



**UNIVERSITÉ
DE GENÈVE**

FACULTÉ DE MÉDECINE

AUTO EVALUATION REPORT

FACULTY OF MEDICINE

UNIVERSITY OF GENEVA

MARCH 31 2006

p. 3 Préface: Methods used during the process and anticipated benefit to the groups and bodies involved

Methods

1. The internal evaluation committee was appointed by the Dean.

List of members of the internal evaluation committee (with corresponding responsibility):

- Prof. Charles BADER, Vice-Dean for education, head of internal evaluation committee
 - Prof. Jacques PHILIPPE, Vice-Dean for research
 - Mrs. Christina BOULDIN, Administrator of the Faculty
 - Prof. Jean-Michel DAYER, Chairman of the Clinical medicine Section
 - Prof. Jean-Dominique VASSALLI, Chairman of the Basic medical science Section
 - Dr. Anne BAROFFIO, Delegate of the ACIMF (Association of Teaching and Research Collaborators of the Basic medical science Section)
 - Dr. Martin TRAMER, Delegate of the AMAHUG
 - Prof. Thomas PERNEGER, Expert in quality control, Service of care quality, HUG and *Institut de médecine sociale et préventive*
 - Mrs. Ariane VLERICK, Public relations, Dean's office
 - Mrs. Carole VILLOZ, Assistant to the Vice-Dean for education
 - Miss Camille PIGUET, Student, Chairperson of the AEMG
 - Mr. Arnaud MERGLEN, Student (AEMG)
2. The evaluation questionnaire was split into distinct sections to which a co-ordinator (member of the internal evaluation committee) was assigned, based on personal expertise.
3. This co-ordinator, with the help of several colleagues, collected the necessary data and wrote the first draft of his/her part.
4. Data collection was done by using existing documentation, by extraction of data from Faculty databases and by direct personal inquiry.
5. The various sections of the questionnaire were then collected and organised into one document by the head of the internal evaluation committee and his assistant who edited the first draft.
6. The first draft document was subsequently sent to the members of the internal evaluation committee for discussion in their subgroup.
7. The amended document was again edited in the internal evaluation committee and sent to the Dean, the members of the Steering Committee of the Education Committee and other selected faculty members.
8. Based on comments received the final editing was done by the chairman of the Education Committee and his assistant.
9. This version was then sent to all professors of the Faculty of Medicine for discussion at the *Collège des Professeurs* session of March 6 2006.
10. The final version was submitted to the Faculty Council on March 14 2006.

T A B L E O F C O N T E N T

AUTO-EVALUATION REPORT.....	6
1.1 STATEMENTS OF MISSION AND OBJECTIVES (a).....	6
1.2 PARTICIPATION IN FORMULATION OF MISSION AND OBJECTIVES	7
1.3 ACADEMIC AUTONOMY	8
1.4 EDUCATIONAL OUTCOME (a)	9
2.1 CURRICULUM MODELS AND INSTRUCTIONAL METHODS	10
2.2 SCIENTIFIC METHOD	15
2.3 BASIC BIOMEDICAL SCIENCES	16
2.4 BEHAVIOURAL AND SOCIAL SCIENCES AND MEDICAL ETHICS	18
2.5 CLINICAL SCIENCES AND SKILLS (a)	20
2.6 CURRICULUM STRUCTURE, COMPOSITION AND DURATION	23
2.7 PROGRAM MANAGEMENT	29
2.8 LINKAGE WITH MEDICAL PRACTICE AND THE HEALTH CARE SYSTEM	32
3.1 ASSESSMENT METHODS.....	33
3.2 RELATION BETWEEN ASSESSMENT AND LEARNING	35
4.1 ADMISSION POLICY AND SELECTION	37
4.2 STUDENT INTAKE	38
4.3 STUDENT SUPPORT AND COUNSELLING	38
4.4 STUDENT REPRESENTATION	40
5.1 RECRUITMENT POLICY	43
5.2 STAFF POLICY AND DEVELOPMENT	45
6.1 PHYSICAL FACILITIES.....	49
6.2 CLINICAL TRAINING RESOURCES	50
6.3 INFORMATION TECHNOLOGY.....	51
6.4 RESEARCH	54
6.5 EDUCATIONAL EXPERTISE	58
6.6 EDUCATIONAL EXCHANGES	60
7.1 MECHANISMS FOR PROGRAM EVALUATION (a)	62
7.2 TEACHER AND STUDENT FEEDBACK	63
7.3 STUDENT PERFORMANCE	65
7.4 INVOLVEMENT OF STAKEHOLDERS (a)	65
8.1 GOVERNANCE.....	66
8.2 ACADEMIC LEADERSHIP	69
8.3 EDUCATIONAL BUDGET (a) AND RESOURCE ALLOCATION.....	70
8.4 ADMINISTRATIVE STAFF AND MANAGEMENT	71
8.5 INTERACTION WITH THE HEALTH SECTOR.....	71
9 CONTINUOUS RENEWAL	72

Glossary

ACIMF	Association of the intermediate body of the basic medical science section
AEMG	Association of Medical Students of Geneva
AMAHUG	Association of médecin-adjoints of the Geneva Hospitals
BFM	Library Faculty of Medicine
CHTP	Community and Health Training Program
CMA	Ambulatory care skills
CMU	University Medical Centre
CSP	Clinical Skills Program
FMH	Federation of Swiss Physicians
FNRS	Swiss National Science Foundation
Ecg	Case-based Guided Study
EC	Education Committee
HUG	Geneva University Hospitals
HOGER	Geriatrics Hospital
ICRU	Introduction to Clinical Reasoning Unit
ICT	Information, and Communication Technologies
IFMSA	International Federation of Medical Students Association
LCE	Learning in the Clinical Environment
LMS	Learning Management System (Dokeos)
MCQ	Multiple Choice Question
MIMOSA	Evaluation system for research and teaching activities
OSCE	Objective Structure Clinical Examination
PBL	Problem-Based Learning
PSS	Person Health Society (First year program)
PREM	Research program for medical students
SCLO	Swiss Catalogue of Learning Objectives
SMIC	Swiss Medical Interfaculty Committee
UDREM	Unit for Development and Research in Medical Education

Summary of the report concerning Geneva after the Pilot accreditation of Swiss Medical Faculties by an international group of experts in 1999 (annexe rapport accr-GE-1999.pdf)

1. Strengths

The International Group of Experts appreciates with enthusiasm the following strengths of the educational program leading to the M.D. degree at the *Faculté de Médecine de Genève*.

1. The strong support and guidance provided by the Dean for curricular reform and educational innovation.
2. The presence of central governance through well-managed education and curriculum committees.
3. The outstanding office of Medical Education (UDREM), with excellent presence and participation through in the educational units and the educational committees.
4. A considerable strength of the medical school is the open-minded attitude, dedication and energy of the faculty, as well as their augmented input of time and effort in the teaching enterprise.
5. The high quality and energy of the student body linked to a good corporate identity among the student population.
6. The strong educational environment of student guidance and support.
7. The very early perception of the need for educational reform.
8. The prominent inclusion of active learning modes in the curriculum.
9. The extensive curriculum for clinical training.
10. The presence of horizontal and vertical integration.
11. The "medicalisation" of the first year of study.
12. The presence of very clear educational objectives.

2. Weaknesses and Concerns

The International Group of Experts has concerns about some features of the medical educational program at the *Faculté de Médecine de Genève*, that should be considered weaknesses.

1. The lack of early selection before entering the medical program results in a student body with non-uniform aptitude and skills.
2. The study overload and the expected high failure rate of the first year risks to foster a spirit of competition among first year students that is not conducive to team work in subsequent years of the program.
3. The modest exposure to ambulatory care in the clerkships.
4. The competition for clinical exposure between students of the 4th or 5th year and students of the 6th year results in a failure to integrate 4th or 5th year students in the team of care providers.
5. The balance between structured teaching and clinical bedside teaching in the 4th and 5th year tends to tilt towards structured teaching modes in some of the clerkships.
6. The remaining resistance and cynicism towards the new curriculum among a few department directors who wish to protect faculty time, leads to frontal lectures "creeping" back into the PBL years.

AUTO-EVALUATION REPORT

1.1 STATEMENTS OF MISSION AND OBJECTIVES (a)

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

2 The mission and objectives must encompass social responsibility, research attainment, community involvement, and address readiness for postgraduate medical training (c).

3. The mission statement must include the research objectives of the Faculty of Medicine.

4. There must be correspondence between the mission, the objectives and the strategic plan (see 8.3 EDUCATIONAL BUDGET(a) AND RESOURCE ALLOCATION)

Annotations:

a. Statements of mission and objectives would include general and specific issues relevant to institutional, national and regional policy. b. Any branch of medicine refers to all types of medical practice and medical research. c. Postgraduate medical training would include pre-registration training, vocational training, specialist training and continuing medical/professional development.

Points: 1.1 to 1.3

The missions and objectives of the Faculty of Medicine are defined in the *Règlement de la Faculté de médecine* (statutes of the Faculty of Medicine) (see *reglement_fac-pdf* Ch.1, art. 1). The statutes are accessible to all on the web site.

1. The Faculty regroups the teaching and research activities related to the structure and functions of the human organism, to human health and to its alterations.
2. The missions of the Faculty are to:
 - train practitioners to recognise and prevent diseases, and thereby to treat patients;
 - train teachers and researchers in its domains of competence;
 - contribute to the development of scientific knowledge, to its diffusion and application to the benefit of individual and collective health.
3. The activity of the Faculty is established on biological, psychological, socio-economical and ethical bases.

Comments on the mission statements in the statutes

The mission statement does not address an issue that is an expressed aim of our curriculum, *i.e.* fostering life-long learning.

Regarding postgraduate medical training, the situation is clear with regard to academic training (doctoral schools), which is a stated mission of the University and therefore of the Faculty of Medicine. The situation is less clear for the pre-registration, vocational and specialist training in the HUG, as it is formally the responsibility of the various specialty boards of the FMH to supervise the training. However, the burden of organizing the training is on the Faculty members of the HUG in charge of the disciplines. There is considerable discussion at the political level as to who should pay for pre-registration, vocational and specialist medical training¹.

¹ For example, health insurances complain that the bills paid by patients in university hospitals "include" postgraduate training.

Point: 1.4

Resources are made available by the state allowing the Faculty of Medicine to accomplish part of its mission (see also 8.3). As we mentioned, however, at the Hospital level, the interpenetration between health-care and teaching duties (at pre- and postgraduate levels) creates problems. Additional resources and, in certain surgical disciplines, better internal planning of the time allotted to teaching would help to solve the problem.

1.2 PARTICIPATION IN FORMULATION OF MISSION AND OBJECTIVES

1. *The mission statement and objectives of a medical school must be defined by its principal stakeholders (a).*

2. *Formulation of mission statement and objectives should be based on input from a wider range of stakeholders (b).*

*Annotations:*a. Principal stakeholders would include the dean, members of the faculty board/council, the university, governmental authorities and the profession. b. A wider range of stakeholders would include representatives of academic staff, students, the community, education and health care authorities, professional organizations and postgraduate educators and alumni.

In Switzerland, the missions of a Faculty of Medicine are defined in the cantonal law of its University on the one hand, and in the federal law (and ordinances) on medical professions on the other hand.

For example, the general educational objectives for the undergraduate medical curriculum for medical doctors have been defined in the Federal Ordinance 811.112.2 of November 19, 1980². A new ordinance was approved in August 1995, authorising the Faculty of Medicine of Geneva to test a new educational and evaluation model over a period of 10 years (1995-2005; further modifications of the curriculum led to a new ordinance for Geneva in 2004³). This promoted a trend toward reforms in Switzerland, with several new ordinances granted to the Faculties of medicine of Bâle, Bern, Lausanne and Zürich. This in turn prompted the Federal Counsel to initiate the elaboration of an entirely new law on medical profession training.

Elaboration of the law was done by a group including patients' representatives, delegates of the MD association, medical students, nurses, State Counsellors of Public health or Public education, delegates of the Faculties of Medicine, etc.

This means that, in Switzerland, the process of elaborating a law on medical profession training (which, in this case, is also indirectly setting the missions of the Faculties of medicine) involves all major stakeholders.

In parallel to the federal process of setting the missions and objectives of the Faculties of medicine, the Faculties are continuously adapting their missions and objectives to the evolving needs. At the Faculty of Medicine of Geneva, the Education Committee and the Research Committee, who report and are advisory to the Dean, are in charge of redefining and adapting their respective programs to the Faculty's mission.

² Ordinance of 1980, will be available on site.

³ Ordinances of 1995 and 2004, will be available on site.

1.3 ACADEMIC AUTONOMY

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

2. The contributions of all academic staff must address the actual curriculum and the educational resources must be distributed in relation to educational needs.

The statutes of the University of Geneva (see Règlement UniGE, Ch. II Art. 8.) specify that, as they practice teaching and research activities, members of the University enjoy an academic freedom recognized and warranted by the State of Geneva. Academic freedom includes freedom of thought and expression, of research and training, respecting good practice of teaching and research.

Academic freedom meets its limits in the objectives assigned to the University, in the teaching and research programs selected by the University and in the financial resources available.

In brief, the Faculty of Medicine enjoys a fair autonomy. We say fair rather than full for two reasons. First, the Faculty of Medicine is not a legal entity but depends on the Rector of the University. Second, as already mentioned, the medical curriculum depends on federal law and ordinances (see 1.2). We are currently under the ruling of a derogation for the “Geneva Model” (1995; renewed in 2004) that gave us considerable autonomy. The new law on medical professions, which should be enforced in September 2007, will considerably increase the autonomy of the Faculty of Medicine. Provided it is accredited by an internationally recognized organization, the Faculty will be entirely in charge of its curriculum and of the exams with one exception: the final federal examination leading to the federal diploma of physician.

Currently the Faculty of Medicine has a budget for salaries (130 million CHF, 57.5% from public funding, 42.5% from grant applications). A substantial fraction of the salaries from public money concerns teaching, according to the terms and conditions of the individual contracts of the academic staff. Every member of the academic staff, from the assistant to the full Professor, has teaching time assigned in her/his terms and conditions contract⁴. The fraction of the public funding budget devoted to teaching salaries amounts to approximately 20 million CHF.

In addition to salaries, there is a running budget for the Education Committee, which amounts to 700'000 CHF⁵ (2005). Note that the running budget of the library (1'850'000 CHF) includes also a budget for education and that many tasks related to teaching are coordinated with the other services of the administration. Thus, it is not easy to evaluate precisely the total budget devoted to teaching.

The steering committee of the Education Committee, in coordination with the Dean and the administrators, has contributed to provide financial support to certain departments to compensate for increased administrative work due to the reformed curriculum introduced in 1995. Financial support for teaching equipment and

⁴ The terms and conditions contract addresses the teaching, research and services activities expected from the person concerned. A yearly survey of self-reported percentage of time spent in these activities is done at the University of Geneva. For the Faculty of medicine, the overall mean for the teaching staff, from *maître-assistant* to ordinary professor, is 42% Teaching, 43% Research and 15% Service.

⁵ This amount includes 300'000 CHF re-distributed to the Departments according to their teaching effort (direct contact time with students and responsibilities; MIMOSA program). Annexe Mimoso_2005.xls

materials or increased teaching staff (for example private practicing primary-care physicians) is part of the 700'000 CHF running budget. (Annexe: budget_enseignement-2006.xls)

Strength

In conclusion, the Faculty of Medicine has the freedom to design its curriculum and allocate the resources necessary for its implementation.

The autonomy of the Faculty in defining its own teaching missions and in organizing its curriculum on the one hand, and the attribution of the teaching responsibilities to curriculum Committees rather than to departments on the other hand made possible:

- the introduction of important improvements of the curriculum⁶;
- a full reorganization of the basic science departments of the Faculty of Medicine of Geneva (discussed in 6.4).

1.4 EDUCATIONAL OUTCOME (a)

1. The medical school must define the competences (b) that students should exhibit on graduation in relation to their subsequent training and future roles in the health system.

2. The linkage of competences to be acquired by graduation with that to be acquired in postgraduate training should be specified. Measures of, and information about, competences of the graduates must be used as feedback to program development.

Annotations: a. Educational outcome would be defined in terms of the competences the students must acquire before graduation. b. Competences within medicine and medical practice would include knowledge and understanding of the basic, clinical, behavioural and social sciences, including public health and population medicine, and medical ethics relevant to the practice of medicine; attitudes and clinical skills (with respect to establishment of diagnoses, practical procedures, communication skills, treatment and prevention of disease, health promotion, rehabilitation, clinical reasoning and problem solving); and the ability to undertake lifelong learning and professional development.

The Swiss University Conference has accepted to adopt specific standards concerning Basic Medical Education at the Swiss Faculties of medicine (see attachment CUS- modOAQ selon-Art8.doc). The standards include the specific requirement that **the programs observe the objectives listed in the Swiss Catalogue of Learning Objectives (SCLO) for Undergraduate Medical Training** (see SCLO.pdf). Note that both the federal law and the SCLO state that the basic medical training should prepare the students for post-graduate training.

The Geneva curriculum, while addressing specific competences and training objectives defined in the Federal Law and in the SCLO, does in addition focus on students' acquisition of the following competences:

- Knowledge and understanding of the basic, clinical, behavioral and social sciences, including public health, population medicine, and medical ethics.
- Attitudes and clinical skills (with respect to establishment of diagnoses, practical procedures, communication skills, treatment and prevention of disease, health promotion, rehabilitation, clinical reasoning and problem solving); and the capacity to undertake lifelong learning and professional development.

Strengths

To determine whether our undergraduate curriculum and training do prepare our students appropriately and whether the students acquired the basic competences

⁶ Examples are the reform in the first year in 2004, the introduction of optional courses and the ongoing discussions on the implementation of the Bachelor/Master of medicine.

needed to start their residency program, the UDREM has initiated in 2003 a specific follow-up program of our graduates, with the support of the Faculty and of external Foundations.

The aim of the program is to determine how students evaluate their undergraduate training in preparing them for residency training. We also investigate the students' choice of specialty as well as type of practice after graduation.

A summary of the preliminary findings of 6th year students' evaluation of the medical curriculum and training can be found in Appendix A. Overall, the students were asked to evaluate (a) how different years and instructional units prepared them for starting their residency, (b) whether curriculum coverage of different clinical competences, domains of care, types of care has been considered sufficient, (c) whether the administrative and student health care programs have been adequate, and (d) the overall program quality and efficacy.

A summary of the preliminary findings of the students' career choice as well as their specialty choice from the 2nd to the 6th or final year of their training can also be found in Appendix A.

We would also like to determine how residency supervisors evaluate their students in their first two years of residency. However, this study is not feasible at present, mainly because of the validity and reliability of the existing system for residents' evaluation of the residency programs but also because of data protection issues.

Weaknesses

Initiating this evaluation program has been difficult due to lack of long term financial resources and a lack of needed infrastructures (i.e. useful and workable students' information and database systems, established residents' and residency information and database systems, etc.) which need to be developed and set up for the study. Our attempts to get funds from the Swiss National Research Foundation or FNRS (negative⁷) or the Swiss federal office for science and education (no answer!) were disappointing. Interestingly, there seems to be no public research money available for a long term project evaluating the outcomes of medical education. It is not clear whether the local Foundations who accepted to support us will be able to renew their help.

2.1 CURRICULUM MODELS AND INSTRUCTIONAL METHODS

- 1. The medical school must define the curriculum models (a) and instructional methods (b) employed.*
- 2. The curriculum and instructional methods (c) must ensure the students have responsibility for their learning process and must prepare them for lifelong, self-directed learning.*

Annotations: a. Curriculum models would include discipline, system, problem and community based models etc. b. Instructional methods encompass teaching and learning methods. c. The curriculum and instructional methods should be based on sound learning principles and should foster the ability to participate in the scientific development of medicine as professionals and future colleagues.

Point: 2.1.a: Curriculum model used in Geneva

We use different models at different stages of the program or even in a same year of a program.

⁷ FNRS did consider this proposal as applied research vs. basic research and refused to fund it.

