

National Academic Reference Standards (NARS)

Medicine

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Introduction to Medical Education

1. The National Academic Standards have been developed in order to serve as an external reference for designing and upgrading the undergraduate educational program of faculties of medicine. They also represent general expectations about the standards for the award of Bachelor Degree in Medicine (MBBCh) and articulate the attributes and capabilities that those possessing such qualification should be able to demonstrate.
2. The National Academic Reference Standards of the MBBCh degree include expressions of the professional/employment related abilities that graduates in medicine would be expected to have developed during their higher education including associated practice based experiences.
3. These standards represent the minimum academic quality requirements which the government regards as appropriate and reasonable in order to protect the interests of the students, the reputation of individual faculties, and the community.
4. These standards have been developed by a group of medical academics representing a wide variety of Egyptian Universities, Medical Sector Committee of the Supreme Council of Universities, a representative of the Medical Syndicate, Ministry of Health and Population, Army Hospitals, private hospitals and students.
5. The standards are not a curriculum or a syllabus.

6. The role of NAQAAE is to develop, review and modify the national academic reference standards when required.
7. The role of the Medical Sector Committee of the Supreme Council of Universities is to, participate in the development, dissemination, and facilitate the implementation of the NARS

Role of Faculties of Medicine

8. The role of Faculties is to develop their own standards based on the relevant external reference points, guarantee the approval of NAQAAE if their standards are not equal or exceed the threshold of National Academic Reference Standards and ensure that their own standards and their program design follow the regulatory frameworks and bylaws of the Supreme Council of Universities
9. If any faculty of medicine develops program Intended Learning Outcomes that are different from the National Academic Reference Standards, it should be stated in its mission. For example, it may have a distinctive mission or unusual student intake, or it might be using alternative external reference points that are regarded as more relevant to the needs of its graduates and other stakeholders.

10. Every faculty of medicine should make available all evidences they may wish to present under each of the standards and make this clear in their self-evaluation reports and during external audit.
11. Every faculty of medicine should ensure that their academic standards are in compliance with their mission, the faculty members approve the academic reference standards, and their students achieve the academic standards and outcomes.
12. Every faculty of medicine should clearly define the program and course specifications including aims and Intended Learning Outcomes.
13. Every faculty of medicine should have a plan to implement successfully the academic reference standards and should have a means to secure and sustain the use of these standards.

Requirements to achieve NARS

1. **Curriculum Management:** Every Faculty of Medicine must establish a system for curriculum management which inclusively but not exclusively comprise authoritative committees for curriculum development , implementation, students assessment and program evaluation

- 2. Curriculum Integration.** Traditionally the medical program was divided into a pre-clinical phase covering the sciences basic to medicine and the clinical phase covering clinical instruction with some of the more applied medical sciences. Educational research has proved that students learn best when basic sciences are weaved into clinical contexts, and the curriculum is integrated horizontally and vertically. It is essential that all faculties of medicine must imply some degree of integration according to their capabilities

- 3. Educational Strategies:** There are also different approaches to education across the medical schools. The curricula in most of the medical schools are predominantly subject based, whereas in few medical schools is problem based. The NAQAAE & the Sector Committee confirm that all faculties of medicine must adopt new educational strategies which enhance students' participation in the learning process and help the development of students' self learning abilities within the next two years. The Faculty must ensure enough clinical training opportunities and time for the students throughout their study program which reflect the variety of health care environments including hospitals, ambulatory care, primary and family health centers, general practice, and other available community health care services. This must also be supported by training in skills laboratories.

4. **Medical Education Center /Department:** In recent years there has been an increasing professionalism of medical education with most medical schools now having medical education center /departments. The NAQAAE and the sector committee request all faculties of medicine to establish medical education departments or strengthen their medical education centers.

