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The "Profiles" document: a modern revision of the objectives of undergraduate medical studies in Switzerland

Pierre-André Michaud[a], Patrick Jucker-Kupper[b] and the Profiles working group[c]

[a] Honorary Professor, Project leader, Faculty of Biology and Medicine, Lausanne, Switzerland
[b] Institut für Medizinische Lehre, University of Bern, Switzerland
[c] See appendix

Summary

The Joint Commission of the Swiss Medical Schools (SMIFK/CIMS) decided in 2000 to establish a Swiss Catalogue of Learning Objectives (SCLO) for undergraduate medical training, which was adapted from a similar Dutch blueprint. A second version of the SCLO was developed and launched in 2008. The catalogue is a prerequisite for the accreditation of the curricula of the six Swiss medical faculties and defines the contents of the Federal Licensing Examination (FLE). Given the evolution of the field of medicine and of medical education, the SMIFK/CIMS has decided to embark on a total revision of the SCLO. This article presents the proposed structure and content of *Profiles*, a new document which, in the future, will direct the format of undergraduate studies and of the FLE. *Profiles* stands for the Principal Relevant Objectives for Integrative Learning and Education in Switzerland. It is currently being developed by a group of experts from the six Swiss faculties as well as representatives of other institutions involved in these developments. The foundations of *Profiles* are grounded in the evolution of medical practice and of public health and are based on up-to-date teaching concepts, such as EPAs (entrustable professional activities). An introduction will cover the concepts and a tutorial will be displayed. Three main chapters will provide a description of the seven 2015 CanMEDS roles, a list of core EPAs and a series of ≈250 situations embracing the most frequent and current conditions affecting health. As *Profiles* is still a work in progress, it is hoped that this paper will attract the interest of all individuals involved in the training of medical students.

Key words: medical education; undergraduate studies; medical students; learning; teaching; public health; professionalism; clinical reasoning; licensing examination; accreditation

Introduction

Undergraduate medical education in Switzerland is heavily shaped by the presence of a nationally agreed framework of learning objectives drawn up by the Joint Commission of the Swiss Medical Schools (SMIFK/CIMS). This Commission decided in 2000 to establish a Swiss Catalogue of Learning Objectives (SCLO) for undergraduate medical training, which was adapted from a Dutch blueprint and published in 2001 [1]. The SCLO had, and still has, two main regulatory purposes in Switzerland: first of all it is an essential prerequisite for the accreditation of the curricula of the six Swiss medical faculties by the Centre of Accreditation and Quality Assurance of the Swiss Universities; secondly, the SCLO defines the contents of the Federal Licensing Examination (FLE) taking place at the end of the training curricula of the medical faculties of Switzerland (Ordinance on the Federal Examinations for University Medical Professions; https://www.admin.ch/opc/fr/classified-compilation/20072413/index.html). In 2004, it was decided to proceed with a revision of the SCLO, which led to a second version, approved by the SMIFK/CIMS in 2008 [2]. Given the rapid evolution of the practice of medicine and of medical education, the Commission has decided to embark in a thorough, second revision of the SCLO. The purpose of the present paper is to describe the context in which the new version is currently being developed, and how the present and future context of the medical field impacts on its aim, structure and content.

A new era for the practice of medicine and a challenge for medical faculties

Over the last decades, the sectors of health and medicine have changed dramatically and will continue to do so. This evolution is linked to, on one hand, the transformation of medical practice and, on the other hand, the demographic changes that are occurring both in the population itself and also within the medical profession. Both should influence the way medical students and doctors must be trained

[3]. Indeed, physicians nowadays find themselves in an environment that is becoming increasingly technical; imaging techniques or genetic and biological tests are becoming more and more sophisticated and available to lay people. In high-income countries in particular, patients are increasingly literate in the area of health, which is radically transforming the nature of the patient-doctor relationship; the concept of shared decision-making is a good illustration of this [4, 5]. Moreover, many countries increasingly emphasise the issue of professionalism including, for instance, patient safety, adequate reactions to potential errors [6] and attention to cost-effectiveness when ordering tests, medication and treatment. In addition, the whole area of E-health, the use of information and communication technologies by physicians, will impact on how they take care of their patients, conduct research, educate the health workforce, track diseases and monitor public health initiatives; this will be the case even in low- and middle-income countries [7, 8]. Finally, the era of big data and the development of the "-omics" will allow for the merging of many medical and nonmedical personal parameters, and these will impact on both lifestyles and treatments, as they will modify the way in which patients and doctors look at health and disease, leading to a more so-called "personalised medicine" [9].

