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In Search of a Croatian Model of Nursing Education

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Aim To analyze the present status and ongoing reforms of nursing education in Europe, to compare it with the situation in Croatia, and to propose a new educational model that corresponds to the needs of the Croatian health care system.

Methods The literature on contemporary nursing education in Europe and North America was reviewed, together with European Commission directives and regulations, as well as pertinent World Health Organization documents. In addition, 20 recent annual reports from 2003-2009, submitted by national nursing associations to the Workgroup of European Nurse Researchers (WERN), were studied.

Results After appraisal of current trends, the Working Group on Reform of Nursing Education drafted The Croatian Model for Education in Nursing and developed a three-cycle curriculum with syllabus. The proposed curriculum is radically different from traditional ones. Responding to modern demands, it focuses on outcomes (developing competencies) and is evidence-based.

Conclusions A new, Croatian concept of nursing education is presented that is concordant with reforms in nursing education in other European countries. It holds promise for making nursing education an integral part of a unified European system of higher education.

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At the beginning of 2010, the Ministry of Health and the Ministry of Science and Education of Croatia jointly concluded that nursing education in this country is not on the level of European standards. This was considered an important issue, in part, because of the imminent accession of Croatia to the EU, and they launched a reform process. The National Council for Higher Education appointed one of the authors (S.J.), from the University of Split School of Medicine, and Professor Siniša Volarević from the University of Rijeka School of Medicine to explore the issue and to report their findings. In February 2010, S.J. established an experts' *ad hoc, ad interim* working group at Split University School of Medicine and Split University Hospital Center, to consider the issue of nursing education. The working group reviewed the literature, studied European Commission directives and regulations (1-8), both sectoral and general, and World Health Organization documents pertinent to nursing education (8-17). They also evaluated current trends and drafted The Croatian Model of Nursing Education.

There is still great diversity in how the education of health professionals is organized, not only among EU member states but also among non-members. It is not easy to define "European standards" or, consequently, to follow and adopt them. The need for defining rigorous standards and standardizing them across the EU is apparent, due to the dramatic changes in nursing practice over the last decades, as well as the changing position and role of nursing staff in the health care structure.

Traditionally, nurses have provided care on the basis of the medical diagnosis and the physician's instructions; thus, nurses have served the physician, not the patient. While assisting the physician in his curative role is an important function of the nurse, it is not his or her primary role. For nurses today, the principal responsibility is to identify and address patient needs, develop a plan for nursing care, provide care, and assess the outcomes. Obviously, this is a complex intellectual process and requires a wide range of knowledge and skills (18).

During the past century, nursing responsibilities have proliferated from one fairly limited set of skills that any nurse was expected to have into approximately 70 positions in the health care system, each requiring well-defined skills and experience (19). Today, nurses in acute settings manage an increasingly complex range of health care interventions that incorporate advances in technology and disease management. In primary care settings, the principal task of nurses is to manage the increasing burden of chronic disease, handle the malaises accompanying old age, and help patients manage their own health. In such contexts, nurses are obliged to undertake more work traditionally carried out by physicians. Such new obligations and responsibilities require different competencies in the nursing profession; a radically new paradigm of nursing education is required in order to acquire these competencies.

In this frame of reference, authorities responsible for the education of health professionals have had to develop new operating principles in order to create a new paradigm. The task is a considerable one: all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, with an emphasis on evidence-based practice, quality improvement, and intensive use of health-related information technology.

Recent development of a system of peer review to assess educational standards has provided an opportunity to build an international community of professionals and formulate "European standards." The linkages among nurse associations, academic centers, and even individual health care institutions is creating a framework of communication, exchange, and mutual growth and development, which is breaking down barriers of traditional attitudes and ignorance. The major nursing and midwifery organizations in Europe have played a large part in this process. Such development bodes well for the future, irrespective of how economies may falter or political directions change. This is an era of mutual recognition and shared development (10).

