Transition to Pharm.D. Model

Presenters:

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Moderator:

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Learning Objectives

By the end of this session, the learner will be able to:

1. Discuss the education movement of transition to 6-year pharmacy education in Korea as a global effort in advancing the pharmacy profession;
2. Share how and why mid-career, international pharmacists are succeeding and meeting their patient-centered practice goals in a US-based, distance-delivered PharmD program;
3. Discuss educational challenges and considerations in the offering of both PharmD programs presented.

Global *Mid-Career* Transition to the PharmD: The University of Colorado's (CU) International Trained PharmD (ITPD) Program Experience

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Nov. 5, 2020

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Learning objectives

By the end of this session, the learner will be able to:

- Provide a brief synopsis of **patient-centered pharmacy education around the world**, including challenges to achieve it;
- Describe how one program's **foundations** were used to build a globally-delivered PharmD program;
- Discuss common **goals of the international mid-career pharmacist** and how the PharmD degree is meeting those;
- Share how international **mid-career pharmacists are faring** in a US- and distance-based PharmD program;
- Consider how each of us **may facilitate the transition** to the PharmD.

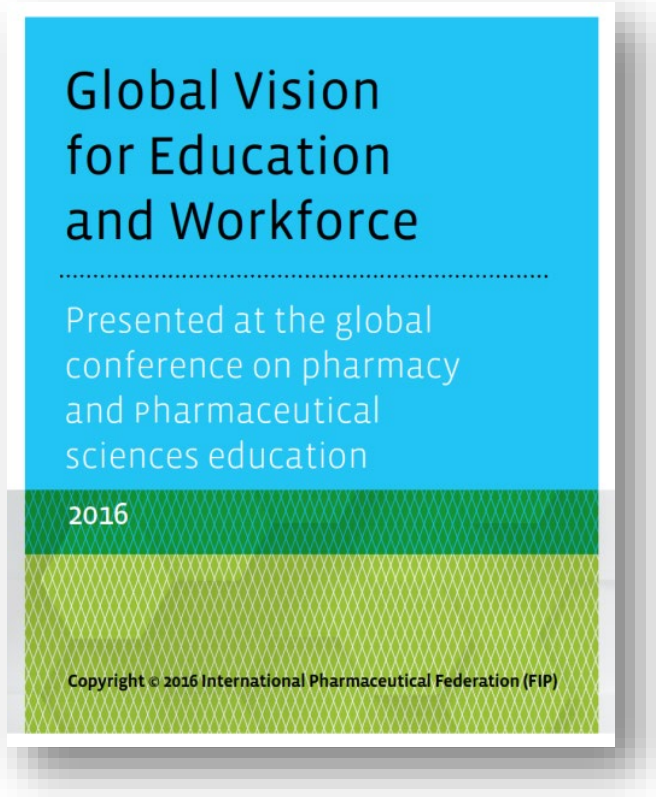
BACKGROUND

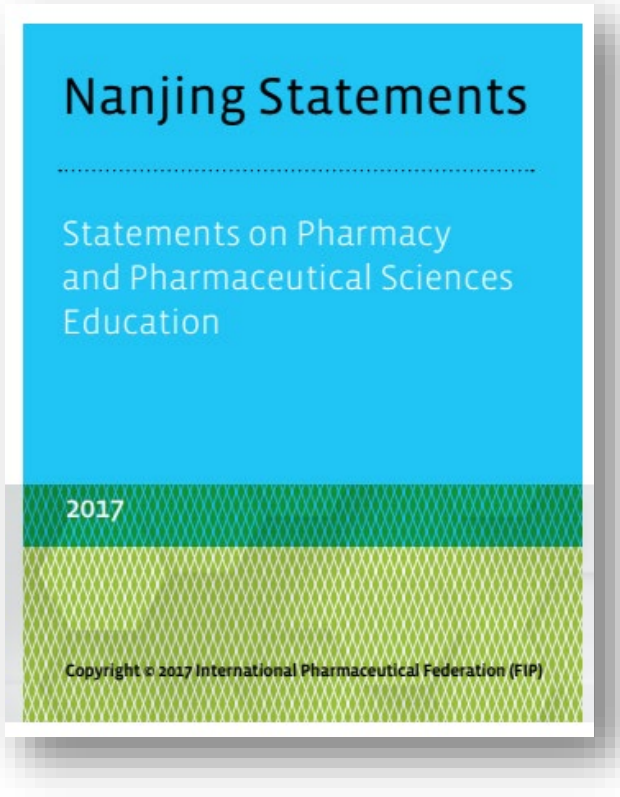
Global patient-centered pharmacy education:

Why transition?

