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Status Analysis and Consideration of Medical Education System in China and Abroad

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Abstract

This paper concludes five current medical education systems by investigating medical education status in both China and abroad. They are: 5+3 years British system, 6-year German system, 6-year Russian system, "4+4" years American system, and 5+3+3 years Chinese system. Based on the five systems, this paper analyzes the current situation of medical postgraduate student education of the Great Britain, Germany, U.S.A, France, and China. In the last part of this paper, a careful consideration on Chinese medical education is made. Authors of this paper suggest that China should gradually call off multi-level medical education; take 8-year, 5-year, and 5+4 years education as the principal modes of medical education. Students should be offered medical doctor's degree and positioned as diplomates after the 8-year medical education. Students who finish the 5-year medical education will be awarded the bachelor's degree and work as general practitioner. Students decide to receive another 4 years medical education after finishing the 5-year one will be granted medical doctor's degree (diplomate or general practitioner). The 3-year medical postgraduate education should be gradually abolished.

Key words: Medical education; Postgraduate education; Education system

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1. MAIN TYPES OF CHINESE AND ABROAD MEDICAL EDUCATION SYSTEMS

1.1 5+3 Years British System

The students that this system recruits are mainly high school graduates. The first four years of the system is theoretical education and the last year is clinical practice. Students will be awarded the bachelor of medicine after they graduate. British Commonwealth countries adopt this system, for example, The Great Britain, Singapore, Sri Lanka, Pakistan, and so on. Students will spend 1 to 3 years to study for Master of Medicine after earning the bachelor's degree, passing examinations and getting recommendations (CUI & DUAN, 2009).

1.2 6-Year German System

The students recruited under this system are high school or professional school graduates. The length of schooling is 6 years which is divided into three stages: elementary courses, clinical special courses, and internship. Internship bases on university and is centered in disciplines. It follows the educational mode step by step from theoretical education and laboratory training to clinical practice. Once students finish their courses, pass the national examination, and get through the doctoral dissertation defense, they will be awarded the medical doctor's degree. Most European countries follow this system, for instance, Denmark, Finland, Hungary, Netherlands, Spain, and Portugal and so on (CUI & DUAN, 2009).

1.3 6-Year Russian System

The students enrolled under this system are mainly high school graduates. They have to take 3 years prior medical education and 3 years professional education. They will earn the Medical doctor degree (MD) after they graduate. With one year clinical practice after graduation, they can get Physician qualification certificate via national

examination. Former Commonwealth of Independent States follow this system (CHEN, 2002).

1.4 “4+4” Years American System

The American system only accepts students with bachelor degree (4 years). Students will go to medical colleges after graduation with qualified interview and examination results. The duration of medical colleges is four years. The medical colleges offer free-elective system for students based on strengthening regular higher education and providing concentrated core curriculums. When finishing their courses and getting through thesis defense, students will be awarded the medical doctor degree. The U.S.A., Canada, Thailand, Korea, and Philippines adopt this system (CHEN, 2002).

1.5 5+3+3 Years Chinese System

The Chinese system recruits common high school graduates. Students that pass the national examination after graduation can get into medical colleges and the duration is 5 years. During the study period of medical colleges, they mainly learn fundamental clinical theories, knowledge, and do practice. Graduates from medical colleges will be recognized as general practitioners and will be granted bachelor of medicine. After graduation from medical colleges, they have to pass the national examination to get into professional theoretical training stage which will last three years and students will be conferred master's degree. Postgraduates must pass examinations (English examinations may be designed either by universities or national test programming group and professional courses and elementary courses examinations are all designed by the national test programming group) after graduate and get qualified results to go on getting professional education for 3 years and get the medical doctor degree after this period.

The first five countries that have top medical colleges are U.S.A, India, China, Brazil, and Japan. They have 141, 140, 131, 82, and 80 medical colleges respectively. Among all countries over the world, number of the countries that adopt 6 years system is the largest which is 90 countries making up 56.6%; the second is countries that adopt 7 years system which is 53 accounting for 33.3%; the third one is 8 years system countries which is 15 and takes up 9.4%; the last one is the 9 years system country which is only one country making up 0.7% of all (ZHANG, 2009, p.7-12; ZHOU, DING, & SUN, 2009, p.69-70; Burn, 1973, p.61).