NURSING EDUCATION: A SHORT HISTORY, DEVELOPMENT AND CURRENT REFORMS

Beginnings in Europe

The roots of nursing are presumably as old as the first human communities; however, the history of nursing education extends back to the first formal training for nurses offered by Reverend Theodore Fliedner in the 1830s at the Deaconess Institute in Kaiserswerth, Germany. This training paved the way for the development of modern training of nurses and the modern practice of nursing (20). Florence Nightingale visited the Deaconess Institute in 1853. After studying for a few weeks at the institute and visiting the Daughters of Charity in Paris, she was appointed superintendent of London's Establishment for Gentlewomen During Illness. On July 9, 1860, she initiated a formally structured nursing education in the first nurse training school

to be established, at St Thomas' Hospital. Ms. Nightingale's role was instrumental in bringing nursing out of its dark period and giving it both system and structure (21). Since those times, nursing as a profession has experienced 150 years of gradual advancement and development, with nurses maturing from untrained servants to skilled practitioners.

Nursing in the US

As the Crimean War was a trigger that brought about reform and advances in nursing in the UK, the US Civil War demonstrated the importance of nursing and accelerated its rapid development in the US in the later decades of the 19th century (19). The Bellevue Hospital School of Nursing in New York City, founded in 1873, was the first school of nursing in the United States to be founded on the principles of nursing established by Florence Nightingale. Yale University School of Nursing was founded in 1923, and it became the first school within a university to prepare nurses under an educational program (bachelor of science in nursing) rather than an apprenticeship (22).

In 1948, the Carnegie Foundation funded a survey to determine society's need for nursing and to make recommendations for higher education for nurses. Known as the Brown report (23), it suggested that efforts be made to place schools of nursing in universities and colleges. In the same year, the National League of Nursing Education established the National Nursing Accrediting Service for nursing education programs.

In 1956, the Columbia University School of Nursing became the first in the United States to grant a master's degree in a clinical nursing specialty. Such development radically changed the nursing environment and allowed for continuing education for nurses. Finally, in 1965, the American Nurses' Association published a position paper urging that all nursing education take place in institutions of higher learning.

Shift of nursing education to the university

The first known university-based education program for nurses was founded in the 1920s in New Zealand (24). It was not until the 1950s that such programs started to spread to North America, where the first was set up at the University of Minnesota. The 1965 position paper from the American Nurses' Association recommended that education for all nurses take place in institutions of higher education, and that the minimum preparation for beginning professional nursing practice should be a baccalaureate degree education in nursing (18,25). In the 1980s, similar processes started in Australasia.

In Europe, the shift of nursing education to the universities was slow. The University of Edinburgh was the first European institution to offer a nursing degree in 1972. The new trends were readily accepted in Spain, which introduced the bachelor's degree as the minimum requirement for entry into nursing in 1989. The UK and Ireland completed the shift to university-based education for the basic education of both nurses and midwives in 1996 (14).

Ongoing reforms in Europe

The 1990s have brought major changes in nurse education at both pre-registration and post-registration levels. The key changes involve:

- identification of common elements that underpin all nursing practice;
- the development of clinical competency and practice-based learning paradigms, with an increased emphasis on health-related subjects in nurse education curricula;
- a focus on essential practical skills, with emphasis on clinical practice;
- attention to issues such as communication skills, reflective practice, critical appraisal skills, research awareness and the use of evidence;
- recognition of nursing education with an academic degree as well as professional registration.

The majority of European countries have concluded that the required level of education can be organized only at university, and the shift of nursing and its specialties to an all-graduate profession seems inevitable. Such an education must observe a number of principles, the most important being that admission to nursing education depends on successful completion of secondary school education, and that the curricula is outcome-based (competency-based) (17). An advantage of these changes is that graduate status gives nursing professionals recognizable credentials equivalent to those of their colleagues.

The first phase of nursing education reform in Western Europe is largely complete, resulting in both the upgrade and convergence of preregistration programs,

especially with regard to entry requirements and the content of the basic nursing curriculum. In spite of these developments and European Commission declarations and recommendations, considerable diversity of programs still exists throughout Europe (Table 1, Table 2).

The second phase of reform, which is ongoing, has only partially attained its goal of integrating nursing programs into higher education institutions. In most Western European countries, nursing programs are linked to higher education institutions. However, fewer than half of these programs award a baccalaureate degree and most nurses still graduate without an academic degree. Such reality indicates deficits in implementation.

