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From Plant to Medicine



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**PROCEEDING OF
INTERNATIONAL CONFERENCE ON
MEDICINAL PLANTS**

in occasion of
the 38th Meeting of National Working Group on Indonesian Medicinal Plant

**21-21 July 2010
Surabaya, Indonesia**

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PREPARING AND IMPLEMENTING MODULE ON HERBAL MEDICINE FOR MEDICAL STUDENT

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Abstract : The concept and practice of herbal medicine among medical doctors, who were trained according to the western medical education, are not yet fully accepted. Nevertheless, since 1995, the Ministry of Health of Indonesia instructed through a decree (SK Menkes No. 0584/Menkes/SK/VI/1995) that every public health services should have a Center of Development and Application of Traditional Medicine. In medical schools, students are taught exclusively on modern-medicine approach for treating the diseases. Though Indonesia is the second nation after Brazil on biodiversity, but, unfortunately, the development of herbal medicine is lacking. Although most of the people still using “jamu” (traditional herbal preparation) as it is, some producers have been repackaging the jamus into capsules, tablets or powder to give them more convenient to be used. Some of the jamus have been through pre-clinical or toxicological studies, but only few have been clinically studied. Since 2006, the Faculty of Medicine of Universitas Kristen Indonesia (FM-UKI) has been implementing the new curriculum, named Competence-based Curriculum, of which problem-based learning is the main method of learning. After 3 years of implementation, the Medical Education Unit (MEU) asked the Dept. of Pharmacology to set up a special module on Herbal Medicine that should be offered for the students at the end of their pre-clinical years. The module consists of theoretical and practical aspects of herbal medicine. The students learn the basis of herbal medicine and have an experience on how the herbal are grown, harvested, selected, tested and prepared. At the end of the course students gave their comments on their experience. This paper will discuss the module and the experience on implementing the module for medical students

Keywords : herbal medicine, conventional medicine, competence-based curriculum, medical school

INTRODUCTION

Traditional medicine in Indonesia has been practiced since hundred years ago, and known as indigenous knowledge, the practice of traditional medicine are orally transcribed from generations to generations. Though, some were carefully recorded in traditional writings like lontar and pustaha. As we observe in traditional chine medicine (TCM) and Ayurveda, they build their traditional healing ways based on their philosophical paradigm on health and sickness which has inter-related between micro and macro-cosmos, between body and spiritual balance (Schwarz, 2004; Wong, 2006; and Maiers, 2009) On the other hand, the philosophical background of Indonesian traditional medicine (ITM) has not been fully explored, although some practitioners in ITM recently published books which reveal the paradigm of ITM.

Jamu, a specific name given to indonesian herbal preparation, has been officially branded as the national herbal medicine and since then, Jamu is extensively researched by private and governmental research agencies. Indonesia considers jamu now as one of the Indonesia's national excellences which should be propagated into world like TCM. At the moment, the herbal medicine in Indonesia is categorised into 1. Jamu (a traditionally prepared herbal medicine), 2. Standardised herbal medicine (herbal medicined which has passed at least, toxicity test) and 3. Phytopharmaca (herbal medicine that has passed clinical trials).

The main concern is now, from the perspective of conventional/modern medicine, how to increase the awareness and usage of ITM by the medical doctors, who are trained by modern (west) medical system. A quick glance on medical education in Indonesia is briefly discussed in the following passages.

Medical Education in Indonesia

In the 14th century, the westerners (Portuguese & the Netherlands) came to Indonesia looking for spices, of which, at the end brought to colonialism to Indonesia. On 2nd Januari 1849, Medical education in Indonesia was introduced, with the main objective is to produce local “barefooted” doctors to help the Dutch doctors in vaccination against variola outbreaks, also they taught local people on primary health care issues, such as sanitation, which reduced the diarrhea outbreaks significantly. In 1875 the curriculum and objective of the school was revised and aimed not only to produce vaccination’s assistant but medical doctor named “Dokter Jawa” or Java’s doctor. In 1899 in Jakarta, **STOVIA** (*School tot Opleiding voor Indische Artsen*) was established and the school was changed many times into *School tot Opleiding van Inlandsche Geneeskundigen*, and *School tot van Inlandsche Artsen* respectively.

