



PHARMACY EDUCATION AND THE SIX YEAR PROGRAM IN JAPAN: 10 YEARS LATER

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University of Arizona College of
Pharmacy
Tucson, Arizona, USA





- Opened in 1947
- In top 10 of all U.S. pharmacy schools
- Professional and Graduate degree programs
- Approximately 70 full-time faculty
- Many volunteer faculty and preceptors



- 2 Departments
 - Pharmacology/Toxicology
 - Pharmacy Practice & Science
- Long history of strong clinical pharmacy education and training
- Strong research programs and graduate education
 - Basic sciences
 - Health outcomes and pharmacoeconomics
- Drug discovery, biotechnology, pharmacogenomics
 - Translational research
- Collaborative relationships
 - International

■ Pharmaceutical Sciences

- Pharmaceutics/Pharmacokinetics
- Medicinal and Natural Products Chemistry
- Pharmaceutical Economics, Policy and Outcomes

■ Pharmacology and Toxicology

Graduate Degrees

Pharmacology and Toxicology

Pharmacology and Toxicology

Pharmaceutical Sciences

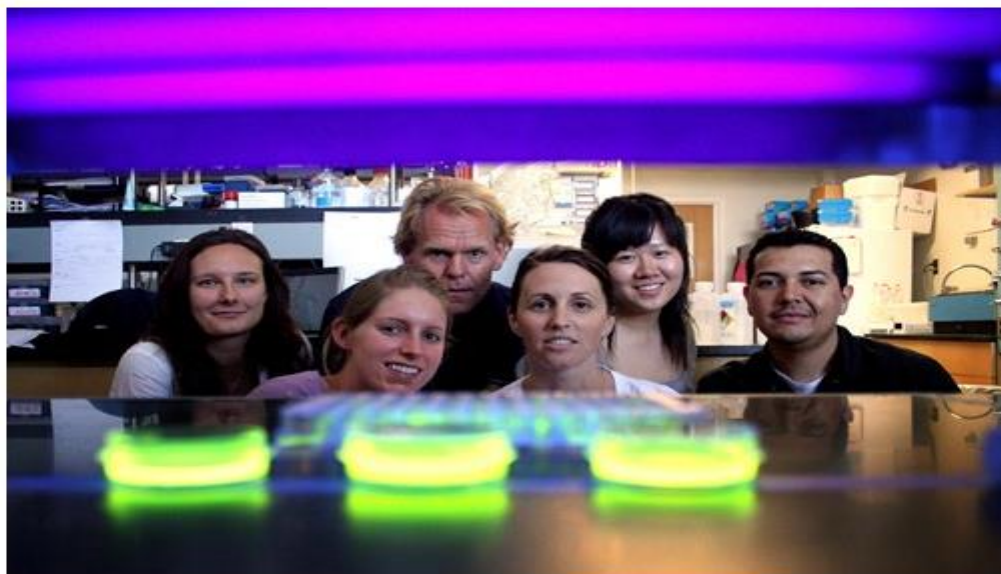
Drug Discovery and Development

Pharmaceutics and Pharmacokinetics

Pharmaceutical Economics, Policy, and Outcomes

Dual Degree

Pharm D/PhD



Program contact: Sonya Basurto
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Admission Requirements


 Click Here to apply to the Graduate College



Message from Dr. Nathan Cherrington, Director of Graduate Studies



Welcome to the College of Pharmacy Graduate Programs! Our Graduate Programs are comprised of research tracks that span from "molecule to man". We have four exciting research tracks. Our graduate program is nationally recognized and includes:

Drug Discovery and Development Using cutting-edge technology to create new agents for specific biological targets

Pharmaceutics/Pharmacokinetics Creating formulations to optimally control the bioavailability of pharmaceuticals

Pharmacology/Toxicology Determining mechanisms of action for pharmaceuticals and identifying adverse effects of chemicals (drugs, industrial chemicals, environmental pollutants)

Pharmaceutical Economics, Policy, and Outcomes Critically analyzing the impact and outcomes of pharmaceutical products and services within healthcare systems