2. CURRENT SITUATIONS OF CHINESE AND OVERSEAS MEDICAL EDUCATION

2.1 The U.K.

At present, there are 27 medical colleges all over the United Kingdom and all of them have the right of

independent recruitment. These medical colleges can enroll the best students according to their high school scores and interview performance. Medical college courses are divided into two stages: 2 years foundation medicine courses and 3 years clinical medicine courses. Students will get the bachelor's degree of medicine after graduation. In the first year of graduation, students will attend a one year medical and surgical practice training as resident physicians before register. Once they get the course-completion certificate after training, they can apply for registering to do clinical jobs. Clinicians now are made up by clinical specialists and clinical general practitioners. The Royal College of Physicians (RCP), the Royal College of Surgeons (RCS), Royal College of General Practitioners (RCGP), and other professional royal colleges are responsible for training of clinical specialists. The first two years of the college courses are general training. Students need to pass different membership examinations which only have 25% first time passing rate and candidates are required to attend no more than 4 times of these examinations after finishing training. Once candidates pass the examinations, they will go into the higher training stage. During this stage, different courses apply different lengths. Internal medicine courses are 4 years and surgery courses are 6 years. When this stage ends, candidates could obtain the certificate of qualified diplomate training and at the mean time registered as diplomats. Students who get the general practitioner's training will go to hospital for a one year internship and then start to receive the 3 years training of general practitioners during which the first two years will be spent in hospital and the last year in community. Candidates have to pass comprehensive examinations after three years' specialized training to become general practitioners. Among all these medical graduates, there are about 30% of them become general practitioners and 30% become diplomats (CUI & DUAN, 2009, p.108-120; HUANG & WU, 2005, p.573-575).

2.2 Germany

In Germany, ordinary university education and postgraduate education are combined together. Postgraduate education's academic degree system only offers doctor's degree but no master's degree. There are 39 medical schools around the Germany and most of them are set in comprehensive universities. There is no entrance examination in Germany's universities but due to the limited enrollment numbers of medical schools, applicants of medical schools also face great competitions. German university medical education last 6 years and students graduate successfully will gain medical doctor's degree. The courses are divided into two stages: preclinical phase (2 years) and clinical phase (4 years, internship included). German medical students need to take two national medical examinations in university. The first one is taken two years after enrollment which is the end of preclinical

phase. Students will be eliminated according to the test scores. The second one is taken at the 6th year of university when students finish all courses. Students that pass both examinations could obtain national physician examination certificate. The ones that pass the examinations and finish their doctoral dissertations can apply for the medical doctor's degree. About 85% medical students could gain medical doctor's degree after graduation. Once they leave the university, graduates should have an 18 months intern job. Only when they pass the examination of the internship, they can work independently. In accordance with different disciplines, diplomate training is varied. The length of the training could last about 4-6 years or 6-8 years. Diplomate training includes primary training and advanced training. Advanced training lasts at least 2 years by the end of which, candidates who complete the training and pass examination will be granted specialist qualification certificate. The training of general practitioners usually starts after students graduate from medical schools. They have to pass the 18 months pre-register training and apply a general practitioner's training after that. Having passed 2-3 years general practitioner's training and got qualified examination scores, they will be given general practitioner certificate to start their career independently (WANG & WANG, 2006, p.174).

2.3 U.S.A

No matter in public or private universities in the U.S.A, students who wish to obtain master's degree or doctor's degree have to be approved by the Council on Postsecondary Accreditation and qualification and evaluation offices of the Ministry of Education of the union. Nowadays, there are 141 medical colleges around the U.S.A. The higher medical education takes place after finishing four years undergraduate (sciences) courses and obtaining bachelor's degree. There is only medical doctor's degree which is divided in detail to doctor of medicine and doctor of philosophy. Medical schools give doctor of medicine and doctors of philosophy are mainly staffs doing fundamental medical research. In order to become a registered doctor in professional area in the U.S.A, one has to pass four phases of study and training which may last about 16 years (4 year courses in school of arts and sciences plus 4 years in medical schools and 3-8 years resident physician training and specialist physician training). Medical schools students learn general basic medical science courses in the first two years and take the step 1 United States Medical Licensing Examination (USMLE) after that. Students that pass the examination can go to receive further education. In the next two years, they have to take clinical courses and family doctor courses and other professional clinical trainings after which they will attend the step 2 USMLE. Students passing the step 2 will get medical doctor's degree (MD) and they will have to attend step 3 examination (including written test and computer simulation case test) in the

following 1-3 years. Only candidates passing step 3 examination could get doctor license. Medical students have to choose one discipline in teaching hospitals to receive resident physician training for 3 years or more after 4 years' study and acquiring medical doctor's degree. Upon completion of the training and the examination, they will be issued license to start medical career (Burn, 1973, p.61).

