



Committee for the Evaluation of Medical Schools in Israel

Tel Aviv University
Faculty of Medicine
Evaluation Report

June 25, 2014

Contents

Chapter 1: Background.....3

Chapter 2: Committee Procedures.....4

Chapter 3: Evaluation of medical study programs at
Tel Aviv University.....5

Chapter 3A: Outline of observations and findings.....5

Chapter 3B: Full observations, findings, and
Recommendations.....13

Chapter 4: Collected recommendations.....35

Appendices: Appendix 1 – Letter of Appointment.....41

Appendix 2 - Schedule of the visit.....42

Chapter 1- Background

The Council for Higher Education (CHE) decided to evaluate the study programs in the field of Medicine during the academic year of 2014.

Following the decision of the CHE, the Minister of Education, who serves ex officio as Chairperson of the CHE, appointed a Committee consisting of:

- Prof. Stephen Schoenbaum – The Josiah Macy Jr. Foundation, New York, USA: Committee Chair
- Prof. Raymond H Curry – Northwestern University Feinberg School of Medicine, Illinois, USA
- Prof. Shimon Glick- Professor emeritus in medicine, Faculty of Health Sciences, Ben Gurion University of the Negev, Israel
- Prof. Peter Crome- School of Medicine, Keele University, United Kingdom
- Prof. Elliot Gershon- Department of Psychiatry and Behavioral Neuroscience, University of Chicago, Illinois USA
- Prof. David Katz – Professor Emeritus of Immunopathology, Faculty of Medical Sciences, University College of London, United Kingdom
- Prof. Ora Paltiel- Attending Physician, Department of Hematology- Hebrew University Hadassah Medical School, Hebrew University
- Prof. Jo Shapiro – Harvard Medical School, Harvard University, Massachusetts, USA

Ms. Daniella Sandler- Coordinator of the Committee on behalf of the CHE.

Within the framework of its activity, the Committee was requested to:¹

1. Examine the self-evaluation reports, submitted by the institutions that provide study programs in Medicine, and to conduct on-site visits at those institutions.
2. Submit to the CHE an individual report on each of the evaluated academic units and study programs, including the Committee's findings and recommendations.
3. Submit to the CHE a general report regarding the examined field of study within the Israeli system of higher education including recommendations for standards in the evaluated field of study.

The entire process was conducted in accordance with the CHE's Guidelines for Self-Evaluation (of October 2012).

¹ The Committee's letter of appointment is attached as **Appendix 1**.

Chapter 2-Committee Procedures

The Committee held its first meetings on 23 February, 2014, during which it discussed fundamental issues concerning higher education in Israel, the quality assessment activity, as well as all medical Study programs in Israel.

During March 2014, the committee conducted multi-day visits at Ben-Gurion University of the Negev and the Technion. In May and June 2014, committee members visited, Hebrew University, Tel Aviv University and the Bar Ilan University campus in Tzefat. During the visits, the Committee met with various stakeholders at the institutions, including management, faculty, staff, and students.

This report deals with the Tel Aviv University Sackler School of Medicine. The Committee's visit to the school took place between the dates 19-21.5.2014. The schedule of the visit is attached as **Appendix 2**.

The Committee thanks the management of Tel Aviv University and the School of Medicine for their self-evaluation report and for their hospitality towards the committee during its visit at the institution.

The format of this report is the following: Chapter 3A outlines the Committee's observations and findings, but not its recommendations. Chapter 3B contains a full narrative of the Committee's observations, findings, and recommendations. Chapter 4 is a collection or aggregation of the Committee's recommendations. Chapters 3A, 3B, and 4 are organized in the following sections: Mission and goals; Organizational structure; Study programs; Human resources/faculty; Students; Teaching and learning outcomes; Research; Infrastructure; Self-evaluation process; and Additional comments. Readers may choose to read the entire report; or Chapters 3A and 4; or Chapter 3B.

Chapter 3: Evaluation of Tel Aviv University Sackler School of Medicine

This Report relates to the situation current at the time of the visit to the institution, and does not take account of any subsequent changes. The Report records the conclusions reached by the Evaluation Committee based on the documentation provided by the institution, information gained through interviews, discussion and observation as well as other information available to the Committee.

Chapter 3A: Outline of Observations and Findings:

Tel Aviv University Faculty of Medicine's Sackler School of Medicine has several study programs leading to an MD degree. This review focuses primarily on the 6-year and 4-year programs for Israeli medical students and the MD/PhD program. We received only a little information about the American medical school.

The Committee's major findings are as follows:

1. Mission and Goals:
 - a. The School's stated mission applies to each of the MD programs: "Our mission is to train outstanding physicians, imbued with moral and professional values, and gifted with clinical skills and knowledge. We aim to provide them with the competencies that will allow them to excel in the hospital and the community work, during residency and throughout their entire career, as clinicians, researchers and teachers."
 - b. The Faculty "aims at four competency sets"
 - i. Clinical competencies
 - ii. Cognitive competencies
 - iii. Core knowledge in basic and clinical science
 - iv. Self-awareness and attentiveness to patients' needs
 - c. The Committee was impressed that this mission is embodied throughout TAU and is manifest in its study programs as well as in the values of its leaders, faculty, students, and administration.
2. Organizational Structure
 - a. The Faculty of Medicine comprises six schools, of which one is the Sackler School of Medicine.
 - b. The dean has a five-year term of office renewable for three years. The current dean, Prof. Mekori, who is completing eight years of service, has shown great vision and leadership, exhibited by continuity, consistency, and significant changes and improvements since the CHE report in 2007.

3. Study Programs

- a. As noted above there are several programs leading to an MD degree. The Sackler School's Curriculum Committee monitors all aspects of the curricula and is responsible for any changes. It undertakes this through Clinical and Pre-Clinical committees that have cross-representation. Each course is reviewed annually and minor change can be implemented without central University approval.
- b. A long-term Planning Committee is convened every 5 years, charged with reviewing the School's mission to determine whether any significant changes to the curriculum are required. The 2012 review recommended:
 - i. A review of the 4-year program in 2016 with a possible merger of the 4- and 6-year courses into a 5-year course.
 - ii. Consideration of shortening the 6th year; promoting small group bedside teaching during the clinical years; developing a similar approach in ambulatory care; implementing a competency-based curriculum that includes learning objectives; the inclusion of the scientific base of clinical practice in the pre-clinical studies; and increasing the amount of self-directed learning in the preclinical period.
- c. Unique features of the 6-year program include:
 - i. Vertical themes that extend through the study program, i.e., professionalism, ethics, sociology and psychology
 - ii. Communication skills
 - iii. Emphasis on imaging
 - iv. Having students follow individuals, beginning in year 1, and later families, with long-term medical conditions
 - v. Requiring students to complete a number of reflective journals during the study program
- d. Although students visit patients outside the hospital setting from the first year, the Committee felt that too little time is spent in community clinics or primary care settings.
- e. In the 4-year program, year 2 includes both the systems course and introduction to clinical medicine. Clerkships in years 3 and 4 are shorter than in the 6-year program, but some include students from both.
- f. A thesis is required for both the 4- and 6-year programs.
- g. The American Program is taught separately, and year 4 is spent mainly in elective clerkships in North American hospitals.
 - i. The Committee believes that students need more help connecting them with North American elective opportunities.
- h. All the TAU MD degree programs use the hospitals in the area. Students from medical schools outside Israel are also taking clerkships in these hospitals, further limiting hospital teaching resources.

- i. Noteworthy recent enhancements to the preclinical curriculum include the aim of achieving about one-third supervised independent learning vs. frontal lectures, a patient safety course, and a course in evidence based medicine.
- j. In the clinical years there is now a community placement in pediatrics and the introduction of simulation as a teaching modality.
- k. Of note, the MD/PhD program, which provides fellowship support to students during their PhD work, attracted 10 students this past year and seems to be growing. Though the stated duration of the program is 3 years, there is commendable flexibility for a student to take a longer period if necessary.
- l. The MD/MPH, delivered jointly with the School of Public Health, is in an early stage of implementation. The Committee did not hear specifically about this program.
- m. The Committee also did not hear specifically about other public-health-related or prevention-oriented programs that should be and are part of the medical education curricula.

4. Human Resources/Faculty

- a. There is limited integration of the teaching between the MD programs.
- b. Faculty of the medical schools carry a heavy load, including teaching in the other schools of the Faculty of Medicine.
- c. With the current staffing level, planning and implementing more guided self-learning, greater integration, small group learning, and competency-based evaluation are difficult to achieve. This is an issue both for basic science and clinical teaching faculty.
- d. Much of the clinical teaching is voluntary by persons without academic appointments, some of whom feel insufficiently recognized.
- e. The Committee overall was impressed by the quality and positive attitudes of the basic science and clinical teaching staff.
- f. Relationships between faculty and students seem to reflect mutual respect and consideration.
- g. The clinical teaching staff faces significant obstacles in carrying out research because of lack of “protected” time.
- h. Members of the junior academic staff and teaching assistants were uniformly enthusiastic about their positions, research, teaching, mentoring, compensation, and overall institutional support.

