Health Academy

HU ISSN 2061 2850

Supplementum

Volume 10

2019

IN CASE OF **SUFFICIENT NUMBERS** IN SUITABLE PROPORTION AND SCOPE OF PRACTICE OF MASTER/BACHELOR NURSES, IT IS POSSIBLE TO **DECREASE** HOSPITAL **MORTALITY BY 30%**/ HEALTH CARE- ASSOCIATED INFECTIONS - **BLOOD STREAM** INFECTIONS **BY 70%**-, **URINARY TRACT** INFECTIONS **BY 29%**, **PNEUMONIA** BY **4.2%**, **SURGICAL** SITE INFECTIONS BY **74%** / A **MASTER NURSE**, AMONG OTHERS, BY PERFORMING CARE IN A DETERMINED SECTOR WITH PHYSICIAN'S SUPERVISION, CONTROLLED WITHIN THE PROTOCOL AND PROVIDING CARE EQUIVALENT TO A PHYSICIAN'S, IS ABLE TO REDUCE THE LEAVE WITHOUT BEING SEEN BY **70%, REDUCE** THE LENGH OF **STAY BY 48,8%** AND **REDUCE MORTALITY** IN THE **EMERGENCY DEPARTMENT** BY **5%** / REDUCE THE **HOSPITAL LENGTH** OF STAY BY **56%** / **DECREASE** THE LENGTH OF **HOSPITAL STAY** BY **56%** / **DECREASE** THE OCCURRENCE OF COMPLICATIONS - E.G. THE PREVALENCE OF **PRESSURE ULCER** BY **83%** / **DECREASE READMISSION** BY **48%** / **DECREASE** THE **WAIT TIME** FOR SURGERY BY **93%**, **DECREASE** THE **CANCELLATION** OF SURGERIES BY **64%**, **INCREASED** THE **PATIENT ACCESS** TO SURGERY BY **79%** / **INCREASE** PATIENT **SATISFACTION**

INCREASE THE **QUALITY** OF CARE / **REDUCE** THE NUMBER OF **MALPRACTICE** CLAIMS SUITS / IN THE **GERIATRIC** SETTING, **DECREASE** THE PREVALENCE OF URINARY **INCONTINENCE**, PRESSURE **ULCERS**, **DEPRESSION** AND **AGGRESSION** / **DECREASE** THE **COST OF CARE** (E.G. THE COST OF **LABORATORY SERVICES** BY **24%**, THE COSTS OF CARE OF **CANCER PATIENTS** BY **22%**, THE **COSTS** OF CARE OF PATIENTS WITH **TUMORS** BY **22%**, THE **COSTS** OF COMBINED TREATMENTS OF **CHRONIC DISEASES** BY **83%**, THE COSTS OF **COMMUNITY CARE** BY **23%**) / **STRENGTHEN** PRIMARY CARE: **INCREASE ACCESS** BY **67%**, **IMPROVE** THE **COOPERATION** AND **HEALTH BEHAVIOR** OF PATIENTS - RESULTING IN THE **DECREASE** OF THE **PREVALENCE OF CASES**, **IMPROVE** THE EFFECTIVENESS OF **SCREENINGS** (E.G. **CERVICAL CANCER** BY **40%**, AND **MAMMOGRAPHY PARTICIPATION** BY **20%**) / TO **PERFORM** THE **CARE** OF C**HRONIC PATIENTS'** CARE / TO **RECOMMEND** ORDER **CHANGES** IN CASE OF ELDERLY PATIENTS' **LONG-TERM MEDICATION THERAPY** BY **50%** / TO **IMPROVE** THE **HEALTH STATUS** OF PATIENTS / TO **INCREASE LIFE EXPECTANCY** AT BIRTH

VOCATIONAL, BACHELOR AND MASTER'S QUALIFIED NURSES ARE COLLECTIVELY ABLE TO

INCREASE THE NUMBER OF YEARS SPENT IN **GOOD HEALTH**. THE **BACHELOR/ ADVANCED MASTER** NURSING PRACTICE **IMPROVE** RECRUITMENT AND **RETENTION RATES DECREASES** NURSING **EMIGRATION.**

CAN WE HELP?

NATIONAL STRATEGY

FOR THE DEVELOPMENT OF NURSING CARE

PROFESSIONALS IN HUNGARY

- DISCUSSION PAPER -

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Supplementum

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Responsible for publishing:
Prof. Dr. József Bódis DSc.

Typography, layout:
Ágnes Ollmann Emődyné

Printing:
SZ.K.Stúdió Kft.

HU ISSN 2061 2850

EFOP-3.6.1-16-2016-00004

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CAN WE HELP?

In order to reaching these results which are crucial to our society, we kindly request the realization of the developments defined in the discussion paper entitled "National Strategy for the Development of Nursing Care Professionals in Hungary" by the 2030, based on the following main elements: advancing the number of nurses to the EU average, doubling the number /proportion of Bachelor nurses, nearing the patient/nurse proportion and the certified nurse ratio to the internationally recommended ratio, introducing a nurse career-model, among others by securing the advance practice of Master/Bachelor nurses and the sufficient salary of every level, suitable re-organization of

The bibliographic references of the data on the figure can be found in the bibliography of the discussion paper entitled "National Strategy for the Development of Nursing Care Professionals in Hungary".

vocational nurse education as associate degree education – suitable for the EU directive, ensuring this way the opportunity for vocational nurses to qualify themselves to Bachelor nurses in 2,5 years supporting the atypical employment of nurses. In order to facilitate all of this, we would like to ask the Ministry of Human Resources to establish a working committee with the following signatory and other organizations in the topic of the discussion paper of Nursing Development Strategy as a result of this prepare a proposal for a government decision.

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We are supporting principles, values, goals and their implementation of the discussion paper „National Strategy for the Development of Nursing Care Professionals in Hungary" regarding our specialisation area in Advanced Practice Nurse Master Level Education.

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The compilation and reconciliation of the *"National Strategy for the Development of Nursing Care Professionals in Hungary"* discussion paper was initiated and coordinated by the Hungarian Society of Nursing Sciences. The discussion paper can also be viewed online (www.apolasfejlesztesistrategia.hu), comments on the discussion paper are welcome at the following email adress: mat@etk.pte.hu.

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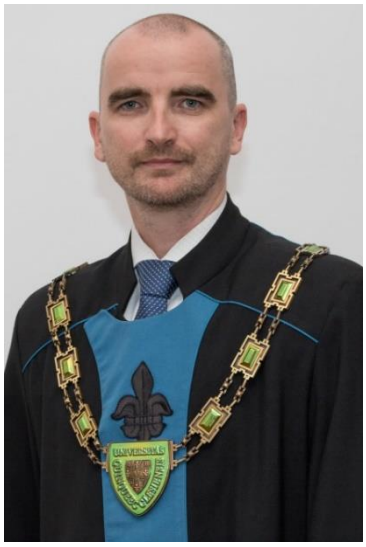
Dear Reader!



Healthcare faces European countries and our country, Hungary as well, with **increasingly serious and complex problems.** Over the past decades, **many people have worked hard** to find the most favorable and sustainable solution for disease prevention, health restoration, prevention and reduction of harmful health effects, using the available **resources and capabilities** of the system.

A forward-looking, inspirational discussion paper entitled *"Az Ápolásfejlesztés koncepcionális elemei"* **was published in the Nővér journal, in 1994,** its' author was Ferencné Sövényi, who was the government chief nursing officer those days. **Since then, there was no comprehensive proposal for the development of nursing,** however, I am convinced for a long time now that in view of the situation of nursing care in Hungary, **it is indispensable to create a complex development proposal based on an objective assessment of the situation with the widest possible cooperation by the nursing professionals.** We cannot expect others to recognize and solve the problems we face in our area, and **it is very important that professional development suggestions can be presented from time to time,** which can be discussed afterwards, so that a broad consensus can be developed on each other's views and arguments. This can **not only help to initiate developments in the field of nursing care**, but **can also provide an appropriate background to prepare professional resolutions** with short deadlines, to formulate well-founded, consistent opinions with adequate quality.

Constructive professional discussions and arrangements based on open positions are essential to achieve the above mentioned (I think it is a great achievement that it could finally be realized in the case of this discussion paper and that it can take place after the written text will be published), in contrast with lobbying activities that sometimes ignore the facts and the interests of our profession.

As a result, in May 2018, **I initiated the development of a strategy based on the common consensus of professionals** and other relevant organizations to serve and represent the development of nursing and patient care. **I also proposed to publish the finished document as a discussion paper** in Nővér or other professional journal in 2019. This not only promotes a broad debate on the concept, **but also pays tribute to the 25 years anniversary of the nursing development concept** and its' author, which was a discussion paper in 1994, and also to promote the wide-ranging debate of the concept. **I am honored that Ferencné Sövényi, Klári, former government chief nursing officer is also a member of the community of values creating this discussion paper**, and undertook a summary of her thoughts in the foreword.

In the recent period, we reviewed the **situation of Hungarian nursing** in comparison with **international trends**. During the process, we tried to **identify the main problems** affecting the area and in a gap filler way **taking into account the relevant international responses, to formulate concrete solutions for success** in Hungary. It is a joyful fact that as a result of this development work, a comprehensive professional study entitled ***"National strategy for the development of nursing care professionals in Hungary"*** was made, **written by 65 authors and 27** nursing and medical professional organizations / university faculties / departments / specialists / heads of healthcare institutions. It can be said that **in our country there was no professional proposal made so far in the field of nursing care, as the complexity of the proposal, its' approach to present good international practices can be considered as a niche**. In our opinion, **the process of creating the discussion paper is an important value**, as the logistic of the development of the study, the cooperation of the organizations and the common thinking is a great achievement.

However, not in contrast with all these joyful results, but it is worth mentioning the fact that the period from May 2018 to March 2019 was **not enough to reach a consensus with a few organizations invited to participate.** The authors and support organizations of the study showed full openness to consultation along with the pros, to define a common minimum professional compromise, and, indeed, to present the different positions and the justification behind them as an alternative in the discussion paper. I am convinced that **the completed study will serve the interests of vocational, Bachelor/Master nurses and society and employers** alike. As a result, I consider it an important result that in many cases of these organizations, their committees, subordinate organizational units supported the strategic proposal, and **many of their leaders, members of management, and their members also undertaken to participate as private individuals, professionals in writing and representing this study despite their organization's viewpoint. I would like to thank them for their responsibility** for nursing care and assuming their professional position!

We have also conducted numerous consultations with the Hungarian Health Care Professional Chamber – the study has been developed taking into account the Hungarian Health Care Professional Presidency's suggestions – in which the National Educaional, Postgraduate Educational, Committee of Chamber **supported two times**, then **the Chamber's National presidency unanimously supported** the current version of the study. Later, during the long development and conciliation period of the discussion paper, the Chamber's Presidency referred to some of the elements and asked that instead of dividing short-term, medium-term and long-term objectives, **only short-term objectives and to invest in acute measures to mitigate the human resource crisis**. The developers of the study expressed a view that **the solution to the human resources crisis can only be successful if we set short-term goals – all levels of education – in a well-founded way and to fit them into a medium- and also to a long-term development concept.** At the end the Chamber's Presidency suggested that **only a brief summary** of the development proposal should be sent to the High Authority what we did not consider professionally reasonable (we also consider the explanatory and literature part as important supporters for our proposals) because of the nearly one-year consultation process with authors of the study and support organizations **we were unable to support it.**

During this **long creating process of the discussion paper**, **only a few managers representing nursing directors have expressed concerns, which we would like to clarify later in the future in the sake of the consensus** – we believe due to a misunderstanding – **about some aspects of this paper,** however, **we did not have the opportunity to learn about their alternative solutions and their justification**. At the same time, one of the main strengths of the study is the **diversity of the authors, since domestic and international experts, including nursing researchers, professionals in secondary and tertiary nursing education, nurses, health finance professionals, physicians leaders of professional organizations, and of course many nursing supervisors were involved in the preparation of the discussion paper.**

In the case of two of these organizations, there was no possibility of an oral consultation on the study. The head of one organization reported that the organization wants to represent its own strategy – which is not presented to us –, a leader of another organization said that he considered the cooperation for nursing care to be very important and indispensable, however, **only** supports a common consensus-based development concept in which **a particular nursing organization is not involved**. Of course **we distanced ourselves** from this **exclusionary behavior** towards a professional organization and its membership. A question of these organizations was also raised if the making of our study was right in the absence of request, so he freedom of authors' scientific work and universities'/professional organizations' independent professional and cooperation initiatives was questioned.

At the same time, in recent years, **we were not able to understand the position and grounded development suggestions of these two organizations** that do not wish to participate in the development of this nursing development strategy proposal, for example: following the establishment

of a vocational nursing education **that does not comply with the relevant EU directive** or after we raise the issue; when setting excessive requirements for competitiveness in primary health care (in 1912 hours of education, after 4 years, at the age of 18 and with high school diploma the certificate could be achieved in Hungary, which is internationally achieved by nursing assistants after 150-200 hours of education, after 1-2 months, at the age of 16); despite a long-term model **focusing** on the development of vocational education, the drop in student numbers in both vocational and Bachelor nursing education; and on the impediments of counting vocational education in the higher education. It can also be stated that these organizations are also challenging a development, that is **already supported by the Government** and **has no legally feasible alternative** (eg. within public education frameworks without individual preparation lessons and the amount of adequate credits compliance with the EU Directive cannot be ensured without a significant increase in training time. As in this case, **leaders of these nursing organizations are not in dispute with the authors of this study and with the organizations that support the study** when – differing the position of nursing organizations operating internationally in the same field – for example the benefits and importance of increasing the Bachelor nurse ratio, but with the scientific evidence available in the field internationally.

It is an unfortunate fact that **in recent decades changes in education** – inadequate, not comprehensive and not taking into account all levels of education **- did not delivered the expected results.** The current system of Hungarian **vocational education** does not fulfill the **conditions** set out in the relevant **EU Directive** 2005/36, which is binding conditions for our country as well. In addition, **in past years, the number of students in school system education in the health care profession group fell from 8,000 under 4,000 and, unfortunately**, some of the health care qualifications came to the fore, which do not relieve shortages – especially the lack of nurses. In 2016, in Hungary, the number of nurses newly enrolled in the register compared to 2015 **fell by 45%** and the situation is exacerbated by the fact that **only 50% of graduates had been registered in the operational register (namely in patient care).** Higher-level nursing education is also in a crisis, as in recent years more than 800 people have graduated in nursing education each year, by now, this number hardly exceeds 300 people a year, this means **the number of graduated nurses dropped by nearly 60%.** The latter is also very unfortunate because the importance of employing Bachelor nurses as much as possible is supported by a series of scientific research results, including the announcement in Lancet that a **10% increase in the number of Bachelor nurses can reduce mortality by 7%.**

Here it is also important to emphasize that in recent years, a number of useful programs **to support healthcare professionals have been launched and implemented**. These include the **introduction of dual vocational education**; the **development** of universities' and hospitals' **skill laboratories**; **upgrading training for workers with the old type qualification of general nursing and health care assistant; development of accomodation for health care providers; development of nursing equipment park; reduce the number of vacancies; as well as improvement measures of working conditions; providing career support scholarships for students** attending full-time education **in health-related qualifications** – including nursing students –; **scholarship support for students participating in the Nursing Master education** within the **Michalicza Scholarship Program**; creation and regulation of the **Professional Textbook Commission**; **placing vocational education under sectoral management**; **multi-step wage development.**

The work paper of this Nursing Development Strategy proposal **has been sent to the Ministry of Human Capacities on several occasions** since May 2018, we had the opportunity to conduct a personal, **forward-looking consultation at ministerial and state secretary level**. We were pleased to note that in the meantime, **we had seen significant progress in several of our proposals,** eg. in the case of certain **Bachelor programmes** the introduction of a scholarship grant with a high ranking of **nursing** education; a supportive decision of the **transfer of state-run secondary health care institutions to healthcare higher education institutions**; the beginning of the **development of health care career pathway concept.**

In addition to the above mentioned positive measures, **there are a number of problems to be solved in the field of nursing**, which are systematically presented in the completed strategic material. The **strength** of this development concept is that it proposes solutions to strenghten **vocational nursing education** and for the **acute lack of nurses** (the proposal's **alternative is not known yet**), by thinking in a career model it also helps the development and advancement of vocational professionals (they will be able to complete the Bachelor nursing education in 2.5 years), and increasing the number and expanding the professional opportunities of **Bachelor, Master** graduates.

As we discussed in this paper based on international good practices and scientific result, we could set ourselves more ambitious targets, as **in 19** out of the 28 **Member States of the European Union there is no longer any vocational nursing education** and two other Member States also decided to end it. At the same time**, in Hungary**, **there had been no comprehensive strategy for stabilizing and raising the number of nurses** in the last decades, supported by the most important professional partners, this way **it is not a realistic goal to end vocational education**. As a result we propose until 2030 (immediate, short, medium, and long term goals, aligned with government cycles) a **stable program for a strenghtened, reinforced, multi-level, with a training time (reduced) adapted to the actual competences, marketable, and a vocational mass education that can be counted in higher education**, and to create a responsible **programme** for the **continuously increasing** number of Bachelos and Master nurses.

Statements in the development proposal **can help to solve the nursing human resource crisis, create workplaces in lagging regions, upgrade enrolled students from lower educational levels, to significantly improve the quality of patient care and to increase patient safety and satisfaction.**

In order to facilitate these, we ask the **Ministry of Human Capacities** to set up a working committee and as a result **prepare a proposal for government decision** in the matter of *"National Strategy for the Development of Nursing Care Professionals in Hungary"* concept.

In the interest of a **consensual** development, we would like to present a discussion paper entitled *"National Strategy for the Development of Nursing Care Professionals in Hungary"* to provide and to promote a consultation process (eg. consensus conference, facilitating the accession of other organizations) on the subject, **among a wider community of society,** as well as **representatives of the medical and nursing areas and patient organisations.** Our discussion paper is **also published in English language** and **we are confident that we can promote discussion, joint thinking on development proposals** with relevant international nursing organizations and nursing institutions, in order **to adapt internationally good practices to the Hungarian system.**

We hope that as a result of our work professional and other relevant organizations can accept a **common consensus on nursing development** and **we can jointly serve the development of nursing and patient care.**

Yours faithfully,

Dr. habil. András OLÁH RN, MNS, PhD
Hungarian Society of Nursing Sciences
president, initiator and coordinator of the strategy development
University of Pécs, Faculty of Health Sciences
dean, head of institute

Dear Reader!

I was honestly glad to read the discussion paper *"National Strategy for the Development of Nursing Care Professionals in Hungary"*. This document can also be considered as a **supplement** to the shortage, because recently the question of **"what's next nursing"** has not come to wide professional publicity in such complexity. The special value to be highlighted of the document is its commitment of the "publicity".

The "discussion paper" **summarizes the values, mistakes and the current situation** of our wide-ranging nursing matter, and according to these it builds recommendations on **"how to go ahead"**.
The working paper is thinks in a long term perspective and motivates to cooperation. It "forces" the reader to criticize, answer, and make further recommendations.

It gathers the most important issues among the reasons of recommendations for improvement. The discussion paper, after describing the situation, **consolidates the "development proposals" in four points.** These are also called the pillars of the "internal life of nursing". The disquisition **comprehensively discusses the most important elements of nursing development and provides an international outlook where necessary**. I collected it in a few lines:

- **Education and continuing education of** nurses, as a key task.
- The establishment of different nursing **"institutions".**
- The **health care system** as a practical user of variety of sciences fields, in our case, the nursing science
- **State functions**, the need for **health related political** decisions.
- **Financing**, on the basis of the decisions to be taken, to implement **further development plans**

In this state of discussion, there is no "consignee yet", but knowing its internal content suggests that almost all of the **recommendations** for developing areas **require a "high level" political decision.** Based on my experience from the past, we can only make those entitled for making decisions to make a decision if there has been made a previous **consensus between the different areas and levels of nursing.**

For the consensus of the "nursing elite" this National nursing strategy discussion paper is a good example, as it assumes publicity and substantive criticism, expects proposals for improvement from representatives of different fields of the profession. I wish to have a "final product" and later a **"consensus document" for a longer term**. (For example, this way the accepted model of nursing training cannot be changed every year!)

The responsibilities of those in charge of certain areas of care today are much more enormous than decades ago, as all nurses, who graduated from college or university are present in all areas of caring, who need to recognize the changes of the world around them and accept the challenges.

Recognizing or not, the biggest challenge in the field of medicine and nursing today is the “paradigm shift”, i.e. the loss of the old, security-conscious habit. In the process of paradigm shift in practical medicine and nursing, the **professional arrangement of competencies** can create order. Today’s current issue is the **integration of Nurses with Master’s degree into the system** or the issue of “triage”.

It has to be accepted that **medicine and nursing are complementary**, both have specific characteristics, so there is a difference between them. However, there are similarities, overlap, same knowledge and same activity between them. Those who do not accept this, deny the reality and its consequence is meaningless debate and conflict. Regulating the frames is a basic tool for **consensus building**.

This document should be followed by a consensus conference where the afore-mentioned consensus document could be adopted.

Ferencné SÖVÉNYI
Former Government Chief Nursing Officer (CNO)

I.

AN EXECUTIVE SUMMARY OF DEVELOPMENTAL SUGGESTIONS

I.1. SUGGESTIONS FOR THE EDUCATION SYSTEM

Currently 5000 individuals are finishing health care vocational training on a basic level (not including the vocational high school students) additionally there are approximate of 1900 individuals, who qualify annually as a **practicing nurse and 1300 individuals as nurse, 250 individuals as Bachelor nurse. In keeping with the current health care strategy, a minimum numbers will be required:**

1. **7000 individuals** (counting with only 5000 individuals studying on vocational level and 2000 full-time Bachelor first-year students in health sciences, with integrating the nursing assistats' education hours to their curriculum and counting without other potential target groups with short-term training programs) are educated **as nurse assistant** (450-hour education without graduation from age 16 based on the international model, with the scope of practice of the earlier 4-year nursing and health care assistant education of 1912 hours, subject to 18 years of age and post-vocational education),
    a. including **4000 individuals as general nursing and health care assistants** (18 years of age, graduation, with the scope of practice of a further 1-year nurse practice following graduation),
    b. including **3000 individuals as vocational nurses** (2 years of associate degree education following graduation, fulfilling the EU directive in place of the present situation),
2. **1000-1500 individuals as Bachelor nurses** (in a two-year education programme for colleagues with other Bachelor health care degree, supportive scholarship programme, with appropriate competences and starting salary)
3. and **250 individuals as Masters can be educated in Hungary.**

These new objectives can be accomplished by the implementing the solution of the **nursing human resources crisis (for more information on nursing deficiency, see Part II.1), creating health care in lagging regions, the gradual improvement of individuals enrolled in lower educational levels, and the significant improvement of patient care quality.**

<u>Short term objectives (2019–2022)</u>

I.1.1. **Development of vocational nursing education:**

a. **Reforming the** vocational **nursing education**, according to the **EU directive which is currently not followed**.
b. **Number of hours, educational hours and curriculum adjusted** on the various levels of vocational nursing education **to the actual scope of practice and curriculum reduction: more competitive, in a much shorter time, professional education for professionals – goal: qualified assistant nurses can take over the role of general nursing and health care assistants** (they can apply for the 3,5-year-long education without a high school degree, after the age of 16), **general nursing and health care assistants take over the role of nurse practitioners (**via a 1-year shorter training, with a high school degree**).**
c. **Raising** the hours **of public knowledge lectures in vocational high schools, transformation of general nursing and health care assistant education,** with the competence of a practical nurse, 1 year after the graduation.
d. **Introduction of qualified assistant nurse education** (from the age of 16, 450 educational hours, without a high school diploma, with the current competence of 4 year and 1912 hour long general nursing and health care assistant education, for which a high school diploma is required, after the age of 18 – based on international example). **The education should be conducted** aside from the **faculties of health sciences and public educational institutions, by health institutions and national institutions involved with skill development.**
e. **Impleenting of the coordination of the higher education institutions by means of changing** the **nursing** education to a 2-year-long associate degree education**.** The practical nurse- and nursing education programs need to be taken out of the National Education Registry and by incorporating them into higher education – in an utilizable manner –,

organized as e.g. associate degree education or dual education. Establishment of nursing educational system suitable for mass education with the coordination of universities which results it being attributable to higher education by means of correction of **legal errors - stemming from not following the EU directive** – and **professional errors** – **due to the poor structure of the** vocational high school system – within the national vocational nursing education. **Aside from the Health Sciences Faculties**, education needs to take place **within the vocational health care educational institutions to be established** and the **vocational educational institutions operated per county in sufficient numbers, maintained** by higher educational institutions**.**

f. **Attributing** prior knowledge, qualification and work experience **from the associate degree education, with the substantive shortening of the education period (Bachelor nursing degree during 2,5 years)** in case the determined subjects of the associate degree nursing education was completed by the student with at least average results.

g. **Introducting of a professional competence system.** No health care worker unsuitable – either mentally or physically – for carrying out the given tasks should enter the sector.

I.1.2. Providing a **nurse assistant health sciences qualification for health sciences Bachelor students in the first academic year, as well as providing a general nursing and health care assistant qualification for Bachelor nursing students,** following the 4th semester**.** By this change, as much as **2000** professionals competent to complete basic care and certain professional care tasks may **begin part-time work annually** during their higher education **within the health care system**. Aside from the crisis due to the lack of nurses, this may significantly support the professional development, career guidance and financial situation of the students concerned.

I.1.3. Providing the acquirement of other **health sciences Bachelor professionals' Bachelor nurse graduation in 1,5-2 years**.

I.1.4. **Scholarship support for the Bachelor nurse profession as well as other shortages in the vocational/degree nursing sector according to the needs of the labour market.**

I.1.5. In the case of **social care carers and nurses the word „nurse" should be removed from the title of qualification,** which is not included in the health care sector's nursing education in this level of education and scope of practices. **Instead we should use the word „assistant".**

I.1.6. **Re-establishment of practice financing in health sciences higher education** by a manner equivalent to the 2018 solution of the same problem within medical education. Unfortunately, in 2004, the normative practice related to the health sciences education programs was deleted, resulting in a 500 million HUF decrease in financing at certain higher education institutions, worsening the quality of education.

I.2. RECOMMENDATIONS REGARDING THE HEALTH CARE SYSTEM

Short term objectives (2019–2022)

I.2.1. **Introducting of a nurse's legal scope of practice**, determined by qualification levels, also recognizing the **expanded role of higher level Bachelor/Master level qualified nurses**, utilized for the benefit of the clients.

I.2.2. **Developing nursing protocols and health care directives** based on evidences from practice based international results.

I.2.3. **Renewal of the further educational system,** with a review of the feasibility of an **free certification system**:

a. It is important to establish the scope of **mandatory further educational programs by qualification levels and specializations** in a manner, which enables the professionals to complete **practice-expanding certification educational programs as well**.

b. It is important to **modify the educational programs,** in order to eliminate mandatory continuing education courses or **certification education programs** on unjustified fields, instead **to have the students receive** the practice-expanding knowledge **integrated** within the relevant vocational and higher educational programs (on Bachelor and Master levels).
c. **Scope** and subject **of licenses** to be completed with **vocational** or **exclusively higher education qualification needs to be determined**.
d. **Vocational nursing** licenses are intended for the **elimination of deficiencies resulting from the natural forgetting and development of professional experiences**, as well as the **legitimization of activities conducted in a wide scope** (e.g. performing intravenous injection, administration of IV fluids, stoma treatment, wound treatment, male patient bladder catheterization)**, yet not aptly established from an educational- and regulation perspective** (or conducted based on a "mandate system", which from a quality system and professional standpoint cannot be maintained for a long term)**.**
e. **Activities transferred from the medical scope of practice** (not including the invasive procedures already conducted by nurses, e.g. bladder catheterization, short cannula puncture, intravenous injection, artery cannulation) **should be exclusively granted to graduates of Bachelor and/or Master nursing programs**.

