Kingdom of Saudi Arabia
Ministry of Education
The Saudi Dean's Committee

SaudiMEDs Framework

(Saudi Medical Education Directives Framework)

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Executive Summary

This project began initially as an effort to develop a national consensus amongst Saudi stakeholders for the vision of the 'Saudi Future Physician' and develop the essential learning outcomes for medical schools. It was conducted between 2005 and 2007 (Zaini, 2007). It aimed to provide some ways to assure minimum standards in the undergraduate medical education.

As a result, an initiative was found by the Saudi Medical Deans' Committee to establish common core learning outcomes (LOs)/competencies for the medical degree programs in Saudi Arabia. Its aim was to harmonize the Saudi Medical Higher Education Sector. Beginning in 2009, the designated committee for Phase I started their task, which was completed by 2011. The product was published as SaudiMEDs: A competence specification for the Saudi medical graduates, Medical Teacher (Zaini, et al, 2011).

Phase II was started by the Saudi Medical Deans' Committee in September 2012 to describe a set of learning outcomes for the primary medical degree in Saudi Arabia. The outcomes have been generated through an extensive process of expert development and review. It also takes into consideration the previous work on LOs in medicine. These outcomes have been distributed to all Saudi medical colleges for revision and comments. The feedback was analyzed through the Delphi Technique[1] (Reid, 1988) to approve the first draft. This draft was discussed in two workshops attended by the most important stakeholders in relevance to the graduates of the Saudi medical colleges. An individual survey among the participants besides their comments in the workshop has been incorporated with the responses of the other stakeholders who were not invited to the workshop. Opinions and comments have been considered for a further detailed analysis.

SaudiMEDs framework was expressed as a four-level model:

Level I comprises six themes that have been identified as key for the successful completion of a medical program. The focus of this level is to describe the relevant physician's duties and obligations
.
Level II comprises seventeen key competencies (Learning outcomes) a physician should obtain. These are further detailed at the next level, while paying special consideration to program specialization and level.

Level III comprises eighty enabling competencies the committee deems essential for all undergraduate medical programs in Saudi Arabia. However, this level could vary from one program to another. For example, they could vary from undergraduate to postgraduate to life-long learning. This level is strongly connected to the nature of medical education and practice of a given specific specialty.

Level IV comprises learning outcomes that are identified by a   joint committee between the Saudi Deans and EEC-HES to set a minimum required standards to medical schools in Saudi Arabia. Special thanks to the Scientific Committee and the Joint Committee – EEC-HES & Saudi Medical Deans Sub-Committee, for their valuable contribution in executing this project

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[1] Delphi Technique is a method for systematic collection and aggregation of informal judgment from a group of experts on specific questions and issues

The Scientific Committee:

Professor Mohammad AlRukban (Chairman)
Professor & Consultant of Family Medicine
Vice Rector, Academic Affairs
Majmaah University
Majmaah- KSA

Professor Abdulmonem Al-Hayani
Professor of Anatomy
Dean, Student Affairs
College of Medicine
King Abdulaziz University
Jeddah - KSA

Dr. Ahmed Al-Rumayyan
Associate Professor of Pediatrics
Dean, College of Medicine,
King Saud Bin Abdulaziz University of Health Sciences
Riyadh - KSA

Dr. Khalid AlQumaizi
Assistant Professor & Consultant of Family Medicine,
Dean, College of Medicine, General Supervisor of Medical Services
Al-Imam Mohammad Ibn Saud Islamic University
Riyadh - KSA

Prof. Hamza Abdulghani
Professor Medical Education & Consultant of Family Medicine
College of Medicine
King Saud University
Riyadh - KSA

Dr. Saad Alsaedi
Associate Professor of Pediatrics
College of Medicine
King Abdulaziz University
Jeddah- KSA

Dr. Azzam Al-Kadi
Vice-Dean, Academic Affairs
Assistant Professor of Surgery
Unaizah College of Medicine
Qassim University
Unaizah - KSA

Dr. Rania Zaini
Assistant Professor of Medical Education
Head of Medical Education Dep.
Faculty of Medicine,
Umm Al-Qura University
Makkah Al-Mokkaramah - KSA

Dr. Sherif Saleh (Coordinator)
Assistant Professor of Clinical Biochemistry
College of Medicine
Al-Maarefa Colleges- Riyadh - KSA

Joint Committee – EEC-HES & Saudi Medical Deans Sub-Committee:

Dr. Ahmed Al-Rumayyan (Chairman)
Associate Professor of Pediatrics
Dean, College of Medicine,
King Saud Bin Abdulaziz University of Health Sciences
Riyadh – KSA

Professor Mohammad AlRukban
Professor & Consultant of Family Medicine
Vice Rector, Academic Affairs
Majmaah University
Majmaah- KSA

Professor Abdulrahman Al Mazrou
Professor of Pediatric Infectious Disease
Dean, Al Raji Medical College
Al Qassim, KSA

Dr. Khalid AlQumaizi
Assistant Professor & Consultant of Family Medicine,
Dean, College of Medicine, General Supervisor of Medical Services
Al-Imam Mohammad Ibn Saud Islamic University
Riyadh – KSA

Dr. Rania Zaini
Assistant Professor of Medical Education
Head of Medical Education Dep.
Faculty of Medicine,
Umm Al-Qura University
Makkah Al-Mokkaramah – KSA

Prof. Mohamed M. ElMadany
Accreditation Consultant
Education Evaluation Commission – Higher Education Sector (EEC-HES)
Riyadh - KSA

Dr. Bothyna Z. Murshid
Management of Chronic Illnesses Consultant,
Education Evaluation Commission – Higher Education Sector (EEC-HES)
Riyadh - KSA

Gregory J. Maffet, Ed.D.
Accreditation Consultant
Education Evaluation Commission – Higher Education Sector (EEC-HES)
Riyadh - KSA

The effective fulfillment and application of the framework will ensure harmonization of Saudi Medical Graduates and the flexibility of medical schools and their ability to focus on some areas of the major themes, which will be later reflected in the National Saudi Medical Licensing Exam and progress tests.

Background

Repeatedly there was a call for change and innovation of how medical students should learn. This has been a matter of discussion and at times controversy since Flexner's report (1910) culminated by the move toward Outcome-Based Education (OBE), which has been a significant development worldwide (Spady 1984, Harden et al. 1999a,b).

As indicated above, Outcome-Based education is the most significant development in medical education in the past decade. International trends in education show a shift from the traditional "teacher-centered" approach to a "student-centered" approach. This alternative model focuses on what the students are expected to know and be able to do at the end of a module or a program.

