Educational Guidelines for Basic Medical Education

1  Mission and Objectives of the Medical School

1.1 Statements of Mission and Objectives

Basic standard:
The medical school must define its mission and objectives and make them known to its constituency. The mission statements and objectives must describe the educational process resulting in a medical doctor competent at a basic level, with an appropriate foundation for further training in any branch of medicine and in keeping with the roles of doctors in the health care system.

Quality development:
The mission and objectives should encompass social responsibility, research attainment, community involvement, and address readiness for postgraduate medical training.

Annotations

Statements of mission and objectives would include general and specific issues relevant to institutional, national and regional policy.

The overall goal of basic medical education is to produce broadly educated medical graduates capable of working safely, ethically and effectively at an appropriate level in the health care system. Basic medical education will provide an appropriate foundation for further training in any branch of medicine, including family medicine (general practice), medical, surgical, investigational or other specialties, medical research, public health medicine or health service administration.

Basic medical education is one step in the education of doctors. Postgraduate medical training would include pre-registration training, vocational training, specialist training and continuing medical education/professional development.

1.2 Participation in Formulation of Mission and Objectives

Basic standard:
The mission statement and objectives of a medical school must be defined by its principal stakeholders.

Quality development:
Formulation of mission statements and objectives should be based on input from a wider range of stakeholders.

Annotations

Principal stakeholders would include the dean, members of the faculty board/council, the university, governmental authorities and the profession.

A wider range of stakeholders would include representatives of academic staff, students, the community, education and health care authorities, professional organizations and postgraduate educators.

So that it can respond appropriately to the health care needs of the community, the medical school should have effective methods for communicating with and receiving the opinions of medical practitioners, health workers and recipients of health care in the community.
1.3 Academic Autonomy

**Basic standard:**
There must be a policy for which the administration and faculty/academic staff of the medical school are responsible, within which they have freedom to design the curriculum and allocate the resources necessary for its implementation.

**Quality development:**
The contributions of all academic staff should address the actual curriculum and the educational resources should be distributed in relation to the educational needs.

**Annotations**

There are many ways of administering medical schools. The medical school may be an independent institution or university, part of a university that includes other academic disciplines, affiliated with more than one university, or associated with other medical schools within the same university.

Irrespective of the specific administrative structures, the medical school should be able to demonstrate sufficient control over its curriculum to allow its objectives to be achieved.

Where the medical school does not administer directly the teaching in important basic medical sciences it must still be able to exercise sufficient curriculum control to achieve the specific educational goals of medical education.

1.4 Educational Outcome

**Basic standard:**
The medical school must define the competencies that students should exhibit on graduation in relation to their subsequent training and future roles in the health system.

**Quality development:**
The linkage of competencies to be acquired by graduation with that to be acquired in postgraduate training should be specified. Measures of, and information about, competencies of the graduates should be used as feedback to programme development.

**Annotations**

Educational outcome would be defined in terms of the competencies the students must acquire before graduation.

The minimum foundation for medical training is a combination of knowledge, skills and attitudes. Competencies within medicine and medical practice would include knowledge and understanding of the basic, clinical, behavioural and social sciences, including public health and population medicine, and ethics relevant to the practice of medicine; attitudes and clinical skills (with respect to diagnosis, practical procedures, communication skills, treatment and prevention of disease, health promotion, rehabilitation, clinical reasoning and problem solving. These attributes cannot be defined simply as lists of factual knowledge, practical skills or attitudes as many competencies are related to more abstract qualities, such as developing clinical judgment and learning how to analyse complex and uncertain situations, and the commitment to lifelong learning and professional development.

The level of knowledge and understanding, skills and attitudes expected of the students at each stage of the medical program should be defined. For example, if particular clinical skills are learnt in more than one year of the program, the medical school should inform both the students and the staff of the standards required each year.
Countries in the region may wish to develop more specific statements of the knowledge, skills and attitudes (or outcome-based competencies) required by graduates to meet the health needs of their country.

The education gained prior to graduation from medical school cannot be considered in isolation from education gained after graduation, especially the early postgraduate years. By requiring a graded increase in practical involvement in patient management during the clinical years of the medical program, medical schools can help students to be prepared for their greater responsibilities as junior doctors. Medical students should spend time in clinical settings where the later stages of the medical education continuum, postgraduate and continuing medical education are present.

2   Educational Programme

2.1 Curriculum Models and Instructional Methods

Basic standard:
The medical school must define the curriculum models and instructional methods employed.

Quality development:
The curriculum and instructional methods should ensure the students have responsibility for their learning process and should prepare them for lifelong, self-directed learning.

Annotations

Curriculum models would include discipline, system, problem, case and community based models etc.

Instructional methods encompass teaching and learning methods.

The challenge for all medical schools is to teach sufficient factual knowledge and practical skills, and also to encourage students to be enquiring, analytical and to develop desirable professional attitudes. The curriculum and instructional methods should be based on sound learning principles and should foster the students’ ability to participate in the scientific development of medicine as professionals and future colleagues. Many doctors work as members of multi-professional teams and medical schools are encouraged to provide opportunities for students from a range of health disciplines to study together, modelling a future where team work is the foundation of practice.