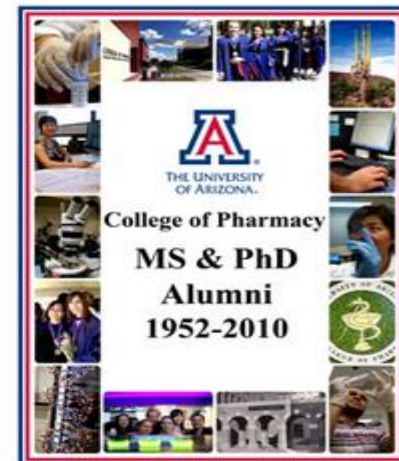
Quick Links

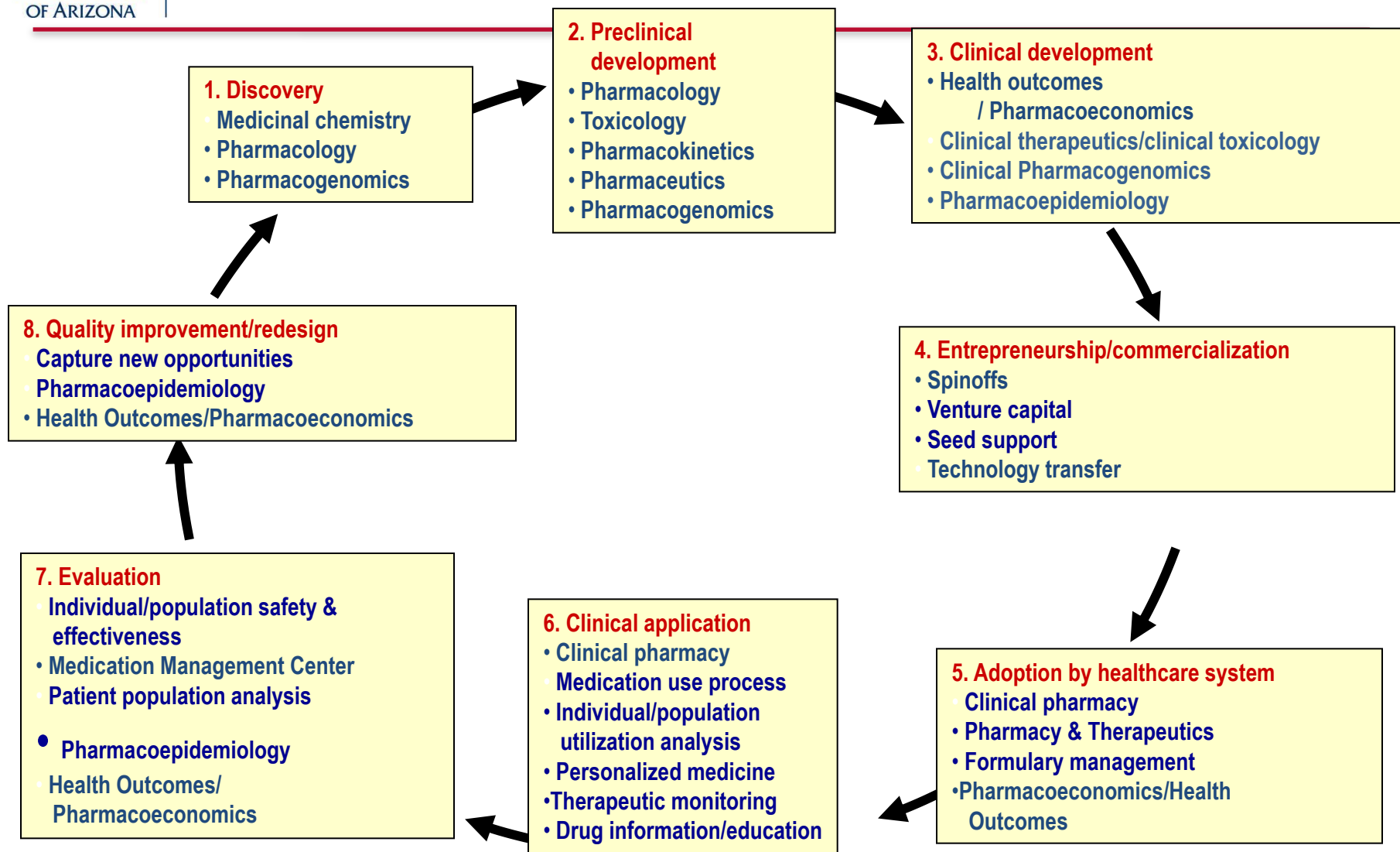
- [College of Pharmacy](#)
- [UA Graduate College](#)

Upcoming events

- [Graduate New Student Recruitment Week - January 23 - 25, 2014](#)
- [Graduate Student Council Fundraiser - Holiday Ornaments](#)

Alumni Booklet





- Changing everywhere!
 - Fastest world-wide changes in Asia, Middle-East
- In Japan, 6 year program started 10 years ago
 - Good time to reflect on success of new program and areas for improvement
- What are the best markers for success in Japan pharmacy education?
 - Student success
 - Faculty success
 - Impact on patient outcomes, practice models

- South Korea
 - 6 year PharmD program
- Thailand
 - 6 year PharmD since 2010
 - Pharmacy residencies
- Taiwan
 - 5 year BS or 6 year PharmD
- China
 - 4 or 5 year BS
- Singapore
 - 5 year BS plus internship
- Discussions to harmonize ASEAN countries