5. Students

- a. Faculty members note a positive change in Israeli student behavior and abilities since the introduction of non-cognitive screening. Follow-up studies indicate that scores on the non-cognitive screening are predictive of behavior as assessed by peers.
- b. The Committee did not hear about the entry criteria for students in the American program.

- c. To date, there has not been a formal follow-up survey of the career paths of graduates of the three main MD study programs or the MD/PhD program.
- d. American program: USMLE pass rates are high (>90 percent on the first try); and matching for residencies has generally been successful.
- e. Although students like the interactive anatomy course, much of the other preclinical instruction is still by frontal lectures. Attendance is poor at lectures, despite the impression of some faculty members. Many students use lecture summaries prepared by other students instead of attending lectures.
- f. Students generally like the Basic Clinical Skills Course, but it consists almost entirely of frontal lectures.
- g. In the clinical years, students are taught by a variety of methods including lectures, simulation, shadowing physicians, and taking histories and performing physical examinations. They are directly observed on one or more occasions while they take histories and perform physical examinations. They receive mid-rotation feedback but do not always see their end-of-rotation evaluation. Generally, the students are unaware of, or do not use, the prepared syllabi. There is insufficient standardization among departments, though some clerkships, e.g., OB/GYN, are well-organized.
- h. Students feel they have excellent communication with and access to their teachers and professors and to the school administration. Students are represented on faculty committees. Student-faculty meetings are held regularly. Students feel supported when they have to be absent for military reserve duty and find that extra help is offered to them if they are at risk of failing.
- i. There is some interaction between the 4-year and 6-year Israeli students but almost none with the American program.
- j. Though students can receive pay for practical experience via the laboratory and physicians' assistants programs, the pay is low. Because living expenses in Tel Aviv are high, not all students are able to take advantage of these opportunities as they need to find higher paying jobs. Physician assistant jobs are not structured, supervisors have no formal teaching responsibility, and there is no formal curriculum. The Committee feels these opportunities could be designed to have significantly greater educational benefits.
- k. In the 6-year program more than 50 percent of the students are women, and in the 4-year program 70 percent are women. There are many female role models among the preclinical faculty (50 percent). The students note flexibility in the post-doctorate experience, and most promising PhD graduates are encouraged to, and find a way to, go abroad.
- l. Students feel they have a venue for reporting unprofessional behavior among clinicians.

- m. Faculty members have been given the power to dismiss or expel students exhibiting repeated unprofessional behavior.

6. Teaching and Learning Outcomes

- a. There is little comparative quantitative information for assessing how the structural and pedagogical differences between the MD study programs may affect students' learning outcomes. The Committee encourages that a proposed evaluation of outcomes of the 4- and 6-year programs occur as soon as possible.
- b. Although there are four overall "competency sets" with learning objectives for each course and clerkship, the learning objectives are generally not "mapped" to the relevant competencies or presented in a consistent format and lack a consistent level of detail throughout the curriculum.
- c. There is a student-faculty compact or "treaty" codifying the responsibilities of students and faculty to the educational program and to each other. The compact is posted prominently on a wall in the medical school building.
- d. Groups of 12 preclinical students meet every two weeks with an assigned facilitator where they review reflective writing assignments.
- e. Assessment of students' knowledge acquisition is largely by multiple choice examinations.
- f. An estimated 90 percent of the preclinical curriculum in the 6-year program is in the form of frontal lecture. There should be more team-based learning, allowing the inclusion of some student self-assessment and real-time formative group assessments. The latter is now represented by use of "clickers" in lectures.
- g. Students begin to learn clinical skills during the preclinical phase, though the great majority of this instruction is lecture-based, not skills based. Neither the 4-year or 6-year program has a structured assessment of students' clinical skills (e.g., OSCE) prior to entry into the clerkship phase.
- h. Students in both the 4- and 6-year Israeli programs reported receiving consistent formative feedback on their knowledge and clinical skills midway through clerkships and observation by faculty at least once in history-taking and physical examination. There is a structured assessment at the end of each clerkship, e.g., internal medicine has an oral examination and an assessment of physical examination skills, as well as a final meeting between the student and his/her tutor.
- i. The two simulation centers, MSR at Sheba Hospital and Simultech at Meir Hospital, are involved in some undergraduate teaching.
- j. There are two institutional entities available for faculty development and for the assessment and support of faculty teaching efforts. New preclinical faculty must participate in a simulation workshop on teaching skills, including small group methods, but the sessions are offered only every two years.

- k. MSR provides simulation workshops in bedside teaching on a regular basis. Simultech trains OB/GYN clerkships tutors for all sites.
- l. The preclinical and clinical curriculum committees reexamine course content and the interface between the courses every two years.
- m. Within each major clinical clerkships discipline, committees of faculty from the various sites visit each site generally on a twice-yearly basis.
- n. The Committee was unable to compare the national examination performance of TAU students with those from other schools.
- o. USMLE data provided to the Committee consisted of a mix of students from the American program (required) and Israeli programs (optional). Though the overall pass rate (91.5 percent) was much higher than that of other international medical graduates (70 percent), the average score was in the 38th percentile for all test takers.

7. Research

- a. There is structured support for the required MD thesis though apparently insufficient dedicated time for many students to complete the work before the seventh (stage) year. Publication of thesis findings is encouraged.
- b. About 10 students were accepted into the MD/PhD program in the past year. MD/PhD students are supported for three years and may extend to four as needed. The Committee found this commendable.
- c. There are summer laboratory research opportunities at Sheba Hospital, and the research institutes at TAU are an important resource for student research.
- d. The Committee was impressed that the total research budget of the Sackler School of Medicine has been rising steadily. For 2012-2013 it was \$141.5 million, of which \$100 million was external funding.
- e. Although the Committee did not receive an overall listing of publications by the faculty, inspection of a number of faculty CVs showed a very high quality of science.
 - i. Nonetheless, with 120 preclinical research faculty listed for the medical school, there may be more opportunities for integration of local research with clinical care.

8. Infrastructure

Overall, the Committee feels that TAU has done a commendable job at maintaining and enhancing its infrastructure.

- a. The Committee heard about and saw an adequate and purpose-built infrastructure to support teaching and research.
- b. Lecture halls have been renovated, but there is not access to a power outlet at each student seat.
 - i. The size of the class in the 4-year program (66) is apparently limited by the size of the available classroom for lectures.

- c. The Library has been renovated into a modern study center and appears to have ample spaces for individual and small group study by those located physically on the University campus.
- d. Library information services are reported to be good by students and others and include remote access to a large number of electronic journals.
- e. TAU uses Moodle to handle a variety of interactions between students and faculty, including all preclinical course materials, chats, and exam grades. This is now being implemented for all clinical courses.
- f. There appears to be good access to buildings for disabled individuals.
- g. Additional needs stated in the self-evaluation include more small classrooms for small-group case-based learning and more computer classrooms to work with Virtual Desktop Infrastructure.
- h. The animal facilities are accredited; one is an SPF facility, and the facilities are reported to be adequate.
- i. The molecular imaging center, recently built, has state-of-the-art molecular imaging technology for research. It is a national resource.
- j. MSR and Simultech are both available for simulation-based learning.
- k. There are a number of non-physical infrastructural assets at TAU, e.g., the TAU Research Authority to facilitate grants submissions.

9. Self-evaluation process

- a. The self-evaluation report exhibited candor. The Committee thanks Dean Mekori for his oversight, Karen Avraham who was responsible for the process and the report, and all who participated actively in the report's preparation.
- b. Review of the initial report materials by the Faculty led to a "to-do" list and, in turn, to actions that are documented.
 - i. The Committee feels that this process is excellent and is consistent with the quality improvement intended by the Council for Higher Education.
 - ii. The Committee highly commends the Faculty and hopes that the Faculty, as the term of a new dean begins, will continue to engage regularly in self-reflection and improvement.

10. Additional comments

- a. The Committee is impressed with the leadership and organizational strength of this Faculty of Medicine over the past several years.
 - i. There has been significant programmatic improvement since the 2007 CHE review.
 - ii. This improvement has occurred in spite of decreased government financing for higher education during the first decade of the new millennium.
- b. The Committee believes a few items merit focus going forward:

- i. Follow the existing strategic plan and revisit it frequently: The Committee is pleased and impressed that this is a formal plan from 2012.
 - 1. The Committee urges comparing the 4- and 6- year programs as soon as possible to facilitate future curricular planning in order to decide on the optimal preparation for and length of the course of study for an M.D. degree, and to inform the next strategic planning process.
- ii. Even at TAU, with the largest group of affiliated hospitals in Israel, there is concern about competing uses of hospital teaching facilities.
 - 1. This concern was raised in the context of hospital-based teaching of students from non-Israeli medical schools.
 - 2. Given that the government would like to see a further increase in Israeli medical graduates who will serve the population of Israel, it is important that TAU consider multiple factors related to scarce hospital resources for Israeli students in Israeli medical schools, including:
 - a. Reassessing the benefits and opportunity costs of the American program to TAU
 - b. Paying serious attention to the development of stronger primary care and ambulatory medical education
- c. Further develop the important efforts focused on faculty development.
- d. Continue to take a leadership role across faculties of medicine in Israel in developing shared resources such as MSR.
 - i. One might consider development of online courses or course materials that could be shared across institutions.
- e. Explicitly examine the reality that medical students in Israel including at TAU need paid employment. Seek ways to make student work experiences as relevant as possible to their medical education.
- f. Given the need in the 21st century to foster better teamwork in health care, consider developing interprofessional education among the multiple health professions schools and education programs in the Faculty of Medicine at TAU.

