



**THE SECRETARY OF EDUCATION**

WASHINGTON, D.C. 20202

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**SENT BY FACSIMILE TRANSMISSION**

**Avudh Srisukri, M.D., Secretary-General  
Consortium of Thai Medical Schools  
c/o Faculty of Medicine  
Chiang Mai University  
Chiang Mai 50202, Thailand**

**Dear Dr. Srisukri:**

**Some time ago, Dr. David A. Longanecker, Assistant Secretary for Postsecondary Education, wrote to inform your country about a law passed in the United States in 1992 that changed the eligibility criteria for U.S. students who wish to finance their medical education in a country other than the U.S. with a loan through the U.S. Federal Family Education Loan (FFEL) Program. Eligible students must enroll in a medical school that is eligible to participate in the FFEL Program and that meets the accreditation or approval standards of the country in which the school is located.**

**Further, the accreditation or approval standards used by that country must have been reviewed by a panel of medical experts appointed by the U.S. Secretary of Education, which must have determined them to be comparable to the accreditation standards applied to medical schools in the United States. This panel of medical experts is known as the National Committee on Foreign Medical Education and Accreditation (NCFMEA).**

**I am pleased to inform you that the NCFMEA, at its October 8, 1998 meeting, determined that the accreditation or approval standards used by the Ministry of University Affairs and the Thai Medical Council to evaluate the medical schools in Thailand are comparable to those used to evaluate programs leading to the M.D. degree in the United States. This determination of comparability will remain in effect for a period of four years from the date of this letter. Prior to the expiration of that period, the NCFMEA will seek to confirm that your standards and procedures for accrediting/approving medical schools in Thailand are still comparable to the accreditation standards applied to medical schools in the United States. If so, its previous determination of comparability will be extended for another four-year period.**

**As a result of the determination of comparability by the NCFMEA, any medical school in your country that is accredited or approved by the Ministry of University Affairs and the Thai Medical Council may apply, if it has not recently done so, to the U.S. Department of Education to participate in the FFEL Program. If a medical school's application is approved, otherwise eligible students enrolled in the school who are either U.S. citizens or permanent residents of the U.S. may receive loans to finance their medical education through the FFEL Program.**

**U.S. Department of Education**



**Staff Analysis  
of the  
Standards Used by  
Thailand**

**for the Evaluation of Medical Schools**

**October 8, 1998**

U.S. Department of Education  
Staff Analysis  
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Prepared August, 1998

Background

At its September 1996 meeting, the National Committee on Foreign Medical Education and Accreditation (NCFMEA) reviewed the information provided by Thailand's Medical Council concerning the standards and processes for the evaluation of medical schools in that country. Because it did not believe it had sufficient information on which to make a determination regarding the comparability of the Thai standards to those used to evaluate medical schools in the United States, the NCFMEA made no decision regarding comparability but rather requested additional information from the country. That information was reviewed at the March 1997 meeting of the NCFMEA, at which time the Committee determined that the standards used by Thailand to evaluate medical schools were not comparable to those of the United States.

Department staff has now received additional information from the Secretary-General of the Consortium of Thai Medical Schools. A key document included with the information is a booklet entitled Accreditation of Medical Schools in Thailand, which appears to be jointly published by the Ministry of University Affairs, the Medical Council, and the Consortium of Thai Medical Schools. The Department has also received English translations of five other booklets:

The Ministry of University Affairs:

Standards for Undergraduate Curricula  
Policies and Guidelines for Quality Assurance at the Higher Education  
Level--1996;

The Medical Council:

Criteria for Certification of Medical Institutions  
Criteria for Medical Practitioners--1993  
Criteria for Medical Practitioners--1993 (Supplemented)--Appendix 4--  
Knowledge of Basic Medical Science.

The staff analysis that follows is based primarily on the information in these booklets.

According to the information provided by the country, medical schools in Thailand are accredited by not just one but three organizations, each with its own responsibilities

and duties. The three organizations are the Ministry of University Affairs, the Medical Council, and the Consortium of Thai Medical Schools.

The Ministry of University Affairs (MUA)

By law, the MUA has responsibility for approving and supervising the academic curricula of every university in Thailand and for evaluating the quality of these educational programs. The MUA's specific duties include the following:

1. Review new curricula and evaluate existing curricula to determine if they meet the criteria set forth in the MUA's academic standards. The MUA provided the following statement about those standards:

"The MUA will check academic programs to ascertain that they meet certain criteria, i.e., have the right concept, meet their objectives, have adequately good basic structure, appropriate duration of studies, number of credits, etc., for example:

  - Philosophy and objectives of the curriculum must meet the international standards of each discipline and must conform to the national university educational development plan.
  - Structure of the medical curriculum: number of semester credits must be not less than 210 and not more than 263 in the following categories:
    - a. General education must be not less than 30 credits.
    - b. Professional education must be not less than 180 credits.
    - c. Electives - not less than 6 credits.
  - Time span of the overall medical curriculum must not be less than 12 semesters."
  - 2. Determine factors governing the quality of education, i.e. inspect institutions that apply to establish a medical curriculum and check whether they have met not only the general criteria such as numbers and appropriate qualifications of instructors, library facilities, educational media, and basis infrastructure but also the specific criteria established by the Medical Council (these are mentioned below under the description of the Medical Council).
  - 3. Visit medical institutions to check the quality of various institutions. The MUA has established its own committee of external evaluators who make

site visits periodically to check the effectiveness of the institution's internal audit system. Documentation, including various reports reflecting educational quality such as lesson plans, handouts, lecture notes, references, examination papers, and results of teaching evaluation are evaluated during the site visits.

#### The Medical Council

The Medical Council was established by an Act of Legislation in 1968; it was subsequently restructured in 1992. The objectives of the Council are as follows:

1. To oversee the moral and ethical standards of medical doctors.
2. To enhance education, research, and career opportunities.
3. To strengthen unity and sustain the honor of the membership.
4. To assist, advise, and educate other organizations and the general public about medicine and public health and to disseminate information.
5. To act as a national representative of medical practitioners in Thailand.

The Council's legal responsibilities are as follows:

1. To issue or cancel medical licenses to qualified practitioners.
2. To certify degrees and certificates offered by medical institutions.
3. To certify all curricula offered by medical institutions.
4. To approve the academic standard of medical institutions where specialty and subspecialty training takes place.
5. To issue licenses for medical practice in all specialties and subspecialties.

The Council consists of two types of members: members by position and members by election. There are 18 members by position, including the Permanent Secretary of the Ministry of Public Health, the Director-General of the Department of Medical Services, and the Deans of every medical school in Thailand. The 18 members by election are elected by medical practitioners.

The accreditation of medical schools by the Council is conducted as follows:

1. **Certification of the medical curriculum.** Even though a medical curriculum has been approved by the MUA, the institution offering that curriculum must submit it to the Medical Council for review of the details of the curriculum such as courses provided, educational objectives, learning experiences, student evaluation, and so forth, to see if these meet the Medical Council's Standard for Medical Practitioners, which includes knowledge in basic medical and clinical sciences, clinical competencies, professional skills, and attitude.
2. **Certification of the medical institution.** The Medical Council has a set of criteria for the accreditation of a medical institution; these criteria are also used by the MUA in its evaluation of a medical institution. The criteria emphasize appropriate numbers and qualifications of instructors, clinical setting, and other factors. Examples of the criteria include the following:
  - a. The ratio of instructors to students must be 1:4.
  - b. The ratio of qualifications of instructors (Ph.D.: M.Sc.: B.Sc.) must be at least 30:60:10.
  - c. Teaching aids for microbiology, e.g., the ratio of the number of microscopes to the number of students must be 1:1.
  - d. Teaching hospitals must have at least 400 beds.
  - e. The ratio of patient hospital beds to students must be 5:1.
3. **Certification of the medical degree and the granting of medical licenses.** If the curriculum and facilities of the medical institution meet the Council's standards, then the Council certifies the degree and grants medical licenses to its graduates.

#### The Consortium of Thai Medical Schools

The Consortium was established in April 1989 by the Deans of all of the medical schools in Thailand for the purpose of collaboration among medical institutions, with a particular emphasis on medical education. The objectives of the Consortium are as follows:

1. To review, recommend, and help implement policy on medical and health sciences education.

2. To promote research and service in the health professions with the ultimate aim of improving the health of the population in line with government public health policy.
3. To foster collaboration and academic exchange in medical education and related fields.
4. To develop leadership and management skills among senior administrators in medical and other health professional institutions in Thailand.
5. To create an information network between schools of medicine and others in public and private institutions interested in medicine and its interface with public health and the health sciences.

The Consortium is engaged in a number of activities related to improving the quality of medical education in Thailand. Through regular meetings of its Secretariat, issues such as improving the criteria for the selection of medical students and improving faculty staff development are discussed. In addition, regularly scheduled conferences and seminars are held for "exchanging ideas, experiences, and solution to the problems encountered in curriculum development." Examples of topics considered at these conferences and seminars include the following: student assessment and evaluation, pre-clinical teaching, clinical teaching, and quality assurance in medical education. Finally, national medical education conferences are held every 7-8 years.

Although the Consortium is a private, non-profit organization without any legal authority, "its deliberations carry great impact on monitoring the quality of medical education in the country."

#### Summary of Findings

Thailand's three-level system for the accreditation of medical schools appears to be similar in many respects to that used to evaluate medical schools in the United States. As the country did not provide much information about the site visit process or certain other components of the accreditation system, Department staff has requested additional information about these aspects of the system and will present it to the NCFMEA at its October 1998 meeting should it be received by that time.

#### Staff Analysis

The National Committee on Foreign Medical Education and Accreditation is charged with determining whether the standards of accreditation used by a foreign country to

accredit medical schools offering programs leading to the M.D. (or equivalent) degree are comparable to standards of accreditation applied to M.D. programs in the United States. In making this determination, the Committee uses the following guidelines which it has determined provide an appropriate framework for the thorough evaluation of medical schools offering programs leading to the M.D. (or equivalent) degree. The Committee wishes to make it clear that these are in fact guidelines and that a foreign country's review and approval process can differ substantially from these guidelines and still be determined to be comparable to the standards used in the United States, provided the foreign country can demonstrate that its standards and processes of evaluation are effective alternatives to those used in the United States.

## PART I: Accreditation/Approval Standards

### 1. Objectives

The accreditation/approval process used by the foreign country should determine whether the educational mission of the medical school serves the general public interest and whether its educational program is appropriate in light of the mission and objectives of the school. Approval should not be granted if it is determined that the educational program is inconsistent with the mission and objectives of the school.

The accreditation/approval process should determine whether the program is legally authorized to provide medical education in the country in which it is located. Approval should not be granted to a program that is not legally authorized to provide such education.

#### Mission and objectives

According to Thailand's August 1996 response to the Department questionnaire, the educational mission of a medical school must serve the general public interest. In addition, all medical schools must follow or develop educational objectives that comply with the Medical Council's Standard Criteria for Medical Practitioners. The Medical Council's introductory section of its Criteria for Certification of Medical Institutions states that the medical school curriculum should "...instill positive attitudes in continued education throughout the professional career in order to follow, apply and develop a rapid increase of knowledge of science and technology and efficiency, and also with a sense of morals, ethics and pride in being a doctor." Additionally, the criteria require that "The institute must organize the teaching and learning in such a way as to stimulate the learners to go on learning and be able to do self-directed and independent study." Finally, the criteria require that "The institute must organize the teaching and learning for learners to have direct experience in studying the public

health service and administration system as well as urban and rural community services."

### Legal Authorization

Medical schools in Thailand must be approved by both the MUA and the Medical Council in order to operate.

## 2. Governance

**The accreditation/approval process should determine whether there is an appropriate accountability of the management of the institution to an ultimate responsible authority external to and independent of the institution's administration. Approval should not be granted if the school lacks such a system of external accountability.**

According to Thailand's response to the questionnaire, both the MUA and the Medical Council have the authority to evaluate and approve medical schools. Thus, all medical schools are accountable to these authorities. The Medical Council's Criteria for Certification of Medical Institutions requires that medical schools function as part of a university, "be a tertiary level institute of education accredited by the Ministry of University Affairs," and "be a non-profit organization through the establishment in the form of foundation or fund with sufficient reserves to run long-term and with a representative from the Medical Council and the Ministry of University Affairs as committee members automatically through the post."

## 3. Administration

**The accreditation/approval process should determine whether the administration of the school is effective and appropriate in light of its mission and objectives. Approval should not be granted if it is determined that the administration is ineffective or inappropriate in light of the stated mission and objectives.**

**The accreditation/approval process should determine whether the chief academic official of the medical school is qualified by education and experience to provide leadership in medical education. Approval should not be granted if the chief academic official's credentials and training background are not appropriate for fulfilling his or her responsibilities.**

The accreditation/approval process should determine whether the faculty are appropriately qualified to teach and are involved in decisions involving admissions and curriculum. Approval should not be granted to schools that fail to demonstrate appropriate faculty qualifications and faculty involvement in admissions and curriculum development and delivery.

#### Administration

According to Thailand's response to the questionnaire, the "administrative committee" of a medical school is composed of the Dean, the Associate Dean for Academic Affairs, "Administration, Student Affairs, Research and Planning," Department Chairs, and a representative of the "Faculty Staff." Additionally, the Medical Council's Criteria for Certification of Medical Institutions has provisions requiring that "The institute must establish an organization and administration which can operate to achieve the level of education following the given aspirations, namely the system of general administration, educational administration, development plan setting, [and] educational development and research" and that "The institute's administrators must not have a personal conflict of interests with the institute's administration."

#### Chief Academic Officer

Thailand's response to the questionnaire indicates that the chief academic official of the medical school must have experience in "teaching at least 3 years of University level. He/she also must have academic qualification in that field." The Medical Council's Criteria for Certification of Medical Institutions requires that "The Dean must be a person with leadership and qualifications accepted in academic circles of education, vocation and research and should be a member of the Medical Council, that is, she/he must be a doctor."

#### Faculty

The Medical Council's Criteria for Certification of Medical Institutions requires that the teaching staff's qualifications for undergraduate studies at a medical school be at least in the following ratio: 30 percent Ph.D./60 percent M.S./10 percent B.S. For graduate studies, there must be a faculty ratio at the medical school of at least one Ph.D to one M.S., with no B.S. faculty members. Additionally, the criteria state that consideration should be given to "suitability" and "teaching experience and aptitude."

#### 4. Educational Program

The accreditation/approval process should examine whether the educational program of a medical school is of sufficient length to meet the mission and objectives of the school and to provide students with the knowledge and skills necessary to become a qualified physician. Approval

should not be granted to a school that does not provide an educational program of at least 32 months in duration.

The accreditation/approval process should determine whether the curriculum provides an education in the sciences basic to medicine, a variety of clinical subjects, and various ethical, behavioral, and socioeconomic subjects pertinent to medicine. Approval should not be granted to a school whose educational program does not provide such a broad-based curriculum.

The accreditation/approval process should determine whether the requirements for successful completion of the program of medical education conform to commonly accepted standards, with a particular focus on clerkships (or their equivalent) and other forms of clinical training. Approval should not be granted if such training is of insufficient breadth, is not conducted in suitable medical facilities, or is not adequately supervised.

#### Program length

The medical program is required to be not less than 12 semesters.

#### Curriculum

The curriculum must consist of not less than 210 or more than 263 semester credits structured as follows:

- a. General education must be not less than 30 credits, including at least six each in the humanities, social sciences, and language.
- b. Professional education must be not less than 180 credits, including 28 in internal medicine, 19 in obstetrics-gynecology, 18 in pediatrics, 28 in surgery, 6 in psychiatry, 14 in community medicine, etc.
- c. Electives - not less than 6 credits.

The curriculum must include, as the sciences basic to medicine, mathematics, physics, chemistry, and biology.

The Medical Council's Criteria for Certification of Medical Institutions has other curriculum-related provisions, including the following:

#### 2.1. Curriculum construction

- 2.1.1 The curriculum for Medical Science must have objectives in correspondence with the Medical Council's Criteria for Medical Practitioners.
- 2.1.2 The number of credits for the Degree of Medical Science must be according to the standards of the Ministry of University Affairs.
- 2.1.3 The institute must construct a curriculum that allows the learners to study foundation subjects for Medical Science such as Social Sciences, Economics, Science, Ethics and Medical Science and also instill in the learners competence and good judgment in how to solve scientific problems and research procedures as well as to have positive attitudes as good doctors.
- 2.2 The organization of teaching and learning
  - 2.2.1 The institute must organize the teaching and learning in such a way as to stimulate the learners to go on learning and be able to do self-directed and independent study.
  - 2.2.2 Those in the Medical Science Program should have the opportunity to study in the same class as those from other schools such as Humanities, Science, Social Sciences, etc.

#### Clerkships

There must be three years of clinical training, all of which must "rotate in specific department[s] including University Hospital, General Hospital, special Care Hospital/Centre, and Community Hospital. Other provisions relating to clerkships and clinical training in the Medical Council's Criteria for Certification of Medical Institutions include the following:

- 1.10 The institute must have a medical premises for training.
- 1.11 The medical premises should be close to the academic institute to give the fastest and most convenient access for the Pre-Clinical medical students to contact the patients.
- 2.2.3 The teaching and learning of foundation subjects for Medical Science should be organized for the learners to have both direct experience and be able to apply it clinically, to promote extracurricular activities to foster leadership, team-work and positive attitudes in being good doctors.
- 2.2.4 Pre-Clinical education may be organized in the form of subject-based or integrated. The integration can be vertical in conjunction with continuity

from Pre-Clinical to Clinical subjects and/horizontal, that is a mixture of Pre-Clinical subjects. The form of organization must provide for the students to be able to do manual practice in laboratory investigation according to the Medical Council's Criteria for Medical Practice.

