Vertically Integrating Model for Teaching Bioethics to the Medical Undergraduates
A pragmatic approach for integration of Bioethics Teaching into the existing regular medical curriculum

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Preamble

The field of medicine has made rapid advances recently. Pari passu, newer ethical issues, are also emerging in the field of medicine. But, the health care providers are not equipped to effectively deal with them. Conscious of this lacuna, several initiatives had been taken, around the world. The Division of Ethics of Science and Technology of UNESCO has published a Bioethics Core Curriculum in 2008. The International Chair on Bioethics has formed a very wide international network on Bioethics, and has taken the lead. Conscious of the need for actionable resources, the International Chair has published a series of Case books and Ethical Commentaries. Several countries have gainfully utilized all these resources.

Everyone realizes the utility of learning Bioethics. Several countries have actually started courses in Bioethics. But, at the field level, two issues hamper effective and universal implementation of a bioethics curriculum. The undergraduate medical student is already burdened with a voluminous study load and the time available during the undergraduate course is very short. This issue is compounded by the non-availability of teachers, who are trained in bioethics. These two vexatious issues are sought to be solved, by designing a novel model.

In this novel model, designed by us, the UNESCO Bioethics Core Curriculum mentioned above, forms the mainstay; the lesson plan integrates the bioethics modules vertically into the existing general medical curriculum. The USP of this model is the requirement of (i) minimal additional time and, (ii) less number of exclusive bioethics teachers. Due this unique design, this model is christened as 'Vertically Integrated Teaching of Bioethics to the Undergraduate Medical students (acronym: vitum-bioethics).

The design of such a curriculum is a demanding task. This novel design was first presented in the form of an invited lecture at the International Seminar of the Nepal National Unit of UNESCO Bioethics Network (22-23 Jan 2014). Subsequently, the same was submitted to the 7th National Congress of the Indonesian Network of Health Bioethics and Humanities (14-16 Mar 2014). The Asia Pacific Chair, Prof Russell D’Souza and the International Chair, Prof Amnon Carmi have commended it and have graciously given useful remarks. They have also agreed to lend their titles to the future refinements of this model. The development of this model is a continuous process. Consultations are under way with several chairs, in India and abroad. A conclave is scheduled on 20 November 2014, in the SRM University in Chennai, India, towards this direction. A short description of the vitum-bioethics model is given below.

The objectives of the ‘vitum-bioethics’ model

The course should equip the students with the following skill sets
1. Be able to identify the ethical issues, which occur during medical practice; also, be able to anticipate any issue, which might arise. Apply ethical principles to those issues and arrive at decisions.
2. Be able to defend his decisions, by providing rational justifications.
3. Additionally, be able to fine tune his decisions, on the basis of moral beliefs, and traditional practices in the particular cultural milieu.
Target participants in this course

The discourse of this model (in the present form) would deal with the undergraduate medical curriculum. Quite obviously, several parts of this model would be eminently applicable to students and practitioners of related streams also, namely (i) allied health sciences, traditional and alternative systems of medicine e.g. nursing, pharmacy, physiotherapy, speech therapy, occupational therapy, homeopathy, ayurveda, unani, acupuncture, eastern systems of medicine, naturopathy etc. and, (ii) Law, Social work, Philosophy, Management etc. In fact, bioethics permeates every walk of life, and everyone will benefit from this course.

