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Interprofessional training: Start with the youngest! A program for undergraduate healthcare students in Geneva, Switzerland

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ABSTRACT

Aims: Demography of patients and complexity in the management of multimorbid conditions has made collaborative practice a necessity for the future, also in Switzerland. Since 2012, the University of Applied Sciences (UAS) and its Healthcare School as well as the University of Geneva (UG) with its Medical Faculty have joined forces to implement a training program in collaborative practice, using simulation as one of the main learning/teaching process.

Methods: The actual program consists of three sequential modules and totalizes 300 h of teaching and learning for approximately 1400–1500 students from six tracks (nutritionists, physiotherapists, midwives, nurses, technologists in medical radiology, physicians); in 2019 another hundred pharmacists will also be included.

The main issues addressed by the modules are

- Module 1: the Swiss healthcare system and collaborative tools.
- Module 2: roles and responsibilities of the different health professionals, basic tools acquisition in team working (situation monitoring, mutual support, communication).
- Module 3: the axis of quality and safety of care through different contexts and cases.

Conclusions: A very first evaluation of the teaching and learning and particularly on the aspects of acquisition of collaborative tools shows positive attitudes of students towards the implementation of this new training program. Furthermore, a pre–post questionnaire on teamwork aspects reveals significant modifications.

Introduction

In healthcare, undergraduate training institutions as well as teaching hospitals and healthcare institutions have the responsibility to train professionals able to adapt to the challenges and respond to the needs of the health care system. Until very recently, in Switzerland and in quite a few European countries, the different healthcare professional tracks trained in silos, with teaching and training focused mainly on individual performance rather than on collaborative practice. Repeatedly, this turns out to negatively affect work processes and patient safety (Institute of Medicine 2000; Manser 2009). Demography of patients as well as complexity in the management of multimorbid conditions have made collaborative practice a necessity for the future (Frenk et al. 2010), including in Switzerland (Paccaud et al. 2006). Further and more largely, it is more of a necessity in the health community setting rather than in the high-risk acute-care settings where Crisis Resource Management (CRM) programs and interprofessional (IP) teamwork training exist and are widely used (Gaba 2010).

If teamwork and team training are crucial to providing safe care to patients in high-risk environments such as the operating theaters or emergency rooms, interprofessional (IP) team collaboration goes one step further. It puts together in clinical practice professionals that have different training backgrounds, different knowledge and with different frames of reference concerning decision-making over a patient's problem.

Practice points

- Implementation of an undergraduate IP training program should start with a needs assessment of the themes to prioritize.
- IP training should be integrated in existing curricula, and space should be created to prevent curriculum overload.
- An expert IP team should be created, for both the pedagogical aspects of IP education and the tutor training.
- Evaluation of the impact of IP education on behaviors and patient or system outcomes is vital, despite well-known difficulties.

In our institutions, we believe that effective teamwork but more so interprofessional and collaborative practice are essential for healthcare quality and all aspects of patient safety; early IP education is considered one of the keys to improve awareness and understanding of future teamwork in practice (Liston et al. 2011; Muller-Juge et al. 2013, 2014). The consensus definition of IP education in our institutions is based on the WHO definition: "Interprofessional education occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO 2010).

Geneva is a canton-city of around 500,000 inhabitants, the University Hospitals of Geneva are the only public teaching hospitals, and thus the main potential employer of the healthcare graduates from both teaching institutions, i.e. the University of Applied Sciences Western Switzerland (UAS) and the University of Geneva (UG). Usually, after gaining some experience in the hospitals, the majority of graduates are then employed by other public structures such as the Institute for domiciliary care or many nursing homes, as well as private clinics or hospitals or primary care medical groups.

