

ASSESSMENT/EVALUATION

Core Curriculum and Special Study Modules at the Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak

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ABSTRACT **Introduction:** *The Faculty of Medicine and Health Sciences (FMHS), follows a problem-based learning, integrated and community-based curriculum which reflects the specific needs of doctors working in Sarawak. Using paediatrics as an example, this paper describes the process of development of core content (knowledge, procedural and communication skills, attitudes), additional knowledge and special study modules at the FMHS.*

Objectives: *In 2003, the Department of Paediatrics and Child Health conducted a workshop to evaluate and update its 5-year-old curriculum.*

Methods: *The wise-men approach was adopted. Local and guest academicians (including members of the Department of Community Medicine and Basic Health Sciences), consultants, registrar, house officer and nursing staff of the Paediatric Department of Sarawak General Hospital (SGH), paediatric nursing lecturer and members of Medical Education Unit were involved. The review was based on three approaches: Problem/Task-based learning; Spiral curriculum; Outcome-based education.*

Results: *Core content and additional knowledge topics were modified. The special study modules were retained, but their duration was reduced. It was recommended that the curriculum should be reviewed at regular intervals.*

Discussion: *To select the core content and additional knowledge topics, clear and specific criteria were developed. Some topics were dropped, others were added, and some were moved from core to the additional knowledge section.*

Conclusion: *It was a rewarding activity. The reviewed curriculum was received well by both the students and faculty. The enthusiasm and cooperation extended, especially by the faculty at SGH in the implementation of this curriculum, was remarkable.*

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Introduction

The five-year MD course at the Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS), is divided into two phases. Phase I consists of the first two years and Phase II the next three years of the course. Phase I is further divided into 11 system-based blocks (e.g. the respiratory system block), and Phase II is divided into speciality-based postings (e.g. the paediatric posting). Year 4, apart from speciality-based postings, has others like district hospital, family medicine, community, accident and emergency postings. All these postings have defined objectives and the core contents (knowledge, procedural skills, communication and attitudes) clearly identified.

The doctors working in Sarawak need special competencies. The curriculum at FMHS reflects the specific health related needs of the people of the State of Sarawak which are summarized below (Malik & Malik, 2002).

- Sarawak is located in the Borneo Islands and, in terms of area, is the largest state of Malaysia. Only 20% of its area is populated. The majority of people live in deep jungles, and there are long distances between villages. Travelling is difficult, and many areas are approachable only by boats. Therefore doctors working in Sarawak should be familiar with modern communication facilities, including tele-medicine both for advice and continuing medical education.
- Doctors in Sarawak should be able to treat patients in the community and, therefore, should receive training that is both community-based and community-orientated. They should be able to identify patients who need to be referred to hospital so that they can call for help.
- Doctors working in Sarawak should especially be trained to deal with common emergencies in the community, e.g. snakebite, near drowning, neonatal resuscitation etc.
- Doctors working in Sarawak should be trained in tropical and infectious diseases.
- There are 26 ethnic groups in Sarawak. Therefore doctors working in this state have to be familiar with and sensitive to the beliefs and cultural practices of these ethnic groups.
- Doctors working in Sarawak need additional training to be administrators, problem-solvers and at times to be community leaders.

Core Contents

Most of the Phase II postings have the core content stated in their logbooks. In this paper we will elaborate on it, mainly in relation to paediatric medicine.

As the FMHS follows a problem-based learning, integrated, community-based curriculum, the paediatric curriculum is spread over all five years of the training programme. Although the relevant basic sciences are covered primarily during Phase I, they continue to be taught in Phase II. Similarly, clinical teaching is introduced early in Phase I but is mainly covered in Phase II. There is a 6-week paediatric posting in Year 3 and a 10-week paediatric posting in Year 5. In Year 4, paediatric teaching is integrated into the community, family medicine, district hospital and accident and emergency postings.