Related to this is the competence-based Medical education (CBME), which is high up on the agenda of today's medical education since competence has become the unit of medical education planning in many jurisdictions (Frank et al, 2010a). Competence is considered a standardized requirement for an individual to properly perform a specific job. It encompasses a combination of knowledge, skills and behavior, combined to improve performance. CBME acts as a system for preparing physicians for the fundamental practice orientated to the outcome abilities of a graduate and arranged around competencies derived from an analysis of patient's and society's needs (Frank et al. 2010b).

The characteristics of a competent physician are the focus of decision-makers and health professional bodies. Medical education and training programs are increasingly based on local and global competency-based frameworks. Such frameworks include, but not limited to, CanMEDs (Frank & Danoff 2007), Tomorrows Doctors (GMC 2009), the Scottish Doctor (Simpson et al. 2002), Medical School Objective Projects (AAMC1998), ACGME outcome project (Swing 2007) and the Netherlands National Qualification Framework (Metz et al. 1994).

Outcome-based Education in Saudi Arabia

In Saudi Arabia, with the expansion of the medical education in the Kingdom nationwide, a high priority has been given to specify the competencies of medical graduates. An Initial work to develop a national consensus amongst Saudi stakeholders for the vision of the 'Future Saudi Physician' and the essential learning outcomes for medical schools was conducted between 2005 and 2007 (Zaini, 2007). This coincided with a regional move to define the 'Learning Outcomes' for the undergraduate medical programs in the Gulf region by the Committees of Gulf Cooperation Council Medical Colleges' Deans (GCCMCD, 2005). It was aimed to provide a means of guaranteeing minimum standards or benchmarking in the undergraduate medical education in the GCCs. In 2009, the newly established Committee of Deans of Medical Schools in the Kingdom of Saudi Arabia (KSA) launched a taskforce with the purpose of developing a national competency framework for Saudi physicians. At the same time, the National Commission for Academic Assessment and Accreditation (NCAAA, 2010) developed a draft for the 'Learning Outcomes for the Bachelor Degree Programs in Medicine'.

The taskforce was led by the Medical School of Umm AlQura University (UQU) and consisted of six members from five major universities: UQU, King Abdulaziz University, Al-Imam Mohammad Ibn Saud Islamic University, Hail University and King Saud bin Abdulaziz University for Health Sciences. The project was planned in the following three phases:

Phase I

The development of a national outcome/competency framework for Saudi medical education and practice that fulfills the specification of the competencies and learning outcomes required by a Saudi physician.

Phase II

A more detailed statement of the required competencies in each theme identified in **Phase I**.

Phase III

Detailed specifications of the competencies in each theme expected at the end of the internship program and the development of a structured program with the necessary training and assessment systems to ensure that graduates have achieved the outcomes specified by the end of the internship year.

Phase I of the project was accomplished in the period 2010-2011; with an initial competence framework that comprises seven competencies and 30 detailed leaning outcomes (Zaini et al, 2010). **Phase II** of the project was conducted in the period 2012-2015 and presented in this report. **Phase III** is yet to take place.

Phase II: Processes and Methods

The scientific committee was formally established by the Saudi Medical Deans Committee in September 2012 to complete phase II of the SaudiMEDs Framework Project as a continuation and review of Phase I; two of the six members of Phase I committee have continued working in Phase II committee to ensure the alignment and consistency of the two phases.

Review of the previous work

The committee first reviewed the SaudiMEDs framework and the major international frameworks of competence-based medical education, including but not limited to:

1) The Brown University Nine Abilities (Smith and Fuller, 1996)
2) Medical School Objectives Project by AAMC (AAMC, 1998)
3) The Scottish Doctor (Scottish Deans' Medical Education Group, 2000)
4) CanMEDs (Frank, 2005)
5) Tomorrow's Doctors (GMC 2009)
6) Global Minimal Essential Requirements, (IIME, 2002)
7) The European Medical Tuning Project (Cumming and Ross, 2008)
8) Dundee 12 outcomes (Harden et al. (1999 a, b)
9) The International Medical College Outcomes Malaysia

Many workshops and virtual meetings were held to develop the first draft of phase II framework. The framework consisted of seven major themes and 24 learning outcomes and 96 enabling competencies. This draft underwent a rigorous revision through a systematic iterative process leading to a "preliminary set" of six themes, 17 learning outcomes and 80 enabling competencies.

Stakeholders Perspective

The generated list was the basis of a survey of a Delphi Technique. All Saudi Medical Colleges were invited to review phase II SaudiMEDs framework, do the e-survey and give their feedback. Only 10 medical schools in KSA completed the survey. The framework was then reviewed based on the feedback in many meetings within the Taskforce Committee. Subsequently, the competencies were then rewritten according to the taxonomy that matches the EEC-HES requirements (Appendix-1).

Two stakeholders workshops have been held with participation of the major stakeholders, including but not limited to the Ministry of Education, Ministry of Health, Ministry of Civilian Services, King Abdulaziz City for Science and Technology, the Saudi Center for Complementary Medicine, the Saudi Commission for Health Specialties, medical colleges, junior residents, medical interns, medical students, EEC-HES, a health insurance council, representatives of the health sector, private sector and the Shoura Council.

The feedback of the two large workshops was analyzed. There was a focus on the importance of the remarks and their national impact with room for individual variability among different medical schools.

Finally, the framework of SaudiMEDs was reviewed by four international experts of medical education, who participated in developing national and international competence-based medical education frameworks and are involved in accreditation of medical schools worldwide. The experts' views and recommendation were taken into consideration in the final draft of the SaudiMEDs Medical Education framework.

The SaudiMEDs Framework

The framework is expressed as a four-level model:

- **Level I:** six major **themes** related to a description of a physician's duties and obligations. These themes are detailed further in Level II

- **Level II**: seventeen key competencies (**Program Learning Outcomes**) of a physician, which are given in further detailed in the next level, according to the level and program specialty.

- **Level III**: eighty **course-level learning outcomes/enabling competencies** to be achieved by all undergraduate medical programs in Saudi Arabia.

- **Level IV**: **integration** of SaudiMEDs with EEC-HES

This document outlines two levels of the framework:

i. **SaudiMEDs Framework which include six themes, which are shown in the oval shape diagram.**

ii. **SaudiMEDs: Competence-Based Framework for Saudi Medical Colleges which include the Program Learning Outcome/Competencies in each of the six themes shown and the course learning outcomes/enabling competencies.**

The six themes of SaudiMEDs

I: SaudiMEDs Framework

The SaudiMEDs framework specifies the key competencies (Learning Outcomes) for physicians required in medical education and practice in Saudi Arabia. All undergraduate, postgraduate and continuous professional development programs are expected to achieve those outcomes.