• Desired educational outcomes, 2013

- Foundational knowledge
 - Pharmaceutical, social/behavioral/administrative and clinical
- Essentials for practice and care
 - Patient-centered care
 - Medication systems use management
 - Health and wellness
 - Population-based care
- Approach to practice and care
 - Problem solving
 - Educator
 - Patient advocacy
 - Interprofessional collaborator
 - Cultural sensitivity
 - Communication
- Personal and professional development
 - Self-awareness
 - Leadership
 - Professionalism



**International Pharmaceutical Federation
Fédération internationale pharmaceutique**

PO Box 84200, 2508 AE The Hague, The Netherlands

**FIP COUNCIL, VIENNA,
2000**

**STATEMENT OF POLICY
GOOD PHARMACY EDUCATION PRACTICE**

- Care giver
- Decision maker
- Communicator
- Leader
- Manager
- Life-long learner
- Teacher

HOW OUR STUDENTS LEARN

- Lectures
 - Increasing use of technology, active learning in classroom
- Small group discussions
 - Patient cases
- Writing assignments
- Student collaboration
- Student presentations
- Rotations (experiential learning)

- General education
 - English, History, Sociology, Economics
- Sciences
 - Chemistry, Biology, Physics, Microbiology
- Students must complete before entering College of Pharmacy
 - Takes at least 2 years to complete

First Professional Year

ARIZONA CURRICULUM

First Semester (17 units)

Course

Units

PhPr 800 - Pharmacy Calculations

1

PhPr 802 - Pharmaceutics

3

PhPr 805C - Pharmacy Practice

2

PhPr 804 - Interviewing and Counseling Skills

2

PhPr 806A - Pharmaceutics Lab

1

Pcol 820 - Case Discussions

1

Pcol 835A - Immunology and Hematology

3

Pcol 832 - Metabolic Basis of Pharmacotherapy

4

Second Semester (16 units)

Course

Units

PhPr 801A - Introductory Pharmacy Practice Experiences (IPPE)

2

PhPr 887 - Individualized Medicine & Applied Pharmacogenetics

3

PhPr 805B - Pharmacy Practice

1

PhPr 806B - Pharmaceutics Lab

1

PhPr 816A - Patient Assessment

3

Pcol 821 - Case Discussions

1

Pcol 836A - Chemotherapy of Infectious Disease

3

PhPr 861A - Statistical Methods

2

May complete PhPr 801B (IPPE) during summer.

Second Professional Year

First Semester (15-17 units)	
<i>Course</i>	<i>Units</i>
PhPr 822 - Case Discussions	1
PhPr 845 - Medication Use in Health Care Systems	2
PhPr 861B - Research Design Considerations	2
Pcol 837A - Medicinal Chemistry	3
Pcol 871A - Pharmacology	4
PhPr 863a - Quality Improvement and Medication Error Reduction	2
PhPr 818 - Compliance/Adherence	1
Electives	2
Second Semester (18 units)	
<i>Course</i>	<i>Units</i>
PhPr 861C - Drug Information, Literature Evaluation	2
PhPr 875A - Pharmacotherapeutics	6
Pcol 837B - Medicinal Chemistry	2
Pcol 871C - Pharmacology	3
PhPr 801B - Introductory Pharmacy Practice Experiences (IPPE)	2
PhPr 812 - Non-Prescription Medications and Devices	2
PhPr 863a - Quality Improvement and Medication Error Reduction Laboratory	1

Third Professional Year

First Semester (18 units)	
<i>Course</i>	<i>Units</i>
PhPr 895B - Preparation for Rotations	1
PhPr 875B - Pharmacotherapeutics	6
PhPr 807A - Basic Pharmacokinetics	3
PhPr 808A - Pharmacokinetics Discussion	1
PhPr 842 - Professional Practice Management	3
PhPr 843 - Pharmacy Laws/Ethics	2
PhPr 801C - Introductory Pharmacy Practice Experiences (IPPE)	2
Second Semester (15-17 units)	
<i>Course</i>	<i>Units</i>
PhPr 875C - Pharmacotherapeutics	6
PhPr 885A - Applied Pharmacokinetics	2
PhPr 811 - Advanced Pharmacy Practice	3
PhPr 814 - Preventive Care	2
PhPr 862 - Writing a Proposal for a Scientific Study	2
Electives	2

Fourth Professional Year

Summer Session (5-10 units)	
First Semester	
<i>Course</i>	<i>Units</i>
Required/Elective Rotations	10-15
PhPr 896A - Pharmacy Practice Project	2
Second Semester	
<i>Course</i>	<i>Units</i>
Required/Elective Rotations	10-15
PhPr 896B - Pharmacy Practice Project	2

COLLEGE OF PHARMACY

[Give Now](#)

Spotlights

- COP in the News: Aug. 19, 2013
- Plan an event during college hour
- Pharmacy provides excellent job outlook
- Coming soon: Another option for PharmD students

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IPPE Program



The Accreditation Council for Pharmacy Education (ACPE) mandates that at least 5 percent of the curriculum be dedicated to introductory pharmacy practice experiences (IPPE). The IPPEs begin the second semester of the first year of pharmacy school and continue through third year. These experiences include working with volunteer residents of long-term care facilities, shadowing fourth-year students on rotations, and community and institutional rotations.

