

Innovations in clinical pharmacy education and research

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EAFP

EUROPEAN ASSOCIATION OF
FACULTIES OF PHARMACY



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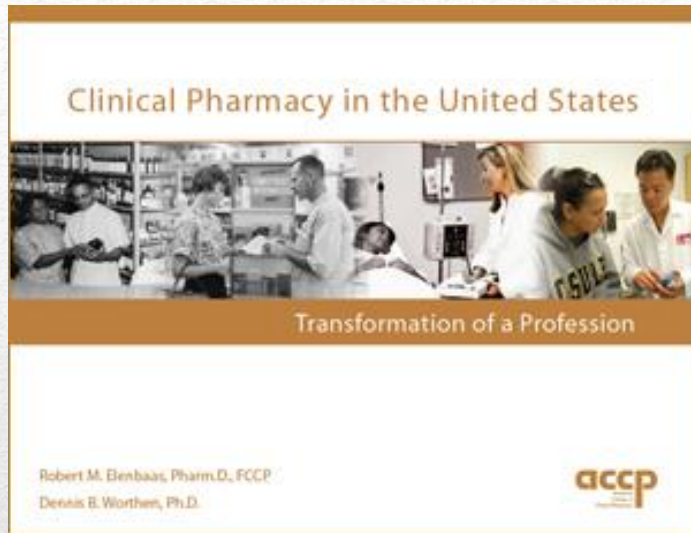
Gloria N Francke