NOTE: In a spirit of quality improvement, the Committee has developed a set of recommendations keyed to the subject areas above. These are aggregated in Chapter 4. The Committee urges readers to examine the recommendations carefully and hopes they will be particularly helpful to Tel Aviv University and its Faculty of Medicine.

Chapter 3B: Full Observations, Findings, and Recommendations:

1. Mission and Goals

- Observation and findings

The School's stated mission is as follows:

"Our mission is to train outstanding physicians, imbued with moral and professional values, and gifted with clinical skills and knowledge. We aim to provide them with the competencies that will allow them to excel in the hospital and the community work, during residency and throughout their entire career, as clinicians, researchers and teachers.

We aim at four competency sets:

Clinical competencies: Ethical and emphatic demeanor; clinical skills; deep knowledge; skills needed for teamwork; communication skills with patients and their families and with co-workers; and awareness to social needs.

Cognitive competencies: The skill to formulate questions and ways to solve them; instruments for continuous, analytical self-learning; scientific curiosity and skills to begin their way in research.

Core knowledge in basic and clinical science

Self-awareness and attentiveness to patients' needs"

The Committee is impressed that this mission is embodied throughout TAU and is manifest in the study programs as well as by the stated and lived values of the leaders, faculty, students and administration of the School. We applaud the fact that the mission statement is framed in terms of competencies, as there is now international recognition that medical education must move towards a competency-based rather than a process-based framework.

Most impressive is the concept that clinical competencies embody **professionalism** rather than seeing professionalism as a separate "topic" that can be mentioned in some discrete lectures and then not addressed again. The vertical theme of professionalism throughout the curriculum demonstrates this commitment. The Committee confirmed that specific professionalism domains such as ethics and attention to patients' bio-psycho-social needs are indeed taught and reinforced throughout the curriculum.

In addition, the crucial importance of **self-awareness** is emphasized by the leaders of the Department of Medical Education and is specifically taught by means such as written reflections and simulation debriefings.

There is less evidence that **analytic self-learning** skills are emphasized, especially in the pre-clinical years. Much of the preclinical teaching is based on traditional passive knowledge transfer with less emphasis on self-study of core material on-line in conjunction with large teaching sessions where problem-solving could be

emphasized. Nonetheless, the immunology course does present an excellent example of using challenging questions interactively in a large group setting. While the vertical theme of **research** is present in the curriculum, the Committee's impression was that more attention could be paid to the development of analytic scientific thinking skills.

As mentioned in the self-evaluation report, it is easier to document what is being taught than it is to measure what is actually learned, especially in the domains of professionalism. That said, it is incumbent upon all of us as medical educators to develop assessments of whether the mission and goals of our institutions are translated into **outcomes**, in this case, the ultimate outcome being the performance of physicians in their professional careers.

- Recommendations
 - a. Short term/immediate (~ within 1 year)
 - Convene the leaders of all courses and clerkships and refine the competency-based learning objectives and assessments for these competencies in every course and clerkship. This process can be augmented by providing more faculty development workshops on both teaching and assessment.
 - b. Intermediate (~ within 2-3 year)
 - Develop a continuous system to assess the outcomes of the competency-based curriculum.

2. Organizational Structure

- Observation and findings

The Committee was given a flow chart outlining the organizational structure of TAU. It shows a multi-faculty university in which the Faculty of Medicine has the third largest number of students. The Faculty of Medicine comprises six schools, of which one is the Sackler School of Medicine. This school was the focus of the Committee's evaluation process.

The dean has a five year term of office renewable for three years. Prof. Mekori, the current dean, has exhibited great vision and leadership over the past eight years. The continuity, consistency, and strength of his leadership have enabled significant change and improvement since the CHE report in 2007, written shortly after he took office. This success emphasizes the importance of a governance structure that enables and encourages continuity of leadership.

The organizational structure of the Sackler School with regard to education and teaching enables strategic, reflective, and responsive leadership. Indeed, the organizational structure and processes appear to enable flexibility in the management of the Faculty of Medicine except in the area of appointments and promotions.

The Committee understands that Dean Mekori is now in his final months in office and hopes that his achievements will be sustained and built upon.

- Recommendations
 - a. Short term/immediate (~ within 1 year)

See recommendation relating to appointments and promotions in section 4, Human Resources/Faculty

3. Study Programs

- Observation and findings

The TAU Faculty of Medicine provides a number of degree programs organized in the six component schools. The Sackler School of Medicine, which is the focus of this report, has 3 separate MD programs. These are the 6-year program for Israeli students, a unique 4-year program for Israeli graduates who have an appropriate background in the bio-medical sciences, and the 4 year, English-language, New York State/American Program for American and Canadian students based on the U.S. model of medical education.

The Sackler School's Curriculum Committee is the body that monitors all aspects of the curricula and is responsible for any changes. It undertakes this through Clinical and Pre-Clinical committees that have cross-representation. There is an annual review of each course and minor changes can be implemented without approval by University authorities.

A long-term Planning Committee is convened every 5 years, charged with reviewing the School's mission to determine whether any significant changes to the curriculum are required. The strategic review undertaken in 2012 states that a review of the 4-year program should be undertaken in 2016 with a possible merger of the 4- and 6-year programs into a 5-year program. Other proposals include: just shortening the 6-year program to 5 years, promoting small group bedside teaching during the clinical years, developing a similar approach in ambulatory care, implementing a

competency-based curriculum² that includes learning objectives, the inclusion of the scientific base of clinical practice in the pre-clinical studies, and increasing the amount of self-directed learning in the preclinical period.

Unique features of the 6-year program include: the vertical themes that extend through the program, namely, professionalism, ethics, sociology and psychology, communication skills, imaging (related to the various stages of the program); having students, beginning in the first year, follow individuals and later families with long-term medical conditions; and requiring students to complete a number of reflective journals describing their experiences during various stages of the program.

Although students visit patients outside of the hospital setting from the first year there is too little time spent in community clinics or primary care settings.

The 4-year program follows the same principles as the 6-year, however since the 4-year students already have baccalaureate degrees their first year is clinically oriented. Anatomy is taught using advanced imaging techniques. The systems course takes place in the 2nd year with the introduction to clinical medicine given at the end of the year. Clinical clerkships take place in the 3rd and 4th year but rotations are shorter than the 6 Year Program (e.g., neurology is one week shorter). Some clerkships include students from both the 4th and 6 year programs.

Both the 4- and 6-year programs require students to complete an MD thesis. Students receive formal advice from the epidemiology department as part of the topic approval process.

The American Program is taught separately from the Israeli courses. The fourth and final year of the course mainly takes place in North American hospitals where students obtain elective clerkships. The Committee believes that despite some existing arrangements with U.S. hospitals for electives, students generally need more help connecting them with elective opportunities since many institutions are willing to take only students whose medical schools have pre-existing arrangements or where there is a personal relationship with faculty.

All three MD degree programs utilize the large network of hospitals in the Greater Tel Aviv area for their clinical placements. The Committee was informed that use was made of these hospitals by students from medical schools outside Israel, creating competition for already limited hospital teaching resources.

Recent changes in the programs are listed in the self-evaluation report and not repeated here in detail. Noteworthy enhancements to the preclinical curriculum

² As noted in Section 1, Mission, the four competency sets are: Clinical competence; Cognitive competence; Core knowledge in basic and clinical studies; Self-awareness and attentiveness to patient's needs.

include the aim of achieving about one-third supervised independent learning vs. frontal lectures, a patient safety course, and a course in evidence based medicine. In the clinical years there have been a number of changes to the duration and timing of the clerkships and the inclusion of a community placement in pediatrics. An important development has been the introduction of simulation as a teaching modality. The Committee visited Simultech, located at Meir Hospital. Simultech is used both for medical student teaching and faculty development of tutors in OB/GYN. It also visited MSR, which is a national simulation resource located at Sheba Hospital, a TAU-affiliated hospital. MSR is utilized by TAU for some limited medical student teaching.