Graduates of the Medical Program will have the ability to achieve the following themes and learning outcomes:

Theme I: Scientific Approach to Practice
The integration and application of basic, clinical, behavioral and social science in clinical practice

PLO1. Integrate basic, clinical, behavioural and social sciences in medical practice

PLO2. Practice evidence-based health care

Theme II: Patient care
The establishment and maintenance of essential clinical and interpersonal skills to demonstrate proficient assessment and delivery of patient-centered management.

PLO3. Demonstrate the essential clinical skills

PLO4. Use clinical reasoning, decision making, and problem solving skills in medical practice

PLO5. Manage patients with life-threatening medical conditions

PLO6. Formulate and implement appropriate management plans for patients with common medical problems

PLO7. Place patients' needs and safety at the centre of the care process

Theme III: Community oriented practice
The health care practicing is based on an understanding of the Saudi health care system and the application of health promotion and advocacy roles for the benefit and wellbeing of individual patients, communities, and populations.

PLO8. Adhere to the regulations of Saudi healthcare system in the Kingdom

PLO9. Advocate health promotion and disease prevention

Theme IV: Communication and Collaboration
The effective communication with patients and their families and the practicing of collaborative care by working in partnership within a multi-professional team

PLO10. Effectively communicate verbally and in writing with patients, their families, colleagues, and other health professionals

PLO11. Practice teamwork and inter-professional collaboration

PLO12. Apply medical informatics in healthcare system effectively

Theme V: Professionalism
The commitment to deliver the highest standards of ethical and professional behaviour in all aspects of health practice, and take a responsibility for own personal and professional development.

PLO13. Demonstrate professional attitudes and ethical behaviors of physicians

PLO14. Apply Islamic, legal and ethical principles in professional practice

PLO15. Demonstrate the capacity for self-reflection and professional development

Theme VI: Research and scholarship
The contribution to the advancement of medical practice with the rigors of scientific research.

PLO16. Demonstrate basic research skills

PLO17. Critically appraise and demonstrate scholarly activities related to health sciences research

II: SaudiMEDs: Competence-Based Framework including themes Program-Level LOs and Course-Level LOs for the Saudi Medical Colleges

The SaudiMEDs framework for undergraduate medical programs specifies the learning outcomes and enabling competencies that are expected by all medical graduates at the first day of the internship program. Each Medical Colleges have the autonomy to tailor the program content and the teaching and learning strategies to achieve the national framework of SaudiMEDs.

Below are the proposed course-level learning outcomes/enabling competencies related to each theme and program learning outcome. [PLOs are classified according to National Qualification Framework (NQF) of EEC-HES.

Theme I: Scientific Approach to Practice

The integration and application of basic, clinical, behavioral and social sciences in clinical practice.

PLO1. Integrate basic, clinical, behavioural and social sciences in medical practice **Domain B**	**CLO1.1**	Explain the normal structure and function of the body in relation to its organ systems
	CLO1.2	Demonstrate knowledge of the human life cycle and its' effect on a human body's normal structure and function (such as pregnancy, birth, growth and development, and aging)
	CLO1.3	Explain the biochemical, molecular and cellular mechanisms that are essential for maintaining body homeostasis
	CLO1.4	Explain the pathogenesis of various diseases such as genetic, developmental, behavioural, ischaemic, metabolic, toxic, infectious, autoimmune, neoplastic, degenerative, and traumatic factors, and the ways in which they affect the body
	CLO1.5	Explain the principles of essential clinical investigations
	CLO1.6	Demonstrate the basic knowledge of the pharmacology of drugs relevant to clinical practice
	CLO1.7	Discuss the role and impact of nutrition in health and disease
	CLO1.8	Describe and explain the basic aspects of common clinical presentations (Appendix-2)
	CLO1.9	Explain the facts and concepts relevant to common clinical conditions including their epidemiology, etiology, pathophysiology, symptoms and signs, complications, investigations, management and prognosis.
	CLO1.10	Acknowledge the principles of spiritual and Prophetic Medicine[2].
	CLO1.11	Recognize the principles and roles of complementary and alternative medicine.
	CLO1.12	Explain the role of behavioural and psychosocial factors influencing wellbeing.
PLO2. Practice evidence-based health care **Domain B**	**CLO2.1**	Explain the basic principles of evidence-based health care.
	CLO2.2	Formulate appropriate evidence-based patient's centred management strategies.

[2]Prophetic Medicine: refers to the actions and words of the Islamic prophet Muhammad dealing with sicknesses, hygiene, and health in general.[1] Ref: Muzaffar Iqbal, Science and Islam (Westport, CT: Greenwood press, 2007)

Theme II: Patient care

The establishment and maintenance of essential clinical and interpersonal skills to demonstrate proficient assessment and delivery of patient-centered management

PLO3. Demonstrate the essential clinical skills **Domain E**	**CLO3.1**	Obtain an accurate and comprehensive medical history.
	CLO3.2	Perform a complete systematic physical examination.
	CLO3.3	Perform competently the essential clinical procedures. (Appendix-3)
	CLO3.4	Critically analyze clinical data obtained through history, physical examination, and investigation.
PLO4. Use clinical reasoning, decision making, and problem solving skills in medical practice **Domain B/E**	**CLO4.1**	Formulate and prioritize a differential diagnosis using reasoning skills
	CLO4.2	Formulate a management strategy taking into consideration the priorities of the patient's problem(s).
PLO5. Manage patients with life-threatening medical conditions **Domain E**	**CLO5.1**	Recognize and assess patients with life or organ threatening conditions.
	CLO5.2	Manage common medical emergencies.
PLO6. Manage patients with common medical problems **Domain E**	**CLO6.1**	Explain the importance of psychosocial, spiritual, religious, and cultural factors in patient management.
	CLO6.2	Select and apply the most appropriate and cost effective diagnostic procedures.
	CLO6.3	Manage appropriately patients with acute and chronic physical and mental problems.
	CLO6.4	Recognize the need for multiple therapeutic modalities to address patient conditions.
	CLO6.5	Demonstrate the skills of writing an appropriate prescription?
	CLO6.6	Implement the principles of the amelioration of suffering and disability, rehabilitation and palliative care, including appropriate pain management
	CLO6.7	Construct decisions in partnership with patients and/or their carers
	CLO6.8	Demonstrate effective counselling skills
PLO7. Place patients' needs and safety at the centre of the care process **Domain B**	**CLO7.1**	Demonstrate appropriate knowledge and skills in the areas related to patient safety e.g. root-cause analyses, safe prescription and procedures
	CLO7.2	Analyze the aftermath of medical errors
	CLO7.3	Demonstrate reflection and learning from errors
	CLO7.4	Identify and manage clinical risks
	CLO7.5	Apply the essential principles of infection prevention and control in health care settings
	CLO7.6	Report any concurrent physical, social or mental ailment that would affect patient care to appropriate authorities

Theme III: Community oriented practice

The ability to practice based on an understanding of the Saudi health care system and to apply health promotion and advocacy roles for the benefit and wellbeing of individual patients, communities, and populations.