**2.2.5 The Pre-Clinical studies:** The institute must organize the teaching and learning for the learners to study patients who have major or common problems in Thailand thoroughly and directly on the patients under the teaching staff's supervision, and also to study the patient's integrated care and treatment, namely physical and psychological health problems, and related factors such as socio-economic status, the patient's culture, family, community, including the use of appropriate technology.

**3.2 At least 14 main branches in medical service as follows:**

- 3.2.1 General practitioner**
- 3.2.2 Obstetric and gynecology**
- 3.2.3 Surgery**
- 3.2.4 Medicine**
- 3.2.5 Pediatrics**
- 3.2.6 Orthopedic surgery and physical therapy**
- 3.2.7 Ophthalmology**
- 3.2.8 Oto-rhino-laryngology**
- 3.2.9 Psychiatry**
- 3.2.10 Forensic medicine**
- 3.2.11 Pathology**
- 3.2.12 Radiology**
- 3.2.13 Anesthesiology**
- 3.2.14 Social medicine/Preventive and social medicine**

**3.3 The number of in-patients and out-patients who come for the service in each division of service units must be sufficient for the students to practice under the guidance and supervision of the teaching doctor and also to study integrated patient care and treatment through the different levels of academic year and service branches as follows:**

**Major subjects (Branches 3.2.1-3.2.6)**

**Fourth- and fifth-year students:** Each student must take care of 50 out-patients a year on average and give direct care and treatment to at least 1-2 new in-patients per week.

**Sixth-year students:** Each student must care for at least 5 out-patients per day.

## Minor subjects (Other branches)

The number of patients for the teaching and learning must be at least half of those in the majors.

## 5. Medical Students

The accreditation/approval process should determine whether the medical school admits only those students who possess the intelligence, integrity, and personal characteristics that are generally perceived as necessary to become effective physicians. Approval should not be granted to a school that fails to admit qualified students.

The accreditation/approval process should determine whether the medical school carefully monitors the progress of students through the educational program and graduates only those students who successfully complete the program. Approval should not be granted if the school fails to monitor students for satisfactory academic progress.

### Admissions

According to Thailand's response to the Department's questionnaire, there are three criteria for the selection of students:

1. Academic background: students must have had 12 years of schooling, they must have demonstrated academic achievement in Thai, English, physics, chemistry, mathematics, biology, social sciences, and humanities.
2. Physical health.
3. Mental health.

According to the questionnaire, the admissions process is controlled by the MUA or "by the permission of the University Board of Trustees."

Additionally, the Medical Council's Criteria for Certification of Medical Institutions has the following four provisions regarding the admission of medical students:

- 3.1 The institute must determine definite criteria, selection methods and the number of those to enroll in each academic year. The Medical Council must be informed about the possible increase in the number of students after the accreditation of the institute by the Medical Council for

evaluation and only after the Medical Council's approval, is such an increase then allowed.

- 3.2 As for the learners' qualifications, the Ministry of University Affairs' Criteria for the acceptance of applicants to the Medical School must be used.
- 3.3 Part of the selection of those to enroll must be done by the Ministry of University Affairs through the University Entrance Examination for each Academic year. The institute can choose the number of those to enroll - not more than half of the total number of those screened by the Ministry of University Affairs.
- 3.4 The number of the institute's student enrollment for each academic year is subject to the standards of resources of learning and the standard of the training hospital.

#### Monitoring of Students

Thailand's response to the questionnaire indicates that the monitoring of students is done by the medical school and supervised by the "Faculty Board of Medicine." There are no formal requirements for any external examinations for students in a "government medical school," but it would appear from the country's response that there may be for private medical schools.

The Medical Council's Criteria for Certification of Medical Institutions has the following three provisions under "2.4 Evaluation":

- 2.4.1 The institute must determine the definite criteria and evaluation methods for going up to the next level and graduation and make them known to all the teaching staff and learners.
- 2.4.2 Evaluation must correspond to the educational objectives.
- 2.4.3 A periodic evaluation must be done for further development and to be more up-to-date and practical.

#### 6. Resources for the Educational Program

The accreditation/approval process should determine whether the medical school has physical facilities that are quantitatively and qualitatively adequate for the size and scope of the educational program, as well as the

- size of the student body. Approval should not be granted if the facilities are inadequate.

The accreditation/approval process should determine whether the faculty provides effective teaching and is of sufficient size to provide the scope of the educational program offered. Approval should not be granted if there is an insufficient number of qualified faculty.

The accreditation/approval process should determine whether the medical school has a library sufficient in size, breadth, and depth to support the educational program. Approval should not be granted if the library is inadequate.

#### Physical facilities

Thailand's response to the questionnaire confirms some of the information provided in the accreditation booklet about required resources and provides the following additional information:

#### Space

There must be--

1-18 square meters (sq.m.) per person in each teaching or seminar classroom.

3-4 sq.m. per person in each laboratory classroom.

7 sq.m. per person in each dormitory.

.15 sq.m. per person in each cafeteria.

9-18 sq.m. per person in administrative office space.

1.5 sq.m. per person in the library.

The Medical Council's Criteria for Certification of Medical Institutions has lists of specific requirements for each of the above categories.

#### Faculty

There must be--

A ratio of 30:60:10 of Ph.D., M.S., and B.S. degrees.

A faculty-student ratio of 1:4.

A full-time staff-student ratio of 1:8.

In addition to the above requirements for the faculty, the Medical Council's Criteria for Certification of Medical Institutions states that the "teaching staff" must have "teaching experience and aptitude."

#### Library

There must be--

50 books per undergraduate student.

75 books per postgraduate student.

100 books per faculty member.

The Medical Council's Criteria for Certification of Medical Institutions has a separate section on the "Standard for Tertiary Level institute library." Within this section, there are general and specific requirements for all medical school libraries, such as the following:

The library must be located where the teaching staff and learners can have easy access. If there are different campuses, affiliated institutes or hospitals for training those who live far away from the institute, a library service must be provided on those sites.

Apart from the texts and journals, it is necessary to have equipment to facilitate additional search for technical data such as an index medicus, CD ROM and to coordinate with other medical science libraries.

The area to keep books and bound journals should be 60 square meters per 10,000 copies and an area for books should be prepared to double every ten years.

#### PART II: Accreditation/Approval Evaluation Procedures

1. There should be a clearly recognized body responsible for evaluating the quality of medical education in the country and that body should be legally authorized to accredit/approve medical schools offering educational programs leading to the M.D. (or equivalent) degree.

Information provided by the country indicates that medical schools in Thailand are accredited by three organizations, each with its own responsibilities and duties. The three organizations are the Ministry of University Affairs (MUA), the Medical Council, and the Consortium of Thai Medical Schools. A review of the descriptions of the responsibilities and duties of each by Department staff confirmed the authority of the MUA and the Medical Council to accredit/approve medical schools. The authority of the Consortium is less clear as none of the objectives included in the booklet, Accreditation of Medical Schools in Thailand, explicitly refers to the accreditation or approval of medical institutions and/or their curricula.

The August 1996 response of the Thai Medical Council to the Department's questionnaire confirmed the authority of the MUA and the Medical Council to accredit medical schools in Thailand.

- 2. The accreditation/approval process should include effective controls against conflicts of interest and inconsistent application of the accreditation/approval standards.**

The August 1996 response of the Medical Council on this issue states that the Council "is the body to control the conflict amongst the organizations and the evaluator. Also, the [Consortium of Thai Medical Schools] plays [an] active role [in] follow[ing] the activities of medical schools."

It would appear from this response that the question asked by the Department on the questionnaire may have been misunderstood. Elsewhere in the Medical Council's response it is stated that the on-site evaluators, most of whom are physicians, educators, and educational evaluators, do not make the accreditation decision concerning a specific school. They only make a recommendation, which the Medical Council will review before making the final decision. This serves as a quality control mechanism for ensuring that the standards are consistently applied. However, there is no indication in the information provided how the Council controls for conflict of interest in its decision-making when the Deans of all of the medical institutions in the country are members of the Council.

- 3. The accreditation/approval process should provide for the regular reevaluation of approved medical schools in order to verify that they continue to comply with the approval standards.**

According to the information provided by the country, an institution "that passes review [by the MUA] will receive a certification and will be subjected to periodic review every 3 to 4 years." This is confirmed by the August 1996 response of the Medical Council to

the Department's questionnaire, which states that the "frequency of visiting school[s] is approximate[ly] every 4 years."

4. The accreditation/approval process should normally include a thorough on-site review of the school (and all its geographically separated sites, if any) during which sufficient information is collected to determine that the school is in fact operating in compliance with the accreditation/approval standards. This review should include, among other things, an analysis of the admission process, curriculum, qualifications of the faculty, and facilities available to medical students. If there is not an on-site visit, there should be some appropriate alternative that ensures a thorough review of the school for compliance with the accreditation/approval standards.

The MUA has established its own committee of external evaluators who make site visits periodically to check the effectiveness of the institution's internal audit system. Documentation, including various reports reflecting educational quality such as lesson plans, handouts, lecture notes, references, examination papers, and results of teaching evaluation, is evaluated during the site visits.

As the country's previous responses have not provided much information about the structure of the site visits, Department staff has requested more information. Staff has also requested information on any self-study or other type of report medical schools must prepare as part of the accreditation process. If this information is received before the October NCFMEA meeting, staff will forward it to the Committee.

5. The accreditation/approval process should use competent and knowledgeable individuals, qualified by experience and training in the basic or clinical sciences, responsible for the on-site evaluation, policy-making, and decision-making.

As mentioned previously, the country has indicated that the on-site evaluators are mostly physicians, educators, and educational evaluators. It is not clear how these individuals are selected or how they are trained to carry out their responsibilities.

Department staff has requested additional information about the selection and training processes.

No information was provided about the decision-makers on the MUA. Department staff has requested this information as well.

6. The accreditation/approval process should ensure that all accreditation/approval decisions are based on the accreditation/approval standards.

There is no information that would suggest that the accreditation/ approval decisions made by either the MUA or the Medical Council are not based on the standards.

Documentation:

August 14, 1997 letter from Avudh Srisukri, Secretary-General of the Consortium of Thai Medical Schools

August 15, 1996 letter and response to the Department's questionnaire from Supachai Kunaratanapruk, Secretary-General of the Thai Medical Council

Accreditation of Medical Schools in Thailand

Ministry of University Affairs, Standards for Undergraduate Curricula

Thai Medical Council, Standard Criteria for Medical Practitioners, revised in 1993.

Thai Medical Council, Criteria for Certification of Medical Institution

March 10, 1997 letter from Dr. Vanchai Sirichana, Permanent Secretary of the Ministry of University Affairs.

February 26, 1997 letter from Avudh Srisukri, Secretary-General of the Consortium of Thai Medical Schools

Dr. Avudh Srisukri, Professor Emeritus of Pediatrics, Chang Mai University, sent the Department, on March 11, 1998, the following booklets, translated into English:

The Ministry of University Affairs:

1. Standards for Undergraduate Curricula
2. Policies and Guidelines for Quality Assurance at the Higher Education Level--1996

The Thai Medical Council:

1. Criteria for Certification of Medical Institutions
2. Criteria for Medical Practitioners-- 1993
3. Criteria for Medical Practitioners-- 1993 (Supplemented)--Appendix 4-- Knowledge of Basic Medical Science

*Country*  
Country's Response

*to draft  
SAPS  
analysis*



**กลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย**  
**CONSORTIUM OF THAI MEDICAL SCHOOLS**

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September 3, 1998

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Washington, D.C. 20202-5244, USA

Dear Dr. Kershenstein:

I am writing in response to your letter of August 10, 1998, regarding the review of accreditation/approval standards of medical schools in Thailand during the next meeting of the NCFMEA on October 8, 1998.

I would like to provide the required additional information in the following 5 areas mentioned in your letter, namely:

1. Effective controls against conflict of interest among individuals who participate in the evaluation process.
2. Information about the structure of the site visit including self-study reports or other type of reports medical schools must prepare as part of the accreditation process.
3. How on-site evaluators are selected and trained.
4. Information about the decision-makers in the Ministry of University Affairs (MUA).
5. The accreditation/approval standards on which all decisions are based.

All these areas are covered in the following explanation.

In order to meet the criteria set by the MUA in its regulation entitled "Quality Auditing and Quality Assessment Criteria for Higher Education Institutions" and in line with the criteria of the Thai Medical Council as laid out in its booklet entitled "Medical Council's Criteria for Certification of Medical Institutions", all medical schools must have internal quality assurance system in the following three areas: quality control, quality auditing and quality assessment. These criteria are standards used by the Medical Council not only for a request to open a new medical school, but also for determination of medical school accreditation.

It is recommended that a medical school carries on its own internal assessment and file annual self-studied reports. These form a significant part of an assessment by an outside agency. These reports and relevant details have to be submitted to on-site evaluators prior to the visit and must include at least the following itemized information:

#### Part I. Introduction.

1. Name of the medical school
2. Address of the school

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Secretariat: c/o Faculty of Medicine, Chiang Mai University, Chiang Mai 50202, THAILAND  
Telephone: (053) 945120; Fax: (6653) 278676; E-mail: avudh@sd01.med.cmu.ac.th

3. Name of the current dean or deans
4. Achievements during the stated period
5. Pertinent history of the school
6. Policies, objectives and aims of the school
7. Documented plan of activities
8. Administrative structure of the medical school

#### Part II. Essentials.

1. Philosophy, objectives, policies and planned activities of the institution.
2. Education: status and achievements.
  - 2.1 Curriculum
  - 2.2 Staff
  - 2.3 Learning and teaching methodology
  - 2.4 Medical students and graduates
  - 2.5 Examinations and evaluations
  - 2.6 Supporting resources
3. Student's extracurricular activities: status and results.
4. On going research and publications and research applications.
5. Academic services
6. Activities on cultural tradition and social participation.
7. Administration and management, including problems, efficiency and outcome.
8. Financial management and budgeting.
9. Internal quality assurance system: efficiency.

#### Part III. Summaries.

1. Summaries of qualitative assessment of all activities
2. Summaries of strengths and weaknesses and other advantageous activities.

#### **Part IV. Appendix and databases.**

This part should cover all the data of the institution during the past 3 years, describing the status both of quality and quantity, such as:

- Teaching staff classified according to academic degrees, professional rank and specialty.
- Student's numbers, majors selected and degrees applied for.
- Books, journals, publications and other educational materials.
- Budget estimation for each student, classified appropriately.
- Graduates, employed and unemployed in different categories.
- Ratio of students and teaching staff.
- Number of research projects, published papers.
- Books and titles published by staff.
- List and frequency of academic services.
- Staff development programs.
- Other academic activity aiming at the development of academic programs.
- Other pertinent information.

Persons recruited into on-site evaluator pool by the Medical Council are well-respected and well-known experienced academicians and physicians nominated by various medical schools, professional organizations of medical sub-specialties and the Medical Council Committee's members. The Consortium of Thai Medical Schools has responsibility to train evaluators. A visiting team is composed of 4-5 evaluators randomly selected from the pool. The names of the evaluators must be submitted to the school in advance. The school reserves the right to reject any evaluators; however, there has been no rejection so far. This may be attributed to the fact that the primary objective of the evaluation is to assist the school to improve its academic development and management proficiency with impartiality.

The preparation and training of on-site evaluators consists of providing direction on what steps to take in collecting appropriate information and how to consider, interpret and assess the results of their investigation. By emphasizing the earlier mentioned objectives of the evaluation, there has been no significant conflict of interest or any other difficulty between the evaluators and administrative personnel of the medical school.

MUA also has a pool of evaluators but has a slightly different way of selecting its members. They may be categorized into 4 broad areas as follows:

- Specialists in the field under evaluation.
- Experts or persons in the well training in the educational quality assessment.

- Experienced administrators of academic institutions.
- Representatives of professional societies.

As in the case of evaluators chosen by the Medical Council, the MUA must submit the names of persons in their group of 5 evaluators and obtain approval by the institution under evaluation. Furthermore, an institution is allowed to propose a name of one additional evaluator in the group if the need arises.

All evaluators enlisted by the MUA have to go through special training. Before they actually go to the site, they will meet to discuss on key issues and evaluating procedures. After the evaluation is completed, an informal meeting between evaluators and the administrators of the institution is called in order to readjust findings and acquire additional information on any outstanding issues.

The final decision on evaluation depends largely on the on-site evaluators, but the formal announcement is officially made by the Committee on Quality Assurance in the case of the Ministry of University Affairs. In the case of the Medical Council, the Board of the Medical Council itself is responsible for that duty. All these seemingly complicated steps of evaluation are designed to prevent potential conflicts of interest, resolve differences and reach consensus.

The standards or criteria for accreditation on which all decisions are based are described clearly in the 2 sets of booklets:

1. Medical Council's Criteria for Certification of Medical Institution. *This was mailed to you sometime ago.*
2. Criteria for Auditing and Assessing Higher Educational Quality. *This is being translated and will be mailed to you with the hard copy of this letter.*

All medical institutions use criteria described in those booklets to control, audit and assess quality internally. Many institutions also impose extra standards on themselves; but for on-site evaluation of each institution, the same criteria in those two booklets are used as the accreditation/approval standards on which all decisions are based.

I hope the information given above will help to clarify the evaluation process as this is carried out in Thailand and will serve to answer your questions. If you need any more information, please do not hesitate to write me again.

Your continued assistance in this review is most appreciated.