Following the concept of the spiral curriculum (Harden & Stamper, 1999), the identifiable paediatric core content is distributed among different blocks of Phase I and postings of Phase II. The content is based on the training level of the students, increasing the breadth and depth of knowledge and skills in each successive exposure.

Objectives

At the inception of the FMHS in 1993, the following stakeholders were involved in determining the curriculum for the MD course: academic staff members of the FMHS and other medical schools in the country; medical educationists, both local and international; representatives of the Ministry of Health and pharmaceutical industry. A number of workshops and discussions were held to design the faculty curriculum before the first cohort of 28 students was admitted in 1995.

In 1997, the academic staff members of the Department of Paediatrics and Child Health (DPCH) and the paediatricians from the Sarawak General Hospital (SGH) identified the paediatric curriculum. These same members helped to identify the 'Core Paediatric Curriculum' in 1999.

In the beginning of 2003, the DPCH decided to review its curriculum. Some staff members felt that the paediatric curriculum needed to be updated and also wanted to evaluate the five year old curriculum, its content as well as its implementation.

Methods

It was decided that the review should be based on three approaches: Problem/Task-based learning (Virjo *et al.*, 2001); Spiral curriculum (Harden & Stamper, 1999); and Outcome-based education (Harden, Crosby & Davis, 1999). This exercise maintained the system-based approach of previous committees, so that neonatal medicine, infectious diseases and community paediatrics were also dealt with as systems.

For this purpose the 'wise-men approach' (a panel of senior teachers and experts decide by consensus what they believe should be the contents of the

curriculum) (Harden, 1986) was adopted. The 'curriculum review committee' (CRC) was comprised of academicians from various universities (staff members of the Departments of Paediatric Medicine and Surgery, Department of Community Medicine and Public Health), and Department of Basic Medical Sciences (an anatomist, a physiologist, and a biochemist). Representatives of Ministry of Health and students (paediatricians from SGH, a state hospital, managed by the Ministry of Health), registrar and a house officer of the Department of Paediatrics, SGH (a recent graduate of FMHS), representatives of paediatric nursing (a Paediatric Nursing lecturer of FMHS and a paediatric staff nurse from SGH) and members of Medical education unit of FMHS were also members of the committee.

A whole day of activities was used to review the curriculum. In the first half, a workshop was conducted to develop uniformity in concepts of problem/task-based learning, spiral curriculum and outcome-based education. During the second half, the contents of the curriculum and their appropriate methods of delivery were determined.

Results

Criteria for selection of core content

The CRC developed the following criteria for the selection of the core content (knowledge, procedural skills, communication, attitude).

Knowledge

A condition should be regarded as core if:

- 1 It is common (based on hospital admissions and outpatient attendances either nationally or in certain ethnic groups in Sarawak).
- 2 It has a serious impact on children's health that can be prevented by early recognition and management of the condition e.g. inborn errors of metabolism (as a group), Kawasaki syndrome, poisoning e.g. drugs.
- 3 It has a screening programme, e.g. glucose-6-phosphate dehydrogenase (G6PD) deficiency, congenital hypothyroidism.
- 4 There is a programme to prevent it, e.g. vaccination for tuberculosis or public health measures for dengue fever.
- 5 There is a programme for intervention, e.g. assessment of growth and development.
- 6 It is of ethical or legal importance, e.g. brain death.
- 7 It is of public interest, e.g. effects of food additives.
- 8 It is of future interest, e.g. cloning; gene therapy.

Skills

- 1 Communication skills, such that a student is able to:
 - a Take a thorough history from children and their caregivers.

- b Explain the nature of illness and options for treatment to children and their caregivers.
 - c Take consent for common procedures.
 - d Deliver bad news.
 - e Counsel parents (especially in relation to core conditions).
- 2 Skills to perform complete physical examination of an infant and a child.
 - 3 Competence to perform basic/common practical procedures for both diagnostic and management purposes e.g. collection of blood samples, insertion of nasogastric tube etc.

