Patient safety teaching in undergraduate health programs: reflections on knowledge and practice

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This study was intended to analyze pedagogic projects of undergraduate courses in Nursing, Pharmacy, Physiotherapy, and Medicine in the Federal University of Sao Paulo, in order to appraise the contents of patient safety teaching in those courses. The study is of descriptive and exploratory nature using as strategy a documental review. The documents analyzed were the Pedagogic Projects of the courses. The teaching contents on patient safety were found to be fragmented, without the depth and conceptual scope recommended by the World Health Organization (WHO) guidelines. Each course highlights the specific topics related to the pretended formative process. Inserting and trying to unify the contents on patient safety is still in its beginning in Brazilian schools and it is not present in the educational objectives. There is a need of reviewing the curricula using an interdisciplinary and trans disciplinary approach to develop this topic.

Keywords: Curriculum. Higher education. Health Sciences. Patient safety.

Introduction

Future professionals face ever-growing challenges in all areas of training, with great complexity and importance not only according to the contents of what is taught in Universities, but specially for what is the aim of this activity: a student with an adequate education. Not withstanding these growing challenges, the university structure is still based in an educational practice based in traditional principles, thus causing an imbalance between the discursive statements, the daily practice, and the demands in the human and professional training field[1].

The need to communicate complex albeit important knowledge to students, relevant within and to professional practice, has promoted a debate about the kind of knowledge needed and basic for the professional practice in different areas of activity, and specifically in health. This debate concludes in the need of developing a curriculum that may be conducive to let the educational subjects to build significant knowledge, developing diverse competencies and skills and helping to train reflective professionals with criticism in order to exert leadership and aiming to community welfare[2].

From an historical point of view, the curriculum is power, place and territory of subjects and programmatic contents, defined among other factors through ideological biases of the faculty of each discipline[1,3].

Nevertheless, contemporaneity and the educational transformations it carries in itself, are to be considered in order to deal with the technological, pharmacological, political, social and health care transformations, that force to rethink contents for a curriculum that may include whatever may be needed to be known by the students. These curricula must be designed to foster critical and reflective thinking and a transformational practice[4].

In this context, both teachers and practitioners involved in activities directly in contact with patients have debated in Brazil and in the international milieu about the education of these future professionals and how to prepare them for a safe practice in the daily patient care[5].

This discussion is promoted by the constant concern with errors happening in all health care settings. It has been estimated that one in each ten patients worldwide is harmed by mistakes and preventable adverse events during the time in which they are receiving care and treatments[6]. A Brazilian study performed in teaching hospitals shows that a 7.6 % of adverse events, from which 66.7 % are deemed to be preventable[7].

These problems are globally considered a source of concern, and numerous initiatives have been launched to minimize healthcare-related risks. Some of these initiatives are aimed at the improvement of structures, the work process, the use of technology-supported care, professional development, and recently has been added the training of students in the undergraduate level on this topic[5,6].

Facing this situation, the Brazilian Ministry of Health, through ordinance 529 launched the National Program for Patient Safety (PNSP) including an specific objectives directed to "...promote the insertion of the topic Patient Safety in technical, undergraduate and postgraduate teaching in health"[8]. Not withstanding the fact that the PNSP vows for the inclusion of the topic in the courses, no explicit definition, or guidelines are included to promote further discussions in this matter. The 2014 reference document of the PNSP, stresses the relevance of including the Patient Safety subject in teaching, and underlines the need of an updated catalog of the different existing programs, to support managers, practitioners and patients. It also recommends that health care facilities should develop their own training and updating activities and specializations using in situ, distance education or a combination of both[9].

The document also highlights the different teaching alternatives that may be developed jointly with the National Program for Reorienting the Professional Training in Health (PRO-Saude) and the Program for Training through Work in Health (PET-Saude) as well as the activities of different Brazilian Associations for the progress of professional education in the health field[9].

Coherent with these efforts, the WHO is recommending a strong approach on this issue, and has released the Patient Safety Curriculum Guide: Multiprofessional

Edition, 2011, bringing up to date patient safety themes and examples of training institutions that have included the topic in their Pedagogic Projects (PP), showing the structure and interfaces between different disciplines and knowledge areas[6].