PLO8. Describe and use the healthcare system in Saudi Arabia **Domain A**	CLO8.1	Describe national health care systems including its organization, policies, and procedures.
	CLO8.2	Identify roles and services that are provided by societies and agencies and cooperate with them, where applicable.
	CLO8.3	Advocate access to healthcare for members of traditionally underserved populations (rural communities, people with disabilities, elderly, minorities and others)
PLO9. Support health promotion and disease prevention **Domain B**	CLO9.1	Describe the principles of epidemiology of common diseases within a defined population and a systematic approach to screening to reduce the incidence and prevalence of those diseases.
	CLO9.2	Recognize the importance of biological and non-biological (psychological, social, cultural, and environment factors) determinants that contribute to health of diverse populations.
	CLO9.3	Explain and apply the basic principles of prevention and control of communicable and non-communicable diseases in hospital and the community.
	CLO9.4	Describe factors affecting the health and illness patterns and the perception among populations; including life style, genetic, demographical, environmental, occupational, social, economic, educational level, psychological, and cultural factors
	CLO9.5	Explain the impact of chronic diseases and disabilities on individuals, their families and society.
	CLO9.6	Identify global health issues and the role of international health organizations (including guidelines on management of pandemics) with particular attention to Hajj and Umrah.
	CLO9.7	Identify and plan prevention strategies for societal problems such as metabolic problems, obesity, diabetes, tobacco, road traffic accidents, alcohol, illicit drugs, violence and abuse.

Theme IV: Communication and Collaboration

The ability to communicate effectively with patients and their relatives and to practice collaborative care by working in partnership within a multi-professional team

PLO10. Effectively communicate with patients, their families, colleagues, and other health professionals **Domain D**	**CLO10.1**	Communicate effectively with patients and their families regardless of their age, gender, social, cultural, religious, or ethnic backgrounds in various situations. .
	CLO10.2	Demonstrate the ability to deal with patients in difficult circumstances.
	CLO10.3	Demonstrate the ability to break bad news sensitively and effectively.
	CLO10.4	Communicate medical information appropriately, using verbal and writing skills (e.g. patient records, referrals, medical reports).
PLO11. Practice teamwork and inter-professional collaboration **Domain C**	**CLO11.1**	Collaborate and identify the roles of various healthcare professionals involved in patient's care and collaborate with them.
	CLO11.2	Make clinical judgments and decisions, in partnership with other colleagues as appropriate for a graduate's level of training and experience
	CLO11.3	Recognize and stress the rationale and importance of teamwork.
	CLO11.4	Demonstrate the ability to prevent and resolve inter-professional team conflicts.
PLO12. Use medical informatics in healthcare system effectively **Domain D**	**CLO12.1**	Use technology and information systems effectively, including storing and retrieving of information.
	CLO12.2	Use the information retrieved from relevant sources appropriately and ethically in relation to patient care and health promotion.

Theme V: Professionalism

The commitment to deliver the highest standards of ethical and professional behavior in all aspects of health practice, and take a responsibility for own personal and professional development.

PLO13. Adhere to professional attitudes and behaviors of physicians **Domain C**	**CLO13.1**	Place the patient's interests above one's own.
	CLO13.2	Recognize and manage conflict of interest.
	CLO13.3	Demonstrate respect for patient and physician confidentiality, and awareness of the legal, ethical and medical issues surrounding a patient's documentation.
	CLO13.4	Be accountable for one's own limitations and self-evaluation
	CLO13.5	Cope adaptively and seek appropriate help for stress, illness and problems likely to occur during medical training and practice.
	CLO13.6	Comply with workplace rules, regulations, and the principles of quality focus practice.
PLO14. Apply Islamic, legal and ethical principles in professional practice **Domain C**	**CLO14.1**	Apply the theories and principles that govern ethical decision making to the major ethical dilemmas in medicine (beneficence, non-maleficence, autonomy, probity, justice).
	CLO14.2	Practice Islamic professionalism and ethical principles of clinical practice.
	CLO14.3	Apply Islamic law (Fiqh) in health related matters.
	CLO14.4	Obtain informed consent when applicable.
PLO15. Demonstrate the capacity for self-reflection and professional development **Domain C**	**CLO15.1**	Recognize self-roles of being medical professional as practitioner, educator, and scientist.
	CLO15.2	Demonstrate a commitment to lifelong learning.
	CLO15.3	Demonstrate appropriate leadership and management skills.
	CLO15.4	Demonstrate the ability to manage one's own time and balance between professional and personal responsibilities.
	CLO15.5	Manage appropriately and positively complaints, criticism, conflict and change.

Theme VI: Research and scholarship		
The contribution to the advancement of medical practice with the rigors of scientific research.		
PLO16. Demonstrate basic research skills **Domain B**	**CLO16.1**	Demonstrate ethical and governance issues related to medical research.
	CLO16.2	Apply the principles of research methodology including appropriate statistical techniques.
	CLO16.3	Appraise critically the available research evidence to address issues related to medical practice.
	CLO16.4	Demonstrate the ability to write a manuscript according to publication standards.
PLO17. Demonstrate scholarly behaviors **Domain C**	**CLO17.1**	Select and apply appropriate methods to address issues amenable to scholarly inquiry
	CLO17.2	Demonstrate responsibility for actively educating oneself and others by using appropriate educational methods.

Recommendations

Generating a national consensus of SaudiMEDs was a difficult task. Yet the real challenge is the efficient implementation and utilization of SaudiMEDs. The SaudiMEDs task force defined the responsibilities of all concerned high stakeholders in this regard.

The Saudi Medical Deans' Committee

The committee is responsible for the approval of this document and its dissemination through the Ministry of Education to all concerned bodies including the Education Evaluation Commission – Higher Education Sector (EEC-HES), Saudi Commission for Health Specialties (SCFHS), Ministry of Health, Saudi universities and others.

- The committee will coordinate the incorporation of all the learning outcomes within the Saudi Medical Licensing Exam (SMLE).
- The committee is also responsible for dissemination of the learning outcomes among all medical colleges.

The committee is responsible for the provision of an effective schema for Staff Development
- Arrange and deliver orientation workshops of SaudiMEDs framework
- Facilitate and guide medical colleges and staff on implementing of these learning outcomes in curricula designing, teaching, assessment and evaluation.