Instructional methods should be motivating for both students and teachers, and consistent with the medical school’s educational objectives. The preclinical stages of medical education have in the past relied on lectures and on practical classes, with some tutorials. The clinical years have used clinical clerkships combined with lectures, demonstrations and case conferences. Recent innovations in teaching strategies have resulted in greater emphasis on small group and self-directed learning. Medical schools should consider educational strategies that promote student-centred rather than teacher-centred learning, promote active student enquiry, stimulate analytical and knowledge organisation skills, and foster lifelong learning skills.

Didactic teaching, through lectures and demonstrations, can be an effective means of explaining important concepts and principles. Because the scope of knowledge relating to medicine is growing so quickly, and many aspects of practice change rapidly, medical schools should place more emphasis on the principles underlying medical science and practice than on the acquisition of a detailed compendium of current knowledge or a comprehensive list of clinical skills.
2.2 Scientific Method

**Basic standard:**
The medical school must teach the principles of scientific method and evidence-based medicine, including analytical and critical thinking, throughout the curriculum.

**Quality development:**
The curriculum should include elements for training students in scientific thinking and research methods.

**Annotations**
These guidelines may be achieved in a variety of ways, including clinical problem-solving tasks, problem-based tutorials and exercises in evidence-based practice, as well as student research projects and assignments.

A proportion of students should have the opportunity for in-depth research experience to encourage an interest in medical research in their future careers. Such opportunities could be provided through electives or intercalated years in a combined medical and science degree programme.

2.3 Basic Biomedical Sciences

**Basic standard:**
The medical school must identify and incorporate in the curriculum the contributions of the basic biomedical sciences to create understanding of the scientific knowledge, concepts and methods fundamental to acquiring and applying clinical science.

**Quality development:**
The contributions in the curriculum of the biomedical sciences should be adapted to the scientific, technological and clinical developments as well as to the health needs of society.

**Annotations**
The basic biomedical sciences are the foundation of clinical medicine. Students must have teaching and learning opportunities that allow them to acquire knowledge of normal human bodily structure and function, the etiological and epidemiological basis of disease, and principles of basic laboratory methods.

Depending on local needs, interests and traditions, the basic biomedical sciences would typically include anatomy, biochemistry, cell biology, genetics, immunology, microbiology, molecular biology, nutrition, pathology, pharmacology and physiology.

Basic science teaching should be relevant to the overall objectives of the medical course and its relevance should be clear to the students. Hence basic science courses designed specifically for medical students should illustrate the importance of the principles being taught to the understanding of human health and disease.

Medically qualified teachers should participate in the teaching of the basic sciences using combined teaching sessions based on clinical problems. Not only does this help to enforce basic concepts, but it also highlights the relevance of the basic sciences to later clinical practice.
2.4 Behavioural and Social Sciences and Medical Ethics

**Basic standard:**
The medical school must identify and incorporate in the curriculum the contributions of the behavioural sciences, social sciences, medical ethics and medical jurisprudence that enable effective communication, clinical decision making and ethical practices.

**Quality development:**
The contributions of the behavioural and social sciences and medical ethics should be adapted to scientific developments in medicine, to changing demographic and cultural contexts and to health needs of society.

**Annotations**

Behavioural and social sciences would, depending on local needs, interests and traditions, typically include medical psychology, medical sociology, biostatistics, epidemiology, hygiene and public health and community medicine etc.

The behavioural and social sciences and medical ethics should provide the knowledge, concepts, methods, skills and attitudes necessary for understanding socio-economic, demographic and cultural determinants of causes, distribution and consequences of health problems.

Medical students need to become familiar with the law and codes of ethical practice which will regulate their professional medical practice. The medical schools should attempt to inculcate scrupulous ethical principles and to nurture and encourage the development of appropriate attitudes and professional conduct in caring for patients, and in relating to patient’s families and to others involved in the care of patients.

Medical students should receive a good grounding in the principles necessary to prepare them for ethical decision-making within the context of the complex issues related to human life and death.

In the interests of patient safety, doctors must understand the importance of taking responsibility for their own health. The medical curriculum should specifically address issues of self-care, the health of doctors and the doctor’s responsibility to identify and assist peers in distress.

2.5 Clinical Sciences and Skills

**Basic standard:**
The medical school must ensure that students have patient contact and acquire sufficient clinical knowledge and skills to assume appropriate clinical responsibility upon graduation.

**Quality development:**
Every student should have early patient contact leading to participation in patient care. The different components of clinical skills training should be structured according to the stage of the study programme.

**Annotations**

The clinical sciences would, depending on local needs, interests and traditions, typically include internal medicine (with subspecialties), surgery (with subspecialties), anaesthesiology, dermatology & venereology, diagnostic radiology, emergency medicine, general practice/family medicine, geriatrics, gynaecology & obstetrics, laboratory medicine, neurology, neurosurgery, oncology & radiotherapy, ophthalmology, orthopaedic surgery, otorhinolaryngology, paediatrics, pathological anatomy, physiotherapy & rehabilitation medicine and psychiatry, etc.
Any medical training must include a significant period of time devoted to personal contact with patients. During this time, the student has the opportunity to learn of the complex interplay of pathogenic processes, and of social, psychological and physical factors. Students need to witness the roles of family and community supports, and the influence of the physical and social environment in determining the expression and course of disease in different individuals. It is essential that students are taught in an environment where patients as a whole are considered rather than individual organ systems or diseases.