All these developments put in the table the challenge of educating students about the aspects related to patient safety, developing specific knowledge and practices within the different schools, independently from the technical training that may be determined. This training process should be inserted in the clinical approach and when showcasing best practices, and it should be continuous during the course of the students' itinerary in the different practice settings that are required in their training program[6,9,10].

The complexity of this problem is the center of the discussion of this paper. Due to the urgency of the present situation, the mission of the universities and transformative role of teachers we need to question: how is the student trained regarding the Patient Safety subject? Is she prepared to identify and prevent errors and adverse events? Is she acting as the patient agent, and spotting the health care risks that are inherent to this process? Is she trained to alert the rest of the health team regarding the possible problems that may arise during the care process?

To analyze in more depth this problem, we decided to study the curricula of four programs in the Health Area of the Federal University of Sao Paulo (Unifesp) through the analysis of the PP's of the Nursing, Pharmacy, Physiotherapy and Medicine courses, trying to identify convergent and divergent aspects in the contents related to patient safety in these courses.

Metodology

Locus and Courses

The choice of this university is due to the fact of its relevance in the health professional training courses, as well as the generally acknowledged research quality both in the national and the international level.

Unifesp was officially chartered in 1994, from the previously existent Paulista School of Medicine (EPM), a private school that was created in the city of Sao Paulo in 1933 and then integrated into the Federal Higher Education system in January, 1956[11].

In 1939 a second university course was started, a Nursing School that was created based in a group of faith-based nurses from France. In 1977 this course was integrated in the EPM, and in 1994 it was re-designated as the Nursing Department of Unifesp, still linked to the EPM [11,12].

During the Nineties, the university made important strides as a result of the excellence achieved by undergraduate, postgraduate, Medical Residency and Extension courses, and it was officially recognized as Specialized University in Health during 1994.

In 2003, Unifesp began to expand to other areas, trying to gain status as full university, through the Federal Program for expansion of Federal Public Universities. This growth was not limited to the academic aspects, but also happened in geographic terms, with the inauguration in 2006 of the Baixada Santista campus, offering Nutrition, Physiotherapy, Psychology, Physical Education and Occupational Therapy courses[11].

From 2007 on, new developments extended the University reach, creating the campuses of Guarulhos (Human Subjects), Diadema (Biology and Exact Sciences) and Sao Jose dos Campos (Science & Technology). The last phase in 2011, the Osasco campus started activities in Management, Accounting, Economy, and International Relations[11].

In spite of such diversity of courses in the health field, the researchers chose the above-mentioned courses for their common approach to direct patient care in the whole life cycle, and for their actions in health promotion, prevention, treatment and rehabilitation. Also the selected courses mix traditional programs as Nursing and Medicine with recently created ones as Pharmacy and Physiotherapy, providing a varied perspective of the university in the different campuses.

In 2001, after the launching of the National Guidelines for Curricula in the health field (DCN in Portuguese), the Medical Course of Unifesp began to evaluate its

curriculum in the context of the changing landscape of the country in the political, historical, cultural, societal and healthcare organization aspects as the consequences of the implantation of the Brazilian National Health System (SUS)[13].

The curriculum of the Medical Course has a six-year length in full time attendance, totaling 9951 hours. The main teaching practice setting is the Sao Paulo Hospital, now University Hospital of Unifesp, in the Sao Paulo campus, Vila Clementino neighborhood[13].

The Nursing course also took into account the launching of the DCN and developed a new curriculum in 2010 that was implanted in 2012. This course is four-year long with a total of 4652 hours full-time attendance. It is located in the Sao Paulo campus in Vila Clementino, using the Sao Paulo Hospital as the main practice field as well[12].

The Physiotherapy PP also considered the DCN and was built in order to develop the competency for teamwork, in the framework of comprehensiveness of healthcare. It is structured around the axis of the inter-professional education. It has a 5240 hours full-time workload and it is offered in the Baixada Santista campus, where are located the theoretical and practice developments[14].