One of the most dramatic changes in

- **pharmacy education**
- **pharmacy practice**

Gloria N. Francke, 1969

Enabling factors for Clinical Pharmacy

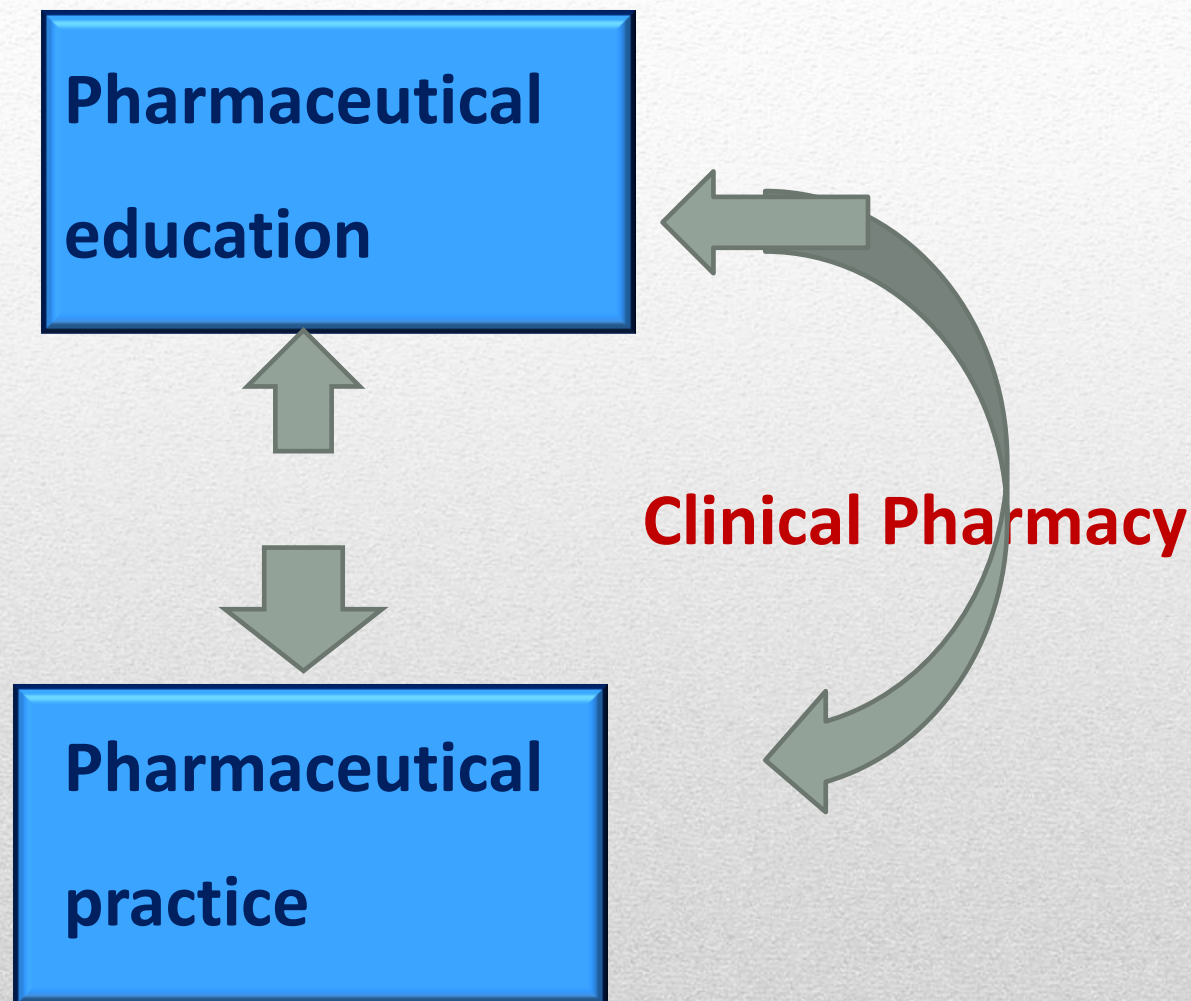


Developments in pharmaceutical sciences

➤ Pharmacokinetics

➤ Biopharmaceutics

Clinical Pharmacy and Education



Doug Hepler





Dramatic changes in pharmacy education

- **Addition of courses in pharmacokinetics and pharmacodynamics, biopharmaceutics**
- **Pharmacotherapy-related courses**
- **Experientials**
- **Post-graduate residencies**
- **Problem-based learning**

