Clinical Pharmacy Training and Practice in Uganda

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Undergraduate training for the bachelor of pharmacy degree (BPharm) in Uganda was pioneered in 1988 at Makerere University, Kampala. Today, with around 150 individuals graduating with BPharm degrees each year and over 1400 practicing pharmacists registered with the Pharmaceutical Society of Uganda (PSU) – the professional body for pharmacists in Uganda – less than 8% are employed in government hospitals or other direct patient care institutions. Indeed, today’s graduates and practicing pharmacists are mainly involved in supply chain and policy formulation activities, leaving a gaping demand for direct patient care pharmacy services, especially in rural hospitals in Uganda. In accordance with the pharmacy council’s mandate, PSU has proposed a new pharmacy service structure in the Ugandan government sector. This is expected to create at least 5000 clinical pharmacy positions within the next 3 years if adopted by the Ministry of Public Service.

Because of the lack of advanced clinical pharmacy training opportunities within Uganda, the pharmacy profession there has somewhat stagnated over the years, with more than 90% of pharmacists exploring more opportunities in pharmaceutical manufacturing, regulation, and supply chains. Fortunately, through a World Bank–funded project – Pharm-BioTechnology and Traditional Medicine Center (PHARMBIOTRAC) at Mbarara University of Science and Technology – the first master of pharmacy in clinical pharmacy degree program (MPharm Clinical Pharm) in Uganda was accredited by the Uganda National Council for Higher Education (NCHE) in August 2018, with the first class expected to graduate in October 2020 (Table 1). However, pertinent challenges still facing clinical pharmacy training in Uganda include the lack of adequate clinical exposure during undergraduate training, the small number of clinical pharmacy training programs (Table 1), the small number of qualified preceptors, and the lack of structured student exchange and residency programs within and outside Uganda.

Although efforts to amend the Pharmacy and Drugs Act of 1971 may prove challenging, the ongoing health care restructuring efforts, the global paradigm shift in pharmacy practice from product focus to patient-centered care, the overwhelming burden of pharmaceutical product imports (worth $300.8 million annually), the increasing need for interprofessional collaborative practice in health care, the increasing risk and incidence reports of drug-related morbidity and mortality, and the rampant reports of unnecessary medicine expiries in drug stores serve as good justifications for the government...
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Table 1. Pharmacy Training Across All Accredited Universities in Uganda<sup>a</sup>

<table>
<thead>
<tr>
<th>Description</th>
<th>BPPharm Degree</th>
<th>MPharm Clinical Pharm Degree</th>
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<tbody>
<tr>
<td>Accredited institutions</td>
<td>Mbarara University of Science &amp; Technology (MUST), Makerere University, Kampala International University</td>
<td>MUST</td>
</tr>
<tr>
<td>Duration (yr)</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Student enrollment/yr</td>
<td>200</td>
<td>20</td>
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<tr>
<td>Entry criteria</td>
<td>Must have successfully completed advanced secondary education with at least a &quot;B&quot; in chemistry and biology</td>
<td>Successfully completed undergraduate pharmacy training</td>
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<td>Registered with the Pharmaceutical Society of Uganda (PSU)</td>
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<td>At least 2 yr of experience in hospital or community pharmacy practice</td>
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<tr>
<td>Completion rate (%)</td>
<td>78&lt;sup&gt;b&lt;/sup&gt;</td>
<td>100&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Experiential placement</td>
<td>One-year mandatory internship in hospital/regulatory/pharmaceutical supply chain facilities</td>
<td>Advanced pharmacy practice experiences (APPEs) at Mbarara Regional Referral Hospital</td>
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<tr>
<td>Pre-licensure examination</td>
<td>Pre-internship examination: After successful graduation from pharmacy school. Prerequisite for internship placement</td>
<td>None</td>
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<tr>
<td></td>
<td>Pre-registration examination: After successful completion of a 1-yr mandatory and supervised internship. A requisite qualification to register with PSU</td>
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<tr>
<td>Major curriculum content</td>
<td><strong>Year 1:</strong> Biochemistry, physiology, anatomy, organic chemistry</td>
<td><strong>Year 1:</strong> Pharmacoepidemiology, clinical pharmacokinetics, pharmaceutical care in infectious and noninfectious diseases, biweekly APPE report presentations&lt;sup&gt;c&lt;/sup&gt;</td>
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<td></td>
<td><strong>Year 2:</strong> Pathology, pharmacology, physical pharmacy, pharmacognosy, veterinary pharmacy</td>
<td><strong>Year 2:</strong> Emergency and critical care, complementary medicines, community health and pharmacy practice, biweekly APPE report presentations&lt;sup&gt;c&lt;/sup&gt;</td>
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<td><strong>Year 3:</strong> Dosage forms, pharmaceutical engineering, pharmaceutical care, parenteral preparations, radiopharmacy, pharmaceutical chemistry, pharmacoeconomics</td>
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<td></td>
<td><strong>Year 4:</strong> Pharmacy law and ethics, community pharmacy practice, biotechnology and drug development, pharmaceutical microbiology, pharmaceutical care</td>
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<tr>
<td>Research</td>
<td><strong>Fourth-year project:</strong> ≥ 98% are pharmacognosy oriented</td>
<td><strong>Year 2:</strong> Clinically oriented in area of major</td>
</tr>
</tbody>
</table>

<sup>a</sup> Undergraduate and postgraduate pharmacy training curricula are unified across all accredited institutions by the National Council for Higher Education (NCHE) in Uganda.