Besides the evolution of medicine itself, demographic issues are affecting the delivery of healthcare both in Switzerland and in other countries. As mentioned in a recent report by the Swiss government [10], this country is faced with several challenges, such as the escalating cost of the healthcare system and a severe shortage of doctors in some disciplines, including primary care; there is also the increasing rate of chronic noncommunicable diseases as well as the polymorbidity due to an ageing population. These two emerging tendencies call for a high level of interprofessional collaboration and a capacity for doctors to integrate a great deal of biopsychosocial information [11, 12]. Physicians need to learn to work within teams, and respect the roles of each member of any group of professionals working together in a specific situation, be it in an operating theatre, in an ambulance or within a primary care setting [13]. Future doctors will need to reflect on and adapt to new models of care which allow for a better integration of the many facets of a polymorbid patient, such as multiprofessional consultations [14–17]. All these impressive transformations raise issues in the field of ethics and medical humanities and they stress the role of professionalism and accountability within the under- and postgraduate training of doctors [18–20]. All the preceding comments underline some of the challenges that medical faculties face when it comes to the medical education of future doctors (see table 1).

Responding to the above mentioned trends: updated learning and teaching concepts

As it is difficult to predict how doctors will work in 10 or 20 years' time, faculties of medicine around the world are faced with two important questions: what should change in undergraduate medical education, and how should faculties ensure the continuing expertise of physicians 20 to 30 years into practice? [21, 22]. Besides knowledge of basic medical sciences, medical students should acquire an excellent insight into discipline-related pathologies and their diagnosis and treatment, good skills in clinical reasoning and a high capacity for integration and of adaptation. They should also be able to perceive how societal changes influence the practice of medicine and how to adapt to these changes.

The needs for undergraduate training summarised in the preceding paragraph have been extensively elaborated in a widely recognised report on the future of medical education by the Lancet commission in 2010 [23]. The objectives are also in total accordance with the "Health 2020" vision elaborated by the Swiss Federal Council and the Federal Office of Health [10] and stress the place of integration and accountability [3, 23, 24] in training, as well as the importance of addressing the persistence of inequities in health, new infectious diseases, increasing environmental and behavioural risks and, as a result of migration, rapid demographic and epidemiological transitions.

New educational approaches to prepare doctors for their future career

A major evolution in medical education has been the concept of outcome based education, built on the idea that teaching formats and learning outcomes should be aligned [25–28]. In a similar way, a core aspect of the training curriculum of doctors is the acquisition of competences [29] defined as "an observable ability of a health professional,

Table 1: Threats, issues and challenges in the field of undergraduate training of medical students.

Issues and threats	Challenges
Increasing expectations of the civilian society towards medical practice; changes in the attitudes towards ageing and death	Have medical students reflect on their future role in society; cultivate their critical thinking and reasoning as well as their scientific curiosity
Improved literacy of patients through information and communication technologies	Educate students as future professionals, accountable for an ethically-appropriate approach to healthcare, balancing the patients' need of guidance and autonomy
Over-specialisation, fragmentation of the practice of medicine	Train students to be members of teams, respecting the roles and competences of their colleagues in other disciplines and professions
Increasing complexity of medical care	Have the students accept their own limits, recognise potential sources of errors and manage such situations
Dehumanisation of care, especially among elderly people	Emphasise communication and professionalism in the undergraduate curriculum
Increased technicality in most disciplines. Development of big data	Encourage students to anticipate changes in medical practice but still admit the constraints of the science of medicine
Escalating costs of medicine	Sensitise students to the issue of cost-effectiveness of medical investigations, procedures and treatment

integrating multiple components such as knowledge, skills, values, and attitudes" [23, 30–34]. More recently, it has been argued that the acquisition of single competences does not necessarily guarantee that young doctors entering residency will adequately perform professional tasks, which usually call for an integration of several competences. This concern has led to the creation of a new concept, namely that of entrustable professional activities (EPAs) [35–38].

An EPA can be defined as a unit of professional practice or task that an individual can be trusted to perform unsupervised in a given healthcare context, once sufficient ability has been demonstrated [39–41]. Ideally, an EPA is independently executable within a time-frame, observable and measurable in process and outcome, suitable for entrustment decisions, depending whether a given individual is really able to perform the task or the professional activity, in a (partially or) totally autonomous way [40, 42]. It can easily be understood that this "entrustability" is acquired progressively and that the instructor has to assess the trainee's performance over time, before he becomes convinced that the student or resident is totally entrustable. Indeed, ten Cate suggests five levels of supervision, from one (no permission to act) to five (permission to provide training to juniors) [42]. It is obvious, therefore, that, as EPAs represent tasks, they cannot encompass all the facets of medical activities, such as professionalism and ethics or life-long learning.