Sincerely yours,

Avudh Srisukri, MD  
Professor Emeritus of Pediatrics, Chiang Mai University  
Secretary-General

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**THE MINISTRY OF UNIVERSITY AFFAIRS**

***Criteria for Auditing and Assessing the Quality of Higher Education***

**Criterion 1: Philosophy, Goals, Objectives and Operational Plans**

Higher education institutions should set their philosophy, goals and objectives in accordance with their missions. Clear operational plans should be mapped out to achieve the specified philosophy, goals and objectives.

**1.1 Philosophy, Goals and Objectives**

Higher education institutions must state in full how their philosophy, goals and objectives are to be implemented.

**1.2 Operational Plans**

Higher education institutions should draw up educational plans in line with their philosophy, goals and objectives and execute these plans to achieve their goals.

**1.3 Assessment of Plans and Projects**

Educational plans and projects should be continuously assessed and, if need be, adjusted in accordance with changing circumstances.

**Criterion 2: Teaching and learning**

Higher education institutions should provide high-quality and effective teaching and learning; integrate curricula with the appropriate teaching and learning process; provide qualified instructors; ensure appropriate student preparation; and enforce any other factors, which will enhance teaching and learning.

**2.1 Syllabi**

Higher education institutions should develop and adjust their course syllabi to meet academic and professional demands. All courses are to be evaluated on a regular basis, administered efficiently and revised accordingly.

**2.2 Instructors**

Higher education institutions should adopt criteria for recruiting, developing and maintaining qualified instructors with the appropriate academic background, experience and ethical standard. Job descriptions for instructors must be clearly stated. Instructors are evaluated regularly, as a

means of improving the quality of teaching and maintaining educational standards.

### **2.3 Teaching and Learning Process**

Higher education institutions should provide a high-quality teaching and education, including appropriate lesson plans, teaching preparation, detailed course modules, teaching aides, course evaluation, instructor evaluation and educational assessment.

### **2.4 Students**

Higher education institutions establish criteria for screening students and set an effective system for students' academic follow-up. Quality assessment of graduates who will continue their education and those who enter the labor market must be provided.

### **2.5 Assessment**

Higher education institutions must organize systematic and lay out standardized evaluation procedures for assessing students' achievement.

### **2.6 Supporting Factors**

Higher education institutions should provide support to promote the students' learning process. Buildings must provide facilities appropriate to teaching in large or small groups, or the provision of independent study. There must be libraries with textbooks and other types of books and periodicals both in Thai and in foreign languages. Computers and software enabling students to acquire knowledge from other sources, locally and internationally, should be available. Facilities must provide a suitable and pleasant environment to enhance student performance, creativity and enthusiasm for their education.

## **Criterion 3: Extra-curricular Activities**

Higher education institutions should organize and promote extra-curricular activities for students which will serve to foster a further development of knowledge, skills and attitude beyond the classroom.

### **3.1 Student Development Activities**

Higher education institutions should engage in activities, which will develop students' physical, mental and emotional health. The institutions should also provide activities promoting self-discipline, democracy, environment preservation, ethics, responsibility and commitment to family and community.

### **3.2 Advisory System**

Higher education institutions should effectively strengthen their advisory systems to maximize the students' development.

### **3.3 Career Advice**

Higher education institutions must establish specific units offering students advice on professions, job opportunities and assistance in entering the job market.

### **Criterion 4: Research**

Higher education institutions should stipulate policies and plans to support research which would enhance the development of new sources of knowledge or which would strengthen the national educational process.

#### **4.1 Policies, Plans and Supporting Systems of Research**

Higher education institutions set policies, plans and support systems for research to develop new knowledge and strengthen the national educational process.

#### **4.2 Research Resources**

Higher education institutions should provide sufficient resources for research activities in accordance with their research plans and should seek funding from public (government) and private sources.

#### **4.3 Research Results**

Higher education institutions should develop a research database as a means of disseminating research findings. Research results should be published in academic journals, which are recognized locally and internationally. New knowledge should have practical application and be used to develop the country's economy and society.

### **Criterion 5: Academic Services to the Public**

Higher education institutions should specify objectives, plans and projects providing academic services for the public.

#### **5.1 Objectives and plans**

Higher education institutions should stipulate objectives, plans and projects providing academic services for the public.

#### **5.2 Procedures**

Higher education institutions should provide academic services for the public in line with the institutions' missions. Projects must be continually evaluated to improve efficiency and effectiveness.

### **Criterion 6: Arts and Cultural Conservation**

Higher education institutions should state objectives and plans to achieve the objectives for the arts and cultural conservation.

## **6.1 Objectives and Plans**

Higher education institutions set objectives, plans and projects concerning conservation of the arts and culture.

## **6.2 Procedures**

Higher education institutions should carry out projects in line with their objectives. Evaluation should be done periodically to improve efficiency and effectiveness.

## **Criterion 7: Administration and management**

Higher education institutions should employ a flexible administrative system. Innovative techniques and technology should be explored. The administration and management should fully support its mission to teach, conduct research, provide academic services to the public, and promote and conserve national arts and culture.

### **7.1 Administrative Structure and System**

Higher education institutions should develop an administrative structure and system that meets the objectives and missions of the institutions. These include procedures to elect, develop and evaluate administrators in terms of their leadership, vision, capability, experience and ethics.

### **7.2 Institution Staff's Duties**

Higher education institutions should clearly designate members of the institution staff, spell out their duties and provide a job description.

### **7.3 Staff Recruitment System**

Higher education institutions must establish a system to recruit, develop and maintain qualified staff. Moreover, a system must be put in place, which will evaluate performance of staff and reward them fairly and openly.

### **7.4 Data System Assisting Decision making**

Higher education institutions should adopt data and information systems, which will assist their operations, enhance planning and decision making.

### **7.5 Administration Involvement**

Higher education institutions should provide opportunities for their staff to participate in administration to enable them to become in planning and making decision on important issues.

## **Criterion 8: Finance and Budget**

Higher education institutions should manage their finances and have in place

appropriate procedures for financial control, budget preparation and periodic auditing of financial records.

### **8.1 Financial Resources**

Higher education institutions should seek funding from sources outside of their government budget allotment.

### **8.2 Allotment and Audit**

Higher education institutions must develop an allotment system, an expenditure analysis and an audit system.

## **Criterion 9: Quality Assurance Systems and Mechanisms**

Higher education institutions should develop systems and mechanisms for internal quality assurance including quality control, quality examination and quality assessment.

### **9.1 Internal Quality Assurance**

Higher education institutions should develop systems and mechanisms for internal quality assurance including quality control, quality auditing and quality assessment.

### **9.2 External Quality Assurance**

Higher education institutions adopt systems to facilitate outside agencies to examine and evaluate their quality assurance systems and mechanisms.

*Thailand*

# Documentation

*Country  
Submission*



กลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย  
CONSORTIUM OF THAI MEDICAL SCHOOLS

August 14, 1997

Richard W. Riley  
United States Department of Education  
600 Independence Avenue, SW  
Washington, D.C. 20202-5244  
USA

Dear Mr. Riley,

The permanent secretary of the Ministry of University Affairs, Dr. Vanchai Sirichana, has forwarded to me your letters of April 8 and July 21, 1997 and asked if I would kindly respond to the issues you have raised regarding the accreditation of Thai medical schools. I would also like to thank you for your separate letter to me of April 8 on the same subject.

My understanding is that the National Committee on Foreign Medical Education and Accreditation (NCFMEA) has determined that Thailand does not have accreditation or approval standards for the evaluation of medical schools that are comparable to the standards of accreditation applied to U.S. medical schools. The misunderstanding might have come from inadequate information submitted previously. Therefore, I would like to submit to you an additional information, which I believe may clarify your earlier interpretation of the accreditation process in Thailand. I sincerely hope that this additional documentation could be considered at the next meeting of the NCFMEA in October 1997.

The document attached summarizes the duties and responsibilities of the three institutions involved in the accreditation of medical schools in Thailand. There are a number of very detailed documents, which can also be made available to you if this is necessary. However, we believe that the document attached should provide all information you will need. If more information is required, I would be greatly obliged if you would let me know.

With best wishes.

Sincerely yours,

Avudh Srisukri, MD  
Secretary-general  
Consortium of Thai Medical Schools

cc. Permanent Secretary of the Ministry of University Affairs  
President of the Medical Council

Colored 2140 E&A 40x

Secretariat: c/o Faculty of Medicine, Chiang Mai University, Chiang Mai 50202, THAILAND  
Telephone: (053) 94-5120; Fax: (6653) 278676; E-mail: avudh@chiangmai.ac.th

1997 AUG 26 11:11 AM  
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## *Accreditation of Medical Schools in Thailand*

Medical Schools in Thailand are accredited by three organizations. Each of these has its own responsibilities and duties. They are:

1. The Ministry of University Affairs
2. The Medical Council
3. The Consortium of Thai Medical Institution

### *Ministry of University Affairs (MUA)*

The MUA has responsibility by law for approval and supervising of the academic curricula of every university in Thailand and for the evaluation of the quality of these education programs. The MUA carries out the following duties:

1. *To review new curricula and evaluate existing curricula* to see that they meet the criteria set forth in the Ministry of University's Academic Standards. The MUA will check academic programs to ascertain that they meet certain criteria, i.e., have the right concept, meet their objectives, have adequately good basic structure, appropriate duration of studies, number of credits, etc., for examples:
  - Philosophy and objectives of the curriculum must meet the international standards of each discipline and must conform to the national university educational development plan.
  - Structure of the medical curriculum: numbers of semester credits must be not less than 210 and not more than 263 in the following categories:
    - a. General education must be not less than 30 credits
    - b. Professional education must not be less than 180 credits
    - c. Electives - not less than 6 credits
  - Time span of the overall medical curriculum must not be less than 12 semesters.
2. *To determine factors governing the quality of education*, i.e., inspects institution which apply to establish a medical curriculum, checks whether it has met not only the general criteria, such as numbers and appropriate qualifications of instructors; library facilities; educational media; basic infrastructure, but also the specific criteria as documented by the Medical Council. These specific criteria are described under the Medical Council heading below.
3. *To visit medical institutions*: the MUA has set a system for checking the quality of various institutions, by establishing its own committee of external evaluators who will make site visits from time to time to check the effectiveness of the institution's internal audit system. Documentation, including various reports reflecting educational quality, such as, lesson plans, handouts, lecture notes, references, examination papers, and results of teaching evaluation will be evaluated.

This committee consists of educators from the Bureau of Higher Educational Standards and experts in the field. Any institution, which fails to meet the committee's criteria will be given guidance, help and advice on how to improve its academic performance and the committee will re-evaluate the institution within one year. If the institution again fails to meet the standards, its budget will be affected. An institution that passes review will receive a certification and will be subjected to periodic review every 3 to 4 years.

### ***The Medical Council***

The Medical Council is an organization first established by an Act of Legislation in 1968 and re-structured in 1992. Its objectives are as follow:

1. To oversee the moral and ethical standards of medical doctors.
2. To enhance education, research and career opportunities.
3. To strengthen unity and sustain the honor of the membership.
4. To assist, advise, educate other organizations and the general public about medicine and public health and disseminate information.
5. To give advice and counsel to the government about national medical and public health problems.
6. Act as a national representative of medical practitioners in Thailand.

The Council's legal responsibilities are as follow:

1. To issue or cancel medical licenses to qualified practitioners.
2. To certify degrees and certificates offered by medical institutions.
3. To certify all curricula offered by medical institutions.
4. To approve the academic standard of medical institutions where specialty and subspecialty training takes place.
5. To issue licenses for medical practice in all specialties and subspecialties.

The Medical Council carries out its duties through the mechanism of committees and subcommittees. The Medical Council Committee is composed of two categories of members.

1. *Members by position*, such as, Permanent Secretary of the Ministry of Public Health, Director-General of the Department of Medical Services, Deans of the every medical school. Total members are 18.
2. *Members by election*, elected by medical practitioners in the, equal the number of members by position.

All operations of the Council are performed under the responsibility of the Secretary-General.

*Accreditation of Medical Schools* by the Medical Council is conducted as follow:

1. *Certification of medical curriculum*: even though a medical curriculum has been approved by the Ministry of University Affairs, the institution must submit its curriculum to the Medical Council to review details of the curriculum, such as, courses provided, educational objectives, learning experiences, student evaluation, and so forth, to see if these meet the Medical Council's Standard for Medical Practitioners, which includes knowledge in basic medical and clinical sciences, clinical competencies, professional skills and attitude. [Document will be forwarded separately].

2. ***Certification of a medical institution.*** The Medical Council has a set of criteria for the accreditation of a medical institution, which also used by the MUA. The criteria emphasize the appropriate numbers and qualifications of instructors, clinical setting and other facilities. [Detailed criteria documented in Thai and will be forwarded separately].

Examples of criteria are shown below:

- Ratio of instructors to students must be 1:4.
- Ratio of qualifications of instructors: PhD: MSc: BSc must be at least 30: 60: 10
- Teaching aids for microbiology, e.g., number of microscopes: number of students must be 1:1.
- Teaching aids, for gross anatomy, e.g., number of cadavers to number of students must be at least 1:6.
- Teaching hospitals must have at least 400 beds.
- Ratio of patient hospital beds to students must be 5:1.
- Others.

When an application is made for operating a medical institution, a subcommittee will visit the institution and determine if it has adequate facilities as documented by the Medical Council. If the institution does not meet the standard requirement, the subcommittee will give advice and re-visit the institution at a later date to re-evaluate if accreditation should be granted. While operating, the subcommittee will make periodic site visits. This subcommittee is composed of representatives from the Medical Council Committee and external evaluators from other medical institutions.

3. ***Certification of medical degree and granting of medical licenses.*** If the curriculum and facilities of the medical institution meet the Council's standards, then the Council certifies the degree and grants medical licenses to its graduates. Persons who graduate from a private medical institution or from foreign medical institutions must submit their medical curricula to the Medical Council who will determine if they are eligible to sit for a medical licensing examination, which comes in three parts:

Part 1: Basic medical sciences (multiple-choice questions)

Part 2: Clinical sciences (multiple-choice questions)

(Those who pass above 2 parts will be eligible for taking part 3 examinations)

Part 3: • Clinical problem solving (modified essay questions)

- Objective structured clinical examination (OSCE)
- Clinical practice examination

### ***The Consortium of Thai Medical Schools***

The Consortium of Thai Medical Schools was established on April 7, 1989 by Deans of all medical schools in the country for the purpose of collaboration among medical institutions, with an emphasis on medical education development. The objectives of the Consortium are as follow:

1. To review, recommend, and help implement policy on medical and health sciences education.
2. To promote research and service in the health professions with the ultimate aim of improving the health of the population in line with government public health policy.
3. To foster collaboration and academic exchange in medical education and related fields.
4. To develop leadership and management skills among senior administrators in medical and other health professional institutions in Thailand.
5. To create an information network between schools of medicine and others in public and private institutions interested in medicine and its interface with public health and the health sciences.

The Consortium has a Governing Board, Secretariat, and special project and ad hoc committees. The Governing Board consists of the Deans of all medical schools, the Secretary-General, and appointed medical education experts. The Governing Board sets policy and strategies, approves budget and reviews financial reports. The secretariat consists of the Secretary-General, Associate Secretaries-General, and one representative from each medical school. The secretariat carries out project activities of the Consortium in line with policy as set by the Governing Board.

Project and ad hoc committees consist of the Secretary-General or other members of the Secretariat, as well as special members appointed by the Governing Board. These committees, acting through the Secretariat, will carry out special tasks assigned to them by the Governing Board.

In addition, the Governing Board may appoint special groups to advise the Board on policy and activities of the Consortium.

*Activities of the Consortium of Thai Medical Schools:*

1. *Regular meetings*, the Governing Board meets 4 times a year and a minimum of 8 times per year for the Secretariat. Examples of issues raised for discussion are such as:
  - The improvement of the criteria for medical student selection.
  - The improvement of faculty staff development.
2. *Conferences and seminars*. They are arranged regularly among member institutes aiming for exchanging ideas, experiences and solutions to the problems encountered in curriculum development. The meetings are conducted by means of self-assessment and activity reports, which motivate and enforce every medical school to improve the quality of its teaching and learning activities. Examples of topics are as follow:
  - Students assessment and evaluation
  - Pre-clinical teaching
  - Clinical teaching
  - Quality assurance in medical education
3. *National Medical Education Conference*: Since 1956, national medical education conferences have been organized every 7 or 8 years to revise and reform medical education of the country. The results of these conferences have played vital roles in the development of medical education in Thailand, in order to meet international standards and conform to the country's needs.

The Consortium of Thai Medical Schools was assigned by the Thai government to organize the last one in 1993, the 6<sup>th</sup> National Medical Conference, with great success. The Consortium will also organize the next one in 2000.

Although the Consortium is a non-profit and private organization without any legal authority, its deliberations carry great impact on monitoring the quality of medical education in the country. Due to the fact that the Governing Board of the Consortium consists of Deans of every medical school and the main financial support of the consortium comes directly from all member medical schools, recommendations by the Consortium have always been seriously considered for further implementation by all its members. In addition, the Consortium is highly regarded by the Thai Government, the Ministry of University Affairs, the Medical Council and other related organizations, activities such as the organization of the National Medical Education Conferences and many others are often assigned to the Consortium.