Considerations in doing so…

Outcomes: Global Vision, WDGs & Statements



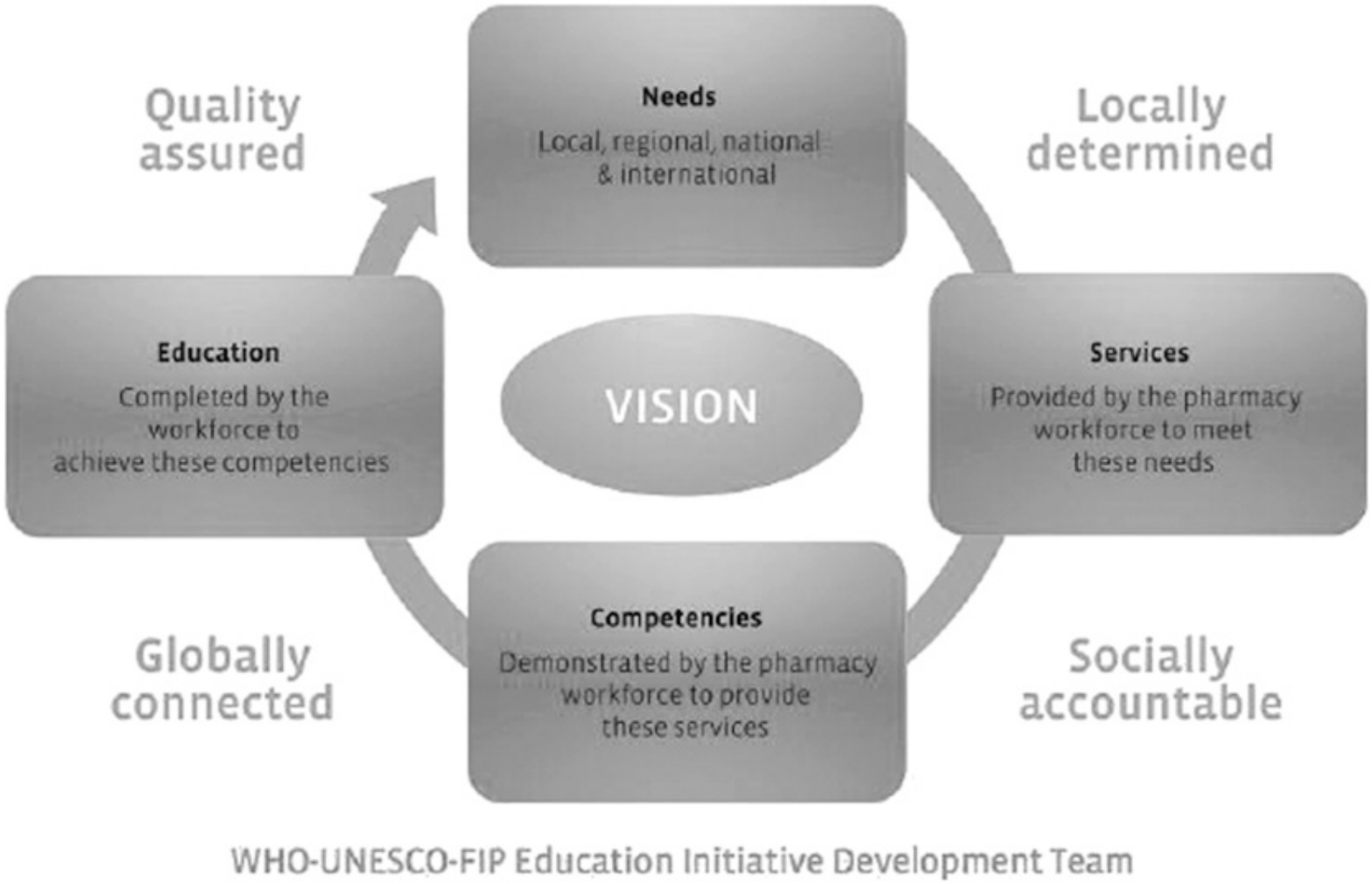


Global educational support

The FIP Global Competency Framework – Version 2 - 2020

International Pharmaceutical Federation (FIP). **Executive summary: The FIP Global competency framework**. The Hague: International Pharmaceutical Federation; 2020. Available at: https://www.fip.org/file/4805; accessed Nov. 3, 2020.

Planning for transition: **Needs-based education**

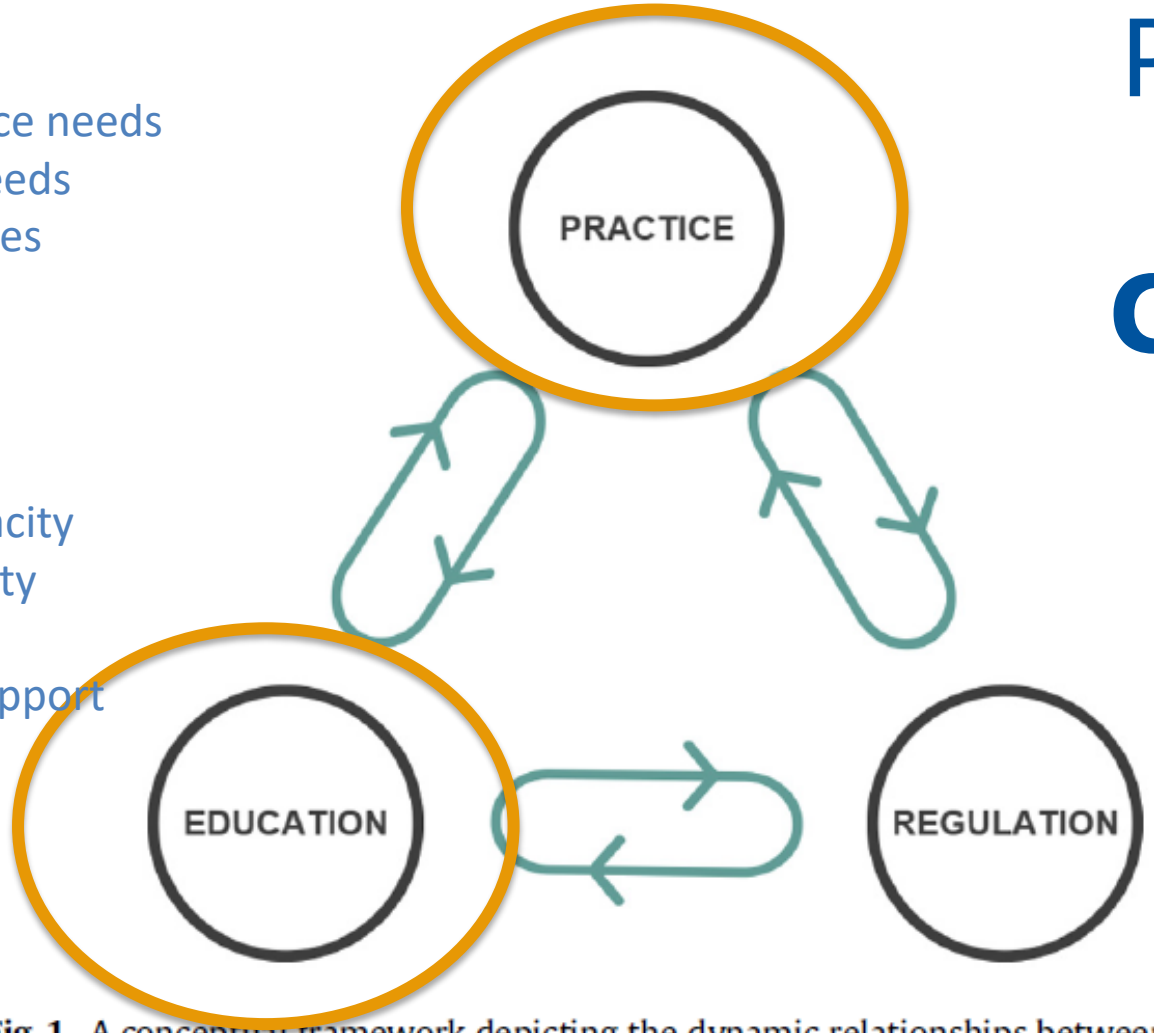


Anderson C, Bates I, Brock T, Brown A et al. Highlights from the FIPEd global education report. Am J Pharm Educ. 2014; 78(1) Article 4.

Planning for transition: **Challenges**

Local practice needs
- Patient needs
- Clinical sites
- Other

Academic capacity
- Trained faculty
- Preceptors
- Curricular support
- Other



Structure
Advocacy
Buy-in

Fig. 1. A conceptual framework depicting the dynamic relationships between practice, regulation and education.
International Pharmaceutical Federation 2014, adapted with permission.

Bader LR, McGrath S, Rouse MJ, Anderson C. A conceptual framework toward identifying and analysing challenges to the advancement of pharmacy. Res Social Adm Pharm. Mar-Apr 2017; 13(2):321-331.