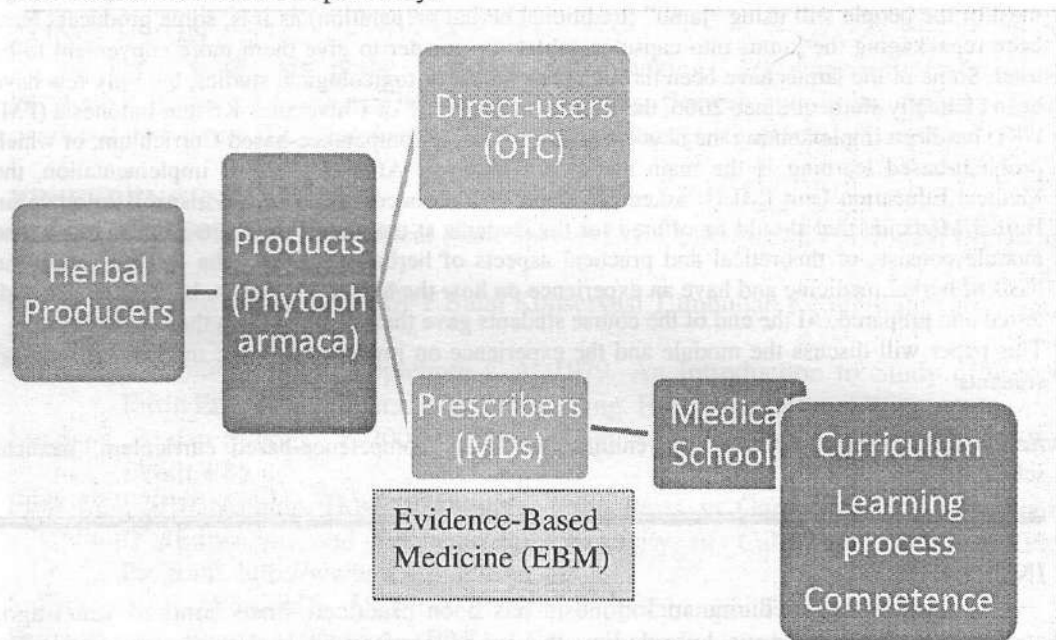


Figure 1. Diagram of the interconnections between herbal (medicine) producers and conventional medicine

Although in 17 August 1945 Indonesia declared its independence, but up to 1950s – the medical education system was still greatly influenced by the Dutch (colonial) system. From 1950s to the present time there are some minor and major changes of the medical education system. One of the major changes was in 2003 as the Directorate General of Higher Education through its decree announced that all medical schools should use the emphasize competence in accordance to the new paradigm of medical doctors instilled by World Federation of Medical Education (WFME), that led to the establishment of competence-based curriculum or Kurikulum-berbasis kompetensi (KBK).

Meanwhile, in 1995 the Ministry of Health through its decree announced that every governmental health services should have a Center of Development and Application of Traditional Medicine. Unfortunately, only few of governmental hospitals follow this decree, among others are Sutomo General Hospital in Surabaya-East Java, followed by General Hospital in Malang-East Java and Cipto Mangunkusomo Hospital in

Jakarta. Thus, in nutshell, the medical education in Indonesia is greatly influenced by the western/conventional medicine.

Medical doctors are accustomed to use (chemical) medicine which has been proved by clinical trials. Therefore, when they are willing to use herbal medicine, they demand also (clinical) evidence. As we all know, clinical trial is a painstaking scientific methods of proving the efficacy and safety of drugs applied to the real patients. Moreover, the studied-drugs have to be evaluated and compared with the available medicines not only to placebo (head-to-head comparison). Therefore, only phytopharmacas would have been prescribed by the doctors.

