

**Victor A. Yanchick, Ph.D., Dean, VCU School of Pharmacy/AACP President, Virginia Commonwealth University, Richmond, VA**



Victor A. Yanchick was appointed Dean and Professor of the School of Pharmacy at Virginia Commonwealth University on July 1, 1996. Prior to his appointment at Virginia Commonwealth University he served for eleven years as Dean and Professor of Pharmacy at The University of Oklahoma Health Sciences Center College of Pharmacy. He began his academic career at The University of Texas at Austin holding various administrative positions including Assistant Dean for Academic Affairs and Associate Dean. He earned his Bachelor of Science degree in pharmacy and a Master of Science degree in Hospital Pharmacy from The University of Iowa. He also completed an ASHP-accredited residency program in hospital pharmacy from the University Hospitals in Iowa City, Iowa. Dr.

Yanchick received his Ph.D. from Purdue University.

He was named Distinguished Alumnus both from Purdue University School of Pharmacy and from the College of Pharmacy at The University of Iowa. In 2001 he was elected to the National Academies of Practice and holds membership in a number of national professional organizations. He has published many articles in the areas of geriatrics and gerontology, authored four book chapters, and has given over 200 invited presentations to professional groups and conferences. He has supervised the M.S. or Ph.D. programs of 20 graduate students.

Dr. Yanchick has a long standing involvement with the American Association of Colleges of Pharmacy (AACP). He was appointed as a member of the AACP's Commission to Implement Change in Pharmacy Education and served three separate terms on the AACP Board of Directors. Dr. Yanchick was elected Chair of the Council of Deans of this organization in 2005 and in July 2008 was inducted as President of the AACP.

Dr. Yanchick is married to the former Donna Bush and has two sons, Jeffrey and David, and one daughter, Jill Ann and seven grandchildren. His two sons are graduates of the University of Oklahoma College of Pharmacy.

For relaxation he enjoys watercolor painting, gardening, and is a Class A racquetball player.

**Preparing Pharmacists for the 21<sup>st</sup> Century: a U.S. Perspective**

A variety of outside trends in society and health care delivery in the United States have caused the Schools and Colleges of Pharmacy to restructure the educational programs for pharmacy education. In the late 1980's the Commission to Implement Change in Pharmacy Education established by the American Association of Colleges of Pharmacy proposed significant restructuring of the pharmacy curriculum and supported the move to the all PharmD as the sole entry for pharmacy practice. Over the last few years a number of well respected groups such as the Institute of Medicine (IOM) and the Joint Commission on Pharmacy Education (JCPP) have published documents that clearly outline major shifts in how health care should be delivered and what the responsibilities of the U.S. pharmacist will be in this new health care environment. Furthermore, the Accreditation Council for Pharmacy Education (ACPE) issued Standards 2007 which substantially revised their standards for accrediting pharmacy programs in the United States. These factors have substantially caused the schools and colleges of pharmacy in the United States to make substantial changes in curricular structure and content that is aimed at graduating pharmacy practitioners who will have the responsibility for medication therapy outcomes and function as a member of the health care team to improve the health of U.S. citizens and lower health care costs.

This program will review the evolution of the doctor of pharmacy program and will provide the audience with a current picture of the state of pharmacy education in the United States. In addition this program will give examples of what is now offered in the way of curricular design and will explain how students develop across the four year doctor of pharmacy program. In addition, this presentation will cover impact this new curriculum has made on community pharmacy practice, institutional pharmacy practice, managed care and on pharmacy education as a whole.

## Preparing Pharmacists for the 21<sup>st</sup> Century: A U.S. Perspective

Presented at the  
AFPC Annual Conference  
Halifax, Nova Scotia  
By Victor A. Yanzhick, Ph.D.  
Dean and Professor of Pharmacy  
Virginia Commonwealth University  
2008-2009 President American Association of  
Colleges of Pharmacy  
June 4, 2009

## Richmond, Virginia



## School of Pharmacy Virginia Commonwealth University



## School of Pharmacy Virginia Commonwealth University

- Established in 1898
- 510 traditional PharmD Students
- First All PharmD Class Admitted 1995
- 66 Non-traditional PharmD Students
- MS and PhD Programs in the Pharmaceutical Sciences
- Joint Degree Programs (PharmD/PhD, PharmD/MS, PharmD/MBA, PharmD/MPH)

School of Pharmacy  
Virginia Commonwealth University

- Located on the Medical College of Virginia Campus (Medicine, Dentistry, Nursing, Allied Health, Public Health, Pharmacy)
- 75 Faculty
- Three Departments
  - Medicinal Chemistry
  - Pharmaceutics
  - Pharmacy Practice