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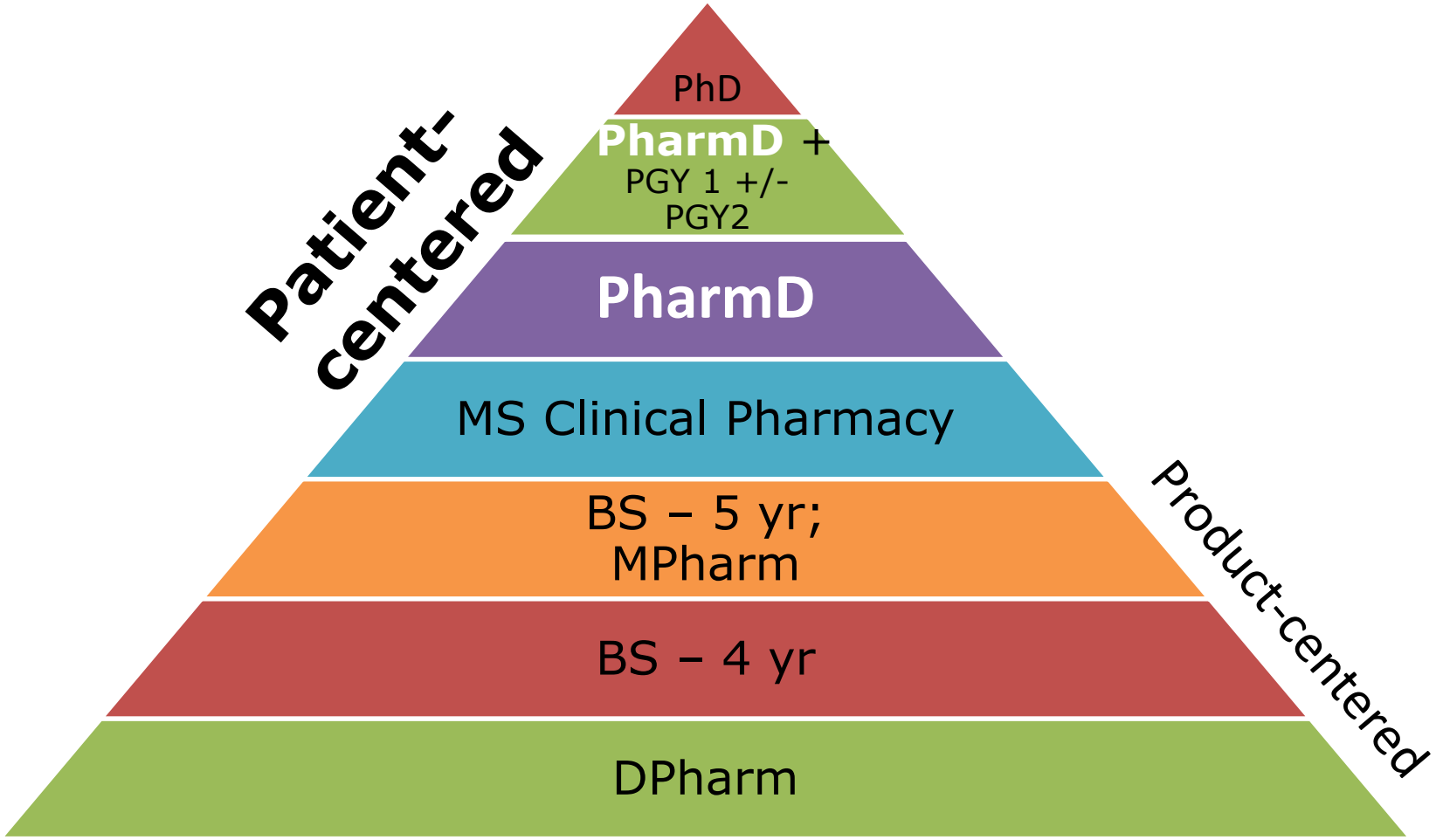
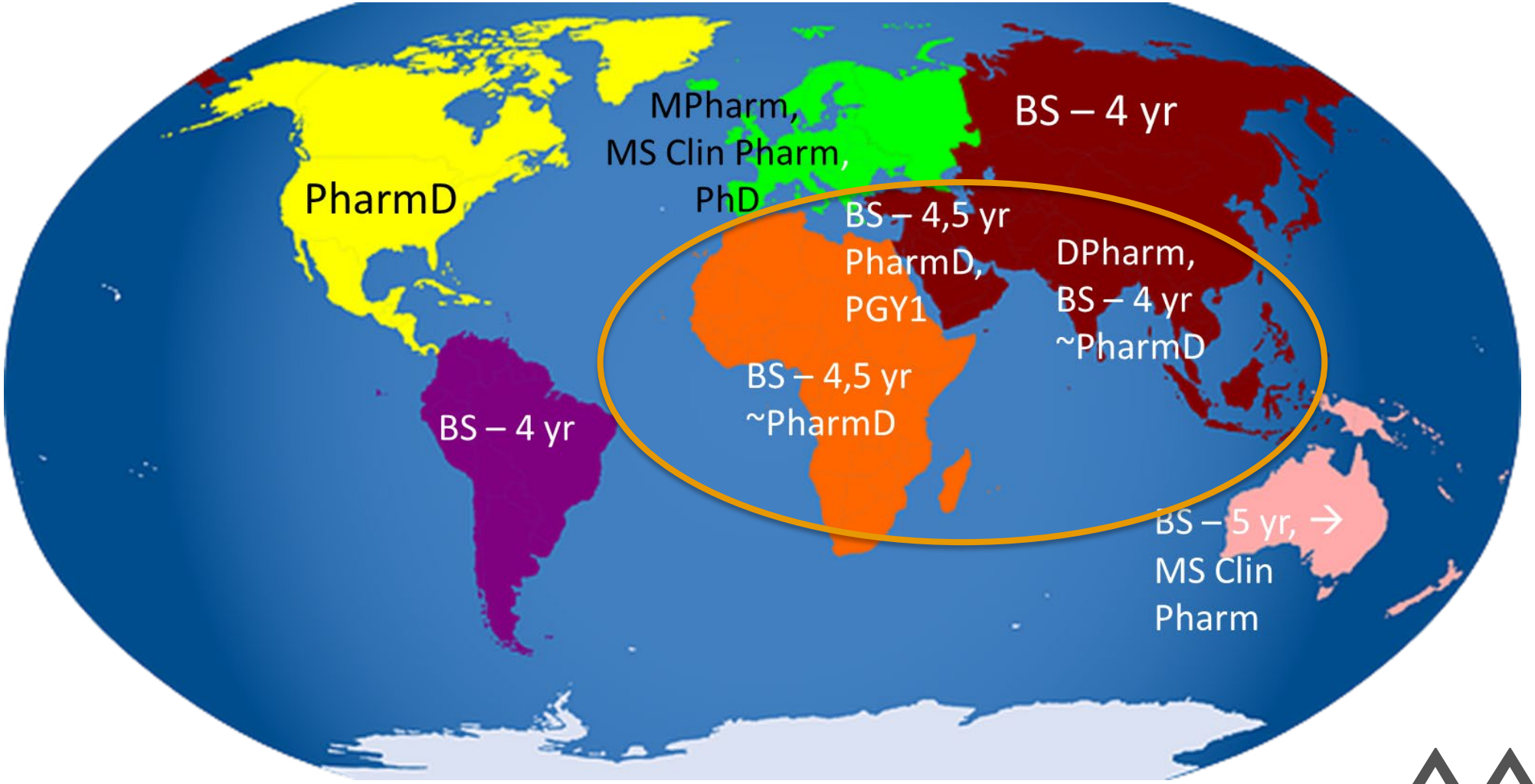
Types of pharmacy education



Pharmacy degrees of the world



CU's
International Trained PharmD Program

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ITPD Program development

A dream over breakfast….

https://atlantichotelnewquay.co.uk/events-specials/breakfastconferences/; accessed Nov. 3, 2020

ITPD Program development

International Trained PharmD (ITPD)
Advanced standing **entry-level** degree
Distance-based
ACPE-accredited
2014

North American Trained
***(Non-traditional)* PharmD (NTPD)**:
Post-BS
Distance-based
1998

