***Preparing for tomorrow’s health workforce***

**Proposed Medical program for discussion**

**1. Introduction**

This documentation provides some starting point for discussion and the timeline given is short. If the program is to be implemented we need to start now and I hope by September 2015 the document should be approved by academic Board and subsequently University Council.

Appropriate infrastructure including physical as well as human resources should be completely planned and scheduled for the first two years of the course before start. Then resources should be gradually provided for the continuation of program, well in advance of the year when these specific resources are required. The program must be of high international standard and be accurately focused on the expected health needs of the country in the next decade.

**2. Name of the degree**

University of Papua New Guinea School of Medicine and Health Sciences (UPNG-SMHS) offers Bachelor of Medicine and Bachelor of Surgery (MB, BS). It is wise to coordinate degrees across the country, so the choice is

***MBBS*** (Bachelor of Medicine & Bachelor of Surgery)

With special dedication to Rural Health.

**3. Duration and the nature of the program**

Our proposed program would be for 5 years from the point of entry to the point of exit.

**Agreed:**

***5- Year program***

**2**

**Clinical Sciences**

**1**

**Community** Health

**2**

**Medical Sciences**

The structure of the new medical program shall consist of 10 semesters which are spread over 5 years. The curriculum shall consist of seven components or blocks:

* Introduction to health and disease
* Molecular Basis of Health and Disease
* System-based blocks
* Rural Health Practice
* Integrated block
* Clinical clerkship

These would generally cover:

* *Molecular Basis of Health & Disease*
* *Exploring structure and function of the human being*
* *Professional Skills: Diagnostics, Communication and Clinical Management*
* *Population health, Health Services management and Policy*
* *Medical Ethics and Professional Attitude and Behaviour.*

**4. Trends in medical education**

Many medical/health institutions have moved from this model to a SPICES model (proposed by Harden et al, 1984). The key elements in this model include:

* Integrated teaching
* Student-centred learning
* Problem-based learning
* Community-oriented practices
* Systematic teaching

The medical curriculum we propose must first meet the National Standards for Accreditation of Higher Learning Institutions programs, and successful completion of the course and associated assessment must meet the National Standards for certification of the Medical Board of Papua New Guinea and National Department of Health.

**Agreed:**

***Integrated Teaching & Learning Model***

**5. Curriculum and course design**

A curriculum defines the learning that is expected to take during a course or program of study in terms of **knowledge**, **skills** and **attitude**. Curriculum specifies teaching, learning and assessment methods and also indicates the learning resources required to support effective delivery. One of the primary function of a curriculum is to provide a framework which would enable learning to take place – syllabus on the other hand, is the part of a curriculum that describes the content of the a program.

Curriculum design needs to reflect the educational, health-care, and professional context and certain level of learners and the expected outcome

**Teaching pedagogies**

##### 1. EDUCATIONAL OBJECTIVES

What the students should be able to do at the end of a learning period that they could not do beforehand

Educational objectives are also ***called “learning objectives” as opposed to “teaching objectives”.*** They define what the student, not the teacher, should be able to do

The definition of the objective of a course is that of the result sought, not a description or summary of the programme.

#### TYPES OF EDUCATIONAL OBJECTIVES

1. **General** objectives: Correspond to the functions of the type(s) of Health personnel trained in an establishment. Example: *Providing preventive and curative care to the individual and community, in Health and in sickness.*
2. **Intermediate** objectives: Arrived at by breaking down professional functions into components (activities) which together indicates the nature of those functions. Example: *Planning and carrying out a blood sampling session for a group of adults in the community.*
3. **Specific** (or instructional) objectives: Corresponding to (or derived from) precise professional tasks whose result are observable and measurable against given criteria. Example: *Using the syringe to take a blood sample (5 ml) from the cubital vein of an adult* (criteria: absence of haematoma; amount of blood taken within 10% of the amount required; not more than two attempts).

These three types of objectives, taken together, make up the Professional Profile

**THE THREE CLASSIFICATION**

Able to perform a pratical act automatically and with a high degree of efficiency

Able to solve a new problem

Able to internalize a feeling

**Domain of communication skills**

Able to show receptivity towards another person

Able to supplì a response to the affective need of another person

**Domain of intellectual skill**

Able to recall facts

Able to interpret data

Able to exercise effective control over the pratical skill

Able to imitate the actions of a model

##### Domain of pratical skills

**Participation in educational activities**

#### SOME HELP TO SELECT INTERMEDIATE EDUCATIONAL OBJECTIVES *THE P.U.I.S.E SCORE!*

##### P = Prevalence, frequency of the problem, how common is

U = **Urgence**, emergency: necessity to know how to del with, life risk etc.