The Workgroup of European Nurse Researchers reports demonstrate well the acuteness of the problem: the percentage of Western European nurses holding a PhD degree varies from 0.1% to 2% of practicing nurses, and the percentage reported in most of them is lower than 1% (27). A realistic estimation was provided by Hamrin in 1997, indicating that in all Nordic countries together, there are approximately 240 nurses holding a PhD degree (28). Based on this data and the assessment proposed by Tierney in 1994 (29),

Table 1. Structure of nursing education in 28 European countries (source: Workgroup of European Nurse Researchers, (http://www.wenr.org/index.php?id=332)*

Country	No. of nurses/ total population (%)	Structures and levels of education	Length (years) of education tracks	Certificates and degrees awarded	No. of doctoral degrees/number of department heads
Austria	49,807/8 210 281 (0.6)	TSN	General, 3 y	Diploma, RN	30/3
Belgium	NA/10,708,433	TSN + HPS	N/A	RN + DPS/BA	
Cyprus	NA/ 862 434	TSN, + HPS	N/A	DPS + BA	
Czech Republic	77 757/10 278 098 (0.75)	TSN + HPS	3 and 4 y	Diploma, RN + DPS	1/0
Denmark	47 000/5 493 621(0.85)	HPS	N/A	Degree, BA	50-100/NA
Estonia	11,022/1 340 675 (0.82)	TSN	General 3,5, midwifery 4,5	Diploma, RN	0/0
Finland	34,000/5 313 399 (0.63)	HPS	General 3,5; midwifery 4, public health 4.	Degree, DPS/BA	200/15
France	NA/65 400 000	TSN	N/A	RN	N/A
Germany	1 000 000/8 2110 097 (1.22)	TSN,	General, 3 y Pediatrics, Elderly care	Certificate, RN + DPS	<50/NA
Greece	NA/10 737 428	HPS + UL	4 y	Degree, DPS + BA	215/35
Hungary	50 000/10 038 188 (0.49)	TSN + HPS	3 and 4 y	Diploma, degree, RN, DPS	<10/0
Iceland	2 580/317 414 (0.81)	UL	4 y	Degree, BA	25/5
Ireland	38 000/4 425 675 (0-86)	UL2	4 y	Degree, BA + DU	40/7
Israel	308 800/7, 510 000 (4.1)	TSN + UL	3 and 4 y	Diploma, degree, RN, BA	69/5
Italy	404 684/59 832 179 (0.67)	UL	3 y; 1 y specialization	Degree, BA	<50/0
Lithuania	15 684/3 358 115 (0.46)	HPS + UL	3 and 4 y	Diploma, BA Degree, BA	8/0
Luxemburg	NA/488 650	HPS	3 y; 1 y specialization	RN	N/A
Malta	NA/411 950	UL2	N/A	BA + DU	N/A
Netherlands	136 400/16 149 000 (0.84)	HPS	4 y	DPS/BA	50/NA
Norway	59 000/4 768 212 (1.23)	UL	3 y	BA	>100
Poland	181 570/38 125 759 (0.47)	TSN + HPS	3 y; 3,5 y	Degree, BA, RN + DPS	>100
Portugal	56 859/10 622 413 (0.53)	HPS, UL	4 y	Degree, DPS/BA	50-100/NA
Slovakia	NA/5 406 626	TSN, HPS	N/A	RN, + DPS	N/A
Slovenia	3599/2 021 316 (0.17)	HPS, UL	3 y	DPS + BA	<50/0
Spain	153 400/45 555 716 (0.11)	UL	4 y	Degree, DU	>100
Sweden	100 000/9 219 637 (1.08)	UL2	3 y	Diploma, BA + DU	520/32
Switzerland	70 000/7 647 675 (1.01)	HPS + UL	3 y; 4 y	Diploma, RN + DPS/BA	15/3
United Kingdom	645 000/61 414 062 (1.05)	UL2	3 y; 4 y	Diploma, degree, BA + DU	>100

*Abbreviations: BA – Bachelor of Arts; DU – diploma of university; DPS – diploma of higher professional school; HPS – higher professional school; RN – registered nurse; TSN – traditional school of nursing (high school level); UL – university level; UL2 – university at 2 levels (bachelor and master).