Evidence-based Medicine

Evidence-based Medicine (EBM) is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient (Sackett, 1996). The practice of EBM means integrating *individual clinical expertise* with the best available *external clinical evidence* from systematic research (Balatbat, 2008). The “least evidence” lies at the bottom of the hierarchical pyramid of the evidence (see Fig. 2) such as laboratory studies and animal research while the “best evidence” in clinical context is systematic reviews.

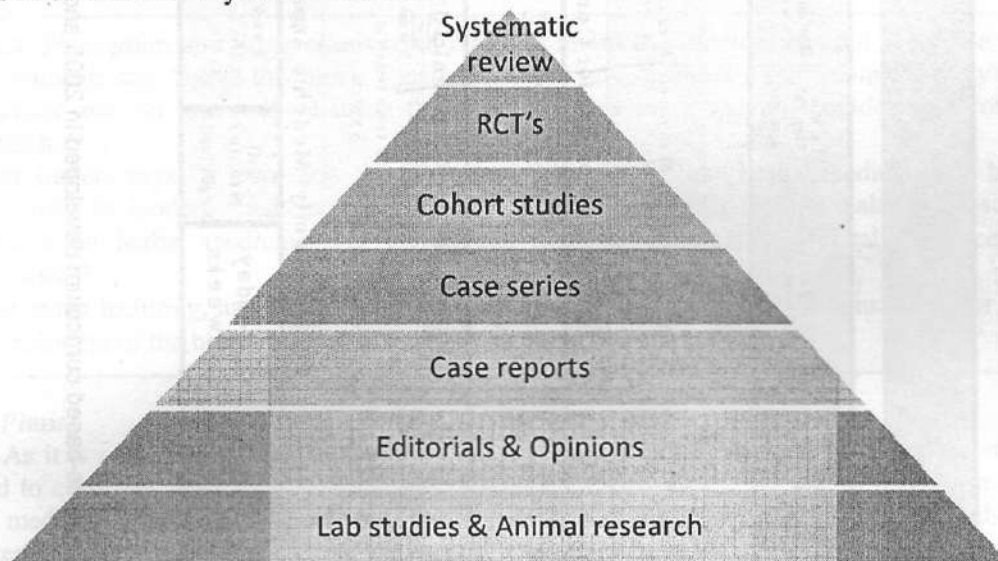


Figure 2. The pyramid of Evidence-Based Medicine

By far, most of the herbal studies done in Indonesia are animal studies, and only a small numbers studies go directly to clinical trial. This can be seen, that we only have 5 phytopharmacas registered although there are more than 100 herbal with various active substances available. While most of the people is still using jamu and standardised herbal medicine, then people think, there is no need to invest for clinical trials to produce phytopharmaca. Therefore, it is a big challenge to those who are interested to develop extended clinical evidence or efficacy and safety profile of any given herbal medicine (Verma, 2008; Anonymous, 2009). However, the debates between modern and traditional medicine is never end. Most people who practice modern medicine calls the traditional, phyto- or herbal medicine as “alternative” thought the modern medicine actually is a “deviation” or the true “alternative” medicine according to traditional healers, while traditional medicine have been practiced thousand of years throught the world (Kheel, 1989).

