



Policy Research Paper

**Addressing Underutilized Capacity for
NCD Care: new role for Family
Doctors/General Practitioners and
Nurses?**

Bishkek - 2015



ABSTRACT

The human resource challenges have been found a key barrier to provision of individual services for non-communicable diseases (NCDs), as represented by their insufficiencies, caveats in training, and low profile role of family groups and nurses in managing major NCDs. Multiple attempts to attract and retain doctors to service in rural areas have been made; however, they never delivered any long-term effects, and recent trends point to no increases in numbers of medical school graduates employed at PHC units. The human resource deficit has been exacerbated by low motivation of staff and availability of competences that do not meet needs of care provision. Given the human resources crisis in Kyrgyzstan's health system, in particular due to shortage of doctors in primary care, promoting the role of nurses in management of selected non-communicable diseases (NCDs) is essential. Therefore, in 2015 the role of family nurses was evaluated in several stages, with focus on NCDs at primary care, and barriers were identified for extending nurse functions in providing care for NCDs.

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The preliminary results have been discussed with the KR MoH, the KSMIR&GU and Swiss “Medical Education Reforms” Project and other stakeholders, and final report has been prepared considering their valuable input.

SUMMARY

NCD is the leading cause of morbidity, mortality and disability in WHO European Region. Four main non-communicable diseases (cardio-vascular diseases, cancer, chronic obstructive pulmonary disease (COPD) and diabetes) comprise the majority of disease burden and premature mortality in the region. In Europe, around 86% of deaths and 77% of disease burden account for NCD (in broader sense) increasing the load upon health systems, affect economic development and wellbeing of the considerable population, particularly people of 50 years old and over¹.

Like many countries, Kyrgyzstan is facing a growing burden of noncommunicable disease (NCD), with cardiovascular disease (CVD) as the main cause of mortality and morbidity. Cardiovascular disease has been one of the four priority health improvement programmes since 2006, reflecting the commitment and priority given by the Government to these health issues.

Unfortunately, to date the response of Primary Health Care to the challenge of Noncommunicable Disease has been insufficient due to a lack of healthcare workers and insufficient or inappropriate training.

Some studies carried out in Kyrgyzstan looking at the barriers to NCD (CVD and Diabetes) care found that various health system barriers caused poor NCD management and increased costs to the health system and individual. These were weak leadership and governance; inadequate service delivery; poor use of information; problems with the purchase, distribution and rational use of medical products and technology and finally problems with human resources in terms of training, use of specialists and a lack of a role for General Practitioners/Family Doctors and nurses.

General Practitioners/Family Doctors and Nurses are a key element to most health systems throughout the world, but in Kyrgyzstan they receive less training and can only perform a limited number of tasks in comparison to their colleagues in Western Europe. Throughout the world changes have been made to the roles of nurses and how this can complement or in some cases substitute the role traditionally given to doctors and specialists with increased satisfaction of patients. Considering HR crisis in Kyrgyzstan conditioned with shortage of doctors at primary level in particular, increasing roles of nurses in managing some NCDs will be urgent.

In order to do this it is necessary to understand the current barriers increasing the role of General Practitioners/Family Doctors and nurses in diabetes and hypertension care at Primary Health Care to implement General Practitioners/Family Doctors and nurses in the management of diabetes and hypertension and increase their role in Kyrgyzstan. It is also required to see role of family doctors in managing NCDs with regard to efficiency and quality of individual services.

In order to assess the roles that General Practitioners/Family Doctors and nurses play in Kyrgyzstan a clear understanding of the legal, training, perception and health system barriers need to be assessed.

Therefore, the overall objective of this project is to identify barriers to implementing General Practitioners/Family Doctors and nurse care for diabetes in Kyrgyzstan. Through this project we

¹ WHO Regional Office for Europe. 2011 . «Action Plan for Implementation of the European Strategy on Prevention and Control of Non-Communicable Diseases for 2012–2016.»

expect to generate data to improve the knowledge that General Practitioners/Family Doctors and nurses can play in addressing the challenge of NCDs at PHC level.

A literature and desk review will identify legal documents relevant to the role and regulation of General Practitioners/Family Doctors and nursing practice in the country as well as collecting any relevant literature and detailed statistics on the General Practitioners/Family Doctors and nurses present. This will aim to identify any legal barriers that may limit the role of General Practitioners/Family Doctors and nurses in the management of diabetes and hypertension. In addition to assessing these legal barriers an assessment of nurse training will take place. This will review the curriculum in terms of what is taught about diabetes in nursing school. Other postgraduate, continuing education or specialized programmes in diabetes will also be identified and their content assessed.

Following this an assessment of the perception of nurses by doctors, patients and nurses themselves in terms of hypertension and diabetes care will be carried out. The perceptions of these different groups will be assessed in terms of the role of General Practitioners/Family Doctors and nurses in hypertension and diabetes care. This will focus on the roles General Practitioners/Family Doctors and nurses play and could play in health promotion, primary prevention, early detection, integrated care, patient education, etc. In addition barriers to General Practitioners/Family Doctors and nurses' role in hypertension and diabetes care will be assessed from the perspective of doctors, patients and nurses.