Participation in patient care would include relevant community experience and teamwork with other health professions. Students need to gain adequate coverage of common clinical problems in both acute and chronic settings with relevant exposure to continuity of care and interaction with community-based services.

Clinical skills include history talking, physical examination, procedures and investigations, emergency practices and communication skills. Students need opportunities to develop their clinical and practical skills in a supported environment before they use these skills in clinical situations. Skills laboratories and centres provide an excellent setting for such training.

Appropriate clinical responsibility would include health promotion, disease prevention and patient care. Although the diagnosis and management of the sick is a central function of the medical profession, students must also acquire appropriate knowledge, skills and attitudes relating to disease prevention, health promotion and public health medicine.

The practice of medicine involves personal interaction with people, as well as the application of science and technical and procedural skills. Medical graduates must be able to communicate effectively with patients and colleagues in a medical context.

2.6 Curriculum Structure, Composition and Duration

Basic standard:
The medical school must describe the content, extent and sequencing of courses and other curriculum elements, including the balance between the core and optional content, and the role of health promotion, preventive medicine and rehabilitation in the curriculum, as well as the interface with unorthodox, traditional or alternative practices.

Quality development:
Basic sciences and clinical sciences should be integrated in the curriculum.

Annotations

Medical schools should be able to demonstrate that the content and balance of the curriculum and its assessment matches the explicit objectives of the medical school.

Core and optional content refers to a curriculum model with a combination of compulsory elements and electives or special options. The ratio between the two components can vary.

The curriculum should encourage personal development of breadth and perspective in the student, rather than being focused too narrowly on vocational training. Elective periods, self-directed learning, advanced study units in optional areas and intercalated years of research or work experience locally or abroad can all help to develop this breadth.

Elective periods provide students with the opportunity to study certain areas in depth or to experience the practice of medicine in other environments, including other countries and other settings both urban and rural. These periods add greatly to the diversity of the students’ experience and are to be
encouraged provided they are appraised and do not become predominant over training in core disciplines in local settings.

Students must also be made aware of alternative health practices used by the community including their cultural significance and their dangers. Medical schools should provide opportunities for students to examine the interface between orthodox medicine and traditional and complementary health practices, in a context of evidence-based practice. Many patients are interested in, and choose to use, a range of alternative practices and therapies. Medical graduates must be aware of the range of such therapies, why some patients use them including their cultural significance, and how these might affect other types of treatment.

No matter what structure is chosen for the program, an important principle is that student learning should occur in a structured and integrated curriculum. This should include opportunities for both horizontal integration (concurrent or within a course segment) and vertical integration (sequential or across successive course segments) of related subject matter. The process of integration can enhance student learning by demonstrating the relationship between course material and subsequent medical practice. Topic areas taught in isolation tend to be forgotten by students.

2.7 Programme Management

Basic standard:
A curriculum committee must be given the responsibility and authority for planning and implementing the curriculum to secure the objectives of the medical school.

Quality development:
The curriculum committee should be provided with resources for planning and implementing methods of teaching and learning, student assessment, course evaluation, and for innovations in the curriculum. There should be representation on the curriculum committee of staff, students and other stakeholders.

Annotations

Medical schools should have in place an identified group of individuals with expertise and interest in medical education who are responsible for the overall curriculum, implementation and student assessment. Membership of this curriculum committee should include the basic and clinical sciences, but the responsibilities of individuals should transcend specific discipline interests. Other stakeholders would include other participants in the educational process, representatives of other health professions or other faculties in the university.

The authority of the curriculum committee would include authority over specific departmental and subject interests, and the control of the curriculum within existing rules and regulations as defined by the governance structure of the institution and governmental authorities. The funding allocation processes within the medical school and/or affiliated university should promote the cooperation of departments or disciplines and respond to recommendations of curriculum committees.

A number of special topics that are of considerable contemporary importance may fail to be adequately represented because they cross several disciplines. For example, the specific health needs of indigenous people, minority ethnic groups and socially challenged groups, gender and environmental issues need to be incorporated into the curriculum. The curriculum committee should develop a mechanism to identify local, national and regional needs, such as a consultative committee with broad community representation.
2.8 Linkage with Medical Practice and the Health Care System

**Basic standard:**
Operational linkage must be assured between the educational programme and the subsequent stage of training or practice that the student will enter after graduation.

**Quality development:**
The curriculum committee should seek input from the environment in which graduates will be expected to work and should undertake programme modification in response to feedback from the community and society.

**Annotations**
Operational linkage would imply clear definition and description of the elements and their interrelations in the various stages of training and practice, and should pay attention to the local, national, regional and global context.

Subsequent stages of training would include pre-registration training and specialist training.

Medical education depends on strong and supportive state-financed health care institutions. It is essential that the medical school has a constructive relationship with the government health department. Health care institutions benefit from being centres for undergraduate medical education and students benefit from access to patients and teachers within institutions administered through the government. Medical schools need a supportive health authority and appropriate channels of communication to allow problems to be addressed and new initiatives to be developed.