I = **Intervention and Integration**: problem helpful to relate different domains, susceptible to be changed by appropriate intervention

###### S = Severity: severity of the problem

E = **Exemplarity**, useful to understand mechanisms, pathways, cause-effect relations

FOR EACH INTERMEDIATE LEARNING OBJECTIVE ADD SCORES FROM 1 TO 5 TO EACH LETTER:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Objective : | | | | |
| ***P*** | ***U*** | ***I*** | ***S*** | ***E*** |
|  |  |  |  |  |

#### *Total score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Start deleting objectives with low total scores*

**Relevance is the essential quality of educational objectives**

**Objectives that have every quality except relevance are potentially dangerous**

**Elements of a specific educational objective:**

The act (what the student is expected to know, do, behave)

The content the task

The condition (in which specific setting and condition)

+ The criteria on which to evaluate the acquisition of the objective

**Student-centred Learning**

Essence

Student becomes an active learner while the teacher becomes the facilitator of learning

Need to move away from “teacher-centred” teaching to “student-centred” learning. The student-centred approach places more emphasis on learning by the student rather than teaching by the teacher. All learning should take place in the context of clinical or health care problems which may include problem-based tutorials. Students should work in small groups with a help of a tutor, analyze problems and use their prior knowledge to explore the dimension of the problem. Students might find learning to be motivation and fun to explore “real” problems early in their studies.

**Integrated Learning**

Essence

The curriculum should emphasize on the inter-connections between different fields of knowledge. The essential elements of basics sciences and clinical practice are learnt through an integrated approach

In the new medical curriculum, integrated teaching and learning will occur in which the curriculum emphasis inter-connections between different field of knowledge. There are different models of integration – vertical integration or horizontal integration or combination of both. There is another form of integration which I would call “circular” integration – a body system becomes the centre point around with different disciplines (anatomy, physiology, biochemistry, clinical, etc) relevant to the system are thought. This could be easily achieved or facilitated, if lectures, practicals, problem-based learning (PBL), and clinical case presentations are structured around different body systems – *system-based approach of teaching and learning*. With the “system-based” approach, students will be able to learn the structures and functions of the organ systems of the body as well as the essential elements of the basic science and clinical practice.

**Rationale for integrated curriculum model/design**

Several international trends in medical education and healthcare are going in that direction and have created a system-based curriculum. This approach, they believe is more **content-integrated**, **learner/student-centered**, and **early clinical performance-oriented**. The specific reasons for this approach include:

1. Scientific (i.e. evidence-based) teaching and learning decisions create learner-centered classrooms and more significant learning experiences which, in turn, lead to [better academic outcomes](http://www.medicine.virginia.edu/education/medical-students/UMEd/curriculum/nextgeneration/NextGeneration/PDF/Active-Learning-Scholarship-References.pdf).
2. [*Cognitive psychology* has demonstrated](http://books.nap.edu/openbook.php?record_id=9853&page=R1) that teaching, practicing, and assessing knowledge and skills in the context in which they will be used leads to better recall and application. The learning of medicine then should occur within a clinical context or framework to energize students and improve retention of knowledge, skills, and attitudes. History taking, physical examination are done according to the body system so would be appropriate to students to start with system teaching.
3. the systemic-based teaching approach will result in a more content-integrated and learner-centered curriculum. The approach or redesign of the curriculum will lead to a substantial increase in and emphasis on fundamental medical science in clinical contexts as well as clinical decision making that develops the [competencies required of a contemporary physician](http://www.hsc.virginia.educompetencies-page)
4. An integrated, outcome-based medical education curriculum comprising of well-defined learning objectives and active learning activities and appropriate assessments will enhance students' clinical competencies.
5. The shift to an integrated, systems-based medical curriculum represents a new thinking or trend in our environment and is certainly not unique to the University. Scores of medical schools globally have already or are currently creating system-based system curricula and/or incorporating active learning into each phase of medical education.

Generally, teaching objectives and students learning outcomes need to be defined at the system and disciple levels. When writing students’ learning outcomes, it is helpful to use verbs that are measurable or that describe an observational action.

**Agreed:**

***Systems-based Teaching Approach***

***Teaching based on body systems and each system forms the theme***

**6. Clinical Sciences**

**Early Clinical Contact**

Clinical experiences must relate closely to the theoretical teaching early in the curriculum. Development clinical skills early can be conducted in a purpose-built clinical skill training simulation centre to achieve early and effective training.