I.2.4. Modification and regular review of the 60/2003. (X.20) ESzCsM regulation, regarding the problems related to the professional **minimum conditions** necessary for providing health care services. It is a basic principle to define the required number of profesionals in a long term (by 2030) according to the minimum requirements, to develop an appropriate education and motivation system to achieve it. At the same time, it is not a realistic expectation in short and medium term to perform the parameters of the long term goals in order to improve the quality of patient care, thus, they must not cause difficulties in the operation of the institutions. In this context it is justified:

a. **Based on the minimum requirements** such as **the number of nurses and the required qualifications** we need **to transform the staff needs**, which are needed to be developed in **short, medium and long term proposals, based on methodology and international best practice.**
b. **Identification** of the **missing** specialized worker qualifications (e.g.: Master level specialized nurses, subject teachers, educational officers, nurses with specialization in epidemiology, primary care- and epidemiological inspector, health care professional manager, quality- and patient safety manager), revision of the number of workers and expected tasks of other professions (physiotherapist, dietitian, etc.).
c. The reporting system of the number of total nurses designated per bed number **needs to be changed to the nurse/bed number (patient number) ratio**, because the total number of nurses given per bed number **does not reflect the number of patients per one nurse working in one shift**, while several international studies suggest that it is a very important **indicator: 1 nurse can only safely care for a limited number of patients,** e.g. he/she can take responsibility for 5 patients on surgical fields, **above that, every patient increases the mortality risk by 7%**. With the decrease of patient numbers to one nurse, the occurrence of patient mortality or complication can significantly decrease, as well as the cost of care. The designation of employee numbers needs to be conducted regarding **productive treatment time**.

I.2.5. **Improvement of primary care and the improvement of Bachelor and Master' roles in primary care (e.g. ordering diagnostic and screening tests, wide scope-care of patients with chronic illnesses) in order to meet the primary care needs whereas fulfilling such needs has not been possible internationally and likewise** cannot be realized in our country without expanding the current roles and better appreciation of Bachelor and Master level nurses. The Swiss-Hungarian co-financed practice community modelprogram did not place sufficient emphasis on the role of nurses, thus, a significant number of abnormal cases (eg hypertension, prediabetes, diabetes) have been detected in the focus of the care system

(around 10% on average). The reason for this was that the screenings were implemented of the daily work of the practice in space and time. Enhanced filtering capability was not associated with GP practices, and missed out qualified nurses from the filtered cases who can manage and initiate critical steps of care independently. **Beside developing the competence of existing vocational nurses, establishing the positions of Nurses with Bachelors and Masters degree as providers of expanded professionals** are required for the successful operation of the practice communities in currently launched **primary care teams in various communities**. Under their control, caring for small and medium risk patients (under the supervision of a physician) can be made smooth, thus, complications associated with inadequate care can be prevented, and indicators of health care quality (Core Health Indicators) in Hungary could be significantly improved. To ensure this, it is necessary to strengthen the professional position by defining the competences, developing the additional competences for the primary care services by developing sample procedures and protocols. In addition, it is necessary to provide a coordinating role (practice/public health/care coordinator) for Bachelor and Master nurses in organizing patient's navigation, practice community management and on-call duties with the adequate license. **Last but not least, general practitioners need the motivation to employ high qualified Community Nurses with Bachelor's and Master's degree** who are able to offer high quality care, on the fields of individual health management, prevention, lifestyle coaching, diagnostic and screening testing and care, chronic care, and professional care, with special knowledge and certificates, similar to models of Skandinavian and developed European communities so **they will improve the bad health state of Hungarian population.** There is also a need to employ more **Bachelor and Master nurses and the competence development of the existing nursing staff** in the case of professional home care services as an independent unit of primary care. This way, the **scope of activities could be safely maintained,** and it will also be possible to shorten and **to take up new tasks** that can replace hospital care. **Financial motivation** is required for the employment of highly qualified nurses in the field of professional **home care services**.

I.2.6. The question of transferring **chronic** beds to the **social sector**. We suggest keeping of chronic beds, because we see the following main risks: the difference between the prescribed qualifications; the difference in content regarding care and attendance; the different professional content of service; the increase of the active waiting periods for beds.

Medium term objectives (2022–2026)

I.2.7. Providing **suitable working conditions** (e.g.: modern care equipment, environment, personal protective) (aptly involving the nursing profession in the planning process), for the safety of the patients and for the physical, chemical, biological safety of the workers.

Long term objectives (2026–2030)

I.2.8. **Based on the minimum requirements** such as **the number of nurses and the required qualifications we need to ensure the staff needs, based on methodology and international best practice.**

I.3. HEALTH POLICY AND FINANCING QUESTIONS

Immediate action

I.3.1. **Improvement and development of the** advanced practice **Master level nursing education,** the establishment of the **legal framework** related to the **practice expansion**. There is an

urgent need for immediate intervention, **because** in the spring of 2019 the first Masters will graduate and **no workplace duties are available for Master nurses,** which was a condition to get the Michalicza scholarship – so Master nurses are not able to fulfill their working obligation according to their contract –, **neither the scope of practices according to the workplace duties and the Regulation are legally regulated.** Although it must be stated that the education makes the **nursing career more desirable**, reduces migration and career-leave. By evaluating **patient safety, the results and patient satisfaction,** according to the indicators a **Master level nurse provides a service equivalent to a physician while more cost-effective in determined areas,** under equivalent health care circumstances. **The Master'should be able to conduct high-level patient-care with physician's supervision** in cases and methods **determined in** principles/**protocols**.

Short term objectives (2019–2022)

I.3.2. According to the facts stated in point. I.2.1., aside from introducing a **nurses' scope of practice,** determined by qualification levels, also recognizing the **additional knowledge of higher level Bachelor/Master level qualified nurses** utilizing such knowledge for the benefit of the clients, **the introduction of a** fitting **compensation system and career model is also necessary**.

Medium term objectives (2022–2026)

I.3.3. It is necessarly to **strengthen nursing workshops** and support efforts to establish a **National Center for Nursing Science Methodology**, which can uniquely promote patient care, researches, modeling, product development, directive development and education efforts. As a result, it can make a significant contribution to strengthen the research and development capacity of national knowledge bases and to produce internationally high-quality research results. All this can strengthen the appearance and development of new trends and areas represented by the World Health Organization (WHO) and the International Council of Nurses (ICN).

I.3.4. **Proper use** (consistent and competent) **of nursing science.** (Promote the development of eHealth services applications, the use of the Electronic Health Services Space and the appropriate quality of electronic documentation, use of smart devices of the modern technology, abolishing nursing plans based on false nursing diagnoses, the occurrence of improperly performed nursing interventions, reduce the lack of knowledge in modern evidence-based guidelines, the use and under-utilization of smart devices and integrated systems.)

I.3.5. From the patient care-perspective, within the framework of the management of problems stemming from **the unsuitable healthcare structure,** the **national introduction of Transitional Care (TC)** under the supervision of Masters, to **reduce rehospitalization, relief of active care and the overall costs of health care is highly recommended**.

I.3.6. Professional home care services as an independent unit of primary care provide services for general practitioner practices from a seperated National Health Insurance Fund of Hungary (Hungarian acronym: NEAK) funding. Although regional service duty is still a contractual requirement within the financial framework of visit**, inequality in access to care can be demonstrated**, and its' reason is inadequate funding and lack of professionals. The occupancy rate of home nursing services is 100% country-wide, the aging society, the chronic burden of illness, the waiting time and thus the access will further deteriorate. In order to provide a continuous and **safe service** and to fulfill the regional service duty **it is necessary to professionally and financially strengthen home care services**. Increasing the numbers of Nursing Wards and Nursing Institutions.

I.3.7. We highly recommend to develop **funding codes**, and to carry out code development / code maintenance / review for professionals (especially nursing) – similar to medical practice as in existing areas which could be examples (physiotherapy, dietotherapy).

Long term objectives (2026–2030)

I.3.8. Based on the summary in I.2.4., **it is necessary to increase the number of nurses and to increase the proportion of Bachelor nurses. Mortality rate** can be **decreased by 30%** and **to mitigate nosocomial infections and complications the nurse/ patient ratio per caring area should be adapted to international recommendations, while the number of Bachelor nurses** working directly bedside **needs to be doubled to 2030.**

I.4. RECOMMENDATIONS REGARDING CHANGE IN THE STATE ADMINISTRATION OF HEALTH CARE

Short term objectives (2019–2022)

I.4.1. We hereby welcome the oversight of **professional education** under **departmental control**, this is a vital element our developmental recommendations.

I.4.2. A **Nursing Department** for the sake of the professional representation of the nursing profession.

I.4.3. Establishment of the **Government Chief Nursing Officer (CNO) position on national level** with the relevant **scope of practice** and **infrastructure.**

I.4.4. Establishment of **a ministerial department-level evaluating institution performing coordinative and monitoring tasks** (e.g.: professional educational initiation, vocational exam organizing, issuing teacher/exam organizer certificate).

I.4.5. **Issues related to** the basic- and **operational registry database and international data-services**. **During the query of the basic- and operational registry database and its numbers, the received data unfortunately may differ from the actual professional number by thousands of individuals.** Aside from that, regarding both the national (e.g. basic- and operational registry, OSAP), and international (e.g. HFA-DB, OECD) data bases, the definition of the term "nurse" shows significant differences, distorting statistical data to different degrees. In certain data bases, the midwives or even the assistants are listed in the nurses' group. The lack of consistent terminology makes the validity of the data doubtful and this way, they are only suitable for trend-analysis. Another problem is the fact that profession-oriented professional qualification cannot be recorded in the registry based on section q) of par.3 of the 1997. CLIV Act on health care, regarding the fact that the terminology of profession-oriented professional qualification was and is not included in the list on professional qualifications according to section q) of par. 3 of the A.o.Hc.. Thus the individuals concerned cannot register their newly acquired profession-oriented professional qualification in the operational registry, resulting in them not being able to renew their basic qualification if they are employed in a function according to their new professional qualification (therefore there may be professional qualifications which are hidden or classified as expired).

II.

BACKGROUND TO STRATEGIC PROPOSALS

II.1. PROBLEMS EMATING FROM NURSING SHORTAGE, FROM AGING NURSING WORKFORCE AND FROM THE LACK OF AVAILABLE LABOR SUPPLY

There is a shortage of nurses in Hungary, the nursing system portrays an aging image and the resupply as well as the excess number of individuals necessary for the increasing demands cannot be provided. **The average number of nurses per 100000 population in Hungary** is low compared to the European Union average (75,7% in 2014). It is also lower in the WHO European Region (including Russia, Uzbekistan etc.) average (88,7% in 2014) as well. According to the analysis of the Hungarian Health Care Professional Chamber (MESZK), **the number of nurses working** in Hungarian healthcare was **26 thousand less than the required number** in 2014. In our country, the number of **newly recruited** nurses in 2016 was decreased by 757 individuals compared to 2015 (from 1681 individuals in 2015 to 924 individuals), i.e. **by 45%** (which is the lowest degree for a long period of time in the past). The situation is further worsened by the fact that although the number of qualified nurses – along with the vocational education – has been continuously rising between 2009 and 2014 – followed by a repeated decrease by 10% until 2016 –, **the number of** qualified and **newly degree nurses fall under the number of the** qualified workers **on a rising extent annually,** in the past three years **only 50-60% of the qualified workers** were recorded in the operational registry.

It is a typical problem that there is a lack of available data to nurses. According to their numbers or their population pyramid data and analyzations, development recommendations based on them are unknown. Regarding the population pyramid, it might be instructive that based on the age-distribution of **health care professionals (majority of them are nurses)** it can be determined that 49% of the complete staff works within the 35-49 age bracket, while 32% works in the 50-69 age bracket. The **19% ratio of health care professionals under the age of 34** is a notification for the health care professional- and within that the nurse profession-representatives' **aging and reduction**.

II.1.1. Problems with the database of basic and operational records and international data supply

The validity of the data is questionable and only utilizable for trend-analysis, **as an inquiry from the basic- and operational registry database and their numbers unfortunately provides data which differs from the actual professional/nurse number by thousands of individuals**. **Multiple displays of certain professionals or even a lack of names is a common error, as well as databases displaying the text "unknown". Sometimes this text is displayed at the address, the issuer of the diploma, the postal code and the settlement simultaneously. These data clusters in such a form render the screening of duplication impossible.** Also, regarding both the national (e.g. basic and operational registry, OSAP), and the international (e.g. HFA-DB, OECD) data services, the **definition of the term "nurse" show significant differences,** distorting statistical data to different degrees. In certain data bases midwives or even assistants are listed in the nurses' group. The lack of consistent terminology makes the validity of the data doubtful and this way, they are only suitable for trend-analysis.

II.1.2. The number of nurses in Hungary is based on the OECD average

Figure 1 from the Organisation for Economic Co-operation and Development (OECD) source shows that there is a **small difference between the numbers of physicians per 1,000 inhabitants** (the average is 2-4 physicians per 1,000 inhabitants in the countries). **Hungary** is close to the OECD average. However, **we are far behind the OECD average in term of the number of nurses**. On the issue of human resources in **economically developed countries** where the health care system is well developed, they clearly **contributed to raise the quality of services by increasing the number of nurses**. This can be the **breaking point**!

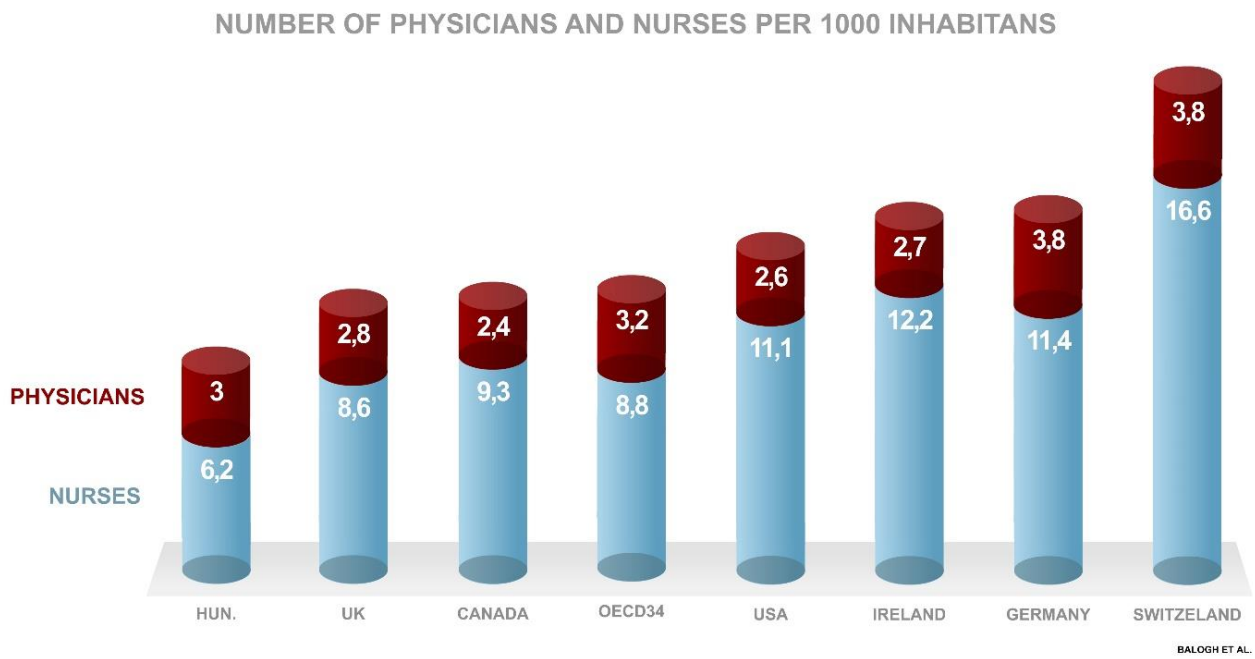


Figure 1: Comparison of physician: nurse ratio per 1000 inhabitants in the different countries,

The OECD report from January 2019 on the economic performance of **Hungary** also clarifies that the **aging society** will not be the only be a challenge for the **pension system** in Hungary, but also to the **health care system**. The report argues for the inevitable change in the structure of healthcare system due to the aging, in which **acute care is imagined to be practiced in less and professionally more concentrated hospitals.** It emphasizes that **the unbalanced availability of health care should be shifted to primary and outpatient care,** which would strengthen the definitive preventive care function of primary care. The material **indicates negative trends in labor supply** regardless of health, which, of course, is also a **symptom of crisis** in healthcare, not only among physicians, but also **among nurses**. Last but not least, the report continues to **show low wages,** wheather we investigate this issue in comparison with German-Austrian or Czech-Slovak-Polish data.

All these macroeconomic and social processes call for the **need for a national strategy at health policy level to provide short- and medium-term responses to the problems** identified through the renewal of nursing services and education. Here the fact should take into account **that Master nurses with advanced practice should be given a prominent role in acute care, which is shifted to primary care, whose competence allows basic access to health care in disadvantaged or unpaid GP practices.** Their roles are expected to increase as a result of the lack of physicians and health visitors in settlements with beneficiary status (formerly disadvantaged). It would be **necessary to settle nursing staff (shortage)** in order to have an adequate number of nurses with the adequate educational level to effectively deal with the problems of an aging society, either with the extension of professional **home care and telemedicine systems**, **either with the introduction of an assisted lifestyle community service,** which is already tried and tested in the USA, or with the introduction of "transit", temporary care wards that take the burden off the shoulder of acute care. The report clearly demonstrates **that the number of avoidable hospital admissions is twice as high in Hungary** as the OECD average because of e.g. asthma and COPD, which can be reduced to the OECD average with the adequate nursing care. It should not be forgotten that, **as the Hungarian society as a whole is aging, future nurses will**

not be an exemption from it either, therefore special emphasis should be placed on **improving working conditions** (to make nursing career attractive at all, or at least to keep the current staff) and the widest possible use of robotics and artificial intelligence (patient lifting robots, remote monitoring systems, etc.). Last but not least, referring to the report's findings on **wages**, if the wages of nurses are significantly **below the** Austrian-German labor market's **average, due to the possibility of emigration, the gap in nursing deficiency** will increase despite all our efforts.

II.1.3. Data on the operational records of the various nurses with different qualifications and their distribution by age group and county

As a way of remedying deficiencies, our work group made an attempt to rectify the problems in the operational registry stated above – with our humble tools – and to acquire data reflecting the actual facts the most. Our research concluded that, that there are **39572 individuals with qualifications on different levels of nursing in the operational registry, and 29899 individuals out of these possesses nurse** (Nurse/Infant- and pediatric nurse/ vocational level/, Nurse /Bachelor level/, Nurse /Master level/) **qualification**. We can only manage this data with certain reservations as well and we hereby would like to draw particular attention to the problem related to the data. Aside from that, we believe that by remedying the problems of the operational registry, the data demonstrated below will be clarified as well.

Based on the minimum requirements such as the number of nurses and the required qualifications in the 60/2003. (X.20.) ESzCsM Decree (**Minimum decree**) **we found it important to transform the staff needs, which are needed to be developed in short, medium and long term proposals, based on methodology and international good practice.**

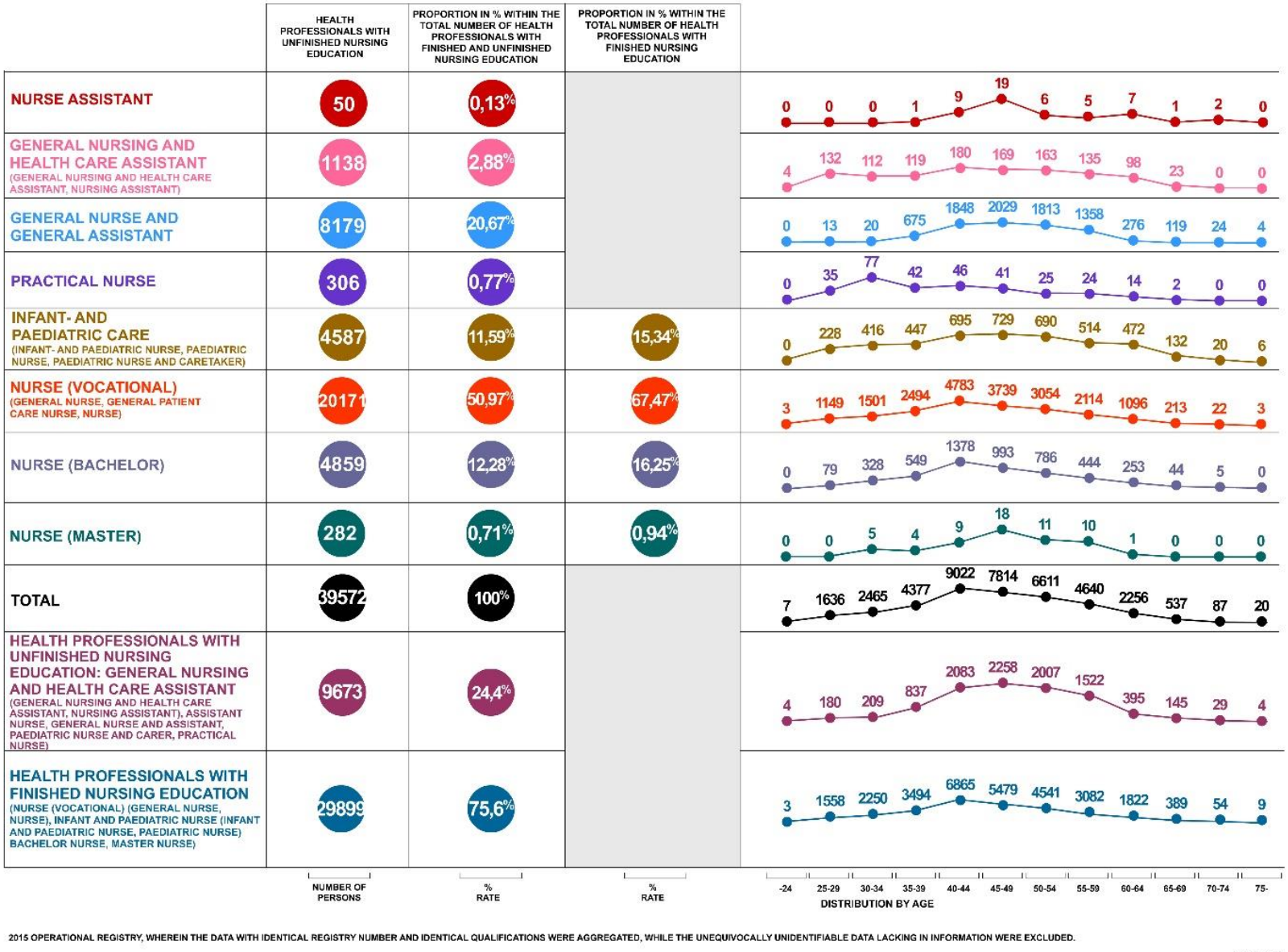


Figure 2: Number and age distribution of nurses with different qualifications

In parallel, **we processed data contained in the register of operations per institution,** then also **at county level relating to professionals with nursing qualification and professionals without finished nursing qualification** (Figure 3, 4, 5, 6).

If we want to decide the number of nurses working in **inpatient and chronic care**, from this number we need to deduct the number of nurses who are in the operational register, but work in the primary care, outpatient care / occupational care / social care.

In the register of operations 2015 we can find **9673 professionals without finished nursing education and 29899 nurses with finished nursing education.**

Additionally, county breakdown data **may be distorted by the fac**t that nurses are not currently employed int he same county where their zip code is listed, also it is important to know that due to the expiration of **the 5-year period of operational register, many colleagues who have left the career path, retired, etc. and does not extend its operational records will ereased from the system. The authors of this paper only wanted to report this data as a baseline in order to draw attention to the problem by asking for a broad cooperation on the basis of the appropriate methodology and data provision on nursing deficit by institutions and countys**.

As far as we know, the Association of Hungarian Nursing Directors and the Chamber of Hungarian Health Care Professionals have research results on the subject, of which, with the results of this study, it can help to form an accurate picture of the situation. **This can be the only basis for developing short-, medium-, and long-term education and employment system based on a realistic picture.** Only the above mentioned can form the basis of a realistic picture on forming short-, medium-, long-term education (scholarship) and employment system. There is a need for an urgent, well-thought-out, immediate and short-term (and solution-giving) concept, and at the same time, the development of a concept suitable for achieving medium and long-term goals should not be eliminated. Creating the exact picture of position will not only help to solve the anomalies of the operational registry. **At the same time, the relevant data are still available and the analysis and publication of the data of the Registry of Human Resources' (Humánerőforrás Nyilvántartó Rendszer, HENYIR) database is also highly justified.** In this system, health care institutions must provide data about health care workers, "*…who is qualified to carry out the health care activities, or someone who is not qualified, but contributes in tasks performed by qualified health care professionals".* **They must record the names of the employees (name in EEKH), FEOR number of the scope of activities, scope of work, start date of employment (if its possible also the planned end date, for fixed-term contracts) full- or part time employment, form of work, the duration of volunteer over-time work and the reason for permanent absence.**[1] In any case, the data must be recorded by the employer, even if the employee is for example in an individual entrepreneur status, because in this case this is the legal relationship. At the same time, **in the case of a "redundant" worker, the supply of data should be made by the employer agency. If workers work in more than one unit, they must be listed for each units.** Only those workers who actually provide health care should be included (bedside workers), for example the informational desk workers and those who participate in education must be excluded. The maximum amount of weekly work hours is 60 hours, the weekly hours of on-call time do not count. **If a worker works in more than one unit than the weekly working time must be given to each units.** If a nursing assistant has an EEKH registration number then the 3311 nurse, professional nurse FEOR classification should be given, if the nursing assistant does not have it, they should not be added to them system.

