

A Postgraduate Clinical Pharmacy Programme in Ghana

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We describe pharmacy training in Ghana with an emphasis on postgraduate clinical pharmacy education in the country. The Ghanaian clinical pharmacy programme was compared with the Robert Gordon University pre-1999 clinical pharmacy course because of the historical links between the two programmes. The course is delivered by distance learning over two years supplemented with one day residential tutorial programmes conducted by practising pharmacists and physicians. The course is open to pharmacy graduates with at least three years work experience. Successful candidates are awarded M.Sc degrees in clinical pharmacy. There are no exit points for intermediate qualifications.

Baseline data is being collected to be used to measure the impact of our programme on pharmacy practice. Clinical pharmacy practice can only make a significant impact on health delivery in Ghana if there are enough working clinical pharmacists. Continuous staff development, recruitment and functional links with other schools of pharmacy are priorities in our efforts to keep pace with current trends in pharmacy education.

Keywords: Clinical pharmacy; Training; Postgraduate; Experiential learning; Ghana

INTRODUCTION

Ghana, a West African country bordering the Ivory Coast, Burkina Faso and Togo is about the size of the state of Illinois, USA. Ghana's domestic economy revolves around subsistence agriculture, which accounts for 36% of GDP and employs 60% of the work force. In 2002, Ghanaian's annual income per capita was estimated at US \$390 (The World Fact book-Ghana, 2003). Despite this low-income status,

pharmacy in Ghana appears to defy the odds and, in comparative terms, is thriving.

The Faculty of Pharmacy in Ghana, one of the oldest in the region, is situated in Kumasi, Ghana's second largest city. The department of pharmacy, established in 1953 in the then Kumasi College of Technology, gained a faculty status in 1961 when the College of Technology became a University with the name Kwame Nkrumah University of Science and Technology (KNUST). It is the only faculty of pharmacy in Ghana and currently graduates an average of 100 students per year. For a country of approximately twenty million people this number is far from enough but the resources required for training pharmacists are great. In comparison, a number of countries in the region do not train pharmacists, consequently the faculty of pharmacy in Ghana has also trained pharmacists from several African countries including, Nigeria, Sierra Leone, Liberia, The Gambia, Kenya, Tanzania, Malawi, Swaziland and Lesotho.

THE UNDERGRADUATE PHARMACY PROGRAMME IN GHANA

The Faculty of Pharmacy in Ghana runs a four-year Bachelor's Programme, which initially was modelled on the old British Bachelor of Pharmacy (B.Pharm) programme. The current curriculum includes Pharmaceutical Chemistry, Physiology, Biochemistry, Pharmaceutics, Microbiology, Chemical Pathology, Pharmacology, Applied Therapeutics and Pharmacy Practice. These courses are offered at different stages during the four-year programme.

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In response to public demands for patient-oriented healthcare providers, the programme has recently begun to orient towards patient-centred care and clinical pharmacy. This is in line with global changes in pharmacy education (World Health Organisation, 1994a,b; 1997). In October 2001, a department of Clinical and Social Pharmacy was established and in June 2003, students on completion of the third year undergraduate course began rotations at various healthcare facilities for an inceptive experiential learning programme. The hope is that in the near future sufficient resources would be mobilised to run a fully-fledged experiential learning programme. The value of experiential learning and teaching in pharmacy education has been amply demonstrated by several researchers (Kolb, 1984; Stewart *et al.*, 1999). Graduates with experiential learning exposure have not only been shown to assimilate and recall knowledge better, but they also demonstrate better professional skills and attitudes (Kolb, 1984). Limited financial resources and staff shortages are a major barrier to run a full-fledged experiential learning programme in Ghana.

Though, it is well documented that a fully operational pharmaceutical service with tangible outcomes require a well-trained workforce (Strand, 1997), there are limited opportunities for pharmacists to do further training or continuing professional development in Ghana. As a result, the Faculty of Pharmacy introduced a Masters' Programme in Clinical Pharmacy. We describe in this paper this Postgraduate Clinical Pharmacy Programme and compare it to the Clinical Pharmacy Programme at The Robert Gordon University (RGU), UK, from which this programme was modelled.