# แพทยสภา

ชั้น 7 ตึกสำนักงานปลัดกระทรวงสาธารณสุข ซอยบำรุงราษฎร์ ถนนติวานนท์ ตำบลตลาดขวัญ  
อำเภอเมือง นนทบุรี 11000 โทร.591-8614-5 โทรสาร 591-8614

## The Medical Council

7th Floor Office of the Permanent Secretary for Public Health Bldg., The Ministry of Public Health,  
Soi Bamrasnaradura, Tiwanont Rd., Nonthaburi 11000, Thailand. Tel: 591-8614-5 Fax: (662) 591-8614

No.012/ 452.

August 15, 1996

Ms. Carol F. Sperry  
Executive Director  
National Committee on Foreign Medical  
Education and Accreditation  
U.S. Department of Education  
Room 3905, ROB-3  
600 Independence Avenue, SW  
Washington, DC 20202-7563  
USA.

Dear Madame,

Enclosed please find the questionnaire's answer of the Accreditation  
and State Liaison Division. If any question arise please feel free to contact  
us at the above address.

Yours sincerely,

(Supachai Kunaratanapruk)

Secretary General

The Medical Council.

Part I: Accreditation/Approval Process

- 1) a - yes.  
b - 1. Ministry of University Affairs.  
2. Thai Medical Council.
  
- 2) a - There is formal evaluation process for the accreditation of medical schools.  
b - Yes. The evaluation process include a visit to the medical school.  
c - The Committee which was set up by the two organizations as stated above. The frequency of visiting school is approximate every 4 years.  
d - Yes.  
e - Yes.  
f - Part of it, most part of the report were done by the dean office.  
g - The Thai medical Council is the body to control the conflict amongst the organizations and evaluator. Also the Thai Medical School Consortium plays the active role to follow the activities of medical schools.  
h - The Thai Medical Council has the authority to control the standard of medical school through licensing examination process.  
i - Approximate 2-3 years for each school.
  
- 3) a - Most of the evaluators are physician, educator and educational evaluator.  
b - The evaluation committee or individual have no right for making decision accreditation. They only make recommendation and the Thai Medical Council will judge on the recommendation.

Part II: Accreditation/Approval Standards

Educational Program

1) a - yes.

b - 6 years after high school (12 years schooling) or 5 years after college degree (3-4 years)

2) a - yes.

b - Mathematics, Physics, Chemistry, Biology.

c - yes.

|                       |                           |
|-----------------------|---------------------------|
| d - Internal Medicine | 28 semester credits       |
| Ob-Gyn                | 19 "-----"                |
| Pediatrics            | 18 "-----"                |
| Surgery               | 28 "-----"                |
| Psychiatry            | 6 "-----"                 |
| Community medicine    | 14 "-----"                |
| etc.                  | 3 years clinical training |

e - yes, Humanity at least 6 semester credits

Social Science " 6 "-----"

Language " 6 "-----"

Other - total " 30 "-----"

3) a - All of clinical training rotates in specific department including University Hospital, General Hospital, special Care Hospital/Centre and Community Hospital.

b - Clinical rotation is the final 3 years.

c - The medical facilities - Library

- Basic medical laboratory

- Creation area

- Domitory

etc.

d - yes. Medical Staff and disignated health personel to supervise the medical student.

Resources for the Educational Program

1) a - Quality of Medical school's physical facilities.

1. Teaching and or seminar class - room - 1-18 M<sup>2</sup>/person

2. Laboratory class room 3-4 M<sup>2</sup>/person

3. Domitory 7 M<sup>2</sup>/person

4. Cafeteria 16 M<sup>2</sup>/person

5. Administration office 9-18 M<sup>2</sup>/person

6. Library 1.5 M<sup>2</sup>/person

7. Other equipment for laboratory, educational media technology.

b - Library books

1. 50 books/one Undergraduate student

2. 75 books/one Post graduate student

3. 100 books/one Faculty staff

c - Staff Ph.D., M.S., B.s. ratio 30:60:10

d - Size of Faculty - Full time student Equivalent 1:4

or Full time staff : Student 1:8

### Medical Students

1) Three criterias for student selection, namely

1.1 Academic back ground.

1.1.1 Twelve years schooling.

1.1.2 Academic achievement in Thai, English, Physics, Chemistry  
Mathematics, Biology, Social Sciences and Humanity.

1.1.3 Procedure of admission.

The admission process is control by the Ministry of University Affairs  
or by the permission of University Board of trustees. (Trustees)

1.2 Physical Health

1.3 Mental Health

- 2) The quality assurance or quality monitoring is done by the medical education unit of each school. The process also supervise by the Faculty Board of Medicine.
- 3) No formal requirement for external examination for student in government medical school except private medical school.
- 4) Thai Medical Council develop the regulation or examination process for graduates before practice medicine in the country.
- 5) The graduate must practice in major department one year after graduate.

### Administration of Educational Program

- 1) The administrative committee compose of Dean, Associate Dean in Academic Affairs, Administration, Student Affairs, Research and Planning, Head Department, Representative of Faculty Staff.
- 2) Chief Academic official of Medical School must have experience in teaching at least 3 years of University level. He/She also must have academic qualification in that field.

Governance of the Medical School

- 1) Ministry of University Affair and Thai Medical Council has the authority to evaluate and approve the medical schools.

Educational Objectives

- 1) yes.
- 2) All medical school must follow or develop educational objective of the standard criteria of graduated physician. The criteria was develop by Thai Medical Council.
- 3) yes.

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MUA 0205(2)/544G

Ministry of University Affairs

328 Si Ayuttaya Road

Bangkok 10400, Thailand

Tel: (662) 245-6092

Fax: (662) 245-8925

March 10 , 1997

Ronald Lipton

U.S. Department of Education

Room 3915, ROB-3

600 Independence Avenue, S.W.

Washington, DC 20202-5244

U.S.A.

Tel: (202) 708-7417

Fax: (202) 708-9469

Dear Mr. Lipton,

In response to your letter dated February 11, 1997 concerning an analysis of the standards of accreditation applied to medical schools in Thailand by the United States Department of Education.

The Ministry had contacted the Consortium of Thai Medical Schools to evaluate your medical accreditation analysis. Professor Avudh Srisukri who is the director-general for the Consortium of Thai Medical Schools kindly replied and provided more details regarding the role of the Thai Medical Council for your staff analysis of the Thai medical standards. In addition, we are sending you a copy of his letter and hope it will be beneficial for your application (please see the attachment).

Hoping the information will be sufficiently for you. Please let us know if you need further assistance.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "V. Sirichana".

Associate Professor Dr. Vanchai Sirichana  
Permanent Secretary



กลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย  
CONSORTIUM OF THAI MEDICAL SCHOOLS

February 26, 1997



USA

BY FACSIMILE TRANSMISSION

Dear Mr. Lipton,

RE: The Thai Medical Council

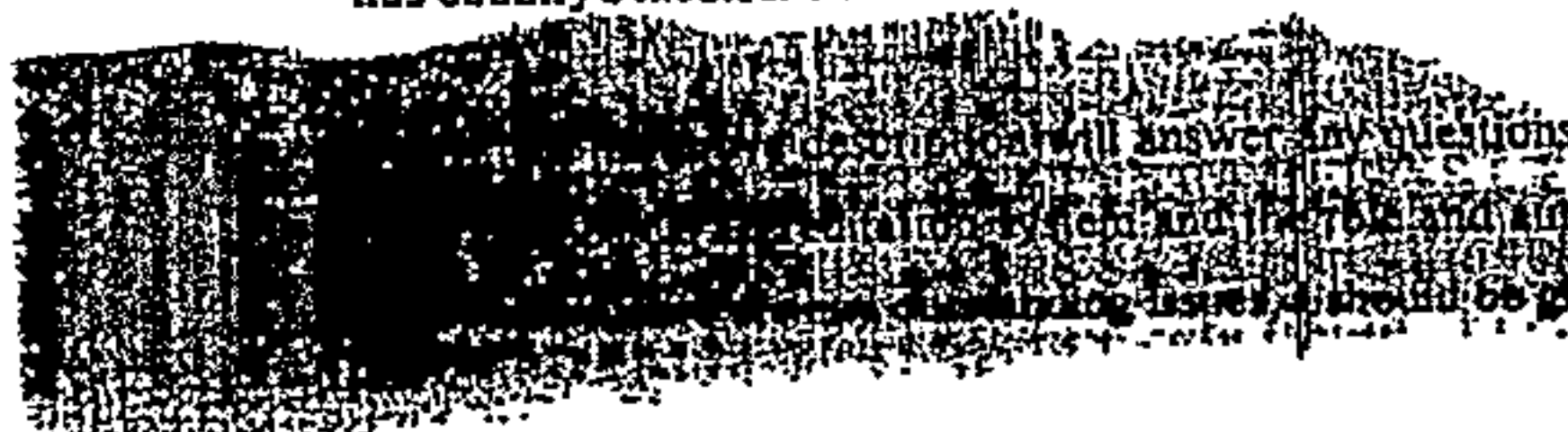
The Permanent Secretary of the Royal Thai Ministry of University Affairs has referred a letter to me dated February 11, 1997 from Miss Carol Sperry, the US Department of Education, Executive Director, National Committee on Foreign Medical Education and Accreditation (NCFMEA), regarding the Thai committee which determined standards of accreditation of the 8 medical schools (now 13) in Thailand. I have also read your staff analysis of the standards used to evaluate medical schools in Thailand and note that further detailed information regarding the role of the Thai Medical Council is needed. I would like to reply as follows.

I can affirm that the Thai Medical Council ("Council") is the body empowered by the Royal Thai Government to set standards of accreditation for all Thai medical schools and is charged with the responsibility of approval of medical curricula and medical certification and periodic evaluation of those schools. As such, the Council is the sole body with authority to accredit medical schools in Thailand. The membership of the Council consists of the deans of the 13 medical schools, chief of most major departments within the Royal Thai Ministry of Public Health, Physicians-in-Chief of Army, Navy, Air Forces and Police Department, and 18 elected (every 2 years) members at large from the Thai medical profession. The specific duties of the Council are to accredit medical schools, certify medical training centers, hospitals, and clinics; oversee all medical practice within Thailand; approve undergraduate curricula at each medical school; set residency training requirements; and issue (and revoke) medical licenses, including those that might be required by graduates of foreign medical schools.


1

สำนักงานเลขาธิการ · สำนักงานคณบดี คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่ จังหวัดเชียงใหม่ ๕๐๒๐๒  
Secretariat : c/o Faculty of Medicine, Chiang Mai University, Chiang Mai 50202, THAILAND  
Telephone : (6653)94-5120; Fax: (6653)278676

I would like to state that, contrary to the "Addendum to the Staff Analysis Presented at the September 1996 NCFMEA Meeting" dated February 3, 1997, Thailand's medical education accreditation system is centralized under the authority of the Medical Council which monitors this country's medical education and issues periodic certifications of quality control.

 ... will answer any questions that have arisen in your analysis of ... and authority of the Thai Medical Council. ... should be glad to provide further clarification.

Sincerely yours,



Avudh Srisukri, MD  
Director-general  
Consotium of Thai Medical Schools

cc: Dr. Vanchai Sirichana, Permanent Secretary, Ministry of University Affairs

Deans of medical schools



กลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย  
CONSORTIUM OF THAI MEDICAL SCHOOLS

February 26, 1997

Ronald Lipton  
United States Department of Education  
Room 3915, ROB-J  
600 Independence Avenue, S.W.  
Washington, DC 20202-5244  
USA

BY FACSIMILE TRANSMISSION

Dear Mr. Lipton,

RE: The Thai Medical Council

The Permanent Secretary of the Royal Thai Ministry of University Affairs has referred a letter to me dated February 11, 1997 from Miss Carol Sperry, the US Department of Education's Executive Director, National Committee on Foreign Medical Education and Accreditation (NCFMEA), regarding the Thai committee which determined standards of accreditation of the 8 medical schools (now 13) in Thailand. I have also read your staff analysis of the standards used to evaluate medical schools in Thailand and note that further detailed information regarding the role of the Thai Medical Council is needed. I would like to reply as follows.

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Secretariat : c/o Faculty of Medicine, Chiang Mai University, Chiang Mai 50202, THAILAND  
Telephone : (6653)94-5120; Fax (6653)278676

I would like to state that, contrary to the "Addendum to the Staff Analysis Presented at the September 1996 NCFMEA Meeting" dated February 3, 1997, Thailand's medical education accreditation system is centralized under the authority of the Medical Council which monitors this country's medical education and issues periodic certifications of quality control.

I trust that the above description will answer any questions that have arisen in your analysis of the Thai medical accreditation system and the role and authority of the Thai Medical Council. However, if there are any outstanding issues, I should be glad to provide further clarification.

Sincerely yours,



Avudh Srisukri, MD  
Director-general  
Consortium of Thai Medical Schools

cc: Dr. Vanchai Sirichana, Permanent Secretary, Ministry of University Affairs  
Secretary-general, the Medical Council  
Deans of medical schools



**กลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย**  
**CONSORTIUM OF THAI MEDICAL SCHOOLS**  
Consortium of Thai Medical Schools  
c/o Faculty of Medicine, Chiang Mai University  
Chiang Mai 50202, Thailand

March 11, 1998

Dr. Karen W. Kershenstein  
Accreditation and Eligibility Determination Division  
U.S. Department of Education  
Room 3915, ROB-3  
600 Independence Avenue, SW  
Washington, D.C. 20202-5244, USA

Dear Dr. Kershenstein:

According to our last communication on December 4, 1997, I informed you of the ongoing translation of the materials you mentioned in your letter of September 8, 1997. This has taken them a little longer than expected. They are English translation of Thai official documents, and verified to be true translation by our consortium.

There are two items from the Ministry of University Affairs of the Thai Government:  
1. Policies and Guidelines for Quality Assurance at the Higher Education Level, 1996.  
2. Standards for Undergraduate Curricula.  
The other 3 are from The Medical Council:  
1. Medical Council's Criteria for Certification of Medical Institution.  
2. Medical Council's Criteria for Medical Practitioners, 1993.  
3. Medical Council's Criteria for Medical Practitioners, 1993 (supplemented).

The documents are enclosed herewith. These may or may not be exactly of what you mentioned. If there is any other information you may suggest, I will be glad to find them for you.

Thank you very much for your kind assistance.

Sincerely yours,

Avudh Srisukri, MD  
Professor Emeritus of Pediatrics, Chiang Mai University  
Secretary-general

Accred\KarenMar11.doc

---

Secretariat : c/o Faculty of Medicine, Chiang Mai University, Chiang Mai 50202, THAILAND  
Telephone : (053)945120; Fax: (6653)278676; E-mail: avudh@sd01.med.cmu.ac.th

Re: [Fwd: Ref: Accreditation follow-up]

Subject: Re: [Fwd: Ref: Accreditation follow-up]  
Date: Thu, 04 Dec 1997 07:20:15 +0700  
From: Avudh Srisukri <avudh@sd01.med.cmu.ac.th>  
Organization: COTMES  
To: Karen Kershenstein <Karen\_Kershenstein@ed.gov>  
CC: "Dr. Uapong Jaturatamrong" <chailerd@iname.com>

Dear Dr. Kershenstein,

Thank you very much for your kind response. This clarifies the state we are in and therefore helps us to know what plan of action we should take. I'll ask those who help in the translation of the required materials to speed up. I will deliver all to you as soon as I have them.

Your cooperation and help are greatly appreciated.

Sincerely,

Avudh Srisukri, MD  
Secretary General of Consortium of Thai Medical Schools  
Tel.:6653-945120; Fax: 6653-278676  
avudh@sd01.med.cmu.ac.th

Karen Kershenstein wrote:

- >
- > *Dear Mr. Srisukri.*
- >
- > *I did receive your Nov 20 e-mail message and I apologize for not responding more*
- > *quickly. We had a meeting that took us out of the office for several days, and*
- > *then I was on vacation for a few days last week.*
- >
- > *I will try to explain the situation with respect to Mahidol University and the*
- > *Consortium of Thai medical schools as best I can. As you will see, there are*
- > *really two separate issues. However, one is a consequence of the other.*
- >
- > *You will recall that some time ago the National Committee on Foreign Medical*
- > *Education and Accreditation (NCFMEA) determined, based on the information*
- > *available to it at the time, that the standards used by Thailand to evaluate and*
- > *approve medical schools were not comparable to those used to accredit medical*
- > *schools in the U.S. That information was conveyed to Thai officials in a letter*
- > *signed by the U.S. Secretary of Education.*
- >
- > *As a consequence of that determination by the NCFMEA, all Thai medical schools*
- > *that were once eligible to participate in the Federal Family Education Loan*
- > *(FFEL) Program lost their eligibility. David Morgan's letter to Mahidol simply*
- > *informed the university of that fact.*
- >
- > *When the NCFMEA made its determination of noncomparability of the Thai system to*
- > *the American system, it did so based on the available information but expressed*
- > *a willingness to reconsider the matter if and when more information became*
- > *available from the country. You were kind enough to send us some additional*
- > *material which was quite helpful. Unfortunately, some of the information was in*
- > *Thai, and we need to have translations of it into English before we can present*
- > *it to the NCFMEA for a reconsideration. As soon as we get the information from*
- > *you, we will prepare a new analysis of the Thai system, send it to you for*
- > *review and comment, then present it to the NCFMEA at its next meeting, which is*
- > *likely to take place in early March.*
- >
- > *If the NCFMEA should determine, based on the new information, that Thailand's*

- > system is comparable to that used in the U.S., then any Thai medical school such
- > as Mahidol that wishes to participate in the FFEL program could apply and,
- > presuming it met the requirements, could be determined to be eligible.
- >
- > The key obviously is to have the Thai system determined to be comparable, and
- > that is where you and the Consortium come in - you are trying to get us English
- > translations of the key documents that we believe will help the NCFMEA
- > understand more fully the Thai system. The sooner you can provide us with the
- > information, the more time we have to evaluate it, ask any clarifying questions
- > we might have, etc. That way we can prepare the most accurate analysis of the
- > Thai system that is possible. We appreciate your cooperation in this matter.
- >
- > I hope this answers your questions. Let me know if I can be of further
- > assistance.
- >
- > Sincerely,
- >
- > Karen Kershenstein



Ministry of University Affairs



The Medical Council



Consortium of Thai Medical Schools

***Accreditation of Medical Schools  
in Thailand***

## ***Accreditation of Medical Schools in Thailand***

Medical schools in Thailand are accredited by three organizations. Each of these has its own responsibilities and duties. They are :

1. The Ministry of University Affairs
2. The Medical Council
3. The Consortium of Thai Medical Schools

### ***Ministry of University Affairs (MUA)***

The MUA has responsibility by law for approval and supervising of the academic curricula of every university in Thailand and for the evaluation of the quality of these education programs. The MUA carries out the following duties :

1. ***To review new curricula and evaluate existing curricula*** to see that they meet the criteria set forth in the Ministry of University's Academic Standards. The MUA will check academic programs to ascertain that they meet certain criteria, i.e., have the right concept, meet their objectives, have adequately good basic structure, appropriate duration of studies, number of credits, etc., for examples :
  - Philosophy and objectives of the curriculum must meet the international standards of each discipline and must conform to the national university education development plan.
  - Structure of the medical curriculum : numbers of semester credits must be not less than 210, and not more than 263 in the following categories :
    - a. General education must be not less than 30 credits
    - b. Professional education must not be less than 180 credits
    - c. Electives - not less than 6 credits
  - Time span of the overall medical curriculum must not be less than 12 semesters.