Multidisciplinary and integrated	Module A of the 1 st year
System-oriented and integrated	Module B of the 1 st year
Problem-oriented in large group	Module B of the 1 st year
Problem-based (small groups) and integrated	2 nd and 3 rd years
Community-based and practice-based (small groups)	End of 3 rd year
Case-based and problem-solving (small groups), integrated theoretical and practical learning	4 th and 5 th years
Clinical clerkship - Learning in the clinical environment	4 th to 6 th years

Point: 2.1.b: Instructional methods used in the medical curriculum⁸

Year	Methods	Knowledge	Practical skills	Clinical skills	Attitudes
1 st	Plenary lectures	X			
	Self-directed learning	X			X
2 nd , 3 rd	PBL (small groups)	X	X		X
	Laboratory practices	X	X	X	
	Interactive learning in clinical skills (contact with patients, MD's, and nurses, Standardised patients, role play, video)	X	X	X	X
	Discussion forum (25-50 students) in various formats: interactive discussion between students and faculty on difficult subjects	X			X
	Ambulatory experience in private practice	X	X	X	X
	Study of a public health problem (2-5 students) Immersion in the Community	X	X		X
	Plenary lectures	X			
4 th , 5 th	Clinical vignettes (small groups)	X			X
	Clinical clerkship activities	X	X	X	X
	Case presentation	X		X	X
	Lectures	X			
6 th	Clinical clerkship activities	X	X	X	X

In the first year, students acquire knowledge in basic medical sciences, integrating elements of physics and chemistry. The number of medical students in the first year can be quite high (in 2005, 374 students, *i.e.* 235 new students + 139 students who failed once at the exam and repeat the year), as the selection is done at the end of the first year⁹. In 2004, following the recommendations of the first accreditation visit in 1999, we introduced nevertheless a major change and reorganization of the content and instructional methods in the first year program. This is achieved through (a) restructuring the content going from the molecular-cellular level to the organ-systems level (more detailed under section 2.6) and (b) a new type of introductory plenary lecture usually given in the morning and intended to motivate students for

⁸ The total direct-contact time between teachers and students (23'602h) is subdivided in : **41%** small groups activities (6-10 students), **25%** interactive seminars (max 16 students), **11%** practical lab, **8%** interactive sessions (16-50 students), **7%** seminars with patients (max 16 students), **5%** plenary lectures, **3%** one-to-one clinical teaching.

⁹ The current philosophy in Geneva is that students should have a chance to study one year at the University. Consequently, there is no pre-selection procedure.

independent reading and learning in the afternoon. Twenty percent of the teaching time is devoted to human sciences and community dimensions.

In the 2nd and 3rd years, the number of students ranges between 110 and 140. Teaching is in the form of problem-based learning (PBL) in two-phase tutorials (groups of 6-10 students) which integrate basic medical sciences and clinical sciences. In parallel, special programs in practical laboratory, and on community and psychosocial issues (in large groups) and in clinical skills (small groups) are taught. In all units lectures or seminars can be given, when appropriate.

Students of the second year are exposed to ambulatory experience in private practice (CMA, see section 2.4). In the third year, they also explore the health system network in Geneva or abroad during a one month "Immersion in the Community" Unit.

In the 4th year, a first 8-week unit, "Introduction to Clinical Reasoning", exposes small groups of students to case-based clinical reasoning tutorials¹⁰, in the domain of internal medicine, surgery, pediatrics, geriatrics, psychiatry and community medicine.

In the 4th and 5th years, students go through a series of 13 structured clerkships lasting 13 months in total, during which they are exposed to clinical activities on the ward, clinical reasoning tutorials, seminars and lectures in transversal disciplines. In the fifth year, there is one month of optional courses (see next paragraph).

Introduction of optional activities in the 2nd, 3rd and 5th years

The Faculty of Medicine has recently recognized the importance of giving students the chance to be exposed to domains that have disappeared from the medical curriculum over the last 50 years. It occurred to the Faculty that philosophy, literature and art may contribute to a better understanding of patients and their diseases. Also globalisation requires exposure to international health care and human issues as well as scientific progress in biomedicine requires exposure to scientific tools in basic and clinical sciences. Therefore, each student has the possibility, during pregraduate training, to choose in their 2nd, 3rd and 5th years one of the optional modules proposed by the Faculty (see Annexes : Choix des options cahier_activites_choix - 2005).

Note that some of the modules (e.g. history, literature, philosophy,) are given by teachers from other Faculties of the University of Geneva that have been attributed a part-time affiliation to the Faculty of Medicine.

The 6th year comprises 10 months of elective clerkships selected by the students. This year enables students to gain additional practical experience and to broaden their interests and aspirations for their forthcoming career. A student adviser assists students in putting together a program for these elective clerkships. A list of all available activities in Geneva and Lausanne can be consulted at the Student Office and on the web (<https://www.dbpub.unil.ch/admin/webdriver?Mlval=MeStald>).

Strengths

There is a variety of approaches used in various proportions according to stages of the curriculum. Through the comprehensive curriculum evaluation program which has been introduced in our new curriculum in 1995, and maintained and updated over the

¹⁰ Tutorials can take place in two phases (introduction tutorial and outcome tutorial) as in the 2nd and 3rd year or be only introduction tutorial (no control on the students work) or only outcome tutorial (students prepare the cases themselves). Cases can be paper problems, video-commented, or real patients.

years, students' appreciations of the various instructional methods and activities have been obtained. In Appendix B, a summary of the students' evaluation of the learning activities and instructional formats is presented in Figures 7,12, 13, 14.

Overall, the activities and the formats adopted in the curriculum have always been well appreciated by the students. We have also noticed that over the years, the high appreciations of the students remained stable and for some aspects even increased (see liste des methods pédagogiques).

Weakness

The instructional methods are probably sound. What is less clear is whether they are always well understood by all teachers and adequately applied. Before the new curriculum was introduced to replace the traditional curriculum in Geneva, a major effort was made to instruct the teachers. For coherence reasons, in a "revolutionary" period, the new teaching formats were somewhat strict and not always adapted to the environment (especially in the clinical environment). In the clinics, for example, some teaching units rapidly recognized that the teaching format had to be adapted and discussed with the Curriculum Committee. They developed new formats (see footnote 10) better adapted to the needs of their particular Units. But this did not yet happen in all Units.

How to improve

We should probably visit again the various teaching Units and see with each Unit how to improve teaching efficiency as well as the satisfaction of the teachers. Such visits have already been initiated in the clinical years several years ago. But, as we discussed with various representatives during the elaboration of the present report, it appeared that the feedback did not reach all levels. We have to communicate better!

Point: 2.1 to 2.2: Is our program fostering life-long learning?

One might expect that a curriculum that includes:

- PBL approach with self directed learning (year 2 and 3),
- patient-based approach and clinical reasoning during learning in the clinical environment (years 4 and 5) with self directed learning,
- the possibility to select non-medical or medically-related learning activities (years 2, 3 and 5) should allow students to play an active role in their learning and hence foster life-long learning.

As part of the Faculty's auto-evaluation process, the Education Committee asked whether our program did indeed foster lifelong learning in the students.

A one-day meeting was organized in 2004 with students and teachers in the 4th and 5th years to evaluate whether this intended objective of the curriculum reform in Geneva had been met. Were the 4th and 5th students **autonomous** with respect to identifying a lack of knowledge, defining the corresponding appropriate learning objectives and finding the pertinent information?

The conclusion can be summarized in the following points:

- the definition of what is meant by "student autonomy" was not the same for the various persons attending the meeting;
- clinical teachers had expected performance levels that clerks would probably only fulfill after several years of practice;

- students were disappointed to see that they apparently did not meet the “expectations” and blamed it to a teaching program that is overly structured!
This meeting did not give immediate useful information but was seminal in that it forced us to clarify two issues:

a) What is meant by autonomy of students?

Additional discussions in the Clinical Curriculum Committee yielded that the characteristics of an autonomous student would include: the ability to determinate his/her own objectives; to feel responsible for his/her self learning; to tolerate uncertainty; to be internally motivated (not only via exams); to find, sort, and digest information; to solve problems; to evaluate his/her own strengths and weaknesses and develop strategies to correct them; to know his/her limits; to be curious; to have initiative; to be organized; to be able to set priorities.

Contrary to what most of us naively expected, the introduction of instructional methods intended to promote autonomy is not sufficient. Acquisition of autonomy must be a specific objective in itself!

b) How to improve this possible weakness of our program if it really exists?

- Exercises must promote autonomy.
- Teachers should be better prepared to face the feeling of uncertainty of the students. Teachers tend to forget that they probably all had the same problem! They should be able to legitimate uncertainty and give positive feedback and encouragement. This will require specific training.
- Better information must be given to adapt the expectations of clinician teachers to the level of the students they face (you do not expect the same autonomy from a 4th year, 5th year or 6th year student). This requires better communication and also coordination between the preclinical and clinical years and within the clinical years.

Another hypothesis to consider is that we went too far in structuring our curriculum.

Recent reviews on this topic by KW Eva and G Regehr in “Self-assessment in the health professions: a reformulation and research agenda” (*Acad. Med.*, 80, October 2005 supplement, S46-S54) and by TJ Kennedy et al. in “Progressive independence in clinical training: A tradition worth defending” (*Acad. Med.* 80, October 2005 supplement, S106-S110) reflect the conclusions reached in Geneva, that is a need for: (a) a more refined definition of self-assessment, self-assessment needs and autonomy; (b) an exploration of potential educational/ evaluation methods to develop and assess the skills necessary for life-long learning.

Could “Bologna” help?

This general re-thinking about the curriculum will take place in the context of the adaptation of the medical curriculum to the recommendations of the Bologna declaration.

The Geneva medical curriculum is currently being restructured (see attachment Bologne-prise de position Genève 2005) to fit the recommendations of the Bologna declaration, which will be enforced in Switzerland in fall 2006. Options will be introduced to give the opportunity to create different tracks.

The main medical track will be the Bachelor / Master of medicine in 6 (3+3) years and 360 (180+180) ECTS¹¹.

Other tracks considered are:

- Bachelor / Master in medical sciences in 5 (3+2) years, opening the path to a MD-PhD or a PhD.
- Bachelor / Master in Public Health opening the pass to a Master of advanced studies in Public Health.

In addition a Master in proteomics is already proposed to medical students and others will be developed.

2.2 SCIENTIFIC METHOD

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

2. The curriculum must include elements for training students in scientific thinking and research methods (a).

Annotations: a. Training in scientific thinking and research methods may include the use of elective research projects to be conducted by medical students.

Article 4 (item b) of the new federal law on medical professions states that the objectives of the basic and post-graduate education are to treat problems using scientifically recognized methods.

In Geneva, scientific reasoning and problem solving is stimulated at several levels:

- In the first year, in each teaching Unit, whenever possible, the link between a given clinical problem and its pathophysiology is made.
- In the 2nd and 3rd year, students practice the “scientifically-oriented reasoning approach”, through the PBL tutorial sessions in which they can test various models of explanation of clinical phenomena using basic medical sciences and pathophysiology concepts and mechanisms.
- In the clinical years, when students participate in the “Introduction to clinical reasoning Unit” (ICRU) or in the clinical reasoning sessions of the clinical learning environment units or clerkships. They investigate and evaluate the patients’ signs and symptoms as well as investigative/laboratory results in order to diagnose the patients’ most pertinent problems and to establish a cost-effective program of treatment.
- At a different level, during the “Community based Experiences”, students are exposed and involved in the process of identifying, investigating, and reporting on a public health and community-related health issue or problem.
- From their first to their third year, students examine various epidemiological and bio-statistical concepts that should help them to read and interpret the research and medical literature.

¹¹ European Credit Transfer System.

- Since 2004, longitudinal optional electives are offered to the students from the 2nd to the 5th years in the areas of basic and clinical research. In these electives, the students approach issues involved in developing, designing, conducting, analyzing, and reporting on a research project.
- The concept of evidence-based medicine is strongly reinforced and integrated into the clinical clerkship curriculum.

Appendix A (Figure 15, 16) summarizes the results obtained with the follow-up program concerning students' own evaluation of the efficacy of teaching the principles of the scientific method and evidence-based medicine, including analytical and critical thinking.

Evaluation of the curriculum and further improvements

To evaluate our curriculum, we refer for benchmarking purposes to the results published in the AAMC 2005 Medical Education Graduation Questionnaire All Schools Report (<http://www.aamc.org/data/gq/allschoolsreports/start.htm>). For comparison we used the results obtained with the Class of 2004-05, as this was the first formal evaluation of this type. Overall, results from the 2005 AAMC report regarding the clinical interpretation and decision-making competences showed that an average of about 70% of North American medical students indicated that the time devoted to these topics was sufficient.

In Geneva, 70% or more of our students rated their competence in the domains of "evidence-based medicine" and "decision analysis" as sufficient. Fifty-five to 65% of the students rated their competence as sufficient in domains such as "interpretation of clinical data and research reports", "critical reading" and "interpretation of laboratory results". Only 55% of the students rated their competences in "medical informatics" as sufficient (figure 15).

Concerning competences in public health and community medicine, 5 of the 7 competences (Community medicine and healthcare network, Preventive medicine, Clinical epidemiology, Occupational medicine, Risk factors and prevention) were rated as sufficient by 70% to 90% of the students. Only competences in Biostatistics and Women's Health were rated by 50 to 60% of the students as sufficient.

These results will be presented shortly to the respective Curriculum Committees for discussions and considerations for improvements.

2.3 BASIC BIOMEDICAL SCIENCES

1. The medical school must identify and incorporate in the curriculum the contributions of the basic biomedical sciences (a) to create understanding of the scientific knowledge, concepts and methods fundamental to acquiring and applying medical science.

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

Annotation: a. The basic biomedical sciences would, depending on local needs, interests and traditions, typically include anatomy, biochemistry, physiology, biophysics, molecular biology, cell biology, genetics, microbiology, immunology, pharmacology, pathology etc.

Point: 2.3.1

In Geneva, there has always been a strong emphasis on basic medical sciences and on academic medicine. This is due to a tradition of basic research in these fields. Basic medical sciences are now an even more important part of the 3 first years of

the curriculum, as in 2004 the Faculty has redesigned entirely its first year program. The principles underlying the organization of the first-year curriculum are:

- **Horizontal integration of the basic sciences content:** progressive introduction of the content from the molecular to the cellular level, and then to the organ and to the system level.
- **Vertical integration of particular content:** appropriately chosen clinical problems (cystic fibrosis / atherosclerosis) are revisited several times during the entire year from the molecular to the system level and psychosocial level (see also section 2.6, end of 1st year curriculum section, for the example of cystic fibrosis).

The new first year program was run for the first time in fall 2004 and was well evaluated¹². (Appendix B, Figure 1).

Regarding basic biomedical sciences, the problems included in the preclinical and clinical years of the curriculum are mostly frequent and common clinical problems in our society, but they can also include less frequent problems that allow to illustrate an important basic science concept or clinical development. The quality of the problems was part of the evaluation of the 2nd and 3rd year programs and are reflected in Figures 2,3,4 and 12 of the Appendix B. Detailed evaluations are available upon request.

Point: 2.3.2

Every year the Preclinical Curriculum Committee reviews the various teaching modules for adaptation based on the program evaluation data and faculty's observations. When there seemed to be a problem, the steering committee of the EC created a task force to examine and when necessary to propose improvements (e.g. task forces on primary care, endocrinology, pharmacology, genetics, histology-pathology coordination). Other examples of improvements based on feedback by teachers and students are reorganization of two Teaching Units that students did not evaluate well; the Unit "Behavior" and the Unit "Viral Model". The content of these two Units were reviewed and integrated into a new Unit "Perception, Emotion, and Behavior" and a new Unit of "Infections", respectively.

Strength

Biomedical sciences are well represented in our curriculum. Contrary to most preclinical curriculum, ours has been overall well appreciated by our students in terms of the preparation of the students for their clinical learning and residency training. (Appendix A, Figure 2 and 19).

Weakness

A problem that we have not yet been able to master is that most teaching Units in the pre-clinical years still have too many learning objectives in basic biomedical sciences. Part of the problem may be that the number of MDs actively involved in the preclinical curriculum is decreasing due in part to retirement but also to a decreased participation of clinicians from the Hospital in the Pre-clinical Curriculum Committee.

How to improve?

¹² Overall anonymous evaluation, by the students, of each teaching Unit, including the psychosocial Unit "Person-Health-Society", was good. On a scale of 1 (to be improved) to 5 (excellent), all Units performed above 4 (mean= 4.25±013) with a return percentage of 58±19%.

Now that the first year has been reformed, it will be necessary to review the vertical coordination of the first 3 years. The new 1st year was designed in part on the basis of insufficient knowledge detected previously in some domains of the 2nd and 3rd years. First impressions with the students in 2nd year who experienced the new 1st year suggest that students behave differently than before. If this is confirmed by evaluation, we may be able to adapt the objectives of years 2 and 3.

Implementation of the recommendations of the Bologna declaration (see section 2.1) may be seen as extremely useful. It forces us to re-think the content of the teaching Units to make room for options. The core curriculum could be designed to expose students only to the most important material for the medical practice. On the other hand, options may allow students to go in greater depth of knowledge in their fields of interest and, due to their greater motivation, they may also remember associated concepts better and possibly transfer them to other fields. Overall, the exposure to basic medical science issues may become more efficient than is currently the case.

2.4 BEHAVIOURAL AND SOCIAL SCIENCES AND MEDICAL ETHICS

1. The medical school must identify and incorporate in the curriculum the contributions of the behavioural sciences (a), social sciences (a), medical ethics, educational sciences and medical jurisprudence that enable effective communication, clinical decision-making and ethical practices.

2. The contributions of the behavioural and social sciences, medical ethics and humanities (b) should be adapted to scientific developments in medicine, to changing demographic and cultural contexts and to health needs of society.

Annotations: a. Behavioural and social sciences would, depending on local needs, interests and traditions, typically include medical psychology, medical sociology, biostatistics, epidemiology, hygiene and public health and community medicine etc. b. The behavioural and social sciences and medical ethics should provide the knowledge, concepts, methods, skills and attitudes necessary for understanding socio-economic, demographic and cultural determinants of causes, distribution and consequences of health problems.

COMMUNITY HEALTH TRAINING PROGRAM (CHTP)

In 1995, with the initiation of a new six-year integrated problem-based undergraduate medical curriculum at the Faculty of Medicine, parts of the existing public health curriculum were redesigned to address in a more relevant manner the needs of the population, as recommended by the federal government.

The newly redesigned CHTP spans now from the second to the fifth year. It promotes students' early exposure to community health related concepts and issues as well as their early access to direct and hands-on activities in the community. The aim of the CHTP is to familiarize students with public health issues, with an interdisciplinary and multi-sectors approach to health and disease, thus giving them an opportunity to become competent community health-oriented physicians. Furthermore, the program aims at familiarizing students with various community health institutions and their respective health professionals.

The CHTP integrates primary care and community medicine topics and situations with public health issues in a broader sense. The CHTP consists of the following modules:

- **1st year. Introductory course on psychosocial and community health issues** (since fall 2004). The new first year program in brief (See also attached document pss): 96 hours (lectures: 80 hours; workshops: 16 hours). Subjects treated: Medicine and society; Concepts of normality; Bases of medical psychology;

Communication in the general medical practice; Decision making process; Ages of life; Determinants of Health; Legal and deontological aspects of health care.

- **2nd and 3rd years. Health oriented seminars.** Approximately 50 hours. Introduce students to the basic concepts of public health, social and preventive medicine, health systems, health economics, occupational medicine, ethical and legal medicine, medical history, epidemiology as well as medical humanities.
- **2nd year. Exposure to ambulatory practice.** Students are individually assigned to six to ten follow-up visits of an individual patient over a year in a private practice (family practitioner, general internist or pediatrician). This **CMA**¹³ clerkship provides early exposure of students to ambulatory care and long term follow-up. The objectives for the students are to observe the components and determinants of a long term relationship between doctor and patient, identify specific roles and activities of a primary care physician, be able to identify and describe their own emotions in a professional context, and to practice competences acquired in a specific class during the clinical-skill-program (see 2.5.c). Students' experiences are gathered in a portfolio, in which typical situations are analyzed from the clinical, relational as well as subjective points of view. The student with the best portfolio receives a prize of 1'000 CHF from the Dean's office (see winner report in 2005).
- **3rd year. Community Health Experience.** During one month, each group of 3-5 students investigates in the community (in Geneva or abroad) a priority health problem it chose and reports on it (oral public presentation+poster+written report). The group with the best report receives a 1000 CHF prize from the Dean's office (see winner report in 2005).
- **4th and 5th years** A series of bi-monthly interactive seminars in ethical and legal medicine were offered and integrated into the 4th and 5th years of the Internal Medicine, Community Medicine and Pediatrics clerkship (see annexe ethic_legal-options).
- **4th or 5th years** A one-month clinical clerkship in community medicine during the "learning in the clinical environment" rotations.

Over the years, the CHTP has been well-evaluated by the students who consider it an important part of the curriculum (Appendix B, Figure 6 and 9; Appendix A, Figure 4, 16, and 18). The effectiveness of this program has been documented. The evaluation of the first year PSS program was also very good (evaluation available on request).

Strengths

There is a very diverse but coherent longitudinal program exposing the students to Community dimension issues.

Weaknesses

The last accreditation report (1999) mentioned the lack of exposure of medical students to ambulatory medicine. The Medical Faculty of Geneva is lacking a structure or a staff development policy regarding community-based teaching (see above CMA, competences in ambulatory medicine). A group of motivated private practicing primary-care physicians assumes this role. So far, there was no academic funding by the Faculty of Medicine (funding has been through the Institute of

¹³ CMA : Competences in Ambulatory Medicine

Community medicine of the Geneva University Hospitals). On the other hand, there is no appropriate professor title¹⁴ in the law of the University of Geneva for these private practitioners.