General principles underlying the design of the Vitum Bioethics model

- The Curriculum: The curriculum must be uniform across all countries (country). The syllabus incorporates all the 17 modules of the Bioethics Core Curriculum UNESCO 2008 ver1 and all the 15 principles and the 28 articles enshrined in the Universal Declaration on Bioethics and Human Rights of UNESCO 2005.
- Resources: Standardized text books covering the entire syllabus shall be made available. The Case books and Ethical Commentaries published by the International Chair will be excellent resources. There should be teacher manuals. These resources shall be made available in the web, as free downloads.
- The Lesson plans: the teaching-learning starts from the first day of entry into the medical school. The contents integrate into the regular curriculum, and regular teaching. The total teaching hours is proposed to be around 80-100 hours, spread throughout the entire undergraduate course. It may be adapted, after wide consultations, based on the collective wisdom of all experts.
- The teaching methods: Integrated teaching-learning method shall be employed. Innovative modalities shall occupy a significant number of hours, across all the academic years. Thus, the students will develop a participatory feeling and harbor sustained interest.
- Attendance will be compulsory. A portion of the Internal Assessment marks shall be apportioned exclusively for the attendance.
- Evaluation: The purpose of this evaluation is to assess whether the curriculum has resulted in the achievement of its objectives. Hence, the evaluation shall be two-fold (i) Evaluation of the course curriculum itself and (ii) Evaluation of the students’ performance.
- Evaluation of the course curriculum itself, shall be done by constant feedback from students. Such feedback must trigger a response to refine the curriculum.
- Evaluation of the students’ performance shall be achieved (a) by traditional written tests and (b) by non formal evaluation. For example, case presentations, assignments, case analysis, group discussions and seminars shall form part of such non formal evaluation.
- Examinations: During the initial period of three years, the evaluation shall be restricted to non formal methods. When the student has completed the first three units, there shall be one formal university examination. This examination shall comprise of the usual written pattern – essay questions, short notes, multiple choice questions and oral examination. One of two questions requiring analysis of clinical situations also may be included. Rationale for the timing of this examination: at this period of the regular medical course, the undergraduate medical student would have been well-exposed to the clinical fields -and, he would be relatively free to appear for a written test. The credit for this examination shall not exceed 40% of the total credit mandated for the subject of bioethics for a medical graduand.
After this formal examination, the non-formal evaluation methods shall commence once again. The credit for such non-formal evaluation shall be 40%. Within this non-formal format, objective and measurable parameters (like number and standard of activities) shall be used to award the credits. During the internship period, the credit for learning bioethics (by non-formal evaluation methods) shall be 20% of the total credits.

**Further Plans**

For the purpose of training the trainers, another course material is being prepared. It will be at the level of Masters. Within that curriculum, the core bioethics syllabus will be present. In addition, education technology will be incorporated. The students in that course will consist of existing senior medical teachers. The graduates of that masters course, should be able to function as master teachers/course coordinators of Bioethics. This masters course has already received the approval of the Academic Council of SRM University.

Annexure: The Syllabus and Curriculum of 'vitum-bioethics'

*Note: The entire syllabus is presented as Five units. All the seventeen modules of the UNESCO Core Curriculum have been incorporated into these five units. Each unit will be taught during a specific period of the existing undergraduate medical course, in parallel with the regular medical curriculum. Under the heading of each unit, we have described (a) learning objectives (b) syllabus (c) curriculum and (d) evaluation methods, which are specific to that particular unit.*

**Fig: The design of the vitum bioethics model**

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*Mainly bedside – non formal*

Seminars, field, case work
Non formal evaluation
A few Qs. in subject papers

**University exam. One full paper**

*Non formal evaluation*

**No examinations**

A few Qs. in subject papers

Attendance is compulsory and will form an essential part of Internal Evaluation marks
Unit I. Introduction to Bioethics & Current perspectives in Bioethics (Total 12 hours)

Learning objectives of Unit I
(i) To get an insight into the field of Bio ethics, including current perspectives.

Syllabus of Unit I

Unit I Sec 1. Introduction (3 hours) What is ethics, bioethics, and medical ethics? Disciplines within bioethics, brief history of different bioethic codes over the centuries, moral values across different cultures and religions, How spiritual (religious) beliefs and societal customs have influenced the fundamental moral values? changes over the centuries, brief description of western streams of philosophy, the traditional philosophy and values in the eastern world, How migration of people(s) has resulted in a confluence of principles, how the recently found mobility across the continents has accelerated an amalgamation?

Unit I Sec 2. Modern perspectives in bioethics and in medical ethics (3 hours) Different codes of bioethics and medical ethics, the current efforts to evolve a globally applicable ethical code, Hippocratic Oath, the ten principles of Nuremberg code of 1947, Declaration of Geneva (Physician’s oath) 1948, amended in 2006, Helsinki declaration of the World Medical Association 1964 and its 6th revision in 2008, UNESCO’s Universal Declaration on Human rights, the role of UNESCO Chair in Bioethics and the international network on bioethics, Current perspectives.

Unit I section 3. Codes of the statutory medical licensing authorities (3 hour) Standard codes and guidelines of different countries, those specific to each country shall be presented to the medical students e.g. Medical Council of India Code of Ethics 2002, Care shall be taken to explain how each clause of the code is relevant. Comparative study of each of the clauses, across countries and cultures.