TABLE 2. Structures and levels of education some in European countries.*

Level of education	Country
Traditional School of nursing	France, Germany, Austria, Luxembourg
Higher Professional School	Holland, Denmark, Finland
University	Spain, Italy, Norway, Iceland
University at 2 levels	UK, Ireland, Sweden
Traditional School and Higher Professional School	Belgium, Switzerland
Traditional School and University	Israel
Higher Professional School and University	Portugal, Greece

These data are based (and modified) on congress presentation by Perrenoud and Spitzer (26).

the current number of nurses in all 20 Western European countries holding a PhD can be estimated as 800.

Contributions of the World Health Organization

Over the last decade, the World Health Organization (WHO) has provided a number of tools to support and facilitate the design of new models of university-based nursing education (9-16). The key elements of that support include prototype curricula for general nursing and midwifery. They also include competency-based education and training, along with recommendations of teaching, learning, and assessment strategies consistent with the principles of adult education (17). In addition, the WHO provided (i) guidance on quality control and educational evaluation; (ii) criteria for the preparation of nursing teachers and mentors; and (iii) criteria for the accreditation of schools of nursing (9,13,14).

Influence of the Bologna Process

The principal aim of the Bologna process is to bring about the convergence of higher education across the European Union by 2010 (30). Thus, it will lead to the unification of professional and higher nursing education and facilitate mobility of graduate nurses across the European Community. In addition, the process has provided the impetus to raise the educational status of nurses from diploma to graduate level across Europe. Reciprocal recognition of EU nursing qualifications will increase mobility and employment opportunities, alleviate shortages in some countries by redistributing the surplus in others, and allow more efficient use of the nursing workforce. The Bologna process will also offer more opportunities for undergraduate and post graduate study and research across Europe and for international collaborative research, in order to advance nursing knowledge and scholarship (31).

Nursing education in Croatia: an abbreviated history

The first nursing school was founded in Zagreb in 1921, and the first law on vocational schools for ancillary staff in social and health care services came into effect in 1930. Until 1947, Croatia had only one school for nurses, in Zagreb. At the beginning of 1947, schools for nurses were established in Rijeka, Osijek, Split, and Šibenik, and a second one in Zagreb. The 1960s were an unfavorable period for nursing education, because the new legislation closed nursing academies, which once again became secondary schools with a four-year curriculum. The Academy for Nurses was re-opened in 1966, and in 1984 it merged with the Zagreb University School of Medicine into a single institution (32).

A program of higher nursing education was introduced in 1986. The program lasted two years and the requirements for enrolment were possession of a secondary school diploma and a passing score on the admission test. In 1999, there was a new reform of higher education for nurses. Education was extended to three years and the curriculum was supplemented with new subjects related to health care. In 2005-6 school year, a common core curriculum was implemented at all nursing academies in Croatia.

Nursing education in Croatia today

The present status of nursing education in Croatia is a controversial one. The basic nursing education is attained at the secondary school level. The program includes subjects such as Croatian language, geography, history and arithmetic, with just a few hours per week of medical sciences. It also includes some subjects related to clinical practice. Nurses qualify from these programs at the age of 18 and receive a license to practice in Croatia.

During the last two decades, known as "years of transition," a diversity of programs flourished. Different schools offered courses of study that varied widely in length, level of prestige, and academic rigor. Some are under the umbrella of the ministries of education and health, others are semi-private or private, in alliance with vocational and technology institutes, polytechnics, or even national and private universities. In addition, some of them offer two-, some three-, and some four-year programs. Studying is possible on a full-time basis, as

"evening school" in addition to regular work, and even as "weekend" courses. Today, five higher education institutions (polytechnics) with nursing studies and 23 secondary vocational schools are registered, and their numbers appear to be on the increase (32).