How to improve?

After the accreditation report of 1999, we set up a study group on “Ambulatory and primary care” which reported on the state of the matter at our Faculty (Annexe Rapport_médecine-générale Genève-2002). At the same time the Swiss Medical Interfaculty Committee (SMIC), on demand of medical practitioners of Switzerland, examined the problem at the Swiss level. In 2004, the SMIC decided that each Faculty should create a structure in charge of activities and responsibilities in teaching and research in primary care (Annexe Décision obligatoire Primary care CIMS FR).

There is currently a renewal in the position of the head of the Institute of Community medicine to which the group of private practicing primary-care physicians is affiliated. We are examining how to give them the position they deserve in the Faculty of Medicine. The Director of the Geneva University Hospitals is ready to transfer the amount of money currently attributed to the group. We are examining the possibility of creating an academic entity for ambulatory primary care teaching. Various approaches were initiated in Faculties of Medicine in Switzerland.

2.5 CLINICAL SCIENCES AND SKILLS (a)

The medical school must ensure that students have patient contact structured according to the stage of the study program (b) and acquire sufficient clinical knowledge and skills (c) to assume appropriate clinical responsibility (d) upon graduation.

Annotations: a. The clinical sciences would, depending on local needs, interests and traditions, typically include internal medicine (with subspecialties), surgery (with subspecialties), anesthesiology, dermatology & venereology, diagnostic radiology, emergency medicine, general practice/family medicine, geriatrics, gynecology & obstetrics, laboratory medicine, neurology, neurosurgery, oncology & radiotherapy, ophthalmology, orthopedic surgery, oto-rhino-laryngology, pediatrics, pathological anatomy, physiotherapy & rehabilitation medicine and psychiatry, etc. b. Participation in patient care would include relevant community experience and teamwork with other health professions. c. Clinical skills include history taking, physical examination, procedures and investigations, emergency practices and communication and team leadership skills. d. Appropriate clinical responsibility would include health promotion, disease prevention and patient care.

Point: 2.5.a Some clinical sciences are learned already in the 2nd and 3rd years, as students study the signs and symptoms of a variety of frequent diseases which are the subject of PBL learning, and practice the associated clinical skills. Further knowledge is acquired in the Introduction to clinical reasoning Unit and of course in the 13 months of clinical clerkships in years 4 and 5, which expose students to clinical sciences¹⁵. In addition, the 6th year, the elective year, consists for most students in elective clinical clerkships in Geneva, Switzerland or abroad. Overall students have structured patient contact all along the curriculum.

¹⁴ All professor titles require research activities.

¹⁵ 8-week clerkships in Internal Medicine, Surgery and Pediatrics, four 4-week clerkships in Psychiatry, Community Medicine, Obstetrics-Gynecology and Emergency Care, and four 3-week clerkships in Neurology, Ophthalmology, ENT and Dermatology.

Patient contact throughout the curriculum

1 st year	Patient presentations (video) by private practicing primary-care physicians to illustrate points of the Person-Health-Society program.
2 nd year	Regular contacts with a practicing primary-care physician
2 nd and 3 rd years	Small group seminars in clinical skills. Formative evaluation with standardised patients (history-taking, physical exam and communication skills). Senior students' peer teaching on history-taking and physical examination skills.
4 th and 5 th years	Participation in ambulatory clinics. Ward rounds. Patient admission. Case presentation. Clinical clerkship activities.
6 th year	All clinical activities. Case presentations.

Point 2.5.b

Relevant community experience and teamwork with other health professions in patient care occur in the Introduction to emergency care seminars, the CMA experience (year 2, see section 2.4), during the "Immersion in the Community" Unit of the 3rd year, and, of course, during the clerkship in Community medicine.

Point 2.5.c: Clinical skills program (CSP)

A longitudinal two-year and three-month CSP (1 or 2 sessions of 2 hrs/week) runs from the beginning of the second year to the end of the ICRU in the fourth-year. The CSP prepare students to basic clinical skills and competences necessary before entering the clinical clerkships in the fourth year, as well as other skills necessary to the practice of medicine, and attempts to foster the development of skillful and humane patient management.

The 4 main principles that guide the implementation of the CSP are:

- 1) a vertical integration with basic science objectives in the PBL Units;
- 2) a longitudinal integration to ensure a progressive acquisition of the various skills and competences;
- 3) to emphasize practical learning with various educational methods;
- 4) to provide a multidimensional formative and summative evaluation.

Running in parallel to the PBL units, 81 seminars introduce students to the basic concepts and skills of history-taking and physical examination of the main organ systems and medical disciplines (41 seminars), communication skills [medical consultation (3), doctor-patient relationship (9), patient education (3)], technical skills (11), radiological procedures (4), laboratory procedures (3), basic life support and resuscitation (4), and computing skills (3).

These seminars are organised in groups of 8 students and most of them take place in the Clinical Skills Lab. Seminar objectives are defined in a seminar booklet. A typical seminar combines discussion and demonstration by the tutor, role plays and mixed peer physical examination exercises. According to the objectives, some seminars use various multimedia tools, interaction with standardized patients and real patients.

Students can further train basic clinical skills (structured history-taking, physical examination and technical skills) in participating in a program of 17 optional training sessions mainly organized during the third-year. These training sessions are given by fourth and fifth-year student preceptors, who have been trained by the clinicians responsible for the teaching and the residents of the CSP. Direct supervision of the sessions is provided by the residents of the CSP.

A higher level of integration and training is provided by 4 compulsory formative OSCE stations (2 in the second year and 2 in the third year). The format is a 20 minutes focused medical consultation with a standardized patient after which students will write a medical report. These stations integrate skills in history-taking, physical examination and doctor-patient relationship. Students have a portfolio in which the objectives of the station (as defined by the teachers) as well as the students' personal objectives are described. All students benefit of a direct supervision by a trained clinician. The clinician will provide personalized feedback to the student and help her/him to define the objectives for the next station. The clinician fills in detailed checklists on history, physical examination and attitudes. This allows getting feedback on performance of each student, on the performance of the whole class, and on the performance of the teaching. A fifth station with real patients trained as patient instructors suffering from rheumatoid polyarthritis is organized during the Unit of Introduction to the Clinical process (beginning of the fourth year).

Finally, students can also practice some of their acquired clinical skills with real patients during the CMA program (see under point 2.4 above).

Evaluation of the program

The students evaluate each seminar of the program formally.

Evaluation of the students

The students' evaluation program is multidimensional and is formative and summative. Formative evaluation of students is provided during the compulsory OSCE stations (portfolio, individual feedback, feedback to the class). Summative evaluation has 2 levels: first, the CSP objectives are tested during the multiple choice exams of each module of the second and third year as well as in the ICRU exam. Second, a four stations OSCE is integrated in the exam of the fourth module at the end of the third year.

Point: 2.5.d

Students are exposed to issues concerning health promotion and disease prevention from the 1 year to the end of the curriculum.

Strengths

We have a very solid clinical skills program in the preclinical year and in the beginning of the fourth year. The program has been overall very well evaluated by the students (Appendix B, figure 5) and rated as sufficient in preparing them for the clinical years (Appendix A, figure 3). Most students estimated that sufficient time had been devoted to the learning of the clinical skills introduced in the program as well as in the LCE units (Appendix A, figure 13).

On the OSCE examinations at the end of the 3rd year, most students have clearly acquired skills with respect to doctor-patient relationship, taking a history, and ability to do a clinical examination aimed at the particular system tested. (Appendix C).

Weaknesses

Surprisingly, according to examiners who test students both at the end of the 3rd year and at the final examination, students seem to lose some of these clinical skills after 2 or 3 years of clinical clerkships!

How to improve?

We are currently examining with the Clinical Curriculum Committee ways to have more structured clinical skills teaching in the clinical years.

2.6 CURRICULUM STRUCTURE, COMPOSITION AND DURATION

- 1. The medical school must describe the content, extent and sequencing of courses and other curriculum elements, including the balance between the core and optional content (a), and the role of health promotion, preventive medicine and rehabilitation in the curriculum, as well as the interface with unorthodox, traditional or alternative practices.*
- 2. Basic sciences and clinical sciences must be integrated in the curriculum.*
- 3. The curriculum must observe the objectives listed in the Swiss Catalogue of Learning Objectives for Undergraduate Medical Training.*
- 4. The medical curriculum is carried out regularly.*
- 5. The curriculum integrates with the existing curricula (b) offered by other universities or complements them in a meaningful way.*

Annotations: a. Core and optional content refers to a curriculum model with a combination of compulsory elements and electives or special options. The ratio between the two components can vary. b. Integration of disciplines would include both horizontal (concurrent) and vertical (sequential) integration of curricular components.

THE FIRST-YEAR CURRICULUM

There is no legal basis in Geneva allowing the Faculty to select medical students entering the medical school. The examinations during the first year function as a selection filter. Success in these exams is a prerequisite to enter the 2nd year. The average rate of success at each session in the past was 36.6±5.1% (mean±S.D.). As students are allowed 2 attempts, the actual overall rate of success at this exam is approximately 50%.

The total number of medical students¹⁶ in the first year in Geneva and the available teaching staff excludes a small-group-, PBL-based educational method. For the same reasons, we also renounced to introduce optional activities in the first year.

Nevertheless, we completely reorganized the first year curriculum in 2004. We applied the same methodology used in the reform of years 2 to 5 of the curriculum, i.e. multidisciplinary discussion by MD and PhD staff of the general objectives of the 1st year with emphasis on what is important for a future MD. Professors of the Faculty of Science participated in the discussion. In the end only the professors in charge of physics and of general and organic chemistry actively participated in setting the objectives and in actual teaching.

The first year had suffered from being a left over of the past, being at the junction between the Faculty of Science and the Faculty of Medicine. This mixture resulted in insufficient description of objectives, lack of horizontal and longitudinal integration, lack of communication between teachers and in more than 700 hours of teaching (496 as lectures and 213 as practical labs).

¹⁶ 374 in 2005, including 139 students who already failed once at the exam and repeat the year.

The multidisciplinary working group in charge of the reform proposed that:

- The new program should be centered on the needs of future physicians;
- Students should be able to integrate the basic sciences (physics and chemistry) with the basic medical sciences necessary to understand and solve clinical problems;
- Students should be sensitized to psychosocial and community issues;
- Students should be able to develop an active attitude.

The following teaching Units were created and subdivided in two Modules, each lasting one semester and followed by an examination.

Module A

1. From Molecule to Cell
2. From Cell to Organs

Module B

3. From Organs to Systems
4. Integration

Three longitudinal programs run in parallel during the whole year:

- Person-Health-Society (see section 2.4)
- Clinical cases
- Statistics for MD's

oct.			novembre			décembre			janvier			février			mars			avril			mai			juin							
1	2	3	4	5	6	7	8	9	12	13	14	15	16	17	18	19	20	21	22	25	26	27	28	29	30	31	32	33	34	35	36
Module A															Module B																
De la molécule à la cellule						De la cellule aux organes						Révisions et examen			Des organes aux systèmes						Intégration						Révisions et examen				
Personne, Santé et Société / Cas liaison / Statistiques															Personne, Santé et Société / Cas liaison / Statistiques																

The first Unit integrates biochemistry, molecular biology, chemistry, physics, and biophysics to build a cell from elementary molecules and to describe the basis of cellular functioning. The second and third Units allow the students to understand the mechanisms of formation and functioning of tissues and organs and eventually of the mains systems of the human body. The Integration Unit allows students to apply previously acquired knowledge to a variety of problems/themes, each lasting one week:

- Adaptation to physical exercise in normal and obese young subjects.
- Mechanisms of the body and brain reactions to pain, including emotion.
- Basis of pharmacokinetics and general concepts pertaining to the study of the effects of drugs.
- Infection and acute inflammation.
- Rejection of an incompatible graft.
- Hemophilia.

Clinical cases

Throughout the 1st year, students can study in each Unit different aspects of a given clinical problem (called "Cas de liaison" in the Figure above). For example, in the first

Unit (from Molecule to Cell), the description of the cystic fibrosis illness allows students to understand how a genetic mutation in a single protein of ion channel can affect several organs and systems. In the Unit from Cell to Organs, students examine the consequence of the mutation on glandular secretion in various organs. In the 3rd Unit (from Organs to Systems), students can approach the effect of cystic fibrosis on the respiratory and gastrointestinal systems and finally in the Integration Unit, they consider various issues related to pulmonary transplantation and to the impact of the psychological factors and the disability associated with a chronic disease. A similar path is followed for another pathological condition, atherosclerosis.

Given the number of students and available academic staff, the teaching method consists mainly of lectures. The total amount of teaching time is considerably reduced (from 709 hours to less than 500 hours). A large fraction of time is now devoted to self-oriented work, in particular reading. Lectures should provide motivation, context and perspective for the reading.

THE CURRICULUM FOR THE COMBINED SECOND AND THIRD YEARS CONSISTS OF:

Twelve 2- to 8-week (4 weeks on average) learning units

Ten units address each seven to 13 clinical problems pertaining to a particular body system or function. The problems are selected to direct students in the acquisition (**in an integrated manner**) of knowledge in anatomy, histology, human physiology, biochemistry, pathology, pathophysiology, pharmacology, microbiology, immunology, genetics and molecular biology. These units are: Growth and Ageing at the Cellular Level; Nutrition Digestion and Metabolism; Reproduction; Heart & Circulation; Excretion & Homeostasis; Respiration; Locomotion; Perception, Emotion & Behavior; Defenses & Immunity; Infections.

A 2-week synthesis unit is placed at the end of Module 2 to foster multi-system integration.

	oct		november				december				january				february				march				april				may				june				july				august				september				oct.					
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	Module 1																				Module 2												Holidays/military service																			
2nd	Intro-duct.	Cell Growth & Ageing				Nutrition, Digestion et Metabolism				Reproduction				R	EV	hol	Heart Circu-	and	Excretion & Homeostasis	Respiration	Synth. Mod. 2	R	EV																													
	Clinical Skills (CS) & Community dimensions (CD)						CS et CD				CS &		CD		CS & CD																																					
	Module 3												Module 4								Immersion In the Community		Holidays/military service																													
3rd	Locomotion	Perception, Behavior				hol	Emotion, and				R	EV	hol	Defenses & Immunity	hol	Infections				R	EV	hol																														
	CS & CD						CS & CD				CS & CD		CS & CD																																							

The instructional methods include small groups (8 to 10 students per group) problem-based tutorials (in general, 4 sessions of 2 hours/week), lectures, practical laboratory and/or large group questions-and-answers sessions (a combined maximum of 5 hours/week), and self-directed learning (on average 24 hours/week; the week is counted as 40 hours).

A program exposing students to community-based learning experiences

(CD in the figure above) See full description under criterion 2.4.

A longitudinal two-year and three-month pre-clinical practice skills program

(CS in the figure above) See full description under criterion 2.5.

THE FOURTH AND FIFTH YEARS CONSIST OF:

A) a 8-week unit, ICRU, based on hypothetic-deductive reasoning in small groups, exposes students to case-based clinical reasoning tutorials in small groups, in the domain of internal medicine, surgery, pediatrics, geriatrics, psychiatry and community medicine. It is designed a) to facilitate revision, acquisition and integration of knowledge on basic pathophysiology processes and on mechanisms underlying common clinical presentations, b) to develop clinical reasoning based on examples of various types of diagnostic and therapeutic approaches of clinical problems, and c) to prepare the students for clinical clerkships. This is achieved by small-group clinical problem-solving tutorials (see footnote 10), seminars and lectures. The last part of the Clinical Skills Program and of the Community-dimensions' program (see above) runs in parallel with this unit. The weekly schedule of activities is similar to that in second and third year units.

	8 weeks	3	2	5	8	1	2	1	4	7	4	1	
Groupes													
I	Introduction to Clinical Reasoning CCPS	Pediatrics		Pediatrics	Comm. Med.	Emerg.	Psy-		chialtry	Ob -Gyn.	Surgery	Surgery	M.
II		Medicine		Medicine		Pédiatrie	Comm-		Med.	Emerg.	Psychiatry		Ob.-Gyn. S.
III		Surgery	vac	Surgery		Medicine	Pe-	vac	diatrics	Comm. Med.		vac	Emerg. O.
IV		Psychiatry		Ob.-Gyn.		Surgery	Me-		dicine	Pediatrics			Pediatrics E.
V		Comm. Med.		Emerg.		Psychiatry	Ob.-Gyn.	Sur-	gery	Médecine			Medicine P.
I	Medicine	Optional Activities		Ophalm - ENT	Dermato	Neuro							
II	Surgery				Neuro	Dermato							
III	Ob.-Gyn. Psychiatry		vac	ENT - Ophalm									
IV	Emerg. Comm. Med.			Dermato	Neuro								
V	Pediatrics			Neuro	Dermato								
	7	4	2	3	3	3	3	2	1	14	5		

B) a one-year and 3-month rotation of 11 practice-based clinical clerkships (examples of a Clerkship study booklet will be available on site). These are three 8-week clerkships in Internal Medicine, Surgery and Pediatrics, four 4-week clerkships in Psychiatry, Community Medicine, Obstetrics-Gynecology and Emergency Care, and four 3-week clerkships in Neurology, Ophthalmology, ENT and Dermatology. All clerkships are designed to maximize the integration of students into the activities of the different services, and to allow them, through problem-solving case-based sessions, to further their competence in problem-solving and self-directed learning. Integrated within all clerkships are learning objectives in clinical pharmacology and clinical pathology, anesthesiology, radiology, ethics, legal medicine, and selected basic science concepts. An example of a clerkship week program (internal medicine) consists of four 2-hour sessions of problem-solving case-based discussions, 17 hours of self-directed learning, 3 seminars on selected topics (legal medicine, radiology, pathology), 6 hours of scheduled medical visits, 2 afternoons of patient admission and entry, and daily morning rounds. All clinical clerkship rotations are carried out at the University Hospitals of Geneva.

SIXTH YEAR - ELECTIVES

The 6th year consists of 10 consecutive months of full time activity. Students complete their knowledge in basic and clinical medical sciences by selecting practical electives in disciplines of their choice. This year is defined in the federal ordinance 811.112.2 of November 19, 1980, section 1, art. 5 (will be available on site). The Faculty of Medicine is responsible for establishing the program and has to inform

each year the Steering Committee of Federal Examinations about the specifics of the program. The practical organization of the electives and the follow-up of individual students is carried out by a professor assisted by a secretary. The electives can take place in a selected network of Swiss hospitals or with private practicing primary-care physicians. Electives can also take place in research laboratories, in basic or clinical sciences. Electives in other countries are possible, with the authorization of the Faculty of Medicine of Geneva. At the end of each elective, the person in charge of the elective writes an evaluation report on the student. There are currently about 250 electives offered to the students. These are described in a catalogue updated and edited every two years (the catalogue will be available on site; <https://www.dbpub.unil.ch/admin/webdriver?Mlval=MeStald>).

OPTIONAL ACTIVITIES IN THE CURRICULUM

As seen in section 2.1, there is on growing percentage of optional activities from year 2 to 6.

Strengths

- The curriculum matches the objectives of the Swiss catalogue of learning objectives as attested by a survey done by the Clinical Curriculum Committee.
- There is early exposure of students to the clinical environment and a progressive acquisition of clinical skills.
- A specific program, starting the 2nd year, is used to teach patient-physician communication skills.
- There is a promotion of community-oriented health care priorities.
- Participation of private practitioners (more than 150 involved) in several activities (CMA [see section 2.4], clinical skills, clerkships).
- Excellence in basic medical sciences is a goal. Students show keen interest in the scientific foundations of medicine as exemplified by in-depth discussions on electronic forums of the teaching units.
- Research and excellence in medical education is promoted by the UDREM.
- Computer communication and information technology are used to complement traditional teaching resources.
- Students are excellent teachers for their peers, in particular during practical laboratories (anatomy, neuroanatomy), and in rehearsal of clinical skills in the 3rd year (4th and 5th year students act as monitors, see section 2.5).
- All tutors receive a formal pedagogical training. 1439 preclinical and clinical tutors were trained in more than 80 workshops since 1995. Research studies were conducted to determine the effectiveness of our workshops and the impact of our faculty development program (Published articles are available upon request).
- The two Curriculum Committees (Pre-clinical and Clinical) responsible for overseeing the curriculum allow easy and rapid adjustment of the teaching and evaluation program when needed.
- All decisions concerning the teaching and evaluation program are taken by multi-disciplinary Curriculum Committees. This improves communication between the various curriculum content providers, and thus allows a transparent decision-making process and a coherent curriculum structure.
- The formal and continuous evaluation of the curriculum allows us to closely quantify and follow the effects of changes.

