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INTRODUCTION

Background

In February 2010, the World Health Organization and partners held a Global Virtual Discussion Forum on the contribution of interprofessional collaboration to better health. One resulting recommendation was to document good practices in interprofessional education (IPE) in order to fill evidence gaps. Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes (WHO, 2010). The purpose of this paper is to share the case study of developing and implementing an IPE programme at Kamuzu College of Nursing (KCN). Included in the discussion are: the background to Kamuzu College of Nursing; the process of developing the Master of Science (MSc) in Reproductive Health; the curriculum implementation model; and lessons learned and recommendations.

Kamuzu College of Nursing has its origins in the National School of Nursing, which was established in 1965. The school was upgraded to a constituent college of the University of Malawi in 1979. The college has its main campus in Lilongwe and a satellite campus in Blantyre. Administratively, the main campus is headed by a principal, while the satellite campus is headed by a vice-principal. The dean of the faculty is responsible for all academic issues while the dean of students looks after students’ interests and personal welfare. The registrar is responsible for all the overall college administrative and academic matters including staff welfare.

KCN’s mission is to deliver high quality, cost-effective nursing and midwifery education plus other health related programmes to students and other stakeholders through teaching, research, consultancy and community engagement, to advance professional growth and to promote the health of the people of Malawi and beyond.

Throughout the years the college has introduced programmes in response to the health needs of the nation. During the first 12 years (1979–1990) Kamuzu College of Nursing offered a three-year Diploma in Nursing and a one-year University Certificate in Midwifery. In 1994 the diploma programme was phased out and was replaced by a four-year degree programme in Nursing. In 2006 the programme was phased out and replaced by a four-year Bachelor of Science (BSc) in Nursing and Midwifery. The college has continued offering a one-year University Certificate in Midwifery as a post-basic qualification. In addition, the college offers a two-year post-basic BSc in Nursing for mature students. This programme started in 1990. Currently, KCN is also offering five MSc programmes in Midwifery, Reproductive Health, Child Health Nursing, Nursing and Midwifery Education and Community Health Nursing. The Child Health Nursing MSc is offered in partnership with the University of Cape Town. All these programmes have a clinical component.

The core responsibility of KCN is to educate registered nurses and midwives for the country. However, the college initiated IPE programmes in response to emerging complex patient and client needs. The initiative is also in line with the college designation as a World Health Organization Collaborating Centre in IPE and collaborative practice.

Methodology for developing the case study

The case study was developed through a review of literature on IPE, curriculum document review, consultation with faculty involved in teaching the MSc in Reproductive Health and interviewing students in the programme. The review of literature and documents provided insights into models for IPE and the consultations and student interviews outlined experiences of implementing and learning through interprofessional programmes.
A team of two faculty members from the Maternal and Child Health Department (Midwifery) initiated the process of developing the interprofessional MSc in Reproductive Health programme. The initial step was to establish the need for developing the curriculum through a situational analysis.

Situational analysis of reproductive health care and human resources for health in Malawi

The team conducted a situational analysis of the reproductive health services and human resources for health (HRH) availability. The analysis involved review of health policy documents and reports. The situational analysis revealed the following.

**GOVERNMENT COMMITMENT TO PROVIDING REPRODUCTIVE HEALTH SERVICES**

The Government of Malawi is committed to providing comprehensive and integrated reproductive health services in line with the recommendations of the International Conference on Population and Development (ICPD) held in Cairo, Egypt, 1994. Sexual and reproductive ill health results from cancers, sexually transmitted infections (STI) including HIV and AIDS, infertility, and the results of violence related to sexuality and reproduction. For example, the maternal mortality ratio is 675 per 100,000 live births; and neonatal mortality is 31 per 1,000 live births. The HIV prevalence rate is at 10.6 per cent (National Statistical Office, 2010). The components of reproductive health services provided are: maternal and neonatal care (including management of unsafe abortion); young people’s sexual and reproductive health care; family planning; prevention and management of STI and HIV/AIDS; prevention, early detection of and management of cervical, prostate and breast cancer; gender issues (male involvement, and prevention of harmful practices/domestic and sexual violence); and management of obstetric fistula and infertility. The services are provided at tertiary, district and health centre levels.