Unit I section 4. Bio ethics related to the fundamental sciences (3 hours) Dignity of human in life and death, physiological and biochemical experimentation in human and in animals and rights of a persona, humaneness, the principle of equality of races and justice, philosophical ruminations into certain experiments conducted in human history -a dubious and recent example of this would be Auschwitz.

Lesson Plan of Unit I
This unit I will be taught in the first academic year, right from the very first day of entry into the medical school. In addition to didactic lectures, each session shall be interactive. The master teacher of Bioethics of the institution (the course coordinator himself) will personally handle the first three sections. The section Four shall be handled by senior professors in anatomy, physiology and biochemistry -one hour each.

Evaluation for the unit I
No individual university examination shall be prescribed. Non formal evaluation shall be done by alternate means like seminars, group discussions and assignments etc. A few brief questions shall be included in the question papers of fundamental sciences, in the regular examination

Unit II. Core Bioethics and Basics of Medical ethics (Total 24 hours)

(didactic teaching 12 hours  +  interactive discussions, case-work studies, seminars etc., by students 12 hours)

Learning Objectives of unit I
Unit II will cover the core bioethics related the basic sciences.

Syllabus of unit II (didactic lectures only: 12 hours)

Unit II Section 1. Concepts of health (2 hours) Disease and healing, Right to Health, Patient as a person. An individual’s dignity, privacy and confidentiality. The limitations to an individual’s right to confidentiality, in the interest of general society.
Unit II Section 2. Patient’s bill of rights (2 hours) Right of a patient to have information about his / her medical condition, autonomy and freedom of choice of treatment. The responsibilities of a patient as a member of the society.

Unit II Section 3. Equality and Justice (6 hours) Ethics of human life, Right to live with health, duties of the society and the state to provide for every individual, Equitable distribution of services, allocation of resources in health care systems, case studies like selection of patients for renal dialysis in the United States in the eighties. Religious beliefs and bioethics like aversion to blood transfusion, the Buddhist tradition of eye donation, etc. Human duty to rescue a fellow human being or other forms of life. Duty of individuals (bystanders) to the society, and to the general public. Non Discrimination and Non Stigmatization in HIV, AIDS, TB, Hansen’s disease, Legal issues, the law, court judgements and directives

Unit II Section 4. Environmental issues and Protecting the future generations (2 hours) Sustainable world, Public health issues, Environmental issues, Biosphere and biodiversity, genetic engineering, Ecological protection.

Lesson plan of unit II
During this period (second academic year), the students will be studying pathology, microbiology and forensic sciences. This is the time that the student will start attending the clinical classes and will come into contact with real patients. This unit is the solid base on which the next unit III will be based. The first two sections are in the clinical sphere and can be handled by the clinicians. The sections 3 and 4 may be fruitfully dealt by the teachers of community medicine.

Evaluation for the unit II
Non formal evaluation shall be done by alternate means like seminars, group discussions and assignments etc. A few brief questions shall be included in the regular examination question papers of basic sciences.

Unit III. Application of Medical Ethics to the Clinical practice, in general (Total 24 hours)
(didactic teaching 12 hours + interactive discussions, case-work studies, seminars etc., by students 12 hours)

Learning objectives of unit III
Unit III will cover the core bioethics related to clinical settings, legal insights and case laws, interactive discussions and case studies.

Syllabus and lesson plan of Unit III (didactic lectures only: 12 hours)

Unit III Sec 1. The principles of Evidence Based Medicine (3 hours) Beneficience, non maleficience, primum non nocere, responsibility of a medical personnel, treatment-choices and decision making by the treating doctor, Concepts with clinical examples

Unit III Sec 2. Consent, Assent and Autonomy (3 hours) The ingredients of an informed consent, Autonomy and the right of a patient to make decisions, the meaning of ‘capacity to consent’, Persons without the capacity to consent, vulnerable populations, dependency and guardianship, role of family and society in decision making by the patient.

Unit III Sec 3. Professionalism (3 hours) Contract, Code of conduct, responsibility of a medical personnel in the personal sphere, personal integrity, the Hippocratic oath and the integrity values embodied in that document, human vulnerability on the part of the physicians, procedures to be adopted to prevent human pitfalls (and also false accusations) e.g. chaperoning. The freedom of a doctor to withdraw from a contract, Legal perspectives Unit III Sec 4. Physician Patient relationship (3 hours) Empathy (solidarity and cooperation with the patient), compassion, responsibility of a medical personnel in the professional sphere.
Evaluation methods for Unit III

There must be one formal university examination, when the student has completed the first three units. The questions shall cover all the three units. It shall be a separate university paper, as described earlier.