2.4 France

There are 49 medical colleges in France at this moment and their higher medical education is of two stages. The first stage is 6 years in school education (includes fundamental courses, clinical courses, and intern). The second stage is clinical resident physician practice (2-5 years). The entire education lasts about 8 to 11 years in total. Students will be awarded national medical doctor's degree (general practitioner) or national medical doctor's degree (specialist physician). There is no bachelor's degree or master's degree. Every year's high school graduate examination in France is designed by the government and the pass rate is 70%. All students passed the national graduation examination can go to any public hospital to study without limit on the number. However, during the process of studying in hospital, they will face two times general medical examinations. The first general medical examination is held by each medical school and takes place by the end of the first semester and second semester of the first year. The two scores from two semesters are the overall score of the first general medical examination. Students failed in the examination will be offer a make-up examination after another year's study. French medical students engage in clinical practice much earlier than other countries'. Normally, they start to learn clinical courses from the second college year and there are 13 weeks clinical practices in both the second year and the third year of college. All forenoons in the 4th, 5th, 6th years of college are used for clinical practices. Graduated after 6 years' study, students have to pass the second strict general medical examination to go get resident physician training. The second general medical examination is a unified examination held by the country which takes place in every June. Students who want to be specialist physician must attend the second general medical examination and they will be divided into two groups: general practitioners and specialist physicians on grounds of their examination scores. The passing rate of the second general medical examination is about 50%. Candidates passed the exam will go into the specialized resident physician training stage: the period of surgeon training is 5 years and others are four years. After finishing the dissertation and passing thesis defense, students will gain national medical doctor's degree (specialist physician's degree and a study certificate for clinical specialist physician). Only people with this kind of degree could be a specialist physician. For others who do not pass the second general

medical examination, the government allows them to attend second year's examination at the same level. If they cannot pass this time, they will be turned to start general resident physician clinical training which lasts for 2 years. Students passed the dissertation defense will gain national doctor's degree (general practitioner) without specialized physician's study certificate. General practitioners can only do primary health service mainly in private clinics and community hospitals while specialized physicians have higher salary than the general practitioners (Maki & Borkowski, 2006, p.53-82; XU, 2009, p.16-19).

2.5 China

China is currently the country which has most medical education systems: 3 years system, 5 years system, seven years system, and eight years system (Figure 1). At present, the three years system and five years system are used in educating specialized medical talents in urban and rural primary levels. People who has medical bachelor's degree can attend medical practitioner examination after one year internship under the direction of medical practitioners. Once they pass the examination, they will have independent prescribing right. Three years junior college education taught students could attend physician's assistant examination when finishing one year internship in medical treatment with the guidance from medical practitioners. Once they get the practicing certificate for physician's assistant they could register for clinical practitioners after two years medical work. People who pass the examination could get independent prescribing right. 7-year master's degree is a combined degree with bachelor and master of clinical medical specialized

students. Students will gain medical master's degree after graduation and attend national medical licensing examination when finishing one year internship. Students passed the examinations will get medical practitioner certificate and have the independent prescribing right. However, this kind of enrollment has been stopped. 8-year system is used for cultivating bachelor, master, and doctor combined degree's talents who will be granted medicine doctor's degree after graduation. In the 6th year of their courses, students can take the national medical licensing examination. They will obtain independent prescribing right after passing the examination. Students graduated from 5-year undergraduate courses could gain medical bachelor's degree. With one year internship in medical organs, they are allowed to attend national medical licensing examination. When they pass the examination, they could start their medical career indecently. Students passed national entrance examination for postgraduates can go to receive postgraduate education. When finishing postgraduate courses and graduate successfully, students could attend the entrance examination for doctors. Chinese medical postgraduate education is divided into two stages: master's degree and doctor's degree. According to different requirements of different disciplines and career backgrounds, degrees offered by Chinese medical education is made up by degree of medical science and professional degree. Medical science degree focuses on theoretical and experimental research abilities. However, professional degree pays more attention to practical working ability of certain career which aims at educating applied talents like senior clinical physicians.