The MD/PhD program is designed for outstanding students who take a break from their MD studies usually after the 3rd year. The stated duration of the program is 3 years, but there is commendable flexibility for students to take a longer period if necessary. Having completed the PhD, students return to the MD program to finish their clinical studies. It is noteworthy that the program, which provides fellowship support to students during their PhD work, attracted 10 students this past year and seems to be growing from year to year.

The MD/MPH course is delivered jointly with the School of Public Health and is in an early stage of implementation. The Committee did not hear specifically about this program. It also did not hear about other public-health-related or prevention-oriented programs that should be and are part of the medical education curricula.

- Recommendations

a. Short term/immediate (~ within 1 year)

- Continue the process of integrating clinical and preclinical teaching.
- Improve the coordination of teaching between hospitals so that a consistent approach for each clerkship is adopted. (see Teaching and Learning Outcomes, section 6)
- Systematically review each program of the medical school to determine whether lessons learned from one MD program can be incorporated into other programs. This should be undertaken on a regular, ideally annual, basis. In particular, undertake review of the 4-year and 6-year programs as indicated in the strategic review to determine whether any changes to the content and duration of the courses would be beneficial. Review the American Program and determine the degree to which it might be diverting essential resources away from the Israeli programs.

b. Intermediate term (~ within 2-3 year)

- Develop a strong review process to assess teaching quality across clinical sites.
- Increase the number of community sites, particularly primary care sites, for student teaching in line with the changing needs of the community; ensure that the quality of teaching in community sites meets a high standard of excellence.
- Continue to seek opportunities to use various types of simulation tools to increase the effectiveness and efficiency of medical education.

4. Human Resources / Faculty

- Observation and findings

There is very limited integration of the teaching between the three MD programs (4-year, 6-year, American). The teaching load on the staff of the medical schools is quite heavy. It includes not only the three MD programs but some teaching in the other schools of the Faculty of Medicine. The university as a whole suffered a 25 percent reduction in staff over a 5 year period; and now there is an increased number of medical students who require teaching by the faculty of medicine. Slowly, small increments in faculty numbers are occurring. Simultaneously, the faculty has been trying to minimize dependence on frontal lectures as the major teaching method and move to more modern innovative teaching and evaluation techniques that are often more labor intensive (e.g., guided self-learning, greater integration, small group learning, competency based evaluation). Planning and execution of the projected desirable changes are difficult to achieve with the current staffing level in spite of what seems to be a firm commitment on the part of the faculty to move ahead progressively. The problems cited affect both the basic science teaching staff as well as the clinical teaching staff.

The clinical teaching staff is dispersed over 181 departments, 17 hospitals and many clinics. The Committee's impression is that the clinical teachers and their teaching contributions, including innovative curricular work, suffer from insufficient academic recognition by the University. Much of the teaching is carried out on a voluntary basis. While teaching excellence does receive some consideration in academic appointments and promotion, clinical teachers uniformly expressed the feeling that disproportionate weight is being granted to research publications. This situation leads to frustration and discontent among clinical teachers. As one of the teachers stated, "Altruism cannot be maintained indefinitely." Furthermore, this contrasts with the situation in some of the leading Western medical schools, indeed

schools known for their research, that have also created prestigious academic pathways for outstanding clinician-scholars and teachers.

The Committee was impressed both by the quality and the positive attitudes of the teaching staff in the basic sciences and in clinical medicine. Our impressions were confirmed by students of all three schools and at all levels. The relationships between faculty and students seemed to reflect mutual respect and consideration.

The clinical teaching faculty faces significant obstacles in carrying out research because of lack of “protected” research time. Thus, time to perform research has to be in addition to the clinical and teaching loads imposed upon them.

It is likely that the problems, both with respect to available time and with respect to academic appointments, are more serious in the primary care sector. Community-based teachers will also need faculty development in order to maximize their teaching skills.. Faculty development is likely to be seen by community-based faculty as a benefit of their having an academic affiliation. Unfortunately, the Committee had the opportunity to meet with only one teacher in the ambulatory and community sector.

The junior members of the academic staff and the teaching assistants that the Committee met were uniformly enthusiastic with their positions, research, teaching, mentoring, compensation, and overall institutional support.

- Recommendations

a. Short term/immediate (~ within 1 year)

- It is necessary to increase the size and development of the teaching staff to meet the needs of the increased number of students across the three main M.D. degree programs and to enable the expansion of modern innovative, but often labor intensive, teaching and evaluation methods. Develop a plan for doing this.
- Build on the existing program at the Unit of Medical Education that appears to be running impressive programs with limited resources.
- Seek funding to expand the faculty and to allow clinicians to have protected time to devote to either teaching or research. Multiple funding sources will probably be needed. These might include the CHE/VATAT, the Ministry of Health, the various sick funds and private donors. Though this is a general recommendation it also requires local advocacy. Work on this should start promptly and continue into the intermediate and long term.

b. Intermediate term (~ within 2-3 year)

- The criteria for academic appointments should be broadened to give appropriate recognition for outstanding performance in clinical care and in teaching. Such recognition is currently the accepted practice in some of the very best academic institutions in Canada, the United Kingdom and United States. As a first step the University leadership should investigate the criteria for academic appointments at leading academic institutions in the West and try to determine which might be suited to this university.³ Medical education, in which so much of the learning and scholarship take place outside the walls of the university, is different from other types of education in which TAU engages and therefore merits different considerations of scholarship.

5. Students

- Observation and findings

Admissions:

Faculty members have noted a positive change in student behavior and abilities since the introduction of non-cognitive screening which was shortly before the 2007 CHE evaluation. There have been some publications on follow-up of these students and the admissions process indicating that scores on the non-cognitive screening are predictive of behavior as assessed by peers.

The Committee did not hear about the entry criteria for students in the American program.

Student numbers and career paths:

The 4-year program has about 66 students. The 6-year class is about 120 students and the American program about 65. There has not been a formal follow-up survey of the career paths of graduates.

MD/PhD:

Currently there are about 10 MD/PhD students per year. They are recruited during their preclinical years, frequently after doing a summer research program, and then spend 3-5 years in the lab. (See section 7, Research) The Committee neither sought

³ At Harvard Medical School (HMS) the promotions process is completely self-contained within the HMS faculty and deans. Within the medical school, both clinical and research faculty share the promotions process, i.e., it is not a separate process for MDs vs. PhDs or clinical faculty vs. those with a research portfolio. Once the promotion is approved, it is sent to the University for final approval where a different determination would be an extremely rare event. See: Harvard Medical School and Harvard School of Dental Medicine. Criteria for Appointment and Promotion. Available at: <http://facultypromotions.hms.harvard.edu/promotions.pdf>

nor was given any follow-up information on the MD/PhD graduates and thus cannot comment on the outcomes of these students.

American program:

Matching in residency programs has been successful. USMLE pass rates are high (>90 percent on the first try). Sackler graduates in the U.S. are a resource for TAU students and post-docs looking for positions abroad. Students in the American program expressed frustration in finding elective rotations outside the New York area where agreements do exist between Sackler and a variety of institutions. Lack of additional agreements seems to impact their ability to find both rotations and residencies. The Committee feels that the students could use additional support in finding clerkships and residencies in the U.S.

Learning Experience:

1. Pre-clinical studies

The students enjoy and appreciate their bi-weekly meetings with their mentor/facilitator but some felt that despite these meetings they lacked a faculty member who knows them well and could counsel them on their career path. They appreciated all efforts to inject clinical content into the preclinical program but would like more clinical experiences in the first year. They enjoyed the clinical days that were attached to every system during the third year course. They appreciated the ethics teaching.

Much of the preclinical instruction is still by frontal lectures. Despite the impression of some faculty members, students told us that attendance is poor at these lectures. Students who do not attend the lectures tend to use lecture summaries prepared by other students, freeing up their time to work and engage in other activities. Some expressed a desire for a textbook from which to study in each course. They would appreciate more online courses. They would like to feel more challenged. We did not have specific detailed information and feedback on every course, but we note that students were particularly appreciative of the Anatomy course which they described as “perfect”. Students in the 4-year program are exempt from specific pre-clinical courses if they have an adequate background in the subject; they also are given extra time for subjects they are weak in.

2. Basic Clinical Skills Course

This is a three-month course that, although enjoyed by the students, consists almost entirely of frontal lectures. Students enjoyed and appreciated the clinical relevance of this course but felt that while it prepared them well for internal medicine rotations they were inadequately prepared for psychiatry and surgical rotations.

3. Clinical years

Students are taught by a variety of methods including lectures, simulation, shadowing physicians, and taking histories and performing physical examinations. They are directly observed on one or more occasions while they take histories and perform physical examinations. They receive mid-rotation feedback but do not

always see their end-of-rotation evaluation. Generally, the students are unaware of, or don't use, the prepared syllabi. There is insufficient standardization among departments. Some clerkships, such as OB/GYN, are well-organized, while others fail to provide learning objectives and structured teaching experiences. Information about the quality of teaching in departments is shared by word of mouth and informal surveys among the students. Students are selected for the particular rotations by lottery. One problem is the cost involved in traveling to some of these sites. MD/PhD students and mothers with young children have some flexibility in choosing their rotations. American program students enjoy their clinical rotations and feel they are being very well trained. Those who had participated in electives in the U.S. felt that their clinical skills and knowledge level were on par with their American counterparts.⁴

4. MD thesis: Students receive mentoring on research methodology from epidemiologists during proposal and thesis preparation. The longitudinal epidemiology-biostatistics and critical appraisal curriculum helps them with this process, but there is little free curricular time for the project. (see section 7, Research, for additional information about the thesis).