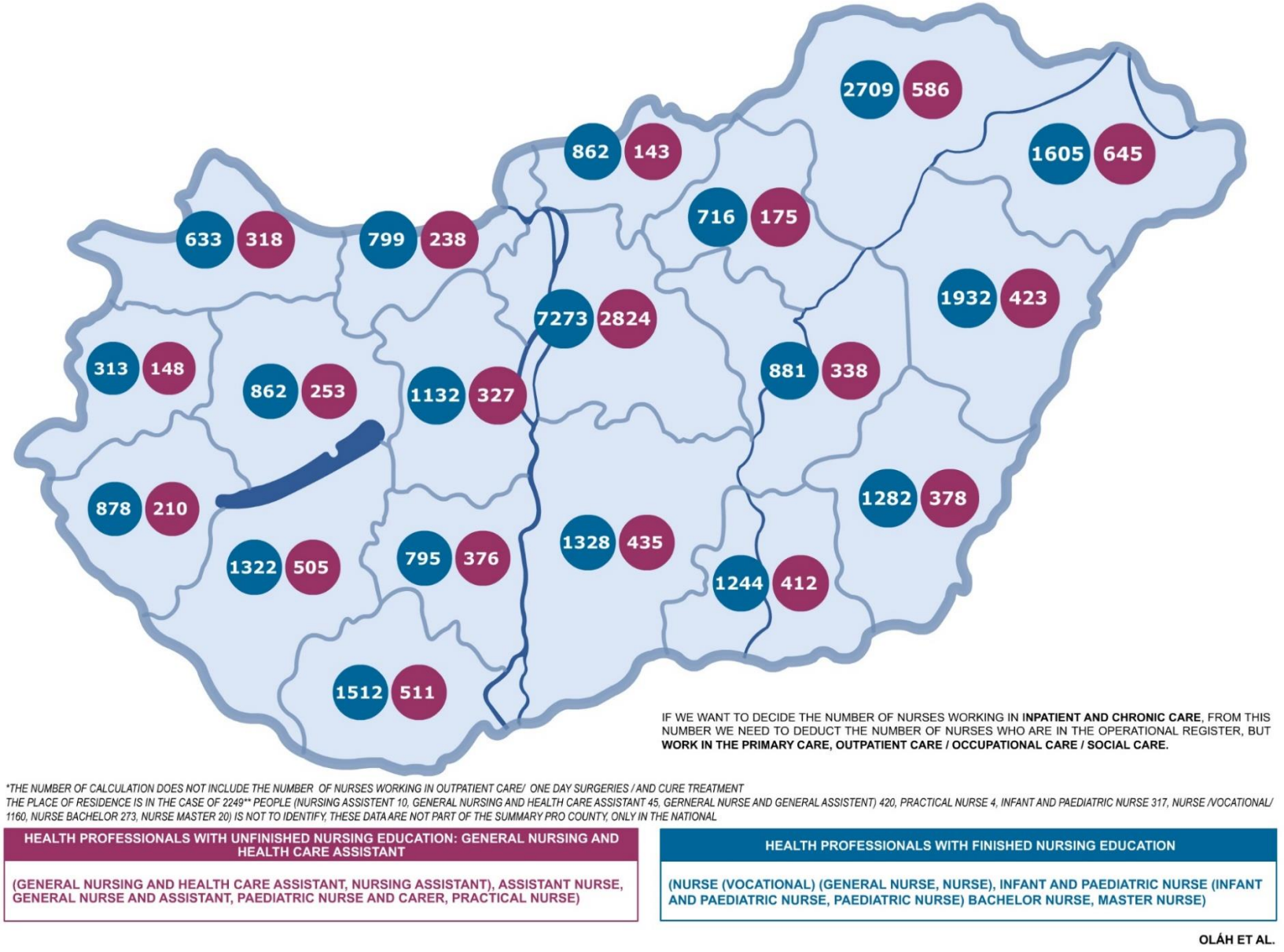


Figure 3: Number of professionals with and without finished nursing education, according to the register of operations (corrected by the number of nurses whose address can not be identified in the operational register because of the absence of postal code), broken down by county

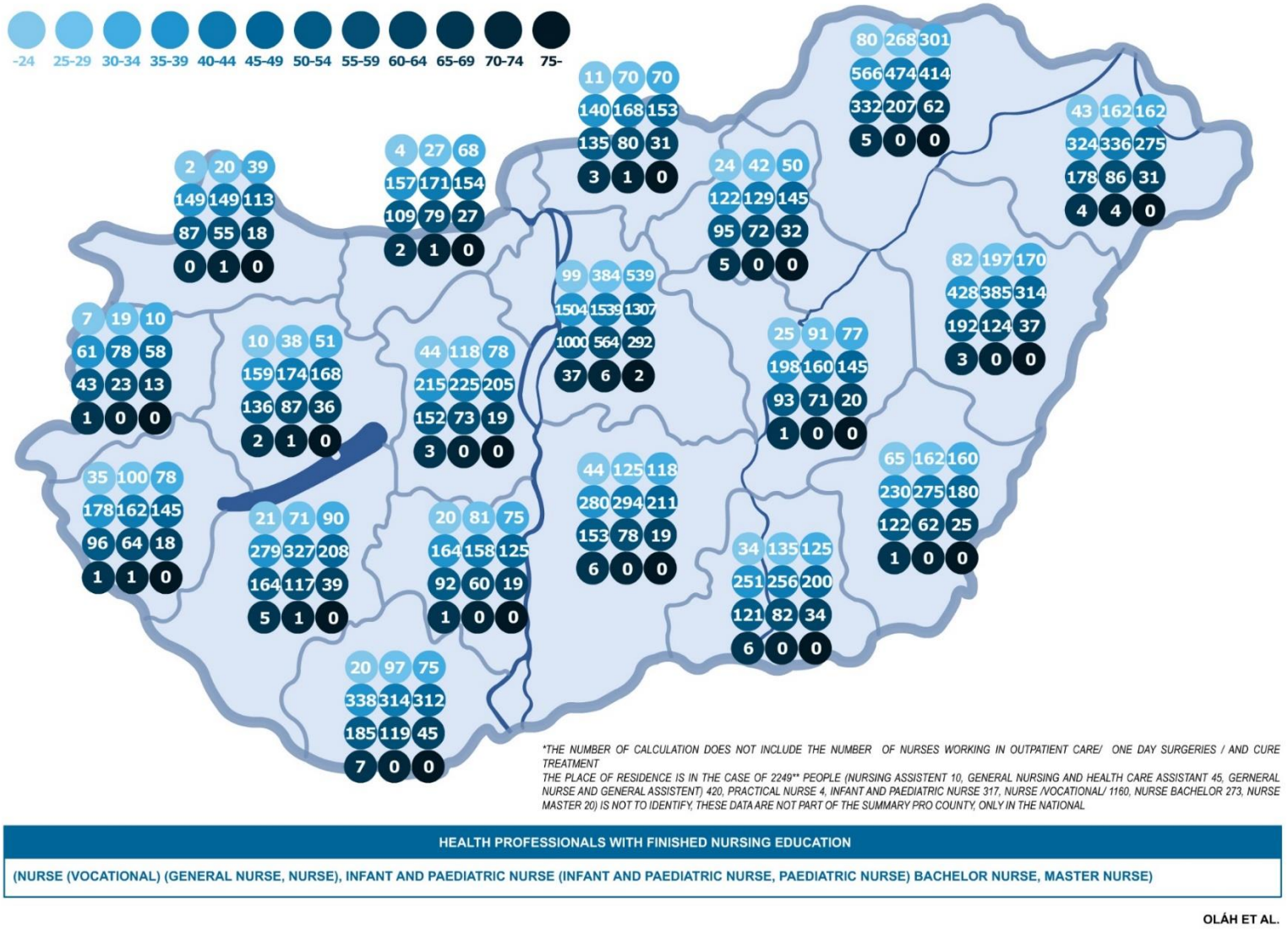


Figure 4: Figure 4: Allocation of professionals with finished nursing education according to the register of operations (corrected by the number of nurses whose address can not be identified in the operational register because of the absence of postal code), broken down by age groups and counties

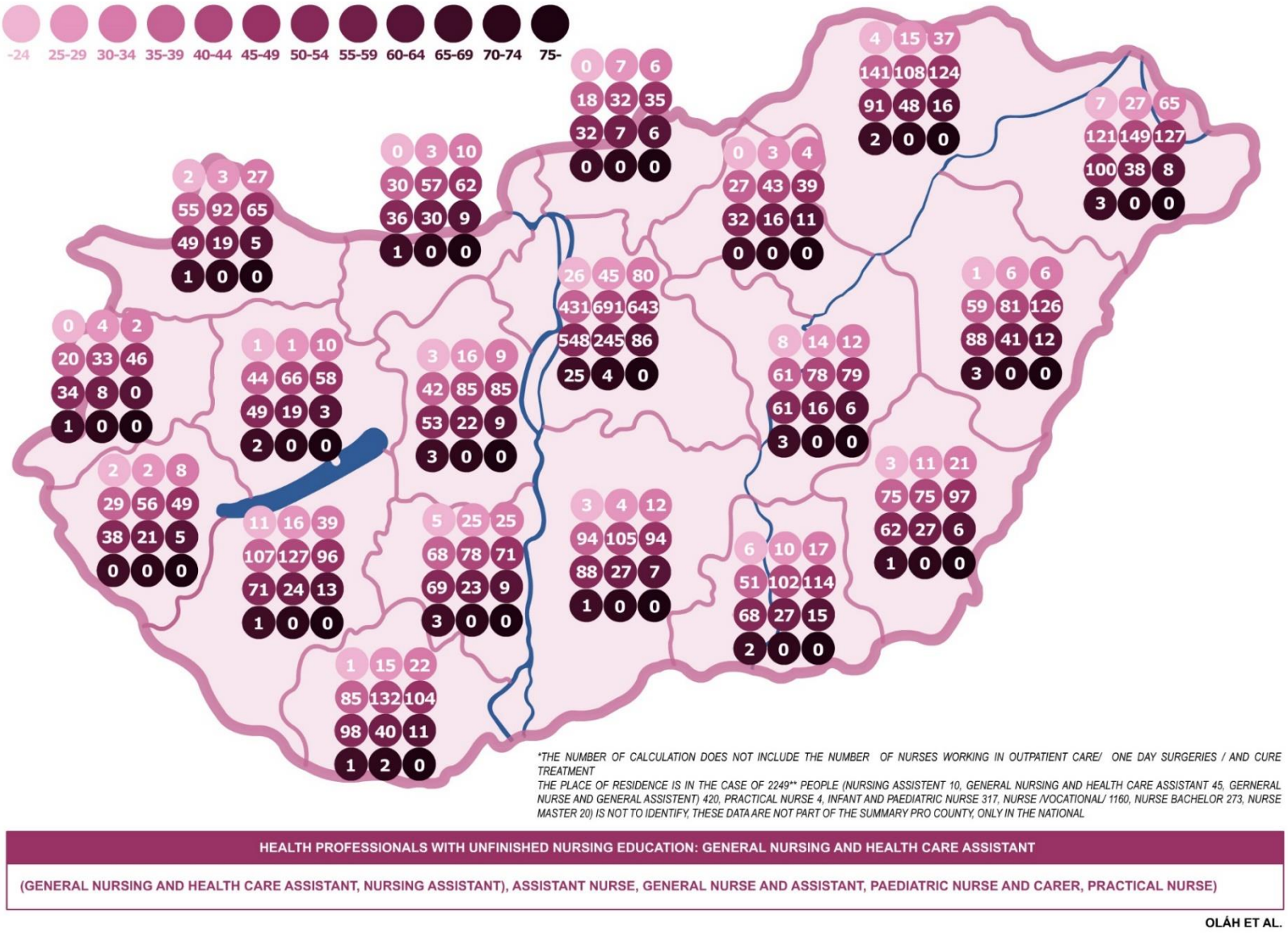


Figure 5: Allocation of professionals without finished nursing education according to the register of operations (corrected by the number of nurses whose address can not be identified in the operational register because of the absence of postal code), broken down by age groups and counties

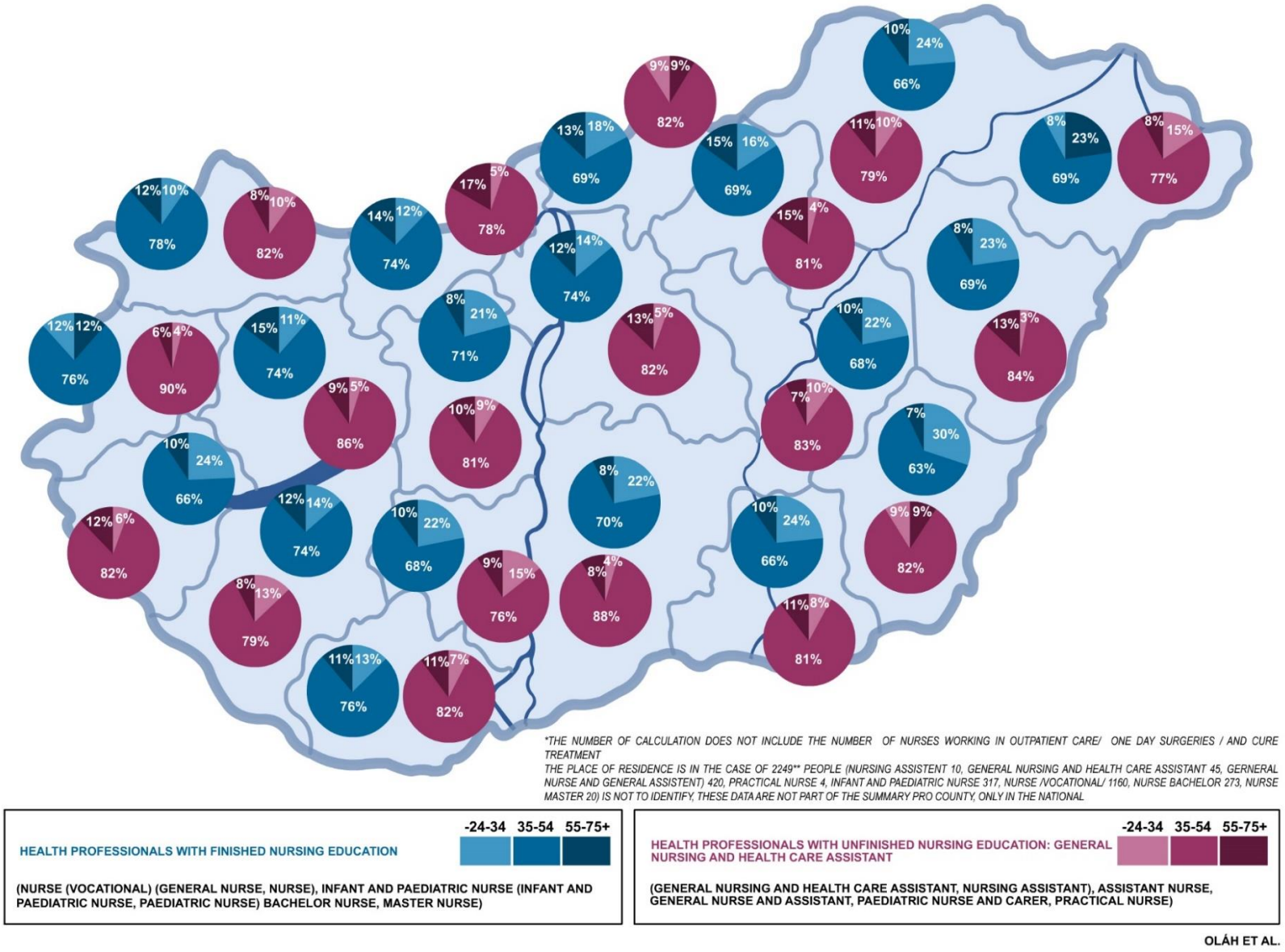


Figure 6: Allocation of professionals with and without finished nursing education, according to the register of operations (corrected by the number of nurses whose address can not be identified in the operational register because of the absence of postal code), broken down by age groups (%) and counties

II.2. THE LOW PROPORTION OF BACHELOR NURSES AND THE PROBLEMS DUE TO THE HIGH NUMBER OF PATIENTS TO ONE NURSE – A MORTALITY RATE HIGHER THAN 60%.

International studies support the fact that **the higher rate of Bachelor nurses and lower nurse/patient rate significantly reduces the hospital mortality rate of patients.** Every 10% increase in bachelor's degree nurses was associated with a 4-7% decreasing of the patient mortality risks. Patients in hospitals in which **60% of nurses had bachelor's degrees and nurses cared for an average of six patients** would have **almost 30% lower** mortality than patients in hospitals in which **only 30% of nurses had bachelor's degrees** and nurses cared for an average of **eight patients.**

In other literature resources, in hospitals, **where 60% of nurses had Bachelor degree have 19% lower mortality rate**, than in hospitals **where only 20% of nurses have Bachelor degree**, and **the 10% increase of Bachelor nurses have decreased the mortality rates by 9/1000 patients**. In the surgical department, in case of a rate of 6 patient/nurse for 1000 patient admissions and a Bachelor nurse rate of 30%, the 30-day mortality rate following admission was 19.5 individuals, while mortality due to complications was 84,4 individuals. With a 4 patient/nurse rate and a 60% Bachelor nurse rate, the 30-day mortality rate following admission was 15,6 individuals, while mortality due to complications was 68,2 individuals. With a rate of 8 patient/nurse and a 20% Bachelor nurse rate, the 30-day mortality rate following admission was 25, 1 individuals, while mortality due to complications was 105,9 individuals. **A suitable number of nurses with suitable qualifications can decrease the occurrence of health care-associated infections – e.g. a decrease of bloodstream infections by 70%, urinary tract infections by 29%, pneumonia by 4,2%, surgical site infections by 74%.** (Regarding the significance of the subject, we will be discussing the connection of the nurse staff and the infections resulting from health care services separately in point II.6.). [2;3;4;5;6;7;8;9;10;11;12;13;14;15]

Increasing the proportion of RN nurses and BSc nurses in many countries is an important issue for nursing management, such as the need for a more efficient and effective care. Thus in Israel, published in 2007, they want to increase their number from 73% to 80%.[16] **According to the recommendation of the Institute of Medicine the ratio of Bachelor nurses should be increased by 2020 up to 80% in the USA.**[17]

Accordingly if we are to realistically reach those standards archieved in other countries we need to be open to the **integration of successful international developments into our health care system**. **Given the current health status of the Hungarian population, the demographic trends and the health care indicators**, it can be assessed that for one, the responsible Government of Hungary needs to take further steps to **increase the number of physicians**, and aside from our visible results and the efforts made **vocational nurse education and the nurses' wage settlement, we need to make deliberate steps for the case of the degree nurses** taking working in Hungary. **The improvement of the primary care** and the reaching of the primary care goals cannot be realized **without the improvement of nurse staff's roles and the establishment of the Bachelor and Master' roles** either internationally or nationally. In Hungary, since the 1989 initiation of the college/Bachelor education, 9273 individuals were registered as degree nurses (college/Bachelor), and following the 2000 university/Master level education, 674 individuals acquired a professional degree nurse qualification. In 2000, during the first Orbán-government, the introduction of the Hungarian university-level nurse-education could be realized, followed by the 2017 third Orbán-government, which enabled the Hungarian advanced practice Master nurse education as well. At the same time, **it is an unfortunate fact that only 5415 individuals among the degree nurses (58,3%), and 446 individuals out of the university/Master's (66,1%) are recorded in the national operational registry, i.e. currently working in Hungarian health care.** A further problem that **the number of individuals participating in Bachelor-Master nurse education is continuously decreasing**, while the number of individuals acquiring degree nurse qualification was 823 in 2001, this number

barely reached 334 in the recent academic years, i.e. the annual number of qualified degree nurses decreased by almost 60%. **The decrease of the number of degree nurses was also facilitated by** the fact that the number of health care related educational programs multiplied in the past decades, which – **aside from the underdeveloped practice-expansion of college/Bachelor nurses** – had a negative impact in the number of qualified workers within the college/Bachelor education in a way that qualified unemployment occurred in other degree programs in the health sciences field. This process was strengthened by the fact that **while in the area of nursing, no substantive professional competence-expansion was provided for the qualified nurses**, in contrast to other higher education qualifications in health sciences, they had substantial competencies supported by an appropriate legal framework that goes far beyond the remit of vocational professionals before the appearance of the new educational and outcome requirements in 2017, (e.g. paramedics, midwives, health visitors) thus, they became more attractive as career choices for those interested in higher education in health sciences. A further problem is that **in the past 30 years, no specialized nursing programs on Bachelor/Master level were established established except for a few specialized continuous development courses of unsurtain legal status, which is an issue in dire need of clarification. Consequently the nurses with Bachelor or Master level education until the introduction of theadvanced practice master degree nursing education only had the opportunity to complete specialized nursing programs on a vocational level.**

The situation is further aggravated by the fact that **early in the decade an approx. 500 nurses requested statutory certificates for employment abroad and the ratio of freshly degree nurses being significant,** as their foreign language knowledge is of a higher level and they are looking for professional challenges and recognition matching their higher level qualification. Fortunately, this number **seems to have decreased** since 2013**. The expansion of the nurses' practice, however, is not a new effort in our country, as the expansion of the nurses' scope of practice by a physician's written order has been possible for many years (notwithstanding vocational - and degree qualifications), in practice might result in the fact that certain nurses can perform some actions in one institution today, while in other institutions, they are not allowed, and it is also a possibility today that certain nurses need to carry out tasks which they have not been prepared for during their theoretical- and practical education, without the recognition by a suitable legal background or with a suitable financial recognition.** Aside from the career-leave, the migration and the drastic decrease in the choosing of the degree nurse career, a further problem is **the scarce number of degree nurses working in health care working directly next to patientbeds,** the majority of their tasks are management of nature; they carry out **administrative or management tasks.**

As a result of the **decrease in the number of nurses**, there is also a growing problem of **nurses working as a sole trader in hospital wards**, even **away from their permanent residence**. This phenomenon raises concerns from a number of points of view, on one hand**, it is unmanageable for workers to have a rest period**, so they may not take enough rest time between two shifts at workplaces, and thereby they **seriously endanger patient care and his/her own health**. A further problem is that in many cases these "**hired" nurses do not have local knowledge and professional practice related to the given speciality area**, which again threatens the safety of patients. All these can result in the case of nurses very difficult situations (E.g. when **15 out of 20 nurses worked as "hired" nurses, or every nurse is "hired" nurse beside the head of the department). Working as sole traders and this way not having rest period is a livid problem at surgical nurses and** anesthetic assistants.

Nowadays, it can happen as a serious problem that in some cases there are no nurses at all in the given shift, only lower educated health care professionals, like practical nurse, nursing assistant etc. At the same time in generally, the **Royal College of Nursing** recommends in the acute care wards **the ratio of the registered nurses should be 65% and this of the nursing assistants 35%.**[18]

Recommendations for a Solution

The expansion of the practice of Bachelor/ Master level qualified nurses may have a positive effect on the national prestige of the internationally-cherished degree nurses. This will not only increase the interest toward the Bachelor nursing education, it will also increase the number of individuals transferring to the vocational level nursing-education as well; **it will also motivate qualified vocational nurses as well to complete Bachelor-Master level nursing educational programs. The Hungarian Government guaranteed to increase the rate of qualified workers by 30.3% (within the 30-34 age bracket) by the year 2020.** To achieve this, we need to find areas, where, firstly, **there is no current over-education, secondly, qualified workers are able to start their careers in their profession, and the social usefulness of the education financed from the money of the Hungarian taxpayers will be unquestionable. The expansion of the scope of practice and the wage settlement of Bachelor and Master level qualified nurses and the new scope of activities for the Master's (eg. on the field of the primary care) are eligible to ensure that level of salary and scope of practice for nurses working abroad or other sectors (eg. Pharmacy), which can be enough for them to consider returning back in health care.**

Re-establishment of practice financing in health sciences higher education by a manner equivalent to the 2018 solution of the same problem within medical education. Unfortunately, in 2004, the normative practice related to the health sciences education programs was deleted, resulting in a 500 million HUF decrease in financing at certain higher education institutions, worsening the quality of education.

In Hungary, **the number of** health care professionals **with a recognized nurse qualification** – **along with the nurse assistants** – **is 39572, and 12,28%** possesses **Bachelor nurse,** while **0,71% possesses Master level nurse qualification.** In case we examine regarding **the 29899 individuals with nurse qualification** (Nurse/Infant- and pediatric nurse [vocational], Nurse [Bachelor], Degree nurse [Master]), it can be assessed that **16,25% possess Bachelor nurse- and 0,94% Master's qualification.** Unfortunately, a minority of these individuals work directly next to a patientbed, while there are also currently thousands of Bachelor nurses are not working neither in health care nor in social care. The aim must be to have them return to their profession of choice by providing the suitable scope of practice and salary. For the sake of health care services, we wish to set the goal to **double the number and proportion of graduate nurses** in the medium term in the national health care service system, by the determined undertaking of the requirements stated in our nation's "Európa 2020" program. The scholarship support of the Bachelor nurse education as a shortage-profession, the suitable scope of practice and salaries are all necessary for making the education more desirable, in order to maintain qualified workers within the career and to make the activities bedside activities more attractive instead of an administrative manager position. **On the long term,** the needs of our society dictates that **the lowest level of the nurse education should be the Bachelor education,** as **in the majority of the** European **Union member states; this is realized in 19 member states out of 28 as of today, while in a further 2 member states, the de-recognition date of the vocational level nurse education is already statutory**.

In case the number of Nurses with Bachelor's qualification would be doubled compared to their current number, besides, the total number of Nurses would not be increased, so the rise is the result of the continued education of the Nurses trained on vocational level, then the real weight of wages would be the sum of the difference between the payments of nurses with vocational certificate and with Bachelor's certificate. It is hard to estimate the wage situation of 4859 Nurses with Bachelor's degree educated form vocational level because the number of the working years is not available. That is why we apply an estimated average of difference which equals gross 88875 HUF (106205 HUF with fringe benefits). Thus, 4859 Nurses with Bachelor's degree means an increase in the wages **„only" by 6.2 billion HUF compared to the current situation**. Besides, the ratio of Nurses with Bachelor's certificate would be raised to 32,5% within the group of employees with completed nursing qualification.

Admission requirements can possibly hamper the increased number of bachelor nurses. From 2013, there was a significant change in the tightening of the requirements for the higher education admission process (Government decree 423/2012 (XII. 29.) on the admission to higher education institutions), which included the scheduled increase of the minimum entry points (with the change of the system of extra points) as follows: 2013: 240 points, 2014: 260 points, 2015: 280 points, 2016: **300 points**. According to the Decree of Admission, the minimum entry point limit for 2016 should have reached 300 points, but this measure has not been taken so far and the regulation does not currently include the 300-point minimum limit.
It is also worth considering that the Admission Decree has been changed 23 times in the recent period – for example, the 300-point minimum point limit that previously should have been applied since 2016 is still not introduced – and items that are relevant to the admission process, such as a pre-scheduled continuous raise of the minimum admission points, and the system of additional points that can be taken into account at the minimum entry point has been modified 5 times.