5. **Elective Courses:** Most of the medical schools use a compulsory core curriculum to all the students. The core curriculum provides the essential knowledge, understanding, clinical skills and professional attitudes which are required by any medical graduate in order that s/he may practice as a house officer and commence postgraduate training. The elective courses became one of the essential international standards all over the world. The NAQAAE and the Sector Committee support medical schools to include elective studies within their undergraduate courses. The aim of the elective studies is stimulation of critical thinking; it should allow students to acquire research abilities and enhance their skills in collection, evaluation, synthesis and presentation of evidence. Elective studies also provide opportunity for study in depth and may extend beyond the traditional medical disciplines.

6. **Student Assessment** is an essential component in the educational process, as it drives learning and allows the institution to ensure that the students has achieved the desired

intended learning outcomes to the degree determined by the academic standards . This NARS emphasizes that the Faculty should make all the efforts to establish an assessment system that utilizes a variety of methods and techniques to ensure that all the curricular outcomes have been adequately met. This requires the use of objective questions (MCQs, matching etc.) in addition to modified essay and problem solving and case studies in written exams. Similarly, the Faculty must ensure that assessment of clinical and practical skills encompasses tools that allow the coverage of a wide variety of required competencies. This should inclusively but not exclusively include the wider implementation of Objective Structured practical and Clinical Exams (OSCE/SP), extended direct observation of students interviewing and examining patients throughout their clinical clerkships, as well as the assessment of procedural skills in skills labs. Assessment of attitudes and ethics though relatively difficult, yet must be sought through the reflection of the attitudes on the students' behaviors by extended direct observation from their teachers. All Faculties must make necessary arrangements to monitor the assessment process through students and staff feedback.

I.National Academic Reference Standards (NARS)

Students should be prepared to approach their medical practice acquiring sufficient knowledge of the basic and clinical sciences in an integrated manner, and an understanding of the underlying principles of scientific method. They must be prepared for lifelong learning to remain current in their understanding of the scientific basis of medicine.

On graduation, the graduates must possess all the competencies that enable them to carry out the duties of the house officers during the house officer year; after which they must possess the competencies essential for working as primary health care providers. Professional skills are acquired during the undergraduate education, and continue throughout the house officer year.

The medical school must ensure that before graduation the student will have demonstrated, to the satisfaction of the faculty, the knowledge and understanding, the intellectual, practical, professional attitude and behaviors, communication, general and transferable skills of the following

1. Attributes of the Graduates of Medical Medicine

The Medical Graduate must:

- 1.1. Work to maintain normal health, provide primary health care and deal with common health problems in the society.
- 1.2. Be aware of the importance of a good doctor/ patient relationship, and work to establish and maintain it.
- 1.3. Follow rules of medical ethics.
- 1.4. Demonstrate appropriate communication, clinical and practical skills.
- 1.5. Show appropriate attitudes and professionalism.
- 1.6. Be prepared for lifelong learning.
- 1.7. Be able to engage in post- graduate and research studies.
- 1.8. Acquire basic administrative capabilities.

2. Knowledge and Understanding

- 2.1. Normal Human Body:
 - a. Normal structure and function of the body (as an intact organism) and of each of its major systems.
 - b. Molecular, biochemical, and cellular mechanisms which are important in maintaining the body homeostasis.

- c. Main developmental changes in humans and the effect of growth, development and aging on the individual and his family.
- d. Basics of normal and abnormal human behaviors.
- 2.2. Altered structure and function of the body and its major systems that are seen in various diseases and integrate it in clinical conditions.
- 2.3. Etiology, pathogenesis, clinical features, diagnoses and complications of common and life-threatening illnesses affecting the body and each of its major organ systems, presenting throughout the age spectrum.
- 2.4. Principles of management of common and life threatening illnesses including:
 - a. Pharmacological and non pharmacological basics of therapy.
 - b. Non invasive and invasive intervention.
 - c. Basic pre- and post operative care.
 - d. Pain relief and palliative care.
- 2.5. Population Health and Health Systems:
 - a. The determinants of health, principles of disease prevention and early detection of common community health problems.
 - b. Principle and organization of National Health Care System.