IN SEARCH OF A CROATIAN CONCEPT OF NURSING EDUCATION

Studies dealing with nursing education reforms in Europe indicate that countries have learned very little from the reform process and that almost every country is repeating the past mistakes of others (26,28,33,34). Few reports exist describing the various reform processes or their outcomes. This is a serious obstacle for sharing valuable information that will be essential for similar, evidence-based reform processes in the future.

To avoid repeating the mistakes of others, working group members undertook an extensive literature search and identified nearly 100 articles dealing with nursing education reform. Unfortunately, only a few produced valuable and useful information; most of them simply repeated well-known and generally accepted mantras. On the basis of the information collected, the working group drew up a list of questions that a Croatian concept of nursing education should address:

1. What should be the educational goals of the nursing school, called the Faculty of Health Studies at the University?

2. What does the population and the health care industry expect new health professionals to be able to do? What is the desired professional profile of nursing graduates, and which essential competencies should a graduate possess?

3. Are the health care community and academia committed to nursing education reform?

4. What are society's intention and demand: to educate generalists, specialists, or advanced health practitioners?

5. How can the existing workforce, educated under the traditional education system, be integrated into a reformed structure?

In addressing these questions, the working group devised a new concept of a "*Croatian Model for Nursing Education*." In the following paragraphs this new concept is presented.

Mission statement

The working group held that the mission of the Faculty is to provide an outcomes-based education system that will prepare health professionals to meet the needs of patients, as well as the requirements of a changing health system. The ultimate goal is to educate new generations of health professionals with the competencies necessary to provide safe, competent, and ethical nursing care.

The education should be organized in accordance with principles of the Bologna Process at three levels (30). The first level (bachelor's degree) is focused on increasing basic education, which aims to equip nurses with the necessary skills for becoming autonomous practitioners. The educational goal for the second level (master's degree) is to equip students with managerial competence, including teamwork, management, and leadership skills, as well as additional advanced specialist knowledge and skills in their chosen fields. Finally, the third level (doctoral degree) is for health professionals who intend to pursue an academic career in nursing. Such programs should include the fundamentals of advanced research-based practice, along with the capacity for independent research and teaching in nursing science.

Teaching excellence is central to the achievement of these goals. Although teaching excellence in nursing education shares many common elements with other disciplines in higher education, the nursing profession is unique because it is grounded in the ethic of caring (35).

Estimation of national needs

As a prerequisite for design of a high-quality curriculum, an assessment must be made of the knowledge, skills, and attributes that the country needs from health professionals (36). In addition, the capability and readiness of the country to change must be assessed carefully. The prerequisite of successful implementation of radical changes in structure, content, and context depends on the capabilities of the team charged with translating plans into practice (34).

Motivation for change

The working group found the motives in reforming nursing education in Croatia to be similar to those in other European countries (34). In other parts of Europe, motives were principally to create a unified European platform of solid preregistration programs and integrate the nursing

programs into higher education institutions. Such a unified platform of higher education systems, it is assumed, will support a policy of licensure reciprocity, which is intended to facilitate the mobility of nurses across Europe (30). Similarly, in Croatia, the intention is to join the unified platform of European higher education, adopting the existing standards and accepting European Commission regulations and directives (1-7,10).

Outcome profile and competencies

Which is the desired profile of a nursing graduate: someone with a strong and broad intellectual base (broad academic profile), or someone who has mastered specific clinical skills (competence-based profile) (34)? The proponents of the first option argue that becoming a competent professional is a lifelong learning process; thus, rather than concentrating on exhaustive detailed knowledge and specific competencies, education should provide the basic cognitive tools to support lifelong learning processes. Therefore, graduates should have a strong and broad intellectual base, which would give them the necessary flexibility and adaptability (33,37).

The side advocating a competency-based profile bases its arguments on data generated from 450 health organizations in the UK, and results from a large survey conducted among 84 000 final-year nursing students and practitioners in that country. These data point out that newly qualified nurses do not possess the practical skills expected from them by employers and instead require constant support when performing basic nursing interventions (38,39). Such mounting evidence regarding deficiencies in graduates' clinical preparation provoked a change toward a predominant competence-based profile (34,38).