2. *To determine factors governing the quality of education*, i.e., inspects institutions which apply to establish a medical curriculum, checks whether it has met not only the general criteria, such as, numbers and appropriate qualifications of instructors; library facilities; educational media; basic infrastructure, but also the specific criteria as documented by the Medical Council. These specific criteria are described under the Medical Council heading below.

3. *To visit medical institution* : the MUA has set a system for checking the quality of various institutions, by establishing its own committee of external evaluators who will make site visits from time to time to check the effectiveness of the institution's internal audit system. Documentation, including various reports reflecting educational quality, such as, lesson plans, handouts, lecture notes, references, examination papers, and results of teaching evaluation will be evaluated.

This committee consists of educators from the Bureau of Higher Educational Standards and experts in the field. Any institution, which fails to meet the committee's criteria will be given guidance, help and advice on how to improve its academic performance and the committee will re-evaluate the institution within one year. If the institution again fails to meet the standards, its budget will be affected. An institution that passes review will receive a certification and will be subjected to periodic review every 3 to 4 years.

### ***The Medical Council***

The Medical Council is an organization first established by an Act of Legislation in 1968 and re-structured in 1992. Its objectives are as follow :

1. To oversee the moral and ethical standards of medical doctors.
2. To enhance education, reserach and career opportunities.

3. To strengthen unity and sustain the honor of the membership.
4. To assist, advise, educate other organizations and the general public about medicine and public health and disseminate information.
5. To give advice and counsel to the government about national medical and public health problems.
6. Act as a national representative of medical practitioners in Thailand.

The Council's legal responsibilities are as follow :

1. To issue or cancel medical licenses to qualified practitioners.
2. To certify degrees and certificates offered by medical institutions.
3. To certify all curricula offered by medical institutions.
4. To approve the academic standard of medical institutions where specialty and subspecialty training takes place.
5. To issue licenses for medical practice in all specialties and subspecialties.

The Medical Council carries out its duties through the mechanism of committees and subcommittees. The Medical Council Committee is composed of two categories of members :

1. *Members by position*, such as, Permanent Secretary of the Ministry of Public Health, Director-General of the Department of Medical Services, Deans of every medical school. Total members are 18.
2. *Members by election*, elected by medical practitioners in Thailand, equal the number of members by position.

All operations of the Council are performed under the responsibility of the Secretary-General.

**Accreditation of medical schools** by the Medical Council is conducted as follow :

1. **Certification of medical curriculum** : even though a medical curriculum has been approved by the Ministry of University Affairs, the institution must submit its curriculum to the Medical Council to review details of the curriculum, such as, courses provided, educational objectives, learning experiences, student evaluation, and so forth, to see if these meet *the Medical Council's Standard Criteria for Medical Practitioners*, which includes knowledge in basic medical and clinical sciences, clinical competencies, professional skills and attitude. [Document will be forwarded separately]
  
2. **Certification of a medical institution**. The Medical Council has a set of criteria for the accreditation of a medical institution, which also used by the MUA. The criteria emphasize the appropriate numbers and qualifications of instructors, clinical setting and other facilities. [Detailed criteria documented in Thai will be forwarded separately] Examples of criteria are shown below :
  - Ratio of instructors to students must be = 1 : 4
  - Ratio of qualifications of instructors : PhD : MSc : BSc must be at least 30 : 60 : 10
  - Teaching aides for microbiology, e.g., number of microscopes: number of students must be 1 : 1
  - Teachings aides for gross anatomy, e.g., number of cadavers to number of students must be at least 1 : 6
  - Teaching hospitals must have at least 400 beds
  - Ratio of patient hospital beds to students must be 5 : 1
  - Others

When an application is made for operating a medical institution, a subcommittee will visit the institution and determine if it has adequate facilities

as documented by the Medical Council. If the institution does not meet the standard requirement, the subcommittee will give advice and re-visit the institution at a later date to re-evaluate if accreditation should be granted. While operating, the subcommittee will make periodic site visits. This subcommittee is composed of representatives from the Medical Council Committee and external evaluators from other medical institutions.

3. ***Certification of medical degree and granting of medical licenses.*** If the curriculum and facilities of the medical institution meet the Council's standards, then the Council certifies the degree and grants medical licenses to its graduates. Persons who graduate from a private medical institution or from foreign medical institutions must submit their medical curricula to the Medical Council who will determine if they are eligible for a medical licensing examination, which comes in three parts :

***Part 1 :*** Basic medical sciences (multiple choice questions)

***Part 2 :*** Clinical sciences (multiple choice questions)

(Those who pass above 2 parts will be eligible for taking Part 3 examinations)

***Part 3 :*** - Clinical problem solving (modified essay questions)

- Objective structured clinical examination (OSCE)

- Clinical practice examination

### ***The Consortium of Thai Medical Schools***

The Consortium of Thai Medical Schools was established on April 7, 1989 by Deans of all medical schools in the country for the purpose of collaboration among medical institutions, with an emphasis on medical education development. The objectives of the Consortium are as follow :

1. To review, recommend, and help implement policy on medical and health sciences education.
2. To promote research and service in the health professions with the ultimate aim of improving the health of the population in line with government public health policy.
3. To foster collaboration and academic exchange in medical education and related fields.
4. To develop leadership and management skills among senior administrators in medical and other health professional institutions in Thailand.
5. To create an information network between schools of medicine and others in public and private institutions interested in medicine and its interface with public health and the health sciences.

The Consortium has a Governing Board, Secretariat, and special project and ad hoc committees. The Governing Board consists of Deans of all medical schools, the Secretary-General, and appointed medical education experts. The Governing Board sets policy and strategies, approves budgets and reviews financial reports. The Secretariat consists of the Secretary-General, Associate Secretaries-General, and one representative from each medical school. The Secretariat carries out project activities of the Consortium in line with policy as set by the Governing Board.

Project and ad hoc committees consist of the Secretary-General or other members of the Secretariat, as well as special members appointed by the Governing Board. These committees, acting through the Secretariat, will carry out special tasks assigned to them by the Governing Board.

In addition, the Governing Board may appoint special groups to advise the Board on policy and activities of the Consortium.

**Activities of the Consortium of Thai Medical Schools :**

1. **Regular meetings**, the Governing Board meets 4 times a year and a minimum of 8 times per year for the Secretariat. Examples of issues raised for discussion are such as :
  - The improvement of the criteria for medical students selection
  - The improvement of faculty staff development
  
2. **Conferences and seminars**. They are arranged regularly among member institutes aiming for exchanging ideas, experiences and solutions to the problems encountered in curriculum development. The meetings are conducted by means of self-assessment and activity reports, which motivate and enforce every medical school to improve the quality of its teaching and learning activities. Examples of topics are as follow :
  - Students assessment and evaluation
  - Pre-clinical teaching
  - Clinical teaching
  - Quality assurance in medical education
  
3. **National Medical Education Conference** : Since 1956, National Medical Education Conferences have been organized every 7 or 8 years to revise and reform medical education of the country. The results of these conferences have played vital roles in the development of medical education in Thailand, in order to meet international standards and conform to the country's needs.

The Consortium of Thai Medical Schools was assigned by the Thai Government to organize the last one in 1993, the 6th National Medical Conference, with great success. The Consortium will also organize the next one in 2000.

Although the Consortium is a non-profit and private organization without any legal authority, its deliberations carry great impact on monitoring the quality of medical education quality in the country. Due to the fact that the Governing Board of the Consortium consists of Deans of every medical school and the main financial support of the Consortium comes directly from all member medical schools, recommendations by the Consortium have always been seriously considered for further implementation by all its members. In addition, the Consortium is highly regarded by the Thai Government, the Ministry of University Affairs, the Medical Council and other related organizations, activities such as the organization of the National Medical Education Conferences and many others are often assigned to the Consortium.



**The Medical Council's Criteria  
for  
Medical Practitioners  
1993**

*English translation*

***The Medical Council's Criteria for Medical Practitioners***

**1993**

***Introduction***

The Medical Council designated the first version of the Criteria for Medical Practitioners in 1984 and the Committee of the Medical Council is of the opinion that there has been a great change in the medical and public health problems, including the changing situation in the country and the world in general. Therefore, the Committee sees fit to revise the Criteria for Medical Practitioners once again.

This version of the Criteria has a similar content and structure to the previous one but with a few modified points as follows:

1. The type of public health problems in the country has changed. Many diseases which were once major problems have been solved and thus reduced. Many other diseases or problems have occurred and/or become increasingly important or have a tendency to increase in number. It is then necessary to improve and revise the matter of professional medical knowledge and competency specified in the Criteria for Medical Practitioners 1984, Appendix 2, under the heading "Care and Treatment," on the basis of the data collected from survey and research.
2. Nowadays people and the public have increased expectations and desire for medical and public health services both in quality and quantity. Moreover, the increasing number and more efficient government and private medical and public health facilities, together with the more convenient and widespread system of transportation, make it less necessary for new medical graduates to work by themselves in the Community hospitals and it may not

be suitable because of inexperience. Therefore, in order for the public to obtain standard medical and public health services at all levels, there should be at least a doctor with one-year's experience responsible for giving services at the Community hospitals. Hence, this version of the Criteria is designated for those medical graduates after one-year's experience in a hospital assigned by the Medical Council to work under the supervision of a more experienced doctor.

3. Now knowledge of medical science and technology has rapidly increased and progressed, continuing education for doctors has then become increasingly significant. Therefore, apart from having knowledge, competence, as well as sufficient basic medical skills and positive attitudes in order to perform the work in Item 2, medical graduates must be able to develop themselves in all aspects, particularly in the pursuit of advancement in service and technology, continuing education, as well as having the potential to search for and develop new sciences.

4. The list of diseases / conditions / symptom / syndromes which constitute health problems appearing in Appendix 3 is based on the disease code group in International Classification of Diseases and Related Health Problem, Version 10 (ICD 10), placing an unequal emphasis on each item. For the common diseases / conditions / symptoms / syndromes in general medical practice or with a tendency to be common, boldface type is used for easy recognition.

The Criteria is considered the threshold level for minimum knowledge and competency for those who want to practice in Thailand. In general, the Institutes who produce medical graduates should evaluate

medical professional knowledge and competence according to this Criteria before conferring the degree of Doctor of Medicine (M.D.). As for additional expertise in treatment and manual practice performance, they can be done when the medical graduates do their practice in the hospitals assigned by the Medical Council for at least one year.

To keep the standard of medical practice, the Medical Council can check the standard of the teaching and learning, training and evaluation on the institutes and their affiliates in due course.

The Criteria for Medical Practitioners 1993 consists of the following:

1. *Be in good mental and physical health according to the meaning stipulated in the Medical Professional Act 1982 under the heading "Qualifications of a Member."*

2. *Have proper morals, ethics and positive attitudes.*

2.1 Conduct oneself according to the Medical Council's Statutes for the Upkeep of Ethics in Medical Practice (Details in Appendix 1)

2.2 Have morals and ethics suitable for medical practice (Details in Appendix 2)

2.3 Have positive attitudes towards the medical services for the public at all levels, namely keen on the studying and understanding of the situation in Thai society, willing and able to give efficient service to the public in different communities of the country and interested in studying and understanding the National Socio-economic Development Plan, the Public Health Development Plan and the National Public Health Service System.

3. *Have professional knowledge and competence*

3.1 Have knowledge, competence, and positive attitudes towards the promotion of health, prevention of disease, care and treatment,

recovery of the condition of the patient and the public at the personal, family and community levels as mentioned in the details in Appendix 3.

3.2 In order to give efficient and suitable medical practice, medical practitioners should have knowledge, understanding, skills and positive attitudes in the following:

3.2.1 Ability to communicate and build-up good relationships with the patient, the relatives, the general public, colleagues and other public health personnel

3.2.2 Having rational and systematic ways of thinking and problem-solving according to scientific methods

3.2.3 Familiarity with the public health service system of Thailand

3.2.4 Knowledge of orientation and promotion of primary public health work

3.2.5 Knowledge of Economics for public health relevant and suitable for medical practices

3.2.6 Knowledge of Epidemiology, Bio-Statistics, Medical Informatics applicable to medical and public health work

3.3 Know one's own potential in care and treatment of the patient. Consult and/or refer patients to others properly.

4. *Have knowledge and competence in Administration and Social Sciences.*

4.1 Knowledge of the principles of general administration and the national medical and public health administration in order to form the basis for further study and a gain in experience suitable for future positions and responsibility.

4.2 Knowledge of Social Sciences, Humanities, Behavioral Sciences required for the enhancement of positive attitudes and a good understanding of other human beings and society and an ability to apply such knowledge in medical practice.

4.3 Knowledge of different rules and regulations such as general law, the laws relevant to medical practices, the Social Security Act as well as the Medical Council's Rules, Regulations and Statutes.

5. *Have an inquiring mind and be able to continue learning.*

5.1 Have positive attitudes to continued further education in order to keep pace with academic advancement.

5.2 Have a scientific mind. Able to collect and analyze data, situations and oneself rationally and solve problems suitably.

6. *Be able to transmit knowledge.*

6.1 Ability to present, describe, discuss and speak about the patient in public

6.2 Ability to give knowledge and advice to patients, relatives and the general public

6.3 Ability to transfer knowledge to medical and public health personnel at all levels

Even though the Criteria for Medical Practitioners 1993 has been designed to suit the present situations, the future medical and public health problems tend to change under the influence of the government, social and economic situations and the population. Therefore, it is necessary to revise the qualifications and the details in the Criteria from time to time as needed in order to be constantly up-to-date and modern.

*Appendix 1*

*Medical Council's Statutes*

*on the Upholding of Ethics in the Medical Profession 1983*

Under the power and authority in Article 21(3)(Sor) and with the approval of the Honorary President in Article 25 of the Medical Profession Act 1982, the Medical Council Committee has issued the statutes for the upholding of ethics in the Medical Profession as follows:

Section 1

*General Principles*

1. Medical practitioners should lead a good and proper life in society and respect the law of the country.
2. Medical practitioners should not behave or act in any way leading to a loss of professional dignity.
3. Medical practitioners should carry on professional practices with positive attitudes regardless of status, race, religion, society or political ideology.

Section 2

*The Promotion on Medical Professional Practices*

1. Medical practitioners should not promote, use, hire or give consent to others to advertise for one's own medical professional practices, knowledge and expertise.
2. Medical practitioners should not promote, use, hire or let others advertise for medical practices, knowledge and expertise of the others.
3. The promotion in Section 2, Items 1 and 2 can be done in the following cases:  
(1) Academic presentations in academic journals or conferences:

(2) Academic presentations on duty or in public service;

(3) Academic presentations on the work or progress for study purposes of all people;

(4) Academic honors by academic institutes, associations or foundations in the absence of profit-making motives towards individual medical practices.

4. Medical practitioners may exhibit information on their own medical profession at the office only the following:

(1) Name, family name and with the only following qualifying attributes: Doctor (for both sexes), name given by the king, academic title, rank, official rank, and title

(2) name of the degree, certificate, license or documents showing specific qualifications acquired legitimately according to the rules and regulations of the Medical Council or those of that particular institute

(3) branch of medical profession

(4) office hours

5. Medical practitioners may indicate information concerning medical practices only on the location, address, telephone numbers, and/or the information allowed in Section 2, Item 4.

6. Medical practitioners who are propagating knowledge or answering the media's questions, if identified as in the medical profession, must not there and then, give information on the location of their private clinic, in something that might be considered as advertising, and must not give out information in Section 2, Item 5.

7. Medical practitioners must be cautious not to let their medical practices be seen in the public eyes as an advertisement for their knowledge and competency.