Attitude

The students should develop attitudes to:

- 1 Become responsible members of the team.
- 2 Take care of children and their parents with empathy.
- 3 Appreciate that a child's health is influenced by both family and community practices.
- 4 Become sensitive to the social, ethnic and religious beliefs of patients.
- 5 Develop personal professional skills.
- 6 Contribute to the development of the health care system.

An example of the core contents, skills and attitudes selected by the CRC is given in Appendix I.

Special Study Modules

Special study modules (SSMs) along with core contents play an important role in the overall development of students (Harden & Davis, 1995). The FMHS offers the following categories of SSMs to its students.

- **Generic and Complementary Courses:** These are offered to all the students of UNIMAS (This university has eight faculties including FMHS).
- **Electives:** These are part of the training of undergraduate students at the FMHS.
- **Nice to know/additional topics:** These are included in the curriculum of different postings including paediatrics.

The usefulness of these SSMs was discussed at length and the committee decided to retain them. It was agreed that the 'Generic and Complementary' courses help students to improve their transferable skills. The 'Electives' provide students an opportunity to pursue their own interests and also to remedy their weaknesses.

Generic and Complementary courses

Apart from doing well in their core courses, students at FMHS are also required to take courses grouped under the Generic Development and Complementary Course modules. These courses have been designed to supplement the areas or skills that are not normally covered/partially covered in their core courses. This insures that the graduates excel not only in their area of speciality but also in the areas that will give them a competitive edge in their future working environment e.g. the skills learned in computer courses are used for sharing the latest information in the medical field.

The Generic Development Courses aim to inculcate positive qualities, equip students with useful personal skills, build up network(s) among UNIMAS students and networking skills, develop self-confidence, make them receptive to changes in technology and advocate a healthy life style in students. An example of a Generic Course module is given in Appendix II.

The Complementary Courses aim at providing students, from different faculties, skills and knowledge that are equivalent to those of the students from the faculty that originally conducted these courses. Consequently the courses offered in these modules are more challenging than those of the Generic Development modules.

One possible outcome for a medical student who has chosen to take the series of classes from the Faculty of Cognitive Science and Human Development is better doctor-patient interaction, as the student would have some knowledge of human cognition and perception.

The modules offered in Generic Development Courses include Japanese language, personal management and study skills, English for professional purposes, Islamic and Asian civilizations and end-user computing.

The modules offered in Complementary Courses include introduction to cognitive science, cognitive psychology, introduction to music and instruments/vocal and ensemble.

The medical students are required to take 20 class credits from the Generic Development Courses and 9 credits from the Complementary Course modules (as for the 2002/2003 session). To give more time to students for their academic activities the committee recommended reducing these credit requirements by one third.

Electives

- 1 A family health block runs concurrently with Phase I blocks. Each group of 3–4 students ‘adopts’ a family from the community and visits them once a month for 2 years. For this posting the students select a project of their choice (related to family health usually paediatric problems) and conduct a study/project in a group. They are assessed based on the project report, feedback from the ‘adopted family’ (conduct and approach of the student), and a quiz (basic scientific knowledge about family health).

- 2 Elective 1: This 10-week posting is slotted in year 2 and runs concurrently with 'core' blocks. The students select their own topics or projects. They are free to select medical or non-medical topic/projects. The assessment is based on the project report and feedback from the supervisor.
- 3 Elective 2: This 6-week independent posting is slotted in year 4. Although the students are free to select their own topics/projects, almost all of them select medical topics at this stage. The topics related to community paediatrics are popular among students. They go to different medical schools/hospitals (local and abroad), are attached to various institutions/wards and conduct small projects/studies. Assessment is based on the project report and feedback from the supervisor.

Mentors encourage the students who have not fared well in the assessment of their core knowledge to take this opportunity to study the topics/areas in which they need to improve their knowledge or skills.