There should be effective communication and liaison between the university, the school of medicine and the health care and research institutions affiliated with the university. Academic staff of the medical school working within teaching hospitals or other health care institutions must be integrated into the service and administrative activities of the institution so that they have appropriate access to patients for teaching and clinical research and are able to maintain their clinical skills. Staff employed by the affiliated institutions must recognize their teaching obligations. Whilst formalised arrangements can protect these relationships, they are best developed by an ethos of reciprocity.

As it is important that institutions associated or affiliated with university medical schools share the educational and research objectives of the medical school, the university should be represented on the relevant staff appointment committees, and preferably the board of management of its affiliated institutions. In turn, the institutions should be represented on the committees of the medical school, especially those appointing academic staff who will have clinical responsibilities.

A formal mechanism for high-level consultation between the medical school and affiliated institutions should ensure appropriate communication and liaison on matters of mutual interest, particularly those relating to teaching, research and clinical service. Consultation should include regular communication with the health department and formal agreements that meet the interests of both parties.
3 Assessment of Students

3.1 Assessment Methods

**Basic standard:**
The medical school must define and state the methods used for assessment of its students, including the criteria for passing examinations.

**Quality development:**
The reliability and validity of assessment methods should be documented and evaluated and new assessment methods developed.

**Annotations**
Assessment comprises summative assessment, which serves to determine student progression, and formative assessment, where assessment is for student guidance only. Methods of formative and summative assessment may include written assessments, oral assessments, projects, documentation of the performance of practical procedures (such as log books) and clinical case examinations. The definition of methods used for assessment may include consideration of the balance between formative and summative assessment, the number of examinations and other tests, the balance between written and oral examinations, the use of normative and criterion referenced judgements, and the use of special types of examinations.

Evaluation of assessment methods may include an evaluation of how they promote learning.

When a medical school changes the objectives of its medical course, the assessment program should reflect these changes. Assessment should address and be developed in conjunction with the new objectives.

3.2 Relation between Assessment and Learning

**Basic standard:**
Assessment principles, methods and practices must be clearly compatible with educational objectives and must promote learning.

**Quality development:**
The number and nature of examinations should be adjusted by integrating assessments of various curricular elements to encourage integrated learning. The need to learn excessive amounts of information should be reduced and curriculum overload prevented.

**Annotations**
Because student learning is driven by assessment, methods of student assessment must match and reinforce the goals and objectives of the medical course. Assessments must be designed and delivered to provide valid and reliable measurements of a student’s performance. Assessment methods should be explicit and made known to students at the outset of the course or the course component.

Contemporary approaches to assessment in medical education emphasise a programmatic approach, in which the medical school aggregates multiple measures of students’ knowledge, skill and abilities over time to inform judgments about progress.

Although the reproducibility (reliability) of clinical examinations is usually less than that of written examinations, clinical examinations, whether on real or simulated patients, should form a significant component of the overall process of assessment of the clinical disciplines. This is partly because of the incentive it provides to students to practise their clinical skills in the wards and partly because no
other method has been shown to provide a more valid basis for the assessment of clinical competence. Greater reproducibility can be achieved by using simulated and standardised patients and by testing specific skills in a structured, multi-station assessment process, such as the objective structured clinical examination. Even when these forms of assessment are used, there may still be a need for an in-depth examination of a patient. This allows the medical school to assess the student’s ability to take a complete history, conduct a full clinical examination, interpret the findings and develop a management plan. Thus assessment should include observation of the student performing a complete clinical evaluation.

Assessment should be integrated across the curriculum to encourage students to develop an integrated approach to learning. Integrated assessment encourages the learning of important principles with more generic applications and reduces the tendency to learn excessive amounts of detailed information.

Adjustment of number and nature of examinations would include consideration of avoiding negative effects on learning.

4 Students

4.1 Admission Policy and Selection

**Basic standard:**
The medical school must have an admission policy including a clear statement on the process of selection of students.

**Quality development:**
The admission policy should be reviewed periodically, based on relevant societal and professional data, to comply with the social responsibilities of the institution and the health needs of community and society. The relationship between selection, the educational programme and desired qualities of graduates should be stated.

**Annotations**

There is no one best method for selecting medical students. Whatever selection process is chosen, the methods must be clearly defined, consistent, defensible and, except where explicit affirmative action in favour of nominated disadvantaged groups is used, free of discrimination or bias. A description of the selection process should be published and available to potential students. Each medical school should have in place an appeal mechanism.

Where a medical school uses student interview, it should ensure that it is structured to be as objective and fair as is possible.

Although students need certain standards of literacy, numeracy, aptitude and scientific knowledge to complete a medical course, the medical school should not demand an extensive and prescriptive list of prerequisite subjects for entry into medicine. The school should provide for supplementary tuition for otherwise well-qualified and appropriate students who lack experience in specific areas.