It is also important to note that Article 23 para. (3) of the Government Decree effective from 1 January 2020, includes an amendment to **allow applicants to obtain admission for higher education with intermediate language exam ,and secondary school degree, or candidates with a degree of higher education.** Of course, **this modification can fundamentally change the number of students that can be enrolled and thus the number of students**, but we do not currently have an analysis of the expected impact of this modification and should therefore be prepared. In addition, it is advisable to develop a national strategy on the matter, because this change **can have unpredictable consequences** for the human resources of health care. Examining data from the 2018 admission process**, the proportion of students with both entry criteria is generally below 40% for health education institutions** (within this, **the situation is even worse in the case of part-time education**, where in some institutions the proportion of students fulfilling the admission criteria does not even reach 21%). **The situation is even more serious if we look at the areas of shortages, which have paramount importance for the functioning of health sector** (eg. nurses, paramedics, midwives, health visitors) because the proportion of applicants who meet with both intake conditions is below the average of health science faculties in almost all cases, for example in the case of full-time programme the amount of students meeting the admission conditions is under 30%, while only 11.11% of part-time nursing students meet the stricter admission requirements**. It can be stated, if no substantial move is expected in the rules of the admission procedure which is effective from 2020, then in most universities nursing, paramedics, midwife and health visitor education could be ceased, because supportive, scholarship programmes by the government will not be enough to offset the tightening admission requirements.**

II.3. PROBLEMS RELATED TO THE ORGANIZING OF THE 2016-ESTABLISHED, ADVANCED PRACTICE MASTER'S EDUCATION, PROVIDING EMPLOYMENT FOR QUALIFIED WORKERS AND ESTABLISHING FUNCTIONS SUITABLE FOR THEIR QUALIFICATION

Aging of the society, health status of the population, and the increasing cost-demands of the health care service system, the waiting lists as well as the lack of physicians are serious challenges our country has to face as well. In the majority of the OECD countries, **the advanced practice nurse** (Advanced Practice Nurse APN Master level nurse) **education and position was introduced to solve these problems.**

According to the definition of the International Council of Nurses (ICN), **APN is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice. The advanced practice Master's, with physician's supervision and in a manner which is regulated by protocol can provide service even on a level which is equivalent to a physician's,** some literary data on the subject:

Regarding emergency treatment, 70% more patients left abortively without being seen if no advanced practice Master's was on duty, while **during their work, the lengh of stay decreased by 48,8% and mortality decreased by 5%.**[19;20]

Utilizing them, **the costs of health care treatments can be decreased** (e.g. lab utilization rate is 24% below 22% in the case of tumor patients, 83% in the case of combined treatment of chronic illnesses, and health care costs by 23% below the average cost in primary care setting).[21;22;23;24;25]

Utilization of advanced practice Master's **decreased length of hospital stay by 56%, decreased the occurrence of complications** – e.g. pressure ulcer by 83% –, rehospitalization by 48%, **improved the quality of hospital care, patient satisfaction, and decreased the number of malpractice claims suits.** [5;12;26;27;28;29;30;31]

Their presence can strengthen the primary care setting: **NPs safely and effectively managed 67% of their patient visits** without physician consultation, increasing availability; they increase the annual rate of women screened for cervical cancer by a NP at the intervention location, they are able to (e.g. cervical cancer by 40% and mammography screening participation by 20%); **their work resulted in longer, patient-specific consultations, increasing the trust of patients and patient satisfaction; the patients treated by them are more likely to cooperate as well as their preventive health behavior, thus the occurrence of illnesses are of a smaller rate; their patients participate in screening tests more frequently.** Within the primary care settings and the follow-up of chronic patients, the advanced practice Master's provides a **comparable but lower cost service under identical health care conditions regarding patient satisfaction and treatment results, their application resulted in a significant improvement and development in the control of patients** suffering from hypertonia and diabetes.[23;29;32;33;34;35;36;37]

The employment of Master nurses in the case of professional home care services as an independent unit of primary care would make it possible to shorten and **to take up new tasks** that can replace hospital care (e.g. compilation of a treatment plan, independent prescription of certain medications; prescribing medical aid; performing certain special invasive procedures).

Within the framework of **geriatric care**, their application resulted a significantly improved **urinary incontence, pressure ulcers and aggression,** they are able to validly recommend order changes **by 50% among elder patients because** of changes in patients' plans of care, ineffectiveness, **change in diagnosis,** unable to manage the medication, inappropriate active ingrediants, dosage/duration, utilization time possibly due to medication form).[38;39]

The presence of degree nurses, and within those, **advanced practice Master level nurses** as first assistant of the surgeon or as a health care professional responsible for post-operative care and discharge, **decreased the surgical wait time by 93%** by providing the surgery team, and minimizing surgical cancellations by 64% and **increased the patient access to surgery** by 79% by **doubling the surgeons' capacity for surgery.** Accordingly, the authors suggested the desire to explore different RNFA models including an Advance Practice Nurse mode, particularly in large teaching hospitals [40].

No evidence that opting out of the oversight requirement resulted in increased inpatient deaths or complications can be detected between cases when an advanced practice Master level nurse (CRNA) or a Nurse Anesthetist specialist performed anesthesia, **the patient's safety is guaranteed on a high level,** at the same time, in the case of anesthesia performed independently by an advanced practice degree nurse (CRNA), Nurse Anesthesia is **significant more cost effective** than the next least costly anesthesia delivery model.[41;42;43;44;45]

The advanced practice Master's like their profession: 92% of them would encourage other nurses to become NP. The developmentof APN roles may also serve **to attract and retain more nurses in the profession by enhancing careerprospects.**The role increases the number of individuals **choosing the nursing career, the development of APN roles is also seen as a possible means to reduce the emigration of**

nurses to other European countries to seize better job opportunities. By increasing the education level of the nurses, less nurses left their career.[46;47;48;49]

In 2012, the **Hungarian Health Care Professional Chamber** – within the framework of the TÁMOP project supported by the European Union and the Hungarian State – have issued a publication entitled „Hatásköri Listák egészségügyi szakdolgozói területen (Scope of practice regarding health care professional areas)"[50], in which **we have summarized the international practice of the advanced practice Master's education and its possible introduction in Hungary**. The MESZK consulted several professional organizations and medical boards for the preparation of the book, and have sent the completed publication to them. Aside from that, the Nursing Council and Chapter of the Healthcare Professional College conducted detailed work on the introduction of the education, and submitted it to the state secretariat as a development to be carried out in 2015. **The submission justified the advantages of the nationalization of the advanced practice degree nurse care- and educational program in detail**. Due to the reasons stated earlier, the Hungarian health sciences faculties – with the control of the Medical- and Health Sciences Committee of the Hungarian Rector Conference – **have established the education- and qualifying conditions of the advanced practice nurse masters' studies.** The Ministry of Healthcare made a fully consistent decision regarding the professional submissions on the support of the new educational program, thus the 18/2016. (VIII.5.) EMMI regulation enabling the practice-expansion could be issued. **The education is currently conducted on four universities, and the list of competencies of Bachelor and Master nurses are included in the EMMI regulation but it is highly important to develop a legislative framework for expanding the scope and competence of Master nurses with extended** competence, because the first Master grade graduates in the spring of 2019 and no **Master nursing roles and pracices are available**, thus, **Master nurses are unable to fulfill their contractual obligations at work and also their competences are not legally regulated.**

Recommendations for a solution

Regarding the advanced practice Master's education, practically an immediate legislative change is necessary, as the first Advanced Practice Nurses on Master level will commence work in 2019.

Regarding the above statements, our emphasized aim with **the introduction of the advanced practice nursing Master's degree program and the modernizing of the nursing competencies according to the international trends** is to make bedside work activities more appealing for a significant proportion of near **5000 degree nurses, who came to realize** following their graduation that **their high-level professional qualification is not coupled with a scope of practice according to international trends, professional or financial recognition,** resulting in **them not looking for employment within the health care sector**. Furthermore, we wish to provide an alternative for a portion of **degree nurses**, who could only find suitable **challenges** to their higher-level **qualification** in **the administrative sectors within** healthcare so far. International results show that the currently introduced advanced practice **Master's education and its related positions** provide professional and financial recognition for degree nurses, which may not only **decrease the rate of career-leave and employment abroad**, we believe it can **invite** a portion of **nurses currently working abroad home** as a competitive alternative.

The main competencies of the advanced practice Master's introduced in Hungary, according to the educational- and executive conditions (the further legal framework system for these competencies is needed to be established as well) **are the following:** He/she may conduct patient treatment with a **physician's** supervision, in cases and by means **determined in** policies/**protocols**, according to Master's nurse specializations. His/her scope of practice e.g.: **performing a complex physical examination** in determined cases; **ordering diagnostic tests/analysis of results; establishing diagnosis; compilation of treatment plan; independent prescription of certain medications; prescribing certain medical aid;**

performing certain special invasive procedures, Performing **treatment of acute patients** with a basic care-competent **physician's supervision, performing on duty tasks, treatment of chronic patients,** performing independent anesthesia within the anesthesiology sector **in cases determined by a specialist, with low-risk patients, during planned surgeries with physician's supervision (there are examples today for the performance of this task with a vocational qualification) etc.**[51;52]

In primary care, the average age of general practitioners and the number of permanently unfilled practices are increasing, the latter results in caring inequalities (see daily 20 vs. daily 100 patient turnover) drastically increase (for example in some municipality if there is a general practitioner once a week, no preventive work can be carried out and in acut cases the issue of patient safety is also comes up).**Establishing the positions of Nurses with Bachelors and Masters degree as additional service supplier professionals** in currently launched **practice community** teams, and **consolidating the professional position by determination of the competencies,** shaping the additional competencies and local procedures, protocols is needed to efficient functioning of the practice communities. Furthermore, it is needed to assure the opportunity to Nurses with Bachelor's and Master's qualification to be able to take **coordinative roles** (practice/public health/care coordinator), with correspondent certificates to organize patient path, management in practice communities and participate in attendance. **Last but not least, General Practitioners need the motivation to employ high qualified Community Nurses with Bachelor's and Master's degree** who are able to offer high quality care, on the fields of individual health management, prevention, lifestile coaching, testing and care, chronic care, and professional care, with special knowledge and certificates, similar to models of Skandinavian and developed European communities so **they will improve the bad health state of Hungarian population.** In order to improve the quality of district nursing, it is important that **no one could fill a nursing practice without nursing qualification**, since a significant part of professionals do not finish within the 2-year legal deadline for obtaining a qualification and most of them have no mursing vocational education. In terms of primary care, there is no significant difference between the content of regional community nurse education and nursing education on vocational level, so there is no need for the latter education in this form. At the same time it would be important to introduce the appropriate hours and contents of primary- regional nurse modul to vocational education and developing the competence of vocational / district community nurses currently working in primary care in line with public health priorities.

Suggestions for wages for primary care workers: in case of nurses working in general practitional services, which are **maintained by the municipalities, the health care wage table should be applied** uniformly instead of the wage table that adversely affects them.

II.4. QUESTIONS REGARDING NURSING SCIENCE-DEVELOPMENT

The aims of the European Committee's 2012–2020 eHealth Action plan: **establishing an innovative health care system utilizing 21st century technology**, in order to aid the member states **to overcome the main challenges of their health care systems** by means of eHealth **services and the development of applications**, for the **development of chronic illness management, for establishing more efficient and sustainable health care systems** and **to develop the legal- and market conditions** of the eHealth products and services.

In Hungary, the **Electronical Healthcare Interface** was established (Elektronikus Egészségügyi Szolgáltatási Tér [EESZT]), which **using cloud-based technology connects the health care service providers**. Aside from the possibility of a service-oriented and simplified care, there is a possibility for the **coherent management and effective analysis of the available data**. At the same time, the **issue of proper quality electronic documentation of health care has not been solved to this day in Hungary.**

The need for **smart devices stemming from modern technology** is clearly perceivable; the utilization of such devices can support nursing tasks, their **quality can be controlled**, also the fact that these developments are in the initial phase even internationally provides a significant **market-opportunity**, **only a few original nursing smart device was developed**, and a suitable integral system also remains to be developed.

The suitable (consistent and competent) **utilization of the nursing science** can be a key factor in the **transformation of health care as well as the realization of a financeable health care model**. The research of the principles and methods of operation of a system regarding and optimizing the direct and indirect costs and profits of reasonable patient care based on the principle of practical applicability, utilizing up-to-date technologies, and the solutions based on such research principles and results can truly result in **a product marketable for society as well**.

Nevertheless, the realization process of a nursing plan is **legally prescribed** within the national and international framework, however, it **operates with deficiencies and anomalies implying the endangering of patient safety in practice,** it is also indicative of significant administrative burden and it increases the costs of care (e.g. missing electronic nursing documentation management, or nursing plans compiled based on groundless- or false nursing diagnoses, the occurrence of not suitably conducted nursing interventions, the abandonment of justified nursing interventions based on patient status). A further significant problem is the fact that **patient care is mainly based on the subjective assessment and decisions of the nurse**, caused by the difficult verifiability of the professional nursing tasks, **the lack of knowledge defined in the modern evidence-based policies,** the unsuitable rate of documentability of activities performed during patient care. **The fact that there are no evidence-based policies regarding none of the hundreds of nursing activities in Hungary is a delay of several years; the nursing science research workshops necessary for such policies were not established in our country.**

Currently **no system** capable of recording parameters acquired with smart devices within an integrated IT system is available, which **is capable of preventing false diagnoses or the abandonment of necessary diagnoses** (based on diagnoses, it is capable of determining the performing of necessary professional nursing tasks, according to algorithms (and it can signal the necessary performing of related tasks, e.g. catheter change, flushing of canule, etc.).

The improvement of nursing science workshops is justified as well as the support of the efforts made to **establish the National Nursing Science Methodology Center,** which is unique in its ability to advance patient care-, research-, modeling-, product development-, policy development- and educational efforts. Therefore, it may significantly contribute to the improvement of national knowledge bases' R & D capacity and the realization of high-level research results.

II.5. 60/2003. (X.20) ESZCSM ORDER FOR PROVIDING HEALTH CARE SERVICES, PROBLEMS REGARDING PROFESSIONAL MINIMUM REQUIREMENTS

In Hungary, the 60/2003. (X.20) ESzCsM order on minimum professional requirements necessary for providing health care services prescribes the ratio of direct nurses with different qualifications (category I-, II.- III.) full-time in a department with a given patient number. However, these numbers do not show **the number of patients for one nurse in one shift**, or the severity classification of these patients. However, **internationally**, the number of nurses gets defined primarily by nurse/patient ratio, which determines **the number of patients to one nurse in one shift**. For calculating the ratios, the productive time period by severity category needs to be provided, i.e. how much time is needed to treat a patient during 24 hours, excluding time spent for education and administration. A dynamic system that takes better account of patient care needs can be introduced in line with international experience with nursing staff calculations corresponding to the severity of the patients.

In Hungary, it needs to considered that the administrative load for nurses is disproportionately large, which is the same as time spent on patient education, as the most important elements preceding e.g. hospitalization are patient management- and education (e.g. patients with diabetes, cancer patients, etc.) The number of weekly/monthly/ annual nursing hours and the number of nurses working full-time can be calculated from the number of daily nursing hours. **By providing an optimal nurse/patient ratio as well as increasing the number of Bachelor nurses working directly patient bedside, the mortality rate can be decreased by at least 30%.** (Part II.2. of the study details this human resources-development.)

A number of extensive inspections were made regarding the nurse/patient ratio. Among these, the study published in 2002 by Aiken and her colleagues has presented first that **1 nurse can be safely be responsible for 5 patients**, above that, **each patient** added to nurses' workloads was associated with a **7% increase in mortality** following common surgeries. In 2010, they have examined **the aftereffect of the California regulation** in the entire hospital system of California, New Jersey and Pennsylvania states, regarding 130 indicators, and they have continually found that following the fifth patient, the assigning of further patients to the nursing activity of the nurse increases the mortality risk of the patient by a 1.13 (California)-, 1.10 (New Jersey)- 1.06 (Pennsylvania)- probability. Additionally to these facts, **if the nurse-patient ratio would have reached the regulated California average in the hospitals of New Jersey and Pennsylvania, the mortality rate following surgery in New Jersey would have been 13.9% lower**, in Pennsylvania it would have been lower by 10.6%.[3;53]

Based on international literature, a nurse:patient ratio of **1:1 is recommended in the USA in case of operating room, trauma patients in emergency departments and labour&delivery** (2nd and 3rd stages); **in England, in case of ventilated patients in intensive care; in Canada, in case of unconscious** (waking) patients in post-anesthesia units, in neonatal intensive care, in delivery rooms (1st, 2nd and 3rd stages), in case of ICU patients in emergency departments. In **Canada**, a nurse:patient ratio of **2:1** is recommended in case of operating room, in **Australia**, a nurse:patient ratio of **2:3** is recommended in delivery rooms (1st, 2nd and 3rd stages). In the **USA**, a nurse:patient ratio of **1:2** is recommended in case of **post-anesthesia patients**(California), in case of intensive care patients, **neonatology intensive care**, in case of a patient treated in **emergency departments requiring intensive therapy, in delivery rooms** (1st stage), in the coronary care, in the burn unit and acute respiratory care; in England, in the intensive care unit; in Australia, in the neonatology intensive care unit, in the coronary care on day shifts, in case of high dependency units; in **Canada, post-anesthesia** units in case of conscious (waking) patients, in intensive care, in dialysis departments. In the **USA**, a nurse:patient ratio of **1:3** is recommended in **ante/post partum departments**, in labour room, in pediatrics, in the emergency department, in telemetry units, in „step down" units (subintensive); in **England, in emergency departments, in pediatrics** (under the age of 2); in **Australia, in the emergency departments**, and a further 1-1 triage nurses in the morning and at night are also needed as well as 2 triage nurses in the afternoons, and a shift manager in every shift, in the coronary units during night shifts; **in Canada, in the emergency departments**, at the telemetry units in „step down" units (subintensive). In the **USA,** a nurse:patient ratio of **1:4** is recommended in **Surgical/Internal Medicine departments**, in other special care units, in psychiatric departments; in **England, in the Surgical/Internal Medicine departments**, in pediatrics (above the age of 2 in day shifts); in **Australia, in the ante/postpartum departments** (in day shifts), in **Surgical/Internal Medicine departments** (in day shifts in case of Level I. hospitals, in the mornings in case of Level II. hospitals); i**n Canada, in the ante/postpartum departments, in pediatrics, in Surgical/Internal Medicine departments.** In the **USA,** a nurse:patient ratio of **1:5** is recommended in the **Surgical/Internal Medicine departments** (at night in case of California), **in rehabilitation departments, in case of a "skilled nursing facility"; in England, in pediatrics** (above the

age of 2 in night shifts), in case of **nursing departments** (but no more, than 1:7), in case of **nursing homes** (in mornings); in **Australia, in the Surgical/Internal Medicine departments** (afternoons in case of Level II. hospitals, mornings in case of Level III hospitals); in **rehabilitation departments** (in mornings and afternoons). In the **USA**, a nurse: patient ratio of **1:6** is recommended in the **newborn unit and the psychiatric department** (California); in **England, in case of nursing homes** (afternoons); in **Australia, in the ante/postpartum departments** (in night shift), **Surgical/Internal Medicine departments** (afternoons in case of Level III. hospitals). In **Australia,** a nurse:patient ratio of **1:7** is recommended in case of **aged care wards** (mornings). **In England,** a nurse:patient ratio of **1:8** is recommended in case of **Surgical/Internal Medicine departments** in night shifts; in **Australia, in case of aged care wards** (afternoons), in case of **Surgical/Internal Medicine departments** (at night in case of Level I-II. hospitals). **In England**, a nurse: patient ratio of **1:10** is recommended in case of **nursing homes** (at night); **in Australia, in rehabilitation departments** (in night shift), and in case of **Surgical/Internal Medicine departments** (at night in case of Level III. hospitals). **In Australia**, a nurse: patient ratio of **1:15** is recommended in case **of elderly care wards** (at nights).[54;55;56;57;58;59;60]

Based on research, it can be assessed that a **strong correlation is shown between the number of daily nursing hours to one patient and "nursing-sensitive" rates as falls**, pneumonia acquired in hospitals, upper-gastrointestinal hemorrhages, shock/heart failure, decubitus (in case of surgery patients) and urinary tract infections (in case of surgery patients). The research of Kane and his colleagues highlighted the fact that **the likelihood of mortality related to hospital care can decrease by 9-16% by every additionally employed nurse**.[61;62]

A strong correlation is shown between the above statements and the statements expressed in point II.6. on the correlations between the nursing staff and infections related to health care services – regarding the significance of the subject. Nurses feel overworked. In order to examine the workload, we need to examine the changes in the past years' professional minimum conditions. **In 2001, the 1996 order was still in effect, prescribing 21 nurses for a 40-bed internal medicine department, while the 2003 modified order prescribed only 13 nurses for the same internal medicine department.** The minimum order truly prescribes the minimum, however, it is an open fact that **economists do not always allow a deviation upward from this order, in order to decrease institutional costs.** Therefore, **we are forced to treat patients with greater nursing demands with a smaller number of nurses**. Unfortunately, the health status of the population is worsening, the population is aging, multimorbid patients check in with high-level nursing demands, and the expectations regarding treatment increased as well. These social challenges are needed to be met with a decreasing number of nurses. Due to the occurring **discontent, exhaustion, the low salaries, the alternating work schedules and the lack of societal- and professional recognition, the present well-educated workforce is also leaving the field.**

II.6. CORRELATIONS BETWEEN THE NURSING STAFF AND THE INFECTIONS RELATED TO HEALTH CARE SERVICES

The infections related to health care services are among the most common, preventable complications, which affect hospitalized patients, endangering their safety. Despite the efforts made, the load of the infections related to the European health care services is high, and causes an approximate of 37000 deaths annually. The infections related to health care affect millions of patients worldwide, the number of infections related to health care services in the European Union only is 4544100 and it increases hospital stay by several days in 16 million cases.

The occurrence of infections related to health care services depends on several factors. In one study, during the evaluation of professional publications published between 1996 and 2012, 10 key components were identified. **These are the hospital hygiene control, the utilization of**

beds, the employment of staff, the work load, the employment of nurses; the access to material and equipment, the suitable utilization of guidelines. The **suitable education of health care workers is also a factor**. These all can be associated with infections related to health care services, and **if we improve upon these factors, the frequency of such infections can be decreased and patient safety can be improved[63]** According to one survey in which the knowledge of educated, practicing nurses was examined regarding infections related to health care services, the majority of the nurses (87%) possessed "sufficient" knowledge, while only 4% possessed well-rounded knowledge regarding the preventive actions for infections related to health care services[64]

The **hospital staff** is one of the provable **key factors** correlating with infections. The ratio between nurses and patients is not only an important tool for measuring the quality and the work conditions, it is a factor affecting the quality of the nursing and the recovery of the patients as well. According to empirical studies, the number of staff – among others – affects the risk of infections as well as the deaths due to complications recognized too late[65] A further reason for increasing concern is that the changes within the nursing workforce and the structural changes in hospitals have a negative effect on the patients. Several studies have indicated that overcrowding, underemployment or the lack of balance between workload and resources are all major factors regarding the determination of infections and the occurrence of micro-organisms related to health care services. It is also important to note that not only the number of staff, the educational level also has an effect on the results. The connection between underemployment and infections are complex, the lack of time may also be a determinant – which results in the recommendations for preventing infections are not completed –, as well as unemployment, workplace burnout, absenteeism and the high staff reduction. Several international studies researched the effect of different nursing models on the costs of care, the adverse effects on patients and the occurrence of wound- and urinary tract infections. Based on examinations conducted in several teaching hospitals, it can be stated that **the lower the number of the employed educated nursing staff in a given unit, the higher the number of different occurring infections.** In the study conducted in the Canadian Ontario 19 teaching hospital, the correlation between different nursing staff models and the occurrence of complications was examined. The models were grouped as follows: 1) RN/RPN (Degree Nurse/Practical Nurse) nurses, 2) only RN, 3) regulated and non-regulated staff (URW- nurses providing health care services not in clinical employment, 4) RN/RPN/URW combination. In internal medicine-, surgical- and obstetric departments, where the number of professionally educated nurses was lower, or the number of experienced nurses was lower, the rate of wound infections was higher[66]

In the study of the University of Columbia associates, the correlation between the Degree nurse (RN), Licenced Practice Nurse (LPN) and Nurse Assistant (NA) workforce and the infections related to health care services were examined in retirement homes. While in the case where the elderly were cared for by an RN year by year, the incidence of infections decreased by 3,8%-, in the case of LPN nurses, this decrease was at a rate of 2%. In case of RN nurses, it was shown that less infection cases occurred for 1000 residents by 38[67]. They have researched the correlations between care by nurses with different qualifications (RN, LPN, NA) working in internal medicine and surgical departments and the occurrence of complications. The number of RN nurses is in correlation with the decrease of the length of hospital stays, and the number of RN nurses and the nursing hours conducted by them decreases the incidence of urinary tract infections and pneumonia. The higher number of RN nurses working in surgical departments are also in correlation of the decreasing rate of urinary tract infections (UTI)[68] If the number of Certified Nurses is increased by only 1 person, the infection rate can be decreased by a value of 0,19. **The number of nurses with higher degree qualification increases patient safety and promotes high quality care. [69]** An Australian study was expressly examining the effect of nursing assistants on the occurrence of complications.

According to the results, a significant correlation can be shown between care by nursing assistants and the occurrence of urinary tract infections. In case the patients spent 10% more time in the care of assistants, the chance of UTI occurrence was increased by 1%, while the chance of pneumonia occurrence was increased by 2%. In departments, where assistants were in a bigger percentage, a 10% extra time spent resulted in a 3% increase of UTI development, while the chances of the occurrence of sepsis was increased by 1%[70]

In a synthesis study, 35 professional publications published between 2006 and 2017 were examined. It was determined that **a higher number of nurses decreased the risk of inhospitalis mortality by 14%.** Furthermore, it was determined that **in departments with a greater number of nurses, the outcome of illnesses was better as well**[71]. Examining the correlation between infection complications related to health care services following surgery and the number of RN nurses, a significant correlation was determined between UTI as well as pneumonia and RN nurses working full-time. If the treatment time conducted by RN nurses is increased by only 30 minutes, the occurrence of UTI would be 0,16 regarding 100 surgical cases. With an equivalent of RN treatment time, the occurrence of pneumonia was lower by 4,2%.[15] Examining the data of 124 thousand patients, similar results were published, as in if the patient care time of RN nurses were to be increased by 1 hours for every sick day, the chances of pneumonia-occurrence would decrease by 8,9%, and the 10% increase of RN nurse numbers participating in treatment would decrease the chances of complication-occurrence by 9,5%.[72] In Great Britain, the data of 137 hospitals were analyzed for two years (2009-2011) regarding the number of nurses/number of patients, in which it was determined that if a general ≤ 6 patients are provided for every (RN) nurse, the mortality rate was 20% lower than in the case of > 10 or more number of patients were provided for one nurse. [73]In a Swiss study conducted in an intensive internal medicine department, patients staying in the department for more than 7 days were examined. The daily median number of the nurse-patient ratio for the examined period was 1,9. As a result, it was shown that the risk of infection-occurrence with a ratio above of this nurse-patient ratio was nearly two times higher.[74]

In every year, **near 7 million hospitalized patients are infected during the treatment of other illnesses.** In a 2012 study, **urinary tract- and surgical infections** were examined, which are the most common infections, possibly occurring at any hospital units. **There was a significant correlation between the nurse-patient ratio and urinary tract- and surgical infections.** Controlling the severity of the patient's status and the nurse and hospital characteristics in a multivariate model, it was assessed that **the burnout affecting the nursing staff is significantly correlated with urinary tract- and wound infections.** In hospitals where burnout was decreased by 30%, the number of total infections were lower by 6393 (an even 29% lower UTI and 74% lower wound infection-occurrence), which may **result in an annual cost-saving** of 68 million USD. The **decrease of the burnout of degree nurses is a promising strategy for the management of infections occurring within acute treatment institutions.**[14]

II.7. ENSURING PROPER WORKING CONDITIONS FOR NURSES

It is important at the **determination of the range of nursing equipment that will be purchased** in the future that **nursing researchers/ developers** are also able to participate, who are able to adapt international practices into the national practices, and able to develop a strategic development concept, in addition to our nursing leaders representing recent practice. As an example, the **acquisition of smart nursing equipment should be highlighted** (which in most cases is not a material issue but a question of attitude) and the record of data received by the devices via wireless communication within the EESZT, in the **electronic nursing documentation.** (For more details, see Section II.4.) Providing the adequate occupational / protective clothing is importantin, also **in accordance with international examples, vocational/Bachelor/ Master nurses should have different occupational clothes per level of education**.