Trends in US Pharmacy  
Practice

- Increased use of automation/technicians to enhance distribution productivity
- Demand for new services (MTMS, prevention of drug-related illness)
- Use of information technology in health care
- Demand for population-based health care (formulary management and drug use management, high risk medication management)

AACP Commission to Implement  
Change

- Purpose of Pharmaceutical Education in Society
- Curricular Content, Process, and Outcomes
- Degree Title
- Postgraduate Education and Training

AACP Change Commission's  
Prediction for Future Practice

- Pharmacists Will Be Able To:
  - Understand health care policy, organization, financing, regulation and delivery
  - Participate in multidisciplinary teams to provide care and develop clinical practice or disease management guidelines
  - Utilize various information systems to maintain and retrieve patient data and to communicate with other health professionals

Institute of Medicine Vision  
Statement

ALL Health care professionals should be an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics

Health Professions Education: A  
Bridge to Quality

- Provide patient-centered care
- Work in interdisciplinary teams
- Employ evidence-based practice
- Apply quality improvement, and
- Use informatics.

### 2015 Vision Statement\*

- Pharmacists will be the health care professionals responsible for providing patient care that ensures optimal medication therapy outcomes.

\* Developed and Approved by the Joint Commission of Pharmacy Practitioners and is used by AACP and ACPE to guide refinement of pharmacy education today.

### 2015 Vision Statement

- The Foundations of Pharmacy Practice
  - Pharmacy education will prepare pharmacists
    - To provide patient-centered and population-based care that optimizes medication therapy
    - To manage health system resources to improve therapeutic outcomes. And
    - To promote health improvement, wellness, and disease prevention

### 2015 Vision Statement

- The Foundations of Pharmacy Practice
  - Pharmacists will maintain:
    - A commitment to care for, and care about, patients
    - An in-depth knowledge of medications, and the biomedical, socio-behavioral, and clinical sciences
    - The ability to apply evidence-based therapeutic principles and guidelines, evolving sciences and emerging technologies, and relevant legal, ethical, social, cultural, economic, and professional issues to contemporary pharmacy practice.

### 2015 Vision Statement

- How Pharmacists Will Practice
  - Pharmacists will have the authority and autonomy to manage medication therapy and will be accountable for patients' therapeutic outcomes.
  - In doing so, they will communicate and collaborate with patients, care givers, health care professionals, and qualified support personnel.

### 2015 Vision Statement

- How Pharmacists Will Practice
  - As experts regarding medication use, pharmacists will be responsible for:
    - Rational use of medications including measurement and assurance of medication therapy outcomes
    - Promotion of wellness, health improvement, and disease prevention
    - Design and oversight of safe, accurate, and timely medication distribution systems.

### 2015 Vision Statement

- How Pharmacists Will Practice
  - Working cooperatively with practitioners of other disciplines to care for patients, pharmacists will be:
    - The most trusted and accessible source of medications, related devices, and supplies
    - The primary source of unbiased information and advice regarding the safe, appropriate, and cost-effective use of medications
    - Valued patient care providers whom health care systems and payers recognize as having responsibility for assuring the desired outcomes of medication use.

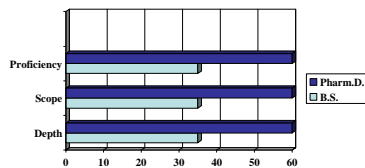
## 2015 Vision Statement

- How Pharmacy Practice Will Benefit Society
  - Pharmacists will achieve recognition that they are essential to the provision of effective health care by ensuring that:
    - Medication therapy management is readily available to all patients
    - Desired patient outcomes are more frequently achieved
    - Overuse, underuse, and misuse of medications are minimized
    - Cost-effectiveness of medication therapy is optimized.

## History of the Doctor of Pharmacy Degree

- 1951 – PharmD sole professional degree program at the University of Southern California
- 1952-57 – optional program at UCSF
- 1991 – 11 additional programs transitioned to the all PharmD program
- 1994 – total of 20 all PharmD programs as sole degree
- 2004 – all programs offer the PharmD degree as the only degree

## Comparison of the B.S. to the Pharm.D. Degree



## The Transition

- 1992
  - 74 Schools
  - 13 PharmD only
  - 18% of degrees awarded were PharmD
- 2009
  - 109 Schools
  - All enrollees now in PharmD programs

## History of the Pharm.D. Degree

- 1951, Pharm.D. is sole professional degree program at Southern California
- 1952-57, optional program at California-San Francisco; sole professional degree program after 1957
- Fall 1991, just 11 more institutions had transitioned to the Pharm.D. as the sole professional degree program offered (total 13).
- Fall 1994, 20 US colleges and schools offered the Pharm.D. as the sole professional degree program.
- Fall 2001, new matriculants at ALL colleges and schools of pharmacy have Pharm.D. as only option.
- After 2004, all graduates from accredited programs earned the Pharm.D.