### Section 3

#### *Medical Professional Practices*

1. Medical practitioners must maintain the highest standard of medical professional practices and attempt to relieve the patients from suffering, symptoms of sickness and crippling illness without asking for remuneration or reward apart from normal fees for the service rendered.
2. Medical practitioners must not solicit or persuade the patients to come for their own interests.
3. Medical professional practitioners must not give or take an interests in compensatory remuneration for collecting or sending patients in order to obtain medical practices.
4. Medical practitioners must treat patients politely and without force or coercion.
5. Medical practitioners must not lure the patients into misunderstanding for their own benefit.
6. Medical practitioners must not do medical professional practices without giving consideration to the patient's safety and waste.
7. Medical practitioners must not partially prescribe, use or support the use of secret formula medicine, including undisclosed medical equipment.
8. Medical practitioners must not intentionally issue a false certificate or give dishonest opinions on any matters concerning their own profession.
9. Medical practitioners must not reveal the patient's secrets gathered from professional practice except with the patient's consent or when having to act according to the law.
10. Medical practitioners must not refuse to help those in unstable condition when requested or being in a position to be able to do so.
11. Medical practitioners must not use or support illegal practices in the medical profession and medical therapeutics.

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### Section 4

#### *Treatment towards Those Who Share the Same Profession*

1. Medical practitioners should respect and honor each other's dignity.
2. Medical practitioners should not deliberately incriminate, slander or make things difficult for one another.
3. Medical practitioners should not enter the other's patients

### Section 5

#### *Treatment towards Colleagues*

1. Medical practitioners should respect and honor colleagues' dignity.
2. Medical practitioners should not deliberately incriminate, slander or make things difficult for one another.
3. Medical practitioners should promote and support colleagues' medical practices.

### Section 6

#### *Experiments on Human Beings*

1. Medical practitioners who do experiments on human beings must receive the consent from the one under experiment and be ready to give protection to the person under experiment to be safe from possible dangers from such experiments.
2. Medical practitioners must treat the person under experiment in the same way as the patient in the medical professional practice in Section 3 mutatis mutandis.
3. Medical practitioners must be responsible for the harm or damage caused by the experiment, which is not the fault of the person under experiment.

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This set of statutes will be effective after proclamation in the Government Gazette.

Announced on 9 June 1983

Manasvi Aunhananta  
(MANASVI AUNHANANTA, M.D.)  
President of Medical Council

Announced in the Government Gazette Book 100 Section 115 dated 14 July 1983.

*Medical Council's Statutes  
on the Upholding of Ethics in the Medical Profession  
(Second edition) 1983*

Under the power and authority in Article 21(3)(Sor) and with the approval of the Honorary President in Article 25 of the Medical Profession Act 1982, the Medical Council Committee has issued the statutes for the upholding of ethics in the Medical Profession as follows:

1. To delete the information in Section 3 Item 11 and to replace it with the following:  
" 1.1 Medical professionals must not use or support illegal practices in the medical profession, nursing and midwifery, and medical therapeutics."

2. To add the following as Section 7 in the Medical Council's Statutes on the Upholding of Ethics in the Medical Profession 1983 :

Section 7

Action as regards Medical Premises

1. In this section,  
"Medical premises" means medical premises in accordance with the law on medical premises,  
"Promotion of medical premises" means any action by any means to make people see or make known to public by information, pictures, signs or any other action to make them understand the meaning for the benefits of the medical premises.
2. Medical practitioners who run the medical premises must not promote or let others advertise the medical premises that one is involved with in the following way :  
(1) advertising the medical premises with exaggeration of medical professional practices or other activities of the medical premises

- (2) advertising the medical premises with exaggeration of the activities of the premise or its effectiveness of the tools and equipment in such a way as to mislead others and not corresponding to the standard principles in the medical profession or to create in the public an expectation of exaggerated quality
- (3) advertising the medical premises to the general public with obscenity and a lack of refinement or in such a way as to arouse or stimulate sexual desire or contradict good moral standards
- (4) advertising in such a way as to give discount in cash or any other benefits in return for those who come for the services or those who solicit others to come for the services of the medical premises
- (5) advertising the medical premises falsely that certain members in the medical profession come to work on the premises
3. Medical practitioners who run the medical premises must not give monetary compensation or any other form of commission to those who solicit people to obtain services from the premises
4. Medical practitioners who run the medical premises must not give permission or allow to have in the premises medical practices, nursing and midwifery or medical therapeutics in violation of the law related to each.
5. Medical practitioners must not exhibit their name or let others do so in the medical premises in a way not stipulated by the Medical Council.
6. This set of Statutes will be effective sixty days after proclamation in the Government Gazette.

Announced on 6 November 1990

Uthai Sudsuk

(UTHAI SUDSUK, M.D.)

President of Medical Council

Announced in the Government Gazette Book 107, Section 230, dated 16 November 1990.

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## Appendix 2

### *Relevant Moral and Ethical Standards for Medical Practices*

*Morals* mean a good conscience that one should have in one's heart as regards truth, virtue and nobility and use them as one experiences life.

*Ethics* are a group of guiding principles for conduct that exhibits acceptable morals and ethics as follows:

1. Search for Noble Truth which is a definite certainty in nature, leading to right and complete intellect, knowing right from wrong, lessening selfishness and creating peace and happiness.
2. Use intelligence in problem-solving through the use of data, reasons and thorough reflection both in depth and width, not being emotional or following traditional beliefs, intuition or a process of trial and error.
3. Be merciful and compassionate, meaning a desire to see others happy, a feeling of sorrow for and understanding of and wanting to help relieve of pain in others.
4. Be aware and mindful, meaning being fully conscious at all times, constantly aware of thoughts, emotions and manners, being able to control thoughts and feelings as well as one's actions.
5. Be without negligence, meaning being cautious, not to let mistakes occur because any action concerning human lives is extremely sensitive and vital. If any damage is done, it cannot be undone.
6. Be loyal, honest, conscientious and do only good deeds with righteousness, openness and sincerity. Keep oneself away from all kinds of vice in one's personal life and carry on one's work flawlessly or without any obstacles.
7. Restrain and behave, meaning having strong determination and endurance even when afflicted by unpleasant things and still

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keep calm, even-tempered and do not lose your head, which adds to being more virtuous and thus gains more popularity and respectability.

8. Be generous and giving in nature. Speak good words. Do good things to others and conduct oneself properly with moral guiding principles all men should have for peace and happiness as well as grow with maturity among human beings who share the same life cycle of being born, aging, sickness and death eventually, all of which are increasingly significant for doctors with the responsibility of giving treatment to those in sickness or on the verge of death.
9. Be diligent and economical. Perseverance is the highest virtue in Buddhism and will help people get rid of suffering. Endeavor to do research and work without exhaustion.
10. Be ashamed and fearful of sinning. Never sin since one should realize that sinning or improper conduct is impure, distressing and leads to suffering and that one must enhance purity and correctness both in mind and action.
11. Be equipped with unity and a sense of sacrifice, meaning binding the ethics between individuals and the group or the public in general, leading to happiness and progress. Solidarity among doctors themselves, that is between the doctors and those in the same profession; that is between the doctors and the public health workers and the public in general; this will create happiness for the people and the country.
12. Have responsibility towards society. Being a doctor is one of the professions with higher social status and thus he cannot avoid being a leader in the community. Therefore, apart from constant self-development to keep pace with the current developments in the field, he also has to be a good model in his social behavior.

### Appendix 3 *Professional Knowledge and Competence*

Medical professionals must have knowledge of and competence in appropriately solving general health problems of patients and the general public as follows:

1. Ability to collect data and evaluate the health problems of the general public with responsibility subject to methods in epidemiology.
2. Ability to promote better health for individuals and community regarding hygiene, sanitation, food supplements, maternal child care, family planning, immunization schemes, local disease control, health examinations and early detection of the disease.
3. Ability to do an evaluation of health and give appropriate advice in order for people of all ages and in different conditions from fetus in utero, newborn, pre-school age, school age, teenagers, youngsters, adults, pregnant women and the elderly to be in good health.
4. Ability to express opinions or issue a certification concerning the patients, the accused or the defendants on request by the investigating officers, relevant organizations or courts such as issuing a health certificate, issuing a death certificate, being a witness for the investigating officers and in court, and the like. Also an ability to do an autopsy in connection with the investigating officers as designated by law.
5. Ability to apply knowledge of basic medical science, clinical science and clinical skills in taking history, physical examination, laboratory investigation and manual skills in the diagnosis, treatment and recovery of the patients and rehabilitation of common and/or major health problems in Thailand, suitable to different situations and conditions as follows:

5.1 Major symptoms / problems brought by the patients to a medical consultation with the doctor : Medical professionals must be equipped with knowledge of pathogenesis, pathophysiology, be able to do a differential diagnosis of the diseases / syndromes / conditions which are important and/or common causes and be able to give basic, appropriate treatment for the major symptom or group of symptoms as follows:

#### XVII Symptoms / Chief complaints (ICD 10, R00-R69)

fever  
abdominal pain, abdominal distension, flatulence  
headache, dizziness, vertigo  
back pain, neck pain, malaise, bone pain  
joint pain, arm pain, leg pain  
toothache, bleeding per gum  
dyspnea, difficult breathing, shortness of breath  
chest pain  
swelling and edema  
fatigue, debility  
palpitation  
sore throat, stuffy nose, running nose, sneezing, epistaxis  
cough, hemoptysis  
rash, itching, ulcer, abscess, acne, skin discoloration, alopecia  
pallor, cyanosis  
jaundice  
anorexia, nausea, vomiting, hematemesis, hiccup, choking,  
dysphagia  
diarrhea  
constipation

melena, bleeding per rectum  
leucorrhoea, pruritus vulvae  
pregnancy, abortion, abnormal pregnancy, birth control, infertility  
vaginal bleeding, abnormal menstruation, dysmenorrhoea,  
difficulty in micturition, dysuria, polyuria, abnormal coloured urine  
urinary incontinence, hematuria, passing stone in urine  
urethral discharge, genital ulcer  
neck mass, subcutaneous mass, breast mass, abdominal mass  
enlarged lymph node  
eye irritation, red eye, eye pain, blurred vision, blindness,  
protrusion of the eyeball, squint  
fullness, hearing loss  
blackout, syncope  
muscle weakness  
convulsion, tremor, twitching  
numbness  
somnia, stupor, coma  
prematurity  
abnormal growth and development  
deformity  
agitation, physical violence, hallucination, insomnia, nervousness,  
anxiety  
obesity  
weight loss  
substances abuse  
suicidal attempt  
rape  
accident  
bites or sting

5.2 Diseases / conditions / syndromes which are often the cause of the major symptoms or problems that make the patients come to see the doctor.

- 5.2.1 Emergency diseases / conditions / symptoms : Medical professionals must have a knowledge of and give appropriate and immediate treatment for the following diseases: / conditions / symptoms :
- cardiac arrest
  - pulmonary edema
  - malignant hypertension
  - shock (hypovolemic, anaphylactic, septic, cardiogenic)
  - cardiac tamponade
  - respiratory arrest
  - respiratory obstruction, suffocation
  - status asthmaticus
  - pneumothorax
  - superior vena cava obstruction
  - diabetic ketoacidosis
  - hypoglycemia
  - disseminated intravascular clotting
  - incompatible blood transfusion
  - acute psychosis, delirium
  - hyperventilation syndrome
  - acute depression
  - suicidal attempt
  - stress response syndrome
  - acute corneal ulcer
  - acute glaucoma

- anuria
- acute urinary retention
- hyperkalemia
- obstructed labor
- threatened uterine rupture
- inversion of uterus
- coma
- syncope
- convulsion
- acute increased intracranial pressure
- asphyxia of the newborn
- fetal distress
- acute abdomen
- serious bleeding (massive, intracranial, hyphema)
- acute poisoning (drugs, foods, chemicals, substances)
- bite & sting
- injury / accident (head injury, fracture, dislocation, serious injury, electrical injury, burn, near-drowning & submersion)

5.2.2 Common and/or major diseases / conditions / syndromes in Thailand : Medical professionals must have knowledge and competency in making a diagnosis, giving treatment leading to the recovery, giving advices and preventive methods suitable for the situations and conditions of the following diseases / conditions / syndromes :

1. INFECTIOUS AND PARASITIC DISEASES (ICD 10, AOO-B99)
- gastroenteritis (cholera, shigellosis, salmonellosis, E.coli, viral, Campylobacter sp., Clostridium difficile,

amoebiasis, giardiasis, cryptosporidiosis, food-borne intoxication)

typhoid and paratyphoid fever

intestinal parasites (ascariasis, hookworm disease, enterobiasis, trichuriasis, strongyloidiasis, taeniasis, capillariasis)

tuberculosis

melioidosis

leptospirosis

leprosy

tetanus

diphtheria

whooping cough

septicemia

sexually transmitted diseases (syphilis, gonococcal infection, chancroid, non-specific urethritis, lymphogranuloma venereum, condyloma acuminata, trichomoniasis)

trachoma

typhus fever (scrub typhus murine typhus)

poliomyelitis

rabies

Dengue hemorrhagic fever, Chikungunya fever

varicella, zoster

herpes simplex infections

viral exanthemata (measles, rubella, erythema infectiosum exanthema subitum)

viral hepatitis

human immunodeficiency virus (HIV) infections including acquired immuno-deficiency syndrome (AIDS)

mumps

infectious mononucleosis

superficial mycoses (tinea, pityriasis versicolor, candidosis)

systemic mycoses (candidiasis, cryptococcosis, aspergillosis, penicilliosis)

malaria

tissue parasites (trichinosis, cysticercosis, gnathostomiasis, pneumocystosis, angiostrongylidiasis, filariasis, toxoplasmosis, opisthorchiasis, paragonimiasis, schistosomiasis)

ecltoparasites (pediculosis, scabies)

## II. NEOPLASM (ICD 10, C00-D48)

benign and malignant neoplasm of oral cavity, nasopharynx, larynx, esophagus, stomach, colon, liver and biliary tract, lung, skin and subcutaneous tissue, bone, breast, vulva, uterus and cervix, ovary, placenta, prostate gland, kidney, urinary bladder, brain, thyroid gland, lymph node and leukemia

## III. DISEASES OF BLOOD AND BLOOD FORMING ORGANS AND DISORDERS INVOLVING THE IMMUNE MECHANISM (ICD 10, D50-D89)

nutritional deficiency anemias (iron, folate)

hemolytic anemias (thalassemia, G-6-PD deficiency, autoimmune hemolytic anemia, paroxysmal nocturnal hemoglobinuria)

aplastic anemia  
coagulation defects (hemophilia, consumption coagulopathy,  
    acquired prothrombin complex deficiency)  
neutropenia  
idiopathic thrombocytopenic purpura  
acquired platelet dysfunction with eosinophilia  
immune deficiency states

#### IV. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES (ICD 10, E00-E90)

goiter  
iodine deficiency  
thyrotoxicosis  
hypothyroidism  
diabetes mellitus  
Cushing syndrome  
protein-energy malnutrition  
vitamin deficiency (A, B, C, D, E, K)  
disorders of lipoprotein metabolism and lipidemias  
obesity  
disorders of fluid, electrolyte and acid-base balance  
    (acidosis, alkalosis, hyponatremia, hypernatremia,  
    hypokalemia, hyperkalemia, hypocalcemia,  
    hypercalcemia)

#### V. MENTAL AND BEHAVIOURAL DISORDERS (ICD 10, F00-F99)

organic mental disorders (dementia, brain damage,  
    systemic diseases, alcohol and substance  
    induced, organic amnesic syndrome, delirium)

mental and behavioural disorders due to alcohol, drugs  
    and substances  
schizophrenia  
mood (affective) disorders (mania, depression)  
neurotic and somatoform disorders (phobia, anxiety  
    disorders, obsessive-compulsive disorder,  
    dissociative or conversion disorder, somatoform  
    disorders)

behavioural syndromes associated with physiological  
    dysfunction and physical factors (ealing disorder,  
    sleep disorder, sexual dysfunction, post-partum  
    psychosis)  
disorders of adult personality and behaviour  
    (aggressive, antisocial, compulsive, hysterical,  
    obsessive-compulsive, paranoid)  
mental retardation  
disorders of psychological development (speech and  
    language disorder, disorder of scholastic skills,  
    motor function disorder)  
behavioural and emotional disorders in childhood and  
    adolescence (conduct disorder, tic disorder,  
    enuresis, feeding disorder, nail biting, thumb  
    sucking)

#### VI. DISORDERS OF THE NERVOUS SYSTEM (ICD 10, G00-G99)

meningitis  
encephalitis & myelitis  
brain abscess

parkinsonism  
 epilepsy  
 migraine  
 tension headache  
 facial nerve paralysis  
 peripheral nerve entrapment (carpal tunnel syndrome,  
 cubital tunnel syndrome)  
 polyneuropathies (Guillain-Barre syndrome, systemic  
 diseases, drugs, chemicals, alcohol)  
 myasthenia gravis  
 myopathy and periodic paralysis  
 hemiplegia, paraplegia, tetraplegia  
 cerebral palsy  
 Reye syndrome  
 hydrocephalus

#### VII. DISORDERS OF THE EYE AND ADNEXA (ICD 10.

H00-H59)  
 hordeolum, chalazion  
 nasolacrimal duct obstruction  
 conjunctivitis  
 pterygium  
 keratitis, corneal ulcer  
 uveitis  
 cataract  
 glaucoma  
 disorders of ocular muscles, refraction and  
 accommodation (strabismus, myopia, presbyopia,  
 hypermetropia, astigmatism)

#### VIII. DISORDERS OF THE EAR AND MASTOID PROCESS

(ICD 10, H60-H95)  
 myringitis  
 perforation of tympanic membrane  
 otitis externa and otitis media  
 impacted cerumen  
 mastoiditis, cholesteatoma  
 disorders of vestibular function and vertiginous  
 syndrome (Meniere syndrome, vertigo)  
 conductive and sensorineural hearing loss

