The School of Pharmacy will build healthy communities through pharmacist-provided care of patients in the community, in institutions, and during transitions of 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 extend our global reach

Create global partnerships that advance research, develop our students as global citizens, and enhance pharmacy care to promote health, wellness, and the appropriate use of medications.

We will increase the resource base of the School of Pharmacy.

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.
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
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:**
  
  o Review and revise the curricular **outcomes** for the PharmD program to reflect contemporary and evolving practice and research.
  
  o 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.
  
  o 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:**
  
  o Inventory current teaching strategies, approaches and resources (e.g., peer-learning, high-fidelity simulations, portfolios, educational support, and technology tools). (FY12)
  
  o 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)
  
  o 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)
  
  o Build educational processes by which all students develop and demonstrate expertise in problem identification and problem solving.
  
  o 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:**
  
  o 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.
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 discovery, development, manufacture, distribution — including procurement and supply chain management, — dispensing, and clinical application.  
  - Draft and submit proposals for review:
    - At least one course in an area of opportunity and need. 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.
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:**
    - Develop a Center for Drug Development and Delivery that integrates the continuum of research spanning from delivery to the clinic.
    - Charge a task force to develop a proposal for the center, including identification of specific goals, administrative structure, and performance metrics.
    - Establish an outside advisory group that provides direction and guidance regarding development plans and selection of projects to be undertaken within the center.
    - 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:**
    - Develop a new or apply an existing algorithm for moving potential candidate molecules through the development and/or delivery process.
    - 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:**
    - Develop a mechanism to engage expertise outside the School of Pharmacy.
    - 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:**
  - 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.
  
  - Define resources needed to collect outcomes and to design/test interventions.
  
  - Integrate School of Pharmacy researchers into genetics-focused initiatives such as the Personalized Medicine Institute and the NIH-funded Pharmacogenomics Research Network.
  
  - 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:**
  - Charge a task force with external expert representatives to recommend mechanisms for establishing pharmacogenomic testing services at UPMC.
  
  - 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:**
  - Build a web-based pharmacogenomics information resource housed in the School of Pharmacy.
  
  - 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:**  
  o Design, implement, and evaluate a telepharmacy or remote pharmacy program.

- Created pharmacy-centric community health zones that are scalable.  
  **Actions:**  
  o 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.  
  o 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:**  
  o Develop scalable prescription drug programs that partner physicians, dentists, pharmacists, and patients to address the use, misuse, abuse, and diversion of medications.  
  o 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:**  
  o 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:**  
  o Maximize collaborative practice opportunities ambulatory care and community settings, including dental practices.  
  o Create programs and tools that can promote health and wellness.  
  o Engage student pharmacists in an organized approach to address medication-based needs of patients.  
  o 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:**
    - Establish “Educational Technology Committee” to guide and recommend the efficient application of technology, web-based content, and assessment strategies. (FY13) For example:
      - Implementation of systematic capture of course content, i.e., lecture.
      - Develop additional VPSim cases with variable difficulty and development of new simulations and applications for the hi-fidelity human simulator.
      - 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:**
      - 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:**
      - Use national claims data and link to health outcomes.
      - Develop systems or work with partners to develop “add-ons” to existing systems, e.g. EpiCare, EMR, Cerner.
      - Obtain a data-capture system to support School of Pharmacy patient-care programs.

  - **Become the “knowledge experts” or referral group for technology implementation.**
    - **Action:**
      - 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:**
      - 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.
Long-Range Plan 2018-- with Established Measurables

Educating the Next Generation of Practitioners and Scientists

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**The School of Pharmacy will be a leader in pharmacy education.**

*Adopted 2005*

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.

*Adopted 2012*

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**PHARM D PROGRAM**

The School of Pharmacy will:

**Excellence**

1. Meet or exceed the standards for accreditation by ACPE, earning accreditation for the maximum interval of eight years.

2. Consistently demonstrate the excellence of our students and their organizations by the awards and national recognitions they receive.

3. Recruit and retain a diverse community of students.

**Innovation and Leadership**

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.

4. Sustain a culture of innovation and scholarship in teaching and assessment.

5. Develop and expand credit-based opportunities for students to obtain international study experiences.

6. Create curricular tracks/areas of concentration for specialization within the PharmD program.
7. Develop elective and required interprofessional education opportunities and courses within our curriculum.

8. Be a leader in defining and providing innovative curricula that enhances pharmacy-provided patient care.

9. Explore and potentially develop an “out-of-Pittsburgh” curricular program

GRADUATE PROGRAM

The School of Pharmacy will:

   Excellence

10. Achieve and sustain recognition for the quality of the graduate students and graduate program.

11. Recruit and retain highly academically qualified graduate students.

12. Educate graduate students who are highly sought after.

13. Maintain the excellence of the Clinical Pharmaceutical Scientist Program as a national model for clinical and translational research in the pharmaceutical sciences.

   Innovation and Leadership

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.