IPPE Rotation Goals and Objectives

IPPE Rotation Dates 2013-2014

For more information, contact

Jenene Spencer, IPPE Coordinator, Experiential Education
 520-621-7872 office
 520-626-7355 fax

Search 

PROGRAMS

- ▼ Admissions
 - ▶ PharmD Admissions
 - Tips for Admission
 - ▶ Prepharmacy
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- ▼ Experiential Education
 - Contact the Team
 - ▶ Pre-Rotation Requirements
 - ▼ IPPE
 - Rotation Goals
 - ▶ APPE
 - Policies
 - Rotation Calendar
 - Preceptor News
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 - Preceptor Training
 - Preceptor Awards
 - Rural Health
- ▶ Residencies
- ▶ Continuing Education
- Graduate Programs
- Research Training
- ▶ International Programs

Year 1

SOAR
45 hours

Year 2

IPPE
Community
OR
Institutional
100 hours

Year 3

IPPE
Community
OR
Institutional
100 hours

Year 4

APPE
Rotations
1400 hours

- Student and Older Adult Relationship Project
- 2 hours per week at a long-term care facility with geriatric patients
- 1 hour per week discussion group
- Follow a 4th year student on rotations
- Goal: Help students gain skills needed to communicate with patients

- Community
 - 2nd or 3rd Year
 - 100 hours each
 - Longitudinal, summer or winter
 - Goals:
 - See community pharmacy environment
 - Perform medication order preparation
 - Counsel patients
 - Use drug information
- Institutional
 - 2nd or 3rd Year
 - 100 hours each
 - Longitudinal, summer or winter
 - Goals:
 - See hospital pharmacy environment
 - Perform medication order preparation
 - Use drug information

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APPE Program



Advanced Pharmacy Practice Experience (APPE) rotations are completed in the fourth year of the PharmD curriculum after students have completed their didactic coursework. The purpose of APPE rotations is to provide students with opportunities to apply their knowledge and develop the skills required of a practicing pharmacist. Each student has seven six-week rotation assignments in a variety of practice settings. There are four required rotations (community practice, institutional practice, ambulatory care, and adult acute care). The remaining three rotations are elective, and students have many options including, but not limited to, inpatient care, outpatient care, a variety of medical specialties, managed care, drug information, research, and pharmaceutical industry.

The links below take you to pages for students and preceptors participating in the APPE program.

Search

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 - Rotation Procedures
 - Forms
 - ▶ Required Rotations
 - Drug Information for APPE
 - ▶ Elective Rotations
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 - ▶ Preceptor Benefits
 - Preceptor Training
 - Preceptor Awards
 - Rural Health
 - ▶ Residencies
 - ▶ Continuing Education
 - Graduate Programs
 - Research Training
 - ▶ International Programs

Community

Institutional

APPE Core rotations

Adult Acute Care

Ambulatory Care

Direct Patient
Care

Specialty

APPE Electives

Administrative

Vacation

TYPES OF ELECTIVES

- Internal Medicine
- Acute Care
- Surgery
- Pediatrics
- Psychopharmacy
- Geriatrics
- Outpatient Practice
- Infectious Disease
- Cardiology
- Administration
- Research
- Academic
- International!



[Pharmacy Education Assessment & Accreditation Services](#)

- Tools
- Assessment Community Boards
- Assessment & Accreditation Management System (AAMS)

[Academic-Practice Partnership Initiative](#)

[Successful Practices in Academic Pharmacy](#)

[CAPE Educational Outcomes](#)

- 2004 CAPE Supplemental Educational Outcomes

[Interprofessional Education](#)

[Curricular Resource Center](#)

[Excellence Series Papers](#)

[Council on Credentialing in Pharmacy \(CCP\)](#)

[Prevention of Healthcare-Associated Infections Training](#)

[Pharmacy Residency Resources](#)

[U.S. Pharmacopeial Convention \(USP\) On-Demand Webinars](#)

[AACP](#) > [Resources](#) > [Educational Resources](#) > [Academic-Practice Partnership Initiative](#)

 [Print](#)

Academic-Practice Partnership Initiative

The Academic-Practice Partnership Initiative (APPI) was created in 2004 to identify strategies and develop resources to increase capacity and enhance quality, efficiency, and effectiveness of professional experience programs. The purpose of this initiative is to improve pharmacy education and practice by: enhancing opportunities for pharmacists to become partners of schools and colleges of pharmacy; enabling colleges and schools of pharmacy in their efforts to assist practitioners and organizations to advance patient care services; and to assist administrators at colleges and schools as well as in pharmacy organizations to enhance experiential education.