Entry-level PharmD
Traditional, on-campus

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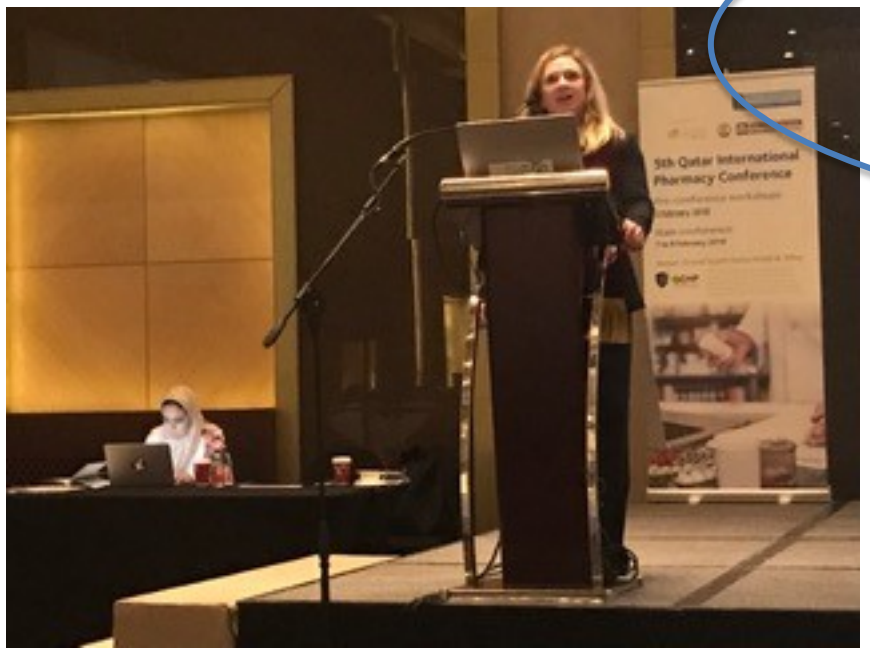
Admission criteria



- **Baccalaureate degree** in Pharmacy, 1+ years' experience
- Goals to **advance patient-centered pharmacy care** in home country
- **Professional sponsor** letter and 3 letters of recommendation
- **Live interview**
- **2 Foundational competency exams**
  - Biomedical sciences
  - Pharmaceutical sciences
  - Or pass **US-FPGEE**
- **English proficiency**

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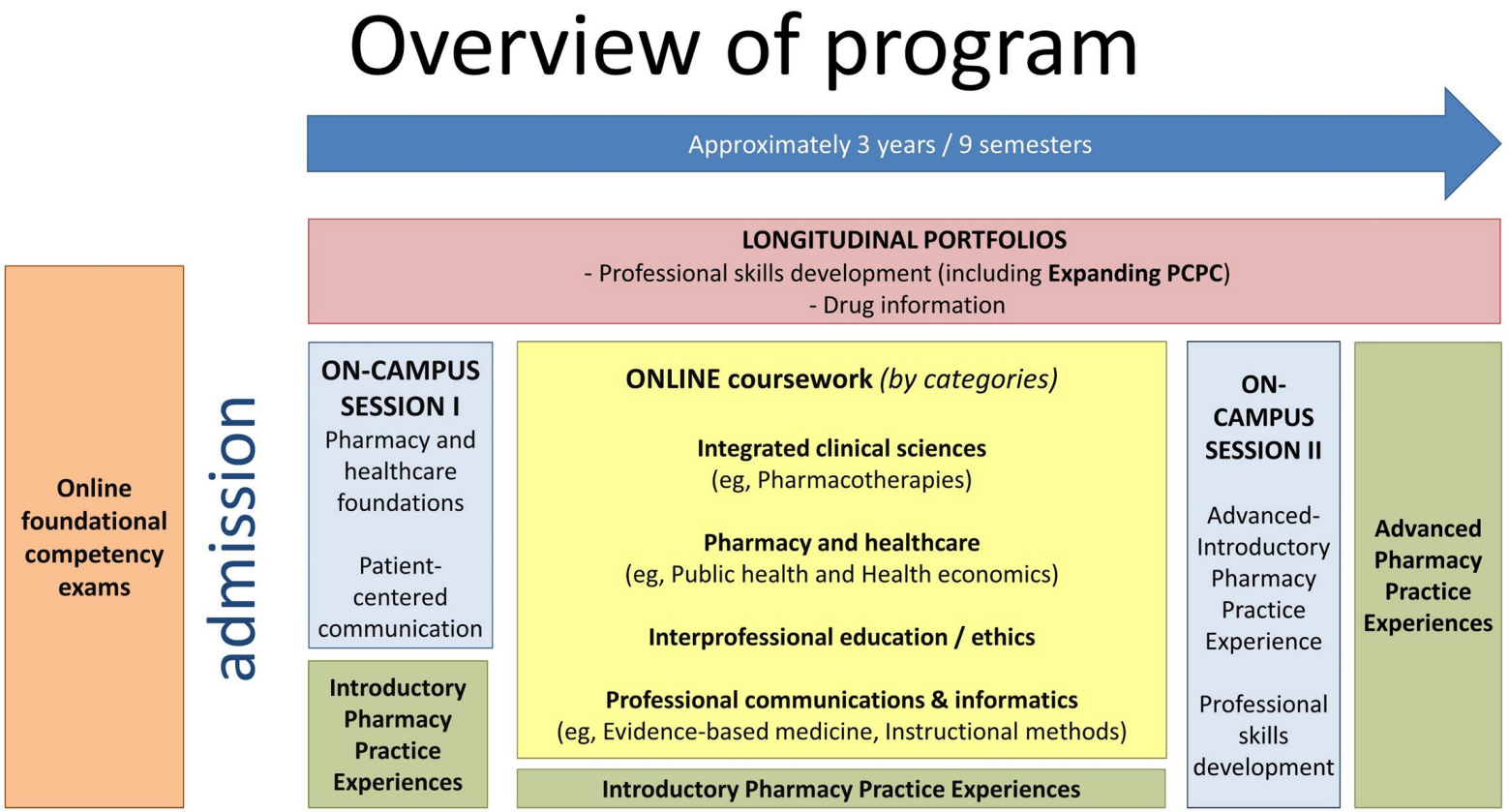
ITPD Design



- 90 sem. credit hours + entrance exams
- Hybrid (online + live) delivery
- Flexible: Designed for working pharmacists
- Up to 10 students accepted each year

Evaluation: ITPD admissions criteria to curricular success

- Course categories
  - Professional communication & informatics (Comm)
  - Pharmacy and healthcare (P&H)
  - Foundational integrated clinical sciences (f-ICS)
  - ICS
  - Advanced ICS (a-ICS)
  - Introductory pharmacy practice experiences (IPPEs)
  - Advanced pharmacy practice experiences (APPEs)
- Individual courses
- Grade-point averages (GPA)
  - Mean course
  - Mean cumulative GPA (cGPA)
  - Scale of 4.0

Gleason SE* et al. Admission predictors of success: 5 year report of an international trained PharmD (ITPD) program. Presented at: 79th FIP World Congress 2019; Abu Dhabi, United Arab Emirates; September 24, 2019.

Program evaluation results not considered generalizable.

Demographic Results (2019)

- N=23 students
  - 14 countries, **4 continents**
  - 54.1 credit hours (mean; range 12.5-90)
  - 8 graduates
- **Professional experience**: 5.6 years (mean; range 0-19 yrs)
- **Post-graduate** degree: n=6
- **Joint Commission-accredited institution**: n=6
- **US Board certification**: n=2
- Residency or fellowship training: n=0

Admission criteria to course categories

Admission Criterion	Course categories & cGPA	Individual courses *(Significant)*
FPGEE	NS all, except f-ICS and cGPA (R=0.921 and 0.975; P=0.026 and 0.0048, respectively)	Clinical skills fund., 3 pharmacotherapies, Pharmacogenomics, Interprof. educ, Public health, Health econ, Law
Biomedical exam	NS all	***Neg***. to Pharmacy Practice Fundamentals
Pharm Sciences exam	NS all, except cGPA (R=0.514; P=0.035)	Clinical skills fund., 2 Pharmacotherapies Public health, Evidence based medicine
Interview	NS all	Clinical reasoning and decision-making
Total admission score	NS all	Interprofessional education, Instructional methods
Duration past experience	NS all, except **Pos.** to APPE – HS; ***Neg***. to Comm, and Phcy & Healthcare, Interprof. Educ. [R=(-)0.443, (-)0.471 and 0.743; P=0.342, 0.023 and 0.22, respectively]	