**HUMAN RESOURCE GAPS FOR REPRODUCTIVE HEALTH CARE**

Provision of comprehensive and integrated reproductive health services requires the development of human resources (National Sexual and Reproductive Health and Rights Policy, 2009) including nurses and midwives, clinical officers and medical doctors specifically trained to provide reproductive health services. However, Malawi continues to face HRH challenges. The doctor to population ratio is 1 to 45,662 and the nurse to population ratio is 1 to 35,000. The current vacancy rate for nurses is at 75% (National Statistical Office, 2010). The government has been implementing various strategies to address HRH shortfalls and these include increased intake in training schools and providing scholarships for specialization in various health fields. However, the government has depended on sending health care staff to Europe and America to specialize in reproductive health due to a lack of such programmes in Malawi. The few health care providers that had specialized in reproductive health were deployed in training institutions, policy positions at the Ministry of Health and non-governmental organizations. Therefore, it was hard to establish the number of health care professionals that were providing direct patient care.
In 2008, KCN initiated the MSc in Midwifery programme that targeted nurse midwives only. But the college noted that the country’s population was experiencing various reproductive health problems that could not be addressed by midwives only. These included gender-based violence, male and female reproductive cancers and STI and HIV/AIDS. Therefore, the MSc in Reproductive Health programme was developed to address the human resource needs for reproductive health care and the need for a local training programme that could be accessed by more health workers. The programme had to be interprofessional because patients have complex reproductive health needs that require more than one discipline to address them.

Increasing the number of health care staff with clinical specialization in reproductive health is one way of achieving the Millennium Development Goals (MDG) 1, 3, 4, 5 and 6. Millennium Development Goal 1 emphasizes eradicating extreme poverty and hunger; MDG 3 focuses on promotion of gender equality and empowerment of women; MGD 4 calls for reduction in infant mortality while MDG 5 is aimed at improving maternal health and reducing the maternal mortality ratio. Combating HIV and AIDS is addressed in MDG 6.

**Curriculum development**

**CONSULTATIVE PROCESS**

Initially, consultative processes took place at college and stakeholder levels. At college level faculty members were consulted on the proposal to develop an MSc in Reproductive Health based on the situational analysis. Some faculty members expressed concern that the college was departing from its core mandate of training nurses and midwives by initiating an IPE programme that would include other cadres such as doctors and clinical officers. Faculty were reminded of the college mission: ... to deliver high quality, cost-effective nursing and midwifery education plus other health related programmes to students and other stakeholders through teaching, research, consultancy and community engagement, to advance professional growth and to promote the health of the people of Malawi and beyond. The mission highlights the delivery of high quality nursing and midwifery education and other health related programmes. Therefore, the interprofessional programme was within the mandate of the college. In the end faculty agreed to develop the programme.

Stakeholders were consulted on the proposal to develop the interprofessional programme and obtain their input on the type of graduates required. The characteristics of graduates needed were proposed, including that students should cover content on all components of reproductive health according to policy and should be ready to work in a variety hospitals in Malawi to improve quality of care.

**CURRICULUM DEVELOPMENT TEAM**

An interprofessional team to develop the curriculum was set up. This included faculty who were experts in biosciences, statistics, reproductive health, public health and gender. Most team members had nursing and midwifery backgrounds. The team was advised to avoid bias towards nursing and midwifery when mapping content areas.

**OVERVIEW OF THE MSC IN REPRODUCTIVE HEALTH PROGRAMME**

The MSc in Reproductive Health is a two-year full-time programme and comprises of two semesters in year one and another two in year two. The programme is divided into two parts: course work and dissertation. The course work comprises nine core and four elective modules. The research takes the form of a quantitative or qualitative research design. The core modules
are biosciences (advanced physiology/pharmacology), conceptual and theoretical frameworks/models, leadership and management, bioethics, education for health professionals, research methods and statistics, maternal and neonatal care, men's and women's reproductive health, and integrated reproductive health practicum. The elective modules are: STI and HIV/AIDS, adolescent reproductive health, health policy, planning and financing, and gender and health. The students choose one module from the electives. In addition, the programme culminates in a quantitative or qualitative research dissertation (see Appendix A for the module descriptions).