- [Professional Experience Program \(PEP\) Library of Resources](#)
- [Summit to Advance Experiential Education](#)
- [Advanced Practice Experience Site Profiling System \(APESPS\)](#)

Professional Experience Program (PEP) Library of Resources

Peer-reviewed, annotated [online library](#) of resources to prepare and support practitioner educators and professional experience program personnel. The library will continuously update offerings. Additional resources will be accepted for review and possible inclusion through the online submit resource link. The library contains links to resources in a variety of formats with program description, contact information and pricing.

Summit to Advance Experiential Education

"Summit to Advance Experiential Education in Pharmacy" held June 17-18, 2005, Chicago, Illinois. More than 70 stakeholders including practitioner preceptors, faculty, employers, students, residents and representatives of professional organizations and accreditation met to develop solutions to the challenges of enhancing capacity and quality in experiential education. Recommendations, themes and action plans are contained in the final report, appendices and bibliography provided here.

[Final Report of the "Summit to Advance Experiential Education in Pharmacy"](#) 

[APPI Summit Final Report Appendices](#) 

[APPI Summit Final Report Bibliography](#) 


Advanced Practice Experience Site Profiling System (APESPS)

The APESPS is a toolkit designed for use by college/school of pharmacy professional program experiential directors to identify, document and profile models of exemplary experiential education practice sites exhibiting the APPI-developed quality criteria. The system contains: the "Exemplary Pharmacy Practice Experiential Sites" Criteria developed to identify the essential elements necessary for an exemplary pharmacy practice site and preceptor, a data collection worksheet to capture site and preceptor-specific information and an assessment instrument for preceptor evaluation.

[The "Exemplary Pharmacy Practice Experiential Sites" Criteria](#) 

[Data Collection Worksheet for Site and Preceptor-specific Information](#) 

[Assessment Instrument for Preceptor Evaluation](#) 

[Pilot Project to Profile Exemplary Advanced Practice Experience Sites](#)  - In 2006, a pilot project was undertaken to demonstrate and refine the APPI Advanced Practice Experience Site Profiling System (APESPS). The sites profiled here are those identified by the academic-practice partners as high quality experiential teaching sites for fourth year Doctor of Pharmacy students based on evidence of demonstrating to an optimal degree the APPI quality criteria.



Preceptor Training & Resource Network

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New Drugs ▶

Rumor vs. Truth ▶

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Colleagues Interact ▶

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You may be interested in some of our other websites:

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To help pharmacists and colleges meet preceptor requirements.

[Login now if you are a *Pharmacist's Letter* subscriber or have access to our preceptor resources through your School/College of Pharmacy](#)

The Goal

The goal of the Preceptor Training and Resource Network is to provide a platform to easily connect pharmacists to teaching resources, preceptor training programs, and help Schools and Colleges of Pharmacy enhance the precepting offered by the pharmacists who participate in the program.

The Challenges

Pharmacists need training to be a preceptor.

Pharmacists need materials and tools to meet colleges' preceptor requirements.

Pharmacists accept students from multiple colleges and need each college's training and materials.

Colleges need trained preceptors and sites.