The committee is responsible for the integration of research, scholarship, and publication with practice among medical colleges, postgraduate training programs and others.
- Establish grants for research and development to support scholarship related to SaudiMEDs
- Develop a national research day of "SaudiMEDs" to encourage publications and report success stories

The committee is responsible for the promotion and publication of the SaudiMEDs
- Carry out an effective publicity of the SaudiMEDs and its potentials, which includes but not limited to media, health community, decision makers, and related stakeholders

The committee is responsible to develop a follow up schema:
- Follow up medical colleges' progress and any successful implementations.
- Acknowledgment of success stories (national award).
- Re-evaluation and upgrading of this document according to the feedback of the medical colleges.

The Medical Colleges

The medical colleges are accountable for developing their curricula according to these learning outcomes and ensuring their implementation throughout the medical training in a spiral way to equip the students with the core learning outcomes listed in this document.

They are responsible for providing all necessary staff and equipment to provide an optimal educational environment to enable students to achieve the set out learning outcomes.

Colleges are responsible for the protection of patients and undertake   proper steps to minimize any risk or harm to anyone as a result of their medical students' training.

They are accountable for managing and improving the quality of their medical education programs.

Furthermore, they are accountable for offering training and support to teaching staff in order to   supervise students and ensure that they are fit for practice. This ensures that graduating students can demonstrate the set out outcomes.

In addition, colleges should have an alignment system between assessment and learning outcomes of the medical program, as well as the provision of general and academic support to the students.

The Education Evaluation Commission – Higher Education Sector (EEC-HES)

The Education Evaluation Commission – Higher Education Sector (EEC-HES) is responsible for evaluating and resetting the expertise standards that students need to achieve by the end of their MBBS studies.

It is responsible for ensuring that the given learning and teaching opportunities allow students to meet the requirements, and that the learning outcomes described previously in this document, are maintained at the qualifying examinations of the medical schools.

It is also responsible for appointing accreditation and assessment evaluators who can report on whether the new standards generated from this document periodically are met or not and to what extent.

The EEC-HES responsibilities will be to apply SaudiMEDs as a minimum essential requirement for accrediting medical schools.

Ministry of Health and other Health Care Providers

Improving health care delivery in Saudi Arabia has highlighted on two areas: improving the experience of care and improving the health of populations. All care providers need new skills and knowledge to reach this aim. Clinicians are required to work in inter-professional teams, coordinate care across settings, utilize evidence-based practices to improve the quality of treatment as well as the patient's safety, and to promote greater efficiency in care delivery.

The health care system needs to be revised and modified to support these changes. Therefore, hospitals and health systems must evaluate and potentially acquire new competencies. The Ministry of health and other health care providers may request evidence that physicians entering practice have met and achieved the set out learning outcomes. As well as the importance of these competencies are in their organizations.

Hospitals and other health care delivery systems are responsible for provision of practical support, facilities, and staff needed to carry out the clinical aspects of the curriculum. In collaboration with the medical colleges, they are responsible for freeing physicians and other staff to carry out the training required for them to be teachers, and to participate in quality assurance and professional development activities. Furthermore, they are responsible for providing the medical school with quality-control information about their education provision.

Saudi Commission for Health Specialties

The Saudi Commission for Health Specialties and Programs Accreditation is responsible for assessing and maintaining clinical competencies and for adapting the above learning outcomes and monitoring their integration in all postgraduate programs and continual medical education.

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Appendixes

Appendix-1: Consistency between Saudi MED framework and the EEC-HES Outcomes

Theme		A Lower Cognitive Skill	B Higher Cognitive Skill	C Interpersonal Skills and Responsibility				D. Communication, Information Technology and Numerical Skills			E Clinical skills
				Self-learning	Teamwork/ Leadership	Professio nalism	Ethics	O/W Communi.	IT	Statis tics	
Scientific Approach to Practice	LO1		✓								
	LO2		✓								
Patient care	LO3										✓
	LO4		✓								✓
	LO5										✓
	LO6										✓
	LO7		✓								
Community oriented practice	LO8	✓									
	LO9		✓								
Communication and Collaboration	LO10									✓	
	LO11					✓					
	LO12									✓	
Professionalism	LO13					✓					
	LO14					✓					
	LO15					✓					
Research and scholarship	LO16		✓								
	LO17					✓					

Appendix-2: Clinical Presentations

This appendix includes most of the common and important clinical presentations the medical graduates should be oriented with. The appendix is subdivided into lists presenting the whole systems of the human body. In each list, the related common clinical presentations are alphabetically arranged.

Nervous System & Mental Health

- Abnormal behaviors
- Abnormal gait
- Acute confusion status
- Altered cognitive status
- Altered consciousness
- Anxiety
- Delusion and thought disorders
- Depressed mood
- Disturbed sensation
- Dizziness, vertigo and lightheadedness
- Faints
- Fits
- Hallucination
- Headache
- Hemiplegia
- Illusion
- Insomnia
- Memory loss
- Neuropathic pain
- Personality problems
- Phobia
- Tremor and other abnormal movements

Otolaryngology:

- Ear discharge
- Ear pain
- Epistaxis
- Facial swelling
- Hearing disturbances/Deafness
- Hoarseness/Voice disorders
- Nasal discharge
- Neck swelling
- Oral ulcers
- Sneezing
- Snoring

Ophthalmology

- Diplopia
- Dry eye
- Excessive tearing
- Eye discharge
- Eye pain
- Eye twitch
- Eyelid swelling
- Leukocoria
- Nystagmus
- Ptosis
- Pupillary problems
- Red eye
- Squint
- Visual disturbances

Respiratory system

- Abnormal breathing sounds
- Abnormal breathing/labored breathing
- Apnea
- Chest pain
- Cough
- Daytime sleepiness
- Hemoptysis
- Wheeze

Cardiovascular system

- Altered heart sound
- Chest pain
- Cyanosis
- Dyspnea /Orthopnea
- Dysrhythmias
- Edema
- Hypertension
- Hypotension
- Palpitation

- Sore throat
- Speech difficulties
- Stridor
- Tinnitus

GI System

- Abdominal pain
- Abdominal swelling
- Abnormal tongue appearance
- Anorectal pain
- Anorectal swelling
- Ascites
- Changes in appetite
- Constipation
- Diarrhea
- Dyspepsia
- Dysphagia
- Fecal incontinence
- Gynecomastia
- Halitosis
- Heartburn
- Hematemesis
- Hepatomegaly
- Jaundice
- Melena
- Nausea and vomiting
- Rectal bleeding
- Splenomegaly