- The multidisciplinary approach in the working groups in charge of the teaching units and the necessity for the tutors to read outside their fields of expertise has increased interdisciplinary contacts as well as contacts between clinicians and basic scientists.
- There is a systematic evaluation of all teachers and of all teaching activities with standardized questionnaires. Overall, most tutors are rated highly by the students and only a few (approximately 5%) were rated unsatisfactory. Results are available upon request.
- A database records direct contact teaching activities and teaching responsibilities.
- The involvement of many teachers, many still junior, has prompted the Faculty to take teaching more into account when considering recruitment, promotion, and career development.
- The multidisciplinary teaching approach made possible the reorganization of the basic medical science departments.

Weaknesses

- a. Geneva chose a radical curriculum reform. This necessarily led to important changes and consequently required major adaptation efforts from faculty members and infrastructure. The total time of direct contact with students increased from about 6'000 hours before 1995 to 23'602 hours in 2004-2005. Some faculty members for example complain about the increased teaching load, in particular during the clinical years. The teaching load is however distributed, so that the average load of direct contact is approximately 20 hours/person/year.
- b. Although in the new program the community health issues are better integrated, exposure of the students to the reality of medical practice outside the university hospital (outpatient care) is still too limited.
- c. Some students complain that the curriculum is very heavy, despite the time allocated for self-directed learning. Part of the problem may be that we transferred too many objectives into the new program. Another explanation (which would not necessarily be a weakness) is that in the reformed curriculum, students have to study regularly every day for their tutorial sessions and prepare for two examinations (in the traditional curriculum they could decide to attend or not attend the lectures and chose to study heavily just before the single examination at the end of the year).
- d. An important problem, according to some tutors, is the apparent inability of students to conclude a problem solving session in an integrative and synthetic manner. Although there is considerable improvement over the years, several students continue to have difficulties in identifying important concepts, and give too much attention to details. We should mention, however, that this point has not been demonstrated by a specific study. The remarks of several tutors require that we objectively measure this outcome.
- e. In the hearing of the Section of basic medical science, two concerns were raised by the ACIMF, which we mention here for the accreditation experts.
 - **All tutors are not equivalent.** Everybody would agree that it would neither be expected nor desirable to have “cloned tutors” but we have heard this is a criticism regularly made since 1995, but mostly by the teachers. The notion behind the concern is that it would be better to let the best expert of the Faculty talk to the class.

- **Delegation of teaching by seniors to more junior staff.** It is true that there are considerably more teachers involved now than there was before 1995 and that many of them are junior. We think that it is a benefit. In the basic medical sciences, when the new curriculum was started, some senior professors did not want to participate and more junior staff had to take the load. Many of these young people are now professors, some are heads of Departments and they still teach and sometimes chair a teaching unit. It is important to state that teaching activities are now considered very seriously in the academic career, so that it is important for the junior staff to have access to teaching. A major concern, however, is that we have fewer MD in the research and teaching staff in basic medical sciences. This is not due to the curriculum but to decreasing number of MD doing a thesis in basic science Department, in part for much salaries than when compared to that in the HUG.

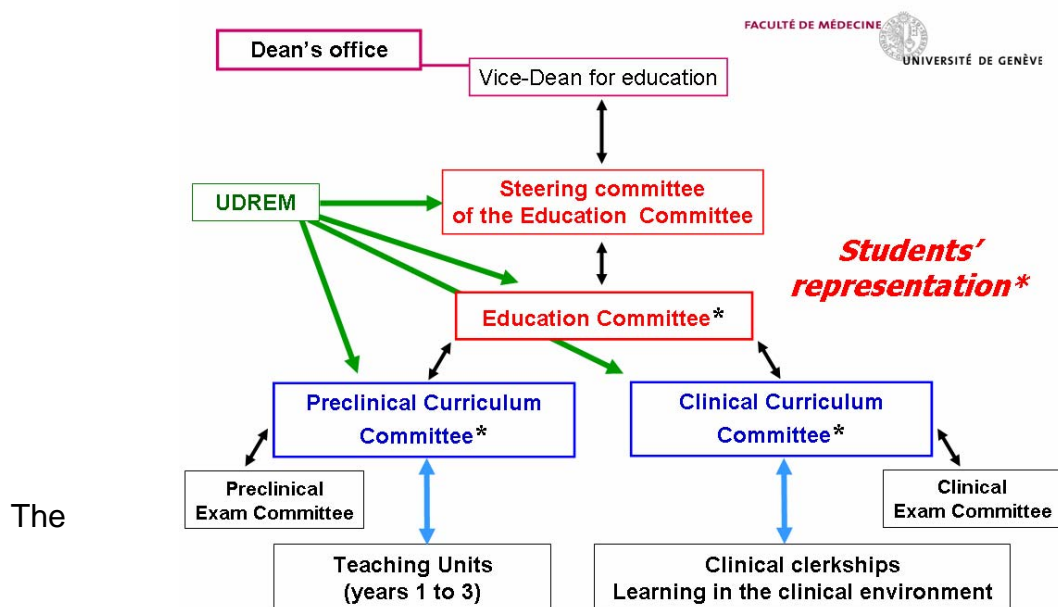
2.7 PROGRAM MANAGEMENT

1. A curriculum committee (a) must be given the responsibility and authority for planning and implementing the curriculum to secure the objectives of the medical school.

2. The curriculum committee must be provided with resources for selecting and implementing appropriate methods of teaching and learning, student assessment, course evaluation, and for innovations in the curriculum. There must be representation on the curriculum committee of staff, students and other stakeholders (b).

Annotations: a. The authority of the curriculum committee would include supremacy over specific departmental and subject interests, and the control of the curriculum within existing rules and regulations as defined by the governance structure of the institution and governmental authorities. b. Other stakeholders would include other participants in the educational process, representatives of other health professions or other faculties in the University.

CURRICULUM MANAGEMENT



Education Committee (EC) is the organism in charge of the curriculum for both human medicine and dentistry at the Faculty of Medicine of Geneva. The Vice-Dean for medical education chairs the EC. He is assisted by the two Curriculum Committees (pre-clinical and clinical) and advised by the UDREM.

The EC is made-up of *ex-officio* members, of other members and of representatives of the students:

Ex-officio members (* indicate the 7 members of the Steering Committee of the EC):
*Vice-Dean for education (chairman of the EC), *Chairpersons of the Pre-clinical and of the Clinical Curriculum Committees, and of the UDREM
*Students' advisers, Chairpersons of the Pre-clinical Exam and Clinical Exam Committees
Medical Director (or his deputy) of the Geneva University Hospitals
Two delegates of the Section of dental medicine
*Administrator of the EC
Directors of the Departments of Surgery, Internal medicine and Pediatrics
Other members:
Ten to 12 members proposed by the Steering Committee of the EC (and approved by the College of Professors) as representatives of the Community dimensions, Clinical skills, private practice in primary care, Intermediate academic staff, etc.
Representation of the students:
There are 6 delegates, one for each year of the curriculum. They are designated by the AEMG

The Education Committee has three sets of tasks:

Educational tasks

- Supervise pre-graduate teaching activities of the Faculty of Medicine¹⁷. In this task, the EC has supremacy over departmental interests.
- Give the general orientations regarding pedagogical developments (innovations) and evaluation.
- See to the longitudinal coherence and cohesion of the medical curriculum along years 1 to 6 (1-5 for the dentists).
- Examine and propose the general options for pedagogical formats.
- See to preserve academic level and ensure constant evolution of contents
- Maintain the database of pre-graduate teaching activities.
- Inform all faculty structures about pre-graduate teaching.

Promotion of academic teaching

- See to the renewal of the teaching staff.
- Promote teaching in academic advancement by defining and evaluating the activities related to teaching.
- Encourage research in medical education.

Curriculum Management, Administration and Budget

We mentioned that of fraction of salaries from the department of Public Education corresponds to "teaching salaries" (amount 20 million). This includes a special budget for salaries (228'621 CHF) for supplementary academic staff, mainly in clinical departments (*suppléants chargés d'enseignement*) and administrative assistance (321'559 CHF) part-time secretaries for teaching administration – mainly in clinical departments).

In addition, the EC has an annual running budget of 700'000 CHF, which is used to pay for:

- The developments of new teaching activities.
- Indemnities to private practicing primary-care physicians participating in teaching.

¹⁷ This includes teaching to medical and dentistry students, to students of other Faculties [Science, Law, Psychology], to paramedical professions [nurses, physiotherapists, etc.]

- Renewal of equipment for practical laboratories, clinical skills training.
- Distribution of “Mimosa” money to departments according to teaching achievements (see footnote 5).

The Steering Committee of the EC and the two administrators of the Faculty of Medicine take all financial decisions regarding new developments regarding teaching. When required, the Pre-clinical or the Clinical Curriculum Committees give their advice on specific funding of some teaching activities.

Strengths

We have changed from a near total absence of management (atomized teaching responsibilities in Departments neglecting horizontal and vertical integration) to a structured management with well-defined responsibilities. This has resulted in many developments and made possible for example:

- the reform in the first year of the curriculum;
- the creation of many new teaching formats in the clinical years.

These projects have been achieved thanks to the invaluable collaboration of many dedicated teachers involved in the development, in teaching and in examination.

Other positive elements of the Curriculum management:

- A Vice-Dean principally in charge of Education;
- The active and executive role of the two Curriculum Committees concerning curriculum content, instructional methods and quality control (discussions on the program evaluation results in improvements that are implemented);
- Better coordination between the Committees in charge of the content of the curriculum and the Examination Committees;
- Active consideration of educational activities and responsibilities in promotion, search committees, and budget allocation to departments (Mimosa).

Weaknesses

1. The increased creativity has a cost; we desperately need to find money in particular to develop promising ways of teaching ambulatory medicine.
2. The program runs with minimal friction: there is a risk that people in charge may be tempted to stabilize the system in order to take a little break after considerable efforts spanning nearly 17 years¹⁸ for some of the actors!
3. At the pre-graduate level, there are fewer clinicians involved in the planning of the program. At the beginning of the reform, several influential clinicians from the hospital were involved in the design of the 2nd and 3rd years. Some even took the responsibility of a teaching Unit. Their contribution diminished progressively as they had to design the clinical curriculum and put it to work in 1997. With the augmented teaching load and also increased administrative work associated with the reform (due to the serious work of the various committees involved), there has been a tendency for clinicians to withdraw progressively from the Pre-clinical Curriculum Committee. As a consequence, this Committee tends to become deprived of the input from important stakeholders that could have a critical eye on the objectives of the pre-clinical years. This, in turn, may lead, in the pre-clinical years, to insufficient exposure of students to competences that could be useful in the clinics.

¹⁸ The preliminary work on reforming the medical curriculum in Geneva started in 1989.

4. Another problem that we could not yet solve, although we discussed it at length several times: longitudinal awareness. By awareness, we mean that many teachers in the clinical part have little idea about what students learn in the pre-clinical year (needless to say that the reverse is also true). One problem, particularly in the clinics, is that many teachers tend to think that students have not learned anything and these teachers do not try to re-activate knowledge. By longitudinal coordination, we mean that after the initial coordinated effort of clinicians and basic medical scientists to build a coherent curriculum, clinicians have slowly retired to their clinical task of care, research, services and teaching. Unless we find a way to correct for this we may slowly drift with time toward two separate, non coherent entities.

How to improve?

For point (1), we could approach private Foundations interested in developing better care to patients and who think, as us, that this could happen through more clinically-oriented teaching, training through out the curriculum.

For point (2), (3) and (4), we probably have to rejuvenate our management system by introducing young people eager to contribute to the improvement of the curriculum with brand new ideas (for example former students that came out of the new curriculum?) and who would be ready to tackle the challenge of longitudinal coordination and awareness.

Have more interactions between the Preclinical and Clinical Curriculum Committees and their respective teachers.

2.8 LINKAGE WITH MEDICAL PRACTICE AND THE HEALTH CARE SYSTEM

1. Operational linkage (a) must be assured between the educational program and the subsequent stages of training or practice that the student will enter after graduation(b).

2. The curriculum committee should seek input from the environment in which, graduates will be expected to work and should undertake program modification in response to feedback from the community and society.

Annotations: a. Operational linkage would imply clear definition and description of the elements and their interrelations in the various stages of training and practice, and should pay attention to the local, national, regional and global context. b. Subsequent stages of training would include pre-registration training, and specialist training.

Point: 2.8.1

The operational linkage with postgraduate training exists via the following mechanisms:

- The design of the program (pre-clinical and clinical) was originally made in close collaboration with the academic staff of the university hospital, where a substantial part of the postgraduate training in the various medical specialties takes place.
- Most members of the Clinical Curriculum Committee are very involved in both pre-graduate and post-graduate medical training.
- As already indicated in section 1.4, the Faculty of Medicine of Geneva curriculum observes the objectives listed in the Swiss Catalogue of Learning Objectives (SCLO). The SCLO specifies that the basic medical training should prepare the students for post-graduate training.

Point: 2.8.2

To seek feedback from the environment in which graduates will be expected to work is one of the future objectives of the Graduate follow-up project (see section 1.4).

Overall, the objectives of this project, carried out by the Unit of development and research in medical education (UDREM), are to:

- a) Define at admission the bio-demographic, academic, and other characteristics of the student population and how they are related to their performance in medical school.
- b) Assess the program relevance by determining the extent to which students develop the intended competences as they progress through medical school. Criteria measures include scores on written, oral and practical examinations, performance ratings, coded reasons for any change in academic status (transfer, dismissal, or delayed graduation), and students' evaluation of the program.
- c) Determine how the graduates retrospectively evaluate the relevance of the undergraduate training in preparing them for residency.
- d) Assess the graduates' performance in terms of specific performance measures, and how these are related to those obtained in medical school. The measures are acceptance into a residency program, residency performance ratings, self - evaluation of clinical performance and study approach, specialty and geographic areas of practice, and types of professional activities.

In a different domain, it will be important to deal with the issue of possible shortage of physicians in the French-speaking part of Switzerland, and to examine the possible impact of the increasing number of female medical students on the medical work force (including residents' pool in the hospital), on choice of specialty and its consequence on health care delivery. Preliminary collaborations and exchanges of data have been established since last year with the hospital clinical and administrative representatives as well as with representatives of the Department of Economy and Health of the State of Geneva.

Note that input from the environment to promote changes on the program comes also from *ex-officio* involvement of members of the Education Committee in Federal Committees, such as the Swiss Medical Interfaculty Committee or the Steering Committee of Federal Examinations. Both Committees include various stakeholders that can relay preoccupation of the community and society.

3.1 ASSESSMENT METHODS

1. The medical school must define and state the methods used for assessment (a) of its students, including the criteria for passing examinations.

2. The reliability and validity of assessment methods must be documented and evaluated (b) and new assessment methods developed (c).

Annotations: a. The definition of methods used for assessment may include consideration of the balance between formative and summative assessment, the number of examinations and other tests, the balance between written and oral examinations, the use of normative- and criterion-referenced judgements, and the use of special types of examinations, e.g. objective structured clinical examinations (OSCE). b. Evaluation of assessment methods may include an evaluation of how they promote learning. c. New assessment methods may include the use of external examiners.

Point: 3.1.1a

The methods used for the assessment of medical students and the criteria for passing the examinations are explicitly stated and known to all students. Typically, a mark of 4 on a scale of 1 (low) to 6 (high) is required for passing. Basic information is

available on the medical school's website:
http://edumed.unige.ch/etudes/eval_etudiant/index.php.

Evaluation methods include:

- Formative evaluation of each student's work at the end of each teaching unit, done by the group's tutor.
- Formative stations to prepare students for the objective structured clinical skills examination.
- Formative evaluation of each student's performance by the attending physician at the middle and end of each Unit of Learning in a Clinical Environment.
- Summative assessments at the end of each module (twice per year during the first 3 years) by means of multiple choice questions (MCQ) and other methods (OSCEs, standardized patients, clinical vignettes in year 3). In the fourth year, at the end of the "Introduction to clinical reasoning" Unit, a summative MCQ has been introduced in 2005. This examination was previously formative, but students did not take it seriously. Interestingly, students about to finish the curriculum told us that they did not realize the importance of the ICRU until they were in the clerkships!
- Final federal examinations at the end of the curriculum. Five examinations (medicine, surgery, pediatrics and gynecology, social and preventive medicine, and ENT/ophthalmology/dermatology) are national multiple choice question tests, the others are oral examinations¹⁹. At the end of the 6th year there are 3 pass/fail comprehensive examinations in internal medicine, pediatrics and surgery. Passing these final exams is required to obtain the Federal diploma of physician. Information about this examination is posted on the medical school website at <http://edumed.unige.ch/pratique/examens/>

Point: 3.1.2b

The procedures to ensure the validity and reliability of local tests with MCQ developed in Geneva are as follows:

1. The content validity of the questions is based on the questions being developed by the teachers and experts in each domain. The same learning objectives are used to develop the content of the course and the examination questions.
2. An Examination review committee critically assesses the logic, clarity, and formal appropriateness of each newly developed question before it is fielded – many questions go through one or two revisions before they are accepted by the committee.
3. Furthermore, each examination contains a set of anchoring items, which allows (using the Rasch model) a) a comparison of the performance levels of successive cohorts of students, and b) an interpretation of the level of difficulty of newly developed items. The anchoring items are also used to determine, for each examination, the minimum passing score.
4. Finally, once an examination has been administered, the Examination Committee (pre-clinical or clinical, as appropriate) reviews the performance of each question that was included. The main parameters that are considered are the proportion of correct answers, and the discrimination ability of the item (r-bis statistic). Items

¹⁹ Internal medicine, including neurology and rheumatology, psychiatry, gynecology & obstetrics, ENT, dermatology, ophthalmology, pathology (macroscopic and microscopy), radiology, forensic medicine.

that do not perform as expected (usually 5-10% of the pool) are eliminated before final scores are computed.

The written federal examinations are developed, administered and scored by federal authorities. The methodology expert role is assigned to the “Institut für medizinische Lehre” at the University of Bern (<http://www.iawf.unibe.ch/>). The Institute assesses the validity and reliability of the federal multiple choice tests, using similar methods to those used in Geneva.

Point: 3.1.2c

Introducing, developing and controlling the quality of existing (i.e. practiced in Geneva) and new assessment methods is one mission of the UDREM. New developments include use of standardized patients-based clinical examinations, standardized oral examinations and clinical vignettes-based multiple choice questions (NBME R and N formats).

Credit system

The European credit transfer system (ECTS), which allows recognition of evaluated teaching modules in the various Faculties that adhere to this system, has been implemented in Switzerland²⁰. (see annexe: programme_ects)

3.2 RELATION BETWEEN ASSESSMENT AND LEARNING

1. Assessment principles, methods and practices must be clearly compatible with educational objectives and should promote learning.

2. The number and nature of examinations should be adjusted (a) by integrating assessments of various curricular elements to encourage integrated learning. The need to learn excessive amounts of information should be reduced and curriculum overload prevented.

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

Point: 3.2.1

Assessment principles and methods are state of the art. The Faculty of Medicine relies on the UDREM to maintain high measurement standards. For all teaching modules, educational objectives are defined first, and then only is the specific curriculum defined and examination questions developed. These tasks are performed by the same teaching team. This optimizes concordance between objectives, course contents, and evaluation methods.

Since problem-solving is the key pedagogical concept, evaluation methods apply problem-solving skills whenever possible. This is particularly the case of OSCE stations, but teachers are also encouraged to develop MCQ that present real-life situations rather than questions that test rote learning. UDREM has organized several workshops to train our teachers to write questions measuring higher level of learning (application, synthesis of knowledge, etc.).

The summative multiple-choice evaluations are not primarily used as support for learning. Students receive separate marks for specific disciplines, but individual questions are not discussed. In some teaching units, MCQ are provided for practice. The formative OSCE are followed by a specific debriefing of each student. This

²⁰ See ordinance 811.112.244-2004. Art. 8 Credit System. Every test is evaluated according to a credit system as the European credit transfer system (ECTS).

happens 4 times during the 2nd and 3rd year. As already mentioned, students receive also formative feedback from their tutor at the end of each teaching unit.

Most examinations are multi-formatted examinations. They often regroup written, oral and practical examinations.

Point: 3.2.2

Except for the final MD federal examinations, which are discipline-specific, and on which the Faculty of Medicine cannot exert any influence (except through contributing to the pool of MCQ), intramural examinations of the curriculum regroup all learning objectives of a given period. The pass-fail decision is based on global performance. Nevertheless, multiple choice questions are domain-specific, as they are developed by those responsible for a specific learning unit, and do not yet particularly assess students' integrated knowledge.

Examinations are given twice a year in years 1 to 3 and at the end of clinical training units during the clinical years. While this rhythm appears to be reasonable, we have no evidence indicating that more or less frequent examinations would be less conducive to learning.

Strengths

The examinations themselves do not cause curriculum overload. Learning objectives for all medical schools are agreed upon at the national level (see Swiss catalogue of objectives), and it is this list of objectives that drives the content and organization of the curriculum, as well as the content of the examinations.