II.8. PROBLEMS CAUSED BY THE INAPPROPIATE HEALTH CARE SERVICE STRUCTURE REGARDING PATIENT CARE – POSSIBLE GAINS OF THE HUNGARIAN INTRODUCTION OF TRANSITIONAL CARE (TC)

Transitional Care (TC) is a specialized treatment field for patients who require more than the provision of the acute hospital sources, yet they still require a 24-hour medical-, nursing-, or other health care services during their recovery or rehabilitation. The aim of this treatment form is the decrease of possible readmission, the maximizing of patients' independence, providing individual- and group education for patients and their relatives, to provide consultation, and to assess and promote the needs of patients. Patients utilizing TC care stay in the institution for an average of 5-30 days. The patients mainly require the following services: cardiological rehabilitation, rehabilitation following surgery, oncologic and pain management, pulmonary care, complex wound treatment, complex medical treatment. Based on the statistics, in the USA, an approximate of 3.3 million patients required readmission within 30 days in 2011, resulting in a total cost of 41 billion dollars. In one of the studies conducted by the Cleveland Clinic, the effects of the work of **Advanced Practice Nurses with a Master's degree** and temporary care on **rehospitalization** was examined. During the intervention phase, **adjusted 30-day readmission rates declined from 28.1% to 21.7%.** The absolute reductions ranged **from 4.6% for patients at low risk for readmission to 9.1% for patients at high risk.** The task of a Master level nurse – with the aid of the health care- and social system – is the maintenance of the individual's health, the minimizing of the effect of illnesses, the coordination of complex therapeutic regulations, and the cooperation with physicians and relatives. Studies show that this treatment model **improves the satisfaction of older adults, decreases the resumption of treatment and decreases the costs of health care services**. In the case of patients, who have undergone an unplanned caesarean section, the hospital budget was decreased by 22%, in case of treatment of high risk pregnancies, it was decreased by 39%, and in the case of treating patients who underwent hysterectomy, the decrease was 6%. In case of care controlled by advanced practice Master's, the degree of rehospitalization was lower in one year following discharge and 5000 USD was saved for every patient.[75;76;77]

According to Hungarian legislation, a **Nursing Care Department and a Nursing Care Institute** can be established, however, in order for them to operate as actual structure-transformative elements, profession policy support and the elevation to policy program-level is necessary**. The home nursing services** - as existing and financed structures - **require correction,** as the legislation in force **makes difficult to provide services and equal opportunities for patients**, does not provide opportunity for need-based care, and disproportionately neglects nursing tasks (eg. physiotherapy takes on priority status), mostly certain nursing tasks (eg. wound care) outside home care frameworks, due to lack of nursing education, limited visit frameworks, insufficient funding and lack of human resources.

In addition to the tasks set out in the National Economy's 20/1996. (VII.26.) Decree, there are several other tasks that need to be introduced in Hungary in the case of home care internationally: drug infusion therapy (eg. chemotherapy, antibiotics, analgesia), transfusion therapy, peritoneal dialysis, diabetes management, bowel and bladder training, suture removal, sampling (eg. blood, stool, urine, sputum), client education.

The question of the **employment of nurses, professional nurses, physiotherapists, and speech therapists working in professional home care and rehabilitation, who cause hospital care** should be also a priority. As a starting point, we recommend to increase the amount of the visit fee adusted to the percentage of wage increase of health professionals, because **without the increase of the visit fee the service providers cannot settle the wages.**

In additionto to this segment, it would also be important to have a payroll option where **qualifications are taken into account**, making the area more competitive with workplaces which have the same qualification requirements.

Although, in a significant part of the Strategy we used evidences from acute care to demonstrate that **the appropriate proportion of Bachelor nurses in the acute care system significantly reduces the risk of of patients' health damage (serious side effects) or death, but we should not be forgotten about chroonic care.** Harrington et al. indicated in 2016 that 33% of those patients who were treated in nursing homes of the American State Health Care System (Medicare) had unexpected serious side effects and these's final outcome was health damage or even death, during the first 35 days of relocation from hospital post-acute status to nursing home. In 2011 in Medicare there were 2.5 million hospital relocations to nursing homes, which costed 28 billion USD. During the examination of the Rivising Chief Medical Office, **in the background of 60% of serious side effects was under-care, inadequate monitoring, delays or mistakes in care**, which additionally totally costed 2.8 billion USD. Referring to another study, it is mentioned that in 2011, 25% of nursing home patients were re-admitted to hospitals with problems that could have been prevented. We can see that the framework and quality of organizing chronic care has a strategic importance regarding cost-effectiveness in active care and health care, that is the reason we do not support the transfer of chronic beds to the social sector. Also due to the fact that the required qualifications are different, caring and nursing is different and the professional content of care is different. **There are no similar data available in Hungary on the inadequate nurse: patient ratio in the field of chronic care, and on the level of acute care due to the lack of nurses with an adequate certification is currently unavailable. If this data becomes even closely to approximate, the Bachelor nurses' implication to the system will be compensated by the fact that these nurses will be able to eliminate a significant portion of unnecessary acute hospital admission.**[78]

II.9. QUESTIONS OF FINANCING THE NURSING CARE

Several countries finances nursing services within the framework of the so-called Nursing Care Insurance – from an independent account – in order to monitor nursing costs, the effective utilization of financial sources, and lastly, for the servicing of the treatment of patients requiring care within the framework of an insurance scheme. Germany, the Netherlands, the UK, the USA, Israel manages the costs of the monitored services of the service providers, while e.g. Austria provides an amount designated for the purchase of a specific service for the patient. **The budget is regulated by law in all countries.** In Hungary, we have made the first step on the way to establishing nursing insurance by the establishment of professional home nursing services and realizing their independent financing. **The Hungarian system is equivalent to the German nursing insurance system, the establishment of a Hungarian nursing care insurance system is the most easily executable using the German model.**

We highly recommend **to develop funding codes, and to carry out code development / code maintenance / review for professionals** (especially nursing) **– similar to medical practice as in existing areas which could be examples** (physiotherapy, dietotherapy). However, the development of professional protocols will be essential which should be interpreted equally throughout the caring system. Based on the good evidence based practice, it is necessary to develop nursing protocols, without this, patient safety cannot be increased, **the incidence of nosocomial infections cannot be reduced, and the negative consequences of unreasonable and/or old and outdated equipment and/or old and outdated practices and/or even the negative consequences of interventions within the institution with significant differences cannot be dismantled. Extensive collaboration, good methodology, foreign language knowledge and literature researches** are essential to the development process, beyond the knowledge of national practices. The development work carried out so far in this field with extensive cooperation in respect of the Textbook of Nursing Science can serve as a good example. This is also essential to provide the appropriate professional background for skill / simulation practices.

II.10. NURSING PROPOSALS FOR PUBLIC ADMINISTRATION

For the sake of the professional representation of the nursing profession, the establishment of an independent **Nursing Department** within the Ministry of Human Capacities and the improvement of the apparatus, with special regard to the national- and international representations of the several hundreds of thousands of professionals including tens of thousands of nurses, to the departmental control covering professional education, to the reformation of the mandatory continuous developmental system and the importance of the professional's certification system.

Establishment of the **Government Chief Nursing Officer (CNO)** position on state level with the relevant **scope of practice and infrastructure** to support and influence professional political decisions. The re-establishment of the national professional monitoring system, for the inspection of the external and internal quality management system's operation.

II.11. LEGAL CONSEQUENCES DUE TO NON-COMPLIANCE WITH THE 2005/36 EU DIRECTIVE AND PROFESSIONAL PROBLEMS DUE TO THE INADEQUATE STRUCTURE OF THE VOCATIONAL HIGH SCHOOL SYSTEM RELATED TO THE HUNGARIAN VOCATIONAL NURSE EDUCATION

II.11.1. Legal problems related to the Hungarian vocational nurse education

Opposite the former systems, the current system of **the Hungarian vocational nurse education** – in which a general nursing- and health care assistant qualification, a practicing nurse qualification following the 12th semester, and finally a nurse qualification can be acquired within the framework of the vocational high school education – **does not fulfill the minimum requirements defined in the relevant 2005/36 EU directive** (European Committee, 2005/36/EK order), **which are obligatory for Hungary as well** (Figure 7). According to the 2005/36/EK directive, the nurse education can be initiated from the 10th grade, it may be continued in a day work schedule in the form of a minimum 4600-hour and 3 year education. **The Hungarian vocational nurse education – deviating from the directive** – begins from 9th class (cumulative and offset), it may be continued in full- and part-timework schedules as well, in which the number of hours can be 1527, while in the case of full time education, the number of hours can be between 3214 (two-tier education) and 3639 hours (three-tier education) (in case if we incorporate the relevant hours of the vocational high school education, although the EU directive only allows incorporation from an equivalent level of education).

In consequence of the above, the following **crucial situation has emerged**: regarding the Hungarian vocational nurse qualification, the National Healthcare Service Center is legally **unable to issue compliance to the minimal requirements** of the 2005/36/EK Union policy following 2012, thereby the official certificate **for EU conformity**, also, **without the radical modification of the system, an infringement procedure can be initiated against our country**, and **our nurse education may be excluded from the automatically certified qualification based on community law.**

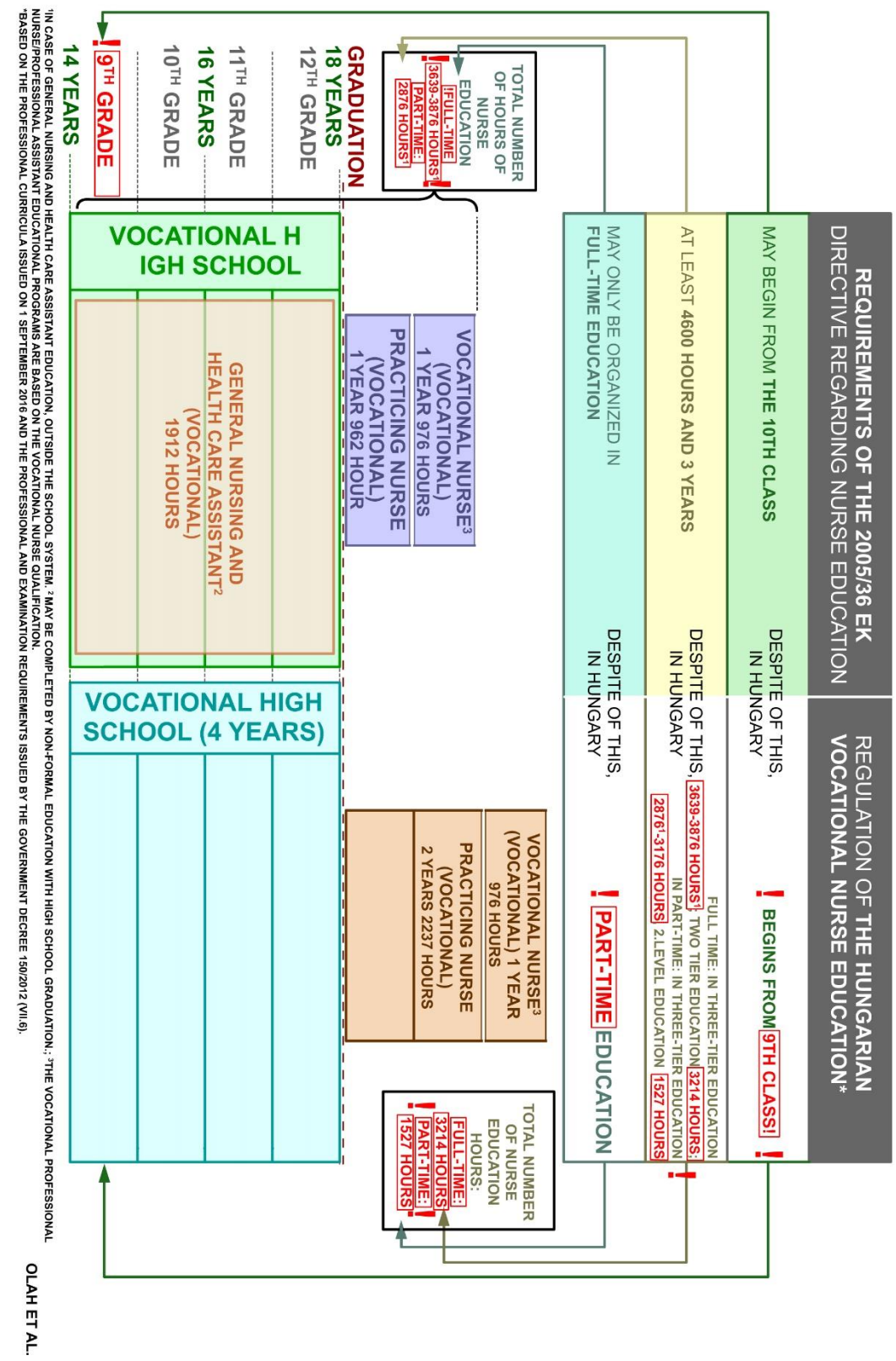


Figure 7. Framework for regulating vocational nursing education in Hungary compared to the requirements of EU Directive 2005/36 on nursing education

II.11.2. Professional problems regarding the Hungarian vocational nurse education

With the introduction of the vocational high school system, the Ministry of National Economy determined the maximum number of hours of the 4+1 year vocational high school professional education and the professional qualification-augmentation (with which the number of hours required by the 2005/36/EK directive cannot be provided regarding **nurse education**). Instead of the 4600-hour **education** prescribed by the EU directive, and adapting to the framework determined by the NGM, the total number of hours in case of a three-tier **education** is (general nursing- and health care assistant, 1 year practicing nurse, 1 year nurse): 3851 hours in full-time work schedule, with school-system general nursing and health care assistant education, in case of nursing- and health care assistant non-formal education, it is 3639 hours, in part-time work schedule, in case of general nursing- and health care assistant non-formal education is 2876 hours. In case of a two-tier system (2 year practicing nurse, 1 year nurse), in a full-time work schedule, it is 3214 hours, in a part-time work schedule, it is 1527 hours. The determined number of hours is professionally unsuitable, since there is not enough number of hours for the deepening of certain curricular contents within the nursing **education** compared to the practicing nurse, and in case of the latter, to the general nursing- and health care assistant education. For example, anatomy- and physiology education is no longer available in the practicing nurse- and nurse **educational** programs, i.e. only the 9th grade general nursing- and health care assistant **education** provides anatomy-physiology education, while these are crucial for both **educational programs** based on them due to the wider scope of practice of the practicing nurse- and nurse **educational programs**.

The latter is also rendered impossible by the fact that the qualification of the subject teachers is insufficient (e.g. the education of clinical practice and pharmacology can be conducted by Bachelor nurses and health care vocational teachers as well), while according to the professional and exam requirements, the vocational nurse receives an independent scope of practice for prescription and ordering infusion therapy (compared to the practicing nurse education, with 17 further hours of pharmacology education, and without anatomy/ physiology education within **the practicing nurse/nurse educational programs).** These facts also show that the scope of practice circle determined by the professional and exam requirements and the Curriculum-designated competencies to be developed contain several elements which the student cannot be prepared for (e.g. prescription, arterial puncture). Further anomalies of the education framework in their case: they study internal medicine, surgery, pediatrics subjects in the first school year, while studying the anatomy and pharmacology at the same time in second year, and basic therapeutic knowledges in the second semester. These students need to learn more than 20 topics in the first school year, which is neither professional nor pedagogical. While students come out with lower basic skills, many children find it very hard to share their attention on so many topics. Many find it difficult to read and study a foreign language (English/German/Latin). Because of all this, the drop-out rate is high in the first half of the year, so the scholarship system cannot fulfill its motivating role.

A further problem is that while earlier the entire nurse education could be completed in a non-formal model, currently only the general nursing- and health care assistant and several professional assistant educational programs can be completed in a non-formal model, which is **not compliant to the requirements determined in the 36/2005 EK EU directive**. **The problems with the non-formal system are the following: they can be organized within the framework of individual preparation, grouping and distance education, thus it can be completed without manual competency examination and demonstration, the examination of practices are not- or only demonstrated in writing, which is a severe professional problem. Its number of hours is significantly lower compared to the school system, any legal person can initiate such an education following accreditation,** and accreditation is examined by the organization of the Hungarian Chamber of Commerce and Industry with territorial competency. The institution is not

obligated to possess any king of equipment, the accreditation can be realized by the presentation of a framework agreement with the inclusion of professionals requested by the Hungarian Chamber of Commerce and Industry. While in the school system, the number of hours is determined by programs and subjects, in the non-formal educational system, every number of hours is regulated within a significantly broader framework. The curriculum-content, technical literature background and teachers of the formal educational programs are all regulated. **The formal educational programs possess central framework curriculum, while the non-formal educational programs only need to adhere to the regulations determined by the Vocational exam requirements (SZVK),** and only a fraction of the module content (e.g.: task profiles) are highlighted. We suggest the verification of the sectoral professional educational programs and determining, which given vocational education forms cannot be organized in case of adult education in point 7. of the Vocational exam Requirements. **Aside from that, it is necessary to discontinue the non-formal** educational **model in case of the general nursing- and health care assistant** education **as well.**

The Ministry of National Economy has determined the number of modules and programs as well as their characteristics within the formal educational programs. **Certain worthy fields cannot occur as independent programs, only as subjects within a program,** e.g. anatomy-physiology is only a subject within a program, which constitutes as one program together with further 4 subjects (e.g. first aid), which is evaluated with a common grade. Aside from that, the classroom and demonstrational practices were eliminated, which – along with theoretical education – is crucial for the acquisition of certain interventions and cannot be supplemented by hospital practice.

The status of the sectoral professional education is further worsened by the fact that there is no national unified system regarding the incorporation of previous specialized professional knowledge – section (1) of par. 22 of the 2011 CLXXXVII. act –**, the degree of incorporation is based on subjective evaluation as determined by the professional program, which differs by schools/educational institutions.** We also have knowledge about cases where the degree of incorporation is not uniform regarding students with equivalent professional backgrounds, and there are also cases where a given incorporation is not justifiable professionally. The subjectivity available creates a possibility for vulnerability both in formal- and non-formal educational programs. Last, but not least, the **degree of acceptance is not irrelevant from the point of professionalism** – human resources education – either. **The lack of a national unified incorporation system is a problem regarding formal educational programs, however, it is an even greater problem regarding market-based, profit-oriented teachers with- or without legal personality, where occasionally the aim could be the reduction of costs and the increase of competitiveness** (shorter period of educational time compared to other, profession-based educational institutions), the unrealistic decrease of educational time by exploiting the possibility of incorporation, often disregarding professional interests. **The establishment and coordination – within the framework of a suitable ministerial background institution – of a national unified system regarding the system of incorporation.**

The 2011 CLXXXVII. act on professional education enabled the **realization of a dual educational structure** regarding health care educational programs since January 1, 2013. For the sake of a uniform **theory and practice, a close cooperation between the school and the practice educational establishment is essential** (obligatory documented consultations between the educational institution of theory and the organizer/performer of the internship), to which the demonstration of the nationally unified and observed program description/subjects and its provision to the organizer/performer of the practice is closely connected; it constitutes as the basis for practical education, aside from a well-constructed educational structure. This way, the acquisition of practical knowledge related to the theoretical educational subjects can be realized, as well as the development of competency, capability and manuality.

However, currently **the practical placements in dual education are unregulated, making the output requirements of the vocational education very difficult**. The biggest problem is that **there are no proper professional and legal requirements for the number of staff with professional competence to make professional practical placements.** While this is regulated in the public education system, this is missing in the practical educational institutes. **It is not known, regarding to the given practical educational institute, whether there is an independent vocational lecturer; the number of students per lecturer and what specific expectations should the lecturer met in practical experiences, and in pedagogical, or professional point of view.** If a mentor performs the task, the question is if the mentor does it in parallel with a daily nursing job (for example if there is a ward with 50 beds and 2 nurses, and one of them is the mentor) when does the mentor have time for students and for workflows which should be trained professionally for future nurses.

Pupils in the 11th grade are already practicing in curative wards. A permanent supervision should be provided for them because they see a naked body for the first time, who needs help in self-hygiene and defecation. They first meet with dying and dead care, for which they are not really prepared, they see bleeding and purulent skin etc. for the first time. **The experience gained here greatly inhibits in many cases the successful career motivation of students.**

In the case of a 2-year-long nursing assistant education after high school, **according to the subjects, the practical education can not follow the theoretical education, therefore students attend practical placements without professional knowledge.**

The definition of dual education is part of 108. § 1 b. Section of the National Higher Education Act. According to it, the dual education is: "the form of education for the practice based Bachelor education, in the area of information technology, agriculture, natural sciences and economic sciences and the belonging master educations, where according to the education and qualification requirements- the practical education is a full time study, its curriculum contains directives regarding the study time, study method, lectures, individual evaluation of the gained knowledge and taking part at qualified organisations within frames defined by the Dual Educational Committee".

This way, the dual education is a form of a practice based education in Bachelor level, where the practical internships at professionally qualified employers increase the professional competence and strengthen his culture though their curricular content, structure, increased amount of practical hours spent at the employer as well by the earned work experience. As in the case of dual education, during the education the cooperating employer also formally teaches the students in a predefined way, closely fit to the curriculum of the higher education institution. **With the support of this educational system a workforce leave the higher education, who is able to enter the workplace immediately, without any further financial expenditures or year's long additional training. This means, it is a quick and effective tool in the solution of labour shortages on qualitative level.**

Currently there is no dual education in the higher education in the medical-health care educational area in accordance with National Higher Education Act, however considering the practice orientation of the model, it is appropriate to analyse the integration of the health science related studies into the dual education system. Despite of the fact, that the workplaces can only functioning as dual partnerinstitutions, these are solely state financed institutions, the integration of the dual education system should be part of the national strategy, it could be essential in the labour force replacement in healthcare, because the main problem regarding the human resources is the unpredictable fluctuation, this way the resupply of professionals could be plannable. The institutional support for students, which means 65% of guaranteed minimum wage can support a livelihood in the short term beside the existing, normative-based social and performance-based bonuses.

The lack of nationally unified and obligatory, up-to-date **professional textbooks with** suitable professional content **as well as the recommended professional material and policies** is an issue closely connected to the above-mentioned problems. In order for the quickest and most simple possible realization regarding the curriculum/subjects, it is suggested and practical to provide electronic access to the curriculum, which may facilitate the provision of a unified education.

The **textbook background of nursing education is appropriate to expand additionally**. A good example of this is the publication of the electronic textbook "Nursing Science" in 2012, which was a true niche to the literature on nursing education in Hungary, since it is an innovation in health education and practice in order to promote the introduction of international practice based on modern evidences.

It is known that the **number of general education subjects was decreased** (in case of our department, chemistry, physics and geography may be eligible for education above the scarce number of hours of the complex natural science subject), therefore, one general education subject remains by sector; in case of health care, it is biology. **Aside from that, contrary to high schools, only one foreign language subject is possible, while a language exam will become a mandatory entrance requirement in academics by 2020. These factors complicate not only the flexible compatibility to future challenges, but the application for higher education as well. Since only biology possesses a suitable number of hours, the student – regarding the subjects mentioned above – will not necessarily acquire an opportunity for a high school/secondary school leaving exam on an intermediate/advanced level, complicating his/her continuous development.** Due to the 2017 legislative amendment, the vocational high school education provides an additional vocational qualification as well, although this is optional for the students and not mandatory. This may result in a problem for two reasons: first, **it cannot fulfill its role regarding our sector**, ("promotes transition to higher-level educational programs, provides the conditions for development, studying and re-educating, it conforms to the changes and the continuous developments in a flexible manner") and it cannot provide a suitable number of young workforce with utilizable professional qualification, second, the student can also end up in a difficult situation, since he/she may qualify in the professional high school without professional qualification and without the opportunity to apply for academic studies. All this, while in Hungary, it takes 1912 hours in 4 years set to the age of 18 years and a high school/secondary school leaving exam for the general nursing- and health care assistants to acquire the same scope of practice as the nurse assistants receive internationally (e.g. England, USA) with 150-200 hours in 1-2 months – even by theoretical education conducted via e-learning.

According to a 2017 amendment, **the vocational exam** of the general nursing and health care assistant education **has been moved to the February/March period** (despite the opposition of the professional experts and the lector). This is a problem due to the fact that the framework curriculum determines the annual number of hours per week, and the high school/secondary school leaving exam cannot be initiated without the acquirement of the knowledge determined in the framework curriculum, i.e. the student is obligated to complete the given curriculum in 3,5 years instead of 4. Filling out the remaining time frame – generated by the preliminary qualification exam – is not regulated by law nor by the framework curriculum, therefore the institute decides on it of its own competence and the number of utilizable hours regarding the professional education and the exam decreases, while the minimal number of hours prescribed by the 2005/36/EK directive was not achievable already. By the recommendations of the Ministry of National Economy and the Adult Education Regulation Department, the rules of the high school/secondary school leaving exam will change as well. According to the change, **the sectoral professional written school-leaving exam (in which the level of satisfactory completion is 25%) will be incorporated as grade of five - regardless of the achieved grade - will replace the auxiliary**

professional qualification's professional closing exam (in which the level of satisfactory completion is 51%), while only covering 60% of it.

Unfortunately, the competence system within the health care sector was discontinued, thus, the suitability of applied candidates is not assessed from a health, psychological or physical point of view before the start of the education programme. The occupational health service usually focuses on the health status of students starting practical placements, or on those who obtained a degree and are already on the labor market. The nursing profession, working with individuals puts serious physical and mental stress on the person. For example: the nurse is required to apply sufficient force during the mobilization of the patients, which may result in serious complications among employees above 4 dioptres; they also required enduring the sight of blood. The health care profession is also not recommended for individuals with certain infectious- or skin diseases or allergies, as the worker's- or the patient's health might become of risk. The nurse needs to communicate with individuals and help them, therefore if he/she cannot suitably treat the clients entrusted on him/her due to his/her communication- or movement deficiencies, he/she cannot receive work. A health care worker might enter the workforce, who is mentally unsuitable to perform tasks, however, a person may acquire a qualification with physical/mental deficiencies. For these reasons, **the restoration of the competence system** in the health care sector is justified.

In order to educate professionals with suitable qualification in the educational programs within the health care sector, it is exceedingly important to have **an admission procedure with a written competitive exam (e.g. biology) and an oral interview following their registration into the professional educational system**, in order to eliminate unsuitable students before the initiation of the education, based on their professional knowledge or even their personality traits. Students unsuitable for the practice of the profession can severely complicate the realization of the theoretical and practical education, the transferring of knowledge with their negative attitude, their disruptive effect is perceivable regarding the students suitable for the practice of the profession as well. The stress is realized even on a national economic level. A portion of these students – in a certain section of the educational process – often leave education, the invested normative support is practically wasted, as well as the invested energy and costs. The admission procedure system worked in the educational structure preceding the vocational education, which was unfortunately abolished later.

Unfortunately, the vocational health care educational system does not directly fit **to the Hungarian Qualifications Framework** established according to the **European Qualifications Framework**; **remedying this problem is crucial**.

We will discuss later, but it is also important to briefly mention here **the problems of practical training** when reviewing the training as a whole. The basic problem is **the lack of trainers and lecturers in the institutions, lack of mentors and the fact that they are unable to deal with the students or they are absent.** In addition, there is a problem with practical trainings according to vocational trainings, **with vocational qualification, but without higher education degree in educational qualification practical lecturers or trainers cannot hold a practical lecture, which may lead to further serious problems with the education due to the lack of professionals** (see in II.11.4).