**Agreed:**

***Introduction to clinical and clinical interpersonal skills early in the curriculum would be the hallmark of this program.***

**7. Community-based experience**

The curriculum shall emphasize on community-based teaching. Community-based teaching is enhanced with more learning activities scheduled to take place in community setting. That means a wide variety of community-based teaching is employed to complement the activities that take place within hospitals, exploiting the educational experiences which family physicians, maternal and child health services, and other patient support groups can provide. That means that there should be increase use of community resources.

**Agreed:**

***Teaching & Learning to take place in rural/and/community settings***

***The full third year in a Rural Health Environment***

**8. Use of Information *T*echnology and Technology in teaching and learning**

Computer-assisted learning program shall be used to complement classroom learning. Students must also be trained to be computer “fluent” so they can be able to understand the principles of information management and provide effective management of resources in clinical practice.

**Agreed:**

**Make the best use of the extensive ICT resources available at DW University**

A direct connection with the partner University of Naples will facilitate the sharing of teaching and learning resources, as well as self evaluation of students.

**9. Elective**

Vth years Students will be allowed to explore and deepen a Unit/module of their own choosing, according to their personal wishes. They will choose among the units which are available across the program and possibly select a specific domain within the unit. For example a student may choose Child Health and go further in the specific field of Neonatal Care, another may choose surgery and go onto a surgical specialty . These elective should be surpervised by a tutor from the Unit. The choice of an Elective may as well as may not be linked to the coice of the final Thesis.

**10. CREDIT UNITS**

Approximally 300 credits have to be acquired by the students before graduation, in 5 years (60/years as internationally recognized). A ‘credit’ is an estimation of the amount of learning work the student is offered and should acquire. Each credit is usually divided into 3 Sections : 1/3rd Front line lectures 1/3rd Practical, group work 1/3rd guided individual studies.

This is generally applicable to most units, but for the units focused on acquiring skills, it is wise to modify the distribution to 1/10th Lectures-seminars 6/10th Laboratory or bed side practicals and 3/10th guided individual studies. This schedule should be flexible according to the specific requirement of the learning Unit and the practical availability of setting & resources.

**11. EVALUATION**

To change curricula or instructional methods without changing examinations would achieve nothing! Changing the examination system without changing the Curriculum had a much more profound impact upon the Nature of learning than changing the curriculum without altering the examination system. (G.E. Miller)

The evaluation process provides a basis for value Judgements that permit better medical decision-making.

#### Evaluation of education must begin with a clear and meaningful definition of its Objectives, as derived from the priority Health problems and the professional profile

**Evaluation: a few assumptions**

* Medical Education is a process, the chief goal of which is to bring about changes in human behavior to serve efficiently the health of the people
* The sorts of behavioural changes that the medical school attempts to bring about constitute its objectives.
* Evaluation consist of finding out the extent to which each and every one of these objectives has been attained, and determining the quality of the teaching techniques used and of the teachers.

###### Evaluation is a continuous process - based upon criteria - co-operatively developed

Concerned with: measurement of the performance of learners, the effectiveness of teachers, the quality of the programme

###### Which are the reasons for student evaluation ?

1. Incentive to learn (motivation)
2. Feedback to student
3. Modification of learning activities appropriate measuring
4. Selection of students techniques
5. Success or failure
6. Feedback to teacher
7. School public relations
8. Protection of society (certification of competence)

#### Qualities of an evaluation test : it should be

* Directly related to educational objectives, Realistic and practical
* Concerned with important and useful matters
* Comprehensive but brief, Precise and clear

**The Domains of the evaluation process** :

If the evaluation is actively linked to the medical educational objectives, methods should be appropriate to evaluate the specific learning domains ( knowledge, behavior, skills). You should not do a multiple choice to evaluate if a student is able to measure the blood pressure, neither you can use this test to understand if the communication of the student to a mother of a severely sick child is adequate.

**In conclusion** , for each unit a specific evaluation system should be developed : but students do require to be aware by which system they will be evaluated. So it is necessary to state few stable methods in advance (for examples MCQ, Interview, observation, measurement of outcome , video etc).