## Current Status of Pharm.D. Programs

- Configuration: 0-6, 2-4, 2-3 (year-around), 3-4 (current trend)
- Public (56) Private (53)
- AHC Affiliated (approx 24)
- Size entering class (30 – 250plus)
- >50% of applicants have previous degree
- 10,600 PharmD graduates in 2007-2008

### Fall 2008 Enrollments

- 52,685 students enrolled in PharmD programs
- 1,912 students enrolled in non-traditional PharmD programs
- Underrepresented minorities accounted for 11% of total enrollment
- 75.6% of all applicants had >3 years of post-secondary education

### Accreditation Standards 2007

- Preamble
- Standards ("musts") – clear and simple
- Guidelines – additional explanation; how
- Process and outcomes measures; Evidence needed
- Policies and procedures to consistently and evaluate compliance

### 2006 Revised Standards - New

- Philosophy unchanged *but* clearer emphasis on scholarship and scientific foundation
- Institutional accreditation
- Student complaint policy
- Pharmacy practice experiences
  - Continuum with stated competencies and assessment
  - Qualified preceptors
  - Direct patient interaction
  - Quantified criteria: types of patients, level of responsibility, settings
- CAPE outcomes

### ACPE Accreditation Standards and Guidelines 2007

- Goal of the Curriculum
  - Must prepare graduates with the professional competencies to enter pharmacy practice in any setting to ensure optimal medication therapy outcomes and patient safety, satisfy the educational requirements for licensure as a pharmacist, and meet the requirements of the university for the degree.

### ACPE Accreditation Standards and Guidelines 2007

- Goal of the Curriculum
  - Must develop in graduates knowledge that meets the criteria of good science, professional skills, attitudes, and values; and the ability to integrate and apply learning to both the present practice of pharmacy and the advancement of the profession. Graduates must be able to identify and implement needed changes in pharmacy practice and health care delivery.

### Curricular Content

- Biomedical Sciences
- Pharmaceutical Sciences
- Behavioral, Social, and Administrative Sciences
- Pharmacy Practice

### Curricular Content – Professional Experience

- Introductory Practice Experiences
- Advanced Practice Experiences
  - Community practice
  - Health system practice
  - Acute care
  - Primary care
  - Other areas

### Pre-Pharmacy Prerequisites\*

- English
  - General Chemistry
  - Organic Chemistry
  - General Biology
  - Physics
  - Calculus
  - Public Speaking
  - Electives
  - Microbiology
  - Biochemistry
  - Anatomy
  - Physiology
  - Genetics
  - Biostatistics
  - Immunology
- \* 3 year prerequisite

### P1 Fall

- Applications of Basic Biomedical Sciences to Pharmacy
- Pharmaceutics/Biopharmaceutics
- Pharmacognosy
- Informatics
- Health Promotion and Disease Prevention
- Self-Care, Alternative and Complementary Treatments
- Contemporary Pharmacy Practice / Professionalism Pharmacy History and Futures
- Professional Communication
- Patient Assessment 1
- Ethics Topics
- Introductory Pharmacy Practice Experiences or Service Learning (4 Hours every other week)
- Scholarship of Pharmacy

### P1 Spring

- Pharmacokinetics
- Extemporaneous Compounding/Parenteral/Enteral
- Biotechnology and Pharmacogenomics
- Bioanalysis/Clinical Chemistry
- Medication Safety
- Assessment of Organ Function/Pathophysiology
- Health Care Delivery Systems
- Social and Behavioral Aspects of Practice
- Ethics Topics
- Introductory Pharmacy Practice Experiences
- Institutional Experience
- (1-2 wk operations focused experience)
- Scholarship of Pharmacy

### P2 Fall

- Evidence Based Pharmacy 1
- Medicinal Chemistry
- Pharmacology
- Pharmacotherapy
- Pharmacist-Provided Care for Special Populations
  - Pediatrics Basics
  - Geriatrics Basics
  - Cardiovascular
  - Respiratory
- Economics/Pharmacoeconomics
- Pharmacoepidemiology
- Patient Assessment II
- Introductory Pharmacy Practice Experiences or Service Learning (4 hours every other week)
- Scholarship of Pharmacy