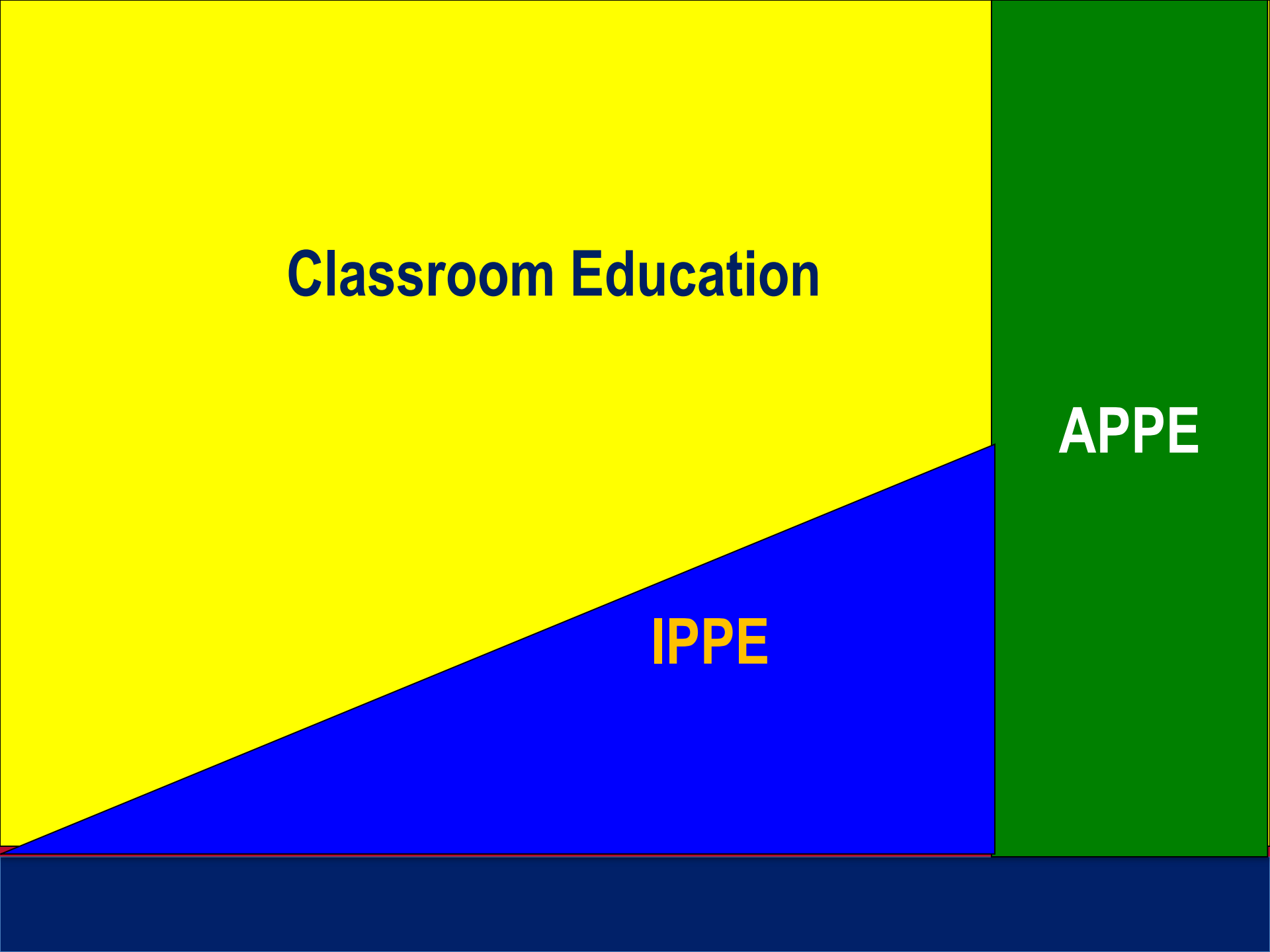
Colleges need to provide training and materials to each preceptor in a timely manner.



