



Sultan Qaboos University

College of Medicine and Health Sciences



MD Programme Self Study



2012/2013

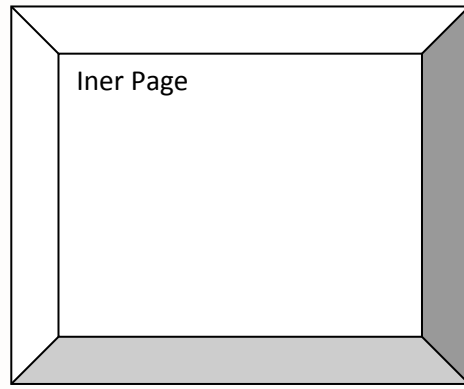


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ABBREVIATIONS

AD	Assistant Dean
AP	Assessment Policy
BSc	Bachelor of Science
BSc (HS)	Bachelor of Science (Health Sciences)
BSc (MLS)	Bachelor of Science (Medical Laboratory Sciences)
cGPA	cumulative Grade Point Average
CB	College Board
CC	Curriculum Committee
CEO	Chief Executive Officer
CIS	Center for Information Systems
COMHS	College of Medicine and Health Sciences
DAR	Deanship of Admission and Registration Sultan Qaboos University
DB	Department Board
DVC	Deputy Vice Chancellor
FMPH	Department of Family Medicine and Public Health
GCC	Gulf Countries Cooperation
HEAC	Higher Education Admission Center
HOD	Head of Department
MD	Doctor of Medicine
MLS	Medical Laboratory Sciences
MOH	Ministry of Health
MSc	Master's Degree
OMSB	Oman Medical Specialty Board
SLT	Supportive Learning Topic
SQU	Sultan Qaboos University
SQUH	Sultan Qaboos University Hospital
SQUMJ	Sultan Qaboos University Medical Journal
TRC	The Research Council (Oman national research council)
UER	University Executive Regulations

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FORWARD

Accreditation is an acknowledged means of sustaining international standards in medical education in addition to continuously assess and respond to the needs and aspirations of the institute, faculty, students and the society at large. The University and College are committed to implement accreditation and quality management measures and policies as a “system” in order to attain excellence in performance and to further our international ranking.

In line with the above premise, the College prepared its first “Internal Evaluation” document since its establishment in 1986. The document was compiled in preparation for the official “Site Visit” of the Association for Medical Education in the Eastern Mediterranean Region jointly with the World Federation for Medical Education. The purpose of the Visit is to appraise the College aptness for accreditation.

The “Self Study” helped us to analyze our current status. It revealed our most valued assets: the students, staff and faculty, the many facilities that enable us to achieve our mission, among these, foremost to be mentioned, the University Hospital, the Skills Lab and the apt utilization of technologic applications in learning and assessment. Not to forget the “new” curriculum and Assessment Policy; two accomplishments that would subject our educational programme to objective medical educational evaluation rather than to subjective thoughts.

Similarly, the “Self Study” helped us to realize that there are a number of issues that the College needs to address for future improvement. For example, the need to develop a comprehensive evaluation policy of our educational programme, the need to enhance our research effort, the need to expand the space especially for students extramural activities, and other points that were stated in the conclusion at the end of each Area Section. Having identified these issues, it is of immense importance for us to hold fast to our plan of continually receiving feedback from all stakeholders as an important strategy for monitoring our performance and introducing new ideas to successfully embark on a brighter future and providing Oman with more capable doctors.

Finally, I would like to express our thanks to SQU Administration for their support to the College. I also would like to thank all the College staff -- academic, clinical, technical, administrative, support staff -- in addition to, needless to say, our students for their valuable contributions. Special thanks are due to the former Deans, Professors Bazdawi Al-Riyami and Mansour Al-Moundhri for their efforts towards this endeavor.

Finally, our sincere appreciation to the Accreditation and Quality Management Committee for their devotion and commitment in compiling this report.

Professor Omar Awadh Al-Rawas
Dean, College of Medicine & Health Sciences

THE METHODOLOGY USED TO COMPILE THIS DOCUMENT

The College Board (CB) after considering the strategic and developmental needs of the College approved the formulation of the College “Accreditation and Quality Assurance Committee” on 15th September 2008 (Appendix i). The composition of the Committee was as follows:

- | | |
|---------------------------|--|
| • Professor Musbah Tanira | Chairman |
| • Professor Lamk Al Lamki | Member |
| • Dr Omar Al Rawas | Member (promoted to professor and became Dean later) |
| • Dr Sulayma Al Barwani | Member |
| • Dr Muna Al Saadoon | Member |
| • Dr Rashid Al Abri | Member |
| • Dr Saif Al Yaarubi | Member |

Although the Committee’s mission included both accreditation and quality assurance, the Committee decided to give priority to the “accreditation” process and to adjourn its activities on quality assurance till the attainment of this task since it was of higher priority to SQU Administration. The Committee planned its work in a systematic way that aimed in two directions:

1. Dissemination of information to faculty/staff/students and to make available all documentation related to accreditation
2. Provide Committee members with all opportunities necessary to gain the full knowledge and to attain a high level of competence of the accreditation process

The Committee’s activities in the first direction included, but were not limited to, the following:

- Periodical report to the College Board
- Distribution of “Basic Medical Education: WFME Global Standards for Quality Improvement” by the World Federation for Medical Education (WFME) as a soft and hardcopy to HODs and members of CB
- Conducting a “Knowledge Sharing Day” Workshop with the participation of all faculty, staff, clinical tutors and students to discuss the WFME Standards to which HE the VC and the DVCs were invited
- Conducting another workshop by WFME consultants that was organized to allow appropriate opportunity to all faculty/staff/clinical tutors/students to interact with WFME Standards
- Arranging a meeting of HODs and WFME consultants to have a direct and appropriate interactive discussions with WFME consultants

In complementation to the first direction, Committee members were underwent a parallel building-up capacity exercise to gain the necessary expertise; in particular that they:

- were provided with more related publications on accreditation concept, terminology and procedure
- were provided the necessary information on national and international accrediting bodies
- attended international conferences/workshops/events organized by international accrediting bodies and meeting with the respective officials to discuss specific accreditation issues
- met with WFME delegation for one full day to discuss all issues in detail

The Committee met biweekly to prepare the “Internal Evaluation” document. The process was initialized by assigning various members of the Committee to gather the data required on each “Area” as specified in the

WFME Standards. Committee members started to collect data from relevant sources/databases, as appropriate, using various means such as direct contact/visit, emails, written correspondence, Websites, SQU Portfolio etc. For the most, the following sources were used to collect the information/data included in this document. These sources are summarized in Table 1:

Table1: The Main Sources for Collecting Data and Information for “Internal Evaluation”

AREA	MAIN SOURCE/S OF DATA/INFORMATION
MISSION AND OBJECTIVES	College Strategic Planning Committee
EDUCATIONAL PROGRAMME	Curriculum Committee; Curriculum Office
ASSESSMENT OF STUDENTS	Examination Committee; Medical Education Office
STUDENTS	AD; DAR; Deanship of Student Affairs
ACADEMIC STAFF/SACULTY	College Administration; Deanery; SQU Administration
EDUCATIONAL RESOURCES	College Administration; Deanery; ADs; SQU Administration
PROGRAMME EVALUATION	Curriculum Office; Medical Education Unit; AD
GOVERNANCE AND ADMINISTRATION	College and SQU Administrations; Deanery
CONTINUOUS RENEWAAL	Deanery; ADs; College Committees

The collected information was distributed to all Committee members then it was scrutinized, discussed, sifted out and pooled. Meanwhile, drafts of particular Areas of the Standards were being prepared. After the first version of the complete “Internal Evaluation” was compiled, it was discussed in an Extraordinary Meeting of the College Board on 10th September 2012. Feedback from CB members was received and included in a revised version.

OVERVIEW

The College of Medicine and Health Sciences was established in 1986 with the inauguration of Sultan Qaboos University (a *not-for-profit* government higher education provider). The College comprises 19 departments in addition to Administration Office and the Medical Library, and employs 75 academics (of whom 25 are clinical) who are supported by 41 administrative, 49 technical and 9 research staff. In addition, there are 329 affiliated clinical teachers who share the delivery of the MD Programme. The first batch of College graduates were in 1993 and comprised 44 doctors. The College has recently compiled a new strategic plan which contained its mission, vision, objectives and values.



The College MD educational programme was reformed in 2008 with the implementation of the “New Curriculum” which is significantly different from the “Old.” The programme requires a minimum of six years to complete.

It is student-centered, outcome-based and was designed on a core set of clinical presentations with early clinical exposure and community involvement. It consists of three phases each with a specific educational goal. Phase I is mostly discipline-based and is essentially a foundation of the fundamental concepts of basic medical sciences. Phase II is organ/systems-based and it integrates basic and clinical sciences. Phase III is a patient-oriented phase for bed-side teaching. The educational programme includes a research component to train students on how to pursue independent inquiry and how to use available evidence to critically analyze/interpret information. Students are given the option of obtaining a BSc (Health Sciences) degree, in addition to the MD degree if they choose to spend an extra year to complete the “Intercalated Phase.” The programme is closely linked to contemporary medical practice and utilizes many instructional methods in its delivery. It advocates self-learning to students and experiential teaching to tutors, if needed. It is managed by the College Curriculum Committee independent of departments though they are fully involved in the decision-making process.

The College Assessment Policy is based on a set of principles and incorporates both formative and summative modalities and recommends a combined use of both in all modules/rotations taking into consideration the spectrum of pure basic , through integrated to pure clinical learning objectives. The policy was constructed to evaluate the intended competences which students should acquire during the educational programme with specific examination components weighted to represent the intended learning outcomes.

The Medical Education Unit regularly organizes workshops, seminars and lectures to advocate new assessment methods; whereas the College Examination Committee oversees all matters relating to student assessment in the College and supervises examination preparation together with the concerned module/rotation Coordinator before the commencement of examinations. It also oversees all assessment activities of each phase of the curriculum.

Student progression is subject to preset standards that are determined to select the more suitable students to study medicine. The College invites international external examiners on a yearly basis to attend the exit

exams in the preclinical and clinical phases. The external examiners vet examinations and provide feedback prior to conducting these exams as a quality assurance measure. They participate actively in the examinations and thus have opportunities to evaluate the assessment process as well as they appraise the performance of other examiners. Reports provided by these External Examiners to the University and College after such visits are a source of significant feedback and are used to direct future training, resource development as well assessment methods.

In an effort to have access to assessment resources of international standards, the College has opted for membership of the International Database for Enhanced Assessment and Learning (IDEAL) Consortium. In addition, the College, as a member, sends 150 exam questions to IDEAL Consortium for vetting as an additional quality assurance measure.

The COMHS accepts students who are awarded the Omani General Certificate Diploma or its international equivalent. The admission policy is based on criteria determined by the CB and approved by SQU Academic Council. Student admission procedure is conducted by the national Higher Education Admission Center in coordination with SQU Deanship of Admission and Registration. The College admitted 130 students this academic year (2012/13), which is the steady annual intake. The students complete a Foundation Programme (1 -11/2 years) prior to joining the MD Programme. Medical students get considerable financial, social and educational support from SQU in addition to special counseling service given to those in need. They have direct access to the College Administration, are represented in several College Committees and have their own "Student Group" which independently organizes their extramural activities.

The College academic staff are recruited in accordance to their qualifications and ability to ensure effective contribution to the College mission. The recruitment process is conducted in line with SQU regulations and is based on candidates credentials regardless of gender, ethnicity or religion. After recruitment, the College offers faculty many opportunities to develop and progress in addition to research facilities and funding. Promoting faculty is based on their scholarly achievements.

The College has adequate physical facilities that are premised in the College itself or in SQU central facilities. These include lecture halls, teaching and computer laboratories and libraries. Clinical teaching is conducted in SQU Hospital, Ministry of Health and other tertiary hospitals in both ambulatory and non-ambulatory settings. The "Skills Lab" in the College contains many videos, audiovisual simulators, computer programmes, models, manikins, Harvey etc. It is also equipped to utilize simulated and real patients for student training. The Medical Education Unit with its IT Section provides the necessary support to maintain these resources.

The research capability of the College is in the growing phase with reasonable facilities and human resources and opportunities for funding from the College, SQU and the National Research Council are available on competitive basis. Its publications output have not reached a steady-state yet.

The College applies a number of approaches to evaluate the performance of its educational programme; the most important is the examination process which is employed to measure the degree to which students were able to achieve the designated learning objectives in each specific component of the curriculum. Students' performance is benchmarked against international standards by annual visits of invited teams composed of internationally acknowledged basic scientists and clinicians to act as "external examiners." Also, students' and teachers' opinion is sought regularly. In addition, feedback from working/training hospitals is provided on

graduates' performance. All gathered information are used to identify areas of improvement in the educational programme.

The College governance is stipulated in SQU Executive Regulations (bylaws) and its administrative organizational structure has been approved by SQU University Council. The Dean is the Chief Executive Officer of the College and is helped by four assistant deans. The College Board is chaired by the Dean and is the supreme governing body of the College. The College Board consists mainly of heads of departments. A head of department, in conjunction with the departmental board manage all affairs concerning a specific department. Other College affairs are managed by specialized administrative offices/units that report directly to the Dean. Appended to these, there are many committees that act in an organized manner to manage certain academic or administrative issues. Overall, the College Administrative Office, which is headed by the Director of Administration, coordinates the College's administrative affairs.

The College applies an array of continuous renewal activities as a routine. Centrally, all these activities are organized by the College and Hospital Boards which receive feedback from departments, units, committees, external examiners as well as individuals and take the necessary action as appropriate. Recently, the College established the Accreditation and Quality Assurance Committee to coordinate these activities.

INTRODUCTION

HISTORY

The College of Medicine and Health Sciences (COMHS) was one of the first five colleges that started with inauguration of Sultan Qaboos University (SQU) in 1986. At present, SQU comprises nine colleges and, so far, is the only public university in Oman (a plan for another public university is in progress).

COMHS was named the “College of Medicine” when it was established. Changing the College’s name to COMHS was approved by the University Council on 8th June 2002. The name change was intended to broaden the academic scope of the College by commencing other health profession educational programmes. As a result, the Nursing Programme was introduced in 2002. Nonetheless, in September 2008, the Nursing Programme separated from the COMHS and became an independent college. At present, two programmes are offered by the College viz. the Doctor of Medicine (MD) and the Bachelor in Medical Laboratory Sciences [BSc (MLS)] programmes.

COLLEGE STAFF AND MANAGEMENT

The College employs 75 academics (of whom 25 are clinical) and there are 329 affiliated clinical teachers (176 in SQU Hospital and 153 in affiliated hospitals and health centers). All share the responsibility of delivering the College’s educational mission. The academic staff is supported by 41 administrative staff (of whom 24 are working in the College Administration Offices and the remainder is the departmental coordinators). The technical staff of the College are 49, and there are another nine staff designated as research assistants or associate researchers. SQUH administrative and technical staff jointly support the clinical component of service/teaching activities as required.

The Dean is the Chief Executive Officer of the College and he manages its academic as well as administrative affairs. Four Assistant Deans (ADs) and two secretaries, directly assist the Dean in addition to a number of other administrative offices affiliated to the Deanery.

EDUCATIONAL ACTIVITIES

At the undergraduate level, the COMHS was originally founded to offer two degrees viz. BSc (Health Sciences) and MD. The former degree was awarded after successfully completing a 4-year educational programme and, as per the “Old Curriculum”, is a prerequisite to the MD Degree that requires an additional three years of clinical teaching totaling seven years for the MD Degree to be awarded.

Recently in 2008, the College started its “New Curriculum” which is significantly different from the “Old Curriculum” in its design and it requires a minimum of six years (compared to seven years in the “Old Curriculum”) to be completed for the MD Degree to be awarded. Furthermore, the BSc (HS) Degree in the “New Curriculum” is offered as an option, rather than a prerequisite.

In addition to having fostered the “Nursing Programme,” in its early years, the COMHS also used to take the major part in teaching the Medical Laboratory Sciences (MLS) Programme. However, the BSc (MLS) Degree used to be awarded by the College of Science till the year 2010. Since then, the COMHS is fully responsible for teaching the MLS Programme as well as awarding the Degree.

At the postgraduate level, the College started its Master's Programme in 2001. The Programme offers a Master of Biomedical Sciences Degree with four specializations viz. Biochemistry, Epidemiology, Medical Microbiology and Clinical Pharmacy. The PhD Programme has started in 2009.

While the above programmes are all entirely developed and administered by the COMHS, the College participates in clinical postgraduate training programmes in two contexts: the Oman Medical Specialties Board (OMSB) and a number of the membership programmes of Royal Colleges of UK. The OMSB administers postgraduate clinical programmes in several disciplines including Medicine, Surgery, Child Health, Obstetrics and Gynecology, Psychiatry, Accident and Emergency Medicine, Family Medicine, ENT, etc. From the inception of these programmes in the year 2006, faculty members of the COMHS, in collaboration with those from Affiliated hospitals, have been engaged in developing and administering these programmes. The College is also recognized for imparting training which is recognized for awarding membership of several Royal Colleges of UK. In the recent past, the College was also recognized as a center of training for the Arab Board for awarding medical degrees. The latter two activities benefit not only the residents in training but also junior staff of the hospital.

UNDERGRADUATE MEDICAL STUDENTS

The first cohort of medical students was admitted to COMHS in September 1986, and was graduated in June 1993 (44 graduates; 16 males and 28 females). After one year of internship, they took oath on 14th April 1994 to become the first group of doctors to be trained in Oman. Since then, a total 1,292 students have successfully completed the MD curriculum.

The undergraduate students of the College benefit from more than one platform to communicate their opinions and find solutions to the challenges they may encounter. They have a direct access to the ADs, and their representatives (two students *per* cohort) are members of the Staff Students Liaison Committee, which is chaired by the AD for Preclinical Affairs. Moreover, two members in the Curriculum Committee (CC) represent the students. Students also have their own "society" that regularly organizes various activities.

The College intake capacity has consistently increased over the years, and consequently, the number of graduates has also increased. Currently and since 2003, the College has been conscious to maintain its annual intake of the MD Programme at around 120-130 students. No further increase is planned in the near future due to limitation of teaching space and the number of hospital beds available for students' clinical teaching. However, new teaching facilities are planned in order to increase number of students admitted to the MD Programme.

The increase in student intake was accompanied by an increase in its graduates. Table 2 shows the number of College graduates from its first intake (the 1986-cohort) till the 2002-cohort (the last cohort whose students fully graduated). The Table also shows the average period (retention period) to complete the MD Programme *per* cohort. The overall average period was 7.30 years; while the minimum period of successfully completing the MD Programme was 7 years.



Table 2: Number of Graduates and Average Period to Complete the MD Programme

Cohort	Number of Graduates	Average Period in Years per Cohort
1986	48	7.13
1987	43	7.21
1988	43	7.21
1989	65	7.29
1990	66	7.36
1991	75	7.65
1992	74	7.64
1993	68	7.57
1994	75	7.25
1995	74	7.32
1996	73	7.18
1997	95	7.34
1998	89	7.28
1999	77	7.16
2000	96	7.22
2001	124	7.35
2002	107	7.24
Overall Average Retention Period	1,292	7.30

SQU SUPPORT FOR STUDENTS

As a general policy, all SQU undergraduates enjoy many benefits in addition to the academic support and services the University offers them (see area 6). These include the following:

- Free textbooks for all modules/rotations and each student receives a free white coat, a stethoscope and a knee hammer at the start of their clinical years
- Male students who live 100 km or farther from the University receive RO 120 (~ US\$ 300) monthly whereas female students receive full free campus accommodation. Students who live within 100 km of the campus get free transport
- Students from “limited income families” receive additional RO 40 monthly (~ US\$ 100)
- Medical students receive extra RO 60 per month (~ US\$ 150) during their clinical years
- Free meals and other fringe welfare benefits

GRADUATES' CAREER PATH

Annually, SQU selects the top MD graduates to be delegated abroad for medical specialty training. This practice started in 1993 and it is still a University procedure until the present. So far, more than 206 graduates (115 males and 91 females) have been selected for this purpose; 91 completed their training, 51 are still in-training and 45 await to be delegated. The majority (68) of those completed their training in Canada; 19 in the United Kingdom, two in USA and two more graduates were trained in Australia and New Zealand; 51 are still in-training. The returned doctors joined SQU Hospital (SQUH) as practitioners and contribute to the clinical teaching. Most of College's graduates, other than these, get employed by the Ministry of Health (MOH) and/or join the Oman Medical Specialties Board training programme.

COMMUNITY ENGAGEMENT

As the College involvement in community service has become more apparent, the College has recently created a new AD post - the Assistant Dean for Training and Community Service (AD-TCS) with the mission "to create, provide and support training programmes, service and community engagement opportunities for and by medical students and faculty at COMHS-SQU." The following goals were articulated to achieve this mission:

1. *For medical students:* to enhance medical education through meaningful service and learning experiences that benefit the community and addresses its recognized needs. In addition, to broaden students' clinical experience through the Elective Programme
2. *For Faculty:* to enhance contribution of faculty to the community by conducting lectures, workshops, conferences, and other outreach activities
3. *For Interns Medical Officers:* to coordinate and improve the Internship Year Programme
4. *For Alumni:* to communicate with alumni by organizing gatherings and other forms of communications to propagate planned events and services provided by COMHS and SQU

Currently and as a specific contribution of the College to Oman national hereditary blood disorders, the Departments of Hematology and Child Health, with support from the MOH, send hematologists to regional hospitals to conduct workshops and outreach clinics for patients with primarily hereditary blood disorders and other hematological diseases. The purpose of the visits is to improve and standardize care for these patients throughout the country. So far, seven regional hospitals have been visited in depth and monthly clinics have been started in three hospitals. It is expected that this model will be used to conduct outreach clinics for the rest of the Sultanate by the end of 2013.

RELATIONSHIP WITH PROFESSIONAL INTERNATIONAL BODIES

The College considers starting, developing and maintaining excellent international relations with its counterparts as a matter of fundamental importance. In this respect, the College attempts, consistently, to develop links with international professional bodies like the General Medical Council in the UK which has recognized the College since 1994 and the World Health Organization in whose list of medical schools the COMHS has been included. Recently, the College was listed in Avicenna Directories, supervised by the University of Copenhagen in collaboration with the WHO and the World Federation for Medical Education.



On the regional platform, the colleges of medicine in the Gulf Cooperation Council (GCC) Countries established the GCC Deans Council more than fifteen years ago. The Council meets every six months; its objective is to enhance cooperation among colleges of medicine in the region. The College was one of its founding members and regularly attends its meetings.