By way of example, one generic EPA states that the learner (a medical student) is able to "obtain a complete and accurate history in an organised fashion, taking into account the patient's expectation, complaints and situation". This requires a series of skills that should be integrated in performing this task, such as good communication skills, a capacity to adapt to the mental health status and cognitive skills of the patient, as well as a clear appraisal of what the symptoms and complaints suggest in terms of the most important questions to ask.

The concept of EPAs was first introduced at the level of postgraduate training, e.g. inserting a catheter, performing an appendectomy, a delivery or a hip replacement, with a gradual increase in complexity as residents become more and more experienced; it is currently used in many disciplines and countries [43]. Recently, it has been suggested that the EPA framework should also be applied to undergraduate training [36, 39], with the objective of providing an integrative step-by-step vision of the practice of medicine, a vision that cross-cuts disciplines, as is more and more the case in instances such as systemic or oncological diseases, or among older people who suffer from multiple diseases. Students will thus be invited to register their progress in a portfolio, which could be, in the future, further used at the postgraduate level [42, 44].

A new document to define the objectives, structure and content of the medical curriculum in Switzerland

The aim of the new document is to outline what is expected of the holder of a federal license on the first day of his or her residency. Its main target audiences are the individuals in charge of the design and implementation of the curriculum in each faculty, as well as the teachers and those designing the FLE. In addition, it should also assist students in preparing themselves for their career and to integrate their future roles.

The document will display specific characteristics that were both sought and validated by the SMIFK/CIMS: it will be based on updated educational strategies, and will be concise and much shorter than the preceding one, user friendly, integrative and prioritising. As a consequence, this new document puts less emphasis on the acquisition of knowledge (notwithstanding its importance for the practice of medicine) and more on issues such as clinical reasoning, communication skills, and an interdisciplinary approach to solving medical symptoms and situations, together with professionalism and accountability. It will leave the faculties free to choose how to cover the fields of medicine and health. The "Profiles" acronym, which has been adopted by the group of experts, summarises these intentions: Principal Relevant Objectives for Integrative Learning and Education in Switzerland. In other words, this new version is no longer just a catalogue but rather a set of principal relevant objectives for the training of medical students; it provides a conceptual framework with clinical, public health and ethical situations that cross-cut disciplines, and includes a series of integrated competences and skills in the form of EPAs, which foster new learning methods and, more globally, a higher level of medical education. This is not to mean that specific discipline-related objectives will not be taught any more, but rather that they should be learned by the student within an integrated approach that corresponds to the reality of medical practice.

The SMIFK/CIMS has mandated a group of experts (see appendix) to develop the new document. The work group includes younger and older spokespersons from each faculty and from the main medical disciplines, as well as representatives of the Federal Office of Public Health, the Swiss Medical Students' Association (Swimsa) and the Swiss Association of Residents and Chief Residents (VSAO/ASMAC). Over the year 2013–2014, the group has worked on defining the needs of future doctors and what is expected from them, as others have done before [45–47], and on reflecting how the structure and content of the new document could be aligned with this vision. This task was performed by carrying out a survey of some of the available literature and by undertaking numerous formal and informal exchanges with colleagues and experts from both the Swiss faculties and from outside Switzerland.

The format and content of *Profiles* is inspired by several similar documents such as the United Kingdom "Tomorrow's doctors" document [45], the European Union Tuning Project [48], the new Dutch framework [49], the EPA guide of the American Association of Medical Colleges [35], or the catalogue of the Medical Council of Canada [50]. It provides five user-friendly and unified chapters, namely:

1. An introduction outlining the concepts which form the basis of *Profiles* and why they have been chosen
2. A tutorial which will provide concrete advice on how to implement the objectives and how to assess students' performance
3. A chapter based on the CanMEDS 2015 report [31] that presents a description of the main roles of the doctor

within a clinical setting, within the public health system and within the cultural and societal context.