- c. Epidemiological principles of demography and biological variability.
 - d. Principles of disease surveillance and screening.
 - e. Communicable disease control and health promotion.
 - f. Population-based approaches to health care services and their role in improving medical practice.
- 2.6. Basics of ethics, medico legal aspects of health problems, malpractice and common medical errors.
 - 2.7. Basics of health and patient's safety and safety procedures during practical and clinical years.
 - 2.8. Principles of clinical audit.

3. Practical and Clinical Skills

Graduate should acquire the following practical as well as Clinical skills and competencies during the undergraduate years

- 3.1. Demonstrate basic sciences practical skills relevant to future practice.
- 3.2. Take and record a structured, patient centered history.
- 3.3. Perform full physical examination of patients with acute and chronic clinical conditions appropriate to the age, gender, acute and chronic clinical conditions while being culturally sensitive.
- 3.4. Assess the mental state of the patient
- 3.5. Record patients ' data appropriately.

- 3.6. Formulate a management plan for common diseases and acute emergencies.
- 3.7. Write safe prescriptions of different types of drugs based on patient's weight, age and health condition
- 3.8. Provide first aid measures for injured and critically ill patients.

Procedures and technical skills acquired under appropriate supervision during undergraduate and house officer training:

- 3.9. Perform venepuncture and collect blood samples.
- 3.10. Insert a cannula into peripheral veins.
- 3.11. Give intramuscular, subcutaneous, intradermal and intravenous injections.
- 3.12. Perform suturing of superficial wounds.
- 3.13. Demonstrate competency in cardiopulmonary resuscitation and basic life-support.
- 3.14. Administer compulsory childhood vaccines.
- 3.15. Perform and interpret basic bedside laboratory tests.
- 3.16. Perform and interpret ECG.
- 3.17. Administer basic oxygen therapy.
- 3.18. Perform and interpret basic respiratory function tests.
- 3.19. Use a nebulizer for administration of inhalation therapy.
- 3.20. Insert a nasogastric tube.
- 3.21. Perform bladder catheterization.
- 3.22. Perform procedure of normal labor.
- 3.23. Adopt suitable measures for infection control.

4. Professional Attitude and Behavioral Skills:

Graduates should be able to:

- 4.1. Adopt an empathic and holistic approach to the patients and their problems.
- 4.2. Respect patients' rights and involve them and /or their caretakers in management decisions.
- 4.3. Understand and respect the different cultural beliefs and values in the community they serve.
- 4.4. Recognize the important role played by other health care professions in patients' management.
- 4.5. Be aware of and understand the national code of ethics issued by the Egyptian Medical Syndicate.
- 4.6. Counsel patients and families suffering from different conditions.
- 4.7. Recognize one's own limitations of knowledge and skills and refer patients to appropriate health facility at the appropriate stage.

House Officers should be able, under appropriate supervision, to:

- 4.8. Ensure confidentiality and privacy of patients' information.
- 4.9. Treat all patients equally, and avoid stigmatizing any category regardless of beliefs, culture, and behaviors.
- 4.10. Demonstrate respect and work cooperatively with other health care professions for effective patient management.
- 4.11. Be willing to share in all types of inter-professional activities including collaborative and shared learning

- 4.12. Ensure the cost effectiveness of health care management.
- 4.13. Notify/report about any physical or mental conditions related to himself, colleagues or any other person that might jeopardize

5. Communication skills:

- 5.1. Communicate clearly, sensitively and effectively with patients and their relatives, and colleagues from a variety of health and social care professions.
- 5.2. Communicate effectively with individuals regardless of their social, cultural, ethnic backgrounds, or their disabilities.
- 5.3. Cope with situations where communication is difficult including breaking bad news.
- 5.4. Show compassion to the patients and their relatives in situations of stress and grief.
- 5.5. Honor and respect patients and their relatives, superiors, colleagues and any other member of the health profession.