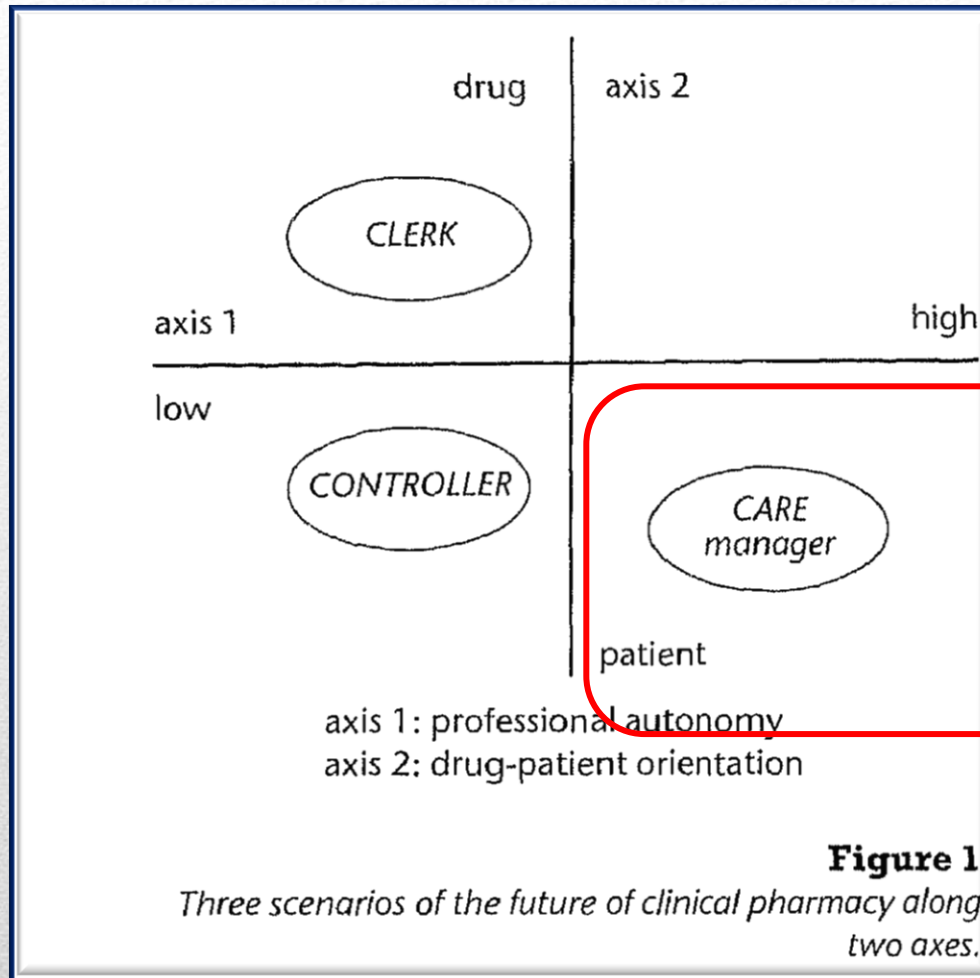
Pharmacy Education in Europe in 1994

Subject area	% (range)
Chemistry	25-46
Biological sciences	12-32
Medical sciences	11-30
Pharmaceutical technology	6-22
Physics and Mathematics	3-13
Law and Social aspects	1-16

Pharmacy Education in Europe in 2006

Subject area	%	
Medical sciences	28.0%	
Chemistry	24.0%	
Pharmaceutical technology	15.0%	
Biological sciences	11.0%	
Physics and Mathematics	6.4%	
Generic	6.4%	
Law and Social aspects	6.2%	

Where should we go in Pharmacy Education?



**Patient first
Proactive
Partnership**

Where should we go in Pharmacy Education?




Steve Hudson

“The advancement of the function of pharmacists in the quality and efficiency of medicines use will require schools of pharmacy to respond with appropriate shifts in the education of the pharmacist as a **clinical practitioner.**”

Innovations: Bedside teaching


Partnerships in Education
Science and Practice


 **ESCP**
5th Course in
Clinical Pharmacy Teaching

7-12 March 2005
MALTA

pre-conference activity

EAFP 2005 Annual Conference

 **EAFP** EUROPEAN ASSOCIATION OF
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Pharmacy Education: Target

Provide pharmacy education that prepares graduates who can function within a diverse and complex pharmaceutical setting

Pharmacy Education: Focus

Mobilize knowledge
Merge science and practice



Pharmacy Education: Outcome

- Development of **critical thinking** and problem-solving skills
- Transition from dependent to **active, self-directed lifelong learners**

Example: Objectives of the Experiential Learning Module

- Utilise the principles of experiential education and engagement of students in “real-life” activities.
- Describe the importance of workplace skills
- Instill the importance of competence through lifelong learning habits
- Provide basic understanding and utility of continuous professional development
- Provide appropriate leadership skills through example

Examples of Active learning

- ◎ **Reflecting on your strengths and what you want to learn and improve**
- ◎ **Identify 3 SMART learning objectives:**
 - specific**
 - measurable**
 - achievable**
 - relevant**
 - timed**

Student Portfolio

Complete reflection form at the start and midpoint

Daily record sheet

Evaluation sheet at the start (t0), midpoint (t7) and the end

- **Emphasise active engagement of students in the learning models**
- **Foster scientific inquiry and innovation**
- **Immerse students in practice early**