### P2 Spring

- Applied Pharmacokinetics
- Dispensing
- Evidence Based Pharmacy II
  - Infectious Diseases I
  - Infectious Diseases II
  - Gastrointestinal
  - Endocrinology
  - Dermatology and EENT
  - Women's Health OB/Gyn
- Ethics Topics
- Introductory Pharmacy Practice Experiences or Service Learning (4 hours every other week)
- Scholarship of Pharmacy

### P3 Fall

- Toxicology
- Medicinal Chemistry
- Pharmacology
- Pharmacotherapy
- Pharmacist-Provided Care for Special Populations
  - Nephrology and Urology
  - Neurology
  - Psychiatry
  - Immunology/Transplant
- Practice Management I
- Patient Assessment III Laboratory
- Introductory Pharmacy Practice Experiences
  - (4 hours every other week)
- Scholarship of Pharmacy

### P3 Spring

- Medicinal Chemistry
- Pharmacology
- Pharmacotherapy
- Pharmacist-Provided Care for Special Populations
  - Hematology
  - Oncology
  - Bone and Joint
- Pharmacy Law and Regulatory Affairs
- Practice management
- Ethics Topics
- Clinical Experience
- Scholarship of Pharmacy

### P4 Year

- Advanced Pharmacy Practice Experiences
  - Acute Care (2)
  - Ambulatory Care
  - Advanced Community
  - Geriatrics
  - Elective (3)

### How Pharmacy Students Develop Across the Curriculum

- Years 1 – 2
- Begin demonstrating professional values and attitudes
- Acquire basic foundation –knowledge and concepts related to:
  - Pharmaceutical sciences
  - Health care systems
  - Patient care skills
- Years 2 – 3
- Continued professional growth
- Integrate concepts and knowledge about pharmacotherapy via:
  - Case-based learning and problem solving
  - Introductory pharmacy practice experiences
  - Practice skills labs

### How Pharmacy Students Develop Across the Curriculum

- Year 4
- Demonstrate during one year of Advanced Practice Experiences:
  - Professional attitudes and values
  - Abilities
    - patient caring
    - Inter-professional experiences
    - Identify and solve patient medication related problems
    - Responsibility for patient's pharmacotherapy outcomes

### Pharm.D. Impact on Pharmacy Practice

- Hospital-based Programs
  - Expanded clinical services
    - More appropriate medication use
    - Cost savings to the institution
  - Increased emphasis on collaborative practice
  - Expanded residency programs
- Community-based Programs
  - Increased development of community-based patient care services (hypertension, lipid, diabetes clinics)
  - Development of community-based residency programs
  - Reimbursement for patient care services



## Hospital System

Requisite knowledge and skills

- Use of technology, informatics
- Communication skills
- Use of evidence in care decisions
- Compounding
- CQI tools and processes
- Clinical study design
- Data management and analysis
- Practice management
- Reimbursement structures and processes

## Community Practice

- Develop realistic business plans
- CQI tools and processes
- Teamwork, collaborative practice
- Reimbursement structures and processes
- Interpersonal/communication skills

## Managed Care

Characteristics key to success as a practitioner

- Clinical competence
- Exceptional interpersonal skills
- Flexibility and adaptability to identify and take advantage of new opportunities to improve services and care
- Teamwork and respect for others' contributions

## Pharm.D. Program Impact on Pharmacy Education

- Increased Number of Pharm.D. Trained Faculty
- Increased Need for Clinical Training Sites
- Increased Focus on Interdisciplinary/Interprofessional Education
- Significant Curricular Reorganization
- Changes in Teaching Strategies
- Increased Tuition Costs
- Increased Demand for Postgraduate Training Programs
- Increased operational costs

## Future Trends in Pharmacy Education

- Changes in Pre-Pharmacy Prerequisites – 3-4 Years of Prerequisites
- Increased Cultural Diversity in Student Body
- Increased Use of Technology and Distance Learning
- Modular Approach to Class Instruction
- Increased Focus on Problem Based Instruction
- Increased Emphasis on Scholarship in the Curriculum
- Increased focus on Interdisciplinary/Interprofessional Experiences
- Increased Emphasis on Outcomes and Assessment
- Increased Emphasis on Population-Based Practice and Public Health Issues
- Continued expansion of Pharmacy Schools
- Increased Number of Non-Pharmacy Trained Faculty
- Higher Standards for Accreditation
- Increased Competition for Quality Advanced Practice Experience Sites