Another important avenue of international collaboration is sending our students to complete their elective requirement (eight to ten weeks to be completed during the educational programme) to schools of medicine worldwide. So far, the College's undergraduate students have been accepted for this purpose in 64 educational institutes (in about 25 countries). This practice has continued for more than 20 years, since the first batch of students and has been useful in broadening our students' perspective.

The Department of Family Medicine and Public Health (FMPH) was the first internationally accredited site for the Membership of the Royal College of General Practitioners UK exam (in 1998). So far around 130 Family physicians have graduated from the programme. The members have been involved in developing Family Medicine residency programmes in countries in the region (Egypt, Kuwait, UAE, South Asia – India, Pakistan, Bangladesh, Sri Lanka, Nepal) not only in advisory capacities, but also as Examiners.

The Department of Child Health is a recognized center for the following examinations: Diploma in Child Health (Royal College of Physicians and Surgeons of Glasgow, United Kingdom) and Membership Examinations (Part I and Part II – Theory and Clinical), Royal College of Paediatrics and Child Health, United Kingdom. Senior members of the Department continue to be examiners of the Royal College of Physicians and Surgeons of Glasgow and the Royal College of Paediatrics and Child Health, U.K., both in GCC countries and in the United Kingdom. The Department is also represented in the Paediatric Arab Board as members and approved examiners. The Arab Board exam is an exit examination under the umbrella of the Arab League.

The Department of Medicine organizes (in collaboration with the Royal Hospital) the MRCP-UK clinical examinations. Several members of the Department are recognized examiners for both UK and Ireland MRCP clinical examinations. Also, the Department organizes the Arab Board clinical examination. Members of the department are examiners for the clinical component of the exam.

Also, the College, in collaboration with the University Office of External Cooperation, has made accords with prominent Canadian medical institutions to train its graduates, which, in effect, acknowledges the competence of our graduates who are well appreciated there.

In achieving its mission to link with postgraduate training, the College developed close relations with the OMSB (the national body administering postgraduate clinical training in Oman). In line with this, the College's faculty members have been an instrumental part of the OMSB since its inception. The College, in collaboration with the Affiliated Hospitals (which also participate in the undergraduate programme), is actively engaged in imparting postgraduate clinical training in several disciplines. The mission of the college at the undergraduate level complements that of the OMSB in serving the need for postgraduate training. This context of sequential training serves to optimally utilize the resources (training faculty, patients, teaching resources, etc.) as well as to offer the entire range of training (from undergraduate to post-graduate) within the country.

1. MISSION AND OBJECTIVES

1. MISSION AND OBJECTIVES

1.1 STATEMENTS OF MISSION, VISION, CORE VALUES AND OBJECTIVES

In anticipation of the future challenges to enhance the College's competitiveness in the region and worldwide, the COMHS has recently debated and approved its Strategic Plan (Appendix 1.1). The College mission/vision, core values and objectives are stated in the Plan as follows:



The mission of the COMHS at SQU is:

- *to provide Oman with competent doctors and health scientists who are able to pursue further specializations*
- *to create a scholarly environment that supports innovation and excellence in teaching, research and postgraduate training*
- *to deliver high quality patient care and community health services through our hospital*

The vision is:

We aspire to international prominence in medical education, advancement in biomedical sciences and health research

The core values are:

Excellence; Transparency; Accountability; Creativity & Innovation; Respect to all; Quality Service; Integrity; Flexibility; Team Work and Collaboration; and Public Trust & Confidence

The objectives are:

Educational and Training objectives:

- Train best school graduates to become competent doctors
- Strengthen and expand postgraduate programmes
- Develop and implement new Allied Health Sciences Programmes
- Enhance teaching staff efficiency and satisfaction
- Improve Students' performance and satisfaction

Research objectives;

- Provide infrastructure, technical and administrative support necessary to improve research outcomes.
- Increase the number of talented scientists through recruitment, mentoring and training
- Identify research priority areas related to community needs and national priorities and focus resource allocation on these important areas
- Strive to increase external research funds
- Encourage and support intra/inter institutional, multidisciplinary and international collaborative research programmes
- Enhance research culture
- Promote research ethics

Community Service objectives;

- To advocate high quality community-oriented services
- To increase students and faculty involvement in community services

1.2 PARTICIPATION IN FORMULATION OF MISSION AND OBJECTIVES

The College Strategic Planning Committee initially constructed the mission, vision, objectives and core values of the College which were then submitted to the College Board (CB) for approval. The CB discussed, amended and approved them, then they were made available on the College website and notice boards for information and feedback from visitors, students, faculty and staff. Simultaneously, the College identified its other principal stakeholders (Appendix 1.2) as follows, and forwarded its mission, vision and objectives to these for comments:

- Students, faculty and staff (technical and administrative)
- SQUH clinicians and staff
- SQU Administration
- MOH Administration
- MOH Hospitals and health centers tutors who share in students' clinical teaching
- OMSB
- The Research Council
- Selected members of the Showra and State Councils and community at large

Eventually, the Strategic Planning Committee collated and considered all views and formulated the final version of the College mission and related items which were endorsed by the CB (as specified in Subarea 1.1).

1.3 ACADEMIC AUTONOMY

The highest governing body of the College i.e. the CB, has delegated the responsibility of the educational programme management to the Curriculum Committee (CC). In accordance, the CC has full freedom in taking all actions to ensure that the stated curricular objectives are achieved. The CC determines the contents of each learning session and its format; it also decides on the proportional contributions of each department, time-tabling and other management issues.

The design of the curriculum was based on integrated modules that comprise three distinct educational phases to achieve a set of pre-set curricular objectives. Similarly, the management structure was organized in a way that empowered module/phase coordinators/subcommittee (not individual faculty members or departmental boards) to ensure that teaching by individuals/departments is in line with the curricular objectives and in accordance to the intended curriculum design.

All educational material is under cyclical review and subject to feedback. Reviews are conducted regularly after each module/phase delivery, and the results are carefully deliberated and, if appropriate, are included in the next delivery of the course/module in question.

All required resources are provided on request of any faculty/staff through the respective Head of Department (HOD) or Module/Phase Coordinator. Any request is processed via the appropriate administrative channel, and if found appropriate, would be eventually approved. Needless to say, resources are distributed as per educational needs.

1.4 EDUCATIONAL OUTCOME

The document “Proposal for the New BSc (HS) and MD Degree Curriculum”, which contained the “New” curriculum, was approved by the CB on 27th March 2006, the Academic Council on 23rd April 2007 and the University Council on 14th May 2007. It states that the medical educational programme aim is *“to produce undifferentiated physicians who are prepared to serve the fundamental purposes of medicine and satisfy the contemporary requirements of medical practice and professionalism.”* In accordance with this statement, the “new” curriculum was designed on a set of outcome competences with clinical/basic sciences integration, which are organ/systems-based and constituted on a number of core clinical presentations that were selected and listed in the above-mentioned document.

In principle, the curriculum’s primary focus is to provide students with learning opportunities to acquire the core knowledge, skills and attitudes that are required of a contemporary medical practitioner and to encourage them to develop a life-long self-learning approach to develop their career. It assures student participation in research and other scholarly activities to train them on the basics of developing new knowledge. In addition, it promotes an understanding of the doctor’s role as “healer and professional” who practices in an Omani culture, though globally oriented. Finally, the curriculum was configured to support the development of personal qualities and values that foster these ends.

The broad competences, in terms of knowledge, skills and attitudes, that are required from students on graduation are detailed under the following domains:

- Holistic Patient Care and Professional Relationships
- Research and Life Long Learning
- Health Care Delivery
- Basic, Clinical, Theoretical and Applied Sciences

Specifically, the curricular clinical and professional competences used to derive the educational activities are to prepare students to be able to:

- take a tactful, accurate, organized, comprehensive and problem-focused medical history
- perform an accurate physical and mental state examination
- choose from the range of clinical skills, those which are appropriate and practical to apply in a given situation
- prioritize patient clinical problems and provide differential diagnoses for these and to reason in order to solve them
- select the most appropriate and cost effective diagnostic procedures
- formulate a management plan, in concert with the patient, outlining appropriate investigations, pharmacological, physical, nutritional and psychological therapies
- recognize serious illness and to perform common emergency and life-saving procedures such as caring for the unconscious patient and cardiopulmonary resuscitation
- appreciate the responsibility to maintain contemporary standards of medical practice at the highest possible level throughout a professional career
- realize that it is not always in the interest of patients or their families to do everything which is technically possible to make a precise diagnosis or to attempt to modify the course of an illness
- apply all professional conduct in accordance to acceptable ethical code
- Adopt/practice the above-mentioned competences in an ethically, culturally and humanistically acceptable manner

The College's mission and curricular objectives clearly state that its medical educational programme is designed to prepare students not only to be able to practice contemporary medicine, but also to enable them to pursue postgraduate training. During the medical educational programme, students are subjected to a well-defined set of progression criteria to measure their performance during the various phases of the programme to ensure they have attained the necessary competences for further postgraduate training.

Overall, student progression criteria were constructed as a tool for selecting students suitable to become competent and safe practitioners to fulfil the College's educational mission. The criteria stipulate how students could progress during and at the end of each phase of the educational programme. The details of the educational programme and progression criteria are published and included in the Student Handbook that every student receives on admission.

Notably, and as an example of how the curriculum was based on available evidence, is that the progression criteria state that for a student to progress from Phase I to Phase II s/he must attain a focussed cumulative General Point Average (cGPA) of 2.5/4.00 or more (focussed cGPA is the cGPA attained in certain courses/modules that are offered during the educational programme period that precedes the "clinically integrated Phase II.") Adopting this criterion was based on the finding that students with better performance in these courses/modules showed better performance in the final MD exam. The criterion to progress to Phase III dictates that students should attain an average cGPA of 2.5/4.0 or more in both phases I and II.

In Phase III (the final phase of the programme where "patient-oriented" teaching i.e. bedside teaching is taking place) more emphasis is given to assess students clinical competences. Students are evaluated during and at the end of each rotation in this phase. In addition, students are evaluated during and at the end of four main stages of this phase namely; the Preclerkship, Junior Clerkship, Senior Clerkship and Preinternship. Eventually, this is capped by the final clinical examination that is conducted with the participation of external examiners who are invited from reputable international clinical institutions. Students who successfully complete the programme will be awarded the MD Degree. At each evaluation stage, feedback by the respective individual/s including the external examiners is forwarded to the Dean who warrants appropriate actions to be taken by the concerned departments.

All graduates are obliged to satisfactorily complete one year of internship in a recognized hospital, at the end of which they are evaluated and judged whether they can safely practice medicine without supervision. Thereafter, some of the graduates start their specialty training either under the auspices of the OMSB in Oman or abroad in accredited international institutions while others start their professional career as medical officers at MOH Health Centers. The progress of graduates during their training is monitored and reports from their training posts are regularly received by the College.

In principle, the College constructed its educational programme to prepare its students to become competent practitioners who can pursue postgraduate training. To ensure the aptness of students for postgraduate training, the College evaluates students' performance as follows:

- 1 *During the progress of the medical educational programme*, this is assured by conducting examinations at different stages of the programme. Such is concluded by the final MD examination in the presence of international external examiners
- 2 *After graduation*, by monitoring graduates' progress during their internship and postgraduate training periods

In all cases, feedback is encouraged and taken in consideration to develop the educational programme

CONCLUSION

Until now, the educational programme has produced capable graduates who can pursue future specialization. The responsibility of designing and managing the curriculum is delegated to the CC to ensure academic autonomy. The College also provides, through SQUH, a tertiary health care service to its community and conducts a tangible research programme.

As a primary step, the College has constructed, in consultation with its stakeholders, new mission, vision, values and objectives to prepare for a new phase of development, through its “Strategic Plan” which is intended to build up the College’s capacity so that it can compete internationally as an accredited institution in undergraduate education, postgraduate training, community service and research.

The College “Strategic Plan” is to be complemented by an “Operational Plan” that states tasks to be executed in an identified timeframe with monitoring/evaluating mechanisms to ensure that the College will attain its aspiration.

2. EDUCATIONAL PROGRAMME

2. EDUCATIONAL PROGRAMME

Preamble:

Despite the many pressing requisites for change in medical education that took place in the last three decades, the curriculum and the educational strategy of the COMHS had been, in effect, invariable since the establishment of the College in 1986. In September 2000, the CB recognized the need for change and approved the formation of the CC with a mission for constructing a “new” curriculum. The instated Committee thoroughly audited the COMHS (old) curriculum and reviewed the international requirements for accreditation and proposed a (new) curriculum. The proposed curriculum was exhaustively discussed by faculty, students, SQUH and MOH staff on many occasions at every stage of its construction. Eventually, the CB accepted the proposed curriculum (on 27th March 2006) and forwarded it to SQU Academic Council that approved it and finally the University Council endorsed it in May 2007.

The (new) curriculum has many features that distinguish it from the (old) curriculum which made it a significant evolutionary step relative to the (old) one. One of the most important features was to establish a structured management system that gives the CC full control of contents/delivery independent of departmental influence. Other examples of these features include:

Enhancing self-learning and integration

- Including the medical informatics courses and the research module
- Phase II is fully designed to integrate basic/clinical knowledge
- Phase III structure and time-tabling were designed to coordinate related rotations with adding other supportive learning sessions to enhance learning/integration
- Decongesting contents which provided opportunities to introduce new learning modalities

Improving relevance of curricular contents

- Guiding basic sciences contribution to the curriculum by the relevant clinical outcome
- Encouraging faculty, at large, to document, in detail, what is being taught
- Providing versatile “delivery shells” to allow continuous development

Helping students to select their career path

- Students are given the choice to get the MD with/without a BSc (HS) degree
- Introducing the “Selective” Rotation

Improving students’ “suitability” to study medicine

- The progression criteria are designed to address “borderline students”, thus selecting only students competent to study medicine

The process of the (new) curriculum implementation started in September 2008 with a parallel phasing out process of the (old) curriculum. The first (new) curriculum student cohort is expected to graduate in June 2014. Currently (September 2012), this cohort is in the Junior Clerkship of Phase III of the new curriculum. In this document, reference to the “Educational Programme/Curriculum” is made with regard to the “new” curriculum; whereas, if needed, reference to the “old” curriculum will be made with its designation as such.

2.1 CURRICULUM MODELS AND INSTRUCTIONAL METHODS

The curriculum is outcome-based and was constructed on a core set of clinical presentations with opportunities of early clinical exposure and community involvement. It comprises three phases each with a specific aim (the details are included in the relevant document; Appendix 2.1). Phase I is mostly discipline-based and is essentially a foundation of the fundamental concepts of basic medical sciences. Phase II is organ/systems-based and it integrates basic and clinical sciences. Phase III is a patient-oriented phase for bed-side teaching. In all, the curriculum was based on the main following principles:

- To ensure relevance of all educational material to contemporary clinical practice
- To facilitate integration of the educational material in basic/clinical; clinical/clinical and horizontal/vertical forms
- To ensure balanced proportionality of individual discipline/subject contribution among the above mentioned principles
- To introduce, throughout the educational programme, progression criteria to ensure the selection of only those students who are capable of safe medical practice

The instructional methods used in delivering the curriculum are centered on both teaching and learning strategies. They include lectures, tutorials, seminars, small group discussions, presentations, case-based learning, on-line learning and clinical sessions. Tutors are also encouraged to introduce any “new” method if proved to be of additional educational value. For example, the College Medical Education Unit has conducted a workshop on “Team-Based Learning”, as a result, some faculty have introduced this educational method to students on a “pilot” basis to explore student acceptance of the method and its value in enriching the educational process to decide on its suitability for adoption by the College.

The students are strongly encouraged to take active part in their learning throughout the educational programme; the curriculum was designed to delegate part of the educational responsibility to students. Hence, almost all courses of Phase I, II and III contain, with variable degrees, a component for students to seek and acquire knowledge on their own in many self-study modes during their six-year study period. Their attainments are explored, discussed and vetted in tutorials and small group discussions. A number of courses/modules give particular emphasis on self-directed learning than others, examples are:

- Medical Informatics I Course: A main component of the course is online and self-directed learning. The Course is designed to be learner-centered
- The Integrated Module: Students present case scenarios in small group discussion. In the same module, students also take active part in their learning by collecting information, doing assignments and report writing
- The Research Methodology and Student Project Module: In this Module, which extends over three semesters, students are trained on problem solving, learning novel additional skills/methods, utilizing information in scientific literature, establishing time-management, search skills and collection/analysis of data etc. This module prepares students to be able to contribute to scientific development of medicine as a science in the future
- Phase III Rotations: Students are assigned to prepare topics (mentored by clinical tutors) in accordance with each rotation learning objectives and are required to present these topics in scheduled sessions

In addition, students are prepared for lifelong learning using the following strategies:

- Identify their “learning targets” for each “assignment” and raise the appropriate questions
- Search literature to find out answers to their queries

- Retrieve relevant information to these targets and present their findings to their colleagues
- Writing-up reports to sum up their findings in a comprehensive scientific manner

2.2 SCIENTIFIC METHOD

A main objective of the curriculum is to train students on how to pursue independent inquiry and how to use available evidence to critically analyze/interpret information to solve clinical problems. The particular curricular components that inculcate scientific method and evidence-based medicine are the following:

- In Phases I and II, in general, during case-based tutorials/discussions use “presentations” as a lead to clinical teaching to emphasize the principles of scientific method
- The Integrated Module in Phase II (spans three semesters) is wholly designed to stress further the relevance of basic science concepts to the pathophysiology of clinical conditions using clinical analysis encouraging independent inquiry
- “Evidence-Based Medicine” is introduced as a discipline to students in “Preclekship” and “Supportive Learning Topics” sessions in Phase III
- The Research Project Module in Phase II is entirely dedicated to training students in scientific method. Students are trained to routinely question existing information and seek out new knowledge. The Module allows students to be engaged in research-based learning activities and provides them with the basic concepts of biomedical research. In the first semester, students learn the concepts of research and the basic skills needed to carry out a research project. In the second semester, the students collect data by surveys/laboratory experiments. In the third semester, the students analyze/interpret data and write up a research report and verbally communicate their findings
- The “Preinternship – Phase III” was designed to train students on how to manage patients being the final outcome of critical thinking and problem solving in clinical setting



2.3 BASIC BIOMEDICAL SCIENCES

The following disciplines are taught: Anatomy, Biochemistry, Medical Physics, Epidemiology, Genetics, Hematology, Immunology, Microbiology, Molecular and Cell Biology, Pharmacology, Pathology and Physiology. The basic concepts of these disciplines mainly appear in modules such as Introduction to Human Anatomy, Introduction to Human Physiology, Cellular Communications and Introduction to Drug Action, Enzymology and Metabolism, Molecular Biology & Principles of Genetics and Structure-Function Relationship. The following objectives guided the contents of the basic medical sciences courses/modules:

- Comprehend the normal structure, function and development of the human body and mind at all stages of life, the interactions between body and mind, and the factors which may disturb these
- Knowledge of the various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative and traumatic) of diseases and ways in which they operate on the body (pathogenesis)
- Knowledge of the scientific principles underlying laboratory diagnosis, and the ability to critically evaluate the limitations of diagnostic methodologies
- Knowledge of the epidemiology of common diseases within the Omani population, and the systematic approaches useful in reducing the incidence and prevalence of those diseases



The Curriculum includes basic sciences in Phases I, II and III as appropriate. However, most basic science topics are encountered in Phase I and early Phase II. The later part of Phase II is devoted to integrating of basic and clinical sciences; whereas some of Phase III activities (e.g. Preclerkship and Supportive Learning Topics) are utilized to introduce/enforce some basic science concepts that are better introduced/reiterated in Phase III such as Medical Physics (during Radiology Rotation), Behavioral Medicine “Psychiatry” (in Preclerkship and Family Medicine & Public Health; FMPH, rotation) and Clinical Pharmacology (coordinated with the Internal Medicine Rotation) etc.

The integration of basic sciences with the clinical sciences starts in the second semester of Phase II and is achieved by the following methods:

- The use of clinical based tutorials for teaching in all the modules
- The Integrated Module is dedicated to the integration of basic sciences with clinical sciences within and across the modules in Phase II
- Sequencing of teaching sessions from various pre-clinical and clinical disciplines
- Clinical tutors teach in Phases II; Basic scientists teach in Phase III
- Integrated assessment

The curriculum, specifically in Phase III, includes contemporary health-care and medical issues in all teaching/learning opportunities. Both tutors and students are required to address the latest information in their presentation to reflect contemporary clinical practice. The proportionality of time allocation is based on more than one factor, one of which is the health needs of Omani society. The College has timetabled Wednesday afternoons for the SCRAPS sessions (a College-wide seminar series to discuss particular practice experiences or current medical issues). In addition, SCRAPS (a College-wide clinic-pathological-radiological) seminar sessions act as a forum to provide a timely update of important medical issues, as and when they arise, such as SARS, Avian and Swine Flues etc. to keep up with most recent clinical developments.

2.4 BEHAVIORAL AND SOCIETAL SCIENCES AND MEDICAL ETHICS

Inclusion in the curriculum

In the educational programme, the contribution of behavioral and social sciences is seen mainly in Phases II & III.

- The learning objectives, for almost all clinical presentations, include communication skills and practices according to the principles of clinical ethics. Particularly, in the following modules/stages in phases I, II and III. In Phase I there are two lectures on this topic in Introduction to Human Physiology Module
- In Phase II, in the Hospital and Community Attachment Module, the students are introduced to the sociological, epidemiological and ethical aspects of the medical practice through early medical contact
- In Phase III, medical ethics and medical jurisprudence are emphasized, specifically, principles of medical ethics are covered in the “Preclerkship”, and Supportive Learning Topics (SLTs). However, the bulk of integration occurs during the clinical rotations when medical ethics (principles of autonomy, confidentiality, informed consent, etc.) are practiced during discussion of various presentations
- In Phase III during the Preclerkship, students learn behavioral medicine, communication skills and medical ethics. More importantly, these concepts and their practice are embedded in various clinical

presentations. Such arrangement provides learning opportunities in a spiral fashion throughout the curriculum

- In Phase III during Behavioral Medicine and FMPH Rotations, issues such as medical jurisprudence are emphasized and iterated during discussion of issues pertinent to thanatology, what constitutes mental illness and the relevance of psychosocial rehabilitation or interventions

Teaching behavioral and societal concepts

Conceptually, the curriculum presents behavioral sciences as an integrated model of medical anthropology, medical sociology and cross-cultural and medical psychology that aims to bridge Omani society with the medical educational programme shedding light on diversity of human experience as well making the educational programme grounded with the social-cultural reality.



Such cross-pollination of disciplines, under the umbrella of behavioral sciences, would shed light on how illness behavior in Oman is shaped by culture specific factors. In practice, therefore, as presently defined, Behavioral Medicine has a positive repercussion in equipping students with effective communication, clinical decision making skills and ethical practices in line with local conception of illness and disease. Such endowments have the net benefit of charting best practice for doctor-patient relationship that, in turn, would impact on compliance, cost effectiveness, efficiency and quality of health care delivery.