Weaknesses

It is likely that the examinations stimulate forms of rote learning and “cramming” that may not be optimal in the end, but whether the disadvantages of such forms of learning outweigh the benefits is unclear. On the other hand, most of the existing multiple-choice examinations still tend to valorize the acquisition of maximum amounts of knowledge. They do not valorize sufficiently the student's ability to retrieve and critically assess the information required to solve specific clinical problems (which is the goal of the pedagogical methods employed at the School). Also, in spite of the training workshops, the number of higher level MCQ is still limited. A reason is that preparing good MCQ is time-consuming and often MCQ are prepared during the stress of the teaching period.

The relation between assessment and learning in the clinical years is less than ideal since we are relying on the federal examinations that consist exclusively of MCQ at present. Some important areas of training (i.e. emergency care, communication skills, and physical examination) are not covered in the MCQ examination. Oral examinations in the clinical years are not standardized-structured, except in the Internal medicine and Community medicine learning Units. We hope that with the introduction of the new federal law, this aspect will be addressed and improved.

How to improve?

Regarding MCQ, they should not be prepared in the rush period of active teaching. Teaching Units should encourage their tutors to organize workshops for preparing and correcting MCQ. Make the effort to design new examination formats to test the student's ability to retrieve and critically assess the information required to solve specific clinical problems.

Regarding oral examination, it is likely that the pressure toward structured clinical oral examinations that should be introduced in the final federal examination with the new law will change the way oral examinations are performed in the various clinical disciplines. We expect examiners of these disciplines to adjust their way of examining in order to contribute to the training of students for the federal exam.

Finally, as occurs in most other medical faculties, in Geneva the emphasis (and budget) has been focused more on curriculum and teaching than on testing and evaluation. In the clinical years, this tendency was reinforced by the fact that testing has been until now strictly and entirely dependent on the federal examinations; therefore, testing was not regarded as a faculty's responsibility or as a crucial aspect of the training. We hope that with the introduction of the new law we will be able to convince our Faculty to invest more in evaluation.

4.1 ADMISSION POLICY AND SELECTION

1. *The regulatory authority together with the medical school must have an admission policy including a clear statement on the process of selection of students (a).*

2. *Equality of men and women is assured.*

Annotations: a. The statement on process of selection of students would describe both the rationale and methods of selection and may include a description of a mechanism for appeal.

Point: 4.1.1

Admission policy

Swiss citizens need to hold a baccalaureate degree (Swiss *maturité* or French baccalaureate with mention « good »). Foreign Citizens must hold a degree equivalent to the Swiss baccalaureate. They must have been residents of the canton of Geneva for at least five years *with the exception of the:*

- Citizens from a country that has signed the *Convention de Lisbonne*²¹, who can be admitted to medical studies according to the terms of this Convention, and, when required, after an examination in French language.
- Family members of employees of international organisations and political refugees.

Appeal

Swiss students can appeal to the Steering Committee of Federal Examination and to Federal Department of Internal Affairs. Foreign students can appeal to the Appeal Committee of the University of Geneva.

Selection procedure

There is no legal basis for a selection procedure of the students wishing to start studying medicine in Geneva. We are currently considering introducing the "aptitudes test" used in all Faculties of medicine of the German part of Switzerland. Indeed, we can anticipate a sudden and possibly massive influx of students in particular from the French-speaking parts of Europe similar to the mass of German students that applied to medical schools in Austria in 2005, following a judgment of the European Court of Justice.

The principle of using the aptitudes test for admitting the number students corresponding to the declared capacity of the Faculty of Medicine of Geneva for the

²¹ This change in the conditions of admission has been introduced at the University of Geneva in January 2006, following an intervention by the Faculty of Medicine of Geneva.

first year of the curriculum (**207 new students**) has been accepted in December 2005 by the *Collège des Professeurs* and by the Faculty Council. This decision has been communicated to the Rector and to Department of Education of Geneva, who will have to change the rule on admission at the University of Geneva, if there is agreement to introduce the aptitudes test. But, for the moment, it is important to state that there is no legal basis for selection in Geneva!

Given the above consideration that we accept 207 new students and that between 100 and 150 students repeat the first year, a drastic selection has to take place in the first year in order to meet the **limits set by the clinical capacity (132 students, 106 in medicine + 26 in dentistry)**. This selection takes place in the first year. In the subsequent years of the curriculum, the dropout rate due to the examinations is 1.8 student per year on average.

It is important to mention that the absence of selection before the first year was one of the major criticisms to Geneva in the last accreditation visit (1999). The international experts considered that the high failure rate of the first year “risks to foster a spirit of competition among first year students that is not conducive to team work in subsequent years of the program”. Surprisingly, however, in more than 10 years of experience with PBL in the 2nd and 3rd years, we did not note a spirit of competition between students in PBL groups, despite the drastic selection in the first year. Also, the Geneva medical students, even those who have just finished, are the strongest advocates for not restricting the access to the 1st year. In any case, we must admit that contrary to the situation in the German-speaking part of Switzerland, the issue of selection at entry of the University in Geneva is still highly emotional and political rather than pedagogically- and efficacy-oriented.

Thus, in a time of limited resources, and in the absence of a legal basis for a pre-university selection, the curriculum of the first year in Geneva can be improved, but it cannot be completely reformed.

Point: 4.1.2: Equality of men and women is assured

There is no selection based on gender.

4.2 STUDENT INTAKE

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

The declared **capacity of the 1st year** for the Faculty of Medicine of Geneva is **207 new students**. The total **clinical capacity** is 132 students, 106 students in human medicine and 26 students in dentistry.

4.3 STUDENT SUPPORT AND COUNSELLING

- 1. A program of student support, including counselling, must be offered by the medical school.*
 - 2. Counselling should be provided based on monitoring of student progress and should address social (a) and personal needs of students.*
 - 3. Students have access to a committee dealing with questions relating to gender equality.*
- Annotations: a. Social and personal needs would include academic support, career guidance, health problems and financial matters.*

4.3.1 Students support and Counselling

There is one student adviser for years 1 through 3, one for years 4 and 5 and one for the 6th year. These advisers cover approximately 1000 individual consultations per year, of which 1/3 concern academic problems, 1/3 social and financial problems, and 1/3 personal and psychological problems. Advisers also respond to e-mail. The advisers of year 4 to 6 inform students about possible clinical orientations and the adviser of years 1 to 3 about research possibilities. Their combined involvement in these tasks represents approximately 25 hrs per week.

Student information

Students are informed during the first week of the first year curriculum about the different professional possibilities for a MD, and thereafter several times along the curriculum. They can always contact, throughout their studies, three faculty members who act as student advisers for all student affairs, including career planning.

Students are informed:

- orally at the beginning of the 1st, 2nd and 3rd year by the student adviser responsible for the pre-clinical years;
- orally by the same adviser, at time of personal interviews (requested by the student or the adviser);
- in written form posted on the Faculty building, at the place devoted to official student information.

Guidance to students for electives

The Student Office has a service devoted to the organization and planning of the 6th year electives. A professor is in charge of this Office and acts as an adviser to the students.

Social services help for students with financial problems

Students with financial problems can contact one of the three advisers of the Faculty of Medicine or the Social Affairs Office of the University. The social service is located at the Student Office of the University. Students can also consult the *Bureau du placement* ('job desk') at the University, which helps to find small jobs. There is also a specialised Health Service including psychological support at the University.

Point: 4.3.2: Counselling should be provided based on monitoring of student progress and should address social (a) and personal needs of students

At present, counselling takes place primarily at a student's request. One exception, in the preclinical years, is repeated detected problems in a student's evaluation by teachers (the students' advisers read through each individual written evaluation of the students by the teachers). Another exception occurs in the clinical years, for the few students that fail on the MCQ federal examinations. In this case the student's adviser contacts the student and discusses with her/him the best strategy to pass the final examination (this may include solving personal problems first).

Point: 4.1.3: Access to a committee dealing with questions relating to gender equality

The Faculty of Medicine in Geneva has a Committee for the academic promotion of women and the current chairperson is the students' adviser of years 1 to 3.

Strength / Weaknesses

Given the availability of these resources, it was found that most of our students did not use them fully. However, students who used the resources found them adequate and helpful. (Appendix A, Figures,10,11).

How to improve?

It is important to determine with the students the reasons why these resources were not used more widely and how they can be used more efficiently.

4.4 STUDENT REPRESENTATION

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

2. Student activities (a) and student organisations (a) must be encouraged and facilitated.

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

Point: 4.4.1: Note: this section was written by the students following a discussion between the students and the Vice-Dean for education and his assistant

The Faculty has a proper student representation. Every year, about 20 students are motivated for it and play an important role in various committees. The large majority of students, however, do not share their motivation. Therefore, they are delegates more than true representatives. Moreover, there is a lack of continuity in this representation due to the high turnover in the students' association.

Students participate in:

- the Education Committee (1 student per year, chosen by the students' association);
- the Pre-clinical and Clinical Curriculum Committees (2 students per year, chosen by the students' association);
- the Clinical Exams committee (1 student but chosen by the teachers);
- the Faculty Council (8 students, [including the Research council {2 students} and the Clinical council {2 students}], elections are organized by the University);
- the Library commission (1 student, chosen by the student's association).

The students who are members of the Pre-clinical and Clinical Curriculum Committees are thus informed of decisions taken about the curriculum and influence these by participating in the discussions, by making suggestions and by vote. Many changes introduced in the curriculum resulted from criticisms and suggestions by the students.

The students that are members of the Faculty Council can hear about the politics of the Faculty, the nomination of professors, the decisions concerning the budget, etc. They can ask questions to the Dean and Vice-Deans who attend the session. Students participate to the election of the Dean, Vice-deans, and Directors of department and in all votes regarding important changes in the curriculum, budget, etc. Due to the composition²² of the Council, their vote can strongly influence decisions and has done on several occasions.

The internal evaluation committee remarks, however, that students were generally not involved in the design of major educational changes (neither about learning

²² 16 professors ; 8 collaborators of teaching and research; 8 students; 4 members of the administrative and technical staff

objectives, nor about teaching format). As for the management and the practical organization of the studies²³, students are usually consulted after the decision, more for feedback, rather than during the decision process. In the last year, there has been an evolution, i.e. the Faculty tries to associate students at the beginning of a new educational change, the implementation of Bologna process.

Concerning the evaluation, many questionnaires ask the students about their criticisms and suggestions on the different modules and teachers. The Faculty has recently introduced a policy of publicizing on the web PDF files of the evaluations of all teaching Units (http://edumed.unige.ch/etudes/eval_programme/index.php) both at the pre-clinical and clinical levels which should demonstrate that evaluation is treated seriously and transparently. However, because of the fact that the Faculty did not inform efficiently the students of this publication, most of them still do not know the way their remarks are used. Many students even think that a better transparency concerning these evaluation forms would be desirable.

A very delicate issue is how the Faculty handles badly evaluated tutors. Tutors are exclusively evaluated by students. It would be incredibly time and resource consuming to evaluate systematically tutors by peers. Therefore, although the evaluation of tutors by the students is extremely useful, especially when we can cumulate information of several students, and often of several groups of students on a same tutor, we have to use it with care as it is our only source of information. In March 2005, a discussion took place at the Education Committee, in which 6 students participate about public disclosures of evaluation of all teachers, including tutors, on the web. The issue was that evaluation of tutors, clinical skills monitors and community dimensions teachers was in principle anonymous, but that identification of the teacher giving lectures for example could be identified by the title of the lecture given in the evaluation! The policy of the University of Geneva is that the evaluation should be returned to the teacher²⁴. In the Faculty of Medicine, the procedure, known to the students, is as follows: nominal evaluations are transmitted to the teacher, the chairperson of the teaching Unit, the chairperson of the Curriculum Committee concerned and the Vice-Dean for education²⁵ and to the director of the tutor training program.

The internal evaluation committee fully agrees with another matter of concern to the students, i.e. the communication between the Faculty and the students. Even if only a few students are interested in the politics of the Faculty, the students and the Faculty recognize that they miss a concrete and active policy on communication.

Point: 4.4.2²⁶

²³ This may explain the relatively poor evaluation by the students of the students' participation in the Faculty's commissions and of the administration, awareness of their problems (Appendix A, figure 9).

²⁴ The students that were present agreed that evaluation of teachers could be anonymous. The Education Committee concluded that all evaluations would be published on the web but in an anonymous way.

²⁵ A poor evaluation, for example of a tutor, is first discussed by the chairperson of the teaching Unit and the tutor. They examine together what went wrong and what can be done to improve the situation. If appropriately treated, most situations are corrected and the next performance of the tutor is considerably improved. In case of a repetition, the tutor is seen by the chairperson of the teaching Unit and the chairperson of the Committee concerned. If the problem persists, the Vice-Dean is involved in the discussion. Over the 10 years of the new curriculum we had to reject only one tutor.

²⁶ The students do not include in this paragraph the Neuro-Club, Refresher Courses of anatomy and all the teaching activities given by students (monitors for informatics, semiology teaching, anatomy and neuroanatomy) because they consider that the responsibility for these activities belongs to the Faculty, and that the selection criteria of students are completely obscure to them.

IFMSA Geneva (International Federation of Medical Students Association) receives moral and financial support from the Vice-Dean in charge of education. For the AEMG the financial support comes from the University itself. Moral support comes from the Vice-Dean. *Parmed* (student-student partnership program) receives money from the Alumni and from the University itself. The Faculty of Medicine gives logistical and moral support. *Méditorial* (medical students' journal) receives money from the University. *Saturnales* (charitable party) has no support and lacks continuity from year to year.

With respect to 4.4.2a, students have access to the sport and cultural activities proposed by the University of Geneva.

Strength

The Faculty of Geneva has always been able to count, year after year, on a group of very dedicated students of the AEMG and IFMSA that constituted a crucial support to develop and improve the curriculum.

Weaknesses

- The students, as a body, do not fully play the role that they could play, in part due to the lack of interest or commitment of a large number of students.
- There is a communication problem (discussed in § 4.4.1).
- The internal evaluation committee and the students agree that, although there has never been any opposition from the members of the Faculty concerning students' activities or organization, the support of the Faculty is not as strong as it could be. For example, the Faculty has not been sufficiently proactive in trying to know whether there were specific needs of the students or whether students wanted to have a feedback on some issue. A more visible policy of support is not developed, such as valorization of the commitment of the students by ECTS credits or some educational acknowledgement, as is done in some other countries.
- The selection of students in some activities (see footnote 26) is not transparent.
- In the clinical years, the clinical hierarchy does not always understand why students leave the hospital to attend Faculty committees.

How to improve

This section is the result of a discussion with the students:

1. Develop a common information process (Students and Faculty) at the beginning of each study year and at all degrees to encourage students to participate more actively in the politics of the Faculty of Medicine.
2. Create a group constituted by the Vice-Dean for education and his assistant, the students who sit at the Education Committee, and the Committee of the AEMG. This group will meet at least 6 times / year before the Education Committee meeting. The main aims of this group will be:
 - to help develop point 1 above;
 - to strengthen the relationship between the Faculty and its students, which are also its future alumni.
3. Regarding participation in Faculty meetings by students in the clinical years, the Vice-Dean can address letters so that students can prove, when necessary, that they participate in an official meeting.

4. The Faculty will also study the valorization of the commitment of the students by ECTS credits.

5.1 RECRUITMENT POLICY

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

2. A policy must be developed for staff selection criteria, including scientific, educational and clinical merit, relationship to the mission of the institution, economic considerations and issues of local significance (b).

3. The recruitment policy for academic, administrative and technical staff is made public.

Annotations: a. Balance of academic staff/faculty would include staff with joint responsibilities in the basic and clinical sciences, in the university and health care facilities, and teachers with dual appointments. b. Issues of local significance may include gender, ethnicity, religion, language and others of relevance to the school.

Point: 5.1-2: Professorial level

This section addresses specifically external recruitment generally done at the full-professor or associate professor levels. Career development within the Faculty is described in the next section.

The academic staff recruitment policy of the Faculty of Medicine at the professorial level is somewhat complicated as it has to face the different requirements of three Sections 1) Basic medical sciences, 2) Clinical medicine and 3) Dental medicine.

The situation in Basic medical sciences is the simplest. Three years before retirement of a professor, a Structure committee is created by the Dean²⁷ to examine whether the position should be renewed with the same terms and conditions or not. The Committee examines the standards in the domain in Switzerland and abroad and consults usually several local authorities: the Basic medical sciences Section, the Education Committee, the Research Committee, the chairperson of the department concerned. Whatever the final decision, the new professor (if it is decided to nominate one) will have a contract with specified duties concerning teaching, research, and services.

Regarding teaching, the role of the Education Committee is to evaluate whether there is a specific need for a certain teaching ability or a particular expertise required in a domain taught that would be vital due to the retirement of a professor. To identify a potential serious lack of expertise in the future, the steering committee of the EC, in association with the chairpersons of the basic medical sciences and clinical sciences Sections, examines at regular intervals the list of future retirements.

The performance of the professor after nomination is assessed regularly on the basis of teaching, research, and services achievements at each renewal term by a Special Committee made up of former Deans and Vice-Deans.

In the Clinical Medicine Section, the recruitment policy is complicated by the fact that the new professor will be in charge of health care in a defined domain. The University hospital has its say and has its own structure Committee. The Hospital and Faculty processes must eventually converge. Here the difficulty is to find the optimal balance between clinical competences, teaching and research abilities, and management

²⁷ The Faculty of Science designates a delegate in the Structure Committee in the Basic medical science Section.

capacity, as the Professor is usually head of a clinical sector of the HUG. The consequences of a bad choice in management or in clinical abilities can be devastating. For this reason the composition of the search and selection Committees for the Clinical medicine Section includes a representative of the Direction of the HUG and a delegate of the Administration Council of the HUG.

In the Dental medicine Section, the situation resembles that in the Basic medical sciences, in that Dentistry is part of the University. The problem remains, however, to find academic people able to perform both at the research and health care levels.

In all 3 situations, the discussion between the various authorities is open and eventually communicated to the *Collège des Professeurs*, which takes the decision through an anonymous vote.

Point: 5.1.3

Academic staff positions are publicized widely (local, European and international newspapers and specialized journals). Administrative and technical staff positions are publicized locally (cantonal employment office bulletin, university employment vacancy bulletin). Job descriptions are available upon request.

Strengths

The procedure is transparent; all stakeholders have their say, including the Education Committee.

Weaknesses

In the basic medical sciences, the outstanding candidates in terms of research are often PhD. The training of PhD in the physiology, morphology, or biochemistry of a particular organ system is often very limited²⁸. A problem is to find candidates who could participate to the teaching of medical students. Our difficulty in recruiting is common to the field of medicine. In domains like anatomy and physiology recruiting is getting more difficult. In the clinical disciplines, the specialization makes it difficult to find candidates with a general practice view. In the long term this could create problems for reviewing the pertinence of the clinical objectives of our curriculum (which should be oriented toward the general practice of medicine) and adjusting them accordingly. It is for this reason that the creation of a structure for the teaching of primary care medicine becomes an important issue (see section 2.4).

Our current organization of the Education Committee and of the Pre-clinical and Clinical Curriculum Committees and the various multidisciplinary Unit committees still allows us to continuously review and improve our pre-clinical curriculum, but in some domains we will have to rely more and more on clinicians. They are those who have now the expertise in many of the basic aspects of physiology and pathophysiology of the body systems! In Switzerland and many other European countries, due to antivivisectionist activism, basic research on living animals has been considerably reduced. In fact, the experts of the body systems are those who work on sick human beings (pneumologists, cardiologists, anaesthesiologists, and intensive care specialists). Several of them are now beginning to teach in our pre-clinical units and a few even took the responsibility of a teaching Unit.

²⁸ For example, we once had at a time a candidate with a superb research record in neuroscience, but who was not at ease when he was presented to our Neuroscience Unit. This candidate for a Neuroscience position had no training in either CNS anatomy, physiology, pathology, etc.

We mention here that the members of ACIMF indicated that some of the most brilliant professors recruited were not enthusiastic when it came to participating in the undergraduate medical curriculum. The ACIMF suggests that one should also consider recruiting candidates interested mainly in teaching (« teacher track ») to compensate.

The Faculty of Medicine has recognized in the recent years exceptional achievements in teaching developments and responsibilities as a criterion for nomination to a professor position. As a rule, the Faculty considers that there should be a balance between teaching and research (including in medical education) for each professor. The coexistence of pure teaching staff and pure research staff may lead to unwanted tensions.

5.2 STAFF POLICY AND DEVELOPMENT

1. *The medical school must have a staff policy which addresses a balance of capacity for teaching, research and service functions (a), and ensures recognition of meritorious academic activities (b), with appropriate emphasis on both research attainment and teaching qualifications.*
2. *The staff policy must include teacher training and development and teacher appraisal. Teacher-student ratios relevant to the various curricular components and teacher representation on relevant bodies must be taken into account.*
3. *The staff has access to a committee dealing with questions relating to gender equality.*
4. *The Faculty of Medicine pursues a long-range policy of promoting upcoming young.*
5. *The institution ensures that continuing education and career development opportunities are available to administrative and technical staff.*

Annotations: a. Service functions would include clinical duties in the health care system, administrative and leadership functions etc. b. Recognition of meritorious academic activities would be by rewards, promotion and/or remuneration.