The Geneva IP simulation center was created in 2013 to offer education by simulation to healthcare tracks. It thus naturally became the site for IP education in undergraduate healthcare tracks. Both training institutions, UAS and UG train and certify approximately 500–550 health professionals each year, either through a 3-year Bachelor program for the five tracks at UAS (about 350–400/year) or through a 3-year Bachelor and subsequent 3-year Master program for the Medical Faculty of UG (about 150/year). Both have now implemented a three-module IP education program for all their healthcare undergraduate students. These modules are compulsory and integrated in the respective curricula of all healthcare tracks. This training took place first at UAS in 2012 for their five tracks of nursing, midwifery, technologists in medical radiology, physiotherapists and dieticians (Mèche et al. 2015) before being rapidly extended first to the medical faculty (medical and dental tracks) then from 2018 onwards to the faculty of science (pharmacist track).

The key elements and developments

Figure 1 depicts the three actual modules implemented and the competences that are required in each of them. In terms of knowledge and competences, all three modules are based on the Canadian Interprofessional Health Collaborative framework (Canadian Interprofessional Health Collaborative 2010) for interprofessional education. A great deal of work went into examining all curricula from both faculties at the UG and the healthcare school of UAS, in order to identify the best possible matching for the student

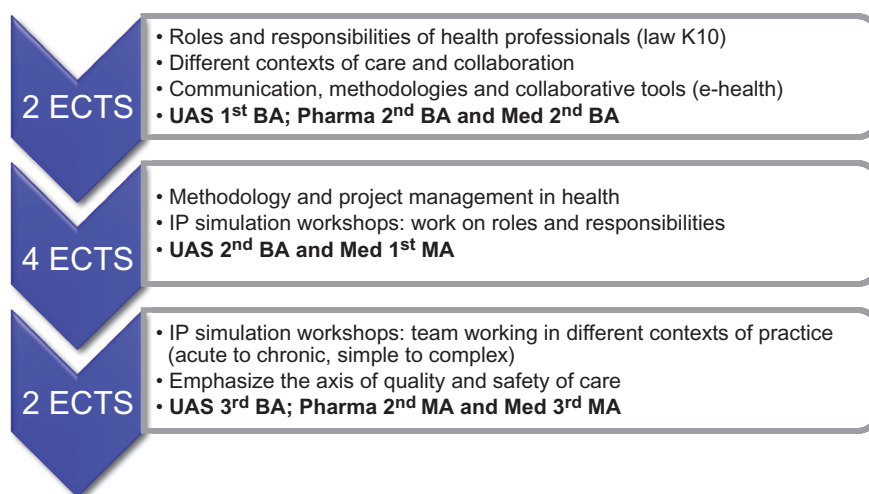
levels. It was also important to reorganize some parts of the existing curricula in order to create space for the new IP activities, without creating curriculum overload. Finally, yet importantly, all modules were implemented sequentially.

The main aims of this 3-module program are first to give students knowledge about collaborative practice in different contexts of care. Then, through active teaching/learning processes such as simulation, to allow the acquisition of collaborative tools and help put them into practice; lastly to link the IP competences acquired to their potential impact on safety of care and patient outcomes. Overall learning outcomes for all three modules are shown in Table 1.

The *first module* was rather didactic, and has completely changed since its first implementation at UAS only in the academic years 2012–2013 (Mèche et al. 2015); since academic year 2017–2018, it accommodates the medical/dental students and will include the pharmacists in 2018–2019. It now runs as an “IP Congress” over a full week, with plenary sessions, workshops, and exhibits, the latter comprising associations concerned mainly by health promotion and disease prevention in different contexts of care. The main objective of this first module is to make students more knowledgeable on the different contexts of care in the Swiss health system as well as emphasize the aspects related to disease prevention and health promotion. Furthermore, basic competences in team working are required and trained during a preliminary half-day workshop using the TeamSTEPPS model (TeamSTEPPS 2.0[®] 2012). The module is assessed through multiple-choice questions on the topics of plenary sessions, an individual written report of the interview of a professional over the subject of “IP care in my practice”, and finally an article or report written by an IP group of six students over a clinical vignette emphasizing prevention and promotion concepts.

The *second module* introduces more active learning, using two different formats:

- A community project management with interprofessional student groups, taking place over two semesters.