5. Access and responsiveness of the administration to student needs: Students felt they had excellent communication and access to their teachers, professors and school administration. Students are represented on faculty committees. Student-faculty meetings are held regularly. Students feel supported when they have to be absent for military reserve duty and feel that extra help is offered if they are at risk of failing a subject.

Although students acknowledged that there are specific support systems as well as general receptivity towards their needs, they often do not know how to access support when they encounter logistical or personal problems.

As noted, American-program students need more faculty support finding electives and residencies in the US.

6. Other issues:

Integration: There is some interaction between the 4-year and 6-year Israeli students but almost none with the American program. Attempts were made to do

⁴ The Committee could not independently confirm this statement. We were provided USMLE test scores from 2010 but the results were not given separately for American program students who must take the USMLE and Israeli students, some of whom opt to take the USMLE. Although the overall pass rate is 91.5 percent, which is much higher than that of other international graduates (70 percent), the average score was only in the 38th percentile for all test takers.

Although American program students at TAU did not feel it was a problem, the Committee also has some general concerns that their learning in clinical situations might not be comparable to that of students in an English-speaking country in light of limited language skills including limited ability to read hand-written Hebrew records. There are no comparative follow-up data on clinical performance when the graduates enter residencies in North America.

this on a social basis, yet these efforts were unsuccessful. Students in the four year program felt that some subjects could be taught jointly with the American program.

7. Examinations:

Students have immediate access to the exam key after multiple choice examinations and may meet with their teachers to inspect their individual examinations some time afterward.

8. Practical experience:

Students have an option to receive pay for practical experience via the laboratory assistants and physicians' assistants programs. Because living expenses in Tel Aviv are high, not all students are able to take advantage of these opportunities as they need to find higher paying jobs. Those who engage in this work find it very rewarding due to the perceived benefit of enhancing their clinical exposure and experience. However, these physician assistant jobs are not structured, their supervisors have no formal teaching responsibility, and there is no formal curriculum. These opportunities could probably be designed to have significantly greater educational benefits.

9. Gender:

In the 6-year program more than 50 percent of the students are women and in the 4-year program 70 percent are women. Women and older students receive higher scores in the non-cognitive screening. There are also many female role models among the preclinical faculty (50 percent). The students note flexibility in the post-doctorate experience, and most promising PhD graduates are encouraged to, and find a way to, go abroad.

10. Professionalism:

Professionalism is explicitly taught throughout the preclinical and clinical curricula. Students felt that they have a venue for reporting unprofessional behavior among clinicians. There has been a struggle about how to deal with unprofessional behavior among students. After about two years of debate, the faculty has been given power to dismiss or expel students exhibiting repeated unprofessional behavior as opposed to dismissal being based solely on the basis of low grades.

The students highly value the "Breaking bad news" course.

GENERAL COMMENT: The Committee's general impression was that the students are pleased with their education. They value the collegial relationship with the administration and feel supported by the faculty.

- Recommendations

a. Short term/immediate (~ within 1 year)

- Increase experiential clinical exposure in the preclinical years.
- Increase faculty support for American students to find rotations and potential residency positions.
- Address the issue of providing support to students for handling logistical or personal problems. Consider appointing a tutor or point of contact for each year of the MD curricula who can triage and help handle individual student problems.

b. Intermediate term (~ within 2-3 year)

- Make more effort to standardize the quality of the clinical rotations across the sites. (see section 6, Teaching and Learning Outcomes)

c. Long term (until the next cycle of evaluation)

- Institute a tracking system and periodic surveys for students and alumni in order to evaluate clinical career choices and involvement and success in science.

6. Teaching and Learning Outcomes

- Observation and findings

The following observations and findings will be specifically noted, wherever possible, as pertaining to one or more of the three MD programs conducted by the Faculty of Medicine. There is relatively little comparative quantitative information available to assess how the structural and pedagogical differences between the programs may affect students' learning outcomes. The self-evaluation report notes the intention to evaluate outcomes of the new 4-year Israeli MD program against those of the established 6-year program beginning in 2016. The Committee believes this information will be extremely important and informative, not only for TAU but for medical educators around the world. We were unable to learn much about the plan for this evaluation or any ongoing data collection efforts. We encourage the school to ensure that appropriate resources are devoted to this medical education outcomes research.

Competencies and Learning Objectives:

Well-articulated and coordinated expectations for achievement at the overall curriculum level (competencies) and each curricular component (learning objectives) are essential to effective student and curriculum assessment.

The school has established four overall “competency sets” and also produces learning objectives for each course and clerkship. The learning objectives, however, are generally not “mapped” to the relevant competencies, nor are they presented in a consistent format or with a consistent level of detail throughout the curriculum. It is the Committee’s impression that students do not find these listed competencies useful and rarely access them during their clerkships. The Committee heard of efforts underway to produce a booklet with a complete list of clerkship objectives. If implemented, it should offer the opportunity to better standardize and coordinate the content of clerkships.

Student Assessment in the Preclinical Curriculum:

The dean has made teaching and assessment of non-cognitive aspects of physician skills and perspectives a priority from the time he assumed office 8 years ago. This has resulted in a several initiatives, including the development of a student-faculty compact or “treaty” codifying the responsibilities of students and faculty to the educational program and to each other.

Expectations for the development of students’ professional behaviors are further communicated through the admissions process (see section 5, Students) and through meetings every two weeks of groups of 12 preclinical students and their assigned facilitator. The facilitation process includes review of students’ reflective writing assignments.

The assessment of students’ knowledge acquisition is largely by multiple choice examinations. Only an estimated 10 percent of the preclinical curriculum in the 6-year program is in formats other than frontal lecture. There should be more team-based learning, allowing the inclusion of some student self-assessment and real-time formative group assessments. The inclusion of an audience response system (“clickers”) in the frontal lectures, which does allow real-time formative group assessments, is a step in the right direction.

Students begin to learn clinical skills during the preclinical phase, though the great majority of this instruction in the Medical Education & Communication course and, at the outset of Year 4, in the Introduction to Internal Medicine course is not skills based and is taught by frontal lecture. The 4-year program and American program have somewhat more early clinical experience and skills-based instruction. Neither the 4-year or 6-year program has a structured assessment of students’ clinical skills (e.g., an OSCE) prior to entry into the clerkship phase.

Student Assessment in the Clinical Curriculum:

Students in both the 4- and 6-year Israeli programs reported consistent provision of formative feedback on their knowledge and clinical skills midway through the clerkship. At some point students are observed at least once by a faculty member in the performance of a history-taking and physical examination. There is a structured assessment at the end of each clerkship – for example, internal medicine has an oral examination and an assessment of physical examination skills, as well as a final

meeting between the student and his/her tutor. Written examinations are not given at clerkship end but rather at the end of medical school, i.e., the national examinations in years 5 and 6.

The Simultech simulation laboratory at Meir Hospital conducts a day-long formative simulation exercise on-site for all TAU students during their OB/GYN clerkship. The national simulation center (MSR) is utilized for anesthesia training, teaching of some advanced communication skills, and a few clinical skills assessments but little other medical student teaching.

Assessment in shorter clerkships is naturally more difficult given the limited interactions between faculty and students.

Faculty Development for Teaching:

There are two institutional entities available for faculty development and for the assessment and support of faculty teaching efforts. Within the Faculty of Medicine, the Unit of Medical Education conducts web-based surveys conveying students' evaluations of faculty teaching performance. Faculty members are able to access these data within days, facilitating mid-course adjustments when necessary. Evaluations are reviewed regularly by course and medical school administrators. Those faculty members who receive poor evaluations are offered assistance by the Unit of Medical Education.

New faculty must participate in a simulation workshop on preclinical teaching skills, including small group methods. These sessions are presented by the Unit of Medical Education, but offered only every two years. MSR, the national resource for medical simulation based at Sheba Hospital, also provides simulation workshops in bedside teaching on a regular basis, and the Simultech facility at Meir Hospital trains tutors throughout the OB/GYN clerkship for all sites.

The University's Center for the Advancement of Teaching is another resource available to the Faculty of Medicine. The Center offers regular workshops and individual consultation, largely related to the frontal lecturing formats prevalent across the university. To complement these services, the Faculty's Unit of Medical Education conducts faculty development activities for small group and bedside teaching formats more unique to medical education.

Of note, newly prepared lectures are previewed by the department, allowing constructive feedback from faculty colleagues on both content and presentation.