14. Partner with the Clinical and Translational Science Institute to develop learning opportunities for our students.

15. Develop MS program in pharmacy administrative sciences, including institutional and community practice administration.

16. Advance the graduate program in order to successfully compete for a PHS training grant.

RESIDENCY PROGRAM

The School of Pharmacy will:

   Excellence

17. Participate in the creation of accredited residency program and training of residents.

18. Achieve national recognition for the excellence of our residency programs.

19. Train residents who compete successfully for national grants and awards.

   Innovation and Leadership

20. Define criteria for and establish “Residencies of Excellence” in targeted areas of focus.

21. Partner in the development and implementation of a residency program model that emphasizes the commonality of community and ambulatory programs.
Advancing Human Health through Research

The School of Pharmacy will be a research school of distinction.
Adopted 2005

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.
Adopted 2012

The School of Pharmacy will:

**Excellence**

22. Enhance our reputation of research excellence.

23. Diversify our portfolio of research funding.

24. Train a cadre of PhD and postdoctoral PhD fellows who are highly sought after for careers in academia, industry, and the government.

**Innovation and Leadership**

25. Compete successfully for a PHS training grant.

26. Compete successfully for a program project grant and center grants.

27. Establish a program for research that focuses on pharmacy service models and health care outcomes to favorably improve patient care.

28. Develop research collaborations through the Clinical and Translational Science Institute at the University of Pittsburgh.
Enhancing the Health of the Community through Partnerships

The School of Pharmacy will be 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_

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.

_Adopted 2012_

We will extend our global reach.

Create global partnerships that advance research, develop our students as global citizens, and enhance pharmacy care to promote health, wellness, and the appropriate use of medications.

_Adopted 2014_

The School of Pharmacy will:

**Excellence**

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

30. Maintain and enhance our reputation of practice excellence through honors and recognitions of our programs and our faculty.

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

33. Provide 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.

34. Create and implement a pharmacy service model that integrates faculty and staff pharmacists in provision of care for UPMC patients.

35. Participate in the care of underserved patients in local and global communities through the Grace Lamsam Pharmacy Program for Underserved Patients.

37. Partner to provide remote care for patients through technology.

We Will Extend our Global Reach

The School of Pharmacy will create global partnerships that advance research, develop our students as global citizens, and enhance pharmacy care to promote health, wellness, and the appropriate use of medications.

Adopted 2014

The School of Pharmacy will:

Innovation and Leadership

37a. Engage in significant international partnerships:
   - So that PittPharmacy students can enhance their abilities to become global citizens.
   - So that international students can learn and do research at PittPharmacy.
   - That will impact the lives of people through pharmacists who are health care providers promoting health and wellness, optimizing use of medications, and stemming the misuse, abuse, and diversion of medications.
Enhancing Our Capabilities through Increased Efficiency and Effectiveness

The School of Pharmacy will increase effectiveness and efficiency and will enhance the professional growth of faculty and staff.

Renewed 2005

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.

Adopted 2012

The School of Pharmacy will:

**Excellence**

38. Efficiently apply technology to optimize utilization of staff and faculty time and financial resources.
39. Apply technology to deliver quality education to facilitate effective and efficient student learning.
40. Improve efficiency and cost savings through initiatives identified and led by the staff.
41. Create effective means of communication for internal stakeholders
42. Adopt a proven and effective technology platform that serves faculty, staff, students and others

**Innovation and Leadership**

43. Enhance faculty and staff knowledge of new technologies for teaching
44. Application of Lean System principles and practices, and value stream mapping for staff and some faculty processes.
45. Consistently partnered with CSSD in testing the application of technology.
Securing an Adequate Resource Base

We will increase the resource base of the School of Pharmacy.
Renewed 2005

We will partner with our stakeholders and communities to develop the resources to advance our mission.
Adopted 2012

HUMAN RESOURCES

The School of Pharmacy will:

Excellence

Faculty
46. Recruit and retain faculty who are recognized for scholarly, educational, service and practice distinctions.

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

48. Recruit and retain faculty members who engage as citizens in serving the academic community and the profession of pharmacy.

Staff
49. Recruit and retain staff members who contribute to the strategic goals of the School and to the culture of teamwork and collaboration.

50. Create and implement individualized development plans for all staff members.

Alumni, Friends, and Other Stakeholders

51. Deliver high-quality and timely print and digital publications to internal and external stakeholders

52. Create and sustain a Web site that is easily navigated, features high-quality imaging and that provides up-to-date information.
53. Retain our place among the top schools on campus for alumni engagement.
54. Engage and support non-faculty preceptors who provide educational experiences for our students.

FINANCIAL RESOURCES

We will:
55. Meet the goals for the Capital Campaign.
56. Increase the book value of the School of Pharmacy endowment.
57. Increase total dollars and number of contributors through all sources of gifts.

PHYSICAL RESOURCES

We will:
58. Renovate and refurbish existing space to meet programmatic needs.
59. Secure our place in the Master Plan for Oakland, assuring adequate space for the School’s programs.