Point: 5.2.1

As already mentioned, all academic staff have a term and conditions contract addressing teaching, research, and services. The Faculty of Medicine has two Committees in charge of ensuring that there is recognition of meritorious academic activities, with appropriate emphasis on research attainment, teaching qualifications and services (administrative, representative, clinical, or other).

One is the *Comité de la Relève* (Renewal Committee) and the other is the Committee for coordination of academic careers.

Note that the chairperson of the Committee for the academic promotion of women is member of the Committee for coordination of academic careers (cf. 4.1).

The role of the Renewal Committee²⁹ is to identify³⁰ individuals with academic potential, either intermediate or long term, taking into account in particular the domains defined as priorities for the Faculty, but also important clinical domains in which renewal potential seems insufficient. It establishes a repertoire of young, non-tenured, Faculty members, and follows their progression. In particular, this Committee makes sure that they benefit from conditions that will allow them to develop an independent research program, and that they are given the opportunity to contribute to teaching. One responsibility of the Committee is to advise the

²⁹ Chaired by a Vice-Dean; thirteen professors, including delegates of the Committee for the academic promotion of women, of the Education, Research, and the *Privat-docent* Committees.

³⁰ Identification takes place via auditions of heads of departments (every 4 years), call for interest for young scientist positions, on request of the Dean, on request of the individuals themselves.

departments and the Dean's office on the use of non-tenured Faculty positions that should be earmarked for such promising young colleagues. These non-tenured positions are "chef de clinique scientifique"³¹ and "maître-assistant"³² and the participation in a teaching activity is usually mandatory³³. The Committee also follows the progression of these colleagues, through annual reports and interviews.

Note that, in coordination with the Committee for the promotion of women, the Renewal Committee is currently making an extensive effort to facilitate and promote academic development for women. The Committee sent a letter to all women from the assistant (Faculty) or cheffe de clinique levels (Hospital) and asked all of them to manifest whether they were interested in an academic career. The resulting database is already being exploited for promotion of women and will be very useful for a careful follow-up and encouragement of talented and interested young women.

The Committee for coordination of academic careers³⁴ examines all requests of internal promotions. It does so on request by Heads of departments (after consulting the professors of their respective department), by the Chairpersons of the Sections (after appropriate consultation), and by individuals³⁵. All proposals are analyzed by the Research Committee and by the Education Committee. Requests with insufficient teaching activity are rejected. On the other hand, promotions have been made on the basis of outstanding teaching achievements.

Point: 5.2.2

The staff policy includes teacher training, development and appraisal. Our 1'200 teachers have more than 23'602 hours of direct contact with the 800 students of our entire curriculum. All teachers involved in PBL-or related small-group teaching both at pre-clinical or clinical levels, follow an introductory mandatory workshop, organized by the UDREM, to help Faculty members become more familiar with this pedagogical approach. In 1999-2000, the UDREM introduced in addition an advanced workshop, organized by teaching units and focusing on the tutors' and each unit's needs. This improved our tutors' knowledge of the problem-content and their ability to guide their student's learning³⁶.

We monitor the quality of teaching of individual Faculty members through systematic evaluation by students. The Pre-clinical and Clinical Curriculum Committees examine systematically the results of the evaluation. The feedback of the Committees in the case of repeated problems (see footnote 25) and in general the reading by the tutor of the evaluation by his students constitute a strong motivation to perform well.

³¹ 20% clinical activities and 80% research and teaching. This position is for clinical departments exclusively and for a maximum duration of 3 years; the participation in teaching activities is usually mandatory.

³² For all departments, the position of *maître-assistant* can be held for a maximum of 6 years, and the Committee pays particular attention to the second 3-year mandate. The first 3 years are usually requested by the head of a department, typically for a young scientist returning from a postdoc abroad.

³³ The Vice-Dean for education sends systematically a letter to the person nominated. It refers to the importance of participating in teaching activities, and orients the recipient to the chairpersons of the two Curriculum Committees.

³⁴ Dean, all Vice-Deans and Associated-Deans, Chairperson of Clinical Section, Chairperson of Basic Science Section, Chairperson of Dentistry, Medical Director of the Geneva University Hospitals, Chairperson of the Committee for the academic promotion of women.

³⁵ This occurs only as an appeal against a negative decision by a department or a section.

³⁶ Baroffio, A. et al. (2006) Effect of teaching context and tutor workshop on tutorial skills. Med . Teacher, in press.

Teachers are encouraged to improve the quality of their teaching. Several teaching Units introduced internal continuous training of their tutors to ensure that recent developments in a domain or good ways to present a difficult concept are brought to the knowledge of all tutors involved.

It is important to mention that several promotions up to the professor level have resulted from outstanding teaching achievements (development of programs, heavy teaching responsibilities, etc.).

Point: 5.2.3

The academic staff has access to the Committee for the academic promotion of women and its chairperson is a member of the Committee for coordination of academic careers (see also 5.2.1).

Point: 5.2.4

See above (5.2.1) under Renewal Committee.

Point: 5.2.5

The University of Geneva encourages continuing education for those interested amongst its academic, administrative and technical staff. Funds are available to support the cost and time is usually freed. Three types of continuing education are recognised: those requested by the hierarchy and necessary to the institution (education in animal experimentation, mandatory), those requested by the staff member and relevant to his/her daily work and beneficial to the institution, those requested by the staff member without an immediate link to his/her daily work but in line with personal or career development (see F 10-56-01 *Mémento administratif*, on the Intranet of the University).

Strengths

With respect to the past, the Faculty has made considerable progress in better evaluating research and teaching activities and in using the results of these evaluations for promotion.

Regarding continuing education related to medical education, the Faculty of Medicine has contributed to pay the fees of several Masters in medical education abroad. Note also that professors can take a sabbatical leave.

Weaknesses

When recruiting in basic sciences, there is still a very strong bias toward research. In promotion, individuals with even very strong records in teaching development or responsibilities but with limited research publications are still more difficult to present to the *Collège des Professeurs* than the opposite profile.

Professors recruited from other Universities, in particular PhD, may not always have the teaching competences adapted to those required in our curriculum, as most other universities have a traditional, discipline-based curriculum.

The efforts of research and teaching evaluation of the Research and Education Committee imply considerable administrative efforts. This work is done by a small number of dedicated people as we did not want to increase too much the administrative budget. But we pay a price for this: we have difficulty informing sufficiently and communicating well enough; consequently there are complaints about

lack of transparency (see below). It is important to mention that a more precise evaluation, as suggested by the ACIMF below (in “how to improve”) would require increasing the administration at the expense of the research and teaching budgets.

Remarks by the ACIMF

- a. Some assistants never saw their term and conditions contract.
- b. The teaching loads can vary considerably from one member of the intermediate academic body to the next.
- c. The Renewal Committee and the Committee for coordination of academic careers include exclusively professors. ACIMF complains about the lack of transparency in the functioning of these Committees and the lack of feedback given to those directly concerned.
- d. The information concerning continuing training is not sufficiently clear and accessible. The fact that some courses (scientific writing, e.g.) have fees can be a strong load for small groups.
- e. Teacher training: the follow-up of teachers after the basic training is very Unit-dependent.
- f. Evaluation of teachers: the evaluation is insufficient and it is dangerous that it is exclusively done by the students.

How to improve?

Continue to promote teaching and encourage individuals with a strong teaching background to do research, including research about pedagogical issues or other developments concerning teaching.

Develop communication, as several of the improvements suggested by the ACIMF below have already been addressed.

Proposal by the ACIMF for improvement:

To b) above ; create a pool of teachers (*Assistants* and *Maître-assistants*) independently of their departments to better distribute the teaching load between departments, and see to the adequate training in teaching in the specialised domains (histology, some PBL Units, etc.).

To c) above ; include members of the intermediate body in the Renewal Committee and the Committee for Coordination of Academic Careers.

Make it more clear that teaching is essential for the academic career.

Regarding teacher development in PBL Units, all units should form their tutors on aspects linked to the subject of the Units. The UDREM should develop a follow-up program for the tutors.

Implement a professional and multimodal evaluation of teachers based on criteria such as: participation in the organisation of the Unit; creation of new problems or other pedagogical developments; creation of MCQ; efficiency as teacher. The person in charge of the Unit should record all these elements, which might be taken into account in the evaluation of the teacher by the Faculty.

6.1 PHYSICAL FACILITIES

1. The medical school must have sufficient physical facilities (a) for the staff and the student population to ensure that the curriculum can be delivered adequately.

2. The learning environment for the students must be improved by regular updating and extension of the facilities to match developments in educational practices.

3. The physical facilities must be adequate to fulfil the medium- and long-range objectives of the institution.

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

Point: 6.1.1

The University Centre for medical sciences (*Centre Médical Universitaire, CMU*) was built in the late seventies. It is located immediately next to the main University Hospital (1200 beds). In addition there are 1200 beds in Geriatrics and Psychiatry which are located on a separate campus. Teaching surfaces occupy a total of approximately 6'000m². They include fully equipped dry and wet laboratories (anatomy, biochemistry, haematology, histology, microbiology, pathology, and physiology), 27 small group problem-based teaching classrooms (each accommodating 10 persons), a Clinical skills lab with 8 patient rooms for the teaching of clinical practice skills (each accommodating 10 persons), 5 large classrooms (30-60 seats), 7 auditoriums (3 of 110, 1 of 150, 1 of 250 and 2 of 400 seats).

LIBRARY

Spaces and Services

The library of the Faculty of Medicine (*BFM*) is on three floors of the CMU on 2'500 m². It has desk space for approximately 400 users. The PBL students use the library more frequently and for longer periods of time.

The library is open 83 hours in the week (from 8.00 am to 10.00 pm throughout the week, 10.00 AM to 6.00 PM Saturdays and 2.00 PM to 6.00 PM Sundays and national holidays). The library is closed 2 days per year: Easter Sunday and Christmas Day. Full-time staff (5 professional medical librarians) assisted by approximately 5 part-time helpers run the library. Most are fully bilingual in French-English. Complete medical library services, including a reference centre, are available to assist students in use of all services. The professional staff is involved in the student's information literacy, in the second year of the curriculum.

Collections

With the collaboration of the Curriculum Committees, the library sets up a specific PBL collection for the students, which includes approximately 2700 textbooks and handbooks in order to meet the needs of the curriculum objectives.

The BFM subscribes to over 1,000 scientific journals, freely accessible on the shelves and of which a majority are available online. It meets all the requirements of a modern medical library. In addition, there is a comprehensive collection of symposia series and reviews. Highly specialised journals can be found in satellite libraries in the University Hospitals.

The BFM collection is catalogued on a server network with links to all other libraries of the Swiss French speaking part of Switzerland. Books can be taken out on loan. Several e-books are available online.

Databases

Bibliographic search on databases, like Medline, Web of Knowledge, UpToDate, CINAHL, Cochrane library, etc. are available with on-line access.

Library facilities

- 120 computers are located within the *BFM* (see also 6.3).
- There are 2 slide projector stations.
- 6 microscopes (to review histo-pathological material).
- Study and small-group conference spaces are available for the students.
- Two classrooms with computers.

OTHER RESOURCES

Laboratories for practical training in anatomy, histology, pathology, physiology, are fully equipped, with ample space and high quality material for all students. Multi-head microscopes are available for teaching and revision.

Dummies are available to practice specific clinical skills (e.g. resuscitation).

Clinical departments (e.g. Emergency medicine, Pediatrics, Neurology) have also developed computer-based teaching stations.

Point: 6.1.2 to .6.1.3

Infrastructure, space allotments and equipment acquisition are reviewed regularly by specific Committees as new needs arise and technologies evolve. Decisions are based on the objectives and priorities of the Faculty.

Strength

The library and its excellent staff constitute a major strength.

Weaknesses

With the increasing self-study activity in the first year of the curriculum, the working space in the library is barely sufficient at times.

ACIMF notes that many PBL rooms are small, without windows, and badly soundproofed.

How to improve

There is a project to extend the medical centre and new PBL rooms should be available by 2011. The accreditation's experts will see the project.

6.2 CLINICAL TRAINING RESOURCES

The medical school must ensure adequate clinical experience and the necessary resources, including sufficient patients and clinical training facilities (a).

Annotations: a. Clinical training facilities would include hospitals (adequate mix of primary, secondary and tertiary), ambulatory services, clinics, primary health care settings, health care centres and other community health care settings as well as skills laboratories. Facilities for clinical training should be evaluated regularly for their appropriateness and quality regarding medical training programs.

CLINICAL SKILLS LAB (CSL)

In addition to the main University Hospitals (1200 beds), Geriatrics, and Psychiatry Hospitals (1200 beds), a Clinical Skills Lab is available for learning and practicing clinical skills at the main University Hospital. Eight examination rooms are equipped for clinical evaluation. Various mannequins are also available for practicing basic life support or intravenous injections for example. Each room is equipped with a one-way

mirror, a PC connected to the Medical School Intranet, and with audiovisual equipment allowing observation and recording.

In the context of the clinical resources, we must mention the simulated patient program (see also 2.5c). This program includes a pool of 70 standardized patients. Simulated patients contribute to about 100 different types of simulations of real situations for training and for formative and summative examinations.

We mention also that in the LCE units students are exposed to various types of treatments (Appendix A, Figure 12) and have access to real patients (Appendix B, Figure 15).

6.3 INFORMATION TECHNOLOGY

1. *The medical school must have a policy which addresses the evaluation and effective use of information and communication technology in the educational program (a).*

2. *Teachers and students must be enabled to use information and communication technology for self-learning, accessing information, managing patients and working in health care systems.*

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

Point: 6.3.1: Goals

At the end of the 90's, the Faculty of Medicine created the Information and Communication Technologies (ICT) team to support the undergraduate curriculum and teaching, and to facilitate students' access to learning resources³⁷. This early adoption of ICT is in phase with the recent e-learning policy³⁸ defined by the University of Geneva.

Through the integration of ICT in the curriculum, the Faculty is aiming to improve computer-literacy of the students who, at the time of graduation, should be able to use ICT to find and organize biomedical information, to communicate with their peers, to integrate ICT in their professional practice and to be lifelong learners.

Point: 6.3.2 Technological infrastructure

The University and Faculty computer services are working together to build and maintain a high performance computer infrastructure for the students. All students that enrol at the University of Geneva automatically receive a personal e-mail address and a login to access the computer network and facilities.

Point: 6.3.2.1 Institutional infrastructure

At the Faculty of Medicine³⁹, 120 Windows-based computers (1 per 10 students) are installed in computer rooms at the main library, at the dentistry school and in the clinical skills practice rooms (*Espace des Compétences Cliniques*). This number of computers covers the current need of the students. At every session start-up, the computers are loaded with a new disk image ensuring a perfectly working machine for the next user. The available programs are the Microsoft Office suite, web

³⁷ The white paper « Péd@gogie Médic@le » proposing ICT goals and an integration scenario was adopted by the *Collège des Professeurs* in fall 1999.

http://edumed.unige.ch/pratique/materiel/documents/pedagogie_medicale.pdf

³⁸ The document « Définition d'une politique E-learning à l'Université de Genève » is available at <http://elearning.unige.ch/politique.html>.

³⁹ <http://edumed.unige.ch/pratique/materiel/index.php#ordinateurs>.

browsers, an e-mail client and faculty specific applications. Every student has 100 MB disk space accessible from anywhere.

Documents can be printed on local black and white laser printers at a cost of 8ct/page or at 5ct/page on a distant high-capacity printing centre.

Six laptops can be borrowed for a period of 15 days. The students coming with their own laptop (see 6.3.2.3) can access the network through a WiFi (802.11 g) connection in the library and in the main CMU hall.

The Faculty and University run many servers specifically dedicated to teaching. Furthermore, the students have their own server managed by the computer assistant team and which is used to share study documents.

Point: 6.3.2.2: Institutional manpower

The above technological infrastructure is maintained and extended by the central and local computer services, a team of computer assistants (*moniteurs d'informatique*: computer-savvy 2nd-4th year medical students) and instructional technologists. In the Faculty of Medicine:

- A team of 12 computer assistants help their peers to use computers by answering their questions and organizing/offering basic computer courses. One computer assistant is always present at the library from 10 am to 6 pm, 7/7 days. The team is coached by a computerized teaching expert and a technical engineer (one tenth of their working time).
- A full-time instructional technologist and a half-time webmaster are in charge of integrating ICT in the undergraduate curriculum by developing web sites, web based applications and by advising and assisting faculty members in completing their PBL teaching units and clerkship websites.

Point: 6.3.2.3: Student personal computer equipment

The 2004 annual survey (see 6.3.6) shows that 85% of the students have a computer at home (one third laptop) and two thirds of them have access to the Internet. The Faculty does not require that the students own a computer but they are encouraged to acquire one. The Swiss Universities have an agreement (the Poseidon project) with two important computer manufacturers to offer laptops at lower prices than the normal market. As a response to the mobility trend, the University is also working on the definition services (student helpdesk, backup) for personal laptops.

Point: 6.3.3: Computer courses

It is expected that students entering the University have basic computer knowledge and therefore neither the University nor the Faculty of Medicine are offering basic computer courses. However, upon request, the computer student assistant team organizes such courses.

A mandatory course "Introduction to the medical informatics and information retrieval" (4 hours) is given in the pre-clinical (1st and 2nd) years.

The idea that the daily use of computers would produce computer literate students was probably naïve. Most of the time, students are surfers and consumers of learning resources; they do not use the computer technology to produce information or knowledge. To ensure the acquisition of computer skills, the Faculty is thriving on either introducing learning activities where the students need to actively or directly

use computers or introducing a kind of mandatory “computer driving license” supported by optional courses. The introduction of the European Computer Driving Licence (ECDL) is currently piloted in the Faculty of Social and Economical Sciences.

Point: 6.3.4: E-learning

Most of the material for the courses at the Faculty of Medicine is available online⁴⁰. Students have access to learning resources (scientific articles, course documents such as PowerPoint presentations or electronic textbooks), communication tools (discussion forums moderated by teachers, mailing lists), review of learning material (quizzes) and personalized timetables. At the moment, part of the online learning material is hosted on the University Learning Management System (LMS) *Dokeos*. The rest of the learning material is hosted on websites on the Faculty educational server.

In 2004, the LMS *Dokeos* has been chosen as the institutional platform by the University. The University board (*Rectorat*) asks that each course should have its *Dokeos* space up by October 2007⁴¹. At the moment *Dokeos* is used in its most basic function: as a document repository. The built-in functionalities of *Dokeos* allow the development of learning scenarios going from self-learning modules to collaborative learning activities. To be in phase with the pedagogical approach of the Faculty (student-centred, self-learning), we intend to promote the use of these possibilities thanks to hands-on sessions and providing support. From a techno-pedagogical point of view this platform integrates a recent international pedagogical standard (SCORM), which is important for content sharing and reuse.

A broad view of the situation of the Faculty can be described as follows:

- Year 1: since 2004, all the learning resources are published on *Dokeos*; they are no longer printed and distributed to students. With this platform, teachers (professors and tutors) work on their own: they assume contents delivery and its management.
- Year 2 and 3 (Problem Based Learning): since 2000, all teaching units, and some transversal programs, have their websites, which are managed by an instructional technologist. The migration to *Dokeos* is planned for October 2006.
- Year 4 and 5 (Clinical Clerkships): since October 2005 each LCE has a website or a space in the LMS *Dokeos* with their respective learning material.
- Year 6: medical students have access to the medical informatics structure of the hospital (*HUG*) during all their elective clinical clerkships, i.e., the electronic patient record, physician order entry and digital imaging.

We are aware that not all types of learning activities can be done with a LMS, and that it is also important to explore the pedagogical added value offered by ICT. This is why the Faculty is involved in several innovative e-learning projects. Some are funded by the Swiss Virtual Campus (SVC), such as *Virtual Skills Lab.*, or *Computer for Health*. Others are supported by the Faculty and/or the Hospital (*Virtual microscopy*, *Casimage*: Case based repository in radiology) and also thanks to private partnerships (simulation in *dental medicine*).

⁴⁰ <http://edumed.unige.ch/apprentissage/sitewebunite.php>

⁴¹ « Définition d'une politique E-learning à l'Université de Genève »
<http://elearning.unige.ch/politique.html>

The library also offers online services with web-based search engines for e-books and electronic journals.

Point: 6.3.5: Information and Communication

- Email is an official information channel between the Faculty and students for administrative and organisational information. It is managed with mailing lists corresponding to each study year.
- All information related to the organisation of undergraduate medical studies is available online.
- A journal about medical education (Information/Med) is published 3 to 4 times a year both as an electronic and paper based publication. It addresses learners but also the academic community at large. Each edition focuses on one aspect or issue related to medical education (for example in 2005: The Bologna process in medicine, the use of ICT in education).