Program Assessment:

Both the preclinical and clinical curriculum committees reexamine course content and the interface between the courses every two years. Within each clinical clerkship discipline, committees of faculty from the various sites visit each site on a

regular basis. There are usually two such visits per year for each major clerkship, and perhaps one per year in the minor clerkship disciplines.

The self-evaluation report presented information on the range of total grades within recent classes at the point of the B. Med. Sc degree and the MD degree. The review materials did not include data that would allow benchmarking of TAU student performance against those of other Israeli schools, e.g., national examination performance. The Committee requested information on USMLE performance for those students who did sit for the exam. The data provided, from 2010, represent an admixture of students from the American program for whom the examinations are mandatory and some from the 6-year Israeli program for whom they are optional. Thus, little can be determined from the data other than the overall pass rate (91.5 percent), a rate that is considerably higher than that of other international medical graduates in that year (70 percent). The average score was in the 38th percentile for all test takers. (also see Section 5, Students)

- Recommendations

a. Short term/immediate (~ within 1 year)

- An evaluation plan and collection of data for comparing the 4-year and 6-year Israeli programs needs to be developed as soon as possible. Implementation may extend into the intermediate term, but given the importance of the results for curriculum planning and strategic planning, this should be a high priority.
- Develop the learning objectives more fully. Ensure that learning objectives map to the general competency framework. Be sure that they are then reflected in all courses and clerkships and are perceived to be a meaningful and effective resource for students and faculty to guide both teaching and assessment. Again, implementation and monitoring may extend into the intermediate term, but the basic underlying work should be done promptly.

b. Intermediate term (~ within 2-3 year)

- TAU has access to resources for clinical simulation, indeed to physical facilities and educational and technical expertise that are among the most highly developed in the world. This is an especially important resource for teaching patient safety concepts such as teamwork communication skills. To date, however, these resources are utilized only sporadically in the school's MD degree programs. The Committee recommends the development of a comprehensive clinical skills assessment program to take full advantage of these resources in addressing the TAU competencies and learning objectives.

7. Research

- Observation and findings

Student MD thesis:

The Sackler School of Medicine provides structured support for the required MD thesis. This includes pre-vetting of thesis proposals that follow a set format (with some flexibility) and proposal review by faculty of the School of Public health for epidemiologically based theses. For these, there is a half-hour review session with the student to discuss methodological issues. The school MD thesis committee designates an “escorting committee” of faculty for every thesis. This committee judges the quality of the proposal of the study, asks for improvements, and judges the final report of the study in order to be accepted as an MD thesis. Publication of the thesis findings is encouraged. This system is well thought-out, and appears to give considerable support to the successful completion of the thesis requirement.

MD/PhD program:

This program is reported to be the largest in Israel, with about 10 students accepted in the past year. The selection process is rigorous. Students are admitted to the program after the third preclinical year (for the 6-year program). As part of the selection process, they normally spend a month in the laboratory of a faculty member between first and second and/or second and third years, supported by a local (Sackler) fellowship program. The PhD part of this program offers three years’ support with encouragement to extend to four years as needed. This is most commendable. It does not require that the student who is returning to clinical studies continue working on his or her PhD thesis at the same time, a practice elsewhere that adds to the normal difficulty of a transition back into the medical curriculum. The MD/PhD students we met were enthusiastic and quite satisfied with their program, particularly with its flexibility. The students were aware of opportunities for further research within the various hospitals associated with TAU. Having a defined career path visible is an important positive aspect of research at this medical school, especially in these current precarious times for biomedical research support.

Other research opportunities:

The Sheba Medical Center offers summer laboratory research opportunities to 20 students per year.

Summary of findings:

The multiple research opportunities offered the medical students constitute a well-structured and effectively designed program that fosters creativity and offers various levels of extra research opportunity to the motivated student. The several research institutes at TAU are an important resource for student research. The MD thesis requirement is well-integrated into the medical studies program. The amount

of stress that occurs in other MD/PhD programs from conflicting academic requirements for research and for clinical studies to be performed at the same time appears to be largely avoided here by the flexibility in supported time for students to do the necessary research work.

Research at the Sackler School of Medicine:

The self-evaluation report of this school states: "Medical research is a crucial component of the Sackler School of Medicine. Excellence and productivity in research are essential elements of excellence in teaching and training for medical students, as it requires the most advanced knowledge in technology and biomedicine. The expected outcomes from our Faculty are (1) publications in leading scientific journals, (2) presentations at international conferences and (3) obtaining competitive funding for research."

Excellent scholarship, often manifest by publications and distinction in publications, is an essential part of the promotion process for all faculty. Although requiring publications as the principal manifestation of excellent scholarship might need to be changed for clinical teaching faculty (see Section 4, Human Resources/Faculty), it continues to be a hallmark of excellence in research and does reflect well the philosophy of the Sackler School.

The total research budget of the Sackler School of Medicine has gone up steadily over the past decade, and for 2012-2013 it is \$141.5 million, of which \$100 million is external funding. This is a most impressive figure. There are multiple research institutes within the TAU-Sackler system, including the Felsenstein Institute and the Integrated Cancer Prevention Center (ICPC). This justifies the claim in the self-evaluation report that "The Sackler Faculty of Medicine is Israel's largest medical research and training complex."

Although the Committee did not receive the requested listing of publications by the faculty, inspection of the CVs of numerous faculty members showed a very high quality of science, internationally quite competitive.

Nonetheless, with 120 preclinical research faculty listed for the medical school, it is likely that there are more opportunities for integration of preclinical faculty with clinical care.

- Recommendations
 - a. Short term/immediate (~ within 1 year)
 - A review of interests and publications of the preclinical faculty should be conducted for better integration of the preclinical faculty into the clinical years.

- The admission process to the medical school might include an assessment of suitability of the candidate for the MD/PhD program, and appropriate feedback and encouragement should be given to selected candidates.

b. Long term (until the next cycle of evaluation)

- Perform a comprehensive review of integration of critical reading of research reports into all aspects of the curriculum and consider enhancing such experiences and eliminating a dedicated course in methods.⁵

Students are likely to respond positively to further integration of learning about evidence as it applies to diseases and clinical trials in relation to their clinical exposures. For example, students can be challenged to provide their own alternative research designs to current literature. Competency in research evaluation might be incorporated into the major competencies of every student.

In addition, by enhancing just-in-time critical acquisition of evidence, students will become more adept at lifelong learning skills.

8. Infrastructure

- Observation and findings

The Committee heard about and saw an adequate and purpose-built infrastructure to support teaching and research.

Lecture halls in the Sackler building and elsewhere have been renovated. Nonetheless, there are not power outlets at each student seat. In addition, the size of the class in the 4-year program (66) is limited by the size of the available classroom.

Very recently, the Library has also been renovated into a modern study center. The Library facility seemed to have ample spaces for individual and small group study by those located physically on the University campus.

Information services related to the library that include remote access to a large number of electronic journals were reported to be good. The Committee heard from students in a clinical site that they readily access materials they need from wherever they might be.

⁵ There currently is a 39 hour course on Methods Research Epidemiology, with relatively low student ranking (3.1). The self-evaluation materials did include syllabi for a 140 hour course on epidemiology, statistics, and research methods, as well as a 10-session evidence-based medicine course

TAU is using Moodle, supported by its IT department, to handle a variety of interactions between students and faculty, including all preclinical course materials, chats, and exam grades. This is now being implemented for all the clinical courses.

We saw evidence of good access to buildings for disabled individuals.

In the self-evaluation, additional needs are reported including additional small classrooms for small-group, case-based learning and additional computer classrooms to work with Virtual Desktop Infrastructure, “a form of cloud-based computing that allows for the desktop environment to be centralized for increased digital learning and simulation.”

The Committee understands that the animal facilities are adequate and accredited and that one is an SPF facility.

We visited the molecular imaging center. It is a recently built facility with state-of-the-art molecular imaging technology for research. It serves as a national resource.

We also visited MSR, the extraordinary national simulation center located at Sheba Hospital, a TAU-affiliated hospital. It is run by Prof. Amitai Ziv who is also Head of the Department of Medical Education at TAU and an internationally recognized leader in medical simulation.

There are a number of non-physical infrastructural assets at TAU that are mentioned elsewhere in this report, e.g., the TAU Research Authority to facilitate grants submissions, the development of scientific centers that focus on translational research, the computerization of anatomy instructional materials and their integration with the use of cadavers and with imaging equipment, etc.

Overall, the Committee feels that TAU has done a commendable job at maintaining and enhancing its infrastructure.

- Recommendations
 - a. Long term (until the next cycle of evaluation)
 - Ensure that there are regular reviews of infrastructure so that it can continue to be updated as needed to support program. For example, should it be desirable to increase the size of the 4-year program, there will need to be a larger lecture facility available or a change in the methods of instruction.