Recent demography in Oman has borne out two burdens to healthcare; one is communicable diseases and other, is non-communicable diseases. In the context of communicable diseases, the input of presently defined behavioral sciences would be to inculcate students with the view that illness or diseases, even if triggered by biological agents, are still experienced in social and cultural context. Furthermore, students are equipped with the views that there are critical psychosocial determinants of health and ill-health. Indeed, behavioral sciences could be instrumental in instigating changes relevant to coming to grip with persistent problems of communicable diseases. On the other hand, many of non-communicable diseases would require knowledge of behavioral sciences in order to devise preventive measures and interventions.

Including behavioral science in the curriculum equips students with the view that, the extent to which any medical treatment is adhered to is often a function of a range of socio-cultural beliefs, such as the personality of the patient and the quality of interaction between doctor and patient. In this context, the contribution of behavioral and social sciences and medical ethics are important in Oman's changing demographics and cultural contexts and to health needs of society and also to equip students with the knowledge about mental disorders and their relevance to practice as a cause of disability. For example, depression is anticipated to be one of the leading causes of disability in the world in the year 2025.

2.5 CLINICAL SCIENCES AND SKILLS

The planned clinical competences are acquired during Phase II Modules and Phase III rotations. Acquisition of these competences progresses gradually from the 'Observes How' and 'Shows How' levels which takes place in Phase II and Preclerkship of Phase III, to the 'Does' level which takes place in Junior/Senior Clerkship and Preinternship stages of Phase III. The aim of teaching these competences is to produce undifferentiated doctors able to identify health problems and provide the appropriate care for patients at a primary health care level with proper referral to secondary or tertiary care servicers if there is a need.

Throughout the planned teaching sessions, students are given the opportunity to interact with different professionals in the health care system such as pharmacists, nurses, dieticians, technicians, physiotherapists, speech therapists, hospital administrators etc. The clinical competences that students should acquire during the educational programme are the following:

Knowledge:

- Use knowledge of pathophysiology to establish correlation with disease process
- Use knowledge of indications and limitations of investigations
- Use knowledge of indications and side-effects of treatment agents and modalities

Skills:

- Elicit and record an organized medical history
- Conduct and record an accurate physical examination
- Identify social and psychological components of medical history
- Develop an accurate problem list
- Formulate a reasonable differential diagnosis
- Formulate an appropriate plan of investigations
- Recognize and respond to common medical emergencies
- Formulate an appropriate initial treatment plan for emergent problems
- Formulate an appropriate on-going plan for non-emergent conditions
- Communicate in an effective way with patients and their families
- Observe and reassess the clinical management daily, and record it
- Communicate clearly with members of the team
- Interpret the results of blood tests, such as, CBC, U&E, LFT, bone profile, blood gas, cardiac enzymes
- Interpret the results of aspirates from the pleural, peritoneal, spinal and joint cavities
- Interpret the results of bedside procedures, such as, urinalysis, pulmonary functions
- Interpret the results of x-rays, and CT scans for chest, head, and abdomen
 - Acquire technical skills, such as, to perform bedside procedures, such as, venepuncture, insertion of nasogastric tube, Foley's catheterization, arterial puncture, ascitic and pleural tap in addition to recording and interpreting ECG

N.B Assessment of these skills is conducted using the appropriate tool, e.g. a student would: demonstrate to an examiner how to elicit a relevant medical history/physical examination in a mini-CEX; explain an interpretation of laboratory results in writing using SAQs, show a communication skill in an OSCE etc.)

Attitudes:

- Assume independent responsibility for primary care with appropriate supervision
- Demonstrate independent learning in response to questions raised during medical management
- Demonstrate expansion of knowledge by active participation in tutorial sessions
- Demonstrate professional behaviour in line with the principles of medical ethics

Progression in introducing clinical competences:

As early as Phase II and prior to the main clinical teaching phase (Phase III), students are introduced to community experience through the Hospital and Community Attachment Course. The Course introduces students to the principles of epidemiology and statistics applied to the medical field focusing on health problems common in Oman. It also introduces the sociological and scientific aspects of medical practice by visiting local communities, primary care facilities and hospital departments to observe the process of:

- professional collaboration between members of the “medical team”
- health care delivered to local communities
- hospital information system (HIS) and keeping of medical records

In addition, students have early patient contact which starts from the second semester of Phase II in the Integrated Module. It provides students with the needed knowledge and skills to identify common physical signs and symptoms of key case scenarios. Clinical skills, at this stage, are mainly taught in the Skills Lab using different resources (such as models, simulated patients, simulations, real patients, videos etc.) Students are also given the opportunity to interact with patients in SQUH for history taking and eliciting physical signs under supervision. Furthermore, case-discussion scenarios emphasize investigation modalities appropriate to each case and interpretation of results of investigations to train students on how to reach a diagnosis and discuss the principles of treatment.

Phase III is the main part of the curriculum where bed-side teaching of the above mentioned competences is conducted. Many clinical specialties contribute to this process, though with variable degrees, which reflect on the length of the respective specialty rotation period (for details see Phase III Plan.) In this respect, clinical specialties are categorised as “main rotation” or “special rotations.” The “main rotation” specialties include Internal Medicine, Surgery, Child Health, Obstetrics & Gynaecology and FMPH; whereas the “special rotation” specialties include Behavioral Medicine, Ophthalmology, Dermatology, Oral Health, Orthopaedics, Emergency Medicine, Ear Nose and Throat (ENT), Haematology and Emergency Medicine.

Various departments teach the designated clinical competences in different locations and formats. Teaching takes place in the Skills Lab, SQUH, five MOH affiliated hospitals, Armed Forces Hospital, Royal Oman Police Hospital and eleven MOH health centers.



Learning competences vary depending on the curricular need and stage of the curriculum. For example, students are introduced to basic clinical skills of history taking, physical examination and communication skills initially in the Skills Lab on models, simulated patients or real patients. Once students acquire the assigned primary mastery level and attain this stage objectives, teaching is shifted towards outpatient clinics and health centers to enforce their skills in real life with supervision from clinical teachers. In the latter settings, teaching is conducted at bed side where students are trained on long cases presentations and extended short cases focusing on a specific system, combined service and teaching rounds, self-learning with direct unsupervised interaction with patients followed by discussion with the tutors.



At this stage Skills Lab may be used to bridge gaps for uncommon cases, training in specific skills (e.g. suturing of wounds and cardiopulmonary resuscitation), and culturally less acceptable examinations (e.g. vaginal examination and delivering babies by male students). In depth community-based experience is gained, through the attachment in the MOH Health Centers, and is supervised by FMPH.

2.6 CURRICULUM STRUCTURE, COMPOSITION AND DURATION

A summary of the modules and the teaching modes and study plans for Phases I and II is given below and in Table 3, 4, 5 and 6 (Appendix 2.2 contains examples of Course/Module Book). It may be noteworthy to mention that:

- Lectures constitute 50-60% of the teaching method used in each course/module
- A great emphasis is placed on tutorials and small group discussion in each module
- Health promotion issues are taught in the Hospital and Community Attachment Module
- Principles of preventive medicine are dealt with in the “Clinical Nutrition” Module (Phase II) and again, in more depth and breadth, in SLTs (Phase III)
- In Phase III, the main teaching method is clinical sessions
- Every course/modules/rotation etc. provides a detailed handbook to students that contains all needed details regarding the course/modules/rotation e.g. outline, learning objectives, summary of learning session, time-table, assessment methods, marking weightage etc.

Phase I:

This Phase is the start of the MD educational programme and it is of one year (two semesters) duration after completion of the University Foundation Programme. It contains 13 course/module, five of which are medical sciences. The other six courses are “University requirement” courses that a student must pass to graduate from SQU regardless of the degree s/he would be granted. These are Arabic, Contemporary Oman Society, three university elective courses, Oman and Islamic civilization. Another course viz. Chemistry for Medicine and Academic English for Medicine are a pre-requisites for entering the Medical Education Programme.

Brief Description of Phase I courses/modules:

1. **Medical Informatics I:** The course introduces students to the area of Medical Informatics using Microsoft Office packages. Upon completion of the course, the student should be able to use Microsoft office packages easily to create medical documents and to manipulate and analyze medical data using different types of spreadsheets, design medical illustrations and graphs, produce professional medical presentations, know the essential elements of medical search databases and design simple web pages for healthcare

Table 3: Study Plan of Phase I (Cohort 2011-2012; duration one year)

SEMESTER 1			
Course/Module Code	Course/Module Title	Credits	Pre--requisite
ARAB1001	Arabic	3	
SOCI3320	Contemporary Omani Society	1	
	University Elective	2	
	University Elective	2	
LANC2033	Academic English for Medicine	3	
CHEM2110	Chemistry for Medicine	4	
MEDI2100	Medical Informatics I	2	
	Total	17	
SEMESTER 1I			
Course/Module Code	Course/Module Title	Credits	Pre-requisite
HIST1010	Oman and Islamic Civilization	2	
	University Elective	2	
MEDI2106	Introduction to Human Anatomy	4	LANC2033
MEDI2109	Introduction to Human Physiology	4	LANC2033
MEDI2108	Enzymology and Metabolism	3	LANC2033+CHE M2110
MEDI2109	Cellular Communications and Introduction to Drug Action	2	LANC2033
	Total	17	

2. **Introduction to Human Anatomy:** The aim of this Module is to introduce the anatomy of human body on a regional basis and relate this with functional topography. The module intends to initiate the concept of living anatomy as seen on medical images and surface anatomy. This module brings in the structure and function of basic tissues of the human body and provides a glimpse of some of the disease processes which alter their function
3. **Introduction to Human Physiology:** This is an introductory basic physiology module. It includes composition and regulation of body fluids as well as the integrative body responses especially to shock, hypothermia and hyperthermia. The concept of organ-systems will also be introduced
4. **Enzymology and Metabolism:** This module introduces several basic biochemical concepts and discusses fuel metabolism and its regulation, i.e. how ATP, the energy-currency of our cells, is produced from different metabolic fuels, the way energy sources are catabolized and stored in the body and how abnormalities can arise in these pathways

Table 4: Distribution of Modes of Instruction in Phase I Modules/Courses (duration one year)

Course/Module Title	Lecture	Tutorial	Lab	Others	Total Contact Hours
Medical Informatics I			56		56
Introduction to Human Anatomy	34		32	6	72
Introduction to Human Physiology	42	14	12		68
Enzymology and Metabolism	25	22			47
Cellular Communications and Introduction to Drug Action	24	4		8	36

5. **Cellular Communication and Introduction to Drug Action:** This module deals with the physiological, biochemical and pathophysiological processes occurring within cells. It also illustrates the process of cellular communication and control of cellular metabolism by hormones, messengers and drugs. It introduces basic principles of pharmacology and the role of the autonomic system in mediating end organ response

Phase II

This Phase is where most of basic medical knowledge is offered. It spans over two years (four semesters) and comprises 21 modules. Tables 5 and 6 summarize the modules and various modes of instruction used to deliver this Phase and its Study Plan.

Brief Description of Phase II Courses and Modules

1. **Molecular Biology and Principles of Genetics:** This module explores aspects of molecular biology and genetics in medicine. The impact of this evolving field in health and disease will be highlighted. Current views and new concepts relating to diagnosis, prognosis, prevention and treatment of

- diseases will be presented. The module will discuss chromosome structure and function, modes of inheritance of genetic diseases and the medical application of molecular genetics. The molecular cycle of life and the interactions between nucleic acids, proteins and other biological molecules will be considered. The integration of these processes in regulating structural and physiological need will be discussed
2. **Structure-function relationships:** This module is a further development of the concepts discussed in human anatomy, physiology and cell communication during phase 1 of the medical programme. In particular, the interrelationship between human structure and function at both macroscopic and microscopic levels will be further elucidated and described in this module
 3. **Growth and Development:** This module, as it deals with early development, can help students to know the fundamentals of this early period and the basis of aberrations and their consequences. It details various developmental processes longitudinally from fertilization to birth and thereafter to puberty and through the aging process as well as allows studying the individual at various cross-sectional stages/ages of life
 4. **Response to Infection and Pathobiology:** The module describes the general principles of the reaction of tissues to diseases and the disorders that affect the body as a whole. It begins with the reaction of cells and tissues to injury, the study of inflammation, and repair or healing process. Disturbances of body fluid and disorders of blood flow and distribution are also highlighted. Finally growth disturbances and in particular, cancer is studied. In parallel to the above topics this module also focuses on the foundations of microbiology. It deals with description of antigens, antibodies, and immune reactions. It also outlines the organization, taxonomy and structure of microbiological organisms of medical importance
 5. **Hospital and Community Attachment:** This module introduces the sociological, epidemiological, and scientific aspects of medical practice through early medical contact (EMC) where students visit local communities, centers of community services, primary care facilities and hospital's departments to observe the processes of:
 - a. Professional collaboration between members of "the medical team"
 - b. Health care delivered to local communities
 - c. Hospital information system (HIS) and keeping of medical records
 6. **The Integrated Module I:** The intention of this module is to integrate basic medical sciences and clinical medicine within and across the modules and to develop basic clinical skills, personal communication skills and right attitude towards patients. Early encounter of patients will enable correlation of pathophysiology of disease with patient presentations. This clinical case-based learning forum is supported by multidisciplinary mentoring (by tutors) and is presented and discussed by students
 7. **Research Methodology:** Students are introduced to the concept of research and taught basic skills required to conduct research and develop outlines to carry out a specific research project

Medical Informatics II: The course familiarizes students with the applications of information science and computer technologies in healthcare. In this course students will be introduced to the conceptual and technical components of medical informatics. The course introduces students to

Table 5: Study Plan of Phase II (Cohort 2011-2012; duration two years)

SEMESTER 3			
Course / Module Code	Course / Module Title	Credits	Co-requisite* or Pre-requisite
MEDI3101	Molecular Biology and Principles of Genetics	3	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI2109
MEDI3102	Structure-Function Relationship	5	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI2109
MEDI3103	Growth and Development	1	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI2109
MEDI3104	Response to Infection and Pathobiology	5	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI2109
MEDI3105	Hospital and Community Attachment	4	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI2109
	Total	18	
SEMESTER 4			
MEDI4201	The Integrated Module I	3	MEDI3101+MEDI3102+MEDI3103+MEDI3104/MEDI4204*+MEDI4205*+MEDI4206*
MEDI4202	Research Methodology	2	HIST1010+SOCI3320+ARAB1001+CHEM2110+LANC2033+MEDI2100+MEDI2106+MEDI2107+MEDI2108+MEDI3105+MEDI2109
MEDI3100	Medical Informatics II	2	MEDI2100
MEDI4204	Cardiovascular System	4	MEDI3101+MEDI3102+MEDI3103+MEDI3104
MEDI4205	Respiratory System	3	MEDI3101+MEDI3102+MEDI3103+MEDI3104
MEDI4206	Hematopoietic, Lymphatic and Immune Systems	3	MEDI3101+MEDI3102+MEDI3103+MEDI3104
	Total	17	

different applications of medical informatics such as online medical resources, medical search engines, disease management databases and disease registries, Bioinformatics, medical simulation and medical virtual libraries. It discusses the leading ethical issues that arise in healthcare informatics. Finally, it explores the role of telecommunications in healthcare, the internet and the various types of wireless communications. The delivery media is through a combination of computer-based practical and hands-on computer exercises

Cont'n. Table 5: Study Plan of Phase II (Cohort 2011-2012; duration two years)

SEMESTER 5			
Course / Module Code	Course / Module Title	Credits	Co-requisite* or Pre-requisite
MEDI4301	The Integrated Module II	3	MEDI4201/MEDI4303*+ MEDI 4304*+MEDI4305*
MEDI5302	Student Project	5	MEDI4202
MEDI4303	Alimentary System	5	MEDI3101+MEDI3102+MEDI3103+MEDI3104
MEDI4304	Uro-reproductive System	4	MEDI3101+MEDI3102+MEDI3103+MEDI3104
MEDI4305	Clinical Nutrition	2	
	Total	19	
SEMESTER 6			
MEDI5401	The Integrated Module III	3	MEDI4301/MEDI4403*+MEDI4404*+MEDI4405*
MEDI4403	Locomotor System	3	MEDI3101+MEDI3102+ MEDI3103+MEDI3104
MEDI4404	Human Nervous System	6	MEDI3101+MEDI3102+MEDI3103+MEDI3104
MEDI4405	Endocrine System	3	MEDI3101+MEDI3102+MEDI3103+MEDI3104
	Total	15	

8. **Cardiovascular System:** This module is intended to review basic knowledge of structure and function of the cardiovascular system as well as to introduce the main cardiovascular clinical problems. The module also describes the symptoms and signs of common cardiovascular conditions that doctors are likely to encounter in their practice. The module aims at explaining the pathophysiology and congenital abnormalities of cardiovascular disease
9. **Respiratory System:** In this module an analysis of the functions of the respiratory system, including the properties of gases, gas exchange in the lungs, special features of the pulmonary circulation, lung defense mechanisms, and the metabolic functions of the lungs are discussed. A review of the structure of the lungs, thoracic cage and mechanisms that regulate respiration is also included. The module analyzes the changes in respiration that occur in hypoxia, including clinical features pathophysiology and strategies of management of various common respiratory diseases. The

approach to control and prevention of communicable and non-communicable respiratory diseases is highlighted

10. **Hematopoietic, Lymphatic and Immune Systems:** This module introduces students to the principles and concepts of hematology and immunology which will guide them in understanding the mechanisms of immune responses and the pathophysiology of common hematological and immunological diseases
11. **The Integrated Module II:** The intention of this course is to integrate basic medical sciences and clinical medicine within and across the modules and to develop basic clinical skills, personal communication skills and right attitude as a medical professional. Early encounter with patients enables correlation of pathophysiology of disease with patient presentations. This clinical case-based learning forum is supported by multidisciplinary mentoring (by tutors) which is presented and discussed by students
12. **Student Project I :** Students undertake data collection – clinical surveys/laboratory experiments – using strategies and protocols identified in the research outlines. At the end of this semester, students will present analyzed data, in the context of the objectives of the study, in the form of oral presentation and posters.
13. **Alimentary System:** This module integrates normal structure and function of the alimentary system together with pathophysiology of the common gastro-intestinal, hepatobiliary and pancreatic disorders. Case-based discussions are used to bring relevance and application to the pathophysiology of the alimentary system
14. **Uro-reproductive System:** This module considers the normal function of the urinary and reproductive systems in adult males and females. It also considers pregnancy and lactation, sexual differentiation in the fetus, puberty, and menopause. Infertility in both males and females as well as common maternal diseases in pregnancy are discussed. It describes normal kidney function and the role of hormones such as renin and angiotensin in maintaining water and electrolyte balance. Such knowledge is related to the pathophysiology of common disorders of renal function
15. **Clinical Nutrition:** This module focuses on the basic principles of nutrition in health and disease based on the knowledge of nutrient classes, their functions, sources, deficiency and toxicity symptoms. The module explains different techniques for assessing nutritional status and nutritional impact in relationship to weight loss and maintenance and physical activity. It also examines the nutritional status at different stages of life and consumer concerns about food safety
16. **The Integrated Module III:** this module is designed to integrate the nervous, locomotor and endocrine system that are taught simultaneously during this semester. It also integrates systems/modules from the previous semesters like the cardiovascular system, the respiratory system, the hematopoietic/lymphoid/immune system, alimentary system, the uro-reproductive system and nutrition courses. This module follow the principles of Team-Based Learning. The module is structured around six case scenarios that the students are introduced to. They are required to call upon knowledge and skills from across the disciplines in addressing the issues stemming from these cases

17. **Student Project II:** Activities will be focused on data analysis and writing up of the research report. Analysed data will be displayed in the form of tables and figures and discussed in the context of the tested hypothesis. In addition to the report, the students will prepare a PowerPoint presentation and a poster describing the research to inform others of the outcome of their research and its relevance. Two booklets are compiled at the end of each year, one to include students posters and another for their abstracts (Appendix 2.3)
18. **Locomotor System:** This module illustrates the normal structure, function and development, disease that prevent normal function or development and some of the normal aging processes which give rise to locomotor problems. Case-based discussions are used to introduce relatively common problems or clinical situations to encourage the student to integrate knowledge from a variety of different sources, understand the pathophysiology mechanism, solve problems and answer questions in a clinical orientation
19. **Human Nervous System:** This module covers many levels of organizations ranging from molecules to neurons and from society of neurons to human behavior. This module is designed to guide students to understand the brain-mind continuum in its all dimensions. The aim of the neuroscience module is to make medical students comprehend how we perceive, move, talk, remember, think, feel pleasure, get angry and the pathophysiology of some of the major disorders that afflict these brain functions. This module ranges from basic neuroscience to neurological diagnosis and neuropathology. The module emphasizes self-learning and active student participation. Besides attending lectures and laboratory sessions, the students will be encouraged to engage in clinical case presentation exercises (neurological and psychiatric). The emphasis is on the acquisition of sound knowledge of neuroscience along with early exposure in clinical problem-solving

Table 6: Distribution of Modes of Instruction in Phase II Modules/Courses (duration two year)

Course/Module Title	Lecture	Tutorial	Lab	Others	Total Contact Hours
Molecular Biology and Principles of Genetics	26	20	6		52
Structure-Function Relationship	40	26	24	8	98
Growth and Development	14				14
Response to Infection and Pathobiology	42	28	28		98
Hospital and Community Attachment	41	4	14	25	84
The Integrated Module I		72		8	80
Research Methodology	13	26			39
Medical Informatics II			56		56
Cardiovascular System	27	32	18	4	81
Respiratory System	28	16	12		56
Hematopoietic, Lymphatic and Immune Systems	29	24	12	6	71
The Integrated Module II		72		8	80
Student Project I				98	98
Alimentary System	42	40	14		96
Uro-reproductive System	28	36	16	4	84
Clinical Nutrition	14	26			40
The Integrated Module III		72		8	80
Student Project II				70	70
Locomotor System	27	20	8	1	56
Human Nervous System	56	28	28		112
Endocrine System	27	24	2		53

20. **Endocrine System:** This module introduces principles and mechanisms of neuroendocrine and endocrine structure/function. This includes learning about the nomenclature of endocrine glands and their hormones; the hormones' sites of biosynthesis, action, and metabolism; their impact on overall body physiology and metabolism; and disease states resulting from various endocrine disorders. Students are encouraged to develop a constructive attitude toward the discipline of endocrinology through an appreciation of the roles of hormones in maintaining human health after learning about their proper modes of production and action. And to develop an attitude of compassion and understanding toward patients suffering from endocrine diseases through clinical correlations and patient contact and should be able to appreciate the positive roles that hormones play when used judiciously as therapeutic agents

Phase III:

Phase III is the patient-oriented phase in which students will receive their direct patient clinical training (Table 7 depicts its plan). This Phase is dedicated to clinical teaching and Supportive Learning Topics (SLTs) that are closely relevant to clinical practice with emphasis on prevention as a more successful measure in ensuring better health to the individual and community with special emphasis on ethical attitudes. Phase III is divided into four main periods:



1. Preclerkship
2. Junior Clerkship
3. Senior Clerkship
4. Preinternship

- **Preclerkship:** This period provides an opportunity for learning basic clinical skills in various disciplines. Modes of delivery include observing videos of history taking and clinical examination of different systems, learning these skills at bedside, with actual patients or surrogates and practicing these skills independently. Learning is reinforced by weekly assessments. In addition, certain areas which are pre-requisite for clinical training are covered,

examples are: Behavioral Medicine; Communication Skills; Medical Records (hard and soft 'HIS' versions); Medical Ethics etc. The main objective of this period is to prepare the students to start clinical rotations



- **Clerkship Rotations:** Clerkship Rotations (both Junior and Senior) include six main rotations (Medicine, Surgery, Child Health, Obstetrics and Gynecology and FMPH) and other Special rotations including Accidents and Emergency, Anesthesia, Clinical Genetics, Dermatology, ENT, Hematology, Imaging and Molecular Radiology, Oral Health, Orthopedics, Ophthalmology and Behavioral Medicine.