To create a curriculum that is outcome- or competency-based (17), we must first precisely define the competencies.

Definition of competency

Competence is probably one of the most commonly used words in education, but there still exists disagreement about the meaning of the word. The definition suggested by the UK Central Council for Nursing is comprehensive: it stipulates that the basic education program must prepare the student to apply knowledge, understanding, and skills when performing the standards required in employment. In addition, one should safely and competently provide the nursing care that patients require and assume the responsibilities of public protection (40). Another definition is perhaps easier to understand: "*The competence in medicine is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and communities being served*" (41).

Croatian set of competencies: minimal requirements

In order to translate the competency concept in the practical world, working group developed a "competency list" consisting of minimal requirements. The expected competencies and values were classified, for the sake of clarity, into several logical categories: core knowledge, clinical skills, communication skills, professional attitudes, academic attitudes, management skills, and educational skills.

This scheme is simple and easy to comprehend; both the student and teacher can understand from it what they are expected to achieve during the educational process (Table 3).

CONCEPT OF A CROATIAN NURSING EDUCATION SYSTEM

The working group built its concept on 8 premises:

1. Nursing education in Croatia is inadequate and insufficient compared with European standards.

2. The knowledge, skills, and values of today's graduates do not correspond to the requirements and demands of the rapidly changing health industry.

3. Nursing is an independent profession, with clearly defined responsibilities, rights, and obligations, equal to all other health-related professions.

4. The present position, role, responsibilities and status of nursing in Croatian health structure must be re-evaluated.

5. All reforms in nursing education in Croatia must be concordant with reforms in other European countries.

6. At the end of the first phase of reform, nursing education should become an integral part of a unified European platform of higher education systems.

7. Such development requires radical changes in the curriculum, which should integrate theory with learning from experience gained on the job. Both parts of the curriculum are of equal importance and both

TABLE 3. Competencies in the proposed Croatian model of nursing education

Competency set
Core knowledge:
The structures and mechanisms of the human body in its developmental stages, in health and disease
Normal and abnormal human behavior and its developmental stages, in health and disease
The interactions of individuals with society and with the environment
Relationships between environmental factors and diseases
Principal methods used in scientific research
The ethical principles of practice
The aims, organization and delivery of health promotion, disease prevention and promotion.
Nursing care of various acute and chronic conditions
Detailed knowledge for scientific treatment of individually selected topics
Graduate must possess basic knowledge of:
Medical informatics
Medical technology
Medical law
Health economics
Quality assurance
Health service management
Clinical skills:
Fundamentals of the patient medical history
Understanding patient's physical status
General clinical skills (wound treatment, blood sampling, preparation for procedures, nursing care, etc.)
Recognition and accurate assessment of emergencies
Proper execution of first-aid-measures
Ability to use a differential diagnosis algorithm for the most common conditions
Ability to develop a nursing plan for common conditions
Management of complex nursing procedures
Use and application of standard guidelines and protocols, whenever available
Communication skills:
Communicate diagnosis, treatment and prognosis to:
patients
patients' family
other health professionals
Motivate patients to deal with their disease
Communicate with colleagues (including physicians and allied health professionals)
Communicate clearly in both verbal and written form
Communicate in academic and clinical contexts
Communicate essential medical issues in English
Professional attitudes:
Observe the rules of conduct of the institution
Show respect toward patients and colleagues
Apply the ethical principles of medicine
Observe the specific features related to gender, age, social, and cultural differences
Respond appropriately to the continual changes in medical sciences
Academic attitudes:
Understand the principles and methods of scientific investigation
Seek and understand information and use it creatively in problem solving
Perform continually as a teacher for health staff and patients
Understand and adhere to lifelong learning
Management skills:
Capability of self-management

TABLE 3. Continued. Competencies in the proposed Croatian model of nursing education

Competency set
Willingness to accept help and assistance
Ability to work in a team and execute orders
Ability to manage a team and give orders
Possess knowledge of:
the characteristics and interactions between hospital and community health care
the characteristics of social care
the influence of health care on public health
the consequences of interventions in social groups and in the environment
Educational skills:
Able and willing to act as role-model
Able to communicate health-related information to healthy and ill people

should become increasingly evidence-based, as research in nursing develops.