Point: 6.3.6. Evaluation

Both hardware infrastructure and pedagogical websites are evaluated on an annual basis. The quality of the equipment (especially the computers and printers in the free access area of the library) and support provided by the Faculty is evaluated by a survey conducted by student computer-assistants (since 1999). The evaluation of the curriculum teaching websites and of the Dokeos platform is included in the evaluation questionnaires of each teaching unit, and their results are available on the website.

Strengths

Our excellent and very efficient staff, that continuously develops and updates our computing facilities.

Coaching of the students by student instructors who also make sure that computers and printers work.

Weaknesses

The beginning of the year especially in the first year is always a difficult time, as students tend to print everything without discrimination!

How to improve

Find ways to convince students not to print everything!

6.4 RESEARCH

- 1. The medical school must have a policy that fosters the relationship between research and education and must describe the research facilities and areas of research priorities at the institution.*
- 2. The interaction between research and education activities must be reflected in the curriculum and influence current teaching and should encourage and prepare students to engagement in medical research and development.*
- 3. The Faculty of Medicine has a quality assurance system which includes its research activities.*
- 4. The institution's current research activities are in keeping with its strategic plan (see 8.3 Educational budget (a) and resource allocation) and meet international standards.*

Point: 6.4.1

Research is a major academic priority of the Faculty of Medicine along with teaching. Research is performed in all 3 Sections, Basic medical sciences, Clinical medicine, and Dental medicine. The surface of the Research facilities represents 63'000m² in

the *Centre Médical Universitaire* building (including an animal core facility), 13'000m² in the University Hospital buildings, 320m² in the Dental Care building. In addition to the central building, additional surfaces are available in the building of the *Fondation pour la recherche médicale* (1'100m²) and in an outside animal core facility (800m²).

The Faculty of Medicine has a total number of 349 research groups:

- 43 in basic medical sciences research;
- 62 in basic clinical research;
- 223 in patient oriented clinical research;
- 9 in primary care research;
- 12 in dental medicine.

The average size of a group in basic medical science research is 7.5 persons and 3 in clinical research.

The average publication output per group is as follows:

- basic medical sciences research : 4.4 publications for a total IF: 31.1/year;
- basic clinical research : 3.97 publications for a total IF: 23.3/year;
- patient oriented research : 5.89 publications for a total IF: 18.85/year;
- primary care research : 4.6 publications for a total IF: 6.96/year;
- dental medicine research : 5.32 publications for a total IF: 6.04/year.

Research is financed by both internal and external funds: for each CHF received from the Faculty, research groups generate at least the equivalent. External sources come from the FNRS, the European community and international funds.

During the last 5 years, 38 patents have been deposited, 12 granted and 2 spin-off companies created.

Reorganization of research has been a major goal of the Faculty of Medicine for the last 5 years. In the Basic medical sciences Section, departments have been reorganized to enhance group interactions around scientific themes.

The Basic medical sciences and Clinical Medicine Sections are subdivided in the following departments:

Basic medical sciences Section

Structural biology and bioinformatics; Genetic medicine and development; Microbiology and molecular medicine; Basic neurosciences; Pathology and immunology; Cellular physiology and metabolism.

Clinical Medicine Section

Anesthesiology, pharmacology, and intensive care; Surgery; Geriatrics, Gynecology and obstetrics; Health and Community medicine; Internal medicine; Clinical neurosciences and dermatology; Clinical pathology; Pediatrics; Psychiatry; Radiology.

Development of core facilities

This development, aimed at optimizing research efforts and at maximizing technical excellence and equipment use, has been the extension of core facilities accessible to every research group. This allows high quality methodology performance with cost-containing efforts.

The following core facilities have been created: Medical illustrations, Genomic core facility (protein identification by mass spectrometry, DNA microarray platform, etc.), Cytofluorography, Proteomic core facility (peptide synthesis, 2D gel electrophoresis,

protein sequencing), Histology, Electron microscopy, Bioimaging (confocal microscopes, etc.), Transgenesis, Animal pathology and diagnostics, Body imaging (NMR) and image treatment, Clinical research center, chemical and lab supply store.

Future development to promote clinical research

To facilitate the development of clinical research, the Faculty of Medicine is working with the University Hospitals on a project of clinical research Center to be created in the University Hospitals in 2006. It should provide 2-4 beds, nurses and methodological help for patient-oriented investigations. Funding will be by the Faculty, the Hospital and the users.

Fostering interactions between Sections

We have developed double department affiliations for research groups with the possibility of attributing laboratory space to clinical or dental research groups in the CMU and by giving a financial incentive to the departments of Basic medical sciences which welcome groups from clinical departments.

Research priorities

Research priorities are discussed at several levels and established for a 4-year period. Their choice depends on both local excellence and complementarities with established programs. Propositions are made by the Dean's office. Priorities are discussed by the academic community (Research Committee, *Collège des Professeurs* and Faculty Council) and validated by the External Scientific Advisory Board of the Faculty of Medicine after formal presentation and discussion. Usually 4 to 6 priorities are selected. The 2005-2008 priorities are:

- Humanitarian medicine.
- Genetics.
- Imaging and Communication.
- Neurosciences.
- Transplantation and stem cells.
- Metabolism and cardiovascular medicine
- Relation host - pathogens

Point: 6.4.2

The important research on teaching activities has been discussed on to 2.2 and 2.3. Here we refer to the attempt made by the Faculty to encourage students to engage in medical research. This is a major priority of the Faculty of Medicine as the number of MDs engaging in research is presently decreasing in parts because of considerable difference in salaries between Hospital and University.

In addition to exposure to research activities during the standard curriculum, the students and graduates have 3 different programs that allow them to be exposed to research activities or to actually enter a research program.

For students: PREM⁴² is a program which allows medical students to perform structured research activities either in Geneva or in another University during vacation periods and with financial help.

Note that 7 years ago a group of students enthusiastic about the nervous system created the NeuroClub (<http://etumed.unige.ch/neuroclub/index.php>). They

⁴² « Programme de Recherche pour étudiants en médecine »

developed teaching support in neuroanatomy for medical students. Several of the members are now in a MD-PhD program.

During the 6th year (elective clerkship) students can choose to work in a research laboratory for up to 6 months.

For students who enter the 6th year of their medical curriculum and for graduates who are very interested in research, there are two possible programs:

- **the PhD program:** This structured program leading to a PhD delivered by the Faculty of Sciences, usually in Biology, requires students to take additional courses in molecular biology and in genetics to go through a 4 year research project. The program can be started during the 6th year of the medical curriculum.
- **MD-PHD in medical sciences:** This structured 3-year program in basic or clinical research leading to a PhD delivered by the Faculty of Medicine can also be started during the 6th year of the medical curriculum. It has the advantage of being shorter than the PhD program which is important for MD's who want to have an academic career in the clinical domain as they have to work on their clinical specialty also.

Several money prizes for thesis work are attributed to the young researchers of the Faculty of Medicine (http://edumed.unige.ch/etudes/orientation_prof/prix.php).

Doctoral school

In the context of the PhD program, it is important to mention the *Programme de Biologie moléculaire et cellulaire*⁴³. This 4-year program aims at providing students of the Faculty of Science preparing a thesis at the Faculty of Medicine and MD-PhD students with a general scientific background complementing the specialized training they receive during their thesis work.

Point: 6.4.3

Research activities of each research group are evaluated every year through a program called MIMOSA. A simple way to evaluate research activities has now been established for the last 3 years: the total Impact Factor (RPU for clinical research) is obtained by the addition of the Impact Factor of each publication from a group during a single year.

MIMOSA leads then to a financial attribution proportional to the scientific output but moderated by the yearly financial contribution (mainly salaries) that the group receives from the Faculty of Medicine. In addition, this evaluation performed during 3 to 5 years will allow redistribution of attributed post-doctorat positions and technicians to each group on a dynamic basis.

Point: 6.4.4

Research activities are in keeping with resource allocations. At the Faculty of Medicine of Geneva, for each franc attributed by the Faculty to the departments, there is an additional franc generated by the departments themselves from external sources (grants from national granting agencies, European funds, and private Foundations) allowing additional research activities. On an international level, some disciplines are highly ranked, for example neurosciences, cardiovascular medicine, metabolism, infectious diseases and genetics.

⁴³ http://edumed.unige.ch/etudes/orientation_prof/post_grad/MD-PhD/overview.php.

Strengths

- Research management.
- Solid PhD training program conducted by dedicated scientists.
- Core facilities.
- Effort in evaluating research performances.
- Effort to redistribute resources based on scientific excellence

Weaknesses

Some of our weaknesses can be summarized as:

- Lack of resources (space, positions) to attract new and highly competitive individuals.
- Our evaluation system MIMOSA (based on total impact factor/group/year), which like any evaluation system may not be perfect particularly for some subspecialties, such as social medicine, and medical humanities for example.
- The attribution of positions to the different groups, a process which is currently being reorganized
- We made still have too many research priorities.
- Recognition of postgraduate teaching activities.

How to improve?

- The evaluation can be refined (use of SCI index for example, which gives different information than impact factor).
- Recognition of structured postgraduate teaching is underway.

6.5 EDUCATIONAL EXPERTISE

The medical school must use educational expertise (a) in planning medical education and in development of teaching methods.

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

The Faculty of Medicine recognized the importance of educational expertise when it became convinced about the necessity of reforming its curriculum.

The creation of the Unit of Development and research in medical education (UDREM) demonstrated the commitment of the Faculty, since it dedicated 1 million CHF of its budget to that purpose. The recruitment, to head and direct the Unit, of a professional in medical education, who selected, with the Education Committee, 5 part-time junior faculty already active in various basic sciences and clinical departments of the Faculty, was a crucial starting step. Besides its activities in program development, including curriculum, instructional methods, student and program evaluation and its activities in faculty development, the UDREM introduced in the Faculty the potential for developing research in medical education⁴⁴, a necessary condition for the continuous improvement of medical education in Geneva.

The UDREM is headed by a professional in medical education, who is currently assisted by 6 part-time clinicians and basic science faculty members, the majority of

⁴⁴ It is noteworthy to mention that for the moment there is no organised financial support (either private or federal) for research in medical education in Switzerland.

whom are cross appointed with various clinical departments of the Faculty of Medicine and Hospital, and 2 full-time TIC (Technology, Information and Communications) educational technologists. With its faculty, educational technologists and secretarial staff, UDREM:

- provides pedagogical, testing and evaluation support and expertise to the Education Committee and to the two Curriculum Committees, to working groups of various teaching units, and to individual faculty members;
- provides support and expertise to the Faculty in the use and development of Information and Communication Technologies for teaching and learning
- consults with the Education and Curriculum committees to elaborate overall and specific strategies for introducing innovations in education, testing and evaluation;
- assists in the planning and implementation of programs approved by the Faculty;
- provides quality control of instructional methods and materials, of the students' examination and curriculum evaluation programs;
- is responsible for providing the necessary training of the faculty members in the various techniques of teaching and of students' evaluation;
- is responsible for developing and maintaining the standardised/simulated patients (SPs) program, and in providing faculty with educational and technical assistance in the use of SPs in teaching and evaluation;
- is responsible for developing research in medical education - this has led to many refereed publications⁴⁵;
- establishes the Faculty as a Center of competence in performance-based evaluation; note that UDREM has contributed extensively to the pilot project of a structured oral and clinical federal examination;
- establishes the Faculty as a Center of competence in faculty development, especially in the areas of tutors' training and small group teaching.

A summary of UDREM's provided educational expertise and related levels of activities is detailed in Appendix D. The expertise and activities are adapted from a recent survey in 2002 of the Society of Directors in Medical education on the type of educational expertise and activities provided at most Units of medical education in North America. <http://www.sdrme.org/pdfs/memsurv02.pdf>

Budget of UDREM in 2006:

Positions: 8.27 (see attachment list of members).

Average salaries (value 2005): 850'000 CHF.

With 25% charges: 1'062'500 CHF.

Running budget in 2006 ("Mimosa component" not including): 21'600 CHF.

Strengths

UDREM has been a very important contributing factor to the Faculty of Medicine of Geneva's ability to change the curriculum. Its main strengths consist in its ability:

1. to work in a collaborative and networking manner with various faculty committees and task forces in matters related to education, testing and evaluation;
2. to maintain a delicate balance of expertise and neutrality in its relationship with the Dean's office, the departments, and various representations and opinion leaders within the Faculty;

⁴⁵For publications and grants obtained by UDREM, see <http://edumed.unige.ch/udrem/recherche/recherche.html>

3. to propose the management structures and conditions necessary in connection to introduce educational and evaluation changes, and to promote continuous renewal⁴⁶;
4. to train Faculty members in order to carry out curriculum innovations;
5. to introduce, maintain and further assure an ever expanding network of educational and evaluation expertise within the Faculty;
6. to introduce a culture of research in medical education in the Faculty and hopefully in Switzerland.

Weaknesses

As mentioned, UDREM enabled the reform of the Geneva curriculum. We must now help UDREM to exploit fully the research field in medical education generated by the reform. Possible strengths described above could result in some of its unintended weaknesses: for example, most senior members of the academic staff of the UDREM have multiple responsibilities and little help from assistants. This is a considerable hindrance 1) to research progress and 2) to the academic development of young people interested in medical education.

How to improve?

We should reconsider, with members of the UDREM, the Unit's key roles, activities, and expertise in the context of the Faculty's present and future education and evaluation related objectives and needs. This may lead to change of the present model, which was extremely successful but could benefit from slight modifications that could help UDREM become also a leader in research in medical education.

6.6 EDUCATIONAL EXCHANGES

1. The medical school must have a policy for collaboration with other educational institutions (a) and for the transfer of educational credits(b).

2. Regional and international exchange of academic staff and students must be facilitated by the provision of appropriate resources.

Annotations: a. Other educational institutions would include other medical schools or public health schools, other faculties, and institutions for education of other health and health-related professions. b. Transfer of educational credits can be facilitated through active program co-ordination between medical schools.

Point: 6.6.1

The educational exchanges of the Faculty of Medicine are embedded in the International Relations Policy of the University of Geneva. The development of this policy has been for many years a priority of the University. Indeed more than one hundred conventions of collaboration have been signed with universities throughout the world. Many of these conventions are the framework of specific collaborative projects with student and teaching staff exchanges. There are scholarships available on demand either directly at the *Bureau social de l'Université* or in case of collaboration with developing countries at the *Commission Suisse pour le partenariat scientifique avec les pays en développement* (www.unige.ch/intl/general).

⁴⁶ Past examples include: the structures and functions of the Curriculum and Examination Committees, the budget for education; centralized secretarial support for education and testing; the educational activities database now integrated into "Mimosa"; the standardized patients program and the Clinical Skills Laboratory; integration of TIC support for curriculum development and management; comprehensive, longitudinal evaluation program.

The international collaborations that are/have been initiated by members of the Faculty of Medicine are embedded in the *Commission facultaire de collaboration internationale* (created in 1999) currently headed by an Associate-Dean for humanitarian affairs and a scientific secretary in charge of training programs in public and community health.

The conceptual framework adopted by the committee (and supposed to serve as a reference to any project and exchange at the Faculty of Medicine) is based on the guidelines of international collaboration of the CIOMS and the *Commission Suisse pour le partenariat scientifique avec les pays en développement*.

Specific recommendations exist for students taking clerkships in foreign countries, especially in developing countries. An inventory of collaborative projects between the Faculty of Medicine and other Medical Schools is available.

The ECTS system is applied when indicated. (www.facmed.unige.ch/coopinter)

Point: 6.6.2: Regional and international exchange of academic staff and students Collaborations in Switzerland

Collaboration and exchanges at the Swiss level are very important for the Faculty of Medicine of Geneva, as the Cantons of Geneva is extremely small with few facilities for recruiting patients and training students.

This is the reason why the Faculty has instituted several crucial links in several States of Switzerland, like for example *Vaud, Valais, Neuchâtel, Tessin, Fribourg*. Several *privat-docents* and associate professors have been nominated to strengthen these precious links for our students.

The Faculty of Medicine of Geneva has also strong links with the Faculty of Biology and Medicine of *Lausanne*. The two dean's office meet several times a year and have regular visio-conference, via a rapid optic fiber link between our two Universities and Hospitals.

In the last 10 years the interactions between the five⁴⁷ Faculty of Medicine of Switzerland (*Bâle, Berne, Lausanne, Zürich, and Genève*) have markedly increased.

International collaborations

Most projects of international collaboration were developed and are implemented with funding either from the Faculty of Medicine, the *Commission de coopération internationale* of the State of Geneva, the Division of Cooperation and Development of the Confederation, or from Foundations committed to research, education and development.

Various projects have been lasting for more than ten or even 20 years and have developed yearly exchange programs either at pre or postgraduate levels with the collaborative universities with specific scholarships either for students from Geneva or students from the partner universities. To be mentioned as exemplary is a 25 year collaborative project centered on knowledge transfer between the Geneva Faculty of Medicine and the Faculty of Biomedical Sciences of Cameroon, or an over ten year collaborative project with Kaunas University Lithuania also focused on knowledge

⁴⁷ Note that *Neuchâtel* (1st year) and *Fribourg* (1st and 2nd years) have partial medical curricula and that their students continue their studies in the other Swiss Medical Faculties. *Fribourg* and *Neuchâtel* are invited to all important meetings regarding curriculum developments.

transfer between the partner universities. Further details are available at (www.facmed.unige.ch/coopinter)

7.1 MECHANISMS FOR PROGRAM EVALUATION (a)

1. The medical school must establish an evaluation program that monitors the curriculum and student progress, and ensures that concerns are identified (b) and addressed.

2. Program evaluation must address the context of the educational process (c), the specific components (d) of the curriculum and the general outcome (e).

Annotations: a. Mechanisms for program evaluation would imply the use of valid and reliable methods and requires that basic data about the medical curriculum are available. Involvement of experts in medical education would further broaden the base of evidence for quality of medical education at the institution. b. Identified concerns would include problems presented to the curriculum committee. c. The context of the educational process would include the organisation and resources as well as the learning environment and culture of the medical school. d. Specific components for program evaluation would include course description and student performance. e. General outcomes would be measured e.g. by career choice and postgraduate performance.

PROGRAM EVALUATION RESTS ON THREE COMPONENTS

1. The performance of students on the faculty's standardized written and practical examinations and the federal final examinations. These allow the monitoring of student progress throughout the medical curriculum. The use of anchoring items also allows comparisons between cohorts of students. Results on the final federal examination permit comparisons between the 5 Swiss medical schools, which differ in the specifics of the curricula they offer.

2. Systematic and comprehensive evaluations by the students of all the teaching units and of the tutors

Students are invited to provide a formal rating and feedback on their learning experience, using closed-format items and open-ended comments.

All teachers functioning as tutors in the 2nd through 5th years are systematically evaluated by the students with a standard questionnaire at the end of each unit. The questionnaire contains 12 items on tutor characteristics and 7 on group performance (see attachment eval tuteur)). The students are encouraged to comment on the tutor and group performance.

The lecturers and laboratory instructors are indirectly evaluated through the quality of the lectures and laboratory sessions (questionnaire on content and instructional methods).

The evaluation of the teachers in the clerkship years is more difficult due to the rapid shuttling of students between departments and the relatively low frequency with which students see individual faculty members.

3. Regular review of proposed programs, examination results, teacher feedback and student evaluations by the Curriculum Committees (pre-clinical and clinical, which include teachers). These committees include student representatives. Global supervision is assured by the Education Committee. Feedback from teachers and students leads regularly to curriculum changes, such as changes of the pedagogical format or overhauling the overall content and design of the unit (e.g. redesigning the units of "Perception and motor control" and "Behavior" into the unit of "Perception, Emotion, and Behavior").

This evaluation process and program is designed and implemented by medical education experts at the UDREM in collaboration with the Curriculum Committees (see <http://edumed.unige.ch/udrem/>) in order to ensure the highest methodological standards and to provide useful and needed data to the Curriculum Committees.

The UDREM also conducts research on longer term educational outcomes. Two specific projects include:

- A follow-up study of the career choices and trajectories of former graduates of the Faculty of Medicine.
- A survey of the perceived level of adequacy of the Faculty of Medicine curriculum by former graduates.

These projects are currently ongoing (see section 7.2, “graduates”). A brief summary of the preliminary results obtained from the follow-up program is reported in Appendix A. Further details on the obtained results are available upon request.

7.2 TEACHER AND STUDENT FEEDBACK

- 1. Both teacher and student feedback must be systematically sought, analysed and responded to.*
- 2. Teachers and students must be actively involved in planning program evaluation and in using its results for program development.*

Feedback from students and role of the students in the curriculum evaluation

The students fill out the questionnaires concerning the teaching units as well as those on the tutors. The students are free to give written comments on the same forms⁴⁸.

