PHARMACEUTICAL EDUCATION IN THE USA AND TRAINING FOR HOSPITAL PHARMACY PRACTICE

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Some considerations and contexts…

- Population of 306 million people
- Diverse population with Hispanics as the fastest growing segment
- Many language groups
- About 5, 000 hospitals
- Hospitals organizing as health-systems through mergers and integration of services
- About 60,000 community pharmacies
- Expansion of community based care with focus on primary care (some in community pharmacies)
- Pending shortage of primary care physicians (family medicine, internal medicine, pediatrics and OB/GYN)

Evolution of Pharmacy Education in the U.S.A.

- First school of pharmacy in 1821, Philadelphia College of Pharmacy [privately owned and operated]
- Expansion of private schools
- Formation of public universities and schools of pharmacy
- Morrill Land Grant Act, July 2, 1862 and signed by President Lincoln
- Apprenticeship as Training Model
- Bringing pharmacy education into the University (Albert Prescott and University of Michigan)
- 1901, Formation of the American Association of Colleges of Pharmacy (AACP)

Evolution, continued

- 1932—Bachelor of Science required [4 years of university study]
- 1932—Formation of the American Council on Pharmacy Accreditation (ACPE) [later re-named as the Accreditation Council for Pharmacy Education]
- 1948—Elliott Report recommends study be expanded to the Doctoral level [at least 6 years of university study]
- 1960—Bachelor of Science re-affirmed but expanded to 5 years of study
- 2000—Only the Doctor of Pharmacy degree program will be accredited by ACPE

The current context for pharmacy education in the USA

- 130 accredited programs [and still expanding]
- Graduation from an Accredited program is required for state licensure
- Only the Doctor of Pharmacy [Pharm.D.] degree with a minimum of 6 years of university work
- 14,000 graduates expected in 2013 [and growing by approximately 1,000 graduates per year]
- Balance between supply and demand ??
- About 30% of graduates seeking practice in hospital pharmacy

General Structure of the Doctor of Pharmacy Degree program

- Pre-Professional Studies [minimum of two years of university study]
  - Sciences [e.g. chemistry, physics, biology], Mathematics
  - Liberal Education [e.g. Social and Behavioral Sciences, Arts, Literature, etc.]
- Professional Curriculum—basic components in four years of study at a school of pharmacy
  - Pharmaceutical Sciences [e.g. pharmaceutics, pharmacokinetics/pharmacodynamics, pharmacogenetics, medicinal chemistry, formulation, social/behavioral /administrative sciences, systems and policy, pharmacy law]
  - Biomedical Sciences [e.g. biochemistry, microbiology, anatomy, physiology, pathology, immunology, genetics]
  - Clinical Sciences (e.g. comparative therapeutics, drug information, patient assessement,
  - Experiential
    - Introductory
    - Advanced
  - Electives

Education and Training for Hospital Pharmacy at the first degree level

- Universally embedded in general course structure
  - Basics of professional practice that are universal regardless of site
  - Special issues [e.g. sterile dosage form preparation, small and large volume parenteral preparation, safety and quality, standards and law]
- Elective Course(s)
  - Administrative
  - Professional
  - Clinical
- Experiential
  - Introductory
  - Advanced

ASHP and ACPE Competencies for Hospital Pharmacy Practice

- Pharmacy Systems
- Medication Safety and Quality
- Clinical Applications
- Professional Practice

- These have been distributed to all schools of pharmacy and serve as guidances for curriculum planning and course content preparation

Post-Graduate education and training for hospital pharmacy practice

- Residency training
  - Structured post-graduate study and experience of one year (PGY 1) in general practice
  - Structured post-graduate study and experience of one to three years (PGY2) in specialty areas (e.g. pediatrics, cardiology, transplant, emergency room, oncology, management, etc.)
  - Combined PGY 1 and 2 with Master of Science degree
  - Programs Accredited by the American Society of Health-System Pharmacy [quality assurance and peer review]
- Fellowship training
  - Structured post graduate research in clinical areas of practice

Post-Graduate Credentialing in Hospital Pharmacy Practice

- Board of Pharmaceutical Specialties (BPS)—board examinations in approved areas of practice specialization, including ambulatory care
- Other Specialization credentials by organizations outside of pharmacy (interprofessional)

Challenges for the future of education for hospital pharmacy practice in the USA

- Increasingly complex and high accuity patients in American hospitals
- Demand for generalized and specialty skills
- Strong focus on quality and safety through incentivization (e.g. pay for performance and reduce payment for poor performance)
- Team-based care and demands for pharmacist participation
- Accountability in practice [measure of performance]
- Division of labor in the pharmacy department (integration vs de-centralization
- Practice Model for hospital pharmacy practice

Questions and Discussion