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**Proposed Medical program for discussion**

**Proposed curriculum structure**

|  |  |  |
| --- | --- | --- |
| **Year/Se** | **UNIT** | **Content** |
| **I/1** | **Health Needs of PNG** | **Statistics and Epidemiology of Health in PNG** |
| **I/1** | **Chem of Human Body** | **Molecules and their function in human body** |
| **I/1** | **Cell & Tissues** | **The micro-world of human beings** |
| **I/1** | ***Laboratory Skills I*** | ***Histology and microscopy*** |
| **I/2** | **Motion & Strength** | **Anat/Physio/xRay of Bones, Muscles, joints1** |
| **I/2** | **Molecules of life** | **Biochemistry & Molecular Biology & Clinical Biochem** |
| **I/2** | **Communicat & Ethics** | **Listening to patients’ needs** |
| **I/2** | ***Laboratory Skills II*** | ***Basic & Laboratory Medicine*** |

|  |  |  |  |
| --- | --- | --- | --- |
| **YE/Se** | **UNIT** | | **Content** |
| **II/1** | **Hearth& Lungs, GUT** | | **Anat/Physiol/Pathol , xRay, ECG system learning1** |
| **II/1** | **Molecular MED Acute** | | **The molecular basis of acute diseases** |
| **II/1** | **Microbes & the Host** | | **Immunity & Microbiology & Environment** |
| **II/1** | ***Clinical Skills I*** | | ***Biosensors of health, signs, findings, simulation, PBL*** |
| **II/2** | **Brain & Glands** | | **Anat/Physiol/Pathol, xRay, EEG, system learning1** |
| **II/2** | **Molecular MED Chronic** | | **The molecular basis of chronic diseases** |
| **II/2** | **Genes & Regulation** | | **Heredity, regulation and epigenetic of health & Diseases** |
| **II/2** | ***Clinical Skills II*** | | ***Getting samples & measurements, history taking, PBL*** |
|  |  | |  |
| **YE/Se** | **UNIT** | | **Content** |
| **III/1** | **Pharmacology** | | **2 weeks intensive : general & classification** |
| **III/1** | ***Rural hlt Block I*** | | ***Clinical Approach*** |
| **III/2** | ***Rural Hlt Block II*** | | ***Collect case studies*** |
| **III/2** | **Clinical Pharmacology** | | **2 weeks intensive with cases studies** |
|  |  | |  |
| **YE/Se** | **UNIT** | | **Content** |
| **IV/1** | **Child Health** | | **In health and disease, Child Advocacy, full clerkship2** |
| **IV/1** | **Women’s Health** | | **Reproduction, OBS, Gynecology, Psychology, Rights2** |
| **IV/1** | **Specials** | | **Nutrition for health protection and disease care** |
| **IV/2** | **Internal Medicine** | | **Infections, Acute & Chronic disease, Healthy Ageing2** |
| **IV/2** | **Surgery** | | **General Surgery, Anaestesia and Pain control2** |
| **IV/2** | **Emergency** | | **Life-saving, stand alone interventions, triage** |
| **IV/2** | **Special** | | **Mental Health** |
|  |  | |  |
| **YE/Se** | **UNIT** | | **Content** |
| **V/1** | **Medical Special** | | **Hearth & Lungs, Endocrinol, Neurol, Kidney3** |
| **V/1** | **Surgical Special** | | **ORL, Eye, Urology, Cancer,3** |
| **V/1** | **Emergency** | | **Medical & Surgical : Full responsibilty3** |
| **V/2** | **Health Management** | | **Health policy, equity, management and HSER4** |
| **V/2** | **Research Methods** | | **Clinical trials, application, management** |
| **V/2** | **Elective** | | **To be selected by the student** |
| **V/2** | **Research Thesis** | | **Basic Sciences, Epidemiology or Clinical Research Project** |
|  |  | |  |
|  | **EXPLAINING NOTES** | |  |
| **1** | System/organ-based teaching :interdisciplinary/transdisciplinary approach where the students learn the structures and functions of body systems/organsin detail assisted by body system models, xRAY, US, TC Scans and pathology specimens (macro and micro). | | |
| **2** | The aim is to help students integrate the knowledge they have acquired during Year II in “real-life” situation. The focus must be on clerking, examination of patients and day-day care of patients. Problem-based teaching could be introduced to enhance learning | | |
| **3** | The emphasis now shifts to the clinical management of patients. During the clerkship phases, students are directly involved in the day-to-day care of patients. They are expected to understand the basic concepts that underlie their patients’ problems and apply the knowledge they have gained in earlier parts of the course. During the period of the Specialty Clerkship, students are required to reside in the Madang Modilon campus. | | |
| **4** | Health Service Evaluation Research, Evidence Based Medicine | | |
|  |  |  | |