During the Clerkship Rotations, all students undergo a series of Supportive Learning Topics (SLTs). These are topics from various disciplines that are closely related to medical practice. The topics include Hospice and Palliative Medicine, Evidence Based Medicine (EBM), Laboratory Medicine, Occupational Medicine/Rehabilitation, Forensic Medicine and Ethics. Students also, and according to their choice, rotate in one of a planned group of Selective Rotations, such as Plastic Surgery, Neurosurgery, Oral Health, Laboratory Medicine, Radiology, Obstetrics and Gynecology, ENT, Primary Health Care, research involvement, or any other main or subspecialty rotation.



During the Senior Clerkship Rotations, all students undergo a Clinical Elective Programme. This is an eight weeks period that the students may take in other hospitals in or outside the country to consolidate their clinical knowledge and skills. It is an opportunity for students to be exposed to new cultures as well as different environments in the practice of medicine

- **Preinternship Rotations:** This comprises four three-week rotations in Medicine, Surgery, Child Health and Obstetrics & Gynecology. The main aim is to train students on patient management in preparation for the Internship Year. Students are stationed in a ward and have on-call duties. Their work responsibilities include: clerking new admissions, collecting blood samples, ordering investigations, tracking the results, conducting their own round prior to consultants rounds and writing notes in the files during the consultant's round etc.

Means of Integrating Basic and Clinical Sciences in the Curriculum

The forms of integrating basic and clinical sciences are manifest by the following factors:

- The Curriculum is organ/system-based to ensure integration within each module and among other modules
- The contribution of various departments in all and each module guides the horizontal/vertical integration (Appendix 2.4)
- The Integrated Module of Phase II (continues over three semesters) enforces basic/clinical sciences integration

Optional Components of the Curriculum: the Elective and Selective Rotations

Three "optional" components are built-in the curriculum as an "obligatory" task students must undertake. The first of these is the "choice" of the research project which takes place during Phase II. Students are free to select the "area" and "supervisor" of their research project. The other two components are in Phase III; namely, the Elective and Selective components. The former is an eight week period that the students may take in other hospitals in or outside the country to gain new knowledge and skills in a field of their own choice. It is overseen by a dedicated subcommittee of the CC and is conducted to fulfill the following objectives; to:

- develop further knowledge and polish skills in clinical medicine in a different environment
- gain understanding of disease processes in the area in which the student chose

Table 7: Phase III Plan (Duration three years; number in parentheses indicate weeks)

Preclerkship (10)						
Junior Clerkship (48 weeks)	Internal Medicine (7)	Clinical Genetics & Counseling (2)	Surgery (6)	Ophthalmology (3)	Behavioral Medicine (7)	FMPH (5)
		Child Health (6)		Orthopedics, Rehab and Pain Management (4)		
	SLT (1)	SLT Forensic Medicine (1)	SLT (EBM) (1)	SLT (Geriatrics) (1)	Oral Health (1)	
	Study Break (1)					
Junior Clerkship Exams (2)						
Buffer (2)						
Senior Clerkship (48 weeks)	Hematology (2)	A & E (4)	Internal Medicine (7)	Child Health (3)	Obs/Gyn (8)	Elective (8)
	Radiology (2)			SLT (Lab) (2)		
	ICU (1)					
	Surgery (3)	ENT (2)				
		Selective (2)		SLT Therap. (1)		
Study Break (1)						
Senior Clerkship Exams (2)						
Buffer (2)						
Pre-Internshi	Preinternship					
	Medicine (3)	Surgery (3)	Child Health (3)	Obs/Gyn (3)		

- be acquainted with the organizational structure of other health-care systems
- gain flexibility and opportunities to explore career possibilities
- gain experience in aspects of medicine beyond the core curriculum
- appreciate benefit from cross cultural and international experience.

Selective is a two-week rotation during the Senior Clerkship, whereby students would have an opportunity to brush-up their skills in a specialty of their own choice. Alternatively, some students may want to explore areas for their future career, not usually dealt with at length in undergraduate curriculum, e.g. sub-specialties in Medicine, Surgery, Child Health, Obstetrics and Gynecology, Laboratory Medicine, Radiology etc. A student may choose to do the Selective rotation in SQUH or one of the recognized affiliated hospitals. Like the “Elective” rotation, the assessment in the “Selective” rotation is Pass/Fail-based. A student would have to secure a ‘pass’ in order to be able to proceed to final MD examination.

The following rules govern the management of the Selective Rotation:

- A ‘coordinator’ for the selective rotation would be appointed by the college, and would work with the curriculum committee
- The coordinator would work together with the phase III coordinator and report to the Chairman of the Curriculum Committee.
- The maximum number of students joining one clinical sub-specialty shall not exceed two at any time.
- The coordinator would liaise with the Chairman of the education committee / Senior Clerkship coordinator of the clinical departments.
- Student would submit an application to Coordinator stating the reason for choosing the particular area at least 4 weeks before the commencement of the rotation.
- In case of competition for a particular clinical rotation/sub-specialty, the coordinator would discuss the options, and would be the final arbitrator.
- In case a student chooses to rotate through a specialty other than the clinical departments at SQUH, the student would identify the focal person in the department and the coordinator would liaise with this person regarding the objectives of rotation and assessment.
- The evaluation would be based on an evaluation form completed by the supervisor in the respective department.
- The coordinator would submit the results to the College Examination Committee.

2.7 PROGRAMME MANAGEMENT

The CC is the highest managing authority of the medical educational programme. The CC mission is “To provide guidance and supervision to ensure that the curriculum is academically sound, and meets the needs of the Omani community in general and educational needs of medical students in particular.”

The CC consists of a chairman and:

- Phase coordinators (Phase I, II, III, Intercalated Phase)
- Assistant Deans for preclinical and clinical affairs
- Head of the Medical Education Unit
- Chairman, Examination Committee
- Chairman of the Information Technology Programme
- Ministry of Health Representatives (2)
- College Representative of University Curriculum and Academic Policy Committee
- Nominees of the Dean (2)
- Student Representatives (2)



The CC responsibilities are to:

- maintain/uphold the curricular objectives, and hence the graduate attributes, in line with the national and international requirement of accreditation
- decide on all matters related to implementation and management of the curriculum
- continually appraise the content to ensure the curriculum is comprehensive
- decide with the concerned parties on the content of each curricular component and the time-allotment as well as time-tabling of each “part” thereof
- review the learning objectives to ensure that these are specific and there is vertical and horizontal integration
- be conduct regular systematic review of all modules and courses and recommend changes, additions and deletions
- coordinate, in collaboration with the College Examination Committee, the execution of the College “Assessment Policy” and to ensure that it serves the curricular objectives
- review the progression criteria, as well as the actual progression of the students to see that the progression matches the stated criteria
- formulate *ad hoc* or standing sub-committees/working groups or invite experts if needed and stipulate the most effective terms of reference for these working groups
- nominate phase coordinators and describe their responsibilities
- approve nominations of “component” coordinators and their job descriptions by phase coordinators
- In collaboration with the Medical Education Unit and tutors; to:
 - decide on most appropriate “learning strategies” for delivering the “learning opportunities” of the educational programme
 - plan a “tutor development” programme for training tutors to optimize the educational programme delivery
- ensure that all CC (and its subcommittees and working groups’) activities are performed in concert and in harmony to attain the stated curricular objectives
- oversee the development and implementation of the curriculum in electronic format

Overall Curriculum Management:

The management of the medical educational programme is initiated by nominating (by the Dean and then approved by the CB) the Chairman of the CC who would then nominate Phase Coordinators to the CB for approval.

Phase Coordinators, in consultation with the CC Chairman, nominate, to the CC for approval, a Phase Module Coordinator to act as Deputy Phase Coordinator. This is followed by Phase subcommittees’ formation as follows;

- Phase Coordinator (Chairman)
- Assistant Dean (for Preclinical or Clinical Affairs as appropriate)
- Module/Course/Rotation (as appropriate) Coordinators (Members)
- Phase III SLT Coordinators (For Phase III related matters only)

The Phase Subcommittee manages all affairs concerning its respective phase and report to the Management Group, *q.v.*, and/or CC through the Phase Coordinator. The Phase Subcommittee may address any other matter if requested by the Chairman of the CC.

Phase and Module/Course Coordinator Responsibilities:

Phase I Coordinator Job Description

- Represents Phase I in the appropriate College Committees when needed
- Constructs general Phase Learning Objectives
- Ensures that the Curriculum Committee guidelines have been implemented and adhered to
- Confirms that the English for Medicine Course is constructed to best prepare students for their study in medicine

Phase II Coordinator Job Description

- Represents Phase II in the appropriate College Committees when needed
- Constructs general Phase Learning Objectives
- Ensures that the Curriculum Committee guidelines have been implemented and adhered to
- Continuously appraises and develop module contents and means of educational delivery in collaboration with module Coordinators

Intercalated Phase (IP) Coordinator Job Description

- Represents the Phase in the appropriate College Committees when needed
- Constructs general Phase Learning Objectives
- Ensures that curriculum guidelines have been implemented and adhered to
- Constructs, jointly with Phase Subcommittee members, general objectives of the Phase
- Compiles a list of students eligible for IP entry by the end of the Semester 3 of Phase III
- Continuously appraise and develop module contents and means of educational delivery in collaboration with module coordinators

Phase III Coordinator Job Description

- Represents Phase III in the appropriate College Committees when needed
- Constructs, jointly with Phase Subcommittee members, general objectives of the Phase
- Ensures that curriculum guidelines have been implemented and adhered to
- Ensures that learning opportunities are planned to achieve the agreed LOs
- Decides, in consultation with concerned departments, the single and multi-department learning activities
- Prepares Phase Handbook containing Phase/Clerkship objectives, recommended resources, content outline, and assessment details
- Collects, analyzes appraises data from various forms of auditing (questionnaires, examiners reports, feedback etc.) to discuss in the Phase Subcommittee

Course/Module Coordinator Job Description

- Constructs module general objectives
- Outlines each learning activity (lectures, seminar, case discussion, lab etc.) objectives for module in consultation with relevant tutors
- Finalizes module contents and time-table
- Proposes module teaching formats based on the following principles: integration, student centered approaches, reasoning, critical thinking and problem solving and self-directed learning
- Prepares, conducts, receives feedback etc. of module examinations (in-course and end-course)
- Finalizes examination results and submit to phase coordinator
- Continuously appraise Module contents in collaboration with Module tutors

- Collects and analyze data from various forms of auditing (questionnaire, examiners reports etc.) to discuss in Phase Subcommittee and to adopt those with high educational value in future versions of Module
- Prepares Module Handbook containing module, objectives, content outline, recommended resources, assessment details, time-table and other useful information

The Management Group

At the start of implementing the “New” Curriculum and as an initial step, the CC introduced a number of measures to meet the anticipated challenges to ensure successful implementation and to maintain the curriculum integrity and credibility. The most notable was the formulation of the Management Group, in addition to its preset subcommittees. The Group was formulated to manage specific tasks and problems as they arise. The CC delegated to the Management Group the authority to decide on curricular issues of immediate “executive” nature while it maintained its authority over “constitutional” and “structural” issues.

The Management Group is chaired by the Chairman of the Curriculum Committee. Membership includes the Examination Committee Chairperson, MEU Head, Phase Coordinators and Assistant Deans for Pre-clinical Affairs and Clinical Affairs. This Group has met almost every week since the start of implementing the new curriculum (if there are urgent needs it meets more frequently). The Group may invite different subcommittee members to discuss/approve in-process-documents such as tutors/student handouts/booklets, suggested implementation plans, and to manage any arising issue during the implementation process.

The formation of the management group expedited decision-making for arising issues in a timely manner. More importantly, because of its frequent meetings, which allowed timely discussion of rising issues with those concerned, it minimized conflicts of interest among various contributors to the educational programme delivery.

Some specific measures taken to facilitate the “New” Curriculum implementation:

The implementation process was not without “teething” problems especially with the new delegation to the CC to be the deciding body on matters related to the educational programme. The introduced measures helped to minimize conflicts and facilitate the decision making process over issues that might apparently be contentious. These measures are:

1. The CC included satisfactory departmental representation in its subcommittees, which improved communication with all concerned departments and facilitated the decision making process with departmental consent
2. The Management Group and other subcommittees were commissioned to manage a specific issue/s which focused targets and reduced conflict of interest
3. The management structure, at large, provided adequate human resources which helped to distribute the workload
4. The departments, internally, mirrored this arrangement by assigning “task-oriented” work groups or individuals for issues related to different courses/modules/rotations which significantly aided decision making in harmony with curricular objectives (example Appendix 2.5)
5. The clinical tutors from affiliated hospital (in repetitive meetings) closely shared in forging the implementation process

In addition to the above, the CC in collaboration with the Medical Education Unit and Examination Committee provided the expertise to support implementing new teaching and learning methods, student assessment tools and tutor development activities etc. prior to starting a specific curricular segment. Furthermore, they

explained the “New Curriculum” features, teaching modalities, assessment methods *via* regular visits, exchange of documents, workshops and retreats etc. which was enforced by providing all educational requirements for classrooms aids, books, Skills Lab, online teaching and evaluation materials directly from the College budget.

2.8 LINKAGE WITH MEDICAL PRACTICE AND THE HEALTH CARE SERVICE

Healthcare in Oman is mainly provided free by the MOH. Private healthcare providers (who are all under the MOH licensure and supervision) are, for the most, primary health care clinics, although there are a few secondary healthcare delivery providers. The clinical teaching of COMHS students takes place mainly in SQUH, Royal Hospital, Khoula Hospital and Armed Forces Hospital with additional training in some departments in Al Nahdha Hospital, Royal Oman Police Hospital and a few other recognized Health Centers. All of these clinical teaching sites constitute an integral and a major part of Oman healthcare delivery system, which ensures a strong link between students teaching and their next stage of training and practice. In the final year of the educational programme, students undertake the Preinternship period (12 weeks) which acts as a transitional period to the internship year and it precedes the final MD exam.

The direct link between the medical educational programme and the next stage of training for practice i.e. residency training, is the Internship Programme which lasts for one year after graduation. The internship year is a period of general medical training building upon the skills that have been acquired by students during the undergraduate studies. Students, during internship, learn how to apply these skills, whilst taking increasing unsupervised responsibilities for patient care and management. The internship training is undertaken in eight MOH hospitals approved for this purpose by COMHS, Armed Forces Hospital and SQUH.



The following are more “in-programme” additional links:

- Almost all the tutors in Phase III and a significant number of tutors in the Phase II are clinicians, actively involved in the management of patients both in SQUH, affiliated hospitals and the ambulatory care setting
- A significant number of tutors are actively involved in postgraduate training of OMSB residents
- A significant number of tutors are examiners for other postgraduate programmes, such as the Arab Board or the Royal Colleges Examinations

As a link to postgraduate medical education, the College has a close relation with the OMSB, which is the national body administering post-graduate clinical training in Oman. Faculty members have been part of the OMSB since its inception and the College is actively engaged in imparting post-graduate clinical training in several disciplines, in collaboration with the Affiliated Hospitals (which also participate in the undergraduate programme). The mission of the college of imparting undergraduate training is aligned to complement that of the OMSB in serving the need for post-graduate training. This context of sequential training serves to optimally utilize the resources (training faculty, patients, teaching resources, etc.) as well as to offer the entire range of training (from undergraduate to post-graduate) within the country.

The COMHS regularly request feedback, on its graduates' performance, by using formal questionnaire as well as directly from face-to-face meetings, through the following avenues:

- The Dean, the AD for Clinical Affairs and the AD for Training and Community Services who discuss the issues at different levels with the Director for Health Affairs and the Director for Training of the MOH and the Executive Directors and HODs of the various MOH hospitals enrolled in the Internship Programme
- The Dean, the ADs and HODs from various clinical departments with respect to the participation of SQUH
- The MOH hospitals participating in the Internship Programme. Each of these hospitals has an Internship Coordinator, approved by the Dean, who oversees the Internship Programme in his/her hospital. The Coordinator communicates directly with the AD for Training and Community Affairs about issues related to the Internship

A team from the College usually headed by the Dean and including the AD for Clinical Affairs and the AD for Training & Community Affairs pays site visits to all hospitals involved in the Internship Programme annually. During these visits, the team holds separate meetings, first with the Executive Director together with the heads of the local clinical departments and the Internship Coordinator, and then with the group of interns posted at that hospital at the time. All issues related to internship training, including local perceptions of the standard and professionalism of the interns are thoroughly discussed. The interns' views and suggestion are also noted. The feedback from these meetings is considered invaluable and applied to the annual review of the programme.

CONCLUSION

The College has recently started to implement its "new" curriculum with a defined management structure. However, the following points may be considered for future curricular reforms:

- To keep teaching modalities abreast with international development
- To complement the above with a parallel vigilant tutor development/motivation programme to appropriately select those teaching modalities that are more suitable to the College context
- To keep up and further enrich student self-learning activities
- To enforce the "research component" of the Curriculum and introduce more opportunities for the student to adopt "scientific method" way of thinking

3. ASSESSMENT OF STUDENTS

3. ASSESSMENT OF STUDENTS

3.1 ASSESSMENT METHODS

The College Assessment Policy (AP) has been formulated by a task force comprising college academic members from pre-clinical and clinical departments. The policy (Appendix 3.1) was approved by the CB on 29th June 2009. This was followed by a workshop and an open discussion session. Thereafter, copies of the Policy were circulated to all faculty and staff. The policy is available on the College's Website. The main objectives of the AP are to improve the quality of the curriculum, evaluate the effectiveness of the teaching process and facilitate continuing improvement through feedback that is obtained in a clear, informative, timely, and relevant manner. A consequential and complementary measure to the AP is the Progression Criteria which are detailed in Appendix 3.2. Relevant excerpts of the AP are stated in the Student Handbook which **IS GIVEN TO STUDENTS ON ADMISSION.** Departmental Examination Committees, Course/Module Coordinators, examiners, staff members and affiliated clinicians, all share the responsibility of implementing the AP.

Inclusion of formative and summative assessment

The Policy regulates the use of formative and summative assessments and lists examples pertaining to both. It also recommends, for each course/module/rotation, the use of a combination of assessment modalities with appropriate weighting to evaluate students' acquired competences in relation to the intended learning outcomes of the curriculum. Each component and its contribution to the final mark of the course/module/rotation are declared to students prior to starting each course/module/rotation.

AP principles and guidelines

The Policy stipulates that College examinations should be in line with the following principles:

1. There should be evidence of linkage to course/module objectives
2. Where appropriate, diverse assessment methods should be used
3. Assessment should address different levels of attainment, including knowledge, comprehension and higher cognitive skills, psychomotor skills, and behavior
4. Marking should be accurate and consistent
5. Marking and grading should be based on pre-defined outcome criteria
6. Assessment should enhance student learning
7. Students should be aware of assessment criteria at the beginning of the study programme
8. Feedback should be timely, meaningful, and helpful
9. Assessment should be proportional to the workload of the course/module for both staff and students. The load should be commensurate with the credit points (or equivalent) allocated to a unit and the nature of the discipline

The Policy also dictates that all course/module/rotation coordinators should follow the above principles when they design course/module/rotation as well as when they prepare their examinations. The type of assessment, timing, number of questions and weighting are available in the course/module/rotation handbook for staff who contribute to their delivery and for students at the time of their commencement of the respective course/module/rotation.

Assessment modalities

According to the AP, several assessment modalities should be used in Phases I and II to ensure the fulfillment of module objectives; they include: MCQs, SAQs, MEQs, small group assessment, presentation assessment, assignments, reports, open-book examinations, spotters, OSCE/OSPE and viva. Although all these assessment modalities are summative in nature, they are also used in a formative manner as feedback is given after each assessment to students about areas of strengths and weaknesses. Assessment modalities and the guidelines for purpose of use in Phases I and II are listed in the AP booklet pp 28-35).

The assessment modalities used in Phase III (clinical years) are variable and depend on the rotation. The details of these methods and how, where and when they should be applied as well as the purpose of their use are comprised in a specific document (Assessment in Phase III; Appendix 3.3) which is available to all tutors. However, generally, they include written assessment (MCQ A and R type, SAQs, modified essay questions), clinical exams (mini-CEX, observed long cases, Case-Based Discussion) and OSCE. Continuous assessment modalities include case presentations, case write ups and log books. Recently, new assessment modalities such as mini-CEX (skills) and portfolios (skills and behavior) have been adopted. With regard to the formative assessment, all departments give regular feedback to students on presentations skills, clinical skills, and knowledge during the bedside teaching and other teaching opportunities (example of time-tabled formative assessment is in Appendix 3.4). A number of departments have “structured” their formative assessment modalities and the remaining departments are in the process of doing so.