There is still a sufficient opportunity to **support the fields of professions as state funded education, where is a significant demand on workforce.** Although it is also important, **not to support educations, where is no significant lack on workforce.** Unfortunately the health masseur education became as state funded education, which is not justified. At the same time, there is a misuse regarding the state funding in the fields of professions, where is a significant demand on workforce. For the participants of trainings, organized by the unemployment offices the tuition fee of the training will be financed as state funding and in dual education the participant get a significant

financial support. At the same time, in the case of an unsuccessful vocational examination (not even for the second try) it is not necessary to pay back the received support. Neither this, nor the unjustified support of certain trainings contributes to the shortage of professionals in the areas affected by the shortage of labor, and therefore **changes to the system are needed.**

Recommendations for a solution

The above-mentioned legal- and professional problems attest to the fact that regarding the **professional health care educational system, the suitable professional development of the professional educational programs according to the specialties regarding the sector – according to the requirements determined by the National Ministry of Economy** – was not possible. Therefore it is justified to **develop the professional content of the sectoral professional qualifications on a sectoral level,** on the examples of the agricultural- and defense professional educational programs. **Aside from that, certain educational programs are needed to be taken out from the vocational education (e.g. practicing nurse, nurse), and organize them as a part of higher education (e.g.: as associate degree education, as dual education). By incorporating the appropriate skills and acceptable learning outcomes from the associate degree education to Bachelor nurse education, and by the substantive shortening of the education period, acquiring a Bachelor nurse's degree in 2,5 years instead of 4 years becomes possible**, if the determined subjects of the associate degree education are completed by the student with an at least average mark.

Our aim is **the establishment of an EU-conform vocational qualified nurse education of suitable standard applicable for mass-education by correcting the legal errors stemming from the non-compliance to the EU directive regarding the vocational qualified nurse and the professional errors stemming from the bad structure of the professional high school system, with the coordination of the universities, making it able to be incorporated in higher education**. During the incorporation of vocational health care educational programs (e.g. nurse) into the Bachelor's education, the associate degree education programs are suggested to be organized by county in one (in case of need, several) **vocational educational institution, which was maintained by the higher educational institution faculty operating in the given region.** This practice was properly functioning from the 1920's to the 40's, when the Hungarian Royal National Nurse- and Health Visitor Educational Institutions were functioning within the Universities.

Some authors of the present study and the Hungarian Scientific Society of Nursing and have **repeatedly initiated the transformation of public education** in the past 8 years. We are pleased to find it in sync with the government's endeavor to bring institutions of state-run to come under the maintenance of health care related higher educational institutions. **We need to support this process in order to increase the number of applicants and entrants to health care skill shortages to compensate the lack of professionals.** The national data for the past 10 years also supports the viability of the **"Vocational Education Model of Pécs",** as against a steady and significant decline the number of students in school-based education in health care dropped from 2009 to 2018 from 8,200 to 4,000 in the number of students in institutions of state-run vocational education institutions, the number of students applying to the **University of Pécs, Social and Health Care Vocational High School (PTE SZESZI) during this period has tripled in Baranya and Vas counties.**

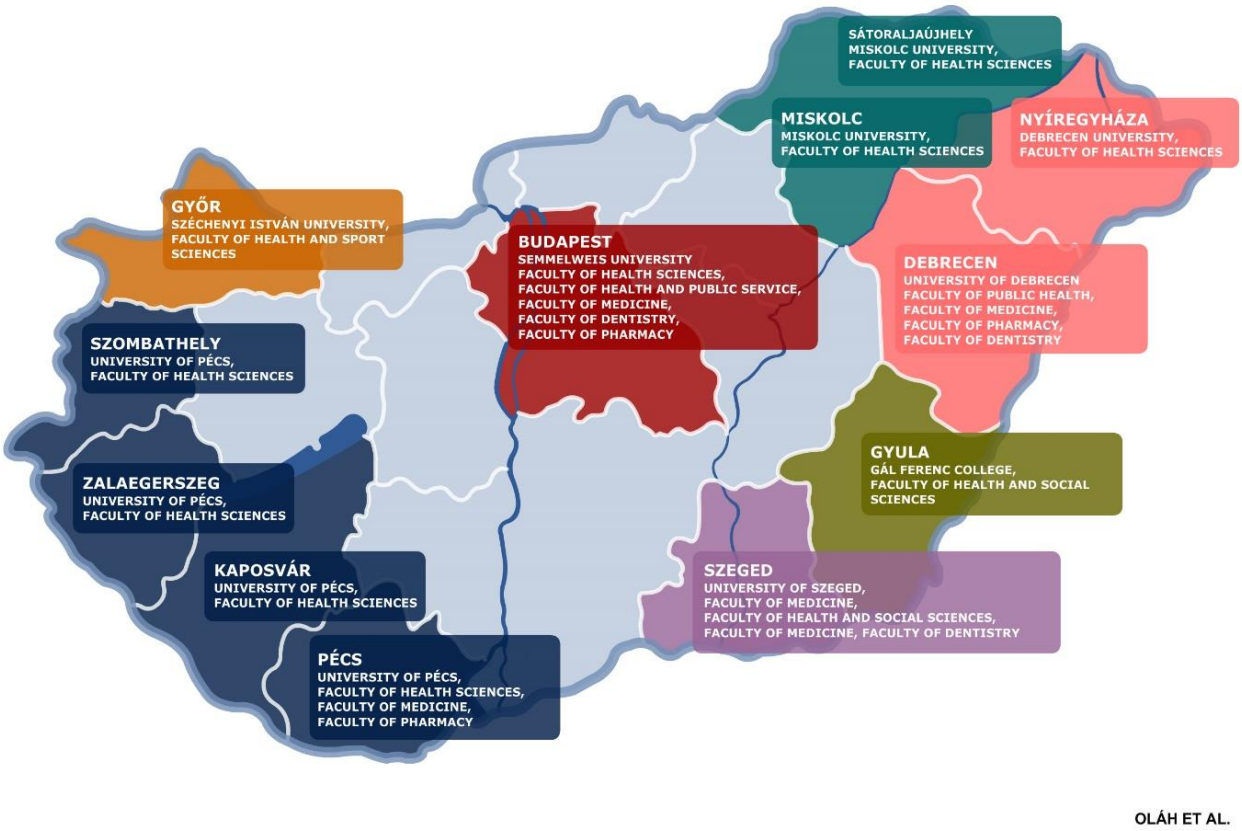


Figure 8: Locations of medical - and health sciences related higher education institutions in Hungary

Currently, there are 12 cities in Hungary (listed in alphabetical order: Budapest, Debrecen, Győr, Gyula, Kaposvár, Miskolc, Nyíregyháza, Pécs, Sátoraljaújhely, Szeged, Szombathely, Zalaegerszeg) conducting health care related educational programs (Figure 8).

For the most part, these **higher educational institutions possess exploitable real estate- and human resources capacity,** as they were able to educate/train a significantly higher number of students. It is recommended to organize health sciences educational programs in the social sciences educational establishments, or at other, already functioning locations in the form of a vocational educational institution (by locality of internship) of the higher educational institution. This structure holds several advantages:

- Secures **the education of a large number of** professionals with vocational qualification.
- Maintains the **higher educational health sciences professional education** as well the resupply thereof despite the possibly decreased number of Bachelor students by the efficient utilization of the educational and infrastructural capacities (e.g. large value demonstrational equipment).
- **Increases the standards and competitiveness of the vocational health sciences educational programs**, it can shorten the Bachelor's health sciences educational period from 4 years to 2,5 years, as in this structure (FOKSz- associate degree in the university or in an institution accredited by the university, and the establishment of vocational healthcare educational institutions maintained by the university), the higher educational institution can provide and monitor the quality of the education effectively.
- Therefore, this development may be **a significant progress both economically and professionally,** and may result in cheaper, yet higher-standard professional education, for quicker provision of workforce.

II.11.3. Transformation of nursing education to achieve the goals summarized in II.11.2.

After the regime change, the – not sufficiently grounded and not comprehensive regarding all levels of education **– changes in education did not bring the expected results.** In recent years, the number of people choosing career in health care continued to decline (Between 2014 and 2017 30% less health qualifcations were obtained and unfortunately, there are qualifications among health care qualifications that got promoted, which do not solve problems of shortage areas (especially nurses). While there are currently 5000 individuals are finishing health care vocational training on a basic level (not including the vocational high school students) and there are approximate of **1900 individuals** qualify annually as a practicing nurse and **1300 individuals** as nurse, **250 individuals as Bachelor** nurse, in case of the realization of the **concepts of the current care strategy, a minimum**

1. **of 7000 individuals** (counting with only 5000 individuals studying on vocational level and 2000 full-time Bachelor first-year students in health sciences, with integrating the nursing assistats' education hours to their curriculum and counting without other potential target groups with short-term training programs) **are educated as nurse assistant** (450-hour education without graduation from age 16 based on the international model, with the scope of practice of the earlier 4-year nursing and health care assistant education of 1912 hours, subject to 18 years of age and post-vocational education),
    a. **including 4000 individuals as general nursing and health care assistant** (18 years of age, graduation, with the scope of practice of a further 1-year nurse practice following graduation),
    b. **including 3000 individuals as vocational nurses** (2 years of associate degree education following graduation, fulfilling the EU directive opposite the present situation),
2. **1000-1500 individuals as Bachelor nurses (in a two-year education programme for colleagues with other Bachelor health care degree, supportive scholarship programme, with appropriate competences and salary)**
3. and **250 individuals as Masters can be trained in Hungary**.

Among others, aiding the **solution of the nursing human resources crisis, the job-creation of lagging regions, the gradual improvement of individuals enrolled in lower educational levels, and the significant improvement of patient care quality.** Main elements of the recommended education-development (Figure 9).

II.11.3.1. Transformation of nursing education on vocational level to associate degree education

Summary: In addition leaving unchanged the number of hours during school years (according to EU Directive 2005/36, only those hours can be calculated which were completed after the 10th grade) and adding the 1191 hours of 11th and 12th grades (604 theoretical hours, 152 hours from the group of optional subjects and 587 practical hours, in which 280 hours is one tier practical internship) and the 2-year long associate degree's 2240 hours of education built on the high school degree (theoretical: 1070 hours; practical: 1170 hours), the EU's 4600 hour-long directive can be completed within 3431 hours (theory: 1674 hours, practice: 1757 hours), because the EU directive allows the counting of individual preparation with the use of ECTS, thus the missing 1169 hours can be specified as individual preparation (as it happens in the case of international practice). **The directive also states that nursing education can only be organized as a full time, school system education, with these conditions the concept meets. In addition, as an associate degree the professional structure can be included in higher education up to 90 ECTS.**

II.11.3.2. General nursing and health care assistant education (450 hours of education; theory: 180 hours; practical placement: 270 hours)

Conditions for admission: minimum age: 16 years, primary education, basic competences and skills required for finishing primary school (writing, reading, counting, self-performed grammar and arithmetic operations related to everyday life). **The education can be carried out as part of the general nursing and health**

care assistant education in vocational schools or as part of bachelor nursing education, or independently. At the same time, it is necessary to examine whether the provisions of the Act XXXIII. of 1992 on the status of public servants should be amended according to the implementation in health care institutions (356/2008. (XII. 31.) Government Decree) **in order to enable employment at the age of 16.** According to the Act on the Status of Public Servants Article 20 (2) of the Act XXXIII of 1992 contractual relationship with a public servant can be set up with an "…at least 18 year-old…etc" person. However, the law on the implementation in medical institutions 356/2008. (XII. 31.) Government Decree, Section 2 (1) in contrast with the Act on Public Servants Article 20 (2) (b) to fill a position that requires a health care professional qualification a person who has not reached the age of eighteen may also be employed as a public servant, if the public servant at the time of establishing a public servant relationship is educated to get the required professional qualifications and skills. The education of **qualified assistant nurse education** is recommended to be conducted aside from **faculties** of health sciences **and public educational institutions**, by **health institutions** and **national institutions** involved with **skill development**. Below we propose lectures and the amount of educational hours of qualified assistant nurse education, taking into account the international practice (Table 1).

Name of the lecture / knowledge	Theoretical hours	Practical hours
Ethics and Confidence (expected behaviours against a professional, communication between health care staff, ethical behaviour with patients)	10	10
Patient rights (Patient Rights in Hospital Care, Role of Patient Rights Representative, Healthcare Law)	10	
Basic Life Support (BLS, primary wound care, emergency call)	15	15
Functioning of body – Patient transport (basics of anatomy and physiology)	20	20
Hospital asepsis (sterilisation processes, hand hygiene, behavioural rules, sterilisation, definition of asepsis-antisepsis)	20	20
Catastrophes, Unforeseen events, Patient safety (work and accident prevention in hospital environments, patient rescue strategy, creation of safe patient environment)	10	10
Observation and documentation – terminology and abbreviations in healthcare (types of healthcare documentation, administration, it's importance, observation of condition changes, knowledge of common Latin definitions)	10	10
Vital parameters (Influencing factors; normal values; methods of measuring; temperature, pulses, breathing; Blood pressure; and abnormalities, documentation)	10	30
Basics of Nursing and Caring (adult and paediatric) (physiological needs and their caring methods, non-invasive supplies, basics of medication, death and dying, carrying of death body)	30	30
Work safety (basic knowledge of work safety ; creation of workplaces; personal aspects of working; Safety of work equipment; working environment influences; knowledge of legal rights for safety work)	15	5
Feeding (micro and macro nutritional needs of the body, application of supplements per OS , support of eating, administrating of fluid balance, normal eating)	10	10
Rehabilitation caring (specialities of caring on rehabilitation ward, use of medical aids, forcing of self-caring)	10	10
Communication and behavioural rules (communication; defending mechanism; social and cultural factors; attitudes in case of illnesses and heath; family interactions)	10	10
Clinical internships for Nursing assistants (patient observation, measuring/observing vital parameters, caring of physiological needs, basics of patient care)		100
Total amount of hours	**180**	**270**

Table 1: Proposal lectures and the amount of educational hours of qualified assistant nurse education, taking into account the international practice[79,80,81,82,83,84,85]

II.11.3.3. General nursing and healthcare assistant education 1911 hours (theory: 1324 hours; practice: 587 hours)

The number of hours to be included in qualified assistant nursing education (450 hours), and the hours of the 11th and 12th year of education (604 hours of practice, 587 hours of practice) are counted into number of hours of Nursing education, while Bachelor nursing students receive a general nursing and healthcare assistant degree by completing 4th semester.

II.11.3.4. Transformation of nurse and infant- paediatric- nursing education for 2 years (theory: 1070 hours; practice 1170 hours) for associate degree education

First year of education: The foundation year of nurse and infant-, paediatric nurse education is common, after which the student can decide whether the specialisation nurse or infant and paediatric nurse will be chosen in the second, final year. Due to the large overlap between the two educations, this solution would be practical, could increase the number of nurses, and shorten the time for the second qualification.

Conditions of admission: high school degree, general nursing and health care assistant education (in case of high school degree, the general nursing and health care assistant education in vocational school can be completed in one year [1191 hours - theory: 604 hours; practice: 587 hours]). In order to preserve nursing education as a **public education,** nurse and infant - and paediatric nurse education can only be successfully converted **to associate degree education, if in the section (1) of par. 40. of the 2011 CLXXXVII. Act and in par. 14. of 423/2012 (XII. 29.) on the higher education admission procedure the conditions of the higher education degree results and calculation of points of admission to associate degree education are changed.** Currently, the condition for admission is a successful completion of high school degree, health, professional or career aptitude test, or a secondary school study and / or high school degree results (taking into account the two best graduation results) if the calculated score reaches a minimum of 240 points or more than the cut-off point of admission established by the institution. **Under these conditions of admission, it is not possible to provide the education of the appropriate number of nurses with regard to the shortage of nurse professionals.** Therefore, it is necessary that as applied by practicing Nurse vocational education, only a successful high school degree is defined as an input condition. At the same time, following the vocational education, it is possible to determine the appropriate additional conditions (E.g. basic and professional courses of nursing education on vocational level to be determined later, certification of at least medium level completion per subjects) that only those in Bachelor nursing can continue their studies with the appropriate skills and learning outcomes. **The latter students can obtain a Bachelor nursing qualification with 2.5 years of education instead of 4 years, with 90 credits included.**

Comment: **We also investigated** that if the first year of nurse and infant - and paediatric nurse education is not organized as one education**, but as two separate education section.** Then the first year of the education, the 13th year would be consisted of theoretical lessons (1010 hours of theory and 110 hours of practice) and a practicing nurse (or practicing infant - and paediatric nurse) qualification could be given (and, with this qualification, could have a job covering most of the nurses' competence under the supervision of a trained nurse after one year of high school degree). While the second year of education could be a full-time practice (1120 hours of practice) that the student could already spend at the hospital / workplace, and after a successful completion of a practical final exam, he / she would have a nursing degree (or practicing infant and paediatric nurse) qualification. **In this case, the training cannot be organized because the Associate degree education consists of 2 years according to the law, and there is no exit after the first year.** As well as the first year of the education, in which the total theoretical content of the two years has to be taught, cannot be jointly organized in nursing and infant and paediatric education, due to the tearing of different theoretical content of the curriculum for the first year. **Since in this case of associate degree education is not feasible, it could only be implemented as vocational education.**

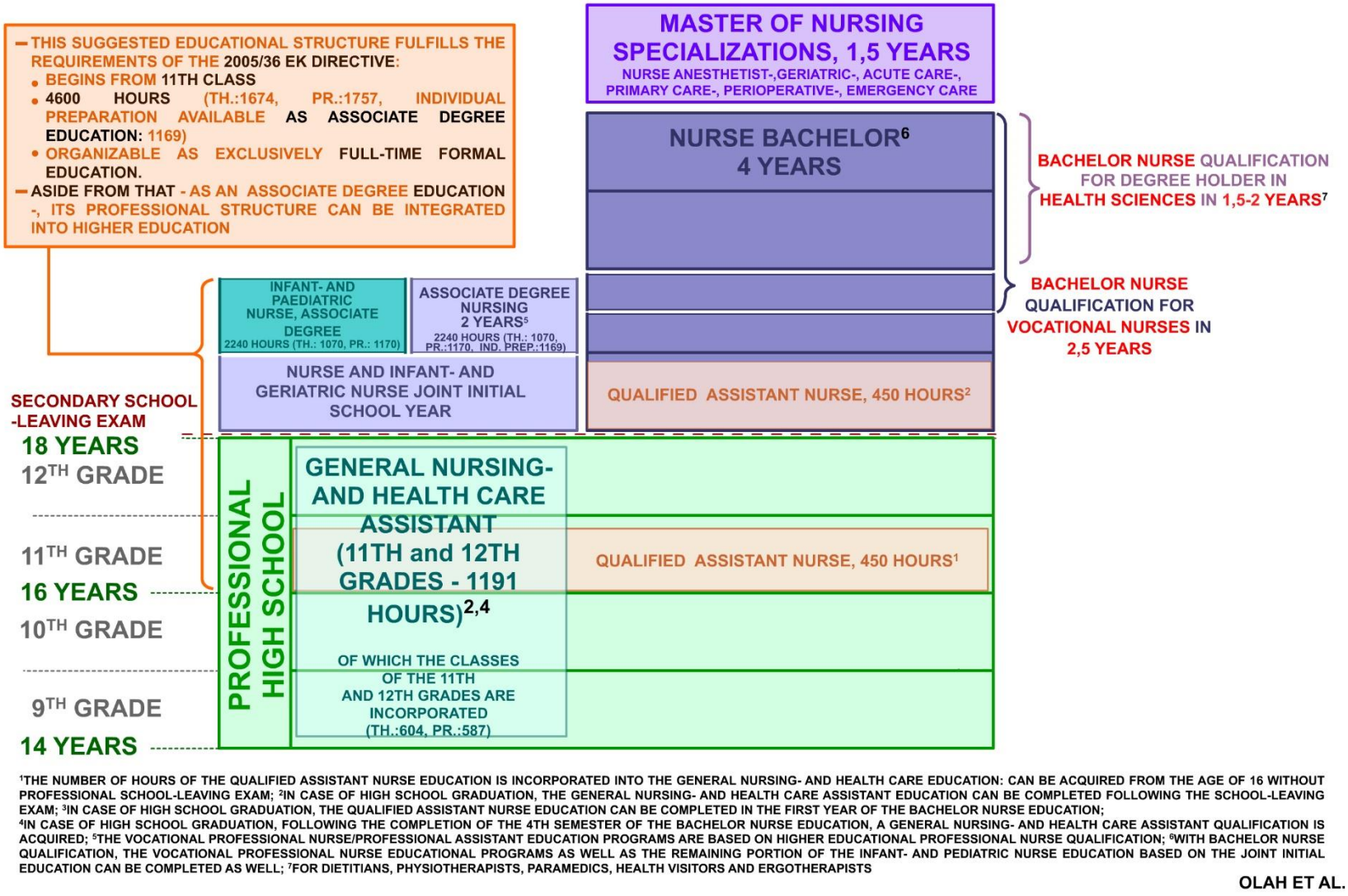


Figure 9: Transformation of the Hungarian nursing education on vocational level to associate degree corresponding to the 2005/36 EU Directive, with the possibility of joining higher education.

II.11.3.5. The currently not fulfilled EU Directive 2005/36 will meet further barriers if the Hungarian nursing education is held within the frameworks of vocational education

We have examined whether secondary education can be converted into nursing education on vocational level (and not as associate degree) to meet the requirements of EU Directive 2005/36. To sum up, it can be said that there is no legally, pedagogically and professionally acceptable solution to this: The requirements of the EU Directive 2005/36 could be provided by nursing education on vocational level only in the case of seemingly impossible changes as a higher level nursing education. **Solving the situation would require significant changes in many laws, significantly increasing the hours spent by students, because in contrast to associate degree education in primary and secondary school education, there is no possibility of counting the individual preparation, neither pedagogically and professionally, nor can we provide support for professionals of in primary and secondary school education.** In primary and secondary school education – as opposed to the associate degree education / higher education – there is no possibility of counting individual preparation hours, so the 4600 hours of EU directive starting from the 11th year is very difficult to implement, only by amending the legislation. This means 1191 hours of 11th and 12th years of the General Nursing and Healthcare Assistant education and after the high school degree ,and over the 2240 lessons of the 2 years long nursing education on vocational level, or the 1 year long practicing nurse education on vocational level or the 1 year long general nursing education on vocational level , in the absence of individual practicing accountability, 1169 hours are still missing for the **4600 hours required by the EU directive**, to be distributed in the year of 11th and 12th (since under the EU Directive only the 10th year completed can be counted in the training), which not only makes it difficult / impossible to carry out general nursing and health care assistant education, but the possible solutions are currently unlawful.

The 720 professional hours of 10th and 9th year should be transferred to 11th and 12th year, and instead general classes should be transferred from 11th and 12th years to 9th and 10th year. However, this is currently facing a vocational education framework plan, which requires that all 4 school years (9-12 years) should receive 60% of the time frame for general education, as well as **pedagogically worrying, because the general subjects are thus professionally unjustifiably far from the high school degree. In the case of a possible implementation of a change that is likely to be difficult in the primary and secondary school education r, there is still a 449-hour gap that needs to be integrated into education.** A further disadvantage is that credits of vocational education cannot be counted into the higher education, and to a considerable extent, in a shortened manner.so in this case the nursing education **on vocational level would not be able to provide the possibility to complete the 4 year Bachelor nursing education in 2,5 years.**

According to our information, **the transformation of vocational education is on the agenda**, even the **sectoral advisory boards are already working on it**. We find it regrettable that the professional advisory board has not started to operate in the health sector, so it cannot participate in the preparation of the vocational education's amendment. **We can only hope** that the interests of health care and health care professionals can be **properly represented** in the transformation of vocational education. The **lack of information** on the ongoing transformation of vocational education may lead to the situation that the **legal background changes** (e.g. health care professionals cannot start working after graduation, only after a one-year-long technician training), in such a way, when **a review is needed for the concept of the transformation of vocational education developed in this study.** In this case, authors and supporting organizations of the present study in addition to **maintaining the goals set** (e.g. providing appropriate, large number of nurses for the current secondary education; compliance with the 2005/36 EU Directive; counted 1.5 years/90 credits in the Bachelor nursing education; etc.), will later **update** their proposal for the transformation of vocational education.

Competitiveness and **qualitative, professionally** and **legally appropriate education**, which **provides career** and **development opportunities** remain important, it needs to be clarified whether the transformation of vocational education is **in proportion to the benefits pursued in health education** as well; or health care **requires special solutions for its special aspects**. In our view, the sector **should not accept** an education system that allows nurses work at different levels on the labour market after a longer education period, still does not ensure compliance with the EU directive, an unreasonably large number of hours / too long education time, or allows significantly less time for counting in credits than 1,5 years/90 credits stated in this study. Obviously, **until the introduction of the associate degree education** as a transitional measure (for a period of about 2 years), **it is appropriate to maintain** the current or similar vocational education in a way, when the **Ministry of Human Capacities** and **higher education institutions declare the date** for the **development and implementation** of frameworks (e.g. changing admission requirements to ensure a large number of participants in the education programme) of **nursing associate degree education.**

II.11.4. The opportunity to complete a four-year nursing bachelor education in 1,5-2 years for professionals from other health science education or within 2,5 years for those coming from associate degree education

As mentioned above in the study, we recommend **the duplication of the number and ratio of nurses,** who completed higher educational programmes, in the Hungarian health care system **to 2030.** It can be ensured by making the educational programme attractive with the following methods: it is offered as a 2-year-long programme for Bachelor graduates from different health care related fields, and after converting the vocational nursing training to a 2-year-long associate's programme **it is possible to complete the Bachelor of Nursing degree within 2,5 years.** In order to make the education attractive, to keep the graduates on the career path, and to make the bedside activities more appealing than the administrative leader position, the support of the Bachelor of Nursing education – which faces with shortages – with scholarships, suitable competencies and wages are needed.

As introduced above, **the conversion of the vocational nursing training to associate's degree programme ensures the establishment of the nursing education that meets the requirements of the 2005/36 EU Directive** with the acceptance of contact hours and credits with individual preparation. Furthermore, after the transformation of the vocational nursing training to associate's programme (FOKSz), the Act CCIV of 2011 On National Higher Education facilitates the accpetance of max. 90 credits to the Bachelor education on a given field (in this situation, to the Bachelor of Nursing programme) so the 8 semesters long study programme can be completed within 2,5 years.