Learning results

	Mean cGPA (4.0 scale)
Overall	3.66 (n=23; 3.0 – 4.0)
• Communications	3.65 (n= 23; 2.92 – 4.0)
• Pharmacy and healthcare	3.69 (n=23; 2.95 – 4.0)
• Foundational ICS	3.84 (n=23; 3.09 – 4.0)
• Integrated clinical sciences (ICS)	3.39 (n=23; 2.27 – 4.0)
• Advanced ICS	3.51 (n=15; 2.33 – 4.0)
• IPPEs	3.89 (n=23; 2.0 – 4.0)
• APPEs	3.78 (n=9; 2.0 – 4.0)

Individual courses:

- Pt. Comm'n
- DI Fund. Fundamentals
- EBM
- Instructional methods
- Informatics

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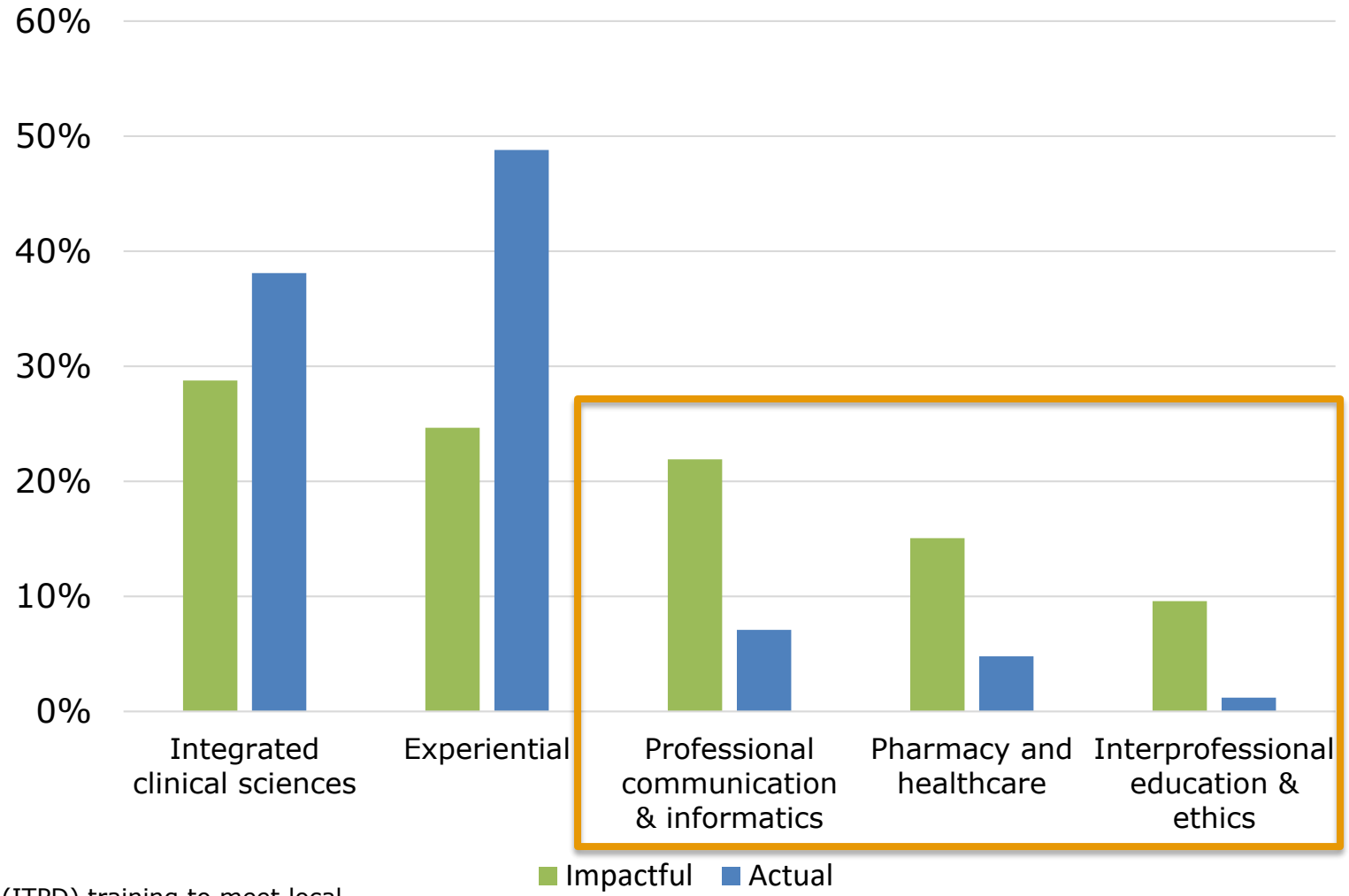
EVALUATION:
Course reflections

Longitudinal portfolios

- 10 of 14 students; mean of 5.1 (of 9 required) reflections.
- 6 continuing students, 4 graduates.
- 7 countries (Qatar, Saudi Arabia, Sudan, Ethiopia, India, Japan, Canada)

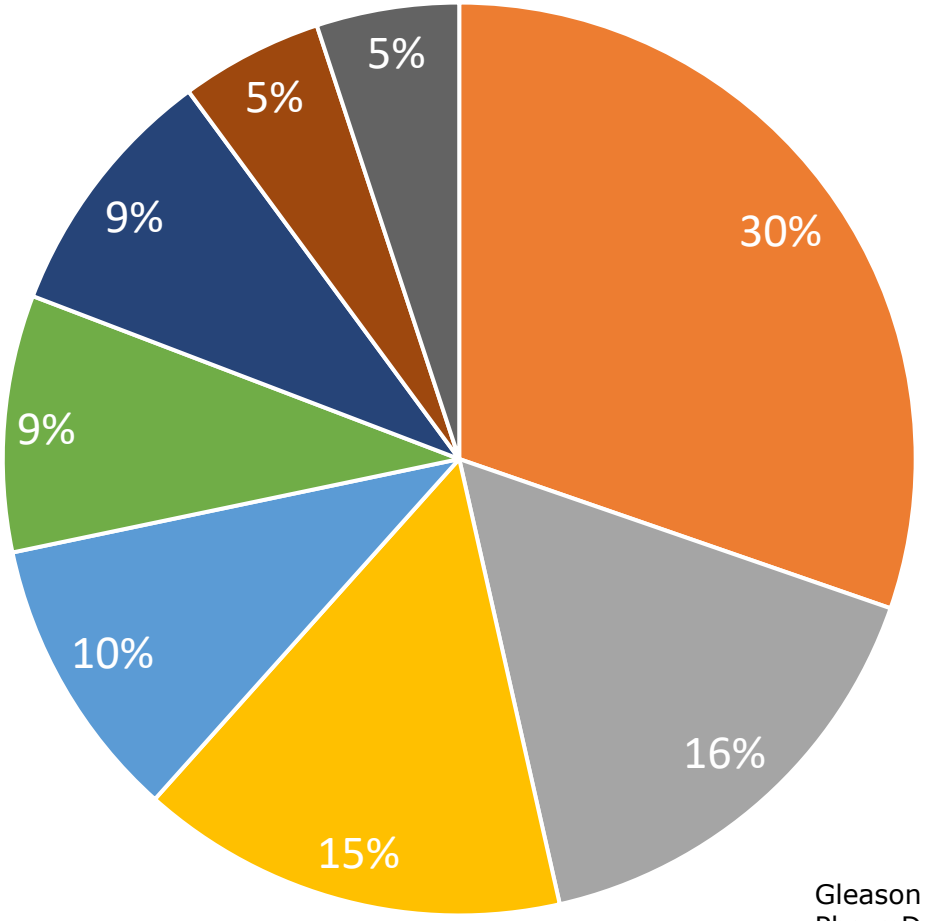
% Most impactful classes vs. % Curricular coverage



Gleason SE et al. Pharmacists' perception of international PharmD (ITPD) training to meet local patient care needs; presented at SNOW 2019. *Program evaluation results not considered generalizable.*

EVALUATION: Plans to *use* the degree

- Pt comm'n & family educ
- Providing PCPC
- Educate peers / students
- Systems activities
- Evidence-based medicine
- Ethics, pt advocacy, cultural awareness
- Implement new services
- Pharmacoeconomic considerations



Longitudinal portfolio submissions:

- Each semester
- Reflection on impactful courses
- Plans for use

N=128

Gleason SE et al. Pharmacists' perception of international PharmD (ITPD) training to meet local patient care needs; presented at SNOW 2019.