The overall aim of the MSc in Reproductive Health is to provide advanced education to health care staff who will deliver quality and accessible reproductive health services to individuals, families and communities throughout the country. Therefore, a graduate of this programme should be able to:

- Demonstrate advanced knowledge of reproductive health concepts, principles theories and skills to provide culturally sensitive evidence-based care while respecting human rights in all settings;
- Develop innovative and creative strategies for the promotion of reproductive health care;
- Demonstrate knowledge and critical analysis of legal, ethical, fiscal, policy, leadership and resource management issues that impact on the advanced role in delivery of health care and the advancement of reproductive care;
- Promote the health of individuals, families and groups through appropriate activities aimed at community development through support, empowerment, teaching and supervision; and
- Conduct research for the advancement of reproductive health care.
The theoretical and clinical modules are designed in such a way that students from various professions learn together. Emphasis is placed on sharing knowledge and skills from various professions. Figure 1 illustrates the implementation model for both theoretical and clinical components.

Theoretical learning model

The faculty teaching in the programme is interprofessional, some are from KCN and others are from Malawi College of Medicine. KCN has collaborative links with Malawi College of Medicine. Faculty from the medical college teaches the biosciences and bioethics modules. Reproductive health experts from the Ministry of Health, United Nations Family Planning Agency and the University of Tromsø in Norway participate in the teaching team as guest lecturers. Theoretical work is assessed through examinations, seminar presentations and projects. Some selected content is tailored towards specific professional objectives. For example, in the conceptual and theoretical frameworks/models module the content covered includes theories of nursing and other professions. The nursing and midwifery faculty conduct seminars on nursing theories while medical students present seminars on medical models. This enables the students to evaluate philosophical approaches of knowledge development and care in their disciplines. Discussions focus on similarities and differences and how they can complement each other for quality patient care.

Clinical learning model

The clinical component is planned in such a way that students are allocated to reproductive health units/wards in teams of three or four. The major clinical site is the Gogo Chatinkha Maternity Unit of Queen Elizabeth Central hospital (QECH). This is one of the busiest maternity units in Malawi. The unit has a total of 250 beds for both gynaecology and obstetric patients. The unit conducts approximately 14,000 deliveries per year, of which 15 per cent are caesarean section deliveries. Most mothers who deliver in the unit are referred from health centres and hospitals with life threatening pregnancy complications. The unit also offers family planning services to approximately 2,000 new clients per year and antenatal care to approximately 1,300 new mothers per year, with an approximate total of 5,000 visits per year for the antenatal care clinic. Additionally, the unit also sees approximately 2,000 new gynaecology outpatients with an annual average of 7,500 gynaecology consultations. Other clinical experiences related to care of patients with STI are obtained from the STI and antiretroviral treatment clinics at QECH. Importantly, QECH is the major teaching hospital for medical, nursing and midwifery for students from Malawi College of Medicine, KCN and other health care provider training institutions in Malawi. Therefore, the students are exposed to multidisciplinary ward teaching rounds, meetings and presentations. For example, all students attend maternal and perinatal audit meetings where nursing and medical teams discuss their input into the care patients received and how they can improve quality of care as a team.
The clinical component is assessed through clinical portfolios. The students provide care to patients with various reproductive health conditions and write up according to guidelines. The students are graded based on written and oral presentations (see Appendix B for the portfolio guidelines). Emphasis is placed on analysis of interprofessional care and the quality of teamwork.

Figure 1. MSc in Reproductive Health curriculum implementation model

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<td><strong>THEORETICAL LEARNING MODEL</strong></td>
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<tr>
<td>• Interprofessional students learn together</td>
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<td>• Interprofessional teaching team</td>
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<tr>
<td>• Selected content tailored towards specific disciplines</td>
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<tr>
<td>• Assessment through examinations, seminar presentations and projects</td>
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<tr>
<td><strong>CLINICAL LEARNING MODEL</strong></td>
</tr>
<tr>
<td>• Interprofessional students learn together in various units and wards</td>
</tr>
<tr>
<td>• Interprofessional learning experiences (ward rounds, audit meetings)</td>
</tr>
<tr>
<td>• Assessments through clinical portfolios (interprofessional care analyzed)</td>
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Interprofessional education ↔ Teamwork and improved reproductive care

Research learning model

As for the research component, students work individually. They choose a research problem related to reproductive health. The areas include prevention of mother-to-child transmission, kangaroo mother care, cervical cancer, male involvement, gender based violence and family planning. Students attend research seminars together to share topics and approaches to their research projects.