College Examination Committee

The College Examination Committee oversees all matters relating to student assessment in the College. It reviews all assessment activities of each phase of the curriculum. It is composed of eight senior clinicians and seven basic scientists (six senior) in addition to a chairperson and a convener. The Committee may co-opt the services of any faculty or staff in achieving its mission. The remit of the Committee specifically includes:

1. Continuous evaluation, in collaboration with the Medical Education Unit, of the assessment process in the College
2. Scrutinizing and monitoring of assessment quality by:
 - Ensuring University and College regulations are adhered to
 - Reviewing reports from course/module and phase coordinators
 - Reviewing external examiners reports in matters pertaining to assessment
 - Verifying with course/module examination coordinators that examination papers are vetted and reviewing a sample of examination question papers
 - Ensuring that appropriate standard setting procedures are adopted
 - Periodically reviewing item performance

- Periodically reviewing the distribution of grades, and
 - Recommending improvements and changes to the assessment process
3. Ratification of changes in assessment process
 4. Approval of timetables and invigilation guidelines of final examinations
 5. Receipt and consideration of final examinations results
 6. Recommendation, in consultation with module coordinators, of Failure with Supplemental Privilege (FSP)/re-sit exams and other sanctions as appropriate
 7. Notification of appropriate bodies through the Assistant Deans to recommend remedial action regarding problem and failed students whose academic progress are at risk
 8. Liaising with appropriate bodies in cases of student appeals relating to assessment
 9. Recommending amendments to the College assessment policy
 10. Any other duties that may from time to time be assigned to the Committee

Central review of exam questions by the College Examination Committee together with the concerned course/module coordinator is carried out before the commencement of final examinations. Criterion-based standard setting is emphasized and coordinators are asked to report such method to the Committee (a form requesting such information is shown in Appendix 3.5).

After conducting examinations, item analysis and test statistics including reliability index, difficulty and discriminatory indices and other information are produced through a centralized office for all MCQs-based exams. Recently, item analyses of OSCE and SAQs have also been introduced. The results of the analyses are then communicated to instructors/course/module coordinators by email. The software used for item analysis is the International Database for Enhanced Assessment and Learning (IDEAL) Consortium Item Analysis Software Assessment Bank; the College is a member of this Consortium (example of item analysis in Appendix 3.6).

Quality assurance measures

As a primary internal quality assurance measure, the Examination Committee, as a routine, vets all course/module/rotation final examinations to ensure uniformity and conformity of written examinations at all levels of the educational programme. Any major issue of significance that is raised during the Committee's deliberations is conveyed to the CC through the joint members between the two committees. This loop of feedback allows close monitoring of the assessment process in parallel to the curricular objectives.

Another quality assurance measure is applied by sending 150 questions (of items used in assessment) yearly to the IDEAL Consortium as a compulsory contribution of the College to the IDEAL Assessment Bank. The Consortium vets these questions and provides the College with feedback. This gives an indication about the quality of developed questions to the departments (e.g. acceptance rate). Using questions from the bank also gives an indication about the students' abilities compared with international students (local vs. IDEAL bank item analysis).

As an external quality assurance measure to the assessment process, the College invites external examiners on yearly basis to attend the exit exams in the preclinical and clinical phases. All exam questions are sent to external examiners in advance, i.e. prior to examination commencement, for vetting. External examiners' contributions to the assessment process include: participation in the actual conduct of exams, evaluation of curriculum content, teaching modalities and assessment process. At the end of their visit, they report to the Deputy Vice Chancellor for Academic Affairs and Community Service. The DVC forwards their comments to the Dean who would ensure that the external examiners' comments are followed up by the concerned parties.

Tutor development

The Medical Education Unit through workshops, seminars and lectures advocates for new assessment methods. Following this process the departmental examination committees and course/module coordinators are encouraged to explore the logistics of introducing these modalities after ensuring availability of resources, ability of examiners, acquaintance of students with the new assessment modality etc.

Evaluation of outcome

A collective view of the assessment process outcome coupled with the external examiners feedback provide grounds on which the Medical Education Unit may introduce a new assessment method or suggest stopping others. Both endeavors aim at improving the reliability of assessment tools in addition to reducing curricular workload. Two notable examples may be cited in this respect:

1. The number of mini CEXs clinical examination cases was increased from three to four or five as advised by the external examiners to improve reliability
2. The contents of two modules (Response to Infection and Pathobiology and Introduction to Physiology) were reduced as a result of poor student performance in examination which, after analysis, was related to overload of basic sciences material

3.2 RELATION BETWEEN ASSESSMENT AND LEARNING

Linkage to learning objectives in Phases I and II

The AP states that student assessment shall show evidence of linkage to course/module/rotation objectives. It also states that each coordinator shall draw out course/module/rotation objectives and multiple assessment methods. This exercise is overseen by the Examination Committee.

Integrated assessment is not only encouraged throughout the educational programme but also is an expected outcome of the curriculum. Thus, as the design of the “new” curriculum adopts more integration of the learning process as it progresses, the assessment process becomes more apparent as the educational programme progresses too, starting in Phase II, then more integration in Phase III and finally, a fully integrated Final MD Examination.

Integrated assessment in Phases I and II

An early example of integrated assessment is the examination of the Integrated Modules in Phase II. The Modules run vertically over three semesters. They are designed to facilitate horizontal as well as vertical integration of basic and clinical sciences. Hence, by virtue of their design, they purposely lend themselves to integrated assessment. Teaching in these Modules is supported by faculty from basic and clinical disciplines. The final assessment of these Modules takes place at the end of Phase II. It is conducted by a number of clinically qualified external examiners with specialties in the various basic sciences included in the Modules. The external examiners, via the examination process, ensure that student assessment reflects their integrated knowledge (Appendix 3.7).

Linkage to learning objectives in Phase III

In the Preclerkship (Phase III), students are taught generic clinical skills such as communication skills, history taking and physical examination supplemented with the necessary behavioral medicine knowledge as theoretical prerequisite. This is complimented with ethics and medical records management. While the theoretical principles of behavioral medicine, ethics and medical records are taught by lectures, communication skills, history taking and physical examination are taught initially on simulated patients and later in an integrated way on the bedside on patients. In addition, students demonstrate these skills to tutors and peers to hone their skills. Similarly, principles of professionalism are taught by lectures, then students also learn these by independently observing the “practice” of tutors in the wards and clinics. To reinforce learning,

all skills taught each week are assessed, in a formative manner, at the end of the week by mini-clinical examination over the Preclerkship nine weeks period with appropriate feedback given to students. Knowledge of theoretical aspects of behavioral medicine, ethics, medical records are assessed by the multiple choice examination using clinical vignettes at the end of the nine weeks.

In clerkship rotations, assessment is still being developed or in its early state of application since the first run of the “new” curriculum is not yet completed (Senior Clerkship will start the first time on 12th January 2013). Currently, teams who teach in these rotations meet to discuss questions, produce the exams and set the pass mark; as relevant. The College Examination Committee is overseeing this process, while the Medical Education Unit conducts workshops in this area to train faculty/clinicians on how to write integrated questions.

Integrated assessment in Phase III

As a preliminary step, clerkship rotations were time-tabled in a sequence that allows conceptual connection among various specialties to facilitate vertical (clinical with basic sciences) and horizontal integration (by approximating rotations in laboratories, clinical physiology services, radiology etc. with ward rotations in different disciplines).

Assessment in clerkship rotations is carried out in two-stages: first, “In-Rotation” assessment which is conducted during each rotation and is organized by the concerned specialty. Second, “the so-called “End-Block” assessment in which a number of related rotations are collated in; this is conducted at the end of the clerkship year. Each clerkship is divided into three blocks (blocks are similar in total number of weeks). Each block comprises a number of related rotations that lend themselves to integrated assessment. For example, in Junior Clerkship, “Medicine and Allied Block” comprises Internal Medicine, Child Health and Genetics while in Senior Clerkship, “Medicine and Allied Block” comprises Internal Medicine, Therapeutics, FMPH, Adult Hematology and Lab Rotations.

In In-Rotation assessment, Mini-Clinical Examination (mini-CEX) and Observed Long Case Examination (OLC) are the main clinical modalities used in in-rotation assessment, with key feature questions, Case-Based Discussions (CBD) and portfolio assessment being other modalities. mini-CEX, OLC and CBD provide opportunities to evaluate students' knowledge of basic sciences such as anatomy, pathophysiology, pharmacology, laboratory medicine, etc. relevant to the particular cases, during these bed-side assessments.

An End-Block assessment is managed by a joint subcommittee with members representing each rotation in a particular block. The Block Assessment Subcommittee is responsible for preparing, in as much as possible, integrated assessment items that is discussed by all specialties represented in that block.

End-Block assessment includes written (MCQ and short answer questions), clinical as well as OSCE components. The written examinations are developed jointly by staff of the departments included in that particular block. They are vetted to address different levels of learning, including that learnt during earlier phases. Standard setting methods are used by the teams jointly to determine pass marks. Item analysis for the examinations are reviewed by the teams, for feedback to the examiners who developed the material. The clinical and OSCE examinations are also similarly developed by different participating teams and designed to facilitate integration. Examinations of such integration are: localization of neurologic lesions based on case history; interpretation of laboratory results and counseling of patient; genetic counseling of mother after study of child's case summary suggestive of inherited disease; etc.

End-Block” assessment is first prepared in the form of “Clerkship Blueprint” which is produced by a collaborative effort between the Examination Committee and a block subcommittee. A “Clerkship Blueprint” specifies the competency and describes the modality by which it is to be assessed, and assigns the specialty responsible for managing its assessment to ensure a comprehensive integrated evaluation of students’ competences.

Currently, an effort is being made to increase the level of integrated assessment to mirror the increasing levels of integration in learning. Hence, while Junior Clerkship examination may be limited to a few related specialties, Senior Clerkship and Final MD Examinations are being planned differently. In these examinations, students would address every station (clinical or OSCE) without knowledge of the specialty involved, as if addressing a new patient. In the Final MD Examination (the first of which is scheduled to be in May-June 2014), there would be a single written examination spanning all specialties, followed by combined clinical and OSCE examinations.

Finally, the Preinternship provides an environment to practice applying experiences from varied sources to actual patient care as part of clinical units and, therefore, assessment of this period will be similar to that of the Internship.

CONCLUSION

The College has compiled its first Assessment Policy which is currently used as the reference to evaluate student attainment with respect to curricular objectives. The College Examination Committee together with the Curriculum Committee and departmental examination committees oversee that the examinations are linked to evaluate achievement of the intended learning objectives have been accomplished.

The College should review the current Assessment Policy and produce a second version that takes into consideration the experience gained after implementing the “new” Curriculum, particularly with the feedback received from students, tutors and external examiners. An important addition to the Policy is to introduce a formal documented means of surveying students’ views about the purpose and fairness of the assessment process and whether the students perceive it as an “equitable” means of evaluating their learning.

Also, it is important for the College to establish a physical facility that will appropriately and efficiently allow various assessment modalities to be timely conducted in an optimized setting taking in consideration the future development in medical education as well as expansion of in student intake.

4. STUDENTS

4. STUDENTS

4.1 ADMISSION POLICY AND SELECTION

SQU is fully funded by the government and it is a governmental decision that SQU admission policy should be determined in agreement with the national Higher Education Admission Center (HEAC). It is an SQU policy that, student registration and progression criteria is determined by individual college.

For COMHS, the CB is the responsible body for determining the criteria of student admission into the College. However, these have to be endorsed by SQU Academic Council. HEAC would then apply the criteria to students applying for admission to the College nationwide. HEAC processes applications from students all over the Sultanate who have completed their General Certificate Diploma (GCD; or equivalent such the IB or A-level Certificates) to be considered for admission to higher education institutes including SQU. An electronic-based system allocates places to students in accordance to their GCD examination results as well as their preferences.



The admission policy that stipulates criteria and requirements categorizing students and procedures for allocating seats are posted on HEAC (<http://www.heac.gov.om>); and on SQU Deanship of Admission and Registration (DAR) (<http://www.squ.edu.om/admission-registration/tabid/5996/language/en-US/Default.aspx>) Websites. The procedure for student registration is totally administered by SQU DAR. Appendix 4.1 contains the current criteria for admitting students to the MD Programme. HEAC, also, has an appeal process that is also posted on its Website.

The above procedure determines the selection of Omani students who just completed GCD (or equivalent). In addition to these students, the College also admits a small number of students either from Gulf Cooperation Council countries (one student from each country; a maximum of five students per year). The GCC students are selected by their own country. Other students are accepted in the MD Programme by transfer from other colleges. The transfer students, whether from SQU or other institutes, are selected in accordance to criteria posted on SQU – DAR Website.

The admission policy is reviewed annually based on the performance of students in the different courses/modules and its correlation with the GCD performance in addition to their overall progress in the medical educational programme. Based on results of these reviews the selection criteria are modified.

4.2 STUDENT INTAKE

The annual student intake of COMHS has been steady for the last eight years at 120-130 students per year equally divided between males and females. This intake number is decided by the student/bed ratio (calculated at 2.5 occupied beds/per student, at least, be available for student teaching) as per the GCC medical education guidelines. At present, 130 students per year is the maximum number that can be accommodated with the available beds for teaching. However, due to the pressing national demand on graduating more doctors to satisfy the Sultanate's need, the College is in the process of expanding SQUH capacity and considering means of adding more affiliated teaching hospitals.

4.3 STUDENT SUPPORT AND COUNSELING

Medical students (as do all SQU students) receive notable pastoral, financial, social and psychological support. Starting with admission, each student is assigned an “academic advisor” who provides him/her with the needed advice for academic issues such as registration, selection of courses and planning alternate degree plan. The students are allowed to change their academic advisor if they wish to be so. In addition, academic advisors help students with social and health problems by guiding and directing them to utilize the available services and resources. The academic advisor is changed when students start clinical years with clinical



tutors who are more acquainted with the clinical context of providing advice. The ADs are available for students on self-referral bases, referral by the academic advisor, or when identified by the Education Office, Student Probation and Progression Committee to have any problems academic, health or social. Below there is a summary for all specific units that offer service and support to students in this respect.

Education Office and College Support Facilities

The College Education Office administers all matters concerning medical students’ academic records. It also provides students with administrative help and appropriate information whenever approached. Students also have access to many academic support facilities that provide advice, guidance, information, and resources, which contribute to the smooth running of the teaching programme. These include the following within the College: Examination Office, Clinical Elective Programme, Medical Education Unit, Medical Informatics Section, Medical Library, and Student Computer Labs.

Medical Care

Clinical care is provided to students by more than one avenue. The Student Clinic and Dental Clinic are managed by SQUH Family Medicine & Public Health and Oral Health Departments. Both clinics provide comprehensive primary health care to all students. Also, students have access to the University Hospital through these clinics when referral is needed for specialized services, or direct referral from the College Administration. In addition, Students Medical Board deals with students’ complaints of a medical nature that may require specialized medical care with regard to academic performance. The Board takes the appropriate decision with regard to these complaints.



SQU Student Counseling Center

This Center provides a comprehensive programme of support services to assist students through experienced counselors to adjust to the demands of university environment. The services are planned to enhance student's educational experience by supporting his/her development. The counselors deal with the problems of psychological nature such as pressures or concerns that affect student's academic performance or adjustment to university life. Some of the services the center provides are:

- Individual Counseling
- Group Counseling
- Counseling Out Reach Programme
- Career Counseling

Student Residence

SQU provides accommodation for female students coming from areas farther than 100 km from University campus; male students receive OR 120 per month *in lieu* of this. Male students with special needs are provided with suitable accommodation. This facility also provides temporary accommodation depending on its availability and nature of the request. The dorms are fundamentally self-sufficient as they have sleeping, catering and recreation facilities, reading room and prayer rooms. Students participate in the overall running of their residences through committees responsible for different activities. Students quickly develop a sense of belonging to their own community and enjoy a spirit of lively competition among various residence units. Adult supervisors are in residence to offer guidance in social, religious and moral matters.



Recreational and other support facilities

The students have a number of facilities dedicated to their welfare and these are mainly located on the University Campus. However, some are available on the College premises, such as prayer rooms for male and female students. In addition, medical students have access to the main cafeteria in SQUH.



In the central students' area, there are vending shops, post office, stationery shop, bank, ATM machines, cafeterias, cellular phone outlets etc.. There is also the Student Services Center, which contains a bowling alley, a bookshop, billiard tables, and separate computer clusters for males and females.

Moreover, students have free access to all sports facilities. There are separate sports halls for male and female students that provide facilities for football, volleyball, basketball, tennis, squash etc. Other facilities include a soccer arena, a 1,500 meter running track, a multi-purpose sports field, a swimming pool, a fitness room, a weight-lifting training room, a table tennis room, and a well-equipped gymnasium.



Finally, various programmes and events take place annually aimed at developing in students a lifetime interest in wholesome social, cultural, recreational, and fitness activities. These not only promote health and an acceptable competitive spirit but also provide leadership opportunities in diverse settings such as students' debates.

SQU Deanship of Student Affairs

This deanship has a direct relationship with the students for extramural activities. It shoulders the responsibility of preparing SQU students socially, culturally and physically as well as entrenching their principles and Islamic values. The Deanship provides services under five departments: Religious Guidance Department, Cultural and Sport Department, Social Services Department (Males), Social Services Department (Females), and Administrative Affairs Department.

Center for Career Guidance

This assists students in developing, evaluating and implementing career, education, and employment decisions, plans and enhance the interface with the labor market to maximize the employment opportunity available to SQU graduates.

The above mentioned support avenues, in different ways, and the university staff, at large, are vigilant to identify and notify to the appropriate party any student that may be in need of pastoral, psychological, social and/or academic support. These avenues also include, but are not limited to, the following forums and/or opportunities:

- Academic advising which is mandatory aims to provide advice and identify students with academic (and other) problems with appropriate direction to the available services
- Assistant Deans and Course/Rotation Coordinators monitor students attendance and interview those with 5-10% absenteeism rate to identify the reasons for their absence
- A student who fails any rotation is referred through the Assistant Dean Office to his academic advisor for counseling
- The Student Probation and Progression Committee (SPPC) in the College looks at the performance of all students at the end of each semester. It identifies all students with cGPA above 2 but below 2.5 and refers them to the Assistant Dean for academic affairs Office for evaluation/counseling
- Deanship of Admission and Registration, at the end of each semester, produces and sends to the College a list of students with cGPA less than 2.0. The students are interviewed by the SPPC that tries to help them by identifying the cause of unacceptable academic achievement and plan with them the ways to overcome the hurdles faced

4.4 STUDENT REPRESENTATION

For matters relevant to students of any nature, there are two representatives for each cohort (one male and one female) who are considered as focal points between the College and students. In addition, the College has the following standing committees with student representation/contribution:

- Curriculum Committee
- Clinical Elective Programme Committee
- Staff-Student Liaison Committee
- Medical Library Committee

In the Curriculum Committee, students are represented by two out of 15 members. Their opinions on all aspects of the curriculum (contents, distribution, teaching method and assessment modality) are taken into

consideration. In addition, feedback on teachers and course/module/rotation contents, learning objectives and many other delivery issues are obtained on routine basis at the end of each course/module/rotation. Student feedback is analyzed and seriously considered. Furthermore, part of the External Examiners' duties is to meet with students and discuss their concerns regarding curricular matters and to report their concerns, in this respect, to SQU Administration.

Medical Student Group

The students' representative body in the College is the Medical Students Group (SQU - MSG). The MSG membership includes all medical students from all cohorts. The main objective of the Group is to make medical students' educational experience an enjoyable and a memorable one. Its activities are facilitated by an academic staff member of this College in liaison with the Deanship of Student Affairs to facilitate their social interaction with the Faculty and the professional integration with the intercollegiate and off-campus communities. The Group takes an active part in organizing various events such as blood donation, charity fairs, University Day participation etc. The Group has recently (2008) joined the International Federation of Medical Students Association "IFMSA."



The MSG includes four active committees in its administrative structure; these are:

- Standing Committee On Public Health (SCOPH): focuses on public health issues aiming to enhance societal awareness through campaigns within and outside the university and by organizing visits to schools and community at large
- Standing Committee On Research Exchange (SCORE): provides medical students with the opportunity to participate in medical research in different countries worldwide, and invites international students to participate in research in Oman. In addition, it compiles a database of active research projects in the College for those students who wish to participate in these projects
- Standing Committee On Professional Exchange (SCOPE): organizes exchange programmes between Omani medical students and medical students in other countries
- Standing Committee On Medical Education (SCOME): provides medical students training opportunities on different skills, experiences and knowledge needed for their career. To do so, it organizes lectures, workshops, debates and training sessions etc.
- Standing Subcommittee on Humanitarian Affairs (SCOHA) which deals with all aspects of humanitarian support in Oman and other countries

CONCLUSION

The student selection policy is partly administered by the College. The College receives the top performers in pre-university education in the Sultanate of Oman. It is of particular importance to mention that the College student intake is in accordance with the number of beds available for clinical teaching to ensure high quality graduates.

SQU medical students are represented in many forums that are related to their university education/life, they have their own "Student Group" and they enjoy many support facilities. They are offered counseling service, if needed. All are oriented to provide students with a conducive environment which can maximize student motivation to attain their educational objectives.

5. ACADEMIC STAFF/FACULTY

5. ACADEMIC STAFF/FACULTY

5.1 RECRUITMENT POLICY

The College recruitment policy is fundamentally guided by the curricular objectives. Recruited staff, in qualitative terms, have to have the necessary skills and qualifications that are required to fulfill these objectives; whereas, in quantitative terms, the number to be recruited to each specialty should be in proportion to that specialty workload in order to maintain the right balance among various departments in this respect. This policy is applied for recruitment of basic scientists, clinicians (College/SQUH), supportive staff of the Skills Lab, the IT Section, and staff affiliated to medical education or technical/administrative staffs who are involved in curriculum implementation.

Faculty/staff recruitment procedure is conducted in accordance to SQU Recruitment Policy, which is clearly outlined in the University Executive Regulations (UER; Appendix 5.1). The UER describe the qualifications required for appointment for each academic level (professor, associate professor, assistant professor, lecturer as well as for all clinical and administrative/technical grades).

The recruitment procedure is initiated annually by College departments submitting to the Dean their staff requirements based on their teaching workload. This is part of the annual College exercise to review its staffing. In addition, clinical departments submit their clinical staff needs to SQUH Administration based on their teaching and service loads. The college seeks approval of the University administration for the sanction of the required positions.

In summary, recruitment proceeds as per the following steps:

1. Each vacancy is advertised in the international scientific press and College/SQUH websites
2. The received applications are reviewed by a departmental "recruitment committee" to shortlist candidates. The department reviews the qualifications of the applicants, verifies research contributions/publications if any, matches the skills/abilities to required departmental needs and usually conducts a telephonic interview. A summary of these is submitted to the College recruitment committee with shortlisted candidates
3. Shortlisted candidates are individually invited to visit the College; in special circumstances a telephone interview may be used
4. Shortlisted candidates officially visit the College for an average period of three days. Each visiting candidate is provided with a "Visit Programme" during which, s/he meets with the Dean, Assistant Deans, candidate's department members and a number of College senior members. Candidates are required to give a seminar/lecture of their interest during their visit. Candidates for clinical posts also give a clinical "teaching" session to students to evaluate their clinical teaching competence
5. The visit ends with a "Panel Meeting," in which the candidate is interviewed by the College Recruitment Committee to decide whether (or not) to offer the candidate the advertised post
6. The recommendation of the recruitment committee is conveyed to SQU Administration for approval

The visit to the College is meant to acquaint candidates with the College, the University and Omani culture so they make their decision on informed basis in case they decide to accept the appointment. In addition, feedback from those who met the candidate and from the panel interview (which is provided on an official

check list) is used to explore and elaborate the candidate's interest, aptitudes, views of how to contribute to the educational programme etc.