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PharmD transition: What can WE do?

Other transition ideas

- Partnerships
  - APPEs: Sites, students
  - Programs/degrees
  - Curricular development expertise
- Train-the-trainer
  - PharmaBridge (FIP): Faculty development
  - Educational programs
- Residencies: Partnerships
- Advocacy

Conclusions

- Global pharmacy education is advancing toward preparing pharmacists to provide patient-centered pharmacy care, with the Doctor of Pharmacy (PharmD) degree being one way to do so.
- CU's ITPD program delivers global- and distance-based PharmD education to mid-career professionals aiming to advance the profession.
- International mid-career pharmacists are faring well in a US and distance-based, ACPE-accredited PharmD program.
- International mid-career pharmacists are meeting their personal and professional goals through a US-based, distance-delivered PharmD program.
- Consider how each of us may facilitate the transition to the PharmD.
- Advancement of pharmacy education faces challenges, but can be addressed through collaboration and partnership.

Transition to a Pharm.D. Model in Korea

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College of Pharmacy, Ewha Womans University, Seoul, South Korea

EWHA WOMANS UNIVERSITY

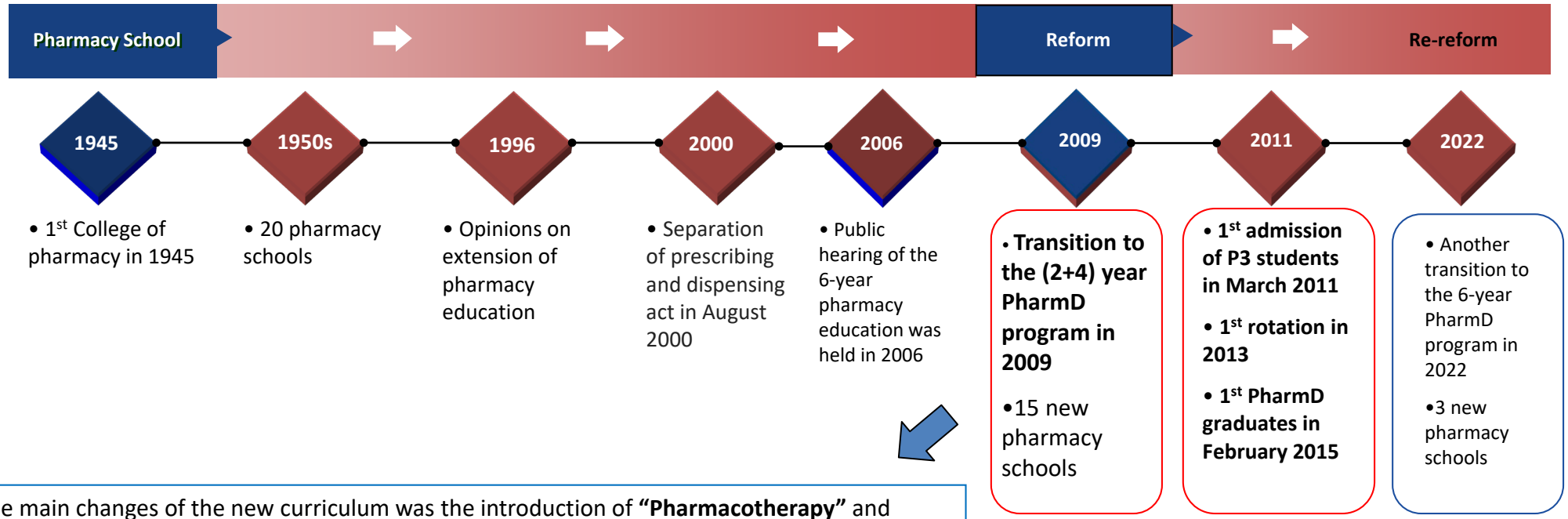
American Association of Colleges of Pharmacy AACP

In this presentation, the audience will be introduced to the following

- ***Background*** of the transition to (2+4) year PharmD program in South Korea
- ***Process*** of implementation of the (2+4) year education system and the pharmacy curriculums
- ***Challenges*** in educational and cultural ***adaptation*** in Korean society
- ***Another educational reform*** to 6-year PharmD program and ***continuous journey*** in pharmacy with 4th industrial revolution in Korea

Content

History of Pharmacy in Korea



•The main changes of the new curriculum was the introduction of **"Pharmacotherapy"** and **"Experiential clinical practices"**

•To be ready for entering the pharmacy profession with the appropriate level of aptitude
•To be ready to contribute the public health improvement
•To have professional ethics and confidence
•To compete on an nternational level

C Shim et al. The history of pharmacy in Korea. Yakhak Hoeji (51)6 361-382

The (2+4) year pharmacy curriculum

Community Pharmacy
Hospital pharmacy (Residency or specialist)
Pharmaceutical industry
Research institutions or school (Graduate school for MS and PhD degree)

Graduation with PharmD degree

Pharmacy School	P6	**APPE (15 weeks)**	**Select one from below**			
			Community Pharmacy (15 weeks)	**Hospital Pharmacy (15 weeks)**	**Pharmaceutical industry/administration (15 weeks)**	**Research lab (15 weeks)**
		IPPE (18 weeks)	**Community Pharmacy (5 weeks, 3 credits)**	**Hospital Pharmacy I (5 weeks, 4 credits)**	**Hospital Pharmacy II (5 weeks, 4 credits)**	**Pharmaceutical industry/administration (3 weeks/0.5 weeks)**
	P5 P4 P3	Pharmaceutical basic sciences, **pharmacotherapy**, pharmacy lab				
	P2 P1	Pre-requisite courses (before pharmacy school)				

Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1% EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0% 9C9 %ED%98%B8.pdf

Common pharmacy course

Division	Class	
Life Science	• Pharmacy Biochemistry • Pharmacy microbiology • Anatomy • Physiology	• Pharmacology • Preventive pharmacy • Pathophysiology
Industrial pharmacy	• Pharmacy analysis • Organic chemistry • Physical pharmacy • Pharmacognosy	• Biopharmaceutics • Medicinal chemistry • Pharmacopeia • Pharmacokinetics • Pharmaceutics
Clinical pharmacy and practice	• Pharmacotherapy	• Medication preparation and dispensing
Social pharmacy, pharmacy law	• Pharmacy law	
Pharmacy Lab	• Pharmacy lab	

The above coursework was used from the Ewha Womans University as a sample. Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9).
file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1% EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0% 9C9 %ED%98%B8.pdf