Lessons learned and recommendations

Interprofessional education enables students learn together and broaden their knowledge and experiences. The college conducted an exit interview of a student who had undergone such a programme and he had this to say:

...WHEN WE APPLIED WE THOUGHT ALL THOSE WHO WERE COMING WOULD BE MEDICAL DOCTORS AND ONLY DURING ORIENTATION WE FOUND OUT WE WERE THE ONLY DOCTORS. DURING ORIENTATION IT WAS A SURPRISE TO US BUT MOST OF THE NURSES WERE EXPERIENCED NURSES. THEY ARE ALMOST AT THE SAME LEVEL AS US. WE LEARNED FROM THEM. (MSC IN REPRODUCTIVE HEALTH MEDICAL STUDENT)

The college has not experienced any major challenges during the implementation of the programme because of the steps that were taken to prepare faculty to teach interprofessional students at the inception of the programme and the college’s collaborative links with non-nursing training institutions. Through the experience obtained in implementing this programme the college has gone on to develop a Doctor of Philosophy (DPhil) in Interprofessional Heath Care Leadership, which began in September 2013. The college is also implementing short courses and mentorship programmes tailored for interprofessional health care providers. Short course topics include clinical teaching, teaching methods and research methodology.
Training institutions planning to develop and implement an interprofessional MSc in Reproductive Health should consider the following:

- The mission of the training institution should provide a mandate for development and implementation of interprofessional programmes.
- Conduct a situational analysis of the country's reproductive ill health and human resource needs for reproductive health through a review of health policy documents and reports.
- Conduct consultative meetings of training institution faculty members and relevant stakeholders on the proposal to initiate an interprofessional MSc in Reproductive Health.
- Set up an interprofessional disciplinary team to develop the MSc in Reproductive Health curriculum.
- Design the curriculum in such a way that interprofessional students learn together both in theoretical and clinical modules.
- Tailor some content for specific professional content objectives.
- Document successes and challenges through monitoring and evaluation.
REFERENCES


ANNEX A: MODULE DESCRIPTIONS

ADVANCED BIOSCIENCES

This module builds on students’ previous knowledge in human physiology and pharmacology. The focus is on assisting students to recognize the impact of pathophysiological changes in the human body, as well as the effect of pharmaceutical agents in the human body. This knowledge will provide students with the biological principles and concepts essential for advanced reproductive health practice.

CONCEPTUAL AND THEORETICAL FRAMEWORKS/MODELS

The module is designed to assist students to critically analyse the development and application of selected conceptual and theoretical models of nursing and other disciplines for practice, research, education and management.

LEADERSHIP AND MANAGEMENT

This module provides students with advanced knowledge and interpersonal skills in leadership and management in order to promote quality performance and outcomes in health care.

BIOETHICS

Through this module students gain the opportunity to evaluate ethical theories and principles of bioethics for application to maternal and neonatal health, research, education, administration and clinical practice. The emphasis is on ethical, moral and professional decision-making based on human rights.

EDUCATION FOR HEALTH PROFESSIONALS

This module provides knowledge and skills in educational strategies and curriculum development in order to facilitate teaching and learning among peers, clients and the community.

RESEARCH METHODS AND STATISTICS

Building on the students’ knowledge of the application of research methods, as well as data analysis techniques for qualitative and quantitative data, in this module emphasis is also placed on research evaluation and utilization.