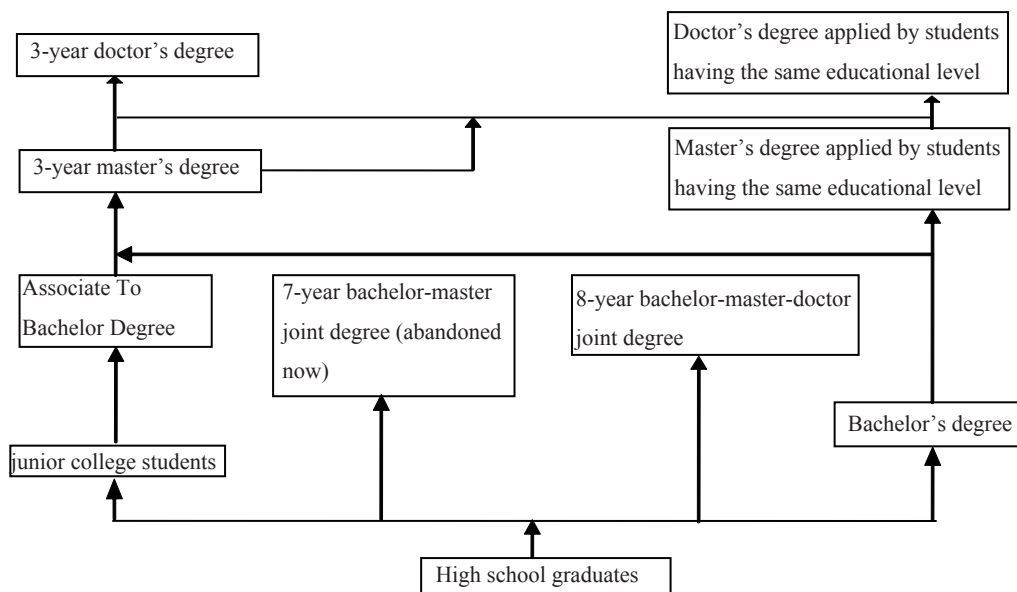


Figure 1
Current Medical Education System in China

3. CONSIDERATION ON CHINESE MEDICAL EDUCATION SYSTEM

By looking through the medical education development, pointing at current Chinese medical education reality, this paper suggests China gradually abolish multi-level medical education systems and focus on 8 years and 5 years medical education instead. Students obtained 8 years medical education should be recognized as specialized physicians who will mainly be appointed to work at large-scale comprehensive hospitals. While students finished five years medical education should be positioned as general practitioners basically work at primary and community level hospitals. 8 years clinical primary education enrollment should adopt the combined form of "direct enrollment" and "major changes training". In addition, enroll new students from high school to get continuous study for getting bachelor, master, and doctor's degree together or enroll excellent students from sciences graduates to let them study in medical colleges and gain a four year doctor's degree. Universities can also select excellent students from 5 years clinical medical education and 1-2 year science majors' students to directly start 8 years clinical medical education so that to motivate students' study interests. Gradually cancel three years technical secondary school medical education, three years junior college medical education, three years medical master's degree education, three years medical doctor's degree and upgraded medical education from junior college to university means there should only be two degrees in Chinese medical education in the future which are medical bachelor's degree and medical doctor's degree. Five years graduates who wish to get further education can take national unified examination. According to their own interest and research area, students who passed the examination can get a four year education and at last obtain medical doctor's degree (general practitioner or specialized physician). Introducing staged National Medical Licensing Examination in medical school education is to evaluate whether specialized professionals in medical majors gain independent work ability or meet the lowest standard of medical knowledge, skills, and clinical abilities for practicing. Five years and eight years medical education need to introduce standardized clinical training according to the cultivating requirement for general practitioners and specialized physicians after students graduate and on grounds of characteristics of

general practitioners and specialized physicians, it is also needed to formulate standard clinical medical intern training program. After 3 to 5 years training, a student finally becomes a qualified clinical physician. In order to guarantee clinical physicians' quality, this paper suggests lowering the passing rate of National medical practitioner certificate examination and offering foundation medical majored graduates the bachelor of philosophy instead of medical bachelor's degree. Besides, these students are not allowed to get further education of clinical medical doctor (LIU & WANG, 2007, p.22-24).

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