Curriculum of community pharmacy rotation

Class	Content
IPPE (5 weeks)	• Preparation and dispensing • Patient counseling • Prescription medication • OTC medication and health maintenance • Herbal and dietary supplement • Drug information and drug use evaluation • Medical device • Cosmetics • Animal medication • Administration and insurance • Community outreach activity • Visiting pharmacist
APPE (15 weeks)	• Additional, • Chronic metabolic disease pharmaceutical care • Herbal medication and pharmaceutical care

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Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1% EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0% 9C9 %ED%98%B8.pdf

Curriculum of hospital pharmacy rotation

Class	Content	
IPPE (Two of 5 weeks)	• Inpatient prescription review and medication preparation • Outpatient medication preparation and dispensing • Parenteral prescription review • Patient counseling • TPN order review and preparation • ADR monitoring and reporting	• High risk medication order review and preparation • Hospital pharmacy operation and administration • Medication purchasing • TDM service
APPE (15 weeks)	• Drug information • TPN • Chemotherapy • Patient counseling • Transplantation • Clinical trial research • Oncology care • Nephrology care	• Endocrinology care • ICU care (SICU, MICU, CCU, PICU, NICU) • Pulmonology care • Cardiovascular care • Neurology care • Pediatric care • Geriatric care • TDM service

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Curriculum of pharmaceutical industrial rotation

Class	Content	
IPPE (3 weeks) *	• GMP pharmaceutical process • QA management • Dosage formulation manufacturing	• Testing • Supply process • Safety and stability
APPE (15 weeks)	• Marketing • Research facility • Clinical trials	• Production process • Regulatory affairs

* 2 weeks of rotation at manufacturing facility and 1 week of online/offline lecture

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Curriculum of administrative rotation

Class	Content
IPPE (20 hr)*	• Ministry of Health and Welfare • Food and Drug Administration • Health Insurance Review and Assessment Service/Health Insurance • Patent office • Public health local clinic
APPE (15 weeks)	• On-site rotation at the above sites

* Lecture (online and offline), site visit, site rotation and combination of any

Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1% EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0% 9C9 %ED%98%B8.pdf

Qualification of pharmacy school entrance

	KOREA	USA
Pre-requisite course	1 or 2 among chemistry, biology, physics and math	• 26 credits of Biology and lab (8 credits), Chemistry and lab (8), Physics and lab (6) and others (Math 6, English 6, Economic 3, Communication 4, Humanity (> grade C). • Biochemistry, Physiology, Molecular biology also recommended
Entrance exam	PEET (Pharmacy Education Eligibility Test) • Language • Biology • Chemistry • Physics	PCAT (Pharmacy College Administration Test)

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Pharmacy licensure test

Previous subject	Current subject	Content
1. Biochemistry 2. Microbiology 3. Pharmacology 4. Environmental and Preventive pharmacy 5. Quantitative analysis 6. Qualitative analysis 7. Pharmacognosy 8. Inorganic pharmacy 9. Organic chemistry 10. Pharmaceutics 11. Pharmacopeia 12. Pharmacy law	1. Life pharmacy (100 questions)	• Structure and function of biomolecules • Infection and immunology • Principle of medication action • Health promotion and disease prevention • Organic disease and pathophysiology
	2. Industrial pharmacy (90 questions)	• Physical pharmacy • Medication design and development • Medicinal analysis • Pharmaceutical formulation • Pharmacognosy and traditional herbal medicine
	3. **Clinical Experiential pharmacy** (77 questions)	• Diseases and pharmaceutical care • Prescription review and preparation • Dispensing and counseling • Manufacturing and quality assurance • Pharmacy administration and management
	4. Public management and pharmacy law (83 questions)	• Pharmacy law • Narcotic control act • National Health Promotion Act • Framework Act on Health Care • National Health Insurance Act • Enforcement Decree and Enforcement Rule of the Local Health Act

Son D. 반세기 만의 약사국시 약사법 개정-추진경과, 개정내용 및 향후과제. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2013(4).
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Challenges in experiential learning program

- Hospital pharmacy
  - Limited availability of hospital sites
  - Short labors and spaces
  - Inflexibility of schedule
  - Long weeks of rotation (10-week or 15-week period, not a 5-week block)
- Community pharmacy
  - Different learning exposure depend on sites
- Pharmaceutical industry and administrative
  - Online or lecture style of IPPE
- APPE
  - About half of students had research rotation
  - Different learning exposure depend on sites
- Rotation fee

Kim Y. 통합 6년제 학제전환과 향후 발전 방향. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. file:///C:/Users/user/Downloads/%ED%86%B5%ED%95%A9%206%EB%85%84%EC%A0%9C%20%ED%95%99%EC%A0%9C%EC%A0%84%ED%99%98%EA%B3%BC%20%ED%96%A5%ED%9B%84%20%EB%B0%9C%EC%A0%84%20%EB%B0%A9%ED%96%A5.pdf. Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0%9C9%ED%98%B8.pdf

Challenges in social adaptation

- Social Burden
  - Cost: private PEET school, labor waste
  - Science major schools become prep-schools for pharmacy schools?
- Student burn out
  - Lack of motivation after the long exhausting test preparation
  - Increased age at entrance level
  - Reduced engagement with alumni
- Job creation
  - Lack of changes in job creation and expansion of roles and opportunity

Kim Y. 통합 6년제 학제전환과 향후 발전 방향. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. file:///C:/Users/user/Downloads/%ED%86%B5%ED%95%A9%206%EB%85%84%EC%A0%9C%20%ED%95%99%EC%A0%9C%EC%A0%84%ED%99%98%EA%B3%BC%20%ED%96%A5%ED%9B%84%20%EB%B0%9C%EC%A0%84%20%EB%B0%A9%ED%96%A5.pdf. Lee SY. 실무실습 교육의 현황과 문제점. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2016 (9). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0%9C9%ED%98%B8.pdf

Challenges in legislation perspectives

- Pharmaceutical Affairs Act
  - Outdated definition of pharmacists' scope and activities
  - **Not allow** to have pharmacy technicians
- Patient Safety Act in 2016
  - Pharmacists are **not** included in the committee
- Medical laws
  - Pharmacists are **not** considered as providers
- Two licensure system of pharmacist vs Korean oriental pharmacist since 1993

Kim N. 4차 산업혁명시대와 약사 직능의 변화. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2017 (12).
file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%20%EC%A0%9C12%ED%98%B8.pdf

Efforts to overcome

Changes of hospital pharmacy site

- Promote preceptor training
- Registered Board-certified Pharmacy Specialist (BCPS) by Korean Society of Hospital Pharmacists (KSHP) since 2010
  - Cardiovascular, Critical care, drug information, endocrinology, geriatric care, infectious, nutrition, oncology, pediatric, transplantation
- Automation
  - Automatic tablet counter (ATC), automatic dispensing cabinet (ADC), APOTECA Chemo robot
  - Clinical Decision Supporting System (CDSS)
- Drug utilization review (DUR) with AI-based big data analysis
  - ADR, duplication, precaution and contraindication, renal dosing
- Patient counseling with QR code
- Pharmacy reimbursement in Nutrition team-based care in ICU

Utilize pharmacist to clinical roles and widen pharmacist activity
-> Education

Kim N. 4차 산업혁명시대와 약사 직능의 변화. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2017 (12).
file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%20%EC%A0%9C12%ED%98%B8.pdf. 제11회 전문약사 시험 최종 합격자 발표.
한국의약통신. 2020.11.04. http://www.kmpnews.co.kr/news/articleView.html?idxno=40463

Changes of community pharmacy site

- Various specialized pharmacy
  - animal medication, pharmacy cosmetics, herbal and dietary supplement
- Automation
  - Automatic tablet counter (ATC)
- Pharmacy certification program by local pharmacist associations
  - Geriatrics care, diabetes care