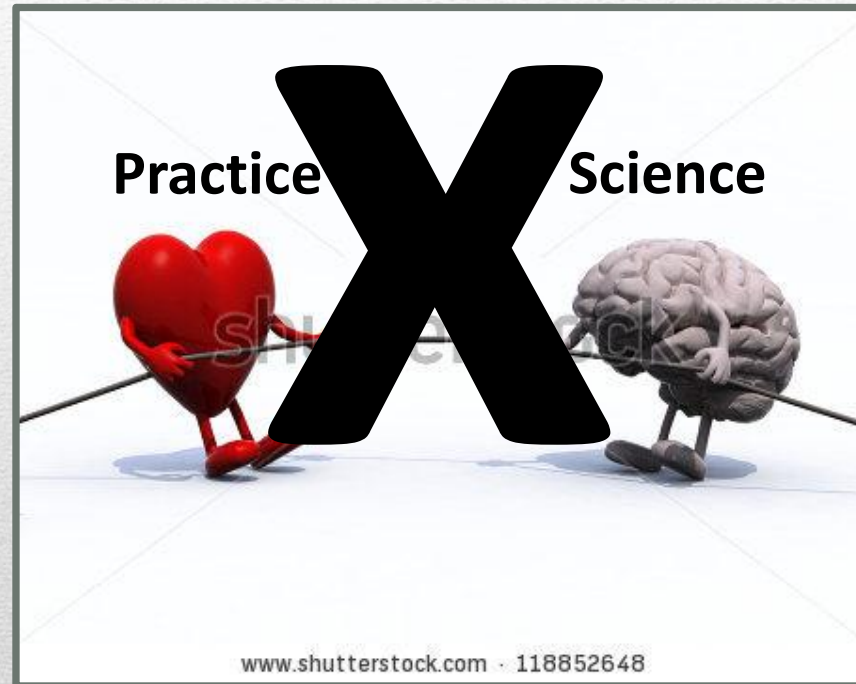


**Case-based learning
Flipped Classroom**

**Research Projects
Longitudinal approach**

Experientials

Integration of Science and Practice



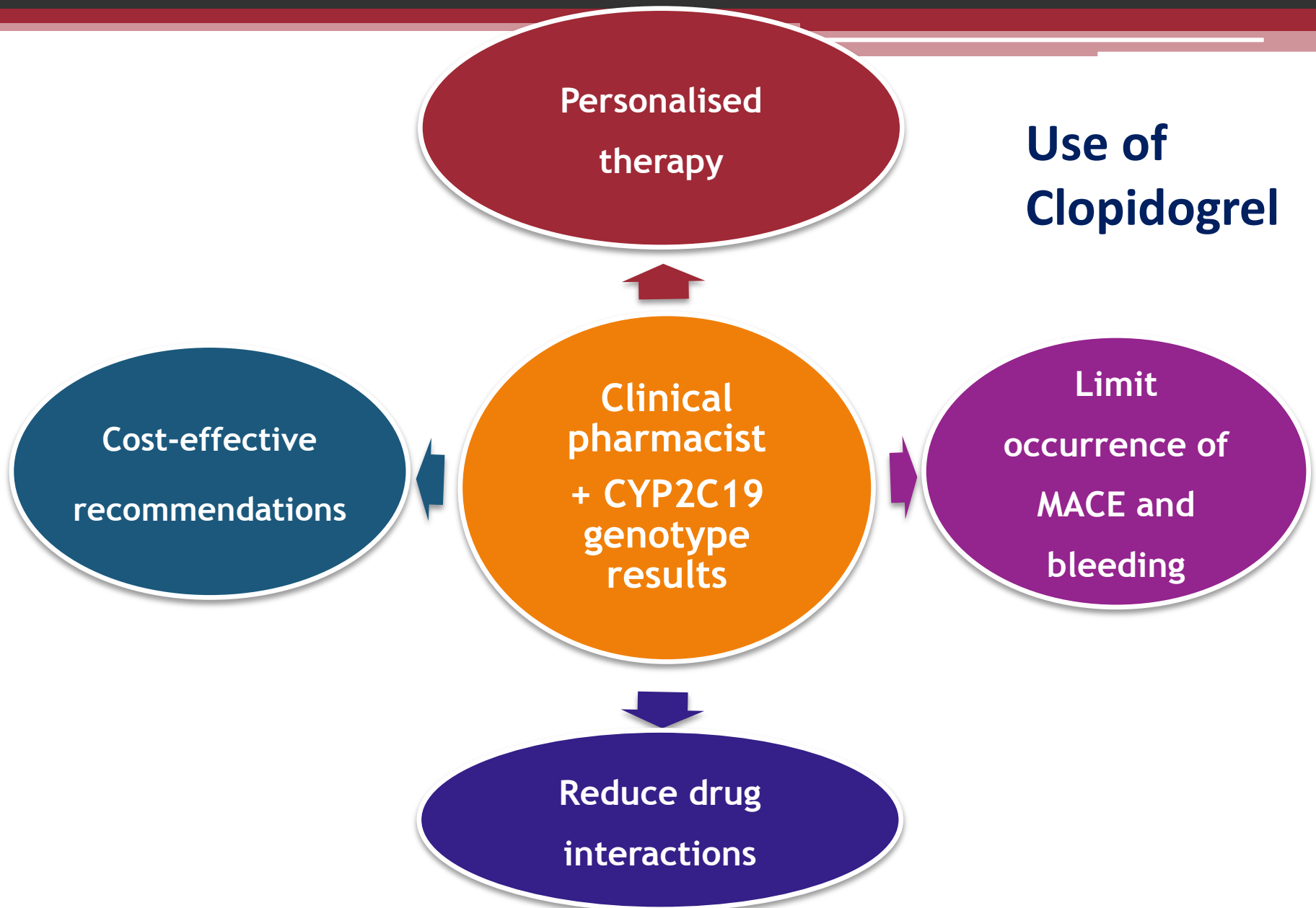
Integration of Science and Practice



Pharmacist-led point-of-care genotyping for individualised treatment in cardiology