#### IX. DISORDERS OF THE CIRCULATORY SYSTEM (ICD 10,

I00-199)  
 rheumatic fever  
 valvular heart diseases (mitral valve, aortic valve)  
 hypertension  
 hypotension  
 ischemic heart diseases (angina pectoris, myocardial  
 infarction)  
 pulmonary embolism  
 infective endocarditis  
 pericarditis, myocarditis  
 common cardiac arrhythmias (atrial fibrillation,  
 supraventricular tachycardia, premature ventricular  
 contraction, premature atrial contraction, ventricular  
 tachycardia, ventricular fibrillation, heart block)  
 heart failure  
 cerebrovascular diseases (intracerebral hemorrhage,  
 cerebral infarction, subarachnoid hemorrhage)

atherosclerosis  
varicose veins of lower extremity  
hemorrhoids  
lymphadenitis

#### X. DISORDERS OF THE RESPIRATORY SYSTEM (ICD 10,

J00-J99)

upper respiratory infections (nasopharyngitis, sinusitis,  
pharyngitis, tonsillitis, peritonsillar abscess,  
retropharyngeal abscess, laryngitis, tracheitis,  
croup)  
lower respiratory infections (bronchitis, bronchiolitis,  
pneumonia, lung abscess, bronchiectasis)  
influenza  
allergic rhinitis, nasal polyp  
chronic obstructive lung diseases (chronic bronchitis,  
emphysema)  
asthma  
pleurisy, pleural effusion, empyema  
pneumothorax  
respiratory failure  
occupational lung diseases

#### XI. DISORDERS OF THE DIGESTIVE SYSTEM (ICD 10,

K00-K93)

disorders of tooth development and eruption  
dental caries, gingivitis and periodontal diseases  
oral ulcer (aphthous ulcer, stomatitis, glossitis, thrush)  
gastroesophageal reflux  
peptic ulcer, gastritis

dyspepsia  
acute appendicitis  
hernia (inguinal, umbilical)  
intestinal obstruction  
irritable bowel syndrome  
anal fissure, fistula in ano, perianal abscess

peritonitis

alcoholic liver disease

cirrhosis

hepatic failure

liver abscess

cholelithiasis, cholecystitis

acute pancreatitis

gastrointestinal hemorrhage

#### XII. DISORDERS OF THE SKIN AND SUBCUTANEOUS

TISSUE (ICD 10, L00-L99)

impetigo, cellulitis

abscess

bullous dermatoses (pemphigus, pemphigoid)

dermatitis and eczema

papulosquamous disorders (psoriasis, pityriasis rosea,

lichen planus)

urticaria and erythema (urticaria, erythema multiforme,

erythema nodosum)

acne

dyshidrosis, miliaria

corn, keloid, scar

wart

ulcer  
cyst  
discoid lupus erythematosus

### XIII. DISORDERS OF THE MUSCULOSKELETAL SYSTEM

#### AND CONNECTIVE TISSUE (ICD 10, M00-M99)

infective arthritis & spondylitis  
reactive arthropathy  
rheumatoid arthritis  
crystal arthropathy (gout, pseudogout)  
osteoarthritis (osteoarthritis)  
spondylosis  
systemic lupus erythematosus  
tendinitis (de Quervain disease, bursitis, synovitis,  
fasciitis, fibrositis)  
myositis (pyomyositis)  
osteoporosis  
osteomyelitis  
abnormal curvature of the spine

### XIV. DISORDERS OF THE GENITOURINARY SYSTEM

#### (ICD 10, N00-N99)

nephritic syndrome (acute & chronic glomerulonephritis)  
nephrotic syndrome  
renal tubulo-interstitial diseases (pyelonephritis,  
interstitial nephritis, renal-tubular acidosis,  
obstructive & reflux uropathy)  
renal failure  
uroolithiasis  
cystitis, urethritis and urethral syndrome

orchitis and epididymitis  
hyperplasia of prostate  
hydrocoele of testis  
phimosis / paraphimosis  
mastitis  
vulvovaginitis, Bartholin's & abscess, Bartholin cyst  
cervicitis  
pelvic inflammatory diseases (endometritis, salpingitis,  
oophoritis, tubo-ovarian abscess)  
endometriosis  
imperforate hymen  
female genital prolapse (cystocele, rectocele,  
prolapse uteris)  
fistulae involving female genital tract (vesico-vaginal  
fistula, recto-vaginal fistula)  
polyp of female genital tract  
menstrual disorders  
abnormal uterine or vaginal bleeding  
menopausal and per-menopausal disorders

### XV. PREGNANCY, CHILDBIRTH AND THE PUERPERIUM

#### (ICD 10, O00-O99)

ecliptic pregnancy  
hydatidiform mole  
abortion  
hypertensive disorder in pregnancy  
hyperemesis gravidarum

abnormal findings on antenatal screening of mother  
     (biochemical, hematological, serological,  
     cytological, chromosomal)  
 antepartum hemorrhage (placenta previa, abruptio  
     placentae)  
 multiple gestation  
 malposition and malpresentation of the fetus  
     fetopelvic disproportion  
 prolonged pregnancy (postdate & postterm)  
 polyhydramnios, oligohydramnios  
 premature rupture of membranes, chorio-amnionitis  
 normal delivery  
 preterm labor  
 abnormality of forces of labor (prolonged labor)  
 obstructed labor  
 umbilical cord complication (prolapse cord, vasa  
     previa)  
 fetal distress  
 trauma to birth canal during delivery  
 complications during puerperium  
 breast infection associated with childbirth

**XVI. CERTAIN CONDITIONS ORIGINATING IN THE**

**PERINATAL PERIOD (ICD 10,P00-P95)**  
 slow fetal growth and fetal malnutrition  
 prematurity, immaturity, low birth weight, preterm  
     infant, postterm infant  
 birth trauma  
 Intrauterine hypoxia

birth asphyxia  
 respiratory distress syndrome  
 Intrauterine and perinatal infections (rubella, syphilis,  
     gonococcal infection, tetanus neonatorum,  
     sepsis, hepatitis B virus, HIV, chlamydial  
     infection)  
 hemolytic diseases of fetus and newborn  
 hemorrhagic diseases of fetus and newborn  
 perinatal jaundice  
 transitory metabolic disorders (hypoglycemia,  
     hypocalcemia, hypothermia, dehydration)  
 feeding problems of newborn

**XVII. CONGENITAL MALFORMATIONS, DEFORMATIONS**

**AND CHROMOSOMAL ABNORMALITIES (ICD 10,  
 Q00-Q99)**  
 encephalocele, hydrocephalus  
 preauricular sinus, branchial cleft, cyst, sinus  
 congenital malformation of heart  
 cleft lip, cleft palate, thyroglossal duct cyst  
 tracheo-esophageal fistula  
 diaphragmatic hernia  
 congenital hypertrophic pyloric stenosis  
 congenital megacolon, imperforate anus, omphalocele,  
     gastroschisis  
 hypospadias, undescended testis, ambiguous genitalia  
 polydactyly, club foot, congenital dislocation of hip  
 omphalocele  
 chromosomal abnormalities (Down syndrome)

**XIX. INJURY, POISONING AND CONSEQUENCES OF EXTERNAL CAUSES (ICD 10, S00-T98)**

fracture  
dislocation  
muscle and tendon injuries (sprains and strains)  
head injury  
chest injury  
abdominal injury  
spinal cord and peripheral nerve injury  
wound, abrasion, contusion  
eye injury and foreign body on external eye  
foreign body through orifices  
burns, corusions, heat stroke, electrical injury  
near-drowning  
poisoning and intoxication by drugs, substances, toxins  
animal bite  
toxic effect of contact with venomous animals  
maltreatment syndrome (child abuse, sexual abuse, battered child)

**XX. EXTERNAL CAUSES OF MORBIDITY AND MORTALITY (ICD 10, V01-Y98)**

nosocomial conditions  
work-related conditions  
environmental pollution-related conditions  
lifestyle-related conditions  
drugs, medicaments and biological substances causing adverse effects in therapeutic use

**XXI. FACTORS INFLUENCING HEALTH STATUS AND CONTACT WITH HEALTH SERVICES (ICD 10, Z00-Z99)**

general examination and investigation of person without complaint or reported diagnosis  
carriers of infectious diseases  
contact with and exposure to communicable diseases  
immunization  
contraceptive management

**5.3 Examination by special basic medical equipment and laboratory investigation**

**5.3.1 Examination that requires knowledge of indications, understanding of the methods and ability to perform unassisted and interpret correctly the results for the common or major diseases / conditions / symptoms**

- An examination on the patients by using the following equipment:  
stethoscope  
sphygmomanometer (blood pressure measurement, fourquet test)  
jerk hammer  
tuning fork  
Snellen chart (visual acuity measurement)  
Ishihara chart (color blindness test)  
ophthalmoscope  
otoscope  
head mirror, head light, nasopharyngeal mirror, laryngeal mirror  
tonometer  
proctoscope  
electrocardiograph

- Laboratory investigation :

Examination of blood : hemalocrit, leukocyte count, blood smear examination, differential leukocyte count, examination of blood for malarial parasite, interpretation of blood smear, erythrocyte sedimentation rate (ESR), ABO and compatibility testing.

Examination of urine and other body fluid (cerebrospinal fluid, peritoneal fluid, pleural fluid, synovial fluid) : Chemical analysis for glucose, protein, bilirubin, ketone, specific gravity, microscopic examination of sediment.

Examination of feces : Test for fecal blood (occult blood), red blood cell, white blood cell, parasite and parasitic egg.

Identification of pathogenic organisms in the following specimens : sputum, pus, fluid from various body cavities and urine by using gram stain and acid fast stain.

5.3.2 Examination that requires knowledge of indications, understanding of the methods, ability to prepare the patients for examination and/or collect the samples properly and give correct interpretation of the results

- Radiologic examination (plain film) as follow

- chest x-ray
- abdominal x-ray
- skull x-ray and nasal cavity x-ray
- bone and joint x-ray
- ultrasonography of the abdomen and pelvic cavity

5.3.3 An examination that requires knowledge of indications, ability to prepare the patients for examination and/or collect the samples properly and give correct interpretation of the results

biochemical examination

microbiological examination

pathological examination

hematological examination

immunological examination

forensic evidence and toxicology

physiological examination

psychological tests

growth and development assessment

echocardiography

radiocontrast media study

radioactive substance imaging

computerized tomography

magnetic resonance imaging

5.4 Manual practices necessary or contributing to the solving of health problems as follows:

5.4.1. Basic clinical manual practices: Medical professionals must have knowledge of the indications, an understanding of the methods and the possible complications that might occur, and having performed them unassisted

5.4.1.1 General basic manual practices as follows:

- venepuncture
- parenteral fluid transfusion
- subcutaneous injection, intramuscular injection, intradermal injection, intravenous injection
- venesection and measurement of central venous pressure
- blood transfusion

arterial puncture  
endotracheal intubation  
cardio-pulmonary resuscitation  
oxygen therapy  
gastric intubation and lavage  
urethral catheterization  
incision and drainage  
debridement and suturing of wound  
wound dressing  
desluring  
first aid management of injured patient

5.4.1.2 Special basic manual practices as follows:

normal labor  
amniotomy  
episiotomy and perineorrhaphy  
dilatation and curettage  
lubal ligation  
insertion and removal of intrauterine device  
PAP smear preparation  
excision of benign tumor & cyst of skin &  
subcutaneous tissue  
local anesthesia  
lumbar puncture  
aerosol bronchodilator therapy  
anterior nasal packing  
phototherapy

5.4.2 Special manual practices more complex than basic manual practices and significant to treatment in emergency cases:

Medical professionals must have knowledge of the indications, understanding of the methods and the possible complications that might occur.

5.4.2.1 Manual practices performed unassisted

paracentesis (abdominal, pleural)  
biopsy of skin, superficial mass, cervix  
intercostal drainage  
appendectomy  
spinal anesthesia  
general anesthesia for uncomplicated patient for simple surgery

vacuum extraction  
low forceps extraction  
low transverse caesarean section  
close reduction of simple fractures  
reduction of simple dislocations  
external splinting and plaster of Paris technique  
skin and skeletal traction  
removal of foreign body from eye, ear, nose, throat  
postural drainage

5.4.2.2 Manual practices assisted, seen, or to be able to

perform if necessary  
pressure cycling artificial ventilation  
paracentesis (pericardium, joint, urinary bladder)  
liver aspiration  
peritoneal lavage  
peritoneal dialysis  
bone marrow aspiration  
culdocentesis

marsupialization of Bartholin cyst  
 conization of uterine cervix  
 salpingectomy and oophorectomy  
 breech assisting and extraction  
 manual removal of placenta  
 contraceptive drug implantation and removal  
 umbilical catheterization  
 circumcision  
 debridement of open fracture  
 amputation of finger, toe and extremities  
 tendon repair  
 herniorrhaphy  
 suprapubic cystostomy  
 tracheostomy  
 vasectomy  
 cranial burr hole  
 exploratory laparotomy  
 repair of gastric perforation, Intestinal perforation  
 suture of peptic ulcer bleeding  
 colostomy  
 exchange blood transfusion  
 general anesthesia for complicated patient  
 peripheral nerve block  
 dental extraction  
 excision of pterygium  
 probing and irrigation of nasolacrimal duct  
 5.4.3 Other manual practices extremely complex and/or  
 dangerous if not properly done and/or requiring much  
 additional practice to be able to perform on one's own:

Medical professionals must have a knowledge of the  
 indications, the principles, the possible complications as  
 guidelines in further proper referral of the patients and for  
 giving advice and consultation for the patients as follows:

hysterectomy  
 hemorhoidectomy  
 tonsillectomy  
 thyroidectomy  
 vesicolithotomy  
 skin graft  
 cholecystectomy  
 cancer surgery  
 organ transplantation  
 hemodialysis  
 gastrointestinal endoscopy  
 bronchoscopy  
 cardiac surgery  
 prosthesis implantation  
 laser surgery  
 cosmetic & plastic surgery

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***The Medical Council's Criteria  
for  
Medical Practitioners  
1993 (Supplemented)***

**Appendix 4  
*Knowledge of Basic Medical Science***

*English translation*

***The Medical Council's Criteria for Medical Practitioners  
1993 (Supplemented)***

**Appendix 4**

***Knowledge of Basic Medical Science***

According to the promulgation of Medical Council's Criteria for Medical Professionals In 1993, under knowledge and competence for the profession in Appendix 3, there is a reference to a knowledge of basic medical science but no specific details are given. Therefore, to complete the Medical Council's Criteria for Medical Professionals, the knowledge of basic medical science is illustrated in Appendix 4.

A knowledge of basic medical science plays a very important role. It not only can be applied in the study of Medical Science in Clinic and Medical General Practices but it can also be of importance in the pursuit of progress in science and technology, continued education and the development of new technical fields. That is why knowledge in this area has to be determined in order to keep abreast of knowledge and medical advancement at the international standardized level.

A knowledge of basic medical science is a part of the knowledge contributing to the Degree of Medical Science. Thus, it is not always necessary to organize its teaching and learning and complete it in Pre-Clinical classes. Besides, the criteria for a knowledge of basic medical science given in this Appendix is held only as a framework for all the divisions concerned to use as a guideline in the organizing of suitable teaching and learning including evaluation corresponding to a situation and condition of each institute.

The content in Appendix 4 is divided into the body's physical systems through the integration of different subject disciplines, namely Anatomy, Bio-chemistry, Physiology, Pharmacology, Microbiology,

Immunology, Parasitology, Pathology, Behavioural science, and other related disciplines as well as an evaluation and an analysis of medical and public health data. In each system, it will be classified as knowledge in normal processes and abnormal processes. The criteria for knowledge in abnormal processes should emphasize the importance of causes, risk factors, mechanism, pathogenesis, pathophysiology, histology, laboratory investigation, principles of treatment and prescription.