Unit IV. Special Clinical issues - application of Bioethical principles (Total 24 hours)

(didactic teaching 12 hours + interactive discussions, case-work studies, seminars etc., by students 12 hours)

Learning objectives of unit IV
This unit will equip the student to apply bioethical principles (i) in the clinical practice of advanced specialities and to (ii) the clinical situations, which have emerged due to advanced technologies.

Syllabus & Lesson plan of Unit IV (didactic lectures only: 12 hours)

Unit IV Section 1. Beginning of Life Issues (2 hours) Prenatal diagnosis, genetic counseling pediatric stroke neonatal euthanasia, assisted reproductive technologies, surrogacy, designer babies, genetically modified food.

Unit IV Section 2. End of life issues (2 hours) Definition of death, advanced life support systems, prolongation of life, support to the patient who awaits imminent death, euthanasia (both active and passive)

Unit IV Section 3. Ethics of human sexuality (1 hour) Gender reassignment, transgender

Unit IV Section 4. Organ donation (3 hours) Organ transplant (liver, eye, bone marrow, stem cell), xenografts, sperm banking, egg banking.

Unit IV Section 5. Ethical principles in conducting research (1 hour) Experimental research in human subjects and in animals, humane perspectives, human experimentation, conflict of interest. Ethical Guidelines for Biomedical Research on Human Subjects Indian Council of Medical Research 2000, subsequent and similar documents from other countries.

Unit IV Section 6. Research and Clinical trials (3 hours) Drug trials, remuneration to the investigators, conflict of interest, volunteer research, financial support to participants, difference between inducements and legitimate compensation for loss of earning hours during the trial period, ethics of reporting results, selective reporting, publication ethics, plagiarism.

Curriculum of unit IV

During this period, the students would have already appeared for the clinical examinations in ENT and in Ophthalmology. They would undergo in depth training in all clinical subjects, namely, medicine, surgery, obstetrics, gynaecology, orthopaedics, paediatrics etc. This is the time that the student will be grasping the crux of medical practice. Hence, these topics shall be taken by the respective clinical professors themselves, supplemented by some seminars, and discussions, case scenarios and case studies.

Evaluation methods of Unit IV

There shall not be a separate university paper. The objectives of bioethics teaching would be best served by including one or two compulsory questions, within the main regular paper for each clinical subject, itself. These questions should require some introspection on the part of the students.
**Unit V. Internship and skill development (Teaching hours -unlimited -24x7)**

**Learning objectives of unit V**
This period shall ingrain bioethical principles and medical ethics, in each medical graduand.

**Syllabus of Unit V**

Unit V Section 1. Equality, Justice and non-discrimination
Society’s duty to render assistance to fellow beings, Principles of allocation of scarce facilities, duty to rescue on the part of the bystanders and the general public, the duties of a professional care giver (empathy, compassion, and professional reasoning), non-discrimination and non-stigmatization in the case of diseases like HIV, AIDS, Hansen’s disease, tuberculosis etc. World and Environmental issues, Biocentrism, Biosphere and biodiversity, genetic engineering, Ecological and environmental issues in Bioethics, Public health issues

Unit IV Section 2. Value systems on one’s professional life
Guarding oneself from malpractices, Issues like over-investigating the patient, charging of fees, fee splitting prescription of drugs, medical insurance norms, Legitimate defensive practices for self-protection against allegations of malpractice and negligence, documentation of management. The Law, Judgements and court directives in general, specific case law discussions, interactive discussions

**Curriculum of unit V**
During this period, the students will be learning by precept and by personal practice. Hence, these topics shall be taken by the respective clinical professors themselves at the bedside and the wards. It shall be supplemented by some seminars, and group discussions, case scenarios and case studies.

**Evaluation methods for unit V**
There need not be any university examinations. The non-formal evaluation shall have an element of objectivity. Examples are assignments like writing articles on specific topics, review of a current case scenario, conducting seminars for the junior students, active participation in group discussions etc.

**Recommended Reading for all the units.**


2. Further resources must be prepared comprehensively (more case books, case studies, lecture notes, power point presentations and posters). We intend to prepare a compendium of resources. It will be globally sourced and the contents shall be peer reviewed.

3. Ethical Guidelines for Biomedical Research on Human Subjects, Indian Council of Medical Research, New Delhi, 2000, and, similar Guidelines prescribed by the various statutory bodies of all countries.