Paediatric, Growth & Development

- Abnormal Changes in stature
- Abnormal development
- Child abuse
- Failure to thrive
- Well child and anticipatory care

Musculoskeletal System

- Ankle and foot pain
- Back pain
- Bone pain/tenderness
- Buttock, hip and thigh pain
- Calf pain
- Coccydynia (pain in the coccyx)
- Foot deformities
- Foot pain/foot ulcers
- Fracture

- Parasternal heave & thrill
- Xanthelasma

Genito-Urinary System

- Ambiguous genitalia
- Disturbances of micturition – frequency, polyuria, anuria, oliguria, dribbling, incontinence, urgency
- Dysmenorrhea
- Dysuria
- Empty scrotum
- Erectile dysfunction
- Genital lumps, ulcers, rashes
- Haematuria
- Impotence/loss of libido
- Infertility
- Pain – renal, ureteric, urethral/ flank Pain
- Pelvic pain and dyspareunia
- Penile congenital anomalies
- Premature ejaculation
- Retention of urine
- Scrotal mass
- Scrotal pain

Endocrine System

- Delayed or Precocious puberty
- Gynecomastia
- Impotence
- Loss or absence of libido
- Polydipsia
- Polyuria
- Protrusion of eyes
- Short stature & Tall stature
- Tiredness / General weakness

Dermatology

- Bruising
- Clubbing
- Hair abnormalities
- Itching
- Lip ulcers/Lip pigmentations
- Nail changes
- Pallor
- Pigmentation disorder
- Redness of skin
- Skin rashes

- Hand deformities
- Joint deformities
- Joint displacement
- Joint pain/tenderness
- Joint stiffness
- Leg swelling
- Muscle weakness
- Muscular pain/tenderness
- Neck pain
- Paralysis & paresis
- Popliteal swellings
- Shoulder pain
- Swollen joints

Miscellaneous

- Abnormal weight change
- Axillary swelling
- Chills/Rigors
- Excessive sweating/ Night sweats
- Fatigue and lethargy
- Fever
- Hirsutism
- Hypothermia
- Injury to different organs
- Lymph node enlargement
- Weather intolerance

- Skin ulcers
- Soft tissue swellings
- Swelling of skin
- Wounds

Women Health

- Abnormal fundal height during pregnancy
- Abnormal vaginal bleeding
- Abuse physical, psychological & sexual
- Breast complaints: pain, lumps and discharge
- Menstrual disturbances
- Vaginal discharge and irritation

Appendix-3: List of Skills

This appendix includes essential skills that the medical graduate should acquire. Skills are classified into four due categories.

A. Basic Medical and General Aspects of Practical Skills:

1. Taking all necessary steps to prevent the spread of infection before, during, or after patient care
2. Use of personal protective measures (using gloves, gowns, and masks)
3. Sterilization of equipment and solutions preparation
4. Safe disposal of clinical waste
5. Correct techniques for handling and moving patients including patient lifting and handling objects or people in the clinical care context using methods that help avoid injury to patients, oneself, or colleagues.

B. Communication and Intellectual Skills:

6. Applying a consultation framework
7. Establishing & maintaining rapport with patients
8. Interviewing (history taking, information gathering)
9. Imparting information to patients
   - Shared decision-making
   - Disclosure, counseling and patient education
   - Getting an informed consent
   - Breaking bad news
   - Truth telling (admitting errors & mistakes)
10. Communicating in writing
    - Writing patient's records
    - Ordering investigations
    - Prescribing
    - Writing referral notes
    - Writing discharge notes
    - Certifying death
11. Communicating electronically
12. Self-assessment " and "peer assessment
13. Effective communication with colleagues

C. Clinical Examination and Assessment Skills:

1- General Examination Skills

14. Taking vital signs: cardiac/radial pulse, arterial blood pressure, respiration rate, and body temperature
15. Measuring height, weight, head circumference and evaluating on a percentile scale
16. Calculating and evaluating Body Mass Index
17. General physical examination techniques including inspection, palpation, percussion, auscultation

2- Systemic Examination Skills

18. Cardiovascular examination
19. Respiratory examination
20. Abdominal examination
21. Rectal examination
22. Neurological examination
23. Examination of lymphatic system
24. Musculoskeletal examination
25. Gynecological examination, including speculum examination
26. Prostate examination
27. Mental examination
28. Breast examination
29. Upper and lower extremities examination
30. Neck examination
31. Examination of thyroid gland
32. Ophthalmoscopic examination
33. Examination of mouth and throat
34. Otoscopic examination
35. Hearing tests
36. Anterior rhinoscopy
37. Genitalia examination
38. Preparing peripheral blood smear
39. Performing peripheral vascular examination

3- Assessment Skills

40. Antenatal assessment
41. Post-natal assessment
42. Following growth and development in children
43. Differentiating normal and abnormal ECG
44. Identifying the areas and techniques of radiographs
45. Assessing chest radiographs
46. Assessing skeletal radiographs
47. Assessing plain abdominal radiographs
48. Assessing visual fields
49. Assessing APGAR score
50. Assessing infant respiratory distress

51. Assessing infant/child dehydration.
52. Assessing fundal height
53. Assessing suicidal risk
54. Identifying papilledema
55. Identifying focal neurological signs
56. Estimating Glasgow Coma Score
57. Selecting appropriate laboratory and other diagnostic tests
58. Assessing common laboratory results (normal versus pathological)
59. Planning prevention of communicable diseases in the community
60. Nutritional assessment
61. Using Snellen's chart for vision assessment
62. Color vision assessment by Ishihara Color Vision Test
63. Identifying the cause of death correctly

D. Procedural Skills

1- Diagnostic Procedural Skills

64. Performing arterial puncture for blood gas
65. Performing capillary blood sampling
66. Performing an electrocardiograph
67. Performing basic respiratory function tests
68. Performing eye irrigation
69. Irrigating external auditory canal
70. Performing removal of corneal foreign body
71. Inserting anterior nasal pack
72. Advising patients on how to obtain a sample of urine
73. Drawing venous blood, venous access
74. Testing blood groups
75. Performing throat swab
76. Collection of samples for occult blood in feces
77. Performing pregnancy testing
78. Observing lumbar puncture
79. Observing peritoneocentesis (ascetic tap)
80. Performing peak flow measurement
81. Performing PAP smear
82. Performing PPD
83. Using microscope and noting observations
84. Observing bleeding and clotting time
85. Urinalysis (by dipstick) and urine microscopic examination
86. Measuring blood sugar by glucometer
87. Taking samples for cultures (throat, urine, blood, cervix, etc.)
88. Managing blood samples
89. Taking blood cultures