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    - 1.1.3 Immunologic processes
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    - 1.1.5 Multisystem processes
    - 1.1.6 Behavioral processes
    - 1.1.7 Microbial biology
    - 1.1.8 Pharmacokinetic and pharmacodynamic processes
    - 1.1.9 Interactions between pharmacologic agents and exogenous organisms
    - 1.1.10 Normal genetics
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- 1.3 Quantitative Methods and Appraisal of Clinical Data
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- 4. Skin and Connective Tissue
- 5. Musculoskeletal System
- 6. Respiratory System
- 7. Cardiovascular System
- 8. Alimentary System
- 9. Renal/Urinary System
- 10. Reproductive System
- 11. Endocrine System

• **ආරක්ෂණික ඒකාබද්ධ ජාතික වෛද්‍ය පරීක්ෂණ පියවර 1 කෙරෙහි විස්තරය** N.M. 2537

- 1. General Principles
  - 1.1 Normal Processes
    - 1.1.1 Biochemistry and molecular biology and genetics
      - 1.1.1.1 human and microbial biochemical and molecular genetics
      - 1.1.1.1.1 biosynthesis of DNA and RNA : mechanisms and enzymology
      - 1.1.1.1.2 gene structure, organization, and replication ; chromatin and chromosomes
      - 1.1.1.1.3 molecular basis of mutation ; repair mechanisms
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- 1.1.1.2.4 metabolic rate and its measurement
- 1.1.1.2.5 metabolic regulation and adaptation
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- 1.1.1.3 metabolic pathways of small molecules and control mechanisms
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  - 1.1.1.3.3 biosynthesis and degradation of porphyrins, vitamins, amino acids, and simple carbohydrates
- 1.1.1.4 structure, properties, and functions of cellular constituents
  - 1.1.1.4.1 proteins : amino acid structures and properties ; structure of proteins
  - 1.1.1.4.2 enzymes: Michaelis-Menten and allosteric kinetics; basic reaction mechanisms ; chemistry of active sites ; inhibition and regulation mechanisms
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- 1.1.2 Cell biology
  - 1.1.2.1 cell membranes, including : structure and composition ; passive permeability ; solute and water flux ; ion channels and pumps ; coupled transport processes ; maintenance and regulation of cell volume ; receptors and signal transduction.
  - 1.1.2.2 second messengers : cyclic nucleotides : cyclic AMP cyclic GMP and G proteins ; phosphoinositide metabolism ; inositol 1,4,5-trisphosphate ; diacylglycerol ;  $Ca^{2+}$  / calmodulin ; stimulus-secretion coupling
  - 1.1.2.3 organelles
    - 1.1.2.3.1 the internal compartmentalization of cytoplasm (smooth and rough endoplasmic reticulum, Golgi complex)
    - 1.1.2.3.2 mitochondria
    - 1.1.2.3.3 intracellular digestion, lysosomes and peroxisomes, endo-cytosis
  - 1.1.2.4 secretion and exocytosis
  - 1.1.2.5 cytoskeleton, including cell movement and intracellular transport
  - 1.1.2.6 genetic control and nuclear structure (chromatin, nucleolus, the nuclear envelope)
  - 1.1.2.7 cell cycle, mitosis, meiosis
  - 1.1.2.8 surface specialization, intercellular junction
  - 1.1.2.9 muscle : structure and regulation of contractile elements ; excitation-contraction coupling ; skeletal, cardiac and smooth muscle ;  $Ca^{2+}$  and the sarcoplasmic reticulum and contractile-machinery ; contractile process ; twitch tetany ; length-tension and force-velocity relationships ; energetics
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  - 1.1.3.4 antigenicity and immunogenicity (haptens, epitopes, idiotypes) : host defenses and immune responses (accessory cells and factors, primary and secondary responses, central mechanisms, regulation of immune response) : passive transfer of immunity, including maternal to fetus transfer : antibody-antigen reactions in vitro, complement and cell-mediated reactions in vitro, including diagnostic tests
  - 1.1.3.5 immunologic mediators : chemistry, function molecular biology : classic and alternative complement pathways : arachidonic acid metabolites : histamine tumor necrosis factor : platelet activating factor
  - 1.1.3.6 immunogenetics : major histocompatibility complex structure and function, class I, II molecules : erythrocyte antigens : transplantation, immunoglobulin class switching
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  - 1.1.4.1 differential gene expression in differentiation : growth factors and proto-oncogenes in development-cell cycle
  - 1.1.4.2 cell-cell and cell-substrate interactions in development-cell migration
  - 1.1.4.3 techniques in molecular developmental genetics
- 1.1.4.4 developmental genetics : human karyotype : embryonic (germ) disc formation and development of embryonic form : development of organ systems, body cavities, and the body wall : head, face, neck, branchial arches, and pharynx
- 1.1.4.5 basic tissues, endothelium, epithelium, and connective tissues
- 1.1.5 Multisystem processes
  - 1.1.5.1 nutrition
    - 1.1.5.1.1 energy, digestion and absorption of nutrients
    - 1.1.5.1.2 functions of essential nutrients, including vitamins, minerals, and amino acids
    - 1.1.5.1.3 caloric and nitrogen balance
    - 1.1.5.1.4 normal development and function of organ systems in relation to nutrition
  - 1.1.5.2 fluid, electrolyte and acid-base balance
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- 1.1.6 Behavioral processes
  - 1.1.6.1 behavioral biology, including :
    - 1.1.6.1.1 biochemical correlates of behavior
    - 1.1.6.1.2 correlates of animal and human behavior
    - 1.1.6.1.3 genetics of behavior
    - 1.1.6.1.4 physiologic correlates of behavior
    - 1.1.6.1.5 pharmacologic correlates of behavior
  - 1.1.6.2 individual behavior, including :
    - 1.1.6.2.1 emotions, motivation, perception, cognition, and memory
    - 1.1.6.2.2 learning theory, including behavior modification
    - 1.1.6.2.3 life cycle, including growth and development, aging, death and dying
    - 1.1.6.2.4 stress and adaptation
    - 1.1.6.2.5 personality and psychodynamics
    - 1.1.6.2.6 psychological assessment
  - 1.1.6.3 interpersonal and social behavior, and culture, including :
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  - 1.1.7.2 microbial cell metabolism, physiology, and regulation
    - 1.1.7.2.1 biochemistry and physiology of microbial growth (bacterial, chlamydiae, viruses, fungi)
      - 1.1.7.2.2 chemotaxis and motility
      - 1.1.7.2.3 transport of nutrients
      - 1.1.7.2.4 mechanisms of resistance to environment
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    - 1.1.7.3.2 nature and mechanisms of action and bacterial virulence factors
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    - 1.1.7.4.1 physical and chemical properties of viruses
    - 1.1.7.4.2 replication schemes of classes of viruses
    - 1.1.7.4.3 genetics
  - 1.1.7.5 medical mycology, including structure and physiology of yeasts and molds.
  - 1.1.7.6 medical parasitology, including morphology and life cycles of major protozoans, helminths and arthropods
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    - 1.1.8.1.4 factors affecting drug effects: tolerance, interactions, genetics, age, diseases
    - 1.1.8.1.5 evaluation and control of drugs
    - 1.1.8.1.6 toxicology and environmental issues
    - 1.1.8.1.7 dosage schedule and adjustment
  - 1.1.8.2 processes involving sulacoids, and vitamins
    - 1.1.8.2.1 prostaglandins and analogs; prostacyclin; thromboxane
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    - 1.1.8.2.3 neuroeffector peptides: endorphins, vasoactive intestinal polypeptides
    - 1.1.8.2.4 histamine and antagonists
    - 1.1.8.2.5 processes involving vitamins and vitamin analogs
  - 1.1.9 interactions between pharmacologic agents and exogenous organisms
    - 1.1.9.1 sites and mechanisms of action of antibiotics and other chemotherapeutic agents
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    - 1.2.1.3 irreversible cell injury: pyknosis; liquefactive, fat, caseous, and coagulative necrosis
    - 1.2.1.4 ischemic injury: injury related to oxygen radicals; cell injury and death related to viral infection or chemicals; dystrophic calcification
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    - 1.2.2.2 cell-derived vasoactive mediators
- 1.2.2.3 plasma-derived factors
- 1.2.2.4 arachidonic acid metabolites
- 1.2.2.5 chemotaxis, neutrophils, mononuclear phagocytes, stimuli - response coupling, cell adherence, inflammatory cell activation, phagocytosis
- 1.2.2.6 lysosomal enzymes, reactive oxygen metabolites
- 1.2.2.7 chronic inflammation; granuloma formation, fibrosis
- 1.2.2.8 systemic manifestations: exogenous and endogenous pyrogens, fever, leukocytosis, leukemoid reaction, eosinophilia, lymphocytosis, leukopenia, lymphopenia
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  - 1.2.3.2 wound and injury healing: hemostasis, clot formation; active fibroblasts, phagocytosis; granulation tissue; angiogenesis; scar formation
  - 1.2.3.3 regenerative processes
- 1.2.4 Neoplasia
  - 1.2.4.1 classification of neoplasms
  - 1.2.4.2 cell biology, biochemistry, and molecular biology of neoplastic cells: cell kinetics, doubling time; control points, transformation, retroviruses, oncogenes
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  - 1.2.4.4 mutagenesis
  - 1.2.4.5 hereditary neoplastic disorders; chromosomal abnormalities; translocations, karyotypic abnormalities
  - 1.2.4.6 chemical carcinogenesis
  - 1.2.4.7 physical carcinogenesis
  - 1.2.4.8 invasion and metastasis
  - 1.2.4.9 tumor immunology: tumor-associated antigens; immune surveillance; immunologic cytotoxicity; immune competence
  - 1.2.4.10 grading and staging of cancer
  - 1.2.4.11 paraneoplastic manifestations of cancer
  - 1.2.4.12 principles of pathological diagnosis of cancer

- 1.2.4.13 cancer epidemiology
- 1.2.4.14 basis for prevention of cancer
- 1.2.4.15 principles of cancer chemotherapy
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  - 1.2.5.1 primary and secondary immunodeficiency states
    - 1.2.5.1.1 Blymphocyte deficiencies
    - 1.2.5.1.2 Tlymphocyte deficiencies
    - 1.2.5.1.3 deficiencies lacking phagocytic cells
    - 1.2.5.1.4 complement deficiencies
    - 1.2.5.1.5 natural killer cell deficiency
    - 1.2.5.1.6 combined immunodeficiency disease
    - 1.2.5.1.7 HIV infection/AIDS
    - 1.2.5.1.8 other secondary immunodeficiency states
  - 1.2.5.2 immunologically mediated disorders
    - 1.2.5.2.1 hypersensitivity
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      - 1.2.6.1.3 Immunization
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    - 1.2.6.2.1 cultivation, assay and laboratory diagnosis
    - 1.2.6.2.2 pathophysiology and pathogenesis
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    - 1.2.6.2.4 molecular basis of pathogenesis
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    - 1.2.7.1.2 structural abnormalities (robertsonian translocations, reciprocal translocations, deletions, duplications, isochromosomes, inversions)
    - 1.2.7.1.3 mosaicism (somatic, germinal, and confined placental)
    - 1.2.7.1.4 imprinting and uniparental disomy
  - 1.2.7.2 single gene abnormalities
    - 1.2.7.2.1 autosomal dominant disorders
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    - 1.2.7.2.3 X-linked disorders
  - 1.2.7.3 mitochondrial disorders
    - 1.2.7.3.1 mendelian inheritance
    - 1.2.7.3.2 mitochondrial inheritance
  - 1.2.7.4 disorders involving multifactorial inheritance
    - 1.2.7.4.1 multifactorial congenital anomalies (neural tube defects, cleft lip and palate, congenital heart disease)
    - 1.2.7.4.2 common diseases of adulthood (diabetes mellitus, atherosclerotic heart disease, schizophrenia, manic-depressive illness, hypertension, hyperlipoproteinemia)

- 1.2.7.5 congenital anomalies
  - 1.2.7.5.1 malformations, disruptions, deformations, and dysplasias
  - 1.2.7.5.2 patterns of anomalies
- 1.2.7.6 teratology
  - 1.2.7.6.1 principles
  - 1.2.7.6.2 maternal illness (diabetes, endocrinopathies)
  - 1.2.7.6.3 infections (rubella, toxoplasmosis, syphilis, HIV)
  - 1.2.7.6.4 radiation
  - 1.2.7.6.5 environmental and occupational chemicals
  - 1.2.7.6.6 drugs of abuse (alcohol, cigarettes)
  - 1.2.7.6.7 medications (thalidomide, isotretinoin, cytotoxic agents, anticarcinogens, diethylstilbestrol, lithium, warfarin, angiotensin-converting enzyme inhibitors)
  - 1.2.7.6.8 epidemiology of congenital anomalies
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- 1.2.7.7 genetics and cancer
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  - 1.2.7.7.6 chromosomal abnormalities and neoplasia
  - 1.2.7.7.7 DNA technology on the management of cancer patients
- 1.2.7.8 genetics in medicine
  - 1.2.7.8.1 calculating genetic risks
  - 1.2.7.8.2 DNA diagnosis
  - 1.2.7.8.3 genetic screening
  - 1.2.7.8.4 genetic counseling
  - 1.2.7.8.5 predictive testing
  - 1.2.7.8.6 prenatal diagnosis of genetic disease and congenital anomalies
  - 1.2.7.8.7 treatment of genetic disease
  - 1.2.7.8.8 ethical issues in clinical genetics
- 1.2.8 Nutritional disorders
  - 1.2.8.1 protein-calorie malnutrition
  - 1.2.8.2 vitamin (A, B, C, D, K, E) deficiencies
  - 1.2.8.3 mineral (iron, iodine, calcium, zinc, phosphate, potassium) deficiencies
  - 1.2.8.4 overnutrition
  - 1.2.8.5 hypervitaminosis
  - 1.2.8.6 nutritional assessment
  - 1.2.8.7 starvation and metabolic response to injury and stress
  - 1.2.8.8 dyslipoproteinemias
- 1.2.9 Disorders associated with senescence
  - 1.2.9.1 disorder-aging relationship
  - 1.2.9.2 arteriosclerosis and related disorders
  - 1.2.9.3 endocrine and metabolic disorders
  - 1.2.9.4 bone and joint disorders
  - 1.2.9.5 disorders of cognitive function
  - 1.2.9.6 disorder of sensory function and control
  - 1.2.9.7 social and economic problems related to senescence
  - 1.2.9.8 death and dying
- 1.2.10 Environmental insults
  - 1.2.10.1 physical
    - 1.2.10.1.1 hypothermia
    - 1.2.10.1.2 burns
    - 1.2.10.1.3 altitude-related disorders
    - 1.2.10.1.4 physical injuries
    - 1.2.10.1.5 irradiation
  - 1.2.10.2 chemical insults
    - 1.2.10.2.1 alcohol; other agents of abuse
    - 1.2.10.2.2 principles relating to poisoning and therapy of intoxication; kinetics, ion trapping, chemical and physical antagonism
    - 1.2.10.2.3 gases and vapors; smoke inhalation
    - 1.2.10.2.4 agricultural or occupational hazards
    - 1.2.10.2.5 volatile organic solvents
    - 1.2.10.2.6 heavy metals

- 1.3 Quantitative Methods and Appraisal of Clinical Data
  - 1.3.1 scales of measurement
  - 1.3.2 vital statistics
  - 1.3.3 prevalence, incidence
  - 1.3.4 descriptive statistics (mean, median, mode, range, standard deviation)
  - 1.3.5 causation and association (relative risks, odds ratio)
  - 1.3.6 diagnostic test characteristics and performance (sensitivity, specificity, predictive value, accuracy)
  - 1.3.7 types of study design (descriptive study design, case control design, randomized controlled trial design, cohort design)
  - 1.3.8 test of statistical significance
  - 1.3.9 principles of clinical economics
- 2. Hematopoietic and Lymphoreticular Systems
  - 2.1 Normal Processes
    - 2.1.1 Development and structure
      - 2.1.1.1 normal embryologic development of the hematopoietic system and of the lymphoreticular system, including lymphatics, thymus, lymph nodes, and spleen; ontogeny, phylogeny as they relate to the immune system ; phenotypic markers
      - 2.1.1.2 normal gross anatomy
      - 2.1.1.3 normal microscopic anatomy and ultrastructure
    - 2.1.2 Metabolic, physiologic, and regulatory processes relating to :
      - 2.1.2.1 erythropoiesis, hemoglobin, normal erythrocyte function, O<sub>2</sub> and CO<sub>2</sub> transport, transport proteins
      - 2.1.2.2 production and function of platelets : coagulation : hemostasis
      - 2.1.2.3 granulocytes, lymphocytes, the lymphoreticular system
    - 2.1.3 factor affecting hematopoietic and lymphoreticular systems
  - 2.2 Abnormal Processes
    - 2.2.1 Genetic/congenital disorders
      - 2.2.1.1 hemoglobinopathies (e.g., HbE, HbCS), inherited disorders of erythrocyte metabolism (thalassemia, glucose 6-phosphate dehydrogenase deficiency, hereditary spherocytosis)
    - 2.2.1.2 inherited disorders of coagulation or hemostasis (hemophilia, von Willebrand's disease, protein C/protein S deficiency, antithrombin III deficiency)
    - 2.2.1.3 inherited immune deficiency disorders
    - 2.2.1.4 hemochromatosis
  - 2.2.2 Disorders relating to pregnancy and the perinatal period, including immunization : hemolytic disease of the newborn
  - 2.2.3 factors affecting hematopoietic and lymphoreticular systems
  - 2.2.4 Inflammatory, infectious, and immunologic disease
    - 2.2.4.1 inflammation, allergic reactions, anaphylactic reactions, immunopathologic mechanisms
    - 2.2.4.2 acquired immune deficiencies : HIV infection/AIDS : immune unresponsiveness
    - 2.2.4.3 bacteremia/septicemia : lymphadenitis
    - 2.2.4.4 autoimmunity and autoimmune disease (Coombs' positive hemolytic anemia, pernicious anemia, idiopathic thrombocytopenic purpura)
    - 2.2.4.5 anemia of chronic disease
    - 2.2.4.6 risks of transfusion (immunologic and infectious)
    - 2.2.4.7 transplantation rejection : graft-vs-host reactions
    - 2.2.4.8 parasitic disorders (malaria)
  - 2.2.5 Disorders that reflect alterations in metabolic, physiologic, or regulatory mechanisms
    - 2.2.5.1 anemia secondary to blood loss
    - 2.2.5.2 aplastic anemia, agranulocytosis, leukopenic states
    - 2.2.5.3 polycythemia (primary, secondary) ; other cythemias
    - 2.2.5.4 acquired hemolytic anemias
    - 2.2.5.5 acquired hemorrhagic and hemostatic disorders : disseminated intravascular coagulation ; thrombocytopenic states, lupus anticoagulant
    - 2.2.5.6 intravascular thrombosis ; hypercoagulable states
    - 2.2.5.7 hemosiderosis
    - 2.2.5.8 vascular disorders ; purpura
    - 2.2.5.9 bleeding secondary to qualitative platelet disorders : thrombocytopenia
    - 2.2.5.10 bleeding secondary to qualitative platelet disorders (e.g., APDE)