Medical schools should follow-up the outcome of the selection process, so that the process can be modified as necessary. The review of admission policies and the recruitment of students would include improvement of selection criteria, to reflect the capability of students to become doctors and to cover the variations in required competencies related to diversity of medicine.
4.2 Student Intake

**Basic standard:**
The size of student intake must be defined and related to the capacity of the medical school at all stages of education and training.

**Quality development:**
The size and nature of student intake should be reviewed in consultation with relevant stakeholders and regulated periodically to meet the needs of community and society.

**Annotations**
The needs of community and society may include consideration of balanced intake according to gender, ethnicity and other social requirements, including the potential need of a special admission policy for underprivileged students.

Stakeholders would include those responsible for human resources in the national health sector.

4.3 Student Support and Counselling

**Basic standard:**
A programme of student support, including counselling, must be offered by the medical school.

**Quality development:**
Counselling should be provided based on monitoring of student progress and should address social and personal needs of students.

**Annotations**
Student support services should include access to counselling services with trained staff, a student health service, student academic advisers, and more informal and readily accessible advice from individual academic staff.

The services should provide personal support for emotional and stress-related problems, as well as assistance with such matters as vocational counselling, the development of learning skills, and financial advice and support.

There should be a formal mechanism that allows the head of the medical school to notify the medical registration authority of any non-academic concerns about the ability of a medical graduate to meet the requirements of medical registration.

Medical students are at particular risk of stress-related problems because of the workload in the medical course and the distressing circumstances they may face, especially in clinical settings. Medical schools need to foster a culture that supports students and recognizes student vulnerability.

Medical schools should make provision for students who decide in the middle or later stages of the course that they do not wish to complete the medical course. They should be able to transfer to an alternative course, or complete a limited and prescribed amount of additional study to acquire an alternative degree.
4.4 Student Representation

**Basic standard:**
The medical school must have a policy on student representation and appropriate participation in the design, management and evaluation of the curriculum, and in other matters relevant to students.

**Quality development:**
Student activities and student organisations should be encouraged and facilitated.

**Annotations**

Student activities and organisations would include student self-government and representation on educational committees and other relevant bodies as well as social activities.

The student body should be represented on curriculum committees, preferably by students from each phase of the course. The students should also have ready access to the convenors of components of the course and to the administrative staff of the school so that concerns may be conveyed before major problems develop.

5 Academic Staff/Faculty

5.1 Recruitment Policy

**Basic standard:**
The medical school must have a staff recruitment policy which outlines the type, responsibilities and balance of academic staff required to deliver the curriculum adequately, including the balance between medical and non-medical academic staff, and between full-time and part-time staff, the responsibilities of which must be explicitly specified and monitored.

**Quality development:**
A policy should be developed for staff selection criteria, including scientific, educational and clinical merit, relationship to the mission of the institution, economic considerations and issues of local significance.

**Annotations**

Balance of academic staff/faculty would include staff with joint responsibilities in the basic and clinical sciences, in the university and health care facilities, and teachers with dual appointments.

The quality of teaching staff is a vital ingredient of medical education. Effective teachers have a strong knowledge of their discipline, understand curricular design and pedagogy, and are committed to good teaching. Academic staff who are committed to continuing scholarly productivity contribute to the educational environment of the medical school. Teachers should respect student dignity and behave professionally in carrying out their duties.

Where there are difficulties in recruiting appropriate staff, the medical school should take appropriate steps to resolve it by providing the best working conditions it can afford and by cooperative arrangements with the health care service.

Joint appointments between basic science and clinical departments or part-time appointments can sometimes relieve problems with recruiting medically qualified staff to basic science departments.

There may also be certain clinical specialty areas where it is difficult to fill academic posts. Joint appointments between the university and hospital can help to resolve this problem, with clear
responsibilities for teaching and research made explicit in the appointment. Universities may provide honorary clinical academic titles for hospital or community practitioners involved in teaching and research. It is desirable that there be approximate parity in the conditions of employment of university employed clinical academics with those employed by the health service.

Issues of local significance may include gender, ethnicity, religion, language and others of relevance to the school.

Merit can be measured by formal qualifications, professional experience, research output, teaching, peer recognition etc.

5.2 Staff Policy and Development

Basic standard:
The medical school must have a staff policy which addresses a balance of capacity for teaching, research and service functions, and ensures recognition of meritorious academic activities, with appropriate emphasis on both research attainment and teaching qualifications.

Quality development:
The staff policy should include teacher training and development and teacher appraisal. Teacher-student ratios relevant to the various curricular components and teacher representation on relevant bodies should be taken into account.

Annotations

Service functions would include clinical duties in the health care system, administrative and leadership functions etc.

Recognition of meritorious academic activities would be by rewards, promotion and/or remuneration.

Staff-development programmes should promote teaching and assessment skills. They should provide opportunities for the mentoring of younger staff by the senior academics.

6 Educational Resources

6.1 Physical Facilities

Basic standard:
The medical school must have sufficient physical facilities for the staff and the student population to ensure that the curriculum can be delivered adequately.

Quality development:
The learning environment for the students should be improved by regular updating and extension of the facilities to match developments in educational practices.

Annotations

Physical facilities would include lecture halls, tutorial rooms, laboratories, libraries, information technology facilities, recreational facilities etc.