2- Therapeutic Procedural Skills:

90. Performing IV injection and administering IV therapy
91. Performing IM injection
92. Performing intradermal injection
93. Performing subcutaneous injection
94. Performing trauma emergency including:
    - Performing primary trauma survey
    - Applying cervical collar
    - Performing volume resuscitation (including blood transfusion)
    - Performing handling of unconscious patient
    - Applying plaster & immobilizing joints
95. Performing enema
96. Performing wound care
97. Performing basic burn care
98. Performing basic suturing
99. Performing incision and drainage of abscess
100. Performing first aid
101. Performing peripheral puncturing of a patient's vein
102. Observing blood transfusion (preparation for blood transfusion)
103. Performing bleeding control by pressure and tourniquet
104. Performing basic restraint for extremities, elastic bandage
105. Performing stabilizing and restraining neck and spine
106. Recognizing and relieving an obstructed airway
107. Performing basic cardiac life support
108. Performing cleaning foreign body, placing airway, Heimlich maneuver
109. Observing defibrillation
110. Observing endotracheal intubation
111. Observing tracheostomy & chest tube insertion
112. Performing nasogastric tube insertion
113. Performing gastric lavage
114. Performing bladder catheterization (male and female)
115. Performing normal vaginal delivery
116. Performing assisted vaginal delivery
117. Fabricate drugs for preparing medicine forms that suit intravenous parenteral administration injection
118. Performing dosage calculation and medication administration
119. Showing rational prescribing skills
120. Calculating the correct units of insulin and use of the sliding scales of patient needs, the strength of insulin solution to be used, and how it to be used.
121. Instructing patients on the correct use of inhalers.
122. Performing nebulizer treatment
123. Using of local anesthetics
124. Performing appropriate aftercare and appropriately after procedure.
125. Providing guidance for and follow-up of contraception practices
126. Performing Guidance for breastfeeding
127. Planning nutrition according to age
128. Immunization assessment: advice and decision-making.

Appendix-4: Referees of the Framework

James Ware, BA, BChir, LRCP, MB, MA, FRCS, DMSc

    Professor of Medical Education
    Director, Department of Medical Education
    Saudi Commission for Health Specialties
    Riyadh, Saudi Arabia

Janet Grant, PhD, FBPsS, FRCGP (hon.), FRCP (hon.), MRCR (hon.)

    Professor Emeritus of Medical Education, Open University, UK,
    WFME Special Adviser and Director of the Centre for Medical Education in Context
    FAIMER Centre for Distance Learning

John J. Norcini, PhD

    President and Chief Executive Officer
    Foundation for Advancement of International Medical Education and Research (FAIMER),
    3624 Market Street
    Philadelphia, PA 19104-2685
    USA

Zubair Amin, MD, MHPE.

    MBBS; Diplomat, the American Board of Pediatrics, Master in
    Health Profession Education (MHPE)
    Senior Consultant & Associate Professor of Pediatrics, Yong Loo Lin School of Medicine,
    Department of Neonatology, National University Hospital,
    National University of Singapore, Singapore

Appendix-5: Comments of Referees of the Framework

1-   Professor James Ware

The Saudi Medical Deans' Committee should be congratulated for steering a consensus process to finally provide the outcomes and competencies for medical education in Saudi medical schools. The final product has six major themes, seventeen essential learning outcomes and eighty learning outcomes making up the SaudiMEDs Framework. This is unquestionably a useful document for the Ministry of Higher Education and all medical schools in the Kingdom, for whom it was primarily intended.

The six major themes will resonate with anyone who has previously been involved in the same process elsewhere. However, I believe that empathetic and humane practice might have been found a place in one of those themes. The seventeen core learning outcomes and eighty learning outcomes are entirely appropriate. While the 166 clinical presentations will probably be useful, it seems likely that the list will undergo several revisions before everyone is finally satisfied. Appendix 2 with seven lists of skills is useful, but would probably need more time to complete than would be available during normal clerkship rotations, while some procedures seem more appropriate for the internship. That this will be a living document is entirely clear, but it will already have a considerable impact on the training of medical doctors in Saudi Arabia.

The 80 learning outcomes will facilitate planning of teaching and learning, but it seems only about half the core learning outcomes will allow for formal assessment, for example: for a learning outcome under the seventh core competence it would not be possible: "report any concurrent physical, social or mental ailment that would affect patient care to appropriate authorities." However, these have to be stated, as does for example, management of common medical emergencies.

The Saudi Medical Deans' Committee has established a National Licensing Exam Committee to work with the Saudi Commission for Health Specialties and it was quickly found that the core learning outcomes were not a good base to create a test blueprint from, and the alternative of using the 166 clinical presentations was just too cumbersome, a compromise solution has been found. Today, the Saudi Medical Licensing Exam will be a multiple-choice exam, while the introduction of a test of clinical competence is still several years in the future.

In conclusion all those who contributed to this important work should be congratulated because it will have a significant impact on the quality of care in the future for Saudi citizens.

2-   Professor Janet Grant

You have adopted a very systematic approach to the development of this framework. I only have a couple of comment, but I think that they are important:

- The SaudiMEDs Framework reflects what other similar frameworks would also recognize as the crucial functions, content and principles of medicine. This is not surprising since medicine does have a common knowledge base everywhere.

- But my test of such a framework really is this: If I did not know where it came from, would I be able to identify that? In this case, I probably would not be able to say that this is a framework for Saudi Arabia. So it seems to me that there is something missing about the context of medicine in your country. What would make this framework special to you and to no one else?

- I wonder whether there will be advice to schools about how they actually develop their curriculum on the basis of this Framework. The GMC found that their first version of *Tomorrow's Doctors* gave rise to all sorts of difficulties and problems that they had not intended [such as the downgrading of the science base] which caused them to issue the second version. You can read our evaluation report that led to this [The impact of Tomorrow's Doctors on medical schools (2007)] here: http://cenmedic.net/our-publications/

- Finally, I would be interested to know what markers you would reared as indications of success of try Framework in practice. In other words, do you have a plan for looking at its use and effects?

- *So really, this amounts to these points:*

    o Is there anything that could or should be done to make this Framework reflect the specificity of Saudi Arabia?

    o Will there be guidance on curriculum design for schools based on the Framework?

    o Will that guidance ensure that schools develop a contextual curriculum?

    o How will you judge the effects of the Framework?

With thanks for asking me to comments.

3-   Professor John Norcini

"I appreciate the opportunity to review the consensus framework for the 'Saudi Future Physician'. It is a superb document and I believe that it will set an excellent course for the future. In my view, the document will serve its purpose quite well without any change. Thus, my comments are minor.