6. Intellectual Skills:

- 6.1. Integrate basic biomedical science with clinical care
- 6.2. Reason deductively in solving clinical problems:
 - a. Recognize, define and prioritize problems.
 - b. Interpret, analyze, and evaluate information objectively, recognizing its limitations.
- 6.3. Use personal judgment for analytical and critical problem solving and seek out information.

- 6.4. Integrate the results of history, physical and laboratory test findings into a meaningful diagnostic formulation.
- 6.5. Construct appropriate management strategies for patients with common diseases, both acute and chronic, including medical, psychiatric, and surgical conditions.
- 6.6. Design an initial course of management for stabilization of patients with serious illnesses.
- 6.7. Classify factors that place individuals at risk for disease or injury, to determine strategies for appropriate response.
- 6.8. Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM).
- 6.9. Recognize and cope with uncertainty that is unavoidable in the practice of medicine by accepting and reacting to uncertain situation through proper counseling ,consultation and referral
- 6.10. Involvement into research and scientific methods through:
 - a. Formulation of research questions that is pertinent to medicine.
 - b. Recognition of the importance of precision in collecting, analyzing and interpreting medical data.

7. General and Transferable Skills:

- 7.1. Be prepared for the lifelong learning needs of the medical profession.
- 7.2. Use information and communication technology effectively in the field of medical practice.

- 7.3. Retrieve, manage, and manipulate information by all means, including electronic means.
- 7.4. Present information clearly in written, electronic and oral forms.
- 7.5. Communicate ideas and arguments effectively.
- 7.6. Work effectively within a team.
- 7.7. Analyze and use numerical data including the use of simple statistical methods).

House Officers should be able to:

- 7.8. Use Evidence Based Medicine in management decisions.
- 7.9. Effectively manage time and resources and set priorities.
- 7.10. Work efficiently within the health care team and as an effective team leader.
- 7.11. Solve problems related to patients, work management, and among colleagues.
- 7.12. Cope with a changing work environment.
- 7.13. Apply safety and infection control measures during practice.
- 7.14. Evaluate their work and that of others using constructive feedback.

II. Glossary

1. Institution

A University, faculty or higher institute providing education programs leading to a first university degree or a higher degree (Master's or Doctorate).

2. Graduate Attributes

Competencies expected from the graduate based on the acquired knowledge and skills gained upon completion of a particular program.

3. National Academic Reference Standards (NARS)

Reference points designed by NAQAAE to outline / describe the expected minimum knowledge and skills necessary to fulfill the requirements of a program of study.

4. Academic Standards

Reference points defined by an institution comprising the collective knowledge and skills to be gained by the graduates of a particular program. The academic standards should surpass the NARS, and be approved by NAQAAE.

5. Subject Benchmark Statements

Guideline statements that detail what can be expected of a graduate in terms of the learning outcomes to satisfy the standards set for the program. They enable the outcomes to be compared, reviewed and evaluated against agreed upon standards.

6. The Program

A set of educational courses and activities designed by the institution to determine the systematic learning progress. The program also imparts the intended competencies required for the award of an academic degree.

7. Intended Learning Outcomes (ILOs)

Subject-specific knowledge, understanding and skills intended by the institution to be gained by the learners completing a particular educational activity. The ILOs emphasize what is expected that learners will be able to do as a result of a learning activity.

8. Knowledge and Understanding

Knowledge is the intended information to be gained from an educational activity including facts, terms, theories and basic concepts. Understanding involves comprehending and

grasping the meaning or the underlying explanation of scientific objects.

9. Intellectual Skills

Learning and cognitive capabilities that involve critical thinking and creativity. These include application, analysis, synthesis and evaluation of information.

10. Professional and Practical Skills

Application of specialized knowledge, training and proficiency in a subject or field to attain successful career development and personal advancement.

11. General and Transferable Skills

Skills that are not subject-specific and commonly needed in education, employment, life-long learning and self development. These skills include communication, team work, numeracy, independent learning, interpersonal relationship, and problem solving... etc.

III. References

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