Pharmacy and Biochemistry course, a Bachelor level program, began in 2007 when the expansion of the Federal universities happened, and the central locus is the Unifesp campus in Diadema County (SP state). The PP was designed following the DCN. It is offered in two modalities, full-time and night shift, totaling respectively five or six years, with 5630 hours of activities[15].

The PP's of these courses are uniformly presented, stating in the opening section the course conception, the principles and guiding axes, developing the teaching plan of the curricular units (UC) tending to the professional training. The UC encompass the syllabus, objectives, programmatic contents, teaching and evaluation methodology, main resources, bibliography, faculty members, and a layout of the workload, stating quantities of theoretical and practical work.

Study

The design of the descriptive and exploratory study used a strategy of documental review of the PP's. This strategy is focused in documents without any kind of scientific treatment, as reports, media coverage, journals, letters, footage, recordings and pictures, among other[16].

The PP's are documents that outline the pedagogic proposal of the courses, resulting from a previous reflection on the educational purpose. They are working tools for the stakeholders involved in the process.

Furthermore, to ensure uniformity in the research process, a list of tracer terms was prepared, based in the WHO guideline[6], to identify contents related to patient safety. There were 153 terms identified, as showed in Frame 1.

Frame 1. Tracer Terms based on the topics of the World Health Organization (WHO).Sao Paulo, 2013.

Topic	Terms
What is patient safety?	General landscape of safety, concept and definitions
	Systems Theory
	Patient safety history
	Adverse event
	Errors in health
	System failure
	Differences between failure, violation and error
	Human and economic costs associated to adverse events
	Error causes
	Swiss cheese model
	Blame culture
	Safety culture
	Safety model
	Patient-centered care
Why applying human factors is important for patient safety	Human Fallibility and perfection concepts
	Systems
	Ergonomics
	Human Factors
	Working environment and "noises"
	Fatigue and stress in professional performance
	Human-machine interaction and safety in the use of equipments
	Communication strategy in work environments
	Process redesign

Understanding systems and the effect of complexity on patient care	Concept and definition of systems and complex systems
	Health System
	Organizational Structure
	Work process
	System failure and mechanisms to investigate factors
	Systemic built-in defenses, safeguards and barriers
	Understanding and managing clinical risks
	Authority with responsibility
	Interdisciplinarity
	Highly reliable organizations
Being an effective team player	What is a team
	Different kind of teams that are found in healthcare
	Values, roles and responsibilities
	Learning styles
	Listening skills
	Team coordination
	Effective Leadership
	Characteristics of successful teams
	Effective communication and communication tools
	Conflict resolution
	Evaluation of team performance
Learning from errors to prevent harm	Errors
	Main types of errors
	Violation, error and near miss
	Situations that increase the likelihood of errors
	Individual factors that predispose to error
	How to learn from errors
	Incident reporting
	Adverse event analysis
	Strategies for reducing errors
Understanding and managing clinical risk	Risk management –definitions
	Understanding and managing clinical risks
	Near-miss reporting
	Error reporting
	Clinical monitoring
	Training program to evaluate clinical risks
	Reporting and monitoring incidents
	Types of incidents
	Sentinel events
	Reporting risks and danger in the workplace
	Working organization and environment
	Credentialing, Registration and Accreditation
	Professional and individual responsibility in risk management

	Fatigue and stress
	Communication and miscommunication
Using quality improvement methods to enhance the care process	Knowledge theory
	Basic concepts about change
	Deming concepts
	Management systems focused in process improvement
	Continuous improvement
	PDSA/PDCA Cycle
	Quality Tools: flowchart, Ishikawa diagram, Pareto graphic, histogram
	Indicators
	Variability, methods for quality
	Outcomes measures
	Process measures
	Compensatory measures
	Clinical practice improvement
	Cause-root analysis
	Failure mode and effects analysis
Engaging with patients and carers	Consumer's voice
	Patients' rights
	Consumers' protection legislation and healthcare users' rights
	Complaints
	Fear
	Education
	Good communication principles
	Communication tools: SPIKE, SEGUE, SPEAK UP
	Informed consent
	Respect to patient's differences, cultural, personal and religious beliefs, and individual needs.
	Patient privacy and autonomy.
	Family and responsibility
	How to involve patients and professionals in health care decisions
	Apologizing
	Open disclosure process
	Legal implications of errors
Infection prevention and control	Healthcare-related infections
	Precautions for infection prevention and control
	Community infections
	Transmission, cross-transmission
	Epidemic and pandemic alerts
	Types of transmission
	Infection risks
	Asepsis techniques
	Asepsis