II.11.4.1. Nursing and patient care, nurse major 4 semesters long programme

The Bachelor of Nursing education has been regulated by the 18/2016. (VIII. 5.) decree of Ministry of Human Capacities. However, the autonomy of the university may result in minor or major differencies in the implementation of the Bachelor of Nursing study programme regarding its curriculum in compliance with the mentioned regulation. **Completing the Bachelor of Nursing programme within 2 years can be ensured with an appropriate curriculum**, and the education with standard contents and examination system in the different courses (basic natural sciences, social sciences, etc. – see later) of the different health science related study programmes, besides, with the acceptance of these courses and a special curriculum for the shortened educational programme. **On this way the educational content of the whole Nursing study programme** (e.g. clinical theory, pharmacology, nursing skills, clinical practice) will be instructed without any reduction of the contact hours/credits (in part-time study programmes it can take 4 or 5 weeks in different semesters / in case of 5 weeks, the 0. week of instruction would take place in August/January). **The 2-year-long programme can be organized among all the listed educational programmes (e.g. from Nurse to Dietitian within 2 years, from Physiotheapist to Paramedic Officer within 2 years), the only barrier can be the fact if the part-time study programmes will not be started.**

The 10th figure shows an example of the 2-year-long curriculum of Bachelor of Nursing programme organized for the different health science related Bachelor degree owners (universities can apply different solutions for their own study programmes, according to the above mentioned autonomy of the universities). As the graphic shows, 110 credits can be accepted in the case of Dietitian, Physiotherapist, Paramedic Officer, Midwife, Health Visitor, Ergotherapist professionals (full-time programme: 1088 hours [theory: 562, practice: 386, clinical practice: 140], part-time programme: 505 hours [theory: 284, practice: 171, clinical practice: 50]) from the 240 credits of the VIII semesters long Nursing programme, accordingly the following courses/fields of knowledge: first aid, medical latin, cell biology, biochemistry, biophysics and health technological studies, nursing skills, microbiology, communication in health care, public health, ethics, law in health care, health pedagogy, it in health care, dietetics, health sociology, health psychology, health education-health promotion, public hygiene-epidemiology, anatomy, physiology, pathophysiology, research methodology and biostatistics, thesis, optional courses. Therefore, after the acceptance, 130 credits need to be completed in **the IV semesters long Bachelor of Nursing programme,** divided into semesters based on the 10th graphic (full-time programme: 2188 hours [theory: 864, practice: 314, clinical practice: 1010], part-time programme: 1121 hours [theory: 465, practice: 176, clinical practice: 480]). 32-33 credits need to be completed in the different semesters in compliance with the 54. § 1. section of the 87/2015. (IV. 9.) governmental decree. **In case it is possible to organize the standard education and examination system of further courses between the given specialities, the length of completion the new degree can be reduced to 1,5 years** (e.g. joint education for Nurses, Midwifes and Health Visitors in some clinical courses and their practices [internal medicine, surgery], pharmacology).

This educational programme has been launched on an experimental basis at the University of Pécs, Faculty of Health Sciences since September 2018. Its experiences may ensure to develop a student-friendly, executable, attractive and professionally authentic programme.

II.11.4.2. Nursing and patient care, nurse major 5 semesters long programme

After transforming the vocational Nursing training to the 2-year-long associate's degree, the Act CCIV of 2011 on National Higher Education facilitates the acceptance of maximum 90 credits into the Bachelor's degree on the same field (in this situation, into the Bachelor of Nursing degree), so **the VIII semesters long educational programme can be finished within 2,5 years, instead of the 4 years.**

As a principle, it can not be required for **the associate's degree owners to have the same knowledge regarding the determinant basic courses on the field of natural sciences as the health science related Bachelor's degree owners** because the graduates have not been educated on the same level. **The mentioned courses can not be accepted in case of associate's degree graduates** (e.g. anatomy, physiology, pathophysiology). Some courses are not part of the training on vocational level which is below the Bachelor's level (in this situation, vocational Nursing training) so these courses need to be instructed (e.g. research methodology and biostatistics, management skills that meet the competencies of a position which requires at least Bachelor's level, examination of patients on the field of internal medicine, thesis). From a Nursing education below the Bachelor's level, courses/fields of knowledge also can not be accepted which are built on a deeper basic knowledge of natural sciences and which need a deeper acquisition (e.g. clinical theory, diagnostics, pharmacology, professional nursing skills and the related practices, etc.). Therefore, associate's degree graduates need one more semester to complete the Bachelor of Nursing programme with proper academic performance and to acquire the correspondent knowledge and skills. The 11th figure shows the special curriculum sample of a V semester-long enshortened study programme for the 2-year-long vocational training graduates. In practice this means, these **students are able to acquire the proper level of knowledge in the fields of anatomy, physiology, pathophisiology and diagnostics, and the missing research methodology and biostatistics and management skills in one semester.**

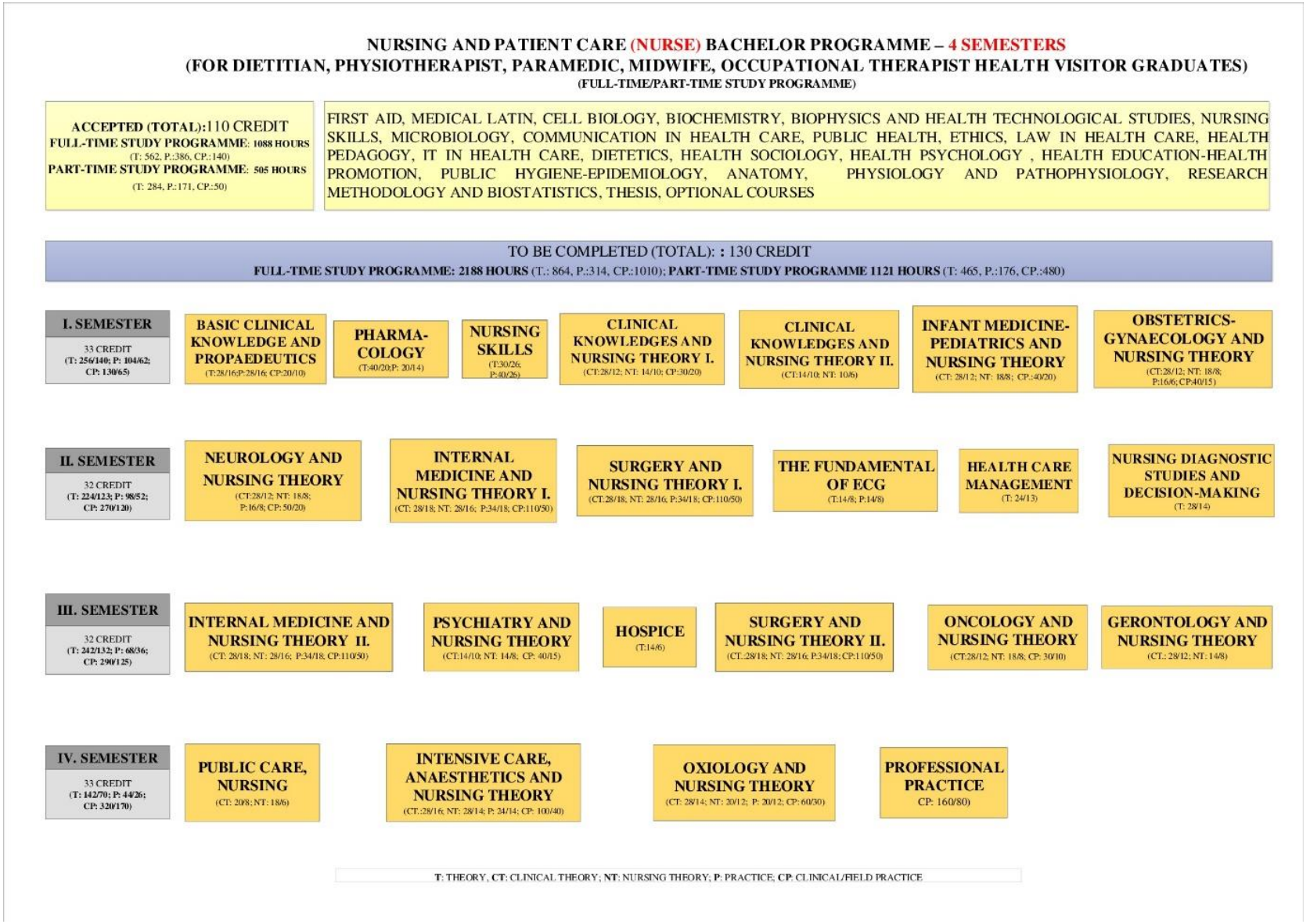


Figure 10. IV semester long modelcurriculum Nursing and Patient Care major, Nursing speciality,(for professionals graduated in the dietetian, physiotherapy, midwifery,paramedic officer, health visitor Bachelor education) (Full/Part time education)

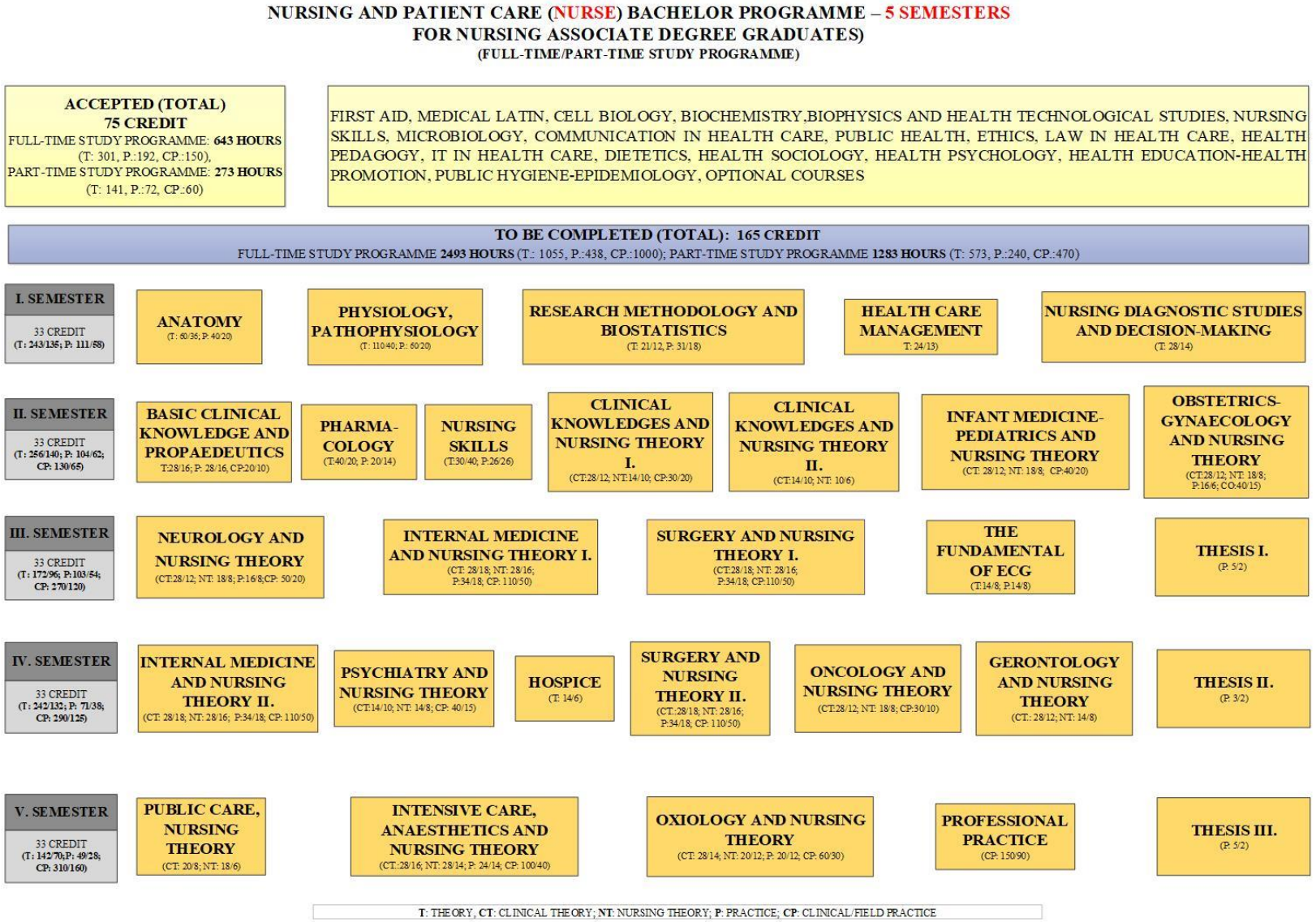


Figure 11. 5 semester long modelcurriculum Nursing and Patient Care major, Nursing speciality, (for professionals graduated in the Associate degree education) (Full/Part time education)

As the 11th figure shows, 75 credits of the associate's degree can be accepted (full-time programme: 643 hours /theory: 301, practice: 192, clinical practice: 150/, part-time programme: 273 hours /theory: 141, practice: 72, clinical practice: 60/) from the 240 credits of the VIII semesters long Nursing programme, accordingly the following courses/fields of knowledge: first aid, medical latin, cell biology, biochemistry, biophysics and health technological studies, nursing skills, microbiology, communication in health care, public health, ethics, law in health care, health pedagogy, it in health care, dietetics, health sociology, health psychology, health education-health promotion, public hygiene-epidemiology, optional courses.

Therefore, after the acceptance, 165 credits need to be completed in the 5 semesters long Bachelor of Nursing programme, **divided into semesters based on the 11th graphic (full-time programme: 2493 hours [theory: 1055, practice: 438, clinical practice: 1000], part-time programme: 1283 hours [theory: 573, practice: 240, clinical practice: 470]). 33 credits need to be completed in the different semesters in compliance with the 54. § 1. section of the 87/2015. (IV. 9.) governmental decree.**

II.11.5. Launching a list of competencies in line with the level of education which focuses on the advanced Nursing competencies on Bachelor's/Master's level and utilizes their knowledge in favour of the patients

In the followings, we propose a modification of nursing education on vocational level as described above **according to the list of competencies recommended to each educational programme.**

II.11.5.1. Qualified Assistant Nurse

The main elments of the planned scope of practice: he/she is able to supply by ordering pre-packaged enteral medicines, immediately intervening in case of emergency; recognising direct life threatening situations; supplying first aid, recognizing status and processes differing the physiological function of the human body; documenting, carries out basic care tasks (hygiene, nutrition, emptying, nursing, patient movement); performing primary care (hygienic, nutrition, performs assistant tasks measuring cardinal symptoms in non-invasive manner, blood glucose measurement; urine test with quick test; recognising decubitus, preparation for certain examinations / interventions and assisting in performing; assist the patients before and after the examinations, accompany the client if necessary; apply the supporting systems of patient transport properly; support in administrating medicines; administering IC, SC, IM [predosiged] injection to delta muscle and recognising possible complications, performing ECG, blood and other specimens sampling).

II.11.5.2. General Nursing and Health Care Assistant

The main elements of the planned scope of practice: he/she is able to insert, remove, care short peripheral cannula, performing enemas, changing and empting stoma bag; performing dermatology testing; feeding through gastric tube; irrigation of bladder; blood sampling from CVC; administering i.m. injections; preparing for administrating medications, fluid therapy; assisting providing medication, assisting in the performance of intravenous infusion, she/he able to change the infusion bottle, (not allowed to start new therapy) is able to change the drip rate, is able to change dressings around the intravenous catheter; (not allowed to do it at CVC); is able to remove the midline catheter and the IV cannula. Prepare the patient: to some diagnostic and therapeutic procedures and assist in some interventions and; able to care some acute wounds, use of oxygen therapy with low flow systems. He/she is able to recognize the signs and grades of decubitus. It is capable of directly administering the prescribed analgesic, anti-emetic, anticoagulant, diuretic, corticosteroid, physiological solution, heparin physiological solution and glucose over 14 years.

He/she is able to participate in the patient's surgical preparation, in the management of patient documentation, in the change of dressings, and in communicating the patient's needs to the nurse with finished education. Performing of laboratory secretion sampling and delivery it to laboratory (stool, urine, sputum, throat-eye-nose ear, wound, vomitus).

II.11.5.3. Nurse with associate degree

The main elements of the planned scope of practice: he/she is able to prepare an individualized nursing plan, as part of it, create a nursing diagnosis, coordinating the nursing care process, and managing the work of health care professionals without finished nursing education. Able to perform patient monitoring, on physicians order administrating medication (intravenous injection infusion therapy, etc.), caring for some additional invasive interventions (inserting/managing of nasogastric tube, invasive patient monitoring, managing central vein / arterial cannula, other cannula), catheterization of men and women and managing the catheter, mobilization / removal of respiratory secretions); use of oxygen therapy (low and high flow systems); carries out the tasks nurses regarding the nutrition therapy, carries out the nursing tasks of the transfusion therapy, is able to perform modern wound care. Performs pain assessment, take part to special pain relief (EDA, PCA); performing the preparatory task at artery cannulation / puncture / other diagnostic and therapeutic interventions; performing paediatric nursing tasks, is able to recognise/prevent/cooperate in preventing unexpected events, to the nursing care of dying patient and dead body.

It is urgent to clarify the list of nurse competencies, I agree with the authors of the study that this should be the basis for any further nursing development strategy. However, competency lists should not only be prepared for nurse/infant and paediatric nurse, Bachelor nurse, Master qualifications, but it must be also described for all health care programs in the current vocational educational system. From these competency lists, we will be able to find out which vocational educational programs provide a minimum amount of new competencies (compared to the 55 nursing vocational education qualifications). These qualifications can be erased from vocational education, the scope of competencies can be given to the employees as a license (e.g. oncological nurse 5572313 – the competence of the nurse other than 55, able to do analgesia by her/himself with or without medication).

One way to change is that the entire health care sector of vocational education should be reconsidered. After the clarification of the scope of competencies, the organization of the remaining basic and top up vocational education system reflecting on real needs of employers, will bring relief to the school system, it is cost-effective and more flexible than the school-based vocational education. **However, it is appropriate to consider that under what conditions an educational institution can participate in the education without its own equipment.**

II.11.5.4. Bachelor and Master nurse

The 18/2016. (VIII. 5.) **Decree** of the Hungarian Ministry of Human Capacities on Education and Outcome Requirements of the Associate, Bachelor's and Master's education includes the list of the competencies of **Nurses with Bachelor's and Master's degree**. In accordance with this, it is **important to form/modify the law which regulates the fulfilment of position and scope of activities**. (We not again: the first graduates are finishing their Master's programme in the Spring of 2019, and **neither the scopes of activities of Nurses with Master's degree are available** based on the conditions of Michalicza Scholarship – for this reason the Nurses with Master's degree can not fulfill the requirements of their contract relating to start a job –, **nor the responsibilities related to the job and resulted from the decree are regulated appropriately.)**
Details of the **further extension of the list of competencies recommended within the frames of the certification education/exam** can be found in the II.13. section of the strategy.

II.11.6. Providing professionally- (theory and practice) course instructors who meet standards for teaching selected classes

Regarding certain areas of knowledge, the **qualifications expected from teachers** are currently **unsuitable** in certain cases, e.g. regarding nursing education, the education of clinical practice and pharmacology can currently be conducted by e.g. degree nurses or health care vocational teachers.

In order to increase the profession's prestige, **professionally- (theory and practice) and pedagogically educated teachers** are needed regarding both the vocational- and higher educational health sciences educational programs. The utilization of the **mandatory continuous developmental system** in order to reach this goal would facilitate this process. This is probable if a valid operating certification becomes a necessity for the teachers (with the suitable modifications of the requirements). During the compilation of the content of the continuous development courses organized for professionals conducting vocational theoretical- and practical education, several factors are needed to be regarded: the competencies transferred during education; the development of the policies and protocols and technologies related to the professional field; the changes in the legal frameworks, and the age (students/ undergraduates/ education-participants) of c individuals oncerned with practical education. The possibility for theoretical- and practical knowledge development of the training is important.

II.11.7. Problem regarding the qualification of health care practice instructor

Our sector possesses a health care educational officer vocational qualification under serial number 55720 01. **This supplementary education regarding the specialities of the sector was realized with state aid, with the budget of a tender framework, as there was no accessible teacher qualification in this sector for a long period of time.** With this vocational qualification, there was a possibility for performing practical educational tasks so far. However, **health care educational officers cannot perform educational tasks without a higher educational pedagogy qualification,** according to the 2011. CLXXXVII. act on vocational education, which may result in severe problems regarding the education due to the lack of professionals. Although in case of colleges, who have completed the education, a change of perspective can be noticed and they are able to transfer their high-level professional knowledge to students participating in health care education with the utilization of suitable pedagogical methods.

II.11.8. Problems regarding social care carer and nurse education

The title „nurse" can be obtained within the frames of education, which is outside the health sector education and our sector and the Chamber of Hungarian Health Care Professionals have **no substantial control** over it. The nurse title is misleading as it does not comply with the provisions of the relevant EU directive on nursing education, nor can it perform the role of nurses, even in the social sphere. In addition, **social care carers and nurses** are entitled to use the nurse title with some scope of practices (e.g. medication, intramuscular injection), with a 3-**year-long education for which they do not need the high school leaving certificate**, with those in the health sector it is only possible to obtain general nursing and health care assistant qualification (so the nurse title cannot be used!), moreover **by completing a 4-year-long education and with a high school diploma.**

II.11.9. Anomalies resulting from the non-regulation of the professional tasks within the sector

In order to maintain and restore professionalism, **the sector's due relevancy within the determination of developmental processes** (pl. vocational education, framework curriculum, Vocational- and Exam Requirements, scope of practice order) **and criteria is especially important**. We suggest the exclusion of organizations unqualified for the profession (e.g. Hungarian Chamber of Commerce and Industry) from fields requiring special professional expertise and the knowledge of sectoral frameworks during establishment of legal regulations regarding the health care vocational educational programs. **A separate expert's community of the National Healthcare Services Center/Hungarian Health Care Professional Chamber/Hungarian Chamber of Commerce and Industry** is not justified. The coordinated sectoral verification of the experts' person is due and justified.

According to the current regulation, it is often noticeable that **experts working in the development of one professional field work independently from each other,** they are not

aware of the problems within the given professional field. In several cases, the determination of the expert's community is the decisive factor instead of the professional experience and practice of the given field; the relationship between the expert and the client is emphasized, and whether he/she is able to perform the task under a short period of time (even 24, 48 hours), thus the task is handed to an expert who is able to complete the task within the framework determined by the developer, by only utilizing the earlier material. **The coordinated sectoral verification of the experts' person is due and justified.** The selection of the expert's person through tenders is regulated by the 31/2004. (XI. 13.) Ministry of Education order, in which the change of the tender requirements is necessary regarding the solutions of the problems stated above.

II.11.10. Anomalies regarding the performance of tasks by the chairman- and members of the examination board

The regulation of the tender for the **chairman of the examination board** is determined regarding every sector, thus the specialty of the given sector cannot apply and also, there is unfortunately no suitable upper age limit set for the performance of the task**. Currently, the function can be fulfilled by a person with a higher educational qualification not related to the given education, or even without a higher educational health care qualification or operating license, or without any practical knowledge on the given field.** Unfortunately, some of the chairmen of the examination board **are not aware of the relevant legislation and the requirements of the given qualification, they are not aware of the changes.**

In case of the **examination board members**, the relevant legal framework determines the requirements in a general manner, the specific regulation is conducted by the Educational, Continuous Development and Sciences Committee of the Hungarian Health Care Professional Chamber (including the concerned Professional Department). It can be stated that the selection of a suitable person is a daily problem. **Hence the number of qualified professionals is unsuitable regarding certain profession groups, there are no professionals either suitable for- or willing to fulfill the position, thus often the same person is appointed several times within the profession group during the appointment/proposal, and still in several cases, and no suitable examination board member can be provided. Another problem is the fact that examination board members, chairmen of the examination board or experts cannot receive a scheme for part-time working, thus, in several cases, they can only fulfill the task at the expense of their own holiday period.** Regarding this fact, the chairmen of the examination board, experts and the examination board members working under retirement are emphasized. We hereby suggest the regulation of the scheme for part-time working on a legislative level, so the expert concerned can utilize an annual maximum of 3 to 6 days (this is at least 2 exams). In addition, it is necessary to amend Government Decree 315/2013 (VIII.28.) regarding the incompatibility of the members of the examination committee, eg. family members and relatives are excluded from the examination committee.

II.11.11. Anomalies regarding the conduct of vocational exams

II.11.11.1. Main problems regarding vocational exam organizers

In some cases, the exam organizer does not compile the documentation of the examination candidates according to law during the preparation for the vocational exam, the exam organizer institution validates the exam candidate based on partially incomplete documentation (unsuitable entrance competence/prior vocational education; valid medical certification; valid practical certification, etc.). **Therefore, several exam candidates may not begin their vocational exam (or they begin it illegally), as they are unsuitable for the entrance requirements of the vocational education, which becomes apparent before the vocational exam.**

The exam organizer institution does not always contact the entire examination board, thus **the chairman of the examination board approves the conduct and task list of the practical exam activity** under his or her own

scope of practice without the inclusion of the members. Therefore, the examination board members cannot always fulfill their vocational tasks as required by law. **Consequently, the location of the practical exam activity and the practical exam task list is unsuitable for the determined vocational- and exam requirements of the vocational qualification.** During vocational exams, **the vocational chambers and the examination board members** delegated by the vocational organizations **often find themselves in a situation, where the requirements deductible from the vocational- and exam requirements and vocational criteria are partially- or not valid.** In order to remedy this, the government offices/district offices appoint persons for the verification of the exam organizers, however, it often occurs that the persons appointed for conducting verification are also not experienced in the given professional field and/or the verification only extends to the possession and legal validity of the documents required by law, while – due to the lack of a professional expert – the verification of the professional documentation compiled by the exam organizer (module exam, compliance of the practical vocational exam tasks to the Vocational- and Exam Requirements) is not conducted. In order to make professional guarantees enforceable during the exam verification, we have initiated a proposal for revised legislation; its basis is currently present within the act on vocational education. The aim of the proposal is having the sectoral management order one of the professional experts during the verification procedure of the complex vocational exam, in order to validate the professional aspects. The performance of tasks as well as the advance **payment of travel expenses by the board is not uniform following the conduct of the vocational exam.** The task, accommodation and travel expenses depend on the exam organizing institution, which can often lead to problems (we know cases, where the travel expenses and the management fee were not paid in six months/one year).

II.11.11.2. Main problems regarding the functioning of the vocational examination board

The Pest Count Government Agency appoints and publishes a member of the vocational examination board, which is public for the individuals participating in the exam, according to the proposal of the National Healthcare Services Center and the Hungarian Health Care Professional Chamber, according to the legal requirements, (due to the reception of the delayed letter of commission). **In several cases, the publishing is obstructed, which complicates, and in some cases renders contact between examination board members impossible,** which is only conducted within the MINERVA system with closure. The exam organizer cannot adhere to his or her legal requirements due to the lack of background documentation which delays the rightful material and other legislative services for the board members. We hereby recommend the guarantee of a systemic IT background and the publishing of the decision within 10 days following the proposal. **The members of the board cannot substantially contact each other, as the letter of commission is not always sent before the commencement of the exam (first exam activity).** Therefore - due to the lack of information - the composition of the examination board remains unknown, and in several cases, the vocational exam-organizing institution does not contact the entire examination board until the vocational exam underwent closure in the MINERVA system.

Members of the vocational examination board **cannot always exercise their rights and obligations** according to the 315/2013. (VIII. 28.) Gov. Order, as the organization and conduct of the vocational exam is not uniform. His results in the following problem: the documents to be released by the board (letter of commission, certificates validating qualification, degrees; documentation necessary for the accounting of travel expenses, invoices, vehicle documents; payment supporting documents; etc.), and the possibility of requesting accommodation is not conducted under uniform criteria.