INTERNSHIP									
6 th year									
General Diseases (4 weeks)	Obstetrics (8 weeks)	Ophthalmology (4 weeks)	Anesthesiology (4 weeks)	Surgery (8 weeks)	Medical (4 weeks)	Psychiatry (4 weeks)	Public Health (8 weeks)	Family Medicine (4 weeks)	Forensics (4 weeks)
4 weeks	6 weeks	6 weeks	4 weeks	8 weeks	8 weeks	4 weeks	8 weeks	4 weeks	4 weeks
23	24	25	26	27	28	29	30	31	1 st year
Patient-Doctor Communication 3 + Family Medicine Approach									
7 th S mst									
Neurobiology System (8 weeks)	Gerontology (8 weeks)	Evaluation (3 weeks)	Internal Medicine (8 weeks)	Nephrology (6 weeks)	Radiology (4 weeks)	Pediatrics (8 weeks)	Behavioral Psychiatry (6 weeks)	Holiday (5 weeks)	21
17	18	19	20	21	22	23	24	25	26
Patient-Doctor Communication 2 + Family Medicine Approach									
8 th S mst									
Cardiovascular System (8 weeks)	Respiratory System (8 weeks)	Public Health Research (4 weeks)	Gas Tract System (4 weeks)	Urinary-tract System (6 weeks)	Reproductive System (6 weeks)	Holiday (5 weeks)	27	28	29
11	12	13	14	15	16	17	18	19	20
Patient-Doctor Communication 1 + Family Medicine Approach									
9 th S mst									
Thrombology (6 weeks)	Maternal and Child Health (6 weeks)	Cellular Organization (6 weeks)	Community (4 weeks)	Life-cycle (4 weeks)	Endocrine (4 weeks)	Holiday (5 weeks)	30	31	1 st year
1	2	3	4	5	6	7	8	9	10

Figure 3. The map of competence-based curriculum developed in 2005 and firstly implemented in 2006

The Herbal Medicine Block

Block 26 comprises of sub-blocks: Herbal Medicine, Entrepreneurship and Disaster Management. Students are free to choices which sub-block he or she wants to apply. The main objective Herbal Medicine Block is to introduce students on the use and further development of herbal medicine. The duration of the block is 4 weeks and during the study students will learn 3 scenarios:

1. Marketing of Phytomedicine. The learning objective of the scenario is to introduce the phytomedicine and its usage in the market.
2. Diarrhea (hygienic aspects of herbal medicine). In this scenario, the students learn some important aspects of preparation, producing and using of herbal medicines, especially simplicias.
3. Failure in Newborn-babies (toxicological aspects of herbal medicine). This scenario gives a broad picture of the toxicological aspect of herbal medicine to be considered by the students.

Students discuss and learn by themselves the topics of the scenarios. In the field practice, students are showed the nursery and herbal plantation, and preparation of herbal medicine. At the end of the block's session, students take multiple choice examinations.

Some students developed a media communication using Facebook (see Fig. 4). They use the social-networking as a tool for exchanging ideas, information on herbal medicine. And they asked the lecturer as the moderator. We also used the media to inform them on certain issues, also it was used for a survey on the perception of the students about the Block.

Box.1. Perception and Suggestions from students about the Block of Herbal Medicine

One students say: "I like this block, I learn that herbs have been used quite sometimes by our ancestors and yet now we are using them, but it needs more scientific evidences through research."

Other student says: "I learn new things on herbal medicines, and herbal medicine can be a great help to modern medicine. And I think (medical) students should make small-scale research on herbal medicine that maybe can improve the quality of health service in Indonesia."

"Too much lecturing, and lack of practical examples are things should be considered for the improvement of the block," other student comments.

Future Plans

As it is planned, the Block 26 will be given prior to clinical practice, therefore the students are prepared to carry out what they have in the pre-clinical years. The three subjects offered in this Block (Herbal medicine, Disaster Management and Entrepreneurship) are indeed as important as other subjects such internal medicine, pediatrics, ENT, surgery, neurology, etc. However, there is no department in the teaching hospital ready yet for practicing the herbal medicine. Therefore, it is important to have department of herbal medicine in the teaching hospital which will give service for patients who seek complementary and alternatives medicine to relieve their health problems. This department should also do research and clinical trials for fulfilling the requirement for registration of the herbal medicine to the legal authority. With regards to education we will revise the scenarios and focusing the theme of the scenarios on What, when and how to use phytopharmaca.

Students settled-up their networking through Facebook as it is shown in Figure 4.