	Standard precautions
	Economic costs linked to infection
	Personal protective equipment
	Methods for sterilization and disinfection of instruments and equipment
	Multi-resistant organisms
	Antimicrobial resistance
	Recommendations on single-use devices;
	Hands washing
	Guidelines for use of gloves, isolation, CDC
	Immunization, vaccines
	WHO program: Clean Care is Safe Care
	Hands cleansing campaigns
	Antimicrobial use control
Patient safety and invasive procedures	Adverse events linked to surgical and other invasive procedures
	Surgical site complications
	Surgical site infections
	Infection control in surgical care
	Pre-existent conditions conducive to errors
	Communication failure among teams
	Verification process
	Teamwork
	Surgical injuries
	Surgical scrubs
	Laterality
	Risk-reducing practices as time-out, briefing, debriefing, assertiveness, systems for transmitting information
	Patient management in operating room
Improving medication safety	System for medication and prescription, distribution and administration of medication process
	Drugs
	Control in the use of antimicrobials
	Drug regulation
	Users' access to drugs
	Reporting adverse effects system
	Collateral effect
	Adverse reaction to drugs
	Potential and actual interactions drug-drug, drug-food
	Medication errors, types
	Consequences for patients
	Sources of errors and prevention
	Monitoring patients and evaluation of clinical parameters
	Prescription
	Administration

	The five rights in the medication system
	Safe communication process among teams to minimize errors
	Use of technology to minimize errors
	Physical, cognitive, emotional and social factors conducing to the vulnerability of the patient in drug use
	Drug agreement
	High-vigilance drugs (potentially dangerous or high-risk)

PDSA/PDCA: Plan-Do-Study-Act/Plan-Do-Check-Act; SPIKE: *Setting, Perception, Information, Knowledge, Empathy, Strategy and Summary*; SEGUE: S*et the stage,* E*licit information,* G*ive information,* U*nderstand the patient's perspective,* E*nd the encounter*; SPEAK UP: S*peak up if you have questions or concerns,* P*ay attention to the care you get,* E*ducate yourself about your illness,* A*sk a trusted family member or friend to be your advocate (advisor or supporter),* K*now what medicines you take and why you take them,* U*se a hospital, clinic, surgery center, or other type of health care organization that has been carefully checked out,* P*articipate in all decisions about your treatment.* CDC: *Centers for Disease Control and Prevention.*

The study was conducted during the first semester of 2013, when the PP's were reviewed and the tracer terms were researched through electronic searching tools both in Word and PDF documents. The identified terms in the UC's were then related to each of the guideline topics in the WHO. The analysis categories were these same topics to elucidate convergent and divergent points with the terms found in the review.

It is worth to note that even being a desk review, the proposal was approved and registered under number CAAE 01737112.1.0000.5505.

Results

As a result of this research we found that the four PP's analyzed there were contents relating patient safety. Some of the topics appeared in more than one UC in different courses.

In Table 1 a distribution of frequency of UC is shown, using as denominator the total of UC's that had any kind of patient safety content.

The PP of the Nursing course had a total of 46 UC's meanwhile 25 (54.3 %) of them were identified as units teaching contents on patient safety. However, three topics were absent: "What is patient safety", "Why applying human factors is important for patient safety" and "Learning from errors to prevent harm". On the other hand the

contents dealing with "Being an effective team player" was included in 11 (44 %) UC's, followed by the topic "Infection prevention and control" that had lectures in eight (32%) UC's and "Understanding systems and the effect of complexity on patient care" was present in six (24%). From the 79 UC's in the Pharmacy course, 23 (29.1%) were identified in the PP as dealing with themes related to teaching the topic. Same as in the Nursing course PP, in this course there were three topics not included in any UC: "What is patient safety", "Learning from errors to prevent harm" and "Patient safety and invasive procedures". On the other hand, nine (39.1%) UC's had contents related to the topic "Improving medication safety", eight (34.8%) UC's touched the topic "Infection prevention and control" and seven (30.4%) UC's the one about "Why applying human factors is important for patient safety".