BA: Bachelor; MA: Master; UAS: University of Applied Sciences; Pharma: Pharmacists-Faculty of Sciences; Med: Medical students-Faculty of Medicine, University of Geneva. IP: interprofessional; ECTS: European Credit Transfer System.

Figure 1. The actual 3 module-8 ECTS interprofessional program; matching levels of students are indicated in bold.

Unfortunately, the community project takes place only within the five tracks of UAS, without the medical and pharmacy students; the next 2 years will see attempts to match the curriculum of these two faculties for this particular topic.

- Experiential learning using simulation with simulated patients (SPs) focused on identifying roles and responsibilities of the different professionals during collaborative work. This part of the second module integrates UAS students as well as medical ones, with a voluntary participation of a small number of pharmacists; it takes place over two semesters, between November and April, every Thursday afternoon. The students undergo only one or two half day simulated workshops. The following competencies are highlighted, based on CIHC (Canadian Interprofessional Health Collaborative 2010): structured communication with professionals and communication with patients/families (the patient as a partner in the team), identification of common goals for the patients, knowledge of each other's responsibilities, basic principles of teamwork (team dynamics and group processes).

Assessment of this module consists in the evaluation of the community project, to which are added the formative evaluation and feedback on professional behavior during simulated workshops (presence, participation in activities, respect during discussion with other members, etc.)

The *third module* gathers all students in their last year of training, approximately six months before certification. It offers over one full week, an array of 10 different simulated situations or cases, from acute to chronic and from simple to complex ones (Figure 2); the main emphasis in this last module is on the axis of quality and safety of care and impact of collaborative practice. Seven simulation workshops take place simultaneously in the center, have a duration of approx. 4 h for an IP group of 9–10 students from three different professions, and mobilizes over the whole week 50–60 tutors from all tracks. The themes chosen for the cases are based on a Delphi study, examining needs in IP education in the community (Junod Perron et al. 2014). If the knowledge content of the module is assessed through summative exams within each track, again as for module 2, professional behavior is evaluated in a formative way and the matter of a feedback.

The very first evaluations of the quality of teaching in three modules, through a locally developed questionnaire (in French language), show a change in perceptions and attitudes towards teamwork and interprofessional collaboration:

- 83.7% of students better identify the roles and responsibilities of each professional;
- 82.4% claim to have acquired the use of structured communication (such as SBAR for example: Situation-Background-Assessment-Recommendation, Thomas et al. 2009); and
- 81.5% of them are ready to assertively voice their concern in case of a safety breach.

Furthermore, in a recent 2016 pre-post study of the third module (unpublished data), using our translated Teamwork Attitude Questionnaire or T-TAQ (developed by the model TeamSTEPS[®], actually only validated in English; Baker et al. 2010) and examining attitudes towards teamwork, significant changes towards better perceptions and attitudes regarding teamwork can be shown (Table 2).

The lessons learned

Evaluation of the impact of undergraduate IP education, on outcomes other than perceptions, attitudes, acquisition of knowledge on teamwork, and satisfaction are difficult to achieve. Unfortunately and despite a lot of research in the area, evidence of the impact of IPE on patient outcomes is still poor as stated by Reeves et al. (2013), and more so for undergraduate IP education. After certification, clinical experience and postgraduate training all concur to either strengthen or weaken IP competences learned. Our hope resides in the fact that the University Hospitals as well as the Institute for Domiciliary care are now major partners of our simulation center and have very recently been implementing IP education for their professionals, using the same tools than for the undergraduate program. This has already started in pediatrics and obstetrics, as well as in certain units in Internal medicine. 2019 will see the advent of new IP education in domiciliary care.

Table 1. List of overall learning outcomes for all three IP modules in the healthcare undergraduate curriculum.