First, I believe that the adoption of 'Research' as one of the six overarching competencies is essential. You might also consider whether to refer to this competency as 'scholarship'. It encompasses traditional research but also includes some of the more recent reformulations (e.g., Boyer, Krahenbuhl, or Lynton). This would broaden your expectations for undergraduates, postgraduates, and practicing doctors.

Second, it will take some effort to align this framework with an assessment system that is both formative and summative. Outcomes that can be assessed through routine knowledge and clinical skills exams will not pose a major problem. However, the assessment of outcomes such as professionalism, teamwork, and community-oriented practice will be more challenging (as they are throughout the world) because good methods of assessment are not readily available.

Third, the framework will be most useful as a guide for curriculum development. In terms of assessment, attempts to measure students against all 80 of these learning outcomes are unlikely to be feasible. Some work will be needed to consolidate these outcomes for purposes of assessment.

Congratulations on this achievement. I am certain it will improve the quality of care in Saudi Arabia."

4- Dr. Zubair Amin

The process of developing the Framework is highly systematic. The team has managed to engage multiple stakeholders including medical students, junior doctors, medical colleges, ministries and religious authorities. There were multiple levels of iterations and refinements over an extended period of time. This process of constant feedback and engagement is critical for the success of eventual implementation.

All major competencies are covered. The list of clinical presentations, clinical skills and procedural skills is very comprehensive and comparable to other similar documents from highly regarded professional organizations and medical colleges. This list will be very useful for medical teachers and medical students. My further recommendation is to identify priority areas, i.e., which of these following clinical problems deserve greater attention. I would recommend highlighting the most important 10-20 clinical presentations (such as chest pain, breathlessness, fever, obesity, high blood pressure etc.) based on local/regional disease prevalence and importance (i.e., common, preventable, treatable, life-threatening). This will also help in the assessment blueprint by ensuring logical representation of important clinical conditions.

I also suggest including healthy individuals in health maintenance visits to be incorporated within the list of clinical problem. Medical education lacks focus on health and the inclusion of healthy individuals will make the curriculum more robust, forward looking, and holistic.

I am grateful that the team expanded definition of research to including scholarship. This is a far more holistic approach than many other competencies frameworks that I reviewed.

Overall, I am highly satisfied with this initiative. This is a strong evidence to Saudi Deans' Councils' vision to create a robust healthcare system in the Saudi Arabia. Congratulations to the Team.

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Prof. Mahmoud Shaheen AlAhwal
Prof. Omar Ibrahim Saadah

King Abdulaziz University -Rabegh
Dr. Hamed Saeed Habibn
Prof.Tawfeeq Mohammad Gabarah

Taibah University
Dr. Khalid Reda Murshid
Dr. AbdelQader Reda Allam
Dr. Khalid Khosh Hal
Dr.Mohammad Adnan Zolaly

Taif University
Dr. Talal Abdullah AlMalki
Dr. Abdulhameed AlGhamdi
Dr. Adnan Ameen AlSulaimani

King Saud University – Riyadh
Prof. Musaed Mohammad Salman
Prof. Mubarak Al Faran
Prof. Fahad Abdullah AlZamel
Prof. Khalid Ali Fouda Neil

Um AlQura University
Dr. Abdulaziz Alkhotani
Dr. Anmar Mohamad Nasser

Um AlQura University – Qunfudah
Dr. Saeed Saeed AlGhamdi
Dr. Abdulmonem AlQasim
Dr. Osama Abdulrahman Omar

King Khalid University – Abha
Dr. Ali Mohammad Al Ali
Dr. Ali Saeed AlQahtani
Prof. Abdulllah Saeed AlAsiri
Dr. Sulaiman Abdullah AlHumayed

King Khalid University – Beisha
Dr. Mohammad Abadi AlShehri
Dr. Abdullah Mohammad AlShahrani

AlQassim University
Dr. Abdullah Ali AlGasham
Prof. Hani Abdullah AlShobaili

AlQassim University – Onaizah
Prof. Saleh Abdullah AlDameg

Tabuk University
Dr. Tawfeeq Mohammad Gabarah
Dr. Badr Abdulmohsen AlSayed

Jauf University
Dr. Ahmad Homod AlHazmi
Dr. Maher AlOnaizi
Dr. Naif Ibrahim AlWakid

Najran University
Dr. Jobran Marei AlQahtani

AlDammam University
Dr. AlHussein Jaber AlZahrani
Prof. Sameeh AlAlmaei
Prof. Ali Ibrahim AlSultan

King Faisal University – AlAhsaa
Dr. Waleed Hamad Alboali
Dr. Ibrahim Khaled AlJabr
Dr. Hatem Othman Qutub

Jazan University
Dr. Hussein Mohammad AlAqili
Dr. Ali Isamil Swaid

King Saud Bin Abdulaziz for Health Sciences – Riyadh & Jeddah
Prof. Yousef Abdullah Al Eissa
Prof. Hassan Saeed Baaqeel
Prof. Ibrahim Alwan Al Alwan
Dr. Ahmed Rumayyan Al Rumayyan
Dr. Mansour Abdullah Al Qurashi

Hail University
Dr. Ali Abdullah AlQarawi
Prof. Awdah Masood AlHazmi

Sattam Bin Abdulaziz University
Prof. Abdullah Mohammad AlBekiri
Dr. Abdulrahm Ibrahim ALtheyab

North Border University
Prof. Ibrahim Hassan ALZahrani
Dr. Shehab Ahmad AlOnaizi
Dr. Majed Qarayan ALRowaili

Jeddah University
Prof. Mahmoud Shaheen AlAhwal

Albaha University
Prof. Emad Abdelqader Koshak
Dr. Ali Hindi AlGhamdi

AlMajmaah University
Dr. Mohammad Othman AlRukban
Dr. Khalid Mohammad Abdulwahab

Ibn Sina Colleges
Dr. Rashad Hassan Qashqari

AlFaisal University
Prof. Khalid Mannaa AlQattan

AlMaarifah Colleges
Prof. Maamoun Khalid Kermali

Sulaiman AlRajihi Colleges
Prof. Saleh Abdullah AlDamegh
Prof. Abdulrahman Mohammad AlMazroo

Prince Noura Abdulrahman University
Dr. Ghadeer Al Sheikh

Shaqraa University
Dr. Abdulrahman Mohammad ALShahrani

Shaqraa University – Aldawademi
Dr. Eissa Ajami Alediani

AlBatarji College
Dr. Hassan Sami Sheibah
Dr. Osama Adnan Kensarah

AlFarabi Colleges
Dr. Abdulwahab Abu Derman