The PP of the Physiotherapy course had 50 UC's and 24 (48%) were identified as units dealing with patient safety subjects, even though two topics, "Learning from errors to prevent harm" and "Using quality-improvement methods to improve care" were not found in any UC. Additionally, nine (37.5%) UC's were teaching contents related to "Engaging with patients and carers", six (25%) UC's touched contents about "Being an effective team player" and five (20.8%) had contents about "Why applying human factors is important for patient safety".

Table 1. Distribution of the number of curricular units (UC) related to teaching patient safety in undergraduate courses in the Federal University of Sao Paulo. Sao Paulo 2013.

Topic in the Guide	Nursing (n=25)		Pharmacy (n=23)		Physiotherapy (n=24)		Medicine (n=40)	
	n	%	n	%	n	%	n	%
What is patient safety	–	–	–	–	1	4,2	1	2,5
Why applying human factors is important for patient safety	–	–	7	30,4	5	20,8	1	2,5
Understanding systems and the effect of complexity on patient care	6	24	3	13	1	4,2	2	5
Being an effective team player	11	44	3	13	6	25	7	17,5
Learning from errors to prevent harm	–	–	–	–	–	–	–	–

Understanding and managing clinical risk	2	8	4	17,4	2	8,3	5	12,5
Using quality improvement methods to enhance the care process	5	20	5	21,7	–	–	1	2,5
Engaging with patients and carers	3	12	4	17,4	9	37,5	13	32,5
Infection prevention and control	8	32	8	34,8	2	8,3	19	47,5
Patient safety and invasive procedures	3	12	–	–	4	16,6	6	15
Improving medication safety	5	20	9	39,1	1	4,2	9	22,5

In the curricular proposal of the Medicine course, from the 65 UC's identified, 40 (61.5%) had connections with patient safety. However, the topic "Learning from errors to prevent harm" was not found in any of them. On the contrary, 19 (47.5) UC's approached the topic "Infection prevention and control", 13 (32.5%) the one related to "Engaging with patients and carers" and nine (22.5%) to "Improving medication safety". In all courses under analysis, there was a coincidence in the absence of tracer terms related to the fifth topic "Learning from errors to prevent harm" in any of the PP's.

Frame 2 shows the specificity of the topic "Being an effective team player" with the list of terms that compose the topic in the left column. Being one of the most mentioned topics in the UC of the PP's, we tried to compare if all courses had similar approaches and comparable proportionality. We found that the complete list of contents of this topic were not fully touched in any of the courses, and also showed variations among them. The contents found in all of them were related to " What is a team", "The different types of teams found in health care" and " Values, roles and responsibilities", thus showing gaps in teaching what is in fact an effective team. This aspect hinders the development of the future professionals as part of multidisciplinary teamwork.

The same process was performed in the other topics with similar results, meaning that no uniformity was found in the way the contents related to the teaching of patient safety are developed in the university.

Discussion

Through the desk review of the PP's of the selected courses, it is possible to check the formal curriculum, which may blind us to the actual and hidden curricula that are also used by the faculty members in building the knowledge. This may constitute one of the shortcomings of the present study. Another one is related to the use of the selected tracer terms. This may mean that some of the UC's were not included because of a failure of the synonyms that were not detailed in the terms list. However, in the process of analyzing the PP's to identify points of convergence and divergence, we found that in all of them some topics are taught in a fragmented manner during the course, with highlights for aspects that are specific to that course[3].

Frame 2. Overview of the tracer terms tracked in relation to teaching of patient safety in Nursing, Pharmacy, Physiotherapy and Medicine courses linked to the topic: "Being an effective team player" from the World Health Organization Guide. Sao Paulo, 2013.