As an SQU policy during the recruitment process, the College follows an "equal opportunity institution" procedure with regard to gender (except for recruits of Ob/Gyn Department due to cultural and societal needs), ethnicity, religion or any other non-scientifically merited qualities.

As a measure of improving staff recruitment procedure, the College informally requests new appointees (also from those who decline from accepting Colleges offer of appointment) to provide their feedback on the recruitment procedure and on various aspects of quality of living in Oman. Furthermore, SQU regularly reviews and revises its UER including salary scale. The feedback is utilized to improve the recruitment policy in order to attract more capable staff and to enhance the educational as well as the research profiles of the College.

The College appreciates candidates with interest/qualification in medical education and gives them preference over those without. Similarly, selection of "clinical teachers" from affiliated hospitals is based on their specialty with consideration of their medical education background in the form of certificates, attendance of development workshops/courses etc. (Appendix 5.2).

The College pursues its educational and research objectives in more than one way. For example, to upgrade its faculty medical education expertise, all new recruits are advised to attend two workshops that are conducted annually in the College; one is on basics of medical education and the other is on assessment methods. Also, every year SQU sends 10-12 top fresh Omani graduates for further training abroad in specialties such as basic, clinical, medical education fields and bioethics which are required for teaching as well as clinical work. These measures ensure a continuous effort to improve the quality of the recruited staff with regard to teaching and service. For the research domain of the College mission, the College continually attempts to recruit academic staff who are active in research and provides its faculty with annual research funding.

Currently, the College employs no part-time staff. Active staff are full-time employees who are either academics or clinical teachers that are from SQUH or MOH affiliated hospitals and health centers. The exact numbers of each category is stated under "Staff" subheading in the "Overview" section. Overall, the College decides on its academic staff balance by deciding on the number required for each of these ranks in relation to its mission in the domains of teaching, research or service. The allowance of COMHS academic staff and clinical teachers is decided in accordance to specific formulae adopted by the Academic Council of the University which are based on the contact hours and the number of students. At present (September 2012), there are 390 students in preclinical years and 324 students in clinical years.

5.2 STAFF POLICY AND DEVELOPMENT

The College measure of the academic capacity of its faculty takes place at two junctures; recruitment and promotion. For the newly appointed faculty, academic capacity is weighted by a candidate's credentials; these include his/her formal qualifications, professional experience, research profile, teaching experience, personality traits, and peers' opinion (which is gathered from the candidate's referees, COMHS faculty who met with the candidate during his/her visit, and during the panel interview), a candidate's academic rank is decided according to these credentials. After appointment, the promotion process is the measure by which

the College recognizes meritorious activities of faculty. Both appointments and promotion procedures are conducted as per SQU stipulated policies.

Criteria for appointment and promotion

The College appraisal of faculty is based on his/her ability to contribute to the College mission with regard to teaching, research and service. At appointment, the candidate's attainments are measured by performance prior to joining the College, and hence his/her potential to contribute to COMHS mission. If a faculty decides to apply for promotion, his/her overall contribution during his/her work period in the College is appraised, and hence promotion is granted (or otherwise). The academic rank (professor; associate/assistant professor), in accordance to its job description, would, among other factors, determine the balance set for each faculty's teaching, research or service load.

The contribution of academic staff to service includes clinical and non-clinical matters. The latter, for the most, is administrative in nature and includes the involvement in the work of many committees which manage College affairs. Academics are represented in all College committees, most notably, the CB, Hospital Board and the Academic Council. In addition, the top administrative posts i.e. the Dean, and ADs are occupied by academics.

Recognition of meritorious work

In addition to promotion, there are other means of recognition such as "Best Teacher Award," "Best Researcher Award," "Best Published Article" in SQUMJ, teaching allowance for clinical tutors and clinical allowance for academic staff providing service at SQUH. Also, both College and SQUH encourage staff to update their knowledge by organizing international conferences locally to which experts/specialists in various fields are invited. In addition, staff (in the College and SQUH) are also supported, financially on individual basis, when they travel abroad to present their research at international conferences. Furthermore, each department regularly organizes departmental rounds, symposia, and seminars. In addition, quality assurance and peer reviews are routinely conducted by SQUH.

Faculty development and appraisal

During the academic year, the College development programme includes many activities that are delivered at least once yearly. These activities comprise subjects of general interest such medical education updates, tutor development, assessment methods, IT-related issues, research methodology, academic advising, accreditation and quality assurance etc. as well as other subjects of specialized nature such as advanced medicine conference, specialized symposia and workshops (clinical and basic sciences). A number of these activities are international in scope.

The College facilitates staff attendance in continuing development activities by organizing activities pertaining to this within SQU campus during working hours (staff are freed from their duties), mostly with no registration fee and food is provided in well-equipped venues. Attendees are awarded CME credit hours/attendance certificate and include attending these activities in the annual appraisal form.

All College and SQUH staff are requested to submit their committed plans of teaching, research and service every year in advance as appropriate to their job description. At the end of year, the HOD discusses with staff, on individual basis, what has been accomplished



of these plans and what were the encountered difficulties, if any (Appendix 5.5). This appraisal exercise is complemented by student surveys which evaluate teaching performance. The purpose is to provide a forum in which areas of improvement and means of overcoming difficulties are identified in order to enhance performance.

CONCLUSION

The College recruitment policy is conducted in a defined procedure and is aligned with the College mission and vision. After recruitment, the College offers many opportunities to its faculty to develop and progress by providing research facilities/funds, delegating them to attend international scientific conventions with financial support, organizing conferences, symposia and workshops particularly in medical education. Many of these activities are open to staff from affiliated hospitals.

For future development the College may consider the following:

- To have a stated policy on how to balance academic staff workload in the domains of teaching, research and service, and that to be included in a model “job description” and to be given to candidates who are short-listed for appointment
- To seek feedback in a structured formal manner from candidates who accept or decline from accepting COMHS offer, on how to improve the recruitment procedure, as well as from those who have accepted renewal of their contracts

6. EDUCATIONAL RESOURCES



6. EDUCATIONAL RESOURCES

6.1 PHYSICAL FACILITIES

The College reviews the adequacy and appropriateness of its teaching facilities on a regular basis every semester through the College Timetabling Office in collaboration with staff and students. If there is a need, the College Space Committee critically appraises the situation and submits to the CB any requests for approval. Once approved, the Dean forwards College needs to SQU Administration for consideration and endorsement in the University plans.

Facilities available in COMHS premises

Lecture Halls and Tutorial Rooms: The medical Lecture Theatre (252 seats), 25 Seminar Rooms (12-100 seats), nine Tutorial Rooms (25-50 students). All are equipped with the latest audiovisual aids and wireless Internet access.

Teaching Laboratories

Include laboratories in the following departments:

- Anatomy (one wet lab accommodates 100 students for prosected specimens, radiological anatomy, and plastic/plastinated models)
- Biochemistry (one 35-students wet lab; one 38-students computer lab), Medical Microbiology (two 35-students each wet labs)
- Pathology (Museum, accommodates 30 students)
- Physiology (two 35-students wet labs each)

In addition, there is a common microscopy lab (accommodates 100 students) that is shared by Anatomy, Hematology and Pathology Departments. Also, the departmental research labs (approximately 20 labs each with an area around 70 m²) are used by undergraduate students for their Research Module work. All labs are equipped with the latest technology available for medical student experimental teaching and with standard safety measures.

Computer Labs

Three laboratories (50, 50 and 70 computers) for teaching and online assessment.

Medical Library (MedL)

The MedL consists of a three-floors building within the College. It is open six days a week and houses 231 seats and 16 cubicles for individual study. Its collection includes: 18,000 books (print) and more than 3,000 books (electronic); periodicals (73 print, 2,000 electronic), Oman Special Collection (119), 107 microfiches titles (5,100 sheets), video cassettes (1,284), slides (4,700), directories (26), theses (62) and educational e-software in the form of CDs (84). The students can borrow 5 books each for 21 days. The MedL opens from 7:30 am to 9 pm on week days and from 7:30 to 2:30 on Thursdays (weekend). Other services and facilities offered by the MedL are: Online Public Access Catalogue (OPAC), wireless Internet service in addition to 16 fixed outlets,



ten databases, four printer/photocopies and two interlibrary-loan out sources based on British Library Supply Center (BLDSC) and Gulf Country Council Medical Library (GCCML).

Research Laboratories

These are used to accommodate students while they are conducting their research as required by the Research Module in Phase II.

Facilities available in SQU campus (shared by all colleges):

Lecture Halls and Tutorial Rooms

Conference Hall (500 seats; mainly for Conference use), lecture hall 1 (300 seats), lecture halls 2, 3, 4 and 5 (each 100 seats), Nursing College lecture theatres 1 and 2 (100 and 200 seats). Sixty class rooms in Wings A, B, C and D (each 40 students). In the recently built Block G, the College is assigned a lecture theatre (150 student capacity) and a number of small class rooms (50 students capacity). All these facilities are equipped with audiovisual aids and are available to all SQU students from all colleges; however, booking is centrally arranged by DAR.

Main Library (ML)

SQU ML contains 200,000 volumes, about 215 printed journals, 8,350 audio-visual items, over 83,365 electronic full text journals in addition to a number of eBooks (available online) and over 30 bibliographic databases. The number of subscriptions to electronic resources rises annually. Databases, for example, increased from 21 in 2003 to 36 in 2011 and electronic full text journal aggregators increased from 1 in 2003 to 14 in 2008. The number of titles jumped from 250 in 2003 to over 13,000 in 2008. Book holdings have increased from 173,009 in 2003 to 200,000 in 2008. During the same period, audio-visual items have increased from 12,605 to 14,500.



In addition, the University houses several special book/manuscripts collections, including the Oman

Collection and the Omani Study Center Collections that offer extensive information on Omani arts, education, law, technology, government publications and research. The ML has recently moved to SQU Cultural Center where it is housed in an area of approximately 9,500 m² with 1,200 seats and space for over 600,000 books and periodicals

6.2 CLINICAL TRAINING RESOURCES

Teaching Hospitals:

SQUH

SQUH is a tertiary care hospital with 557 beds, 427 doctors (Senior Consultant 68, Consultant 75, Senior Specialist 71, Specialist 139, SHO 74 and 1240 nurses). The clinical facilities include: 164 internal medicine beds, 96 pediatric beds, 90 general surgery beds, 28 neurosurgery and orthopedic beds, 28 emergency beds, ICU 25 beds, 20 high dependency beds and 89 beds in the ambulatory area in addition to 19 new beds to be opened soon. The Hospital admits patients from Accident and Emergency Department as well as referred

cases from all over Oman. In SQUH, the students rotate in medicine, pediatric, general surgery, Ob/Gyn, behavioral medicine, ophthalmology, oral health, accident & emergency, ENT, radiology, anesthesia, and clinical physiology departments as well as rotations in biochemistry, microbiology and hematology laboratories.

The Royal Hospital

The RH is a teaching tertiary hospital with 623 beds and 265 senior specialists and senior/consultants (70 affiliated teachers) and 1,298 nurses. Like SQUH it receives referral cases from all over Oman. In the RH the students rotate in medicine, child health, pediatric surgery, Ob/Gyn, surgery, accident & emergency, radiology and anesthesia departments.

Khoula Hospital

KH is a tertiary hospital and is the main trauma center in Oman .The total number of beds is 517. There are 407 senior specialists and senior/consultants (31 affiliated teachers) and 903 nurses. The students rotate through orthopedics, plastic surgery, Ob/Gyn, surgery, radiology and accident & emergency departments.

Al Nahdha Hospital

NH is a specialized hospital for ENT, dermatology, ophthalmology and maxillofacial surgery. The hospital has 116 beds, There are 248 senior specialists and senior/consultants (15 affiliated teachers) and 285 nurses. The students rotate in the hospital dermatology, oral health, ENT, ophthalmology and oral health departments during the clinical years.

Ibn Sina

Ibn Sina Hospital is a psychiatric hospital with 43 senior specialists and senior/consultants (6 affiliated teachers) and 278 nurses. Students do their psychiatry rotation in SQUH and partly in IS Hospital.

Royal Oman Police Hospital

Forensic Medicine Rotation is conducted and coordinated in a partnership with ROPH (1 affiliated teacher).

Armed Forces Hospital

This hospital has active inpatient and outpatient services. It has been recently recognized for teaching undergraduate students (9 teachers affiliated). Training in Medicine and Pediatrics have been initiated since last year.

Ambulatory Service

Students ambulatory rotations in FMPH is equally divided between 11 MOH health centers in Muscat area and its surroundings in addition to SQUH FMPH Center.

Skills Laboratory (Skills Lab)

The College's Skills Lab has been recently redesigned and reconstructed in order to meet the increasing demand by different departments of the College and SQUH in addition to trainees from OMSB.

The Skills Lab contains the following facilities:

Clinical Training Material: The Lab contains many videos, audio-visual simulators, computer programmes, models, manikins, Harvey etc. It is also equipped to utilize simulated and real patients for student training.

Main Lecture Hall: A multiple purpose room that can be used for teaching, training and workshops with 60 seats and audiovisual aid, IT equipment and cameras.



Skills Practice Rooms: There are ten of these rooms. Each is equipped with a couch, a curtain, a full set of wall-mounted vital signs measuring equipment, seven seats, an x-ray box, a computer, 2 cameras, 2 LCD monitors, a white board and a washing basin with all its facilities. These rooms are usually used for small group practice, self-practice and for conducting practical examinations (OSCE).

Display and Control Room: This is the main room for models, simulators and other equipment which are available for use/training. It also contains the main control panel of all the audio-visual system and the internal network of the clinical skills lab which is used to monitor/record any activity in any part of the Lab through the available cameras in the rooms. Videos can be transmitted to all monitors of the Lab.

Teleconference facility: This facility, housed in the main lecture hall, is utilized to support conferences/seminars conducted in COMHS involving demonstration of live operations (from operating rooms in SQUH) or procedures. It is also used to support staff/student participation in select international conferences/symposia.

6.3 INFORMATION TECHNOLOGY:

The College IT Section services are described under “Medical Education Unit” subheading in Area 8. The IT Committee (chaired by the Head of IT Section) is the IT policy making body of the College (as a supporting body to SQU – CIS) where new ideas of how IT may better serve the educational process are initiated, discussed and recommended, then the required software and hardware are submitted to the Budget Committee for approval.

The University information and learning technology services are mainly provided by SQU Center for Information Systems (CIS). As a policy, IT services are offered to all SQU staff and students in accordance to a set of rules available to all; these may be categorized under the following categories:

Connectivity and Communications: SQU’s network offers enough connection points to provide every employee/student with his/her own point. Also, there is a wireless Internet connection in academic areas of the University Campus

Internet & Intranet Access: CIS/SQU web resources can be accessed from on and off campus exercised to unauthorized access.

SQU Portal: Employees and students can access specific dynamically updated information, targeted for their needs.

Student Information System (SIS): The SIS provides a number of student academic information/services such as online registration, GPA calculation, advisors list, registered student course-list, online grades entry, instructor time-table, master time-table, degree plans and course/module description, students on probation list, student address, registration status.

Student Roaming Profiles: Students have access to a personalized desktop and the ability to store their files in a CIS-maintained storage pool, accessible from any compliant computer on-campus.

Computer Labs: There is an extensive network of computer laboratories in academic areas. The CIS provides the technical support.

e-mail: e-mail service is available for 20,000 users (including about 15,000 student accounts)

Helpdesk Services: This service is offered by the COMHS as well as by the CIS Helpdesk. It handles service calls and monitors problem completion. The logging system does not differentiate between requests originating from employees or students. However, the call logging and clear-up process reflects overall support quality. Initially SQU Helpdesk requests were handled by telephone and/or

personal visit to the CIS. In 2007 on-line access to the Helpdesk service was included in the SQU Portal widening access to the service as well as providing extra services (such as enquiry follow-up). COMHS Helpdesk is offered online and started in April 2011.

Main Library Information System: This is an online catalogue system.

On-line Learning: An online education systems (Moodle) that is supported by the Center for Educational Technology (CET) and CIS Departments

SQUH Information System (HIS): The SQUH HIS has made available a student Electronic Patients Records (EPR) system which is utilized for student teaching. It enables students to gain proficiency in electronic patient records. It has been designed to grant each student a “user name” and a “password.” Students can access patient records for:

- Episode list (visits to SQUH including new admissions)
- Past History
- Past Clinical notes
- Past investigations
- Past treatment

When using the EPR students are not able to prescribe or alter patient records. However, students can write their notes in the assigned section for later evaluation by clinical tutors. Students are informed that any unauthorized access to records of a patient that they are not involved in his/her case can be traced and disciplinary action will be taken; zero tolerance is exercised in tis respect.

6.4 RESEARCH:

The inclusion of research in the educational programme has been well explained in Area 2. Prior to this inclusion, students though in a small scale and on voluntary basis, participated in the ongoing research projects of the College. In all cases, it is the staff experience and perception that students become better learners when they are involved in research activities in any form.

Research Funding:

There was no tangible research activity in the College till 1999 when SQU started its “internal” research funding scheme. One year later, this scheme was enforced by an annual grant from His Majesty Sultan Qaboos and in 2005 (for funding projects with strategic impact), the Research Council (TRC; a national research funding agency) was established.

Also, there is a joint fund between SQU and United Arab Emirates University devoted for collaborative projects. In addition to these funding resources, the College funds “small” research projects (each approximately US\$ 5,000) especially to those who have been newly recruited. Table 8 shows the number of research projects (and their funding resource), which were funded in the last three years.



Table 8: Number of COMHS Funded Research Projects During the Period 2010 -2012 and Amount of Funding in Thousands US\$

Year	University Funded Projects	H.M.'s Funded Projects	TRC Funded Projects	College Funded Projects	Collaborative SQU-UAEU Funded Projects	Total
2010	17	1	4	68	2	92
2011	15	1	2	98	0	116
2012	16	0	4	5	1	26
Total Number of Projects	59	3	10	178	3	200
Amount	814.2	77.2	1,305	70.2	274.4	2,541

It may be noticed that, although there is almost a steady state of funding to projects from all agencies except the College fund which has grossly declined. This may indicate a tendency to apply for other funds that may grant a higher amount of funding.

Human Resources

Most academic staff and clinicians are conducting research. These are supported by 40 Master's students during the academic years 2010/2011 and 2012/2013 and twelve PhD students. The College provides plentiful training opportunities to its staff to acquire new research methodologies and techniques.

Research Themes

Currently, the College research activities span across basic, applied biomedical and clinical research and encompass a set of research themes that are relevant to Omani health-related issues as follows:

1. Genetic/inherited diseases
2. Cancer
3. Diabetes, hypertension, obesity, dyslipidemia
4. Epidemiology and Public health
5. Health Economics

Facilities

The College provides a satisfactory space for the current research needs of the College. The College accommodates a large amount of equipment that is dedicated to general as well as specific experimental purposes. The laboratories that accommodate leading research activities in the College, such as genetics, molecular biology and chemical analysis, are equipped with the latest technology.

Publications

In line with enhancement of research funding schemes, the research productivity of College has steadily and progressively developed to initiate a spectrum of research activities of which a significant part is conducted as a joint effort between basic scientists and clinicians in SQUH, other national organization as well as researchers abroad. In the years 2010 and 2011, the number of publications in peer-reviewed journals that resulted from the College and SQUH research activities were 192 and 125 respectively. For the year 2012, the number of publications is usually completed in the middle of 2013. These numbers should not be considered for trend-analysis since the College research productivity is not on steady state yet having its research programme still in progress.

6.5 EDUCATIONAL EXPERTISE:

The College MEU, since its establishment in 2006, is the center of all activities related to introducing and/or implementing any educational methodology in the delivery of the curriculum. The Unit Head leads a team of experts that are full-time or part-time academics who are supported by six full-time IT staff and a secretary. The full-time three academics hold postgraduate degrees in medical education whereas the part-timers hold other formal postgraduate qualifications or they have a strong interest in medical education enforced by practice/self learning and regularly attending courses/conferences in the field. The Head chairs the College Examinations Committee and is a member of the Curriculum Committee.

In this respect, the College annually conducts the “Certificate Course in Health Professions Education (CHPE)” and a “Student Assessment Workshop” which are required for affiliation of staff from the Ministry of Health hospitals who contribute to delivery of the Curriculum as well as for newly appointed staff in the College. The Unit also invites international educational experts to conduct workshops and review new methodologies which sometimes get adopted e.g., Team-Based Learning. The College has produced several publications in medical education in local and international journals. It also participates in local and international medical education conferences.

6.6 EDUCATIONAL EXCHANGES:

SQU has a Student Exchange Programme that was approved by the University Council and detailed by the VC Qarar (Administrative Order) 223/2007. Students from outside SQU can apply for this programme online: applications are processed through SQU Office of International Relations, which is SQU body for all international cooperation efforts. Students exchanged through this programme are allowed to transfer the credits of the course they undertake in SQU.

Academic staff exchange (from/to worldwide universities) in form of sabbatical leaves takes place though only for a small number of academics because of SQU regulations which allow sabbatical leave after at least six years of service and not to those holding administrative positions. Other forms of exchange for either teaching or research purposes are regulated by more than 30 Memoranda/Letter of Understanding that have been signed between SQU and other institutes that encompass regional as well as international universities where such exchange can be conducted. However, the number of academic staff that undergo exchange programmes is limited due to the above mentioned reasons.

The COMHS, in addition to benefiting from the Student Exchange Programme and other MOUs as one of SQU Colleges, enrolls every year a small number of students from the neighboring GCC countries. In addition, the College allows student to transfer from other colleges of medicine with a maximum number of six students per year (three from inside Oman and three from outside Oman). Moreover, through the Medical Student Group, students from all over the World (as long as their College is a member of the International Federation of Medical Students Association) can be exchanged for participating in COMHS research activities.

The COMHS Elective Programme, which is annually conducted, is another students' exchange activity. All COMHS students should spend, during their educational programme, a period of 8-10 weeks abroad in a recognized teaching hospital. The most popular countries where the students undertake their “Elective” are in Europe and North America, followed by regional and Asian countries. A few female students choose electives in Oman due to cultural/health reasons. The COMHS, reciprocally, welcomes medical students from any medical school worldwide to undertake their elective in SQUH.