Utilize pharmacist to clinical roles and widen pharmacist activity
-> Education

Kim N. 4차 산업혁명시대와 약사 직능의 변화. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2017 (12).
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Changes of pharmaceutical industry site

- Need new rotation curriculum
  - May need to develop office-based rotation (eg,regulatory affairs, marketing, medical liaison, safety, clinical trial research)
  - Opportunity to practice
    - AI based-new drug discovery
    - Public healthcare big data

Kim N. 4차 산업혁명시대와 약사 직능의 변화. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2017년 12호..
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Changes of school operation

- Mutual collaborative affiliations with practice sites
  - Provide education support for preceptors and pharmacy department
  - Help research of outcome analysis of the practice sites
  - Appoint preceptor to adjunct faculty and clinical professors
- Student management
- Program development

Preceptor training in education and outcome analysis of pharmaceutical care

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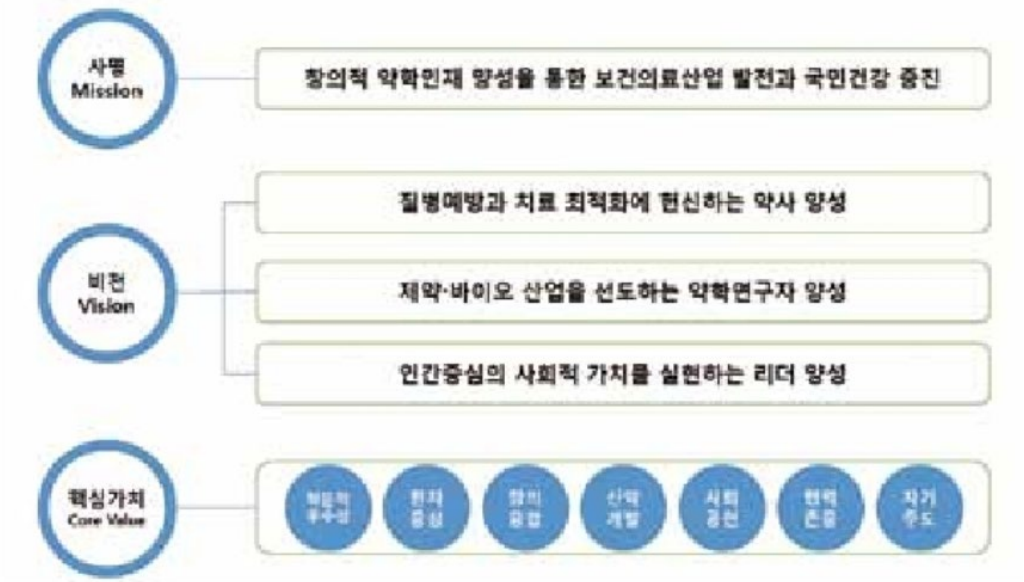
PharmD Program Accreditation

- Korean Association of Pharmacy Education (KAPE) accreditation since 2015
- Pharmacist, researcher, leader



한국약학교육평가원
Korean Accreditation Council for Pharmacy Education
KACPE

Jung J. 6약학대학 시범평가 어떻게 진행되고 있나? Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2012 (3).. file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC %9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%EC%A0%9C3%ED%98%B8.pdf. 5년 내 35개 약대 평가인증 시행한다. 한국의약통신. 2015.9. http://www.kmpnews.co.kr/news/articleView.html?idxno=16167. 한국약학교육협의회. 약학교육 사명, 비젼, 핵심가치, 정고 끝에 베일을 벗다. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2019 (16). http://ikape.or.kr/e_news_Book/20190924/index.html#page=4

Next movement of 6-year PharmD program

Transition from (2+4) to 6-year PharmD program

▲ 지난 2월1일 서울 서울교육대학교에서 열린 약학대학 학제개편 공청회에서 하연섭 연세대 교수가 약대 학제개편 추진 방안 발제를 하고 있다.

- Starting in 2022
- Expected advantages
  - Update pharmacy education comply to the 4th industrial revolution
  - Interlinkage between pre-requisite and PharmD classes
  - Less cost burden for private PEET institution
  - Less stress of parents and students for preparation for pharmacy school
  - Less burnt out and more motivation
  - Less negative impact on basic science major schools

Kim Y. 통합 6년제 학제전환과 향후 발전 방향. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. file:///C:/Users/user/Downloads/%ED%86%B5%ED%95%A9%206%EB%85%84%EC%A0%9C%20%ED%95%99%EC%A0%9C%EC%A0%84%ED%99%98%EA%B3%BC%20%ED%96%A5%ED%9B%84%20%EB%B0%9C%EC%A0%84%20%EB%B0%A9%ED%96%A5.pdf

Next moves in education

- Potential introduction of objective structured clinical examination (OSCE)
  - Introduction of outcome-based education (OBE) in April 2018
  - Student-oriented class, flipped-learning class
  - From “what to know” to “what to do”
- Advanced, future-oriented education of special area
  - Creative and convergent professional education
    - Public healthcare big data, artificial intelligence
  - Precision medicine
  - Informatics, communication and technology (ICT), digital healthcare
  - Preventive medicine and remote monitoring using mobile application
  - Communication skill, ethics
- Global level and collaborative opportunity

Kim C. 6년제 졸업 약사는 병동약사업무를 담당할 수 있어야. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2012 (1).
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Transition from (2+4) to 6-year PharmD program

Current concept	Future concept
• Course-oriented learning • Knowledge-based learning • Discipline-centered learning • Discipline by track • Institution-centered learning	• Competency-based learning • Outcome-based learning • Acquisition of skills • Practical suitability utilizing Knowledge • Interdisciplinary learning • Partnership and network with others

Kim N. 4차 산업혁명시대와 약사 직능의 변화. Pharmacy Education Newsletter. Korean Association of Pharmacy Education. 2017 (12). file:///C:/Users/user/Downloads/%EC%95%BD%ED%95%99%EA%B5%90%EC%9C%A1%EC%86%8C%EC%8B%9D%EC%A7%80%20%EC%A0%9C12%ED%98%B8.pdf. Kim Y. 통합 6년제 학제전환과 향후 발전 방향. Korean Education Newsletter. Korean Association of Pharmacy Education. file:///C:/Users/user/Downloads/%ED%86%B5%ED%95%A9%206%EB%85%84%EC%A0%9C%20%ED%95%99%EC%A0%9C%EC%A0%84%ED%99%98%EA%B3%BC%20%ED%96%A5%ED%9B%84%20%EB%B0%9C%EC%A0%84%20%EB%B0%A9%ED%96%A5.pdf

Conclusion

- Introduction of the (2+4) year PharmD program was initiated in 2009.
- Another transition to 6-year PharmD program will be ready by 2022.
- PharmD program offers practice-based, collaborative, and professional-ready education.
- Recognition of the importance of both clinical aspect and science aspect in Korea.
- The curriculum revisit is in progress to improve the experiential rotation, emphasize research to prepare next generation.
- Still not allowed for pharmacist to participate certain clinical activity, use technicians, receive service reimbursement….

International Webinar Series Additional Webinars

- Developing Global Partnerships for Pharmacy Education

When: Jan 7, 2021 from 10:00 AM to 11:00 AM (ET)

- CAPE Educational Outcomes linked with International Pharmacy Education

When: Feb 11, 2021 from 11:00 AM to 12:00 PM (ET)

Any questions?

Thank you for listening!

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https://sites.google.com/view/clinicalpharmacy/home

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