Tracer terms	Items found			
	Nursing	**Pharmacy**	**Physiotherapy**	**Medicine**
What is a team	What is a team	What is a team	What is a team	What is a team
Different types of teams found in healthcare	Different types of teams found in healthcare	Different types of teams found in healthcare	Different types of teams found in healthcare	Different types of teams found in healthcare
Values, roles and responsibilities	Values, roles and responsibilities	Values, roles and responsibilities	Values, roles and responsibilities	Values, roles and responsibilities
Learning styles	Learning styles	–	–	–
Listening skills	Listening skills	–	–	–
Team coordination	–	–	–	–
Effective leadership	Effective leadership	–	–	Effective leadership
Characteristics of successful	–	–	–	–

teams (CRM)				
Efficient communication and communication tools	Efficient communication and communication tools	–	Efficient communication and communication tools	Efficient communication and communication tools
Conflict resolution	Conflict resolution	–	Conflict resolution	–
Evaluation of teamwork performance	–	–	–	–

CRM: *Crew Resource Management*.

As part of the common frame of health courses, several cross-cutting topics are found among them, as team participation, prevention and treatment of infections, integration with patients and families, knowledge of the effects of drugs, but without a specific attention to safety topics or discussion of its impact in prevention and error and adverse events minimization during the care process[17,18].

Teaching of safety is a relatively new proposal and is not a part *per se* in the programs or school objectives until recently[5,6]. In spite of that, there are already Brazilian initiatives to give patient safety training programs in Medical schools to focus on the adverse effect, how to recognize it and how to communicate with the patient using participative methodologies. Even so, these initiatives are not linked to specific courses yet[10]. This situation calls for an urgency in shifting the attention of the training institutions to reach out to larger audiences of students, also contributing with the effort of programs aimed to foster professional teamwork in health care services[9]. In the PP's under study, there is no UC under the name "Patient Safety". Furthermore, the WHO recommends a wide range of contents, with different teaching strategies and evaluation methodologies through the formative process[6]. This indicates the need of analyzing the PP's regularly, seeing them as a working tool that points to the orientation and direction of the school, as well as a tool built in a comprehensive participative way. It can be presumed that this is the time for the university to do so, not only because of the global directives [6], but also because of legal determinants[8,9]

and using the momentum to begin creating the body of knowledge and fostering the development of competencies and skills both in students and teachers.

It is in this way that the challenge of debating widely in the university about the teaching of patient safety is started, a milieu where interdisciplinary and trans-disciplinary work presents itself as a chance to give relevance to new ways of doing things [3]. As interdisciplinary practice we understand the interdependence, interaction and communication among fields of knowledge or disciplines allowing for knowledge integration in significant areas aiming to knowledge unity. The trans-disciplinary approach is directed towards a new understanding of reality, through the interrelation of elements that transit intra e inter disciplines, in search of a comprehension of the complexity. It is therefore the empathic attitude of openness to the other and her knowledge, allowing for adding different pieces of lore for the dissemination of knowledge and the developing of competencies in undergraduate students[19].

The study of the PP's showed that the contents are not configuring the teaching of patient safety as a "new science" in Unifesp, independently of the timing when the different courses were created, or the geographic aspects that may put them together of far away. The courses do not engage in dialogues among them in this matter. This creates as opportunity to do so, using the present context that presents itself with multiple, speedy and unpredictable events[3].

Unifesp is already experiencing interprofessional education in the Baixada Santista campus where the Physical Education, Physiotherapy, Nutrition, Psychology, Occupational Therapy and Social Service courses are given, and has as guiding principles the oneness of teaching, extension and professional practice [14]. In spite of that integration, at the moment of putting it together around patient safety issues, other knowledge should be included e.g. Engineering, Psychology and Management that in Unifesp are separated in cells in several campuses[20].