An example of a proposed elective/SSM for a paediatric posting is given in Appendix III.

Additional knowledge/Nice to know topics

A 'nice to know or additional subject' is defined as a condition/illness or item of information that does not fulfil the criteria of 'core' but the understanding of which will broaden the students' scope of medical knowledge and will benefit them in dealing with relatively rare conditions. A 'distinction/outstanding student' would be expected to have this knowledge.

Apart from 'core topics', additional or nice to know topics are listed in the logbooks of different disciplines. The most able students who are ahead of their classmates may proceed to these topics for additional/in-depth study. These students are provided with the necessary guidance and facilities as and when required.

An example of 'nice to know/additional topics' for paediatrics, which was suggested during this review, is given in Appendix IV.

Discussion

This exercise was conducted at the FMHS immediately before the final professional examination of 2003. The choice of this occasion helped to bring together academicians from different universities without incurring extra expenses. Although some participants felt that more time should have been spent on discussion, this curriculum review was a rewarding activity. The criteria identified for selection of core content and additional knowledge was very specific and clearer than those of the previous committees.

Following the recent epidemiological findings, some new topics e.g. hand-foot-mouth disease, Japanese encephalitis etc. were added to the curriculum.

Some topics, such as sickle cell anaemia and leishmaniasis, were dropped. Some topics, e.g. haemolytic uraemic syndrome and bronchiectasis, were moved from the core content to additional knowledge section. The development of counselling skills was re-emphasized.

The importance of Generic and Complementary courses was stressed. However, a reduction in the duration (credit hours) of these courses was recommended. The importance of regular evaluation and review of curriculum was highlighted.

Conclusion

The informal feedback showed that the reviewed curriculum was received well both by the faculty and students. The enthusiasm and cooperation extended especially by the faculty at SGH in the implementation of this curriculum was remarkable.

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References

- HARDEN, R.M. (1986). Approaches to curriculum planning. *Medical Education*, 20, 458–466.
- HARDEN, R.M., CROSBY, J.R. & DAVIS, M.H. (1999). AMEE Guide No. 14: Outcome-based education: Part 1 – An introduction to outcome-based education. *Medical Teacher*, 21, 7–14.
- HARDEN, R.M. & DAVIS, M. (1995). AMEE Medical Education Guide no. 5: The core curriculum with options or special study modules. *Medical Teacher*, 17, 125–148.
- HARDEN, R.M. & STAMPER, N. (1999). What is a spiral curriculum? *Medical Teacher*, 12, 7–12.
- MALIK, A.S. & MALIK, R.H. (2002). The undergraduate curriculum of Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak in terms of Harden's 10 questions. *Medical Teacher*, 24, 616–621.
- VIRJO, I., HOLMBERG-MARTILLA, D., & MATILLA, K. (2001). Task-based Learning (TBL) in undergraduate medical education. *Medical Teacher*, 23, 55–58.

Appendix I

Examples of Paediatric Core Content (knowledge, procedural skills and attitude/communication skills) as identified by the 'curriculum review committee' in FMHS, UNIMAS

Knowledge

Cardiovascular system

- Atrial Septal defect
- Ventricular septal defect
- Patent ductus arteriosus
- Tetralogy of Fallot
- Cardiac failure
- Infective endocarditis
- Rheumatic heart disease

Procedural skills

Procedure performed

- Take throat swab
- Collect mid-stream urine
- Nebuliser therapy
- PEFr measurement
- Phototherapy
- Incubator care
- ECG
- Neonatal resuscitation (clinical skill laboratory)
- Paediatric Advanced Life Support (clinical skill laboratory)
- Nasogastric tube insertion

Procedures assisted

- Heel prick for blood sampling
- Venepuncture
- Lumbar puncture
- Intravenous cannulation
- Newborn resuscitation
- Endotracheal intubation
- Arterial blood gas sampling