CONCLUSION

The current facilities of the College are satisfactory and meet the basic teaching requirements of a modern medical college. However, for future development and to meet the national demand of graduating more doctors, the college should expand its clinical teaching facilities and introduce innovative means of optimizing the current facilities use. These may be accompanied by enhancing the Skills Lab capabilities and introducing more medical informatics-based learning/training options. This may necessitate utilizing research in these areas to benefit selection of available technology.

Though “Research” is integrated in the educational programme, the College research efforts may need to be utilized in a more apparent way to relate to teaching activities.

In addition, the College should expand its efforts to exchange both students and faculty thus enhancing development in several fields; such may first be focused on GCC region.

Finally, there is a need to create more space for staff offices and for medical students lounges, cafeteria/s etc. within COMHS premises.

7. PROGRAMME EVALUATION

7. PROGRAMME EVALUATION

7.1 MECHANISMS FOR PROGRAMME EVALUATION

Examinations as programme evaluation tool

The principal mechanism to monitor students' progress and to evaluate the educational programme is the examination process. Examinations are employed to measure the degree to which students were able to achieve the designated learning objectives in each specific component of the curriculum. The details of this process and the mode by which it is conducted to meet the curricular objectives are articulated in the College AP (for details see Area 3).

Exams are conducted and students' performance is graded in all courses/modules/rotations during (in-course/module/rotation) and at the end (end-course/module/rotation) of each course/module/rotation to evaluate students' attainment of course/module/rotation learning objectives. At the end of each course/module/rotation, the breakdown of students' marks (over the course/module/rotation period) is collated in formal sheets designated by the University. The records of students grades in these exams are maintained in the College Examination Office as well as in the central records of SQU Deanship of Admission and Registration.

Students answers in each examination are "item-analyzed" by the Medical Education Unit, a report is computer-generated and sent to the concerned course/module coordinator, who in turn, discuss such analysis with the tutors of the course/module. The outcome of these discussions is used to improve the next delivery of course/module/rotations and assessment. The whole process is overseen by the Examination, Curriculum and Departmental Examination committees and the Medical Education Unit, in concert with the ADs for Preclinical and Clinical Affairs. Ultimately and on regular basis, all data gathered on students' performance are reported to the CB and recommendations of necessary actions are reasoned appropriately. The CB, after discussion, approves the necessary measures to be taken to maintain and improve the optimal delivery of the educational programme.

Quality assurance measures

External examiners

the College complements the examination evaluation mechanism by annual visits of invited teams composed of internationally acknowledged basic scientists and clinicians to act as "external examiners." The external examiners' visits are scheduled to be at "junction" points of the curriculum which consolidate "basic/integrated" and "clinical" phases of the curriculum. These points are chosen as being proper to evaluate the "outcomes" of the curriculum. The role of external examiners is elaborated and dictated by SQU Administration (Appendix 7.1).

The external examiners duties, in brief, include the following and, at their discretion, they are encouraged to provide any additional comments:

1. The conformity of structure of the degree plan, course/module contents and quality of teaching material to their institute's
2. Appropriateness of assessment standards, examination methods, grading and quality of students
3. Availability and quality of teaching resources
4. Quality and quantity of academic, technical and administrative staff (if applicable)

5. Overall quality and quantity of research facilities and activities (if applicable)

At the end of their visit, the external examiners submit a report (in accordance with SQU format) to the DVC–AACs; the report summarizes their findings and recommendations. Copies of the report are sent to the Dean who forwards the appropriate part of the report to concerned departments. Each HOD discusses the report with the respective departmental board members or departmental examination committee, as appropriate, a response of the points of concern raised by the external examiners is sent back to the Dean for follow up and discussion with the DVC-AACS.

Benchmarking

To benchmark students' performance against international standards, students are encouraged (on voluntarily basis) to take the Comprehensive Basic Science Self-Assessment (CBSSA) of the NBME as a quality assurance measure to benchmark with the international performance of medical students.

Evaluation of graduates performance

After graduation, the College monitors graduates' performance during the Internship Year which is completed in a number in recognized hospitals. Interns' professional capabilities are jointly assessed and evaluated by COMHS and MOH staff to determine their competence (Appendix 7.2). The AD for Training and Community Service coordinates this activity and has prepared specific forms/formats to conduct these evaluation sessions to ensure gathering of all needed information in a conformed fashion. He, eventually reports the findings to the CB. Also, the Dean/AD personally visits the internship hospitals to discuss graduates performance and receive feedback from clinicians in those hospitals and he reports to the CB too. All information and comments gathered are conveyed to the appropriate departments and to the Curriculum Committee to include in the educational programme as means of continuous improvement.

7.2 STUDENT AND TEACHER FEEDBACK

Formal SQU Course Survey

It is an SQU policy that at the end of each course/module a "survey" should be conducted. The survey is a form of a questionnaire circulated to all students registered in any course/module close to its end (Appendix 7.3). The survey is applicable to medical students who are registered in Phases I and II. The survey probes students opinion with regard to issues related to course/module objectives, instructional material, teaching modalities, tutors traits (clarity, competence, communication, commitment, attainment to students concerns, ability to make instructional material interesting, whether s/he

encourages interactive teaching and how to motivate students). Also, it addresses issues related to teaching aids, relevance of course/module contents to the degree in question. In addition, it seeks students' opinion on assessment methods (which is declared prior to start of the course/module), overall impression of the course/tutors and to add any other comments. The results of these surveys are centrally managed by the University and sent to the Dean at the end of each semester. The Dean, appropriately, sends the data regarding courses/modules to the Curriculum Committee and, confidentially, contact tutors whose surveys showed any stark remarks and counsel them. Appropriate action to rectify raised concerns (if genuine) is taken and followed up.



Feedback sessions (from course/module/rotation evaluations, workshops on educational matters etc.). are routinely conducted to gather information on issues related to rotation objectives, administrative and nursing staff support, group size, teaching coordination among different tutors, teaching modalities, usefulness of learning aids (textbooks, handouts, e-learning etc)., logbooks, bedside teaching, patients cases, ward rounds, ambulatory care, lectures, encouragement and guidance from tutors, providing constructive feedback to students on their learning, adequacy of time, evaluation of rotation in general, assessment (MCQs, OSCE, viva, cases etc)., whether (or not) grade reflects student real ability and the degree of satisfaction with organization of the rotation and exams. Other matters not directly related to the educational programme such as pattern of teaching in rotations, transport, scheduling assessments etc. are also considered as important to students' welfare and hence, may be addressed to improve students' motivation.



In Phases I and II, the coordinator of each course/module organizes a meeting with course/module tutors prior to starting the course/module to ensure relevance and appropriateness of instructional material and to agree on modes of delivery as well as assessment strategy. Additional meetings are held prior to in-course and end-course examinations, in which tutors discuss, scrutinize and compile exam items. Later, the exam is sent to the Examination Committee for review. After course/module delivery data obtained from the “item analysis” of exam questions and data from “course surveys” are discussed and means of improving course contents, delivery and assessment are agreed. One of the most articulated examples of evaluating a curricular component was the Symposium organized to review the “Research Module” outcome in an activity that was supported by the Dean and attended by faculty, tutors and students with presentations from their representative (Appendix 7.4).

In Phase III (the clinical phase) is unique to COMHS and hence the College developed its own strategy of programme evaluation. Information is sought both formally and informally from coordinators and tutors (from SQU and affiliated hospitals) as well as from students. In these sessions experience and perceptions are shared. In formal sessions, student representatives of Junior and Senior Clerkships, who confer with their own groups prior to meetings, attend to express their views. In informal sessions, however, all students are allowed to attend.

An important evaluation activity is held at the end of external examiners' (for basic and clinical sciences) visits. These meetings are attended by the external examiners, Dean, HODs, Examination Committee and College "Executive Committee". During these meetings, the external examiners sum up their findings regarding the educational programme, teaching modalities, students concerns, assessment method and examination in addition to any other issue they deem appropriate. It may be noteworthy to mention that the external examiners lead the examiners panel for student assessment which provides them with a hands-on evaluation opportunity to cast an informed opinion of the students' capabilities.

In addition, other modalities to get feedback information include the following:

- 64

- Students' voluntarily feedback is sought after the final medical exam by specific forms (Appendix 7.5)
- Tutors have opportunities to provide feedback and initiate discussions in the context of departmental board meetings. Discussions pertaining to teaching at every level are part of the routine agenda of all departmental boards meetings. Minutes of such meetings are submitted to the Dean. Issues are also brought to CB by HODs when appropriate
- In certain circumstances, focused feedback is sought on specific issues both from teachers and students.

For rotations conducted by a single department, the responsibility of managing any of the above-mentioned feedback sessions is the responsibility of the concerned department (Appendix 7.6). The sessions may be conducted during and after each rotation. In clinical rotations which are not run by a single department e.g. Preclerkship, the coordinator of each rotation (with the tutors) conducts these feedback sessions. Each concern raised during any feedback session is recorded, tabulated, prioritized, and passed on to those concerned for action. All feedback sessions are attended by the AD for Clinical Affairs and conducted in close coordination with the Curriculum Committee which ensures that all raised concerns are followed-up and the required changes are appropriately implemented.

The currently used system actively involves students, tutors and coordinators through the Curriculum and Examination Committees' management structure, and in concert with ADs and the Medical Education Unit expertise in the process of developing the questionnaires, collecting the data, discussing the results and recommending changes to improve the curriculum content and teaching process. All collected information (from course surveys, rotation formal and informal feedback sessions) are discussed first at a departmental and then College levels in an annual curricular retreat that is attended by students (Appendix 7.7).

7.3 STUDENT PERFORMANCE

Each student is assigned an academic advisor following admission. This is a mandatory process. Individual student performance is typically and regularly monitored by each student academic advisor who is directly responsible in this respect. The student advisor's inclusive role is to consider students' backgrounds and, in accordance, to regularly guide and support students to attain the required level of academic performance and counsel them when they are in difficulties in this respect. An academic advisor of a student is first and foremost directly involved with his academic performance. Academic advisors liaise closely with the ADs for Preclinical and Clinical Affairs.

The overall individual student's performance in each course is also analyzed and discussed by the Examination Committee in the presence of other course/module coordinators of the same Phase etc. to assess each student's performance as well as the overall performance of the cohort in each course/module. A debrief of outcome of this process is reported to the CB.

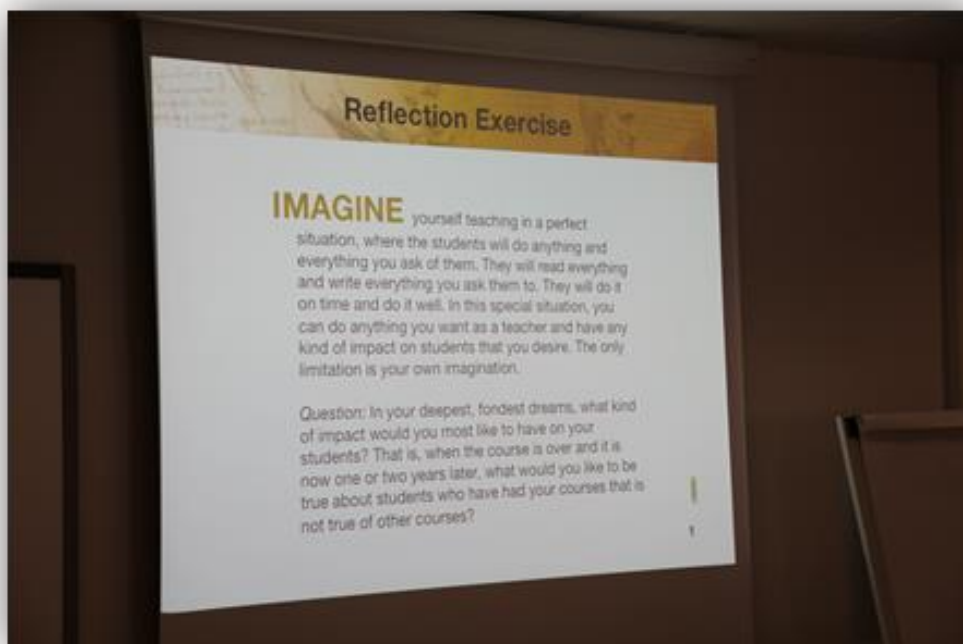
In addition to the general interaction between the ADs and academic advisors to monitor students' progress, the College monitors individual students using two other particular mechanisms. One is conducted to identify students with lower than acceptable performance and the second is to credit students with excellent accomplishment. The former mechanism is managed by the ADs for Preclinical and Clinical Affairs (in concert with academic advisors) who routinely request course/module/rotation coordinators to provide them with names of students' whose marks are below C-Grade during and after the delivery of each course/module/rotation. These students together with their academic advisors, as a cautionary notice, are

informed of the results and requested to take the necessary action to improve student's performance in due course. If a student's performance remains unacceptable, the matter is referred to Student Probation and Progression Committee to counsel students. The second mechanism is intended to identify students with grade point average above 3.0. These students are honored in an annual award giving session and their names appear in the Dean's Honor List.

Finally, student are allowed to explicate their grievance and protest their results in an appeal process detailed under the UAR article C10-4.

7.4 INVOLVEMENT OF STAKEHOLDERS

The CB is the ultimate overseer of all matters relating to curriculum development being the supreme governing body of the College. However, the CB has commissioned the Curriculum and Examination Committees to act in close coordination with the ADs and the Medical Education Unit to conduct the specific activities in this respect. Be that as it may, course/module/rotation coordinators and HODs, together with departmental boards members, are those who are directly engaged in collecting evaluation data on the educational programme and forwarding suggestions/recommendations to develop it.



Data on the educational programme are sought and communicated in a coordinated chain of operations from/to many stakeholders in more than one forum. The most thoroughly explored opinion is that of students and tutors, these being the most intensely involved stakeholders. But other stakeholders such as the MOH staff (healthcare authority), and professional bodies' (OMSB and OMA; who are taking part in students' teaching, examinations particularly the final MD Exam) opinion is also regularly pursued. In addition, exploring some other stakeholders opinion, such as College graduates' is occasionally investigated as was done during the preparatory stage to construct the "new" curriculum. Graduates' opinion was probed in a detailed lengthy questionnaire to ascertain how the educational programme would best prepare students for real life medical practice.

In addition to the routine data collection sessions that are conducted during and after each course/module/rotation is completed, interaction between healthcare professionals (from MOH), OMSB,

OMA, private medical colleges and representatives of the community (e.g. State Council members) are invited to gatherings such as annual retreats etc. where the educational programme is wholly appraised. Such forums are considered vital opportunities to get feedback from these stakeholders.

Data are collected in each and all of these sessions/meeting/forums by the respected delegated authority (e.g. ADs, Course/Module/Rotation/Coordinators, Phase Coordinator, HODs, Committee's Chairman etc.) in a written format are sifted out, categorized, analyzed and prioritized. This is followed by consultation with the College educational experts after which logistics and financial matters are worked out. Later, the final data with recommendations are submitted for debate/discussion to the CB, which after discussion would approve when recommendations are deemed useful and feasible. After approval, recommendations are forwarded to the concerned department for implementation and follow up. On certain occasions collected data were published in international periodicals (Appendix 7.8).

CONCLUSION

Although the College already has an established system of programme evaluation that seeks stakeholders feedback with operational hierarchy to implement all feasible options, this should be documented in a manual that provides the details of the process to all stakeholders, at large, regardless of their degree of involvement. The College is in the process of formulating Programme Evaluation Committee whose remit is to compile such a document.

8. GOVERNANCE AND ADMINISTRATION

8. GOVERNANCE AND ADMINISTRATION

8.1 GOVERNANCE:

SQU is a *not-for-profit* higher education institute that is governed by its Charter, which details its goals and statutory terms. The Charter stipulates the remit of the University Council (SQU supreme governing body), depicts the University organizational structure and describes its administrative hierarchy. It also lists the responsibilities of the Vice Chancellor (VC) and those of the Academic Council, as well as of the Deputy Vice Chancellors (DVCs). In addition, the Charter dictates the governance of University colleges, SQU Hospital, SQU institutes, centers and main units. The University Charter assigned the VC to issue the University Executive Regulations (UER) after the University Council approval. The UER embody the university bylaws and lay down details of its operational procedures.



The Dean and Assistant Deans:

Article 10 of the University Charter stipulates that “each college or institute shall be managed by a Dean and a College Board, and that the Dean of the college shall be aided by at least one assistant from the college faculty and, that each department in a college shall be managed by a head and a department board.” The Charter authorized the VC to appoint the deans (after University Council approval); whereas Article 11 authorizes the DVC for Academic Affairs and Community Service (DVC-AACS) to appoint HODs and Assistant Deans who are nominated by the dean (after VC’s approval). All are appointed for a period of three years that is renewable for one more term. The Dean’s responsibilities are listed in the UER Chapter 4 Article 14 (Appendix 5.1).

The Dean represents the College inside and outside SQU forums. Also, s/he, *ex officio*, chairs the College Board, College Executive Committee, SQU Hospital Board and College Promotion Committee in addition to being a member of the Academic Council, the Joint SQU-MOH Committee, the Executive Committee of Oman Medical Specialty Board and the GCC Colleges of Medicine Deans’ Council.

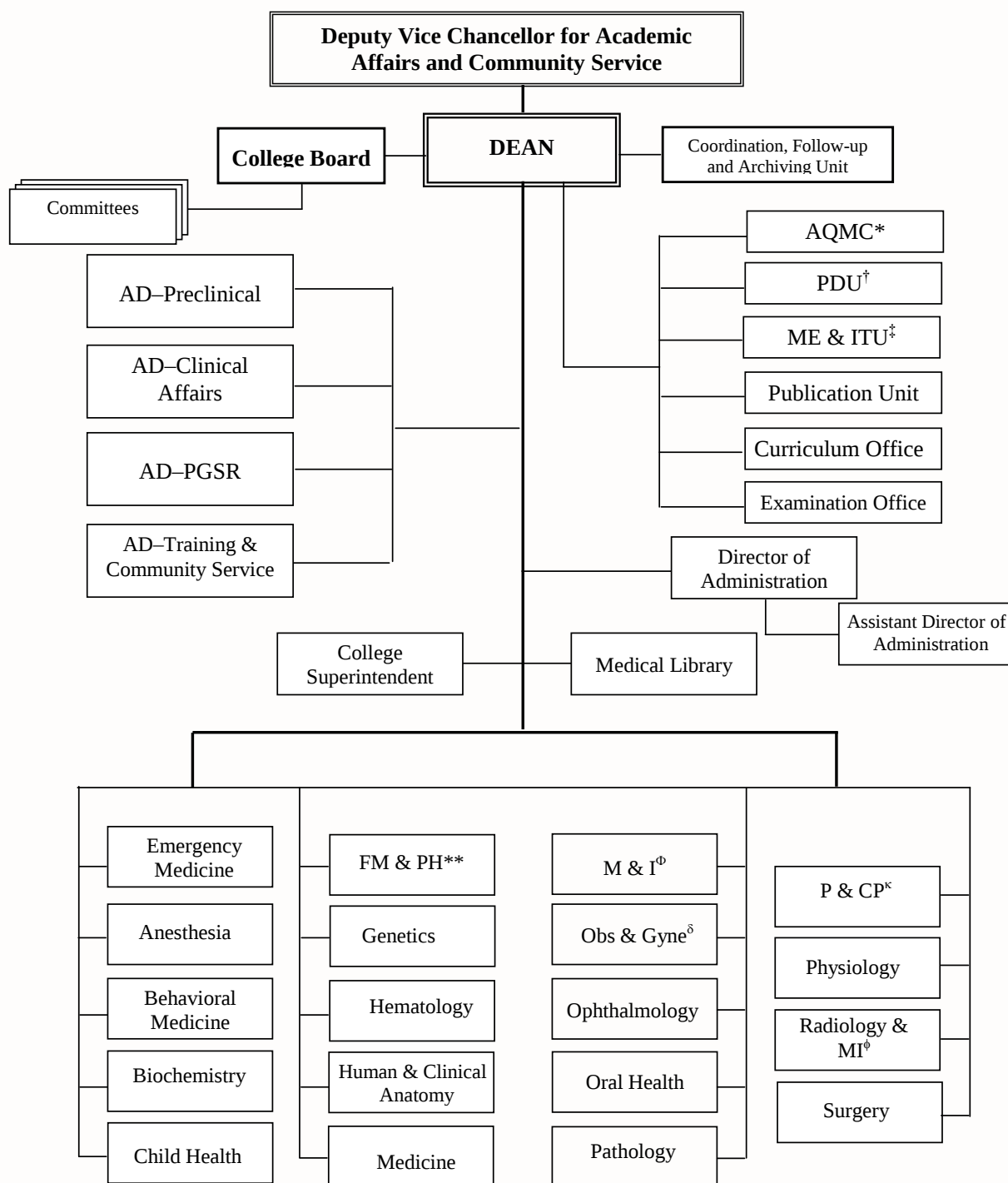
The Dean is the executive officer of the College Board. In addition to the routine administrative responsibilities, the Dean manages many other significant duties; among these are: faculty, staff recruitment, resignation, appraisal and re-contracting; organization of conferences and workshops and following up their reports, reviewing faculty teaching evaluation surveys, authentication of students exam results etc.

The Dean has four ADs; namely, AD for Preclinical Affairs, AD for Clinical Affairs, AD for Postgraduate Studies & Scientific Research and AD for Community Service and Training. The responsibilities of ADs are detailed in the UER.