8. Conferring graduate status on nursing students provides the nursing profession with formal credentials equivalent to those of professional colleagues.

Curriculum design

In a logical sequence of events, once the concept is clear it is possible to begin curriculum design and development. Every higher educational institution has a foundation: the curriculum. It is the main frame on which the institution is built, which represents the expression of educational ideas in practice, and refers to the totality of the education program for a student who will enter a practice-based profession (42-44).

Curriculum for health studies must possess the most important features:

(a) firm structure and balance among the courses;

(b) re-designed conceptual frameworks with the focus shifted from dominance of theoretical teaching to clinical learning in real-world settings;

(c) a basis in research and evidence in every possible segment; and

(d) a permanent focus on issues of safety and quality in nursing education.

Curriculum structure

In simplicity one can find the beauty and grace; less is often more, all what is important consists of order, arrangements, eurhythmy, and symmetry (45). Leonardo's The Vitruvian Man today is used as a contemporary symbol of medical professionals and medical establishments, and it seems appropriate to follow these ancient suggestions (Figure 1). Applying these four principles to curriculum design, we concluded that curriculum should be devised around 7 main premises (Box 1).

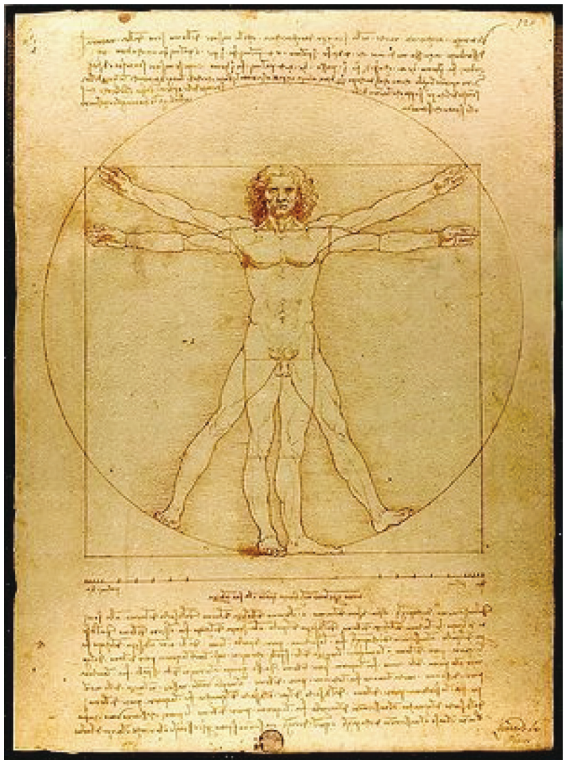
BOX 1. Principal features of a well-structured curriculum
Organized into blocks of knowledge and skills;
Every block is divided into modules;
Each module should have a clearly outlined expected outcome and result;
Each block should offer approximately the same amount of knowledge;
Blocks should have similar length and duration, including the level of complexity;
Approximately the same time and efforts should be needed for acquisition of the content in each of the blocks; and
As result, it will be possible to award the approximately equal number of European transfer credits to each of the blocks.

Such an approach will certainly seem too unorthodox to many, but it is our firm belief that in a well-balanced curriculum there is no room for important and less important subjects. If something is not important and it is placed into the curriculum out of habit, courtesy, or nostalgia, it is better to leave it out entirely.

Shifting the focus of curriculum from theory to clinical practice

By definition, nursing is a practice-based profession. The working group does not intend to deny or belittle the importance of theoretical knowledge, but mounting

Figure 1.



Leonardo da Vinci: *The Vitruvian Man* (c. 1487), pen and ink with wash over metal point on paper.

evidence regarding deficiencies in graduates' clinical preparation has provoked a change toward a predominant competence-based profile adopted in many countries, including Finland, Israel, Norway, Switzerland, and the UK. Such a profile is of a graduate who, upon registration, can apply knowledge, understanding, and skills when performing the standards required in employment. Adoption of the competence approach was not the result of discrediting the broad academic profile but rather a direct outcome of employer and government pressure to focus the preregistration curricula around specific clinical competencies (17,26,27,34).