MATERNAL AND NEONATAL CARE

This module builds on students’ previous knowledge in anatomy and physiology of obstetrics, and basic maternal and neonatal care. The module provides in-depth knowledge of physiological and pathophysiological processes of pregnancy, labour, puerperium and the neonate. Emphasis is placed on the students’ ability to interpret the physiological and pathophysiological processes and their implications on maternal and neonatal outcomes. The students will also be equipped with knowledge and skills for promoting community mobilization for improving maternal and neonatal care with a focus on participatory communication design.
WOMEN AND MEN'S REPRODUCTIVE HEALTH

The module is designed to assist students to critically analyse sexual and reproductive health issues surrounding women and men. Emphasis is placed on social-cultural, economic, environmental, behavioural and political factors that affect women and men’s fertility and reproductive health.

INTEGRATED REPRODUCTIVE HEALTH PRACTICUM

Enabling students to apply knowledge, skills and appropriate attitudes acquired from the physiology of obstetrics, gender and health, STI and HIV/AIDS, maternal and neonatal care, men’s and women’s reproductive health and adolescent modules in the provision of reproductive care to individuals and families in both hospital and community settings is the aim of this module. Emphasis is placed on promoting evidence based and culturally sensitive care and innovativeness.

HEALTH POLICY PLANNING AND FINANCING (ELECTIVE)

This module provides knowledge on theories, principles and objectives of health policy, planning and financing. Students will compare/critique selected national and international models and policies as they relate to health care, planning and financing.

GENDER AND HEALTH (ELECTIVE)

The module will empower students to critically analyse gender as it relates to health and other disciplines for practice, research, education and management to influence the planning, application and implementation of gender sensitive programmes and policies at different levels.

STI AND HIV/AIDS (ELECTIVE)

The module will equip the students with advanced knowledge in STI and HIV/AIDS as they relate to reproductive health issues, to facilitate the development of a moral duty, to adopt innovative ideas and find new strategies to make a difference in the epidemic, so as to achieve optimum reproductive health and well-being of individuals, families and communities.

ADOLESCENT REPRODUCTIVE HEALTH (ELECTIVE)

The module is designed to equip students with advanced knowledge on adolescent reproductive health focusing on developmental issues, gender, risks and contextual factors that affect adolescence and adolescent reproduction and health.

DISSERTATION

The dissertation is designed to enable students to acquire knowledge of the research process. Students will apply knowledge and skills acquired from other modules covered in the programme to produce a dissertation. Emphasis is placed on originality of the research.
ANNEX B: PORTFOLIO GUIDELINES

Guidelines for the portfolio cases to be completed during the clinical practicum (year 2 semester 1). For each case include the following:

- Review pertinent client history;
- Review pathophysiology of condition;
- Outline specific assessments needed and why;
- Indicate any life threatening components of the condition;
- List the lab tests needed and how they guide decision-making;
- Outline the management options and criteria for each;
- Give a critical evaluation of the (nursing, medical and other disciplines) care that has been provided and evaluate comparing with a standard of care;
- Outline any issues addressed relating to gender, age, sexual preference and cultural norms relevant to the case; and
- Discuss ethical issues related to the condition.

WRITTEN COMPONENT

- The written portfolio cases should be completed during the clinical rotation;
- Each portfolio case should be titled;
- The patient name should not included but the date, age and gender plus clinic or ward where the patient was cared for and case number should be given;
- Each student must demonstrate mastery of the content;
- Students should provide a review of relevant pathophysiology, assessment (chart review, physical and lab) and management; and
- All literature used should be referenced and a comprehensive reference list (two to five references per portfolio case) provided. Ensure inclusion of current journal articles (which reflect up-to-date knowledge regarding the condition).

ORAL COMPONENT

The purpose of the oral examination is to allow students to have a clinical conversation about the situations they have documented. Two or three members of the teaching faculty conduct the examinations.

EVALUATION

Portfolios are graded according to completeness of the written portfolio and satisfactory performance during oral examination.
Little documentation is available on interprofessional education. This document is part of a series of publications on interprofessional education and collaborative practice. This case study looks at the process of developing and implementing an interprofessional education programme at Kamuzu College of Nursing in Malawi. Useful lessons learned and recommendations are outlined including the importance of devising an appropriate curriculum which facilitates interprofessional education; developing clear theoretical and clinical modules and content objectives; and allowing for in-built monitoring and evaluation of the programme.