The medical school should provide adequate student support services and physical facilities for student study and recreation. Physical facilities should include adequate recreation, locker and food services areas.
The libraries should maintain a collection of reference materials adequate to meet the curriculum and research needs of the students and the faculty staff. Supportive staff should be available to help the students. Access to computer-based reference systems should also be provided.

6.2 Clinical Training Resources

Basic standard:
The medical school must ensure adequate clinical experience and the necessary resources, including sufficient patients and clinical training facilities.

Quality development:
The facilities for clinical training should be developed to ensure clinical training which is adequate to the needs of the population in the geographically relevant area.

Annotations

Clinical training facilities would include hospitals (adequate mix of primary, secondary and tertiary), ambulatory services, clinics, primary health care settings, health care centres and other community health care settings as well as skills laboratories.

Students need to be exposed to a range of settings in which health care and health promotion are delivered. Major teaching hospitals have a concentration of facilities and teaching expertise, but they are insufficient alone to meet the requirements of medical students. Students need broad exposure to a range of common medical, surgical, paediatric, gynaecological and psychiatric problems, in addition to the complex and severe illnesses found in tertiary teaching hospitals. Students should have the opportunity to work in rural, suburban, community and private hospitals, in general practice, in community health centres, in nursing homes, hospices and other settings that will allow students to gain the necessary clinical experience of ambulatory care.

As well as the common and transitory medical problems encountered in community practice that are not seen in the hospital setting, students should also experience the effect of the family and the community environment on symptom expression and therapeutic responses. Experience of community practice can enhance students’ ability to make management decisions based on probabilities without the help of a firm diagnosis or elaborate tests. Students also need experience in such general practice to make informed career decisions.

The objectives and the assessment of all clinical placements, in hospitals and in the community, should be clearly defined and known to both the students and the teachers. The medical school needs to have mechanisms to ensure that all clinical placements enable students to undertake a thorough study of a series of patients under close faculty supervision and are well organized.

When they are attached outside the main teaching hospitals, every effort must be made to ensure equivalent educational experience with appropriate support services, such as library services and accommodation. The medical school should make a special effort to monitor the educational experiences in these more remote clinical attachments.

The institutions involved in teaching should provide suitable facilities for students. Hospital accommodation to allow students to stay overnight and witness acute presentation of disease and emergency management is desirable. There should be facilities for quiet study and for relaxation. If the hospital is geographically separate from the university campus, library and computer-based literature search facilities should be provided. Other teaching centres, such as community centres, also need appropriate resources.
Facilities for clinical training should be evaluated regularly for their appropriateness and quality regarding medical training programmes. Medical schools should monitor student experience and modify it as necessary to ensure that the objectives of the clinical education program will be met.

6.3 Information Technology

Basic standard:
The medical school must have a policy which addresses the evaluation and effective use of information and communication technology in the educational programme.

Quality development:
Teachers and students should be enabled to use information and communication technology for self-learning, accessing information, managing patients and working in health care systems.

Annotations

A policy regarding the use of computers, internal and external networks and other means of information and communication technology would include coordination with the library services of the institution.

The use of information and communication technology may be part of education for evidence based medicine and in preparing the students for continuing medical education and professional development.

Information technology has an accepted role in medical practice. Students must be prepared to use the technology and communication tools available in professional practice and be ready to incorporate changing technology. Computer-assisted learning should supplement other educational methods. Computer-assisted learning modules enable some lectures to be replaced, and digital technology has improved opportunities for practical teaching in physiology, pathology, microbiology, anatomy, medical imaging, histology, and many other disciplines.

Students and staff must be aware of the importance of confidentiality of patient information obtained through electronic means.

6.4 Research

Basic standard:
The medical school must have a policy that fosters the relationship between research and education and must describe the research facilities and areas of research priorities at the institution.

Quality development:
The interaction between research and education activities should be reflected in the curriculum and influence current teaching and should encourage and prepare students to engagement in medical research and development.

Annotations

Undergraduate medical education is greatly enhanced by a medical school environment in which research is actively pursued. A research ethos attracts high calibre staff who can engender a milieu of critical appraisal and evaluation of existing knowledge, and who can contribute to the advancement of knowledge. Active researchers are also in the best position to interpret and apply advances in medicine occurring elsewhere for the benefit of the local community. The resources they attract through research grants add to the number of available teachers and to the morale of the teaching staff. Moreover, while teaching, service, and research commitments can be construed as competitive
for the time of busy professionals, often the contact engendered by interdisciplinary teaching has beneficial effects for research collaboration and delivery of clinical services.

An active research environment within a medical school provides medical students with opportunities to observe and participate in ongoing programmes either as mandatory or elective components of their curriculum. All medical students can benefit from some direct contact with active researchers. Exposure to an atmosphere of curiosity and enquiry promotes the enduring ability to solve problems, analyse data and update knowledge. A proportion of students should have the opportunity for in-depth research experience to encourage an interest in medical research in their future careers. Such opportunities could be provided through electives or intercalated years in a combined medical and science degree programme.

Alongside teaching, research and clinical practice should be mutually reinforcing; it does not follow that all academic staff can be equally active in all three domains.