	Students should be able to
Module 1	<ul style="list-style-type: none"> • Define the legal bases and priorities of the Swiss social and healthcare system, including the principles and limits of its management • Understand the concept and outcome of interprofessional collaboration and describe the competency domains (according to CIHC); describe the advantages and limits of collaboration between health professionals • Use the basic collaborative tools in communication provided with colleagues from other professions
Module 2	<ul style="list-style-type: none"> • Design, plan and conduct a health promoting community project with students from other professions • Differentiate the roles and responsibilities of various healthcare professionals • Understand the process of teamwork and describe the different elements of team dynamics • Exercise, through simulation, basic competences in interprofessional communication with colleagues from other professions and patients/family (simulated patients)
Module 3	<ul style="list-style-type: none"> • Identify, through the different cases and contexts of care, the healthcare network, the different actors and partners involved and pathways for the beneficiaries (patients) • Estimate, document, justify and confront strategy of care for the different patients and in different contexts of care; seek consensus on common goals with patient/family as well as other fellow professionals, and apply principles of collaborative decision-making • Construct an appropriate professional relationship with colleagues from other professions, address disagreements when required and exercise basic principles of conflict resolution • Appraise the patient/family as a partner in the decision-making process

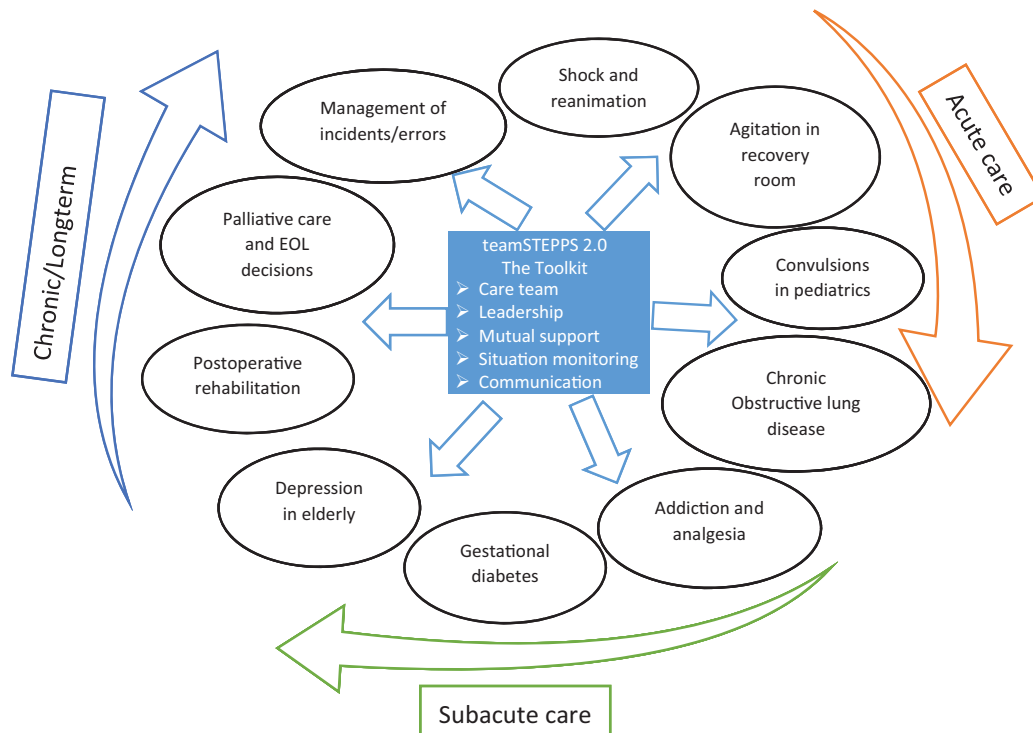


Figure 2. The 10 scenario cases used for the 3rd IP module; all scenarios are used in simulation workshops, either with simulated patients or with high fidelity mannequins.

Table 2. Of the 30 questions related to the five domains of *TeamSTEPPS 2.0*[®], only items showing a significant pre-post difference in mean scores are presented.