THE POSTGRADUATE CLINICAL PHARMACY PROGRAMME IN GHANA

The Master's in Clinical Pharmacy programme at KNUST, Ghana is a part-time two-year postgraduate course conceptualised in 1995. The need to invest in the training of clinical pharmacists was recognised by the Ghanaian Ministry of Health (MOH), in a 10-year strategic plan (from 1995) to improve health care delivery in Ghana. The development of clinical pharmacy was considered a strategic investment to improve drug use in the country. Initially, the programme was funded by the Royal Netherlands government through The Ghana National Drugs Programme. Under this programme, students were required to enrol for a Master's degree in Clinical Pharmacy with RGU in the UK.

The first group of five students enrolled on the programme in 1997. The hope was that on completion, these five would assist in the training of other pharmacists. The grant allowed for the enrolment of

a further 60 pharmacists to the programme over a five year period. Due to the large numbers involved it was logistically difficult to get all the students to carry out practice-based research projects at RGU hence in the second year of the programme, the Faculty of Pharmacy in Ghana took over the responsibility, allowing students to carry out research projects at their places of work after obtaining postgraduate diploma qualifications in Clinical Pharmacy with RGU. Two years from inception it was decided that running the whole programme locally in Ghana would require less in terms of financial resources and hence the Faculty of Pharmacy in Ghana took full responsibility for the programme. To enhance this process a formal collaboration was agreed between RGU and KNUST. RGU provided teaching materials to enable KNUST, Ghana, to deliver the Postgraduate Clinical Pharmacy Programme.

The overall course aim as detailed in the RGU definitive course document on which our programme is largely modelled is "to provide an opportunity to develop wider professional skills in clinical pharmacy including written and oral communication skills and clinical problem solving". The course objective is to develop the ability of graduates to apply the above-mentioned skills and knowledge to the provision of clinical pharmacy services. Specifically, the course would enhance the ability of the graduates to:

- Relate their knowledge base to the solution of therapeutic problems by formulating advice to prescribers and patients to maximise efficacy, safety and cost effectiveness.
- Construct and support rational arguments for the advice so formulated.
- Bring independent critical judgments to bear on claims for new therapeutic agents and integrate new agents into current rational therapeutic strategies as appropriate.
- Communicate effectively with other health care professionals and consumers and foster concepts of health care and health promotion through public education.
- Aid practitioners to develop research skills and thus advance professional practice by their original contributions.

The course is delivered in batches of self-study workbooks with a complete list of recommended reading material. Figure 1 shows details of the Ghana course. All modules are continuously assessed through the submission of assignments to the University. Over all, students are expected to obtain a minimum of 60% as an aggregate mark in each unit to progress to the next unit and in the case of unit 1, achieve a pass mark of 60% in a supervised examination.

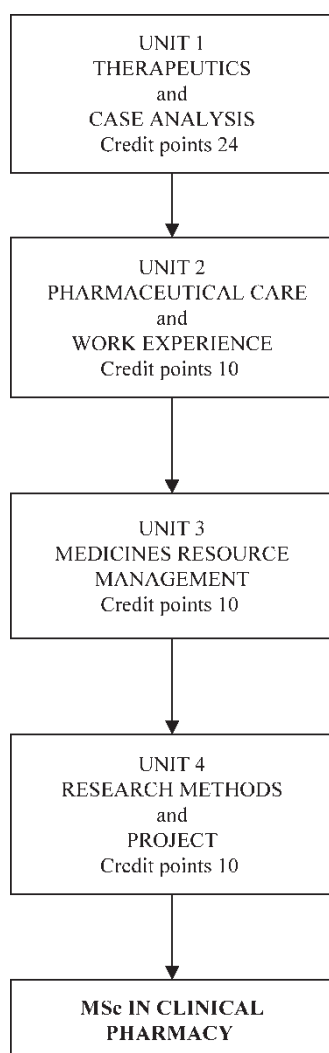


FIGURE 1 Course structure of the KNUST Masters in Clinical Pharmacy.

The course structure at RGU has since been altered to comply with local and national education initiatives and changes in professional requirements. The RGU course is now based around a modular structure, with each module covering a notional 150 h of learning time. Each module is awarded 15 CAT credits and students must achieve 180 CAT credits for a Master's degree. The new programme, validated in 2003, retains a strong emphasis on advanced therapeutics and pharmaceutical care planning, while extending the area of pharmaceutical public health. Additionally, the format of the distance learning materials mirrors the adult learning and continuing professional development (CPD) model of assessing learning needs, planning and implementing, evaluation and reflection. The RGU Virtual campus has also been integrated to the learning process and offers a mechanism for student support. Details of the revised course are available from www.rgu.ac.uk/pharmacy.