Motivating students to participate in curriculum evaluation

In order to motivate students, they are informed about the implementation of improvements they asked for, as well as the effort of the teaching staff to improve the program. At the beginning of the reform we used to have open evaluation meetings at the end of a teaching unit. The student attendance was very low and we stopped this procedure. Moreover, the student representatives in the Curriculum Committees are directly involved in decisions to modify the program and are expected to give feedback to their peers about the improvements.

Use of the results of the evaluation for quality control

Until now, a tutor with an unsatisfactory rating was invited to meet first with the chairperson of the teaching Unit. They examined together what went wrong and what could be done to improve the situation. In most situations the next performance of the tutor was considerably improved. In fact, we have found that most tutors improve during the first years of teaching and thus need about three years before their performance is stable and can be consistently rated (Baroffio et al, *Acad Med*, 1999). Therefore, at present, only a tutor with repetitive (i.e during 3 consecutive years) insufficient performance will have to meet the chairperson of his/her Curriculum Committee, the co-ordinator of his/her teaching unit and the UDREM director of tutor training, in order to design a personalised approach adapted to his/her own difficulty.

Graduates

Until now there was little use of the feedback from freshly graduated MD's. It is important to mention, however, that in 1988, a letter of a series of freshly graduated MD's expressing their disappointment regarding the curriculum triggered the process that led to the present reform of the medical curriculum in Geneva. Also, several recently graduated MD's played an important role in supporting the reform project in the early years.

⁴⁸ The ACIMF draws the attention on the risk that tutors may adopt attitudes that encourage students to give them a better evaluation.

As the first cohort of students following the new curriculum graduated in year 2000, and in order to better evaluate our program, a residency follow-up study was initiated with the 1999 graduating class. The purpose of this study is to follow up on graduating students into their residency program and to have them evaluate how the undergraduate program has prepared them for their residency and has influenced their speciality choice. Furthermore, the study would assess how our graduates are rated during residency.

Feedback of teachers to improve curriculum

Teachers give their feedback on the quality of problems and references to the chairperson of their teaching unit. Changes in content are proposed to the working group of the corresponding teaching unit and later presented and discussed in the Preclinical Curriculum Committee.

Evaluation follow-up and consequences of the evaluation

Concerning program evaluation, see section 7.1.3.

Concerning tutor evaluation, the UDREM organizes an advanced second level workshop for tutors wanting to progress. This workshop addresses cognitive as well as non-cognitive aspects of tutor performance. The impact of this workshop has recently been evaluated as positive. Changes in its structure are being planned to better respond to the Faculty needs. In addition, a specific program for tutors needing help can be provided.

Is there an evaluation of the evaluation?

External expertise was planned for an independent evaluation of our system for quality control. We had a first pilot accreditation of all Swiss Faculties of Medicine in 1999. The accreditation site visit by an international panel of experts that is planned in May 2006 will be very useful for that purpose.

7.3 STUDENT PERFORMANCE

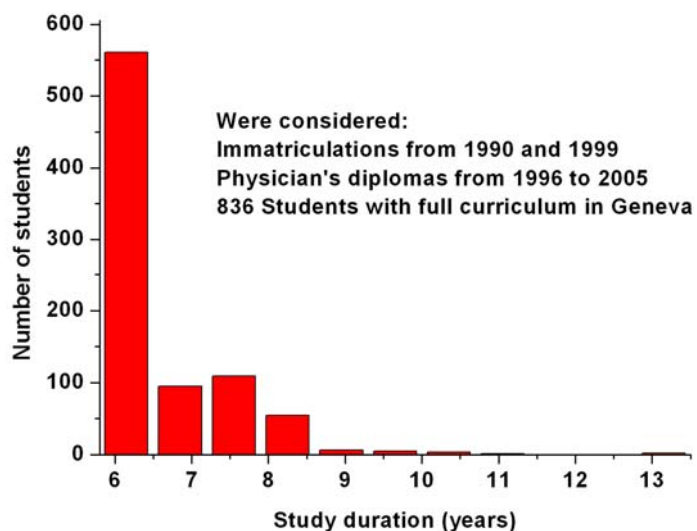
1. Student performance (a) must be analysed in relation to the curriculum and to the mission and objectives of the medical school.

2. Student performance should be used to provide feedback to the committees responsible for curriculum planning and student counselling.

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

Students performances are regularly reported to the corresponding Curriculum Committee and to the Education Committee. For example, in the session of the Education Committee of Nov 21 2005, the participants heard a report on a comparison between Geneva students and other Swiss students at the common MCQ federal examination. Earlier in 2005, the chairperson of the pre-clinical Committee presented the results of the examination the new first year curriculum.

The average study duration of our students is 6.6 ± 0.8 years (see Figure). The duration is biased by the fact that we use the first year to select students. As students have only two trials, many of those who failed in one of the examinations during the year do not take the risk to repeat an examination in September. They prefer to follow again the entire first year to pass this first hurdle. Overall, 52% (836/1598) of the



students who began their study in the first year between 1990 and 1999 at the Faculty of medicine of the University of Geneva obtained the physician's diploma. Of these, 67% finish the curriculum in less than 6.5 years.

After the first year, the dropout rate due to failure at the exams is low. In the last 6 years average dropout due to examination failure is 1.8 students per year.

7.4 INVOLVEMENT OF STAKEHOLDERS (a)

Program evaluation must involve the governance and administration of the medical school, the academic staff and the students.

Annotations: a. A wider range of stakeholders would include educational and health care authorities, representatives of the community, professional organisations and postgraduate educators.

The mechanisms for the involvement of stakeholders in program evaluation are as follows:

1. Leadership: A Vice-Dean is in charge of education. The Vice-Dean has primary responsibility over pre-graduate medical education at the Faculty of Medicine, and represents the Faculty on the national level, in policy decisions regarding medical education and professional training. Furthermore, the Vice-Dean is chairman of the Education Committee, which has the broader mandate of maintaining the

standards of medical education (<http://edumed.unige.ch/etudes/commissions/ce/index.php>). The Committee's regular affairs are treated by the Steering Committee of the Education Committee (<http://edumed.unige.ch/etudes/commissions/buce/>).

2. Academic staff is represented in the Education Committee, the Pre-clinical and Clinical Curriculum Committees, the Faculty Council, and the Examinations Committees (Pre-clinical and Clinical). Web links are posted below.
3. Students are represented in the same bodies, with exception of the Pre-clinical Examination Committee:
 - Education Committee
(http://edumed.unige.ch/etudes/commissions/ce/composition_ce.php#non_ex_officio)
 - Pre-clinical Curriculum Committee
(http://edumed.unige.ch/etudes/commissions/pre-clinique/composition2_3.php)
 - Clinical Curriculum Committee
(http://edumed.unige.ch/etudes/commissions/clinique/composition4_6.php)
 - Faculty Council
(http://www.medecine.unige.ch/organisation/conseil_de_faculte/membres.php)

On the other hand, there are no direct representatives of the local government, of the general public, and of health care professional associations and other health care providers. The venues of the Faculty Council, however, are public. The Faculty Council examines all major decisions regarding the curriculum, and the nomination of the Dean, etc. (see section 8.1)

8.1 GOVERNANCE

1. *Governance structures and functions of the medical school must be defined, including their relationships within the University (a).*
2. *The governance structures must set out the committee structure (b), and reflect representation from academic staff, students and other stakeholders (c).*
3. *The academic staff participates in decision making processes affecting teaching and research.*
4. *The decision making processes, competences and responsibilities have been communicated to all those involved.*

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

Point: 8.1.1-3: The three main authorities of the Faculty of Medicine are:

The Dean's office (the executive body)

It consists of the Dean, of Vice-Deans (3) and Associate-Deans (3). They are proposed by the *Collège des Professeurs*, amongst the full professors, and elected by the Faculty Council. They are elected for a four-year period, and can be re-elected for one additional four-year period. The Dean takes all decisions and actions that are necessary for the good functioning of the Faculty. The Vice-Deans can have a specific field of responsibility (e.g. teaching, research, etc.), but major decisions are taken collegially by the Dean's office. It is important to recall here that the Faculty of Medicine is not a legal entity (see section 1.3). The Dean participates in the College of Deans with the Rector and Vice-Rectors.

The Faculty Council (a participative body)

It consists of 16 professors, 8 members of the Collaborators of teaching and research (the ACIMF, e.g.), 8 students, and 4 members of the administrative and technical staff (secretaries, technicians, etc.). Members are elected by their respective bodies. The president is elected for one-year, renewable. The Faculty Council meets at least 3 times a year. It votes on teaching programs and elects the Dean, Vice-Deans, and the Associate-Deans, as well as the Directors of departments; it can ask questions to the Dean's office on all issues related to the functioning of the Faculty.

The “*Collège des Professeurs*”

It consists of all the professors⁴⁹ of the Faculty and is chaired by the Dean. It meets once a month, approximately 10 times per year. Permanent committees are designated by the *Collège des Professeurs* to advise the Dean's office on issues related to teaching, research, library, etc; these usually include, in addition to professors, other Faculty members as well as students. Temporary committees are designated by the *Collège des Professeurs* to report on the need to replace professors, to create new chairs, etc. (Structure committees), and to select new tenured members of the Faculty (Nomination committees). The *Collège des Professeurs* votes on these reports.

The *Collège des Professeurs* approves the composition of the Education Committee presented by the Dean's office (this is a procedure that takes place each year). The Education Committee presents each year a report.

Organisation of the Faculty with respect to teaching

As mentioned elsewhere in this report, the Education Committee, the Pre-clinical and the Clinical Curriculum Committees have responsibility for various aspects of the curriculum. The Steering Committee of the Education Committee acts as a supervising and governing body. It can accept, modify, or reject proposals from the Pre-clinical and the Clinical Curriculum Committees, and can also plan major changes in the curriculum.

The Steering Committee, which meets once a week, is presided by the Vice-Dean for Education; its members are the chairpersons of the Pre-clinical and Clinical Committees, the students' advisors, the director of UDREM, and the assistant of the Vice-Dean, who takes the minutes. The Education Committee must approve major changes proposed by its Steering Committee. Students are represented in the Pre-clinical, Clinical and Education Committees. They are voting members of these Committees.

Organisation and functioning of Curriculum Committees

Pre-clinical Curriculum Committee⁵⁰

All the co-ordinators of the teaching units in years 1 to 3 and the director of the UDREM sit on this Committee, which includes 4 students. In addition, for disciplines not already represented by a co-ordinator of a teaching unit, several consultants sit on the committee (for example, consultants for Radiology, Genetics, Immunology, Oncology, Virology, etc.). A member of the Clinical Committee should attend for longitudinal coordination (see weaknesses in section 2.7).

⁴⁹ Full, Associate, Adjunct, Titular, and substitute Associate (Career-development award) Professors.

⁵⁰ Attachment: members of the Pre-clinical Committee

Duties of the Pre-clinical Curriculum Committee

The Committee:

- a) Supervises the organisation and content in the Basic medical sciences, Clinical skills and Community dimensions in years 1 to 3;
- b) It sees to the coherence and smooth running of the various Teaching Units;
- c) Proposes all necessary adjustments in contents and schedules;
- d) Ensures longitudinal coordination of the curriculum, in collaboration with the Clinical Curriculum Committee,
- e) Co-ordinates the teaching objectives of the clinical skills and of the community-oriented program with that of the basic medical sciences, in years 1 to 3;
- f) Adjusts, on a continuous basis, the curriculum in years 1 to 3, taking into account the federal recommendations and the feedback from the evaluations of the curriculum;
- g) Examines and approves (with the consent of the Education Committee) the proposals for changes, or proposes changes in the organisation of the curriculum, in the educational methodology, or in the examination procedures in years 1 to 3.

The Pre-clinical Curriculum Committee meets 10 times a year. There is an agenda known in advance and minutes. After each Module, the evaluation by the students of the corresponding teaching Units and the opinion of the teachers are presented to the Committee. The co-ordinator of the unit presents the planned modifications, which are discussed by the Committee. For example, some units have changed the sequence of the PBL problems, have suppressed a problem or replaced a problem by another.

Other issues examined by this Committee are: verification of the appropriate implication of the various disciplines in the problems addressed by the vignettes; control and updating of the references; control of the quality and precision of the formulation of the objectives.

Also, the students' evaluation helped to detect lack of co-ordination between subjects treated in basic medical sciences and the community-oriented part of the program. This led to a re-organisation of this part of the program.

If a modification in a teaching unit of preclinical years can affect directly the program in the 4th or 5th year, the information is given to the Clinical Curriculum Committee. In this way it is possible to minimise unnecessary repetitions and be aware of possible "holes" in the curriculum. Despite its size, the Pre-clinical Curriculum Committee works efficiently but the attendance of coordinators tends to decrease after 10 years of existence (see weaknesses in 2.7).

Clinical Curriculum Committee⁵¹

It includes the co-ordinators of the "Introduction to clinical reasoning Unit" of the clinical clerkships, as well as consultants for various clinical disciplines, the director of the UDREM, 6 students and a member of the Pre-clinical Curriculum Committee, for longitudinal coordination (see weaknesses in section 2.7). The basic duties and organisation of this committee are similar to the of Pre-clinical Curriculum Committee.

⁵¹ Attachment members of the Clinical Committee.

8.2 ACADEMIC LEADERSHIP

1. The responsibilities of the academic leadership of the medical school for the medical educational program must clearly stated.

2. The academic leadership must be evaluated at defined intervals with respect to achievement of the mission and objectives of the school.

Point: 8.2.1

Co-ordination of the various activities of the Faculty (teaching and research in particular) is achieved by the Dean's office, the executive body of the Faculty, which comprises the Dean, the Vice-Deans and Associate Vice-Deans. One Vice-Dean has as his/her primary responsibility all issues related to teaching, in particular undergraduate medical education. With an advisory body, the Education Committee, and its executive body, the Steering Committee of the Education Committee⁵² he/she accepts, modifies or rejects proposals from the Pre-clinical and Clinical Curriculum Committees. This organization should allow both horizontal and vertical integration of the teaching objectives. After 10 years of experience, we think it is necessary to perform a global evaluation of how successful we are at achieving these objectives (see also weaknesses in 2.7). Implementation of the decisions is carried out by Faculty members that are designated to this effect by the Education Committee (attachment liste des different task forces).

Point: 8.2.2

An annual report of the EC is presented of the *Collège des Professeurs* by the Vice-Dean in charge of the education. The same holds for all permanent Committees (Research, Renewal, International Cooperation, Library, etc.). No other specific and formalized evaluation of the academic leadership of the Dean's office is carried out. However, the Dean's office has a 4-year tenure, and designation of a new Dean, Vice-Deans, and Associate-deans by the *Collège des Professeurs* and the Faculty Council takes into account the capacity of candidates to contribute to the achievement of the mission and objectives of the school.

Strengths

The organization provides the adequate authority to permit continuous adaptation of the curriculum.

Weaknesses

As already mentioned, an important weakness is the lack of real coordination between the pre-clinical and the clinical world.

How to improve

A major problem is time! What about introducing an 8th day in the week from time to time!

⁵² <http://edumed.unige.ch/etudes/commissions/buce/index.php>.

8.3 EDUCATIONAL BUDGET (a) AND RESOURCE ALLOCATION

1. *The medical school must have a clear line of responsibility and authority for the curriculum and its resourcing, including a dedicated educational budget.*
 2. *There must be sufficient autonomy to direct resources, including remuneration of teaching staff, in an appropriate manner in order to achieve the overall objectives of the school.*
 3. *The Faculty of Medicine has a strategic plan.*
 4. *The sources of the financial means and all the conditions attached to the financing are stated transparently and do not restrict the autonomy of the institution to take decisions in teaching and research.*
 5. *The Faculty of Medicine has the human resources enabling it to realize its stated goals and objectives according to its strategic plan.*
- Annotations:* a. The educational budget would depend on the budgetary practice in each institution and country.

Point: 8.3.1-2

We have seen above that the Faculty has a clear line of responsibility and authority, and has a budget to run its curriculum. The Dean is responsible for preparing and managing the Faculty budget. A University Accounting Office controls the use of the funds.

Most of the salaries for academic positions involved in teaching are provided by the *Département de l'instruction publique* (Department of Education) of the Canton of Geneva. A substantial fraction of the salary budget (20 million) allotted to the Faculty of Medicine is assigned to teaching. Additional resources are provided by the Department of Public Health of the State of Geneva, as the medical staff of the Geneva University Hospitals is expected to contribute to undergraduate teaching. Approximately 4% of the time of the medical staff of the hospital is devoted to undergraduate medical teaching. Additional resources are provided by private funding, in the form of salaries for academic staff, mostly on the basis of research projects.

There is also a running budget for teaching, approximately 700'000 CHF (including the "Mimosa" budget – see footnote 5), which is also used to pay for the teaching contribution of private practicing primary-care physicians.

Point: 8.3.3

The Faculty of Medicine establishes priorities and plans its academic staff appointments and related funding according to these priorities.

Point: 8.3.4

Public funds are provided with the explicit understanding that all academic staff must participate in teaching. Note that other sources of financing must be communicated to the University Accounting Office. The Faculty of Medicine has developed and is implementing⁵³ a continuous evaluation of teaching, research and administrative activities, which will permit a more precise evaluation of the use of the resources in these various activities.

Point: 8.3.5

⁵³ We have recently added new modules in the data base to take examination into account. Future developments will include postgraduate teaching and teaching in other faculties.

Up to now, the Faculty of Medicine of Geneva had sufficient human resources to realize its strategic plans. The reform of the curriculum in 1995 has been possible despite substantial reducing of public budget of the Faculty of Medicine. All staff appointments are made according to the goals and objectives of the Faculty.

8.4 ADMINISTRATIVE STAFF AND MANAGEMENT

1. The administrative staff of the medical school must be appropriate to support the implementation of the school's educational program and other activities and to ensure good management and deployment of its resources.

2. The management must include a program of quality assurance and the management must submit itself to regular review.

Point: 8.4.

The administration of the Faculty is headed by two administrators, hired by the Dean. One has responsibility to assist the Dean in all financial issues. The other administrator is in charge of operational issues concerning the Medical Center. The two administrators work with the Dean and the Vice-Deans. Other members of the administrative and technical staff have specific responsibilities, for instance with respect to teaching facilities, building operation, animal house etc. As regards medical education, the administrators and their staff interact primarily with the Vice-Dean in charge of teaching. A diagram of the organisation of the administration is enclosed⁵⁴.

Point: 8.4.2: Quality control of the administration

The administrative staff is submitted of regular evaluation. Should academic or administrative/technical staff members not fulfill their job descriptions to satisfaction, different measures are taken at various echelons of the hierarchy.

8.5 INTERACTION WITH THE HEALTH SECTOR

The medical school must have a constructive interaction with the health (a) and health-related (b) sectors of society and government.

Annotations: a. The health sector would include the health care delivery system, whether public or private, medical research institutions etc. b. The health-related sector would, depending on issues and local organisation, include institutions and regulating bodies with implications for health promotion and disease prevention (e.g. with environmental, nutritional and social responsibilities).

The Faculty of Medicine has a very close and currently excellent relationship with the Health sector via the University hospital. The Dean's office meets 10 times a year with the General Director and the Medical Director of the Geneva University Hospitals. The Dean is ex-officio member of the Direction Council of the University Hospitals.

Various units of the Faculty, in particular in the Department of Health and Community medicine, have other health-related interactions with various groups of the Health sector (including WHO and Red Cross International Committee).

The very fruitful collaboration relationships with hospitals of other Cantons of Switzerland (in particular *Vaud, Valais, Neuchâtel, Tessin, Fribourg*) have been described in section 6.6.2.

⁵⁴ Attachment organisation_administration

9 CONTINUOUS RENEWAL

The medical school must as a dynamic institution, initiate procedures for regular reviewing and updating of its structure and functions and must rectify documented deficiencies (a-j).

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

The Faculty of Medicine has:

- the autonomy of choosing its priorities in teaching and research;
- on external a Scientific advisory board which it can consult regularly on research orientations and organization;
- three permanent Curriculum Committees, chaired by Vice-Deans, the Renewal, the Research and Education Committees that conduct continuous evaluations in their respective domains and can introduce appropriate adjustments; this is documented by two major changes introduced in the last 10 years in our 125 year-old and traditional Faculty of Medicine:
 - a complete reform of the medical curriculum from years 1 to 5, including the introduction of important pedagogical changes (small- group teaching in a variety of forms from years 2 to 5; introduction of structured clinical skills from the 2nd year to the beginning of the 4th year; 1 month exposure of students to Community health problems; use of standardised patients for training and examining clinical skills; structured clinical clerkships; new formats for structured clinical examination; evaluation by the students of all teaching activities, etc.);
 - a complete reorganisation of the departments in the Basic medical sciences Section.

We believe that the Faculty of Medicine of Geneva is equipped for regular evaluation and adaptation of its teaching and research duties to a changing environment.