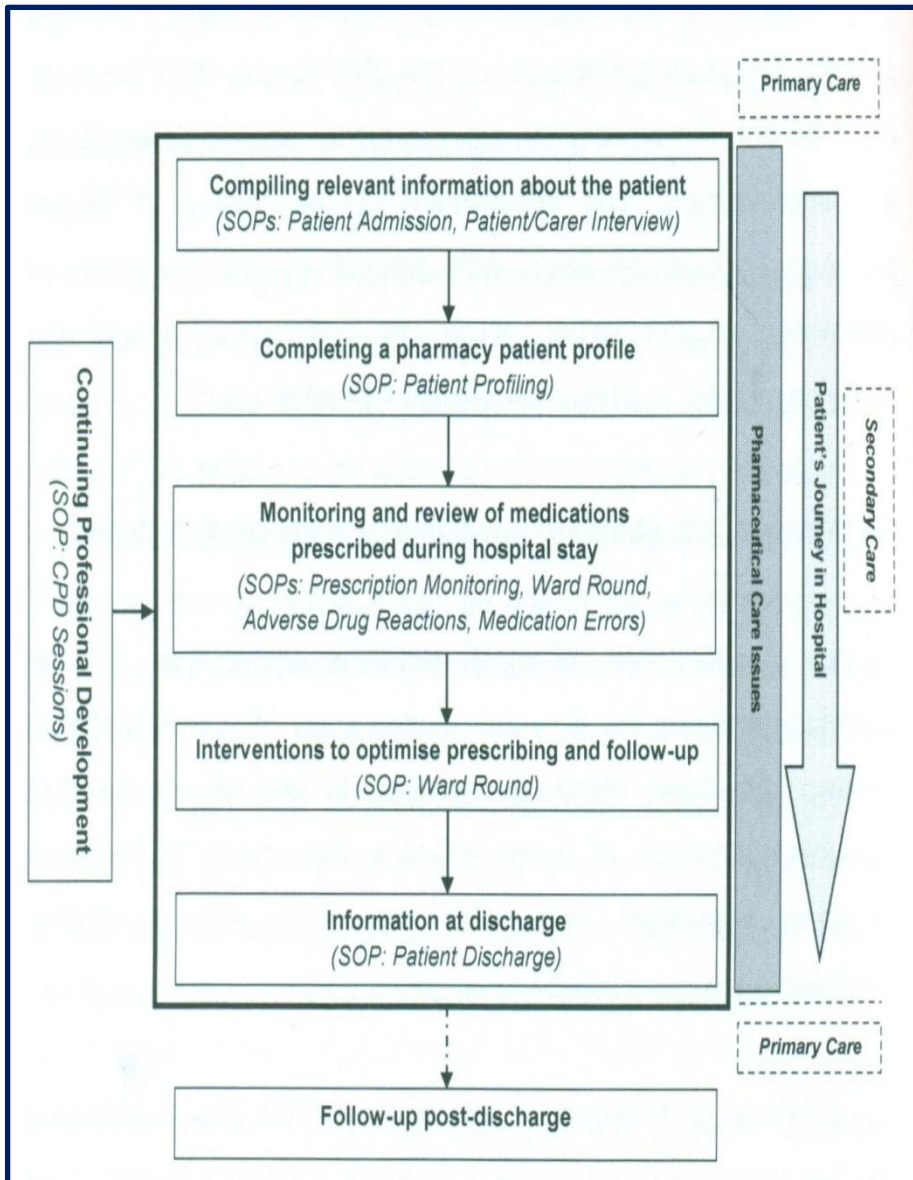
- **Clopidogrel is a prodrug that requires biotransformation to the active metabolite by CYP2C19**
- **Genetic variation for non functional CYP2C19 has been associated with increased risk of stent thrombosis and higher risk of myocardial infarction, stroke and death**

Use of Clopidogrel



Quality System for Clinical Pharmacy Activities

Wirth F, Azzopardi LM, Serracino-Inglott A. Quality management system for clinical pharmacy services. Scholars' Press: Germany. 2013.