6.5 Educational Expertise

**Basic standard:**
The medical school must have a policy on the use of educational expertise in planning medical education and in development of teaching methods.

**Quality development:**
There should be access to educational experts and evidence demonstrated of the use of such expertise for staff development and for research in the discipline of medical education.

**Annotations**

Educational expertise would deal with problems, processes and practice of medical education and would include medical doctors with research experience in medical education, educational psychologists and sociologists etc. It can be provided by an education unit at the institution or be acquired from another national or international institution.

In order to undertake and sustain curriculum evaluation and reform, the medical school requires independent staff with educational expertise that can be directed not only to curriculum design but also to teaching and learning methods, staff development, student assessment and course evaluation. There are advantages in creating a medical education centre or unit within the medical school that can facilitate and support school-wide developments. Where educational expertise already exists in the medical school, it may be cost effective to second the staff to a central medical education unit by relieving them of a proportion of their other academic duties.

Medical education research investigates the effectiveness of teaching and learning methods, and the wider institutional context.

6.6 Educational Exchanges

**Basic standard:**
The medical school must have a policy for collaboration with other educational institutions and for the transfer of educational credits.

**Quality development:**
Regional and international exchange of academic staff and students should be facilitated by the provision of appropriate resources.
Annotations

Other educational institutions would include other medical schools or public health schools, other faculties, and institutions for education of other health and health related professions.

Educational exchanges with institutions in other countries provide opportunities for medical students to work with people from other cultures and experience other health care systems. Medicine is an increasingly international profession and doctors of the future will benefit from experience in a range of contexts. To facilitate informed choice, medical schools need to describe all the options available to students.

Transfer of educational credits can be facilitated through active programme co-ordination between medical schools. If students are able to complete educational exchanges at other institutions, there should be a system to review the students’ proposed study programme before they begin and to receive a performance assessment when they are completed.

7 Programme Evaluation

7.1 Mechanisms for Programme Evaluation

Basic standard:
The medical school must establish a mechanism for programme evaluation that monitors the curriculum and student progress, and ensures that concerns are identified and addressed.

Quality development:
Programme evaluation should address the context of the educational process, the specific components of the curriculum and the general outcome.

Annotations

Identified concerns would include problems presented to the curriculum committee.

The context of the educational process would include the organisation and resources as well as the learning environment and culture of the medical school.

Specific components for programme evaluation would include course description and student performance.

Each medical school should develop mechanisms for monitoring and evaluating its curriculum, and for using evaluation results to assess performance against educational objectives. This requires the use of valid and reliable methods, and the collection of basic data about the medical curriculum. Involvement of experts in medical education would further broaden the base of evidence for quality of medical education at the institution.

It is appropriate that review of the overall curriculum leading to major restructuring occurs from time to time, but medical schools also need mechanisms to evaluate, review and make more gradual changes to the curriculum and its components. Additions to curricula need to be accompanied by corresponding reviews in other areas to avoid curricula overfilled with cognitive content. Internal processes should allow for the monitoring of curriculum implementation, and for change as requirements alter.

General outcomes would be measured for example by career choice and postgraduate performance. Theoretically, the best method of evaluating the appropriateness and effectiveness of the medical course is to examine the quality of the graduates. Medical schools should have follow-up mechanisms
for obtaining feedback from the hospitals where their students work as interns and residents after graduation and from the graduates themselves.

Medical schools should monitor and, where appropriate, respond to community perceptions about deficiencies in their graduates. Medical schools should also identify forms of medical practice that their graduates appear reluctant to pursue, as this may reflect insufficient exposure to these areas during basic medical education and the early stages of postgraduate training.

7.2 Teacher and Student Feedback

**Basic standard:**
Both teacher and student feedback must be systematically sought, analysed and responded to.

**Quality development:**
Teachers and students should be actively involved in planning programme evaluation and in using its results for programme development.

**Annotations**

Although student questionnaires have limitations, the information gained from them is valuable in identifying problem areas. To be useful, there has to be a relatively high rate of completion, and the questionnaires must be carefully designed and evaluated. There should be mechanisms for feeding the information back to those responsible for designing and teaching individual courses or course components. There may be good and defensible reasons for a specific component of the course being unpopular with a large proportion of students, but at least such components should be identified and the reasons for the students’ perceptions analysed. If appropriate, the component should be altered. Thus student questionnaires should be obtained regularly for each component of the course and evaluated by the appropriate committee.

There should be other pathways for student feedback as well.

7.3 Student Performance

**Basic standard:**
Student performance must be analysed in relation to the curriculum and the mission and objectives of the medical school.

**Quality development:**
Student performance should be analysed in relation to student background, conditions and entrance qualifications, and should be used to provide feedback to the committees responsible for student selection, curriculum planning and student counselling.

**Annotations**

Measures of student performance would include information about average study duration, scores, pass and failure rates at examinations, success and dropout rates, student reports about conditions in their courses, as well as time spent by the students on areas of special interest.

A medical school can also evaluate its curriculum by examining pass rates in individual components. Unless student selection is inappropriate, a high failure rate in a component implies that the course content is inappropriate, or that there are problems with the teaching or that the examination is set at inappropriate standards. The curriculum committee should oversee the pass rates in individual components of the course, and investigate situations where these are inappropriately low.
7.4 Involvement of Stakeholders

**Basic standard:**
Programme evaluation must involve the governance and administration of the medical school, the academic staff and the students.