	N	Mean score (on 5)	N	Mean score (on 5)	p
High-performing teams in health care share common characteristics with high-performing teams in other industries	250	4	102	4.4	<0.0001
A team's mission is of greater value than the goals of individual team members	269	3.9	109	4.2	0.0055
Monitoring patients provides an important contribution to effective team performance	261	4.4	111	4.6	0.009
It is important to monitor the emotional and physical status of other team members	267	4.4	110	4.6	0.009
Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance	263	4.3	105	4.5	0.0418
It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard	265	4.5	108	4.7	0.0096

N: number of participants; scores are based on a Likert scale from 1 to 5; only mean value is shown; significant p value is <0.05.

Regarding assessment of each module as well as ECTS credits awarded, there is still a lot of work to do to harmonize both the evaluation system and the attribution of credits:

- The first module, initially estimated at an equivalent of four ECTS for 2 weeks of common training, has gone down to two for all students after the modification towards a 1-week "congress". These two credits are awarded on the basis of the evaluation described above.
- For module 2, due to only partial common teaching, the credits are actually only awarded by the UAS to their tracks (four ECTS); no credits are actually awarded to medical students nor to the few voluntary pharmacists. The presence is, however, compulsory and checked.
- Finally, for the third module, with the assessment of knowledge as well as participation and evaluation of professional behavior, the two credits are given in a harmonized way.

Tutor regular information but more so tutor training are major efforts required for this kind of program. For each simulation workshop, a double tutorship by two different professionals has been decided and this clearly requires solid training about the following competences: leading a

simulated situation, providing feedback, not only on individual professional competences but also on teamwork, conducting a debriefing session, and modeling a sound IP role model while interacting with the peer instructor. All tutors come from the teaching institutions as well as the state hospital or the local healthcare network; a lot are practitioners committed to IPE and have identified percentages of their professional activities for teaching, and this has grown stronger over the few years of implementation of the current program. This strong commitment is possibly also due to the constant observation, evaluation, and structured feedback given to all tutors over their performance with the students; evaluation, and feedback that give place to discussion groups and further training on specific issues identified.

However, this also implies that the scenarios of cases are appropriately written by an expert group of tutors, and conducted in such a way as to provoke IP and teamwork behaviors that can then make it easier for tutors to debrief and emphasize with the students.

In terms of success, this program has been an incentive to many other initiatives between both training institutions:

- With the creation and implementation of the new Master courses in UAS healthcare tracks (especially for midwifery, technologists in medical radiology,

physiotherapists, and dieticians), the initial 30 ECTS module, common to all tracks, now includes a 5-ECTS IP module with simulation and shadowing activities.

- The 3-week emergency clerkship in the 2nd Master year in Medicine now team up with nurses in their last (or 3rd) bachelor year of training during their emergency rotation, in two different simulated workshops to discuss team work aspects.
- Within all the clerkships of the Medical faculty Master years, IP objectives were identified (for example in surgery, use of the operating theater WHO safety checklist).

Examples of shadowing of patients and other professionals were introduced to understand and qualify IP competences, during the Primary care rotation in the last year of training of both nurses (3rd BA) and doctors (3rd MA):

- The new partnership developed between the Center for IP simulation (CiS) and both training institutions as well as the University Hospitals and Institute for Domiciliary Care, has led to creation of IP postgraduate and continuing education sessions for all healthcare professionals (for example, in Palliative care or within the Diploma for Quality and Safety of care).
- Last, this program has allowed major reflections on how to train IP competences from undergraduate to continuing education, with an emphasis on the concept of the “patient as a partner” (Pomey et al. 2015) in decision-making with the help of patients themselves.

It has to be said that other professionals, such as for example paramedics, social workers or assistant nurses, or specialized educators (handicap), are trained through vocational and professional tertiary training schools, and thus are not part of this IP training program. This is considered a future challenge for our institutions, as stated by Frenk et al. (2010), if we want to realize a progression from inter-professional to transprofessional education.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Prof. Mathieu Nendaz, Director of the Unit of Development and Research in Medical Education, University of Geneva. Non-financial – Member of board: AMEE. Prof Nendaz receives no compensation as a member of the board of AMEE.

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