Problems with the current model of clinical teaching have 5 sources: (i) the institutional value system, which reduces the motivation of the teaching staff; (ii) neglect of the important role of mentors; (iii) organization, timing, and placement of training in the curriculum; (iv) lack of publications pertinent to training; and (v) the attitude of the patients toward participation in the training. Tackling these problems is going to require a multifaceted approach and integrated support and partnership of medical faculties and teaching hospitals. The working group elaborated previously these important issues and suggested some possible solutions (46-51).

Research/evidence-based curriculum

All professions require that the training curriculum integrate theory with learning from experience in practice. Both forms of learning should be evidence-based. With rapid advances in the creating of knowledge and technology, current knowledge becomes obsolete relatively quickly. A competent health professional must therefore know how to seek out the latest research relevant to his or her field of practice, be committed to doing so, have sufficient knowledge of research to critically appraise the validity of research findings, and be able to implement these findings in practice (Box 2). In other words, a qualified health professional must be "research-aware." Not all health professionals will become researchers, but the ability to adopt a questioning approach to practice and to practice evidence-based nursing are essential attributes of qualified practitioners (17,24,26,28,34,42,52).

BOX 2. Curricular specifics related to research/evidence-based clinical practice
Permanent searching for the relevant research data
Strong commitment to requirements of research-based practice
Ability to critically appraise retrieved research data
Ability to implement new findings into clinical practice

Education of generalists, specialists, or the advanced practitioners

The crux of whether nursing programs should educate generalists, specialists, or the advanced practitioners lies in the definition of what specialist and generalist nursing practice is, and the dimensions by which both are defined. The discussion around generality vs specificity has taken different forms across Western Europe. In countries where basic nursing education is oriented solely toward educating a general nurse – Belgium, Denmark, Finland, France, Greece, Iceland, Israel, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland – the debate centers mainly around the need to recognize the nursing specialties as a unique profession and to turn the education of specialties into an advanced degree. In countries where basic nursing training also includes specialties – Austria, Germany, Ireland, Malta, and the UK – the debate centers around the question of

whether to prepare specialist nurses or shift completely to providing basic preparation for a general nurse. Overall, in parallel with increasing recognition of the complexity of care and the flexibility demanded from practitioners, Western Europe is reducing the number of programs that prepare special-track nurses within the basic education programs (34,53,54).

CONCLUSIONS

The curriculum proposed by the working group for all three levels of nursing education was designed mainly on the basis of WHO tools (9,11,14,17,55). The design of this new curriculum assumes that basic education (bachelor's level) should provide a common foundation for all students, regardless of the specialized track for which they are preparing. Once the student acquires the necessary essential knowledge and skills and adopts the fundamental values and ethics, the program can diverge according to the requirements of each of the special tracks. Because these specialties differ greatly – some are very simple and require minimal effort to learn, others are very sophisticated – working group do not wish to suggest, at this time, how many learning hours a student needs in order to achieve the desired competency level. A task for the future is to develop an adequately adjusted curriculum for each of the nursing specialties.

The same principle is applied in the second level curriculum (master's degree). This program is designed for health professionals who plan to participate in the organization, management, and supervision of nursing processes. Thus, the master's curriculum offers courses in management, leadership, process planning, execution, and assessment, in combination with courses on advanced knowledge and skills, regardless of whether the degree is for general nursing or one of the specialties.

The third level (doctoral degree) is aimed at increasing the ability of students to engage in research and teaching.

The scope of this paper and space available do not allow us to discuss the parts of the new curriculum in detail. Complete material and a detailed curriculum are available as web-extra material.

The members of the working group hope they have succeeded in assessing current trends and reflecting them successfully in this first draft of a Croatian model for education in nursing. It is our intention to offer the model to governmental agencies dealing with higher education and the public as a discussion paper. The working group hopes that this article will provoke a scholarly debate aimed at further improvement of this concept, and finally result in a development of an educational model to better serve the needs of the Republic of Croatia.

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