**Quality development:**
A wider range of stakeholders should have access to results of course and programme evaluation, and their views on the relevance and development of the curriculum should be considered.

**Annotations**
A wider range of stakeholders would include educational and health care authorities, representatives of the community, professional organisations and those responsible for postgraduate education.

8 Governance and Administration

8.1 Governance

**Basic standard:**
Governance structures and functions of the medical school must be defined, including their relationships within the university.

**Quality development:**
The governance structures should set out the committee structure, and reflect representation from academic staff, students and other stakeholders.

**Annotations**
The committee structure would include a curriculum committee with the authority to design and manage the medical curriculum. Relationships within the University and its governance structures should be specified, if the medical school is part of or affiliated to a University. Other stakeholders would include the health care sector and the public.

There should be a clear and direct line of responsibility for the curriculum and its resourcing.

8.2 Academic Leadership

**Basic standard:**
The responsibilities of the academic leadership of the medical school for the medical educational programme must be clearly stated.

**Quality development:**
The academic leadership should be evaluated at defined intervals with respect to achievement of the mission and objectives of the school.

The chief academic manager of the medical school, generally known as the dean, should be appropriately qualified by education and experience and have the managerial authority to provide leadership of the medical school. The head of school must have sufficient authority to administer the educational program to meet the objectives of the medical course.
8.3 Educational Budget and Resource Allocation

**Basic standard:**
The medical school must have a clear line of responsibility and authority for the curriculum and its resourcing, including a dedicated educational budget.

**Quality development:**
There should be sufficient autonomy to direct resources, including remuneration of teaching staff, in an appropriate manner in order to achieve the overall objectives of the school.

**Annotations**
The educational budget would depend on the budgetary practice in each institution and country.

8.4 Administrative Staff and Management

**Basic standard:**
The administrative staff of the medical school must be appropriate to support the implementation of the school’s educational programme and other activities and to ensure good management and deployment of its resources.

**Quality development:**
The management should include a programme of quality assurance and the management should submit itself to regular review.

8.5 Interaction with Health Sector

**Basic standard:**
The medical school must have a constructive interaction with the health and health-related sectors of society and government.

**Quality development:**
The collaboration with partners of the health sector should be formalised.

**Annotations**
The health sector would include the health care delivery system, whether public or private, medical research institutions, etc.

The health-related sector would, depending on issues and local organisation, include institutions and regulating bodies with implications for health promotion and disease prevention (e.g. with environmental, nutritional and social responsibilities).
9 Continuous Renewal

**Basic standard:**
The medical school must as a dynamic institution initiate procedures for regular reviewing and updating of its structure and functions and must rectify documented deficiencies.

**Quality development:**
The process of renewal should be based on prospective studies and analyses and should lead to the revisions of the policies and practices of the medical school in accordance with past experience, present activities and future perspectives. In so doing it should address the following issues:

- Adaptation of the mission and objectives of the medical school to the scientific, socio-economic and cultural development of the society.
- Modification of the required competencies of the graduating students in accordance with documented needs of the environment graduates will enter. The modification shall include the clinical skills and public health training and involvement in patient care appropriate to responsibilities encountered upon graduation.
- Adaptation of the curricular model and instructional methods to ensure that these are appropriate and relevant.
- Adjustment of curricular elements and their relationships in keeping with developments in the biomedical sciences, the behavioural sciences, the social sciences, the clinical sciences, and changes in the demographic profile and health/disease pattern of the population, and socio-economic and cultural conditions. The adjustment shall assure that new relevant knowledge, concepts and methods are included and outdated ones discarded.
- Development of assessment principles, and the methods and the number of examinations according to changes in educational objectives and learning goals and methods.
- Adaptation of student recruitment policy and selection methods to changing expectations and circumstances, human resource needs, changes in the premedical education system and the requirements of the educational programme.
- Adaptation of recruitment and staffing policy regarding the academic staff according to changing needs of the medical school.
- Updating of educational resources according to changing needs of the medical school, i.e. the student intake, size and profile of academic staff, the educational programme and contemporary educational principles.
- Refinement of programme monitoring and evaluation.
- Development of the organizational structure and management principles in order to cope with changing circumstances and needs of the medical school and, over time, accommodating to the interests of the different groups of stakeholders.

**Annotations**

Communities increasingly demand more accountability from their public institutions including medical schools. Communities need accessible doctors who are competent to treat common conditions and to serve the needs of social groups such as the elderly, the mentally ill, and the socially and geographically disadvantaged. Medical schools need to focus more of their education, research and service on the requirements of health care delivery in their region. The World Health Organization has derived measures of social responsiveness of medical schools that take into account the relevance, quality, cost effectiveness and equity focus of these activities.
In addition to being responsive to these social needs, medical schools need to adapt continuously to changes in scientific, educational and health practices worldwide. To meet these challenges medical schools need strong and dynamic procedures for reviewing, modifying and renewing its fundamental structures and activities.