9. Self-Evaluation Process

- Observation and findings

The Committee greatly appreciates the candor that was exhibited in the self-evaluation report. The process for preparing the report is described in Chapter 5 of that report. We would like to thank Dean Mekori for his oversight; Karen Avraham who was responsible for the process and the report; and all of the senior administration of the Faculty of Medicine who participated actively in the process.

The report was reviewed within the Faculty prior to the Committee's site visit, indeed prior to its finalization. That review led to a "to-do" list and, in turn, to actions that could be stated in the finalized self-evaluation review. This Committee feels that this process is excellent. It highly commends the Faculty for taking this approach that is very much in the spirit of quality improvement intended by the Council for Higher Education.

The Committee hopes that the Faculty, especially as the term of a new dean begins, will continue to engage regularly in self-reflection and improvement as exhibited in its strategic planning and review processes.

- Recommendations

a. Short term/immediate (~ within 1 year)

- Continue implementing incomplete items from the 2012 strategic plan and "to do" list from this review

b. Intermediate term (~ within 2-3 year)

- Perform regular interim strategic review

c. Long term (until the next cycle of evaluation)

- Enter a new formal strategic planning cycle

10. Additional Comments and Recommendations:

The Committee has already noted many strengths of the medical program at TAU as well as some areas in need of improvements. The Committee is impressed with the fact that the leadership and organizational strength of this Faculty of Medicine has been great enough to accomplish significant programmatic improvement since the

2007 CHE review. This has occurred in spite of decreased government financing for higher education during the first decade of the new millennium and large cutbacks in University faculty and staff.

Here we emphasize a few items that merit focus going forward:

- Follow the existing strategic plan and revisit it frequently:
The Committee is pleased and impressed that a formal plan was developed in 2012. It has noted the importance of beginning to assess as soon as possible a comparison of the 4-year and 6- year programs to facilitate curricular planning including the optimal preparation for and length of the course of study for an M.D. degree to inform the next strategic planning process.
- The issue of competition for use of limited resources:
The Committee heard that even at TAU, which has the largest group of affiliated hospitals of all the medical faculties in Israel, there is concern about competing uses of hospital teaching facilities. The Committee heard about this in the context of use of those resources by students at non-Israeli schools. Since we also are aware that the government would like to see a further increase in Israeli medical graduates who will serve the population of Israel, we think it is important that TAU's concern about competition for clinical teaching resources be expressed in a few ways:

Rigorously evaluate the use of clinical teaching facilities for non-Israeli medical school students.

Reassess the benefits and opportunity costs of the American program to TAU in light of the fact that the American program puts a strain on hospital teaching resources.

Pay serious attention to the development of stronger primary and ambulatory care medical education. Although one reason for such attention might be increasingly scarce hospital resources, that is not the only or best reason to explore the opportunity of better primary and ambulatory care education in the 21st century. The following are other important considerations:

- There are things that can be learned in the ambulatory setting that cannot easily be learned in hospitalized patients, for instance, the use of time as a diagnostic and therapeutic variable.
- Chronic conditions and elderly populations are increasing in most societies, and patients with multiple chronic conditions contribute disproportionately to the total cost of health care. These patients are most commonly encountered in ambulatory settings, indeed, mostly in primary care settings. The goal for their care is to prevent hospitalization to the extent possible.

- In the primary care ambulatory setting, the interaction of mental and behavioral with physical health problems becomes much more apparent. It is critically important that modern physicians and their healthcare teams manage these interactions.
 - There are international trends towards increased use of ambulatory care services as an alternative to hospitalization. Therefore, medical students need to be educated thoroughly about the strengths and weaknesses of this form of service delivery.
- Continue to build on your important efforts at faculty development.
 - Continue to take a leadership role across faculties of medicine in Israel in the development of resources that can be shared. MSR is an example of what success can look like. The impressive revamping of the approach to teaching anatomy is another example. One might consider development of online courses or course materials that could be shared across institutions.
 - Explicitly examine the reality that medical students in Israel including at TAU have paid employment, seeking ways to make the student work experience as relevant as possible to their medical education. The physician assistant program is an excellent start but reportedly provides insufficient income for many students' needs. It is also not consistently a learning experience. Those issues could be addressed and the program improved.
 - Consider developing the area of interprofessional education given the multiple health professions schools and education programs in the larger Faculty of Medicine at TAU as well as the perceived need in the 21st century to foster better teamwork in health care.

Chapter 4: Collected Recommendations:

Below, the Committee aggregates all of its recommendations from Sections 1-9 of Chapter 3B. The wording has been changed in some instances in an effort to put the recommendations in a similar and direct format. Short-term refers to “within 1 year”, intermediate-term refers to within approximately 2-3 years, and long-term refers either to “ongoing” or “until the next cycle of evaluation”. The intent of these recommendations is quality improvement. Many can be implemented locally within departments, the Faculty, or the University. Some encourage the University to advocate beyond its walls and some encourage the University to collaborate with others beyond its walls. Though the list is long, the Committee believes that each merits attention and should contribute to a plan of action.

Section 1 - Mission:

1. Convene the leaders of all courses and clerkships and refine the competency-based learning objectives and assessments for these competencies in every course and clerkship. This process can be augmented by providing more faculty development workshops on both teaching and assessment. (short term)
2. Develop a continuous system to assess the outcomes of the competency-based curriculum. (intermediate term)

Section 2 - Organizational Structure:

1. See recommendation relating to appointments and promotions in Human Resources/Faculty, section 4.

Section 3 - Study Programs:

1. Continue the process of integrating clinical and preclinical teaching. (short term)
2. Improve the coordination of teaching between hospitals so that there is a consistent approach for each of the clerkships. (see Teaching and Learning Outcomes, section 6) (short term)
3. Systematically review each program of the medical school to determine whether lessons learned from one MD program can be incorporated into the other programs. This should be undertaken on a regular (e.g., annual) basis. In particular, undertake the review of the 4- and 6-year programs as

- indicated in the strategic review to determine whether any changes to the content and duration of the courses would be beneficial. In addition, review the American Program to determine the degree to which it might be diverting essential resources away from the programs for Israeli students. (short term)
4. Develop a strong review process for assessment of teaching quality across clinical sites. (intermediate term)
 5. Increase the number of community sites, particularly primary care sites, for student teaching in line with the changing needs of the community; and ensure that the quality of teaching in community sites meets a high standard of excellence. (intermediate term)
 6. Continue to seek opportunities to use simulations of various types as tools to increase the effectiveness and efficiency of medical education. (intermediate term)

Section 4 – Faculty/HR:

1. There is a need to increase the size and professional development of the teaching staff to serve the increased number of students across the three main M.D. degree programs and to enable the expansion in the use of modern innovative, but often labor intensive, teaching and evaluation methods. Develop a plan for this process. (short term)
2. Build on the existing program of the Unit of Medical Education that appears to be running impressive programs despite the currently limited resources. (short term)
3. Seek funding to expand the faculty and to allow clinicians to have protected time to devote to teaching or research. The funding sources will probably need to be multiple. These might include CHE/VATAT, the Ministry of Health, the various sick funds and private donors. Though this is a general recommendation it also requires local advocacy. Work on this should start promptly and continue into the intermediate and long term
4. The criteria for academic appointments should be broadened to give appropriate recognition for outstanding performance in clinical innovation and expertise and in teaching. Such recognition is currently the accepted practice in some of the very best academic institutions in Canada, the United Kingdom and the United States. As a first step the University leadership should investigate the various models of criteria for academic appointments that exist in leading academic institutions in the West and determine which might be most suited to this university. Medical education, in which so much

of the learning and scholarship take place outside the walls of the university, is different from other types of education in which TAU engages and merits different considerations of scholarship but a uniform standard of excellence. (intermediate term)

Section 5 – Students:

1. Increase experiential clinical exposure in the preclinical years. (short term)
2. Increase faculty support for American students to find rotations and potential residency positions. (short term)
3. Address the issue of providing support to students struggling with logistical or personal problems . Consider appointing a tutor or point of contact for each year of the MD curricula who can triage and help handle individual student problems. (short term)
4. Make more effort to standardize the quality of the clinical rotations across the sites (see Teaching and Learning Outcomes, section 6).
5. Institute a tracking system and periodic surveys for students and alumni in order to evaluate clinical career choices and involvement and success in science. (Long term)

Section 6 – Teaching and Learning Outcomes:

1. An evaluation plan and collection of data for comparing the 4-year and 6-year Israeli programs needs to be developed as soon as possible. Implementation may extend into the intermediate term, but given the importance of the results for curriculum planning and strategic planning, this should be a high priority.
2. Develop the learning objectives more fully. Ensure that they map to the general competency framework. Be sure that they are then reflected in all courses and clerkships and are perceived to be a meaningful and effective resource for students and faculty to guide both teaching and assessment. Again, implementation and monitoring may extend into the intermediate term, but the basic underlying work should be done promptly.
3. TAU has access to resources for clinical simulation, indeed to physical facilities and educational and technical expertise that are among the most highly developed in the world. To date, however, these resources are utilized only sporadically in the school's MD degree programs. The Committee recommends the development of a comprehensive clinical skills assessment

program to take full advantage of these resources in addressing the TAU competencies and learning objectives, especially regarding patient safety principles such as teamwork communication. (intermediate term)