- Exchange transfusion
- Umbilical artery catheterisation
- Peripheral artery cannulation
- Echocardiography
- Chest tube insertion
- Pleural tap
- Bone marrow aspiration
- Venous cut down
- Central vein cannulation
- Suprapubic bladder tap
- Peritoneal dialysis
- Peritoneal tap
- Liver biopsy

Attitudes/communication skills

- History taking
 - Physical examination of an infant and a child
 - Bedside case presentations
 - Trigger presentations
 - Seminar presentations
 - Breaking the bad news to parents e.g. child diagnosed to have leukaemia
 - Counselling the parents of a child with inherited disease e.g. haemophilia
 - Care of a child in pain
 - Care of a dying child
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Appendix II

Details of one of the Generic Development Courses

Course code	BP10052
Course title	English for Academic Purposes
Instructor (s)	To be determined by the Centre for Language Studies
Prerequisite(s)	None
Course description	This course aims to develop students' ability in reading and writing for academic purposes. Students will be introduced to appropriate skills and strategies to facilitate the reading of academic texts in their particular disciplines. They will also be guided through the skills required in producing a variety of short texts in their relevant fields of study. The focus throughout the course is on how language functions in the academic genres covered.
Course objectives	Upon successful completion of this course, the students will be able to: Read selected academic genres in their relevant disciplines Write selected academic genres in their relevant disciplines
Teaching-Learning approach	Tutorial sessions Follow-up with homework
Course outline	Module 1 Books and journals Information report genre Word meanings and Referents Module 2 Information report – Diagram Graphic outline Explanation – Diagram Diagram – information report Diagram – explanation Three-level reading Module 3 Argument genre Packing and unpacking meanings Citing and writing references Quoting and paraphrasing ideas Working with model academic arguments Joint construction Proof-reading and editing
Assessment	Tests 60 Essay (in print) 10% Final paper 30%
Reference	<i>Book 1: An introduction to genre-based writing.</i> (1990) Annandale, NSW: Common Ground 2. Derewianka, B. (1991) <i>Exploring how texts work.</i> Newton, NSW: Primary English Teaching Association. 3. Nuttall, C. (1996) <i>Teaching reading skills in a foreign language</i> (new. Ed.). Oxford: Heinemann.

Appendix III**An elective/SSM in paediatrics**

Course title	Study of Neonatal Intensive Care
Instructor (s)	To be determined by the Department of Paediatrics and Child Health, FMHS
Prerequisite(s)	Completed year 5 paediatric posting
Course description	This course provides an understanding of how the neonatal intensive care unit works. The student will be placed in the NICU where he/she will find out the different kinds of facilities and interventions available and how they are used. He/she will learn the different health providers' roles in an intensive care set-up.
Course aims	To learn how the patient management system works in NICU.
Course objectives	Upon successful completion of this course, the student will be able to: List the criteria of admission to NICU Demonstrate how the babies are prepared for transfer to NICU Describe the role of intensive care nurse Describe the criteria to transfer/discharge the patients from NICU Demonstrate how to enter data in newborn monitoring chart
Course outline	2 week posting in NICU; self study; discussions with supervisor
Teaching learning approach	Self study, discussion, observation
Assessment	Project (e.g. collection of data) 50% Quiz 20% Viva voce/interview 30%
Reference	Behrman, R.E., Kliegman, R.M. & Jenson, H.B. (2000) <i>Nelson Textbook of Pediatrics</i> . London W.B.Saunders Company

Appendix IV**'Nice to know Topics/Additional Knowledge' in Paediatric Neurology as identified by the 'curriculum review committee' in FMHS, UNIMAS**

Neurology

- Floppy infant
 - Acute flaccid paralysis
 - Regression of milestones
 - Spina bifida and neurogenic bladder
 - Movement disorders (tics etc.)
 - Space occupying lesions
 - Myasthenia gravis
-