Taking into account the strong demands posed by contemporary societies to the professionals and especially to those that work in health, Unifesp as a higher education institution, advanced a courageous proposal in the campus Baixada Santista through a set of undergraduate courses aimed to foster health care under an

interprofessional perspective[14]. This interprofessional proposal has been under debate for the last thirty years in Europe and the United States and has the purpose of promoting the improvement of health care through interprofessional practice[20]. Teamwork in order to debate the professional role of each member is a commitment to be made to solve problems, trade-offs, decision-making that are some of the characteristics of interprofessional work[20].

Several successful experiences have been developed under this approach. The University of Saskatchewan in Canada trained its Nursing, Nutrition, Pharmacy and Physiotherapy students in the PDSA (plan-do-study-act) cycle to allow them to develop improvements in patient-centered care in the interprofessional perspective and reporting positive outcomes of this experience[21].

In Victoria, Australia, the relevance of teaching about prevention of patient falls to Physiotherapy, Occupational Therapy, Nursing and Exercise Physiologists students, was a way to prevent patients' adverse events as these professionals share a common focus, there was a need of involving them in safety issues, respecting and understanding the activities of the other professionals[22].

In spite of the scarcity of the interprofessional experiences in Brazil[20], there is a conviction that this is an avenue to be followed in order to answer in a positive way to some of the questions posed by the authors in the introduction of this paper. Another issue to be taken into account is the teacher's training. To be a teacher can be understood as a continuous process that not only is made of the contents to be taught, but of attitudes that may be visible and a life stance.

Many professionals that are performing teaching functions in the health area carry with themselves a rich practice baggage from the work environment, with technical knowledge coming from Master and Ph.D. courses, and participation in congresses and scientific events. They are exemplary doctors, nurses, physiotherapists, pharmacists, nutritionists and psychologists, that have developed competencies oriented to the specificity of their respective UC's[3]. But this does not mean that they are trained for a systematic approach of error sources and events that may happen in the health care system, or that they are concerned with the reporting of

such events to promote quality improvement processes in the environment where they perform their activities[23].

In this way, the faculty members of the universities are now facing the challenge of teaching the care procedures related to patient safety such as hands hygiene and to supervise the adhesion to this procedure, not only in students but also in all individuals involved in the process including students form other courses. This is a way to promote the interaction of different areas and to devote increased attention to the collective factors and aiming to overcome the disciplinary model and to achieve a teaching-learning process more global and productive[3].

Closing Remarks

Teaching of patient safety was found to be fragmented, without depth and conceptual scope. Each course highlights its own specific facets related to its formative process. In this way some contents are part of the basic training of health professionals.

Inserting and trying to consolidate the patient safety concepts is still a new proposal in Brazilian schools and is not a component of the schooling objectives. This shows the need of revisiting the Pedagogic Projects using an interdisciplinary as well as a trans-disciplinary approach, demanded by the contemporary societal transformations and the role of the university in the forefront of this debate. The training of teachers is a matter of attention, provided that even though they are experienced professionals with specific expertise, they must act as a starter for improvement processes in the health system.

The answer to the questions posed at the opening of this paper, related to the way the student is trained in this subject, if she is prepared to spot and prevent errors and events, if she acts on behalf of the patient or if she raises awareness of the other professionals, may be probably negative. This is because when presenting elements such as good practices, developing the skills in the field, guided by teachers with extensive expertise, those facts are solid ground for the students' formative process.

Not withstanding this assertion, it is also difficult to answer them positively, because of the fact that working in a traditional manner, encompassed by a positivist paradigm, organized in disciplines and isolated in courses, we cannot be sure if the students have or have not the skills in communication, teamwork and collaboration and knowledge about quality improvement and safety, that can also implement solutions for highly complex organizations as the health system.

All these considerations strengthen the proposal that the teaching of patient safety is a new science, and that schools should fast their pace so when they modify their Pedagogic Projects in a way that may consolidate, or at least try to adequate contents among their courses, they will be contributing to a more grounded training process in regard to patient safety.

Collaborators

Elena Bohomol was responsible for elaboration for project, data collection, drafting of the thesis and drafting of the manuscript; Maria Aparecida de O. Freitas structured and drafted the manuscript; Isabel Cristina K. O. Cunha was responsible for supervision of the thesis and correction of the manuscript.

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