The Ghana course is largely an adaptation of the initial programme from RGU. A difference between

the RGU and the Ghana programme is the inclusion of the section on tropical diseases. This is because tropical diseases still constitute the majority of primary and secondary care consultations in Ghana and it is important that clinical pharmacists here have an in-depth knowledge of these conditions.

Unlike the parent programme run by RGU there is no exit point in the course for either a certificate or postgraduate diploma qualifications. All students are required to register for a Master of Science degree in Clinical Pharmacy. Though the RGU has now replaced their work-based training with a residential course in pharmaceutical care, we have maintained both the work experience based module and a residential programme in pharmaceutical care. RGU now utilise a custom built simulated primary and secondary care environment within the School of Pharmacy, known as the Pharmaceutical Care Centre. This facility allows for the development and assessment of a wide range of clinical pharmacy skills through the use of simulated case notes and involvement of a range of healthcare professionals. During the pharmaceutical care module at KNUST, students are presented with case histories of actual patients and they are expected to systematically identify pharmaceutical care issues and plan the management of the patients. It also offers them an opportunity to interact with practitioners to prepare them for the work experience module. Students proceed to the actual work experience module (hospital only) after satisfactorily completing the residential pharmaceutical care unit. The content of the work experience is again heavily drawn from the original RGU programme that required students to demonstrate during and after the course, an ability to prepare discharge counselling notes, make formal and informal case presentations, carry out prescription monitoring and implement pharmaceutical care plans. Presently, we are unable to include the community and primary care options as components in our programme because the current levels of practice in these areas appear unsuitable for postgraduate training. However these areas remain high priority options for Ghana's health delivery since they cater for a great majority of the population.

Currently, a pharmacy practice centre is being developed at KNUST to aid with teaching. The idea behind setting up the centre is to introduce students to near real life situations before they meet patients. The conceptual ideas include a model pharmacy, a counselling room fitted with closed circuit TV cameras and a waiting area containing printed material on health related issues for patients. Away from the counselling room will be a room fitted with TV monitors and earphones to allow for viewing and listening to students counselling patients. In this arrangement, students can work without being inhibited by the presence of a tutor. The centre,

though modest will be a first in the sub-region simulating objective structured pharmaceutical care delivery in either a community setting or a primary care facility. The practice centre would greatly enhance the move from traditional didactic teaching to a hands-on problem based learning approach.

ADMISSION CRITERIA

The course is open to pharmacists who hold a Bachelor's degree or equivalent with a minimum of three years work experience as a pharmacist in either hospital or community practice. Candidates with similar qualifications from other organisations are acceptable for the programme. Candidates with RGU postgraduate diploma qualification in clinical pharmacy or equivalent may be admitted into the programme to carry out the research component of the programme after completing a clinical audit course and carrying out a clinical audit relevant to their work places. We consider audits an important aspect of practice in Ghana as practice is still developing with large variance across different settings. It is thus important to introduce students to the principles of clinical audits.

THE FUTURE

We hope that as more students graduate from the programme, pharmacists would be able to make a difference in healthcare delivery in the country. Though there are clinical pharmacists in a few of the major hospitals in Ghana, the numbers are too small to make a difference. With more clinical pharmacists in place, pharmacists would be more visible on the wards and would be able to contribute more effectively to patient care. It is only then that their clinical role would begin to be appreciated by physicians and patients alike.

Currently the course is largely maintained with support from the Ministry of Health which sponsors most of the candidates. It is our hope that the Ministry of Health, which is always supportive of educational initiatives for healthcare professionals, will continue to assist the programme. In the longer term we hope that the programme will be self-sustaining and benefit pharmacists from the West African sub-region. The Faculty of Pharmacy, KNUST, is also actively seeking to build on progress made to date and to develop other areas within through collaboration and assistance from renowned schools of pharmacy throughout the world. We are in the process of gathering baseline data to measure the impact of our programme on the provision of healthcare in the country.

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