Section 7 – Research:

1. A review of research interests and publications of the preclinical faculty should be conducted for better integration of the preclinical faculty into the clinical years. (short term)
2. The admission process to the medical school might include an assessment of suitability of the candidate for the MD/PhD program, and appropriate feedback and encouragement should be given to selected candidates. (short term)
3. Perform a comprehensive review of the integration of critical reading of research reports into all aspects of the curriculum and consider enhancing such experiences and eliminating a dedicated course in methods. (long term)
4. Students are likely to respond positively to integration of learning about evidence as it applies to diseases and clinical trials in relation to their clinical exposures. For example, students can be challenged to provide their own alternative research designs to current literature, and to challenge what they read and what they are taught. Competency in research evaluation might be incorporated into the major competencies of every student. (long term)
5. In addition, by developing and implementing a plan for enhancing just-in-time critical acquisition of evidence, students will become more adept at lifelong learning skills. (long term)

Section 8 – Infrastructure:

1. Ensure that there are regular reviews of infrastructure so that it can continue to meet programmatic needs. For example, should it be desirable to increase the size of the 4-year program, a larger lecture facility will be needed or there will have to be a change in the methods of instruction. (long term)

Section 9 – Self-evaluation Process:

1. Continue implementing incomplete items from the 2012 strategic plan and “to do” list from this review. (short term)
2. Enter a new formal strategic planning cycle. (long term)

Section 10 – Additional Comments and Recommendations:

1. Follow the existing strategic plan and revisit it frequently. This is especially important as a new person takes on the deanship.
2. Formally assess competition for currently used resources and opportunities for additional resources such as increased teaching in primary care and ambulatory care settings. Include an assessment of the benefits and opportunity costs of the American program.
3. Continue to support and build faculty development programs (see Section 4, HR/Faculty).
4. Seek additional opportunities for development of national resources that can be shared across medical schools.
5. Develop student employment opportunities such as the physician assistant program into better integrated learning experiences, and if possible support the students adequately so that the jobs are attractive.
6. Formally consider developing an interprofessional education program.

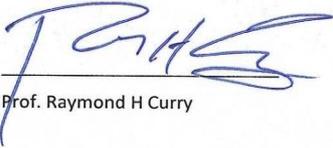
Signed by:



Prof. Stephen Schoenbaum – Chair



Prof. Peter Crome



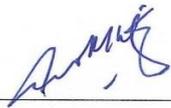
Prof. Raymond H Curry



Prof. Elliot Gershon



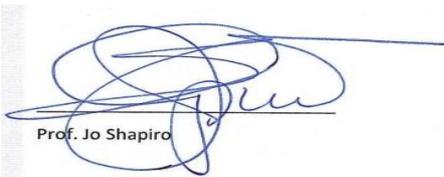
Prof. Shimon Glick



Prof. David Katz



Prof. Ora Paltiel – Clarfield



Prof. Jo Shapiro

Appendix 1: Letter of Appointment

February 2014

Prof. Stephen Schoenbaum
The Josiah Macy Jr. Foundation,
USA

Dear Professor Schoenbaum,

The Israeli Council for Higher Education (CHE) strives to ensure the continuing excellence and quality of Israeli higher education through a systematic evaluation process. By engaging upon this mission, the CHE seeks: to enhance and ensure the quality of academic studies, to provide the public with information regarding the quality of study programs in institutions of higher education throughout Israel, and to ensure the continued integration of the Israeli system of higher education in the international academic arena.

As part of this important endeavor we reach out to world renowned academicians to help us meet the challenges that confront the Israeli higher education by accepting our invitation to participate in our international evaluation committees. This process establishes a structure for an ongoing consultative process around the globe on common academic dilemmas and prospects.

I therefore deeply appreciate your willingness to join us in this crucial enterprise.

It is with great pleasure that I hereby appoint you to serve as the Chair of the Council for Higher Education's Committee for the Evaluation of the study programs in **Medical Studies**. In addition to yourself, the composition of the Committee will be as follows: Prof. Peter Crome, Prof. Raymond Curry, Prof. Shimon Glick, Prof. Jo Shapiro, Prof. Eliot Gershon, Prof. David Katz and Prof. Ora Paltiel-Clarfield.

Ms. Daniella Sandler will be the coordinator of the committee.

Details regarding the operation of the committee and its mandate are provided in the enclosed appendix.

I wish you much success in your role as the Chair of this most important committee.

Sincerely,

Prof. Hagit Messer-Yaron
Deputy Chairperson,
The Council for Higher Education (CHE)

Enclosures: Appendix to the Appointment Letter of Evaluation Committees

cc: Ms. Michal Neumann, Deputy Director-General for QA, CHE
Ms. Daniella Sandler, Committee Coordinator

Appendix 2: Site Visit Schedule

Site visit to Tel Aviv University Medical School

Committee for the Evaluation of Medical Schools

May 19th 2014 - Day 1: Faculty of Medicine

- All meetings will take place at the Sackler School of Medicine - Room number 203

Time	Subject	Participants
08:45-09:30	Opening session	Prof. Aron Shai , Rector Prof. Dina Kovetz-Prialnik , Vice Rector Prof. David Horn , Head, Academic Quality Assessment
09:30-10:45	School's academic and administrative leadership	Dean Faculty of Medicine - Prof. Yoseph Mekori Vice Dean & Head of the School of Medicine - Prof. Leonard Leibovici Vice Dean for Preclinical Affairs - Prof. Karen Avraham Head of Dept. of Medical Education - Prof. Amitai Ziv Associate Dean for Administration - Ms. Yael Keilin
10:45-11:45	Senior academic staff	Prof. Karen Avraham Prof. Gil Ast Prof. Nathan Dascal Prof. Israel HersHKovitz Prof. Udi Qimron Prof. Ruth Shalgi
11:45-13:15	Lunch	Closed door – committee only

13:15-14:15	Committees involved in pre-clinical education	Prof. Iris Barshack Prof. Idit Matot Prof. Drorit Neumann Prof. Amitai Ziv
14:15-15:15	Committees involved in clinical education	Prof. Ami Fishman Prof. Tony Heymann Prof. Meir Lahav Prof. Pia Raanani Prof. Micha Rapoport Prof. Mark Weiser
15:15-15:45	Admission of Students	Prof. Ami Fishman Prof. Amitai Ziv
15:45-16:30	Junior academic staff and Teaching assistants	Mr. Haim Cohen Mr. Moshe Giladi Dr. Assaf Marom Dr. Sharon Weis Mr. Dan Stein
16:30-17:30	Closed meeting	Committee members

May 20th 2014 - Day 2: Research and Students

- **The meetings will take place at the Sackler School of Medicine - Room number 203**

Time	Subject	Participants
09:00-10:00	Services for supporting teaching	Alla Bronshtein Yael Keilin Mira Lipstein Maya Mann Mira Nir Aharon Somehi
10:00-11:00	Research	Prof. Nadir Arber Prof. Karen Avraham Prof. Doron Gothef Dr. Ariel Munitz Prof. Avi Weizman

11:00-12:15	Tour of the School - Ms. Yael Keilin will escort	Anatomy Lab. SPF Imaging Center Labs Library
12:15-13:15	Lunch	Closed door – committee only
13:15-14:15	Students – pre-clinical students (first to third year)	
14:15-15:00	Students – clinical (fourth to sixth year)	
15:00-15:10	Break	Committee members
15:10-15:50	4 year program students	
15:50-16:30	MD\PhD students	
16:30-17:00	Alumni	
17:00- 17:30	Closed meeting	Committee members

May 21st 2014 - Day3: clinical teaching- visit to chosen clinics and hospitals

Sapir Medical Center, Meir Hospital

Time	Subject	Participants
08:30-09:00	Clinical Teaching at the Dept. of Obstetrics and Gynecology	
09:00-09:30	Clinical Teaching at the Simultech-Medical Simulation Center	
09:30-10:15	Transportation to the Sheba Medical Center	

Sheba Medical Center

Time	Subject	Participants
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10:15-11:15	Clinical Teaching at the Dept. of Neurology	
11:30-12:30	Tour of Clinical facilities at MSR The Israel Center for Medical Simulation	
12:30-13:30	Transportation to TAU Campus	

TAU Campus - Sackler School of Medicine - Room number 203

13:30-14:30	Lunch	Closed door – committee only
14:30-15:00	Closed meeting	Committee members
15:00-15:30	Summation Meeting- Dean	Prof. Yoseph Mekori
15:30 – 16.30	Summation Meeting- Leadership	Prof. Aron Shai , Rector Prof. Dina Kovetz-Prialnik , Vice Rector Prof. David Horn , Head, Academic QA