COMHS Administrative Organization

The VC Qarar 49/2013 charted the College’s organizational structure as depicted below:

College of Medicine & Health Sciences Organizational Chart



*Accreditation and Quality Management Committee

†Planning and Development Unit

‡Medical Education and Information Technology Unit

**Family Medicine & Public Health

δObstetrics & Gynecology

φMicrobiology & Immunology

κPharmacology & Clinical Pharmacy

φRadiology & Molecular Imaging

The College Board:

According to the UER, the COMHS Board shall be chaired by the dean and shall consist of:

- The Director of the Hospital

- The Deputy Directors of the Hospital
- Assistant Deans
- Heads of Departments
- The Director of the Administrative Office

The CB is the highest authority in the College. It meets at least once a month during the academic year and shall meet at the call of its chair i.e. the Dean, whenever necessary or upon the request of at least half of its members. The meeting's agenda are prepared by the Dean's Office and items can be added by any member of the Board with the approval of the Chairman. It undertakes the following responsibilities:

- To propose academic programmes and degree plans in accordance with Academic Regulations
- To propose the intake capacity and the admission requirements to offered degrees in coordination with the DAR and to submit them to the Academic Council through the DVC for Academic Affairs and Community Service
- To develop the teaching and research processes in the College and in the University Hospital inasmuch as the College is concerned
- To review and discuss the results of the examinations
- To recommend the award of degrees and certificates in accordance with Academic Regulations
- To study and recommend the requirement of academic (and their assistants), technical and administrative staff
- To recommend appointment, contract renewal (or otherwise), promotion, transfer, debutization, secondment and delegation as well as sabbatical leaves of College's staff and in accordance to regulations
- To look into the recommendations of department boards and take necessary action
- To organize and encourage research and propose means for its development
- To look into the recommendations pertaining to the funding of research projects and presenting them to the DVC for Research and Postgraduate Studies
- To review the annual budget of the College before submitting it to the DVC

College Committees

The College affairs are managed by numerous standing committees and *ad hoc* working groups which are formulated whenever needed by the CB or the Dean as appropriate. The composition of these committees comprise faculty, SQUH and MOH staff, students and College staff (technical and/or administrative) as appropriate, to ensure due participation of all College stakeholders. The following is a list of the names of these committees (the details of their composition and remits are Appendix 8.1):

1. Academic Promotion Committee
2. Accreditation and Quality Assurance Committee
3. Alumni Committee
4. Annual Report Committee
5. Biomedical Scientist Committee
6. Budget, Equipment & Textbook Procurement Committee
7. Clinical Elective Programme Committee
8. College and Hospital (Joint) CME Committee
9. College and Hospital (Joint) Office Space Committee
10. College Development & Strategic Planning Committee
11. Curriculum Committee
12. Ethics Committee

13. Examinations Committee
14. Information Technology Committee
15. Medical Library Committee
16. Medical Research Committee
17. Medical Laboratory Sciences Programme Committee
18. Omani Medical & Academic Staff Selection Committee
19. Postgraduate Studies (and Training) Committee
20. Recruitment Committee
21. Safety & Security Committee
22. Secretarial Staff Development Committee
23. Staff–Student Liaison Committee
24. Student Probation and Progress Committee
25. Students' Medical Board

Departments and Heads of Departments:

The College consists of 19 academic departments (six basic sciences and 13 clinical); namely:

Basic Sciences Departments

1. Human and Clinical Anatomy
2. Biochemistry
3. Medical Microbiology and Immunology
4. Pharmacology and Clinical Pharmacy
5. Pathology
6. Physiology

Clinical Departments

7. Anesthesia and Intensive Care
8. Emergency Medicine
9. Behavioral Medicine
10. Child Health
11. Family Medicine and Public Health
12. Genetics
13. Hematology
14. Medicine
15. Obstetrics and Gynecology
16. Ophthalmology
17. Oral Health
18. Radiology and Molecular Imaging
19. Surgery

Each department has a department board (DB) that consists of the HOD as a chairman and all the academic/clinical (consultant and above) staff as members. The DB undertakes the following responsibilities:

- To suggest degree plans and follow up its implementation
- To assign student textbooks
- To approve the distribution of the teaching duties in the department
- To approve the results of courses delivered by the department
- To express views on appointment of academic staff and their assistants

- To make a plan for research in the department
- To study (and recommend) departmental research proposals
- To look into and comment on the budgetary estimate
- To look into and express views on the issues presented by the dean or head of the department

The HOD has the following responsibilities:

- To supervise (and recommend means of developing) departmental work
- To prepare (and follow up implementation) of departmental teaching and research annual plan
- To supervise the distribution of teaching duties in the department in consultation with the DB
- To express views on the employment affairs of the academic staff, their assistants and the other employees in the department
- To ensure that the best teaching methods and aids are used in cooperation with the various bodies in the University
- To oversee progress of work in the department and suggest means of improving performance
- To propose criteria and specifications pertaining to the examinations of the department
- To encourage research and its development in coordination with the other departments
- To make recommendations related to research projects, contracts, consultations and community service undertaken by the employees
- To follow-up the implementation of the decisions of the DB
- To propose the budget estimate of the department
- To prepare the departmental annual report and submit it to the Dean
- To submit DB meetings minutes to the Dean
- Any other duties assigned to him by the Dean

College Administration Office

The College Administrative Office is the link between the College and SQU Administration. It oversees all administrative activities of the College. The Director of Administration is helped by a deputy, four clerks and three orderly workers. The Office duties include processing of procedure of appointments, leaves, overtime, housing, printing, procurement, affiliated teachers, correspondences, staff training, textbooks orders and maintenance requests, documentation, coordinating College activities, organizing visitors' (such as examiners, job interviews, contributors to training workshops etc.) trips, follow-up, receive/distribute internal/external mail and managing College's budget.

Medical Library (MedL)

The MedL is the primary information provider to support educational and research programmes. It uses the National Library of Medicine Cataloguing System and Symphony Library System. It offers its service to SQU students/faculty/staff, MOH physicians and other health care staff on nationwide basis. Library personnel (eight qualified librarians and seven sub-professionals) act as information and bibliographic consultants on a one-to-one basis.

Medical Education Unit (MEU)

The MEU was established in 2006 with a mission to raise the standards of medical education in the College. It is part of the Dean's Office and is managed by the Head of the Unit. The Unit has ten full-time staff of whom are two academic; all are affiliated to the IT Section. The medical education expertise draws mainly from the voluntary participation of staff with either formal qualification and/or strong interest in the field of medical education who volunteer from different departments of the College and from the MOH; together they form the Core Group of the MEU.

The Unit provides educational support to the College, SQUH, affiliated staff and other health professionals through faculty development workshops in the areas of teaching and learning, curriculum development, assessment, and e-learning. The Unit has also established the IDEAL (International Databank for Enhancement of Assessment and Learning) Office which houses the IDEAL Secure Assessment Databank, liaises with the IDEAL Consortium Office, and conducts/provide examination “item analysis.” Recently, the Clinical Skills Laboratory has become part of the Unit.

The Medical Informatics Section is part of the MEU and is involved in two major activities, teaching and providing IT support to College and faculty covering medical informatics and use specialised medical e-learning tools. Also, the Section provides medical students with the appropriate applications in computer and information technology for healthcare professionals. In the medical educational programme the Section delivers two courses viz. Medical Informatics I and II, and it also offers an Elective Course to SQU students at large. Specifically, the Section provide IT support as follows:

- Designing E-Learning courses and support using online assessment
- IT troubleshooting
- Development and maintenance of the following services: Telemedicine and Videoconferencing, College Database, College Website, College Servers, College IT Projects, Digital Signage System, Minutes Management System, E-Voting System, Backup System, Meeting Room Manager, Digital Poster System, Online Helpdesk System, Interactive Information System

Curriculum Office

The Curriculum Office was established for implementing the “new” curriculum. The purpose was to have an independent administrative entity fully devoted to curriculum administrative affairs since departmental control over the curriculum was replaced by a new curriculum management structure.

It is overseen by the CC Chairman with one administrator to assist CC members and faculty with the logistics of running the curriculum to ensure its efficient delivery. The Office performs the following activities:

- Reviewing all course documents regularly and updating them
- Compiling, producing and updating “Students Handbook,” “Courses Booklets,” “MD Degree Plan,” Timetables and other curricular information as hard and online
- Identifying the required equipment/teaching materials required for the educational programme.
- Identifying areas of concern regarding student academic progress
- Facilitating the cooperation between Faculty members and Clinical staff to help promote the integration of Basic Sciences with Clinical teaching
- Ensuring that all the courses in the educational programme meet the requirements of the Oman Accreditation Authority and other international accreditation boards

Examination Office

The College Examinations Office is part of the Dean’s Office and serves as a central source for all College examinations which is managed by the Examinations Officer. The office organizes all examinations, assigns invigilation duties and examination venues and ensures that student/invigilator ratio as well as examinations are administered in accordance to SQU standards. The Office maintains the highest level of confidentiality in processing examination question papers and in publication of students’ grades. It also, marks MCQ answer papers using OPSCAN Reader. In addition, the Examination Office liaises with HODs, the Dean, College and University Administration in the appointment and welfare of external examiners in the College.

Publication Office

The College, through SQU Printing Committee, issues “SQU Medical Journal; SQUMJ.” The Journal was officially launched in 1997 and it had 7 issues published up to 2005 and 2 issues per year till 2009. In the year (2010), the Journal published three issues and, at present, prepares all its editorial work electronically. The journal Editorial Board is comprised of 15 Associate Editors from within and outside the College and international advisors.

SQUMJ endeavors to be a leading regional medium of medical and scientific communication covering both clinical and basic science research. SQUMJ is now archived with PubMed Central and indexed by SCOPUS with articles backdated to 2000.



8.2 ACADEMIC LEADERSHIP

The CC was established to provide academic leadership to the College and was authorized to decide on all curricular matters; departments are considered as partners and resources not decision makers in this respect. The CB has mandated the CC to have full authority of determining the educational principles and departmental contributions to the educational programme. Hence, it approved its remit and overall management structure as detailed under Subarea 2.6.

As part of its job description, every Module/Course Coordinator is accountable to the respective Phase Coordinator in the Phase Subcommittee forum. All other formulated subcommittees/working groups report to the CC or its corresponding delegated Subcommittee. The Management Group meets weekly to review and evaluate phases performance and report to the CC. Phase Coordinators report to the Chairman of the CC who ensures that curricular objectives are achieved. Ultimately, the CB receives, in each of its meeting, a report from the Chairman of the CC to show that the CC mission and curricular objectives are being accomplished.

8.3 EDUCATIONAL BUDGET AND RESOURCE ALLOCATION

The College Budget, Equipment and Textbook Procurement Committee is responsible for all College financial issues except for salaries and new buildings cost which is centrally controlled by SQU Administration. Annually, the Committee initiates its annual cycle by requesting departments/units to submit their needs. It also prepares:

- college requests for educational supplies, textbooks, computers, office and other supplies
- maintenance and services requirements of the college e.g., computers maintenance, equipment maintenance etc.
- student training requirements e.g., Clinical Elective Rotation cost, transportation and special travel expenses
- subscription to periodicals, databases, international organizations, news and advertisements exhibitions
- research budget in accordance to the funded projects
- consumable items
- training courses for faculty and staff development
- departmental expenditure for exams, external examiners and other educational needs etc.

The Committee, after critical evaluation of departmental budgetary submissions, prepares the College's annual budgetary estimate and submits it to SQU Financial Department for approval. It is customary that all

the College proposed budget is approved especially for teaching purposes. The Committee, after receiving the College's allocations from SQU at the start of each fiscal year, decides on budget allocation to the different departments/units which will be spending them through College Administration Office.

8.4 ADMINISTRATIVE STAFF AND MANAGEMENT

The administrative support of the educational programme is a coordinated effort of many groups, each providing a distinctive, but complementary, function. The Office of the ADs (eight administrative staff) is the central point in this respect and it is the contact point with the DAR with regard to the following procedures:

- Student's personal/family information, history and financial aid
- Admission and Registration of students
- Registration Information
- Assigning academic advisors
- Internal and external transfer of students
- Probation and Progression
- Educational performance
- Official student academic record
- Recording grades
- Student transcripts
- Record of results
- Dean's Honors lists
- Follow up Non-Omani students with their cultural attaché
- Preparing the Statistics and requested information
- Providing academic information and timetabling and exams schedules
- Any extracurricular activities that is assigned by DVC's office

In addition, the administrative staff that is related to directly manage the educational programme or is involved in activities such as students' academic advice/probation issues (e.g. assigning academic advisors, following up students on probation, meetings etc.), in coordinating modules or clinical rotations or in organizing student the clinical elective programme, exists among the following offices:

The College Administration staff (number in parentheses),

- | | |
|-------------------------------------|----|
| • Dean's Office | 2 |
| • Director of Administration Office | 5 |
| • Assistant Deans Offices | 8 |
| • Examination Office | 2 |
| • Curriculum Office | 1 |
| • Elective Coordinator | 1 |
| • Departmental Coordinators | 30 |

8.5 INTERACTION WITH HEALTH SECTOR

Ministry of Health, Armed Forces and Oman Royal Police Hospitals and other healthcare providers

At SQU level, the MOH (the main healthcare provider in Oman) is involved in the process of decision making through the Joint Committee, which is chaired by SQU VC, and it has the MOH Undersecretary for Clinical

Affairs and the Dean as members. The Committee oversees major and overall management issues related to collaborative activities between COMHS and MOH

At the college level, it is a strategy of the College to involve MOH representatives in the key standing and *ad hoc* committees as well as relevant activities of the college e.g. student intake, curriculum design and management, teaching of undergraduates, Internship Programme (all coordinators of this programme are from MOH) etc. Such reflects on MOH staff being members in the College CC, MEU Group, Assessment Policy Committee etc. This strategy is intended to increase the collaboration between the two organizations as they share and mutually contribute to the process of preparing future doctors in Oman.

At departmental level, there is a close coordination between College departments as well the CC) and corresponding departments at all affiliated hospitals. The College encourages early and active involvement of the affiliated hospitals in all of the stages of students' education and assessment. A formalized accord regulates the relationship and the duties of each partner in a constructive manner.

Oman Medical Specialty Board (OMSB)

OMSB is Oman national authority that is responsible for developing and maintaining postgraduate medical specialty education and setting the professional and educational standards for training and certification of medical and healthcare professionals.

COMHS considers postgraduate medical residency programme as a continuum of undergraduate medical studies. COMHS and the OMSB collaborate closely in this regard. The COMHS Dean is a member of the Executive Board of OMSB. Recently, a deanship for postgraduate training was established in OMSB to liaison the work between the OMSB and the College. Both coordinate their efforts to maintain a high quality level of training at various stages. Many OMSB Committees are chaired by College/SQUH staff.

Oman Medical Association (OMA)

OMA is a professional non-governmental organization for health care professionals in Oman that includes doctors, dentists, nurses, pharmacists, biomedical technologists and academics in medical and allied health sciences. It serves as an advocate for personal and professional development of its members.

COMHS shares many OMA objectives and therefore works in close collaboration with OMA, especially in areas of professional development and community service such as organizing scientific conferences and encouraging academic staff to participate in OMA community-oriented activities. In addition, many of the college academic staff and SQUH teaching clinical staff are active members in OMA and its scientific societies with some holding leadership positions in both OMA Board and scientific societies' boards.

CONCLUSION

The College governance and management though, so far, is best serving the College affairs, but, the advent of the new developmental phase calls for a more versatile, less centralized and faster-responding system of management with consequential accountability for posts with "executive" power. Such may necessitate merging units/posts, creating new ones and review of governance.

9. CONTINUOUS RENEWAL

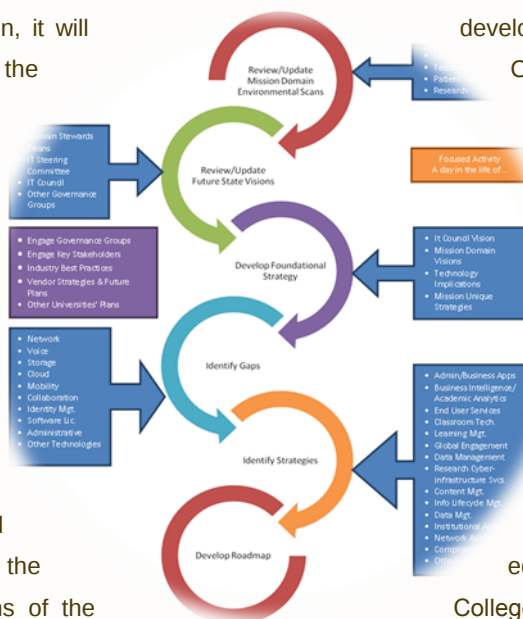
9. CONTINUOUS RENEWAL

Continuous renewal (CR) is one of the routine functions of COMHS. The process is conducted in a regular cycle that is managed by the Dean presiding over CB and SQUH Board. The CB/Hospital Board are the ultimate governing bodies of the College/SQUH and they are the forum in which departments, units and committees are linked to discuss/approve any pertinent issues in question.

Recently, the College Accreditation and Quality Assurance Committee (AQAC) was commissioned to be at the center of the CR process. The Committee's mission includes preparing for both accreditation and quality assurance, although, at this stage, the Committee's deliberations are mostly focused on accreditation. Soon, it will develop a comprehensive strategy for quality improvement of the structure.

Currently, the College committees, together with auditing College identify areas of recommend needed respect, the CB may SQU Administration, distinguished visitors, departments, staff and challenges of any of the managerial and other domains of the

Dean/CB, in due time, refers issues (or initiates a *de novo* review process) to the relevant body, which reviews the matter in question and recommends, to the CB, means of responding to such matter for approval (or otherwise). The CB, in accordance to SQU bylaws, may take action or forward its recommendation to SQU Administration for action.



departments, units and the CB, are active in performance to improvement and to changes. In this receive feedback from External Examiners, Committees, students on encountered educational, research, College's performance. The

Mostly, the College standing committees undertake the major part of its CR work. They routinely review all College's functions as appropriate to their remit. The concerned committee collects information, conducts studies (if needed) and performs analysis of collected data, then forwards its findings/recommendations to the CB. *Ad hoc* working groups may be formed to address issues that arise occasionally. The remits of the College standing committees and some of the minutes of their recent meetings are listed in Appendix 8.1.

Examples of recent reviews of the College functions/structure

- In response to reforms in the international medical education arena, the College took the following responses in both its function and structure:
 - Implemented a "new" curriculum which represents one of the most fundamental recent developments that the College has introduced
 - This was accompanied by complementing structural changes such as establishment of the MEU (including Information Technology Section)
 - In addition, the Skills Lab was significant addition to the College's resources

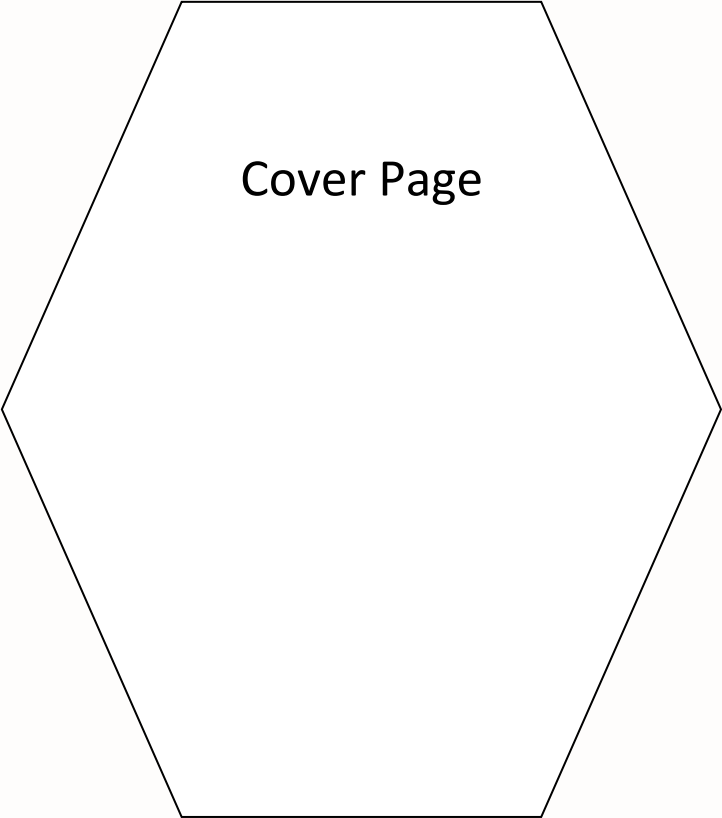
- These responses were accommodated in a new building “the Annex Building” which contains computer labs, and teleconferencing capabilities
 - To maintain these changes abreast of contemporary development, the CC and the MEU together provide the necessary support to College academic staff
 - Simultaneously, the College formulated its first Assessment Policy
 - In accordance to the available clinical facilities, the College conducted a study to determine the maximum number of students that it should admit to maintain a “quality” clinical teaching undergraduates in line with GCC standards
 - The College conducted a study in order to determine the minimum cGPA requirement for students progression in the MD programme
 - The students have direct access to and meet periodically with the College top management (the Dean and his assistants) and CC Chair (or Phase Coordinators) and provide them with feedback and new ideas. A distinguished example of this interaction was when the students raised concerns when their grades in the Response to Infection and Pathobiology Module were found to be “less than expected.”.The College conducted a study, in response to this, the results of which led to restructuring of the Module
 - The College conducts an annual Clinical departments retreat and an annual joint meeting of the AD – Clinical Affairs together with all clinical tutors to receive feedback on and optimize clinical teaching
 - The College conducts an annual meeting to review its curriculum and research performance
- In response to the more apparent need to get the College further involved with the community and to enhance its role in community service, the AD - TCS was recently created
 - To keep staff updated with latest information in their field and to encourage their research involvement, the following activities were carried out (feedback from these activities is received and utilized to improve College/SQUH performance):
 - In the years 2007, 2008, 2009 and 2010, the College and University Hospital Staff participated in 49, 58, 61 and 142 international conferences; respectively
 - The College and SQUH periodically organize many conferences/symposia such as the Annual Conference on Advanced Medicine (organized in collaboration with the Royal College of Physicians); the International Child Health Conference (every two years), the annual Quality Management International Conference, the GCC Medical Student Research Conference (rotational; every year in one of the GCC countries); a Workshop on Research Methodology by international scientists. After each of these activity, feedback is received (verbally, by reports or sometimes via circulated questionnaires) and the necessary action would be taken by the appropriate party
 - For long-term planning, the Development and Strategic Planning Committee (DSPC) has been commissioned. Currently, the Committee has reviewed and updated College’s mission, vision and objectives, and kept them in line with the College stakeholders’ requisites. The Committee also has prepared a comprehensive strategic plan that encloses all College’s domains in the future (Appendix 1.1). The DSPC is a standing committee that aligns the College plans with SQU main strategic plan. This is a periodical activity

- For organizing the recruitment process in the College, the Recruitment Committee that was formulated months ago, is not only supervising the College employment but is also concerned with issues regarding staffing policy
- For providing feedback to all College staff/departments/units and SQUH, the College compiles its Annual Report (Appendix 9.1) which sums up the College performance every year, both quantitatively and qualitatively of all departments/units. The Annual Report acts as a stimulus to enhance productivity by allowing individuals to compare and contrast their productivity with others

CONCLUSION

At present, the College runs an active and effective continuous renewal array of activities. However, in the future the following may be recommended for a more efficient and synchronized programme of quality improvement:

1. The College should have a holistic and critical approach in evaluating its performance and reviewing its administrative structure
2. The College should establish a central record that documents how the College identifies challenges and explains its approach to rectify them. This record should be maintained by the AQAC
3. The College should establish an Accreditation and Quality Management Office which should be sufficiently funded and staffed by competent and qualified personnel. The “planner and overseer” of this office should be AQAC
4. AQAC (the name may be changed to be “Accreditation and Quality Management Committee”) should identify the College key performance indicators (KPIs) and recommend measures to refine the College approach towards quality improvement to ensure that the College is sensitive and responsive to the changing environment and work towards its continuous progress
5. The College should develop a periodic “Audit Policy” with Standard Operating Procedures (SOPs) to review and recommend means of improving the College’s functions/structure



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