4. A chapter supplying a list of nine entrustable professional activities (EPAs), partly inspired by the document of the American Association of Medical Colleges [35]; this chapter will also provide a short set of specific clinical skills in the areas of communication, physical examination and practical procedures (such as puncture, suture, ECG, etc.). One core part of the chapter will be a list of special emergency situations that physicians, on day one of their residency, should be able to handle, managing the first steps without supervision until a senior physician becomes available (usually in 20–30 min). According to ten Cate [38], EPAs will be mapped against CanMEDS roles.

5. A chapter of "Situations as Starting Points" ("Problems as Starting Points" in the current SCLO) listing a set of clinical symptoms, findings upon physical examination or laboratory tests / imaging, all of which forming the basis of the multiple choice questions and objective structured clinical examination (OSCE) material of the FLE. As they will not be discipline specific, their purpose is to offer a basis for teaching and learning approaches that will allow for the integration of the various fields of medicine. This series has been developed by comparing similar lists from other countries and will be largely inspired by the Dutch Framework for Under Graduate Medical Education [49]. It is meant to cover most of the current medical issues, taking into account their relevance for the first year of residency, their prevalence and their potential impact on health and life.

The Profiles Work Group has been requested by the Federal Office of Public Health to implement – among the training objectives – new items included in the new Federal Law on Medical Professions or identified as crucial issues for the future in the "Health 2020" document [10], such as complementary medicine, nosocomial infections, palliative care, shared decision, equity in medicine and e-health, to name but a few.

Consultation and implementation

The working group is aware that the *Profiles* scheme constitutes a change in the teaching and learning paradigm. It will impose changes in both the content and evaluation strategies of the curriculum of each faculty and promote the design of interdisciplinary modules, problem-based learning and simulation as well as the use of new assessment methods. Its implementation will thus be gradual.

A first draft of the *Profiles* – whose outline has been recently validated by the SMIFK/CIMS – will be available in January 2016. Several target groups of individuals will be consulted, such as, in each faculty, professionals in charge of medical education as well as representatives of all disciplines, administrators and other concerned stakeholders. The final content of the *Profiles* document should be available in the second part of 2016 or early 2017 so that the faculties will be able to think more and more about potential modifications of their curricula and assessment strategies. Similarly, the federal board of examiners (Prüfungskom-

mission) should begin to work on the modifications of the design and content of the FLE imposed by *Profiles*.

As the design of *Profiles* is still a work in progress, the authors of this article will welcome any question or reaction to its content. It is indeed hoped that all faculties will progressively adapt to new teaching concepts and methods, in the expectation of improving the preparation of medical students for their residency and future career.

Correspondence: Prof. Pierre-André Michaud, MD, Honorary Professor, Faculty of Biology & Medicine, Project leader, CH-1011 Lausanne, Pierre-Andre.Michaud[at]chuv.ch

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Appendix

Composition of the working group

Dr Werner Bauer, ISFM	werner.bauer[at]hin.ch
Dr Christoph Berendonk, BE/PK	christoph.berendonk[at]iml.unibe.ch
Dr Jocelyne Bloch Pasche, LSNNE	jocelyne.bloch[at]chuv.ch
Nadine Fachinetti, BAG	nadine.facchinetti[at]bag.admin.ch
Catherine Gasser, BAG	catherine.gasser[at]bag.admin.ch
Mr. Jérémy Glasner, SWIMSA	vpa[at]swimsa.ch
Dr Patrick Jucker-Kupper, WG secretary BE	patrick.jucker[at]iml.unibe.ch
Prof. Pierre-André Michaud, President	pierre-andre.michaud[at]chuv.ch
Prof. Mathieu Nendaz, GE	mathieu.nendaz[at]unige.ch
Prof. Arnaud Perrier, GE	arnaud.perrier[at]hcuge.ch
Dr Christian Schirlo, ZH	christian.schirlo[at]dekmed.uzh.ch
Dr Nicolas Senn, LSNNE	nicolas.senn[at]hospvd.ch
Prof. Giatgen Spinas, ZH	giatgen.spinas[at]usz.ch
Dr Mireille Schaufelberger, BE	mireilleschaufelberger[at]bluewin.ch
Prof. Andreas Stuck, BE	andreas.stuck[at]insel.ch
Dr Sonja Trüstedt, VSAO/ASMAC	vsaobasel.sonja[at]gmail.com
Prof. Albert Urwyler, BS	albert.urwyler[at]usb.ch
Dr Elisabeth van Gessel, GE	elisabeth.vangessel[at]hcuge.ch
Prof Alexandre Wenger, FR	alexandre.wenger[at]unifr.ch