II.11.11.3. Problems regarding the issuing of vocational exam organizing certificates

The issuing of vocational exam organizing certificates is conducted by the regional government office, **its criteria is outside the scope of practice of the Hungarian Health Care Professional Chamber**. According to the laws in effect, in case the exam-organizer institution already possesses a sectoral exam-

organizing certificate, the procedure is conducted in the form of simplified administration.
In several cases, **only a cooperation agreement is signed for the conduct of the exam activity, which does not guarantee that the organizer is suitable for the conduct of the exam activity determined in the exam requirements of the given vocational qualification** (e.g. insufficient technical requirements**), therefore the requirements** stated in point 6. (tool- and equipment registry) **of the Vocational- and Exam Requirements of the profession, or there is no specific exam location**. In several cases, there is no possibility set in the written conduct order - dependent on the exam organizer – or on the exam location for the following: the conduct of the exam activity in a professionally suitable manner in a circumstance related to the situation (e.g. on a patient), and the possibility for an objective determination of manual/interaction capabilities within the professional skills.

II.11.11.4. Problems regarding validation of the vocational exam

The validation of the vocational exam is paper-based, conducted through an electronic system. The location of the practical exam is often not a health care institution, but the location of the exam-organizer institution, therefore the location of the practical exam activity remains unknown. Currently, the requirements of the practical exam activities are not uniform – e.g. whether the exam organizer possesses a demonstration room, where the tools determined in the vocational- and exam requirements are available, whether point 5.3.1. of the vocational- and exam requirements required for the practical exam conduct is guaranteed, and whether the patients and the up-to-date imitation tools (nursing torsos, mulages, nursing simulation phantoms) are available in suitable quality and quantity for the number of exam candidates. **We hereby propose the central publishing of the practical task list - aside from the preparation time/number of education hours for the complex vocational exam, completely covering the competences of the given vocational qualification, determined by qualification – and the related evaluation criteria (by determining the necessary technical conditions). With this, the unprofessional and pedagogically improper formulation of practical tasks can be avoided.** By contrast to the current system, the proposition provides protection for the examination board members and for the exam organizer as well, furthermore – regardless of the exam organizer –, it provides equal opportunities for the exam candidate regarding the exam tasks. Examinations based on professionally unsuitable practical task lists and confrontations between examination board members and the exam organizer regarding the approval of the practical task list can be avoided. It is also recommended to compile an examination material (guide, procedure, etc.), which describes in detail the activities related to the organization of exams. This would facilitate the unified implementation even if it is not fixed by law.

II.11.11.5. Problems regarding the management of the vocational exam

Following the vocational exam, the members of the board have an obligation to report. A feedback appears on an interface for both the chairman of the exam and the examination board members, highlighting the closed question and a scale from 1 to 10, aside from that, it provides an opportunity for comments and for the answering of essay questions. Aside from the identification data, the professional content inquires the legal conformity, the organization method and the performance of the exam candidates. The high authority processes the data according to experiences from the previous years, however, the Hungarian Health Care Professional Chamber has no overview on the processed results**. The content of the reports needs to be rendered accessible for the participants by means of sectoral intervention, as this may form the background regarding the development of objective information.** Furthermore, comments and experiences of the chairman and members of the examination board must be evaluated and taken into account in the developments, feedbacks should be given to the exam organizer as well if it is necessary, because there are practically no consequences of the problematic operation.

Recommendations for solutions

Establishment of a ministerial background institution on sectoral level, with the following responsibilities:

- **Establishment of certain requirements** – initiation of vocational education, the establishment of a criteria of personal and material requirements necessary for the conduct of professional practice, determination of an expected location/venue necessary for the exam activity conduct, organization and even coordination of a vocational exam.
- **Development** of methodological material.
- Maintaining contact with educational and vocational educational institutions and the **coordination** of the initiation of sectoral vocational educational programs.
- **Establishment** of a uniform expert's database on a sectoral level, the preparation of experts – regarding education, vocational education, continuing education courses etc. The **maintenance** of different expert communities is not justified (e.g. a separate National Healthcare Services Center expert, a separate Hungarian Health Care Professional Chamber expert, a separate Hungarian Chamber of Commerce and Industry expert). Aside from that, the **verification** of the expert community members is due and justified.
- Similarly to the maintenance and verification of the chairmen of the vocational examination board, the valid operating license is profession-specifically expected, therefore a group of competent experts with modern professional knowledge will be within the continuous developmental field regarding professionals.
- **Maintaining close contact with sectoral vocational establishments**, and the establishment of professional requirements, work instructions and protocols.
- **Organization** of verification on a sectoral level, with the inclusion of vocational institutions regarding education, vocational education, practice locations and vocational exams.
- **Determination** of vocational criteria for the issuing of a teacher- and exam organizer certificate**, inclusion of the Hungarian Health Care Professional Chamber.**
- **Coordination and guarantee of access** to curriculum through electronic means regarding both the formal- and the adult education.
- **Central issuing of a practical exam task list and the related evaluation criteria** by vocational qualification, completely covering the competences of the given vocational qualification. By this, the possibility of drafting unprofessional, pedagogically unsuitable practical tasks can be eliminated. The practical exam task list's maintenance, registry, publishing or transfer to an authorized entity (Hungarian Health Care Professional Chamber, Professional College) on a sectoral high authority level would also be appropriate.

II.12. PROBLEMS RELATED TO REGULATIONS REGARDING THE FURTHER EDUCATION OF HEALTH CARE PROFESSIONALS

II.12.1. Mandatory continuing education programs

According to practical experience, the Hungarian system for continuous development courses did not provide an optimal framework for the **rectification of deficiencies** due to the natural **forgetting of professional knowledge and the continuous expansion, development and changes** of such professional knowledge. There are several reasons for this, e.g. the **professionals were (are) able to acquire the scores necessary for the continuous developmental period by participating in conferences** and with points due for the years in practice in a decisive rate, further factors: the content of a portion of continuing education courses with an "A", the scope of experts conducting continuous development courses, the determining of the continuous development course subjects, and the lack of scope of practice for qualification levels. Compared to this, the 63/2011. (XI.29.) National Ministry of Human Resources order on the regulations of the continuous development of professionals is an improvement; according to the order, the mandatory continuous development courses may exclusively be conducted by faculties of health sciences in case of college/university-level professionals, while, in case of vocational-qualified professionals, continuous development courses may be conducted by the faculties of health sciences, the National Healthcare Services Center, accredited health care institutions and institutions conducting formal health care

vocational education. However, there are anomalies regarding the system, summarized below.
Health care professionals need to **collect 150 points in five years** (theory: 50 points, practice: 100 points) for acquiring validation. From these, **it is mandatory to acquire 30 theoretical points within the framework of a further education in a profession group (Community Framework for State aid)**, which may be completed by even **one further education** (however, 10 points can be acquired by the professional participating in the education of a different profession group and failing the exam).
A problem regarding optional mandatory continuing education courses for certain profession groups is that the given profession group includes several vocational qualifications on different levels (different vocational levels, Bachelor, Master), and acquired on different fields (e.g.: 1. vocational group includes health care teacher-, nursing assistant-, health improvement assistant- and Bachelor/Master's qualifications as well.), i.e. **a health care professional with a qualification acquired on a different level of education and/or different field within the profession group**, while the **scope of practice of the professionals may significantly differ** in the given subject (e.g.: for **"The modern treatment of urinary- and fecal incontinence"**, a general health care assistant is only competent for the preparatory stage. A similar situation emerged regarding e.g.: the **"prolonged analgesia", „nursing aspects of ostomy therapy"**). In certain cases**, continuous development** is conducted for **several profession groups** (e.g.: regarding **"parenteral nutrition",** aside from the adult nursing and care profession group, the dietitian; APN pediatric nursing and treatment profession groups are included, thus the following professions receive equivalent content within this education: pediatric nursing home nurse; patient guide; Master level nurse; paramedic or a Master Level Nutritionist, whereas their competencies and prior knowledge are not comparable on the field.

The update of the classification of vocational qualifications in profession groups has not been conducted for years, thus new vocational qualifications and specialized continuing education courses are not indicated in the system. The Hungarian Health Care Professional Chamber made an effort to monitor the new vocational qualifications at the departmental classification stage, and added them to the department. The differences between the departmental entries of the mandatory profession group registry and the departmental entries of the Hungarian Health Care Professional Chamber are due to this fact, although the unification of the two would facilitate transparency and professional work.

Recommendations for solutions

It is important to establish **mandatory continuing education courses by qualification levels** and **specializations** in a manner that the **health care professionals** would be able to complete **certification educational programs** necessary **for the servicing of practice-expanding activities, currently performed in manner which is legally unsolved**. Aside from that, point q) of par. 3 of the 1997. CLIV act on health care is required to be changed, regarding the fact that the term **"specialized vocational qualification"** acquired within the specialized further education is currently not listed in the terminology.

II.12.2. Optional continuing education courses

Following the certification of the program submitted by the organizer for certification, the National Healthcare Services Center certifies the organizing of the continuing education program in the form of a decision. **In several cases, the following problem occurs: the actual organizing of the continuing course significantly deviates from the certified program submitted by the organizer for certification** (e.g. location, date, a different lecturer instead of the renowned lecturer, a multiple-day program conducted by a main lecturer, etc.). In several cases, the program submitted by the organizer contains the content of one of each module program of certain vocational qualifications; **therefore it does not qualify as a continuing education course.** A reason for this may be that the organizer wishes to organize a program as a continuous development course – even for a significant 150000 HUF fee/participant –, which significantly exceeds the framework of an optional continuous development course, avoiding, for example, the

accreditation process of the specialized continuous development course. Several optional continuing education courses are identified as educational scope "B" or "D", according to the 2013. LXXVII. Act on adult education, and several continuing education courses are organized coupled with "B" or "D" scope programs.

Recommendations for solutions

Due to the above-mentioned problems, the modification of the optional continuing education course-regulation is necessary as follows:

- **Display of the explanatory notes** within the relevant provision in order to clarify the terms, e.g. the definition of the term "continuous development" (e.g. in several cases, we have encountered the problem of either the program lectures conveying the content of the base vocational education, while not containing added value, or they exceed the continuous development framework and wish to perform the tasks of professional continuing education courses or professional educational programs in a misleading manner for business reasons).
- Specific regulation of the rights and obligations of the organizer, **determination of sanction** in case of non-conformity, in order to avoid the above-mentioned anomalies.
- The current law in effect does not provide an opportunity for the differentiation between the scores of different continuous development courses (1-day, multiple-day, conference), the maximum score is 20 points for the 1-day continuous development course as well as for the multiple-day vocational conference. We hold the possibility for **the differentiated determination of scores for vocational programs important.**
- Modification of the regulations for the verification of continuous development, with special regard to the optional continuing education courses, as the regulation does not contain the reporting change within organizer tasks (change of date, change of location, cancelled continuing education courses, etc.). Since the announcement of these continuous development courses is not conducted through the SZAFTEX system, the Hungarian Health Care Professional Chamber receives the information regarding verification by the organizer. There are several cases in which the Hungarian **Health Care Professional Chamber cannot verify the selected vocational program due** to the false information provided by the organizer. One of the typical manifestations of abuse is when the organizer – reacting to the announcement of verification – declares that the event is cancelled. Therefore, it is necessary **to display the optional continuous development courses in the SZAFTEX system** as well, equivalent to the Community Framework for State Aid programs.

II.13. PROBLEMS REGARDING THE 2010-INTRODUCED – AND IN THE SAME YEAR, REVOKED – VOCATIONAL CERTIFICATION SYSTEM AND THE ADDITIONAL COMPETENCIES PROVIDED BY WRITTEN MANDATE

In Hungary, **reviewing the background of the certification regulation concerning professional health care workers, it can be stated that the 15/2010. (IV. 9.) MoHc regulation came into effect in 2010, which was revoked in the same year. Several anomalies were witnessed regarding this regulation;** the most significant ones are the following:

- in opposition to international tendencies, **it did not substantially differentiate between** secondary-qualified and **Bachelor/Master nurses**, either by acquirable certifications or by expansion of practice;
- **it created certifications in fields, which made up a portion of the current vocational nurse education so far,** e.g. intravenous injection, infusion therapy, wound treatment, thus it made an effort to withdraw existing, yet in many cases legally unsolved competencies and attach them to continuing education courses;
- **no impact study was created preceding the establishment of the scope of certifications,** it was not based on the summary of the systems of other countries;
- the introduction of the 15/2010. MoHc. regulation on certifications was conducted

without the inspection- and – when appropriate – change of the vocational-, Bachelor and Master level nurse education curriculum, or the curriculum of vocational educational programs and specialized continuing education courses based on the vocational-, Bachelor-, and Master's educational programs, or without the differentiation between the scope of practices by qualification levels, or without the detailed inspection of the correlations with the continuing education courses system.

Following **the revocation of the regulation, additional scope of practice can be provided by a physician's written mandate,** which resulted in several problems. The process of a written mandate differs by institution: in certain institutions, it is bound for "home" education, while in other institutions, the mandate regarding the conduct of a given task is given without this restriction, and the same task is not transferred to the nurses in other institutions. Furthermore, **we have no exact information on the number of individuals conducting physician's activities based on tradition or even oral mandate.**

Based on the above**, the introduction of a suitably established certification system is justified.** The terms certification /registration-education / continuing education -scope of practice can only be interpreted collectively, and the term "certification" is not a uniformly utilized term internationally. In certain countries (e.g. USA), programs involving state registration and competence-expansion as a requirement for employment are named as certifications, while in the United Kingdom, the term "certification" is not used. In the UK the competence-expansion takes place within Continuing Professional Development course**. During the international examination, the question of continuing education (CE) was a common denominator, regarding the examined countries.** Regarding the USA, during acquirement of different certifications or specializations (certification) – either under Bachelor, or Master-level – a certification allowing practice is also required for the nurses, which is subject to periodic renewal; one of the foundations of this procedure is the participation in continuing educational programs. Regarding the United Kingdom, participation in continuing educational programs is one of the main conditions of registration renewal. It is important to note regarding both of these countries that by **participating in CE programs and completing the exam results in the expansion of the nurses' scope of practice**. Regarding certain specializations or following the acquirement of a qualification, the minimum number of CE classes is also determined, which is then required to be completed by the nurse within subjects of the given specialization field, within a continuous development period. Continuing education courses can be diverse regarding subject or time-period, starting from the 1-2 hour programs all the way to participation in complete programs conducted in universities. **Meanwhile in Hungary, there is no unified certification exam as a requirement for employment, and there is no periodically repeated written/practical exam in order to maintain qualification and to further occupy the related position.**

In Hungary, the **lack of determined scope of practice differentiated by levels of qualification** as well as the **multiple modifications of competencies attached to certain educational programs** and the issues regarding the quality thereof (e.g.: educational programs with unsuitable structure and content; non-formal nurse education; unsuitable functioning of certain educational institutions; etc.) are also fundamental problems, even in the certification system's regard.

Recommendations for solutions

Based on the international examination and the analysis of national possibilities, we hereby state the following specific proposals:

By revising the **nurse educational programs'** curriculum **on all educational levels, the establishment of the scope of practice on all qualification levels is also necessary,** only then may the **introduction of program-based, practice-expanding certifications – established by educational levels, certifying the performing of special interventions – commence.**

It is important to establish the **scope of mandatory further** educational **programs by qualification levels and specializations** in a manner, which enables professionals to **complete competence-expanding certification** educational **programs as well** (this subject was further detailed in point II.12.). These educational programs, completed in the form of mandatory continuing education courses are suitable for having the previously qualified professionals acquire the theoretical- and practical knowledge necessary for the servicing of activities currently conducted by them in a manner which is legally unsolved. The modification of educational programs is also important in order to avoid the introduction of mandatory continuous development courses or certification programs in unnecessary areas, and to enable students to acquire the competence-expanding knowledge integrated into the vocational- and higher educational (Bachelor and Master) educational programs.

The determination of the scope and subject **of certifications possible to complete with either vocational qualification** or with **exclusively higher educational qualification is also important** (the acquirement of Bachelor nurse qualification-based Stoma treatment II.- and the High-level wound treatment certifications for vocational qualification nurses – with suitable professional recommendation providing continuous work as stoma- and wound treatment nurses for the majority in their work schedule for at least 5 years – is also necessary, as a temporary measure between 2019 and 2021). This for example would mean: in the field of stoma and wound treatment **there would be a licence for stoma treatment which could be completed with a vocational nursing certificate** (stoma treatment I. license, basic wound treatment license, incontinence license) with a specific curriculum and competence, in addition, a stoma treatment **license based solely on Bachelor nursing diploma** (stoma treatment II license, advanced wound treatment license, incontinence coordinator)with a deeper content of higher education and broader competences. Based on our recommendation the involved nurse colleagues they can be properly educated for all these activities and can carry out all the tasks they are currently providing with vocational stoma, wound treatment, incontinence licenses. At the same time, stoma, wound treatment, incontinence licenses based solely on Bachelor nursing diplomas are an opportunity to legally establish the extension of nursing competences, build on the knowledge and skills of higher-educated colleagues, with more specialized professional knowledge. For example: In line with international practice, providing the prescription competence under a physician's supervision, in a properly regulated way (prescribing medical assistive devices), to perform defined wound stiching tasks, to give suggestion for a stoma's place, etc. **on a Bachelor nursing level**. In this case, we would like a consensus proposal with the professional organizations concerned. **It is necessary to periodically renew** the certifications (and in most of the cases, the performance of the given intervention within the necessary framework is not sufficient, due to the improvement of professional knowledge). **The certification education supposed to be unpaid; the suggested frequency of a repeated education/ exam is 2/3/5 years,** according to the activity.

We maintain the principle, that the aim of the vocational nursing certifications is the **elimination of deficiencies due to the forgetting of professional knowledge, the expansion, improvement, change of professional knowledge,** and **the legitimization of activities** (e.g. intravenous injection, administering IV fluid, stoma treatment, wound treatment, male patient catheterization) **currently conducted on a wide scale, yet not suitably grounded regarding education and regulation** (or conducted based on a "mandate system", which is not sustainable due to quality management- and professional criteria).

On the other hand, the **activities transferred from the medical scope of practice** (not including the invasive procedures already conducted by nurses, e.g. catheterization, short cannula puncture, intravenous injection, artery cannulation) **should be exclusively subjected to Bachelor and/or Master's** qualification, partially integrated into the initial educational program (e.g. emergency airway procedures, high-level wound treatment, transfusion therapy, ordering parenteral nutrition, physical patient examination, prescribing medication under

protocols within a determined scope, prescription of medical supplies, gastric lavage, abdominal puncture, wound closure, etc.), partially integrated into the Master's educational program (e.g. prescription of medication within a determined scope, endotracheal intubation, pleural tap, thoracocentesis, certain forms of central venous access, assisted support of non-invasive mechanical ventilation/breathing or controlled supplementation thereof/assisted wearing from assisted ventilation, the independent prescription of certain medication, modification of therapy, chronic patient care, performing first assistant duties for surgeon, with low-risk patients, during planned surgeries with physician's supervision, independently performed anesthesia in specific cases determined by a specialist, under medical supervision, etc.). In case of Bachelor/ Master's nurses, the majority of these activities occurred within the nurse/professional scope of practice preceding the 2017-initiated advanced practice Master's educational program, as they were identified within the higher-educational specialized continuing education courses (e.g. dialysis nurse, intensive care, surgical nurse, emergency care and triage nurse), approved by the Educational Authority several years ago. Aside from that, the practice-expansion (e.g. intubation, prescription, thoracotomy, etc.) of certain non-medical professions (e.g. paramedic) is noticeable. Meanwhile, **the position of insufficiently functioning higher educational specialized continuing education courses was taken over by the advanced practice Master's educational program,** detailed in section II.3. of this study.[86]

In line with the international literature and representatives of Hungarian organizations, the aim of the authors of this paper is to propose a feasible structure for a Hungarian nursing certification system, determined by levels of qualification, as described in the following figure 12.

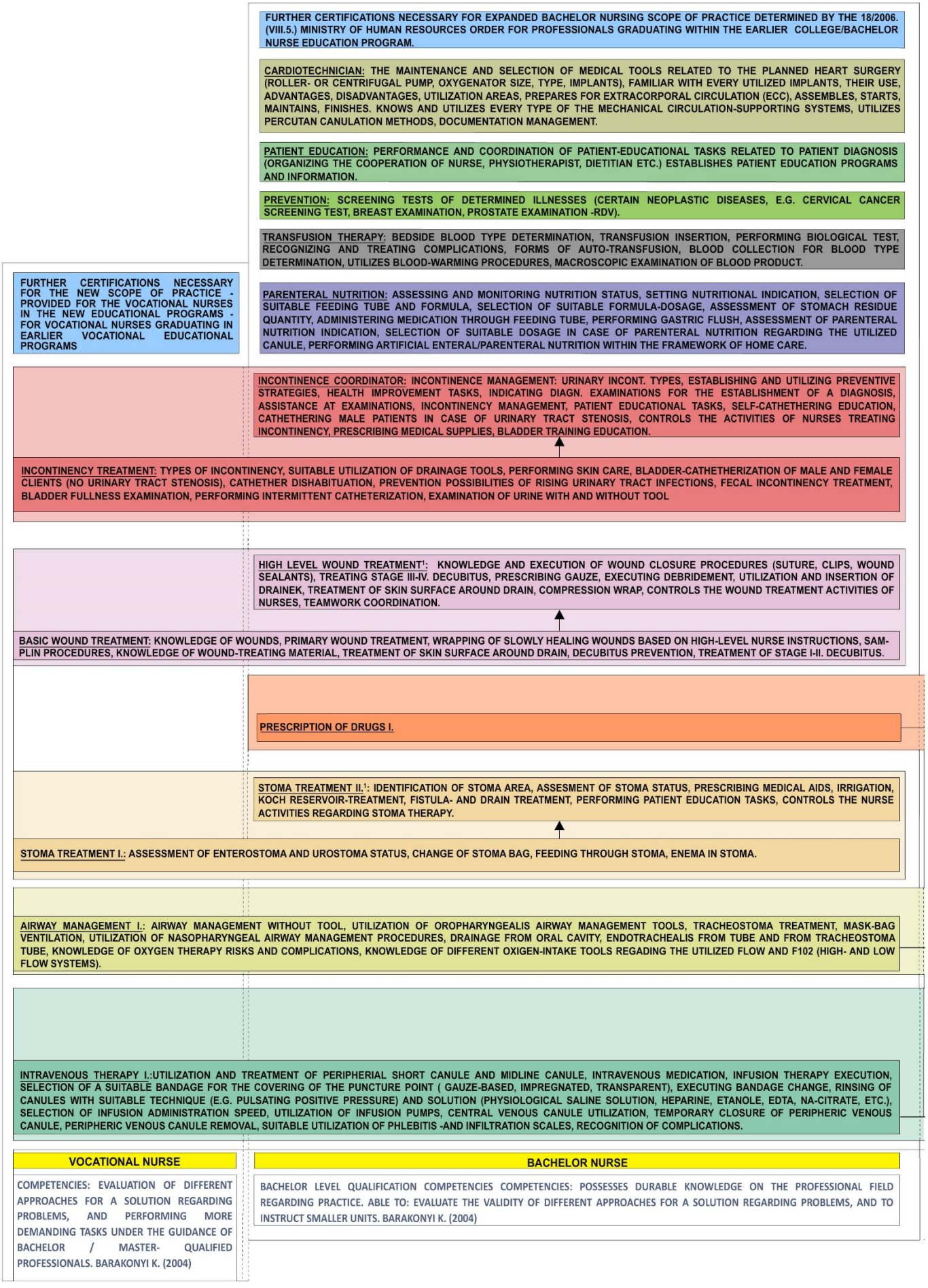
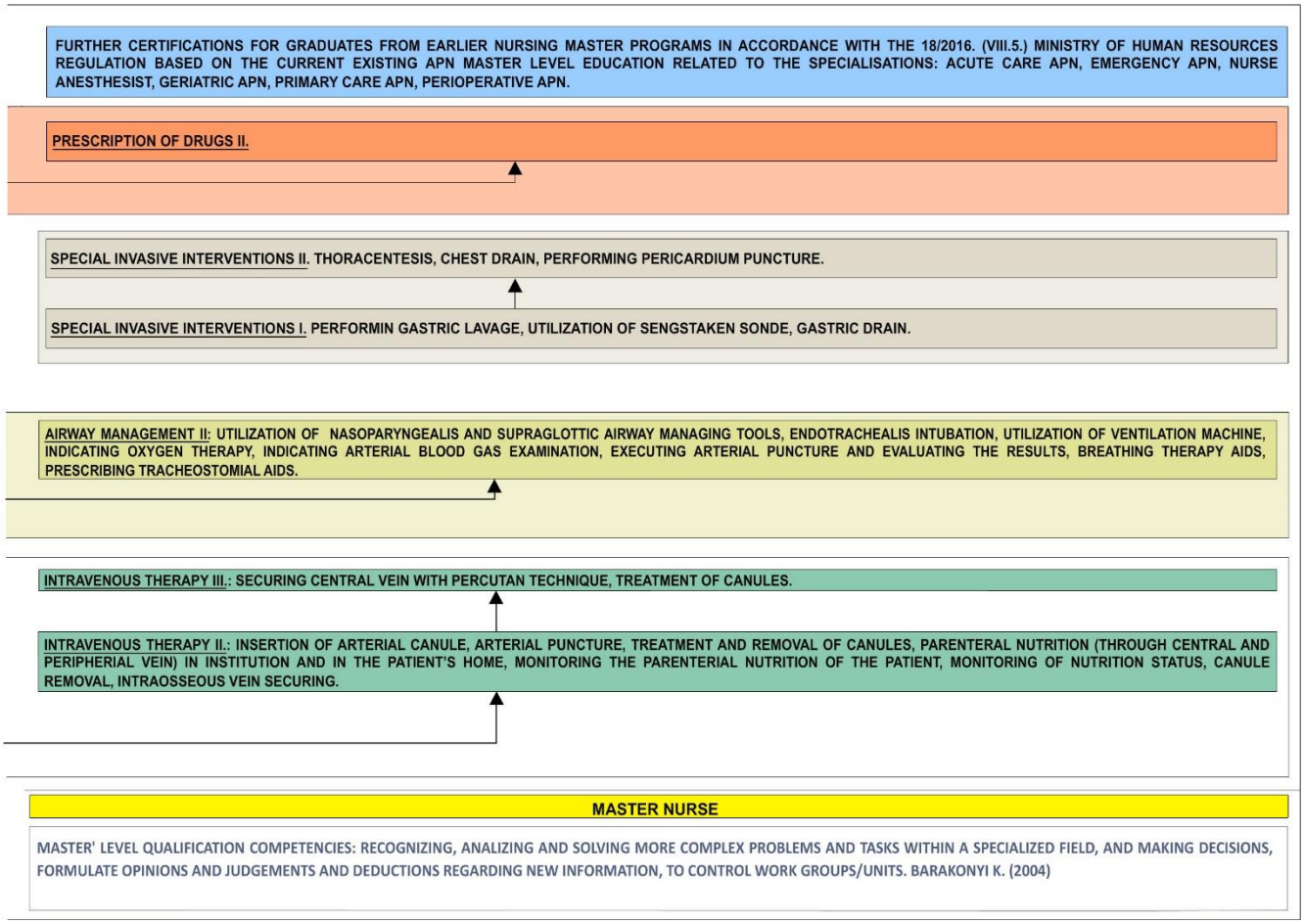


Figure 12: Proposal for the establishment of the Hungarian continous educational system separated by educational levels for vocational/Bachelor/Master health professionals



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[1]*the acquirement of Bachelor nurse qualification-based Stoma treatment II.- and the High-level wound treatment certifications for vocational-qualified nurses - with suitable professional recommendation providing continuous work as stoma- and wound treatment nurses for the majority in their work schedule for at least 5 years - is also necessary, as a temporary measure between 2019 and 2021).*

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