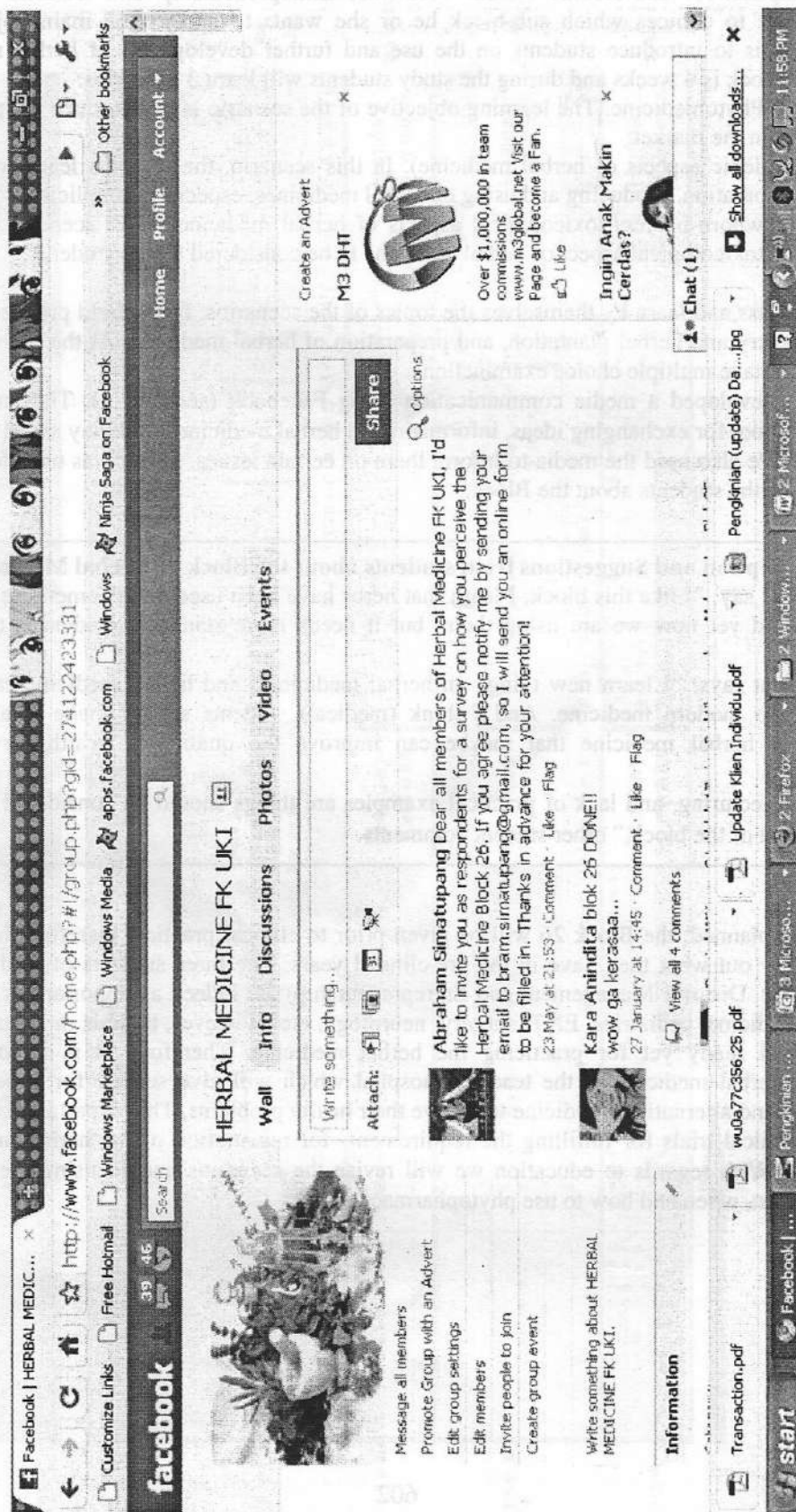


Figure 4. Networking of the students who took the Herbal Medicine Block

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