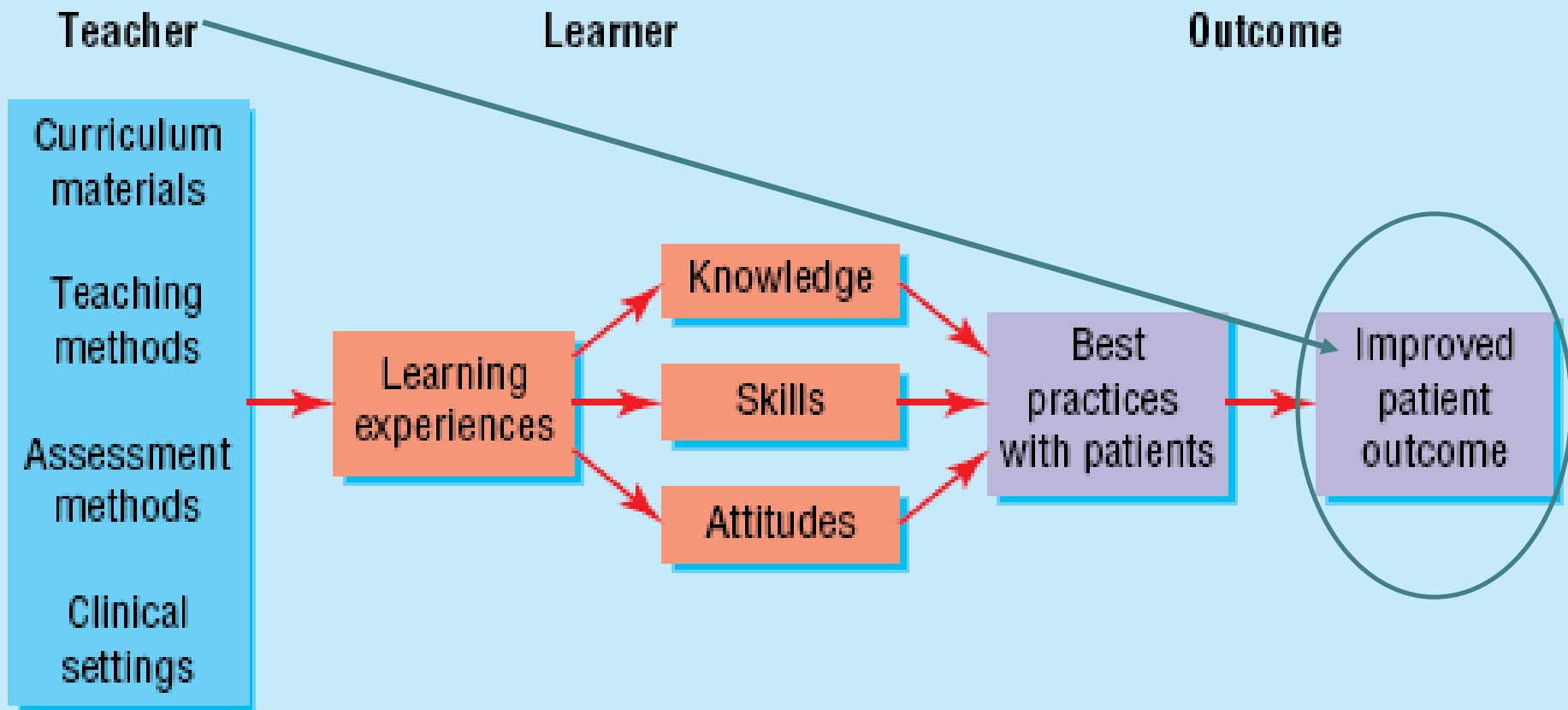
Classroom Education

APPE

IPPE



WHY WE TEACH PHARMACY STUDENTS



- Significant positive changes in curriculum from 4 year program
 - More practice-related courses
 - Practical assessments—OSCE and CBT
 - Rotations in community and hospital practice
- Control of curriculum by Ministry of Education vs control by pharmacy profession
- Confusion among students regarding 4-year vs 6-year program
- Pushing students towards Ph.D. training vs pharmacy practice
 - What are needs of Japanese society
- Six year Bachelor's degree
 - Pharmacy degree NEEDS to be doctorate level since amount of training same as physician in Japan
 - Knowledge and skills more important, but title meaningful, especially in Japanese society

- Emphasis in most pharmacy schools still research
 - National vs other schools have different emphasis
- Schools were unprepared to teach practice-oriented curriculum
 - Need for clinical pharmacy faculty members
 - Pharmacy practice curriculum must be taught by practitioners
 - Clinical pharmacy must be taught by clinical pharmacists
- All schools in Japan still have too few clinical faculty (Meijo better than most)
 - Teaching loads too large
 - Little or no time to develop or maintain clinical practice
 - Little or no time to carry out practice-based research
- Where do pharmacy schools in Japan obtain clinical faculty?
 - Challenging since very few strong clinical training programs in Japan
 - Most current clinical faculty were practicing hospital pharmacists
 - Little or no teaching or research experience
 - On-the-job training in Japan?
 - Send new clinical faculty abroad for clinical faculty training?
 - Thailand, Saudi Arabia models
 - Import foreign faculty?
 - Language barrier

STATUS OF CLINICAL FACULTY

- Perceived lower standing of practice faculty in many schools
 - Perception that Ph.D. is “best” degree
 - Lack of clinical doctorate degree for Japan-trained clinicians
 - Requirement for extensive research program in addition to heavy teaching load
 - Perceived inferiority of practice research vs basic science laboratory research
 - Lack of understanding by basic science faculty that practice faculty need active clinical practice
- Laboratory-based structure unfair to clinical faculty
- Lack of support and understanding by Deans, Department Heads
- Result?
 - Frustration and burn-out
 - Clinical faculty leave the University
 - Constant turnover of young faculty
 - Mediocre or poor pharmacy practice education program

SUCCESS OF CLINICAL FACULTY

- Clinical faculty cannot be treated the same as research faculty
 - Practice degree/training treated same as Ph.D.
 - Different balance of service, teaching and scholarship
 - Most clinical faculty in US spend 25-50% of time in practice setting
 - Different criteria for promotion to Associate Professor and Professor
- Since most practice faculty are young, they need mentorship and guidance
 - Difficult now since very few senior practice faculty
 - Mentorship of woman by other women
- What determines success?
 - Professional satisfaction
 - Opportunities to grow, pursue interests
 - Serve as role model for and mentor to students
 - Work-life balance
 - Challenging since many practice faculty are young women
 - Promotion

- For practice-based curriculum to succeed
 - Commitment by Deans, Department Heads, all senior faculty to excellence of the practice education program
 - Deans need to create the vision and promote progress in practice
 - Even if they don't understand clinical practice!
 - Practice programs, faculty must receive adequate resources
 - Investment in adequate number of practice faculty
 - Very few practice faculty have been promoted since most are new
 - Can they be promoted without extensive research program?
 - Ultimately need Deans, Department Heads who have practice background, understanding
 - Many Deans in US now have clinical pharmacy background
 - 4 of my residency colleagues are now Deans
 - » Iowa (Letendre), North Carolina (Blouin) Philadelphia (Lawson) , Ohio State (Mann), South Carolina (DiPiro)