Postgraduate education to support innovation

- **Support pharmacists**
- **Postgraduate education including Level 8 academic degree- equivalent to PhD**
 - applied research**
 - develop advanced skills of assessing scientific knowledge, merging science with application**


Postgraduate education to support innovation

Postgraduate doctorate in pharmacy


- Level 8 degree in collaboration with College of Pharmacy, University of Illinois, Chicago
- Develop advanced professional skills in clinical pharmacy and pharmaceutical regulatory sciences




USA-EU Collaborative Degree




DOCTOR OF PHARMACY (Pharm D)
University of Malta (Malta) in collaboration with University of Illinois at Chicago (USA)



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UIC UNIVERSITY OF ILLINOIS
AT CHICAGO



INTERNATIONAL MEDICAL PROGRAMMES
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Postgraduate doctorate in pharmacy

- **Inter-professional learning at the professional sites with consultant physicians, nurses and other healthcare professionals**
- **Take up applied pharmacy research**

Journal clubs, case presentations, scenario analysis, reflective portfolios, presentations and discussions

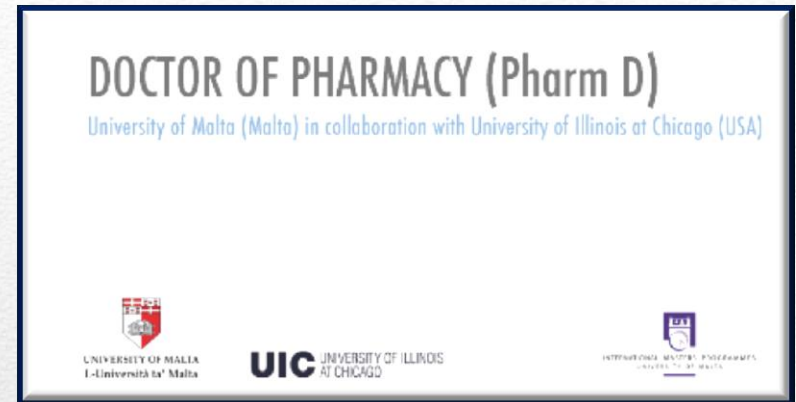
Skills developed

- **Lead and manage medication knowledge, mitigate errors and support decision-making based on evidence-based sources**



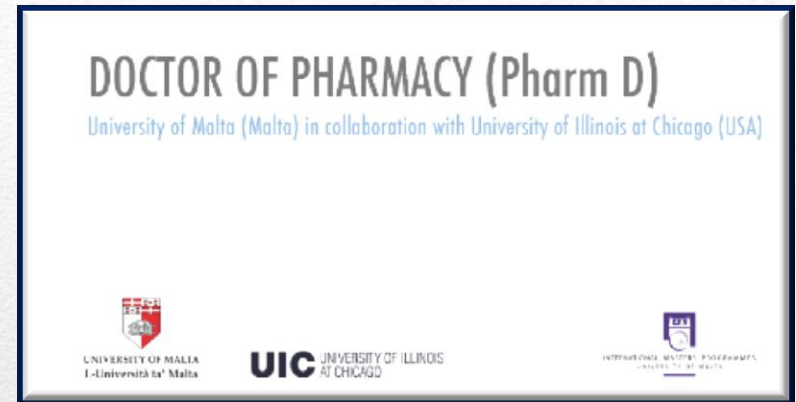
Skills developed

- **Collect and critically assess clinically relevant data to facilitate innovation in use of drugs, monitoring and management of drug therapy plans**



Skills developed

- Identify opportunities for improvement of medication-use systems and development of novel direct patient pharmaceutical services



Empower pharmacists to assume care manager positions and take up leadership roles that will drive policies and developments in pharmaceutical services that draw on scientific, evidence-based and innovative research



1500, Clinical Pharmacy Services in Europe. Sacra Infermeria Valletta



THANK YOU

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