<sup>b</sup> The first clinical pharmacy class of 2018 at MUST is expected to graduate on October 1, 2020. The class consists of 23 students (6 females, 17 males), 5 of whom are already employed by the government.

<sup>c</sup> APPEs: Clinical disciplines are divided into major and minor electives. **Major electives**: Emergency/critical care, internal medicine, pediatrics, oncology clinic. **Minor electives**: Ambulatory care clinics (HIV/AIDS, cardiology, diabetes, renal, and tuberculosis), surgery, obstetrics/gynecology, psychiatry. **Year 1** – Two months of mandatory and supervised APPEs across all major electives. **Year 2** – One year of mandatory and supervised APPEs in individual student major and minor elective rotations.
Clinical Pharmacy Training and Practice in Uganda (continued)

to invest in clinical pharmacy training in Uganda. Given the developed clinical pharmacy training systems in other countries, establishment of student and teacher exchange programs through strategic collaborations remains fundamental in advancing clinical pharmacy training in Uganda.

Prospectively, with two other universities in Uganda anticipating accreditation to offer clinical pharmacy training by the end of 2021, it is important for PSU to take the lead in consolidating stakeholder efforts to develop clinical pharmacy curricula, amend government policy, and establish student exchange programs and clinical pharmacy specialty/subspecialty boards. As a positive gesture to advance pharmacists’ capacity in public and nonprofit private hospitals, the government of Uganda through the Ministry of Health has awarded 10 scholarships since 2018 to aid in the training of clinical pharmacists.5


ACCP Welcomes a New Internatioanal Chapter in Taiwan

The American College of Clinical Pharmacy (ACCP) Board of Regents has approved the establishment of the Taiwan chapter.

Initial discussions on establishing the chapter took place in November 2019, during an ACCP pharmacotherapy program held at Taipei Medical University in Taipei, Taiwan. The ACCP Board of Regents then approved the new chapter at its July 2020 meeting. Founding president of the Taiwan chapter is Hsiang-Yin (Shawn) Chen, Pharm.D., M.S., vice dean; and founding secretary-treasurer is Elizabeth H. (Liz) Chang, Pharm.D., Ph.D., chair, Clinical Pharmacy, both from the College of Pharmacy at Taipei Medical University.

The Taiwan chapter joins two other ACCP international chapters: the Gulf College of Clinical Pharmacy and the Middle East College of Clinical Pharmacy. ACCP Executive Director Michael S. Maddux commented on the new chapter:

ACCP is pleased to welcome Taiwan as its 19th regional chapter and the College’s first chapter in East Asia. We look forward to involving Taiwanese clinical pharmacy practitioners, researchers, educators, students, and trainees in the College’s many activities. The launch of this new chapter reflects ACCP’s ongoing efforts to support the development of clinical pharmacy worldwide.

More information on ACCP chapters is available at www.accp.com/about/chapters.aspx.

PK/PD in Special Populations and Antimicrobial Prophylaxis

Book Highlights

The most recent release in the Infectious Diseases Self-Assessment Program (IDSAP) focuses on pharmacokinetic and pharmacodynamic considerations in special populations, antimicrobial prophylaxis, and other topical issues such as clinical decision support systems and the development and approval of new antimicrobial agents.

Released May 15, 2020, the book offers a total of 13.5 hours of continuing pharmacy education (CPE) credit divided into three modules as follows:

- Educational modules, CPE hours, and topics covered in each module are as follows:
  - Module I (4.5 CPE credit hours)
    - PK/PD in Critical Illness
    - TDM of Anti-Infectives
Book Highlights (continued)

- Module II (6.0 CPE credit hours)
  - Surgical Prophylaxis
  - Cardiovascular Disease in Women
  - Drug Assay Methodologies
- Module III (eModule, 3.0 CPE credit hours)
  - Clinical Decision Support Systems in Drug Dosing (interactive case)
  - Regulatory Environment for Drugs (recorded webcast)

Board Certified Infectious Diseases Pharmacists (BCIDPs) interested in completing the learning activities for specialty recertification credit offered in this IDSAP release must successfully complete the web-based test by November 15, 2020. Clinical pharmacists seeking CPE credit must successfully complete the test by May 14, 2023.


Mark Your Calendar

The 2020 ACCP Annual Meeting is Going Virtual!

October 19–30, 2020

A Message from the Editor

Dear Colleagues:

The featured article in this issue of *ACCP International Clinical Pharmacist*, titled “Clinical Pharmacy Training and Practice in Uganda,” reflects on the current status of clinical pharmacy education and practice in one African nation. The article presents the efforts led by the Ugandan government and the programs offered by academic institutions to train the clinical pharmacy workforce and grow the number and type of direct patient care services provided by pharmacists in Uganda.

The article titled “ACCP Welcomes a New International Chapter in Taiwan” announces the Board of Regents’ approval of the Taiwan chapter of the American College of Clinical Pharmacy. As an affiliate membership organization, this new addition to ACCP chapters supports the College’s purpose and furthers its initiatives to achieve the College’s mission of improving human health by extending the frontiers of clinical pharmacy.

The title featured in this issue’s Book Highlights department is *PK/PD in Special Populations and Antimicrobial Prophylaxis*, the current release in the Infectious Diseases Self-Assessment Program (IDSAP). Developed by content experts, the array of subjects covered in this release are vital to clinical pharmacists providing individualized, direct care to critically ill patients with infectious diseases as well as those overseeing antimicrobial stewardship programs.

Finally, we continue to monitor and carefully consider international activities in view of the current developments surrounding COVID-19. I hope everyone is weathering the pandemic in good health.

Be well.

Sincerely,

Wafa Y. Dahdal, Pharm.D.