- Development and expansion of pharmacy practice program is not a threat to basic sciences
 - Top 10 Pharm.D. program
 - UA has world-class research program, top 10 in NIH funding
 - Strong Ph.D. programs in pharmacology, toxicology, medicinal chemistry and drug development, pharmacoeconomics and health outcomes
- Training pharmacists is main goal of curriculum, but research and graduate education are equal missions of college
 - Society needs good pharmacists and good researchers
- Opportunities for collaboration among basic science and practice faculty
 - Integrated courses
 - Research

EXPERIENTIAL EDUCATION

- Need for large number of practice sites
 - Community and hospital
 - Willingness of sites to accept students
 - Competition among schools for sites
 - Demand that schools pay sites large fee
- Challenging for private schools with larger class sizes
- Competition for sites by different schools
 - Cooperation among schools in Nagoya, Tokushima
 - Quality of sites is very important
 - Quality of pharmacy practice at the site
 - Ability, training, interest of preceptors
 - Assessment and quality improvement
- Preceptor training, development
- Who will assign, monitor students?
 - US schools have full time faculty, staff to do this as their only job

IMPLICATIONS FOR PHARMACY STUDENTS

- 6 year students will be more interested in pharmacy practice than basic research
 - All faculty need to support this interest
- Students will want to be taught by pharmacy practitioners
- Need for mentoring by practitioners
- Student professionalism, professionalization
- Professional pharmacy student organizations
 - Local, national organizations
 - International (IPSF)

Student Organizations



Students at the University of Arizona College of Pharmacy enjoy a wide variety of opportunities to develop their leadership and professional skills through roles in student organizations.

Local clubs and chapters of national organizations and honoraries at the College of Pharmacy are listed below.

For students not yet admitted to the PharmD program

- Prepharmacy Club

For PharmD and/or graduate students

- American Association of Pharmaceutical Scientists (AAPS)
- Academy of Student Pharmacists (APhA-ASP)
- Arizona Pharmacy Association Student Pharmacy Academy (AzPA-SPA)
- Global Medical Brigades
- International Pharmaceutical Students Federation (IPSF)
- International Society for Pharmacoconomics and Outcomes Research (IPSOR)
- Kappa Epsilon
- Kappa Psi
- National Community Pharmacists Association (NCPA)
- PediaCats
- Phi Delta Chi-Alpha Nu Chapter
- Phi Lambda Sigma
- Rho Chi
- Student Society of Health-System Pharmacists (SSHP)
- Student Council
- Graduate Student Council

More Student Organizations

- UA Graduate and Professional Student Council
- Official Student Organizations at UA

International Pharmaceutical Students' Federation (IPSF)



IPSF members went to Egypt for the 2012 World Congress.

Although founded in London in 1949, IPSF is relatively new to the University of Arizona. Our chapter has only been around since approximately 2001. Because we are still laying the foundation for years to come, you have an excellent opportunity to be a part of us as a leader. We also need members to help us with our activities and organizations. IPSF is supported and linked closely with the International Pharmaceutical Federation.

Student Society of Health-System Pharmacists (SSHP)



The Student Society of Health-Systems Pharmacists (SSHP) is an organization of pharmacy students who feel passionately about pharmacy as a clinical profession. The mission of the organization is to provide students with programs and services which add to the educational experiences of the college curriculum, to promote pharmacy as an integral part of the healthcare team, and to represent its members before private and public agencies as well as other healthcare organizations.



Residencies



Pharmacists who wish to acquire further knowledge and experience in clinical pharmacy should consider a residency program after completion of the doctor of pharmacy degree.

Residencies are generally one year in length and are paid positions that give the individual further knowledge and experience in various pharmacy settings. The College of Pharmacy offers residencies in the following areas:

- PGY1 Pharmacy Residency at the University of Arizona Medical Center - University Campus
- PGY1 Pharmacy Residency at University of Arizona Medical Center - South Campus
- PGY1 Pharmacy Residency at El Rio Health Center
- PGY2 Residency in Ambulatory Care
- PGY2 Residency in Critical Care Pharmacy
- PGY2 Residency in Emergency Medicine Pharmacy
- PGY2 Residency in Infectious Diseases Pharmacy
- PGY2 Residency in Nutrition Support Pharmacy
- PGY2 Residency in Pediatric Pharmacy
- PGY2 Residency in Health-System Pharmacy Administration
- PGY2 Residency in Internal Medicine Pharmacy

CONCLUSIONS

- Change in education program is challenging
 - Dramatic changes in Japan over past 10 years
 - Many successes, due to vision and hard work of many
- US clinically-focused education took 25 years to develop, still evolving
 - Pharmacy education must meet current and future needs of Society
- How well you train future pharmacists will directly impact the quality of life and health outcomes of the people of Japan