A purposive sample of doctors, patients and nurses working in respective centers will be interviewed using a discussion guide based on the findings from the first stages of this research. This will also help define the thematic guide, which will help in the analysis of the data.

1. Current State of Research

Impressive health system reforms implemented in Kyrgyzstan over the past 15 years have contributed to the decline in avoidable mortality. Structural changes allowed making progress in financial protection of the population, health care accessibility and efficiency. However, significant challenges remain in the effective diagnosis and management of key cardiovascular disease conditions, such as hypertension, and diabetes. Despite particular attention has been paid to PHC strengthening over past 10 years, coverage of the population with individual health services that ensure the major gains (for example, effective control of arterial hypertension, diabetes and other CVD risk factors) is still low.

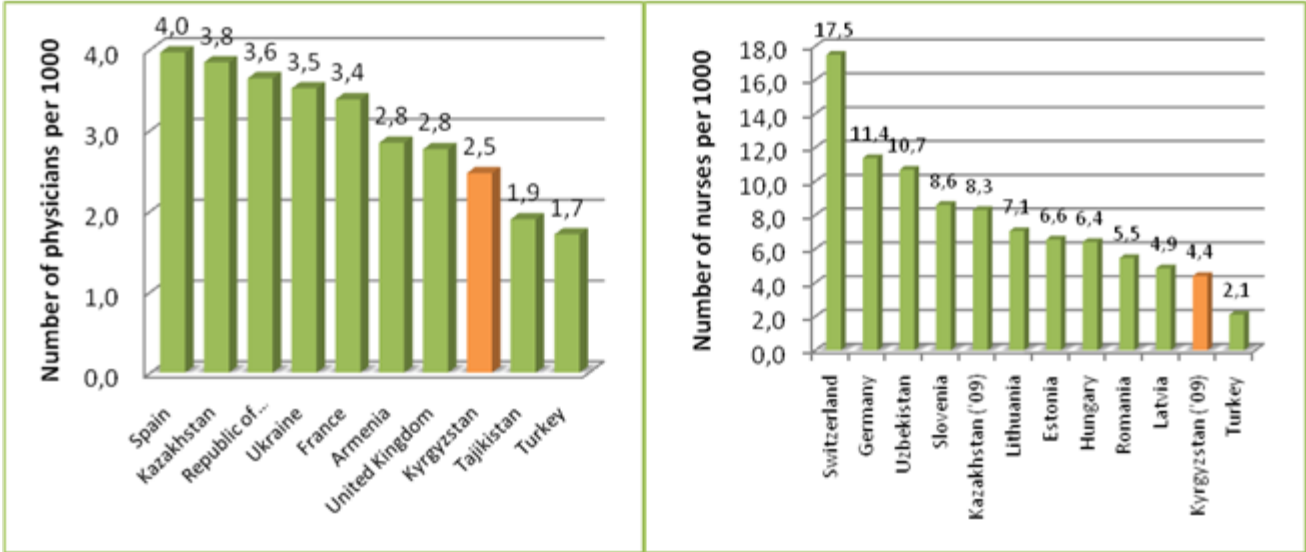
Thus, the results of the study² showed that in Kyrgyz health care system patients with diabetes are not paid particular attention in terms of access to health care aspects such as free delivery of care, including insulin, oral drugs, consultations and laboratory tests. However, it was noted that strong measures are required to improve diabetes management process, as well as appropriate practical training of family doctors and nurses and provision of resources to them. In addition, a number of issues were identified which emphasized the need to pay a particular attention to increasing population awareness of diabetes and solve issues of diabetes patients' awareness in order to increase their treatment compliance. HR problem in terms of training and low role of nurses in diabetes management was noted as one the key barriers to diabetes management.

² Abdraimova A, *et al.* Report on the Rapid Assessment Protocol for Insulin Access in Kyrgyzstan. London: International Insulin Foundation 2009

In 2013, Kyrgyzstan Country Assessment held by a team of Kyrgyz health sector and WHO experts³ also showed that human resources are the significant barrier in delivering basic individual services for CVD management.

Kyrgyzstan is facing a potential human resource crisis at the primary care level, particularly in rural areas, because the aging workforce is not being replaced by young physicians. The country has made numerous efforts to attract and retain physicians in rural areas, without any lasting effect. Medical education is being reformed to emphasize primary health care, but recent trends show no increase in the number of medical school graduates choosing to work in primary care. The human resource deficit is compounded by low motivation among primary care staff and competencies that do not match service delivery needs.

Figure 1. Density of physicians and nurses per 1000 population, various countries, 2011.⁴



* Data for Kyrgyzstan and Kazakhstan from 2009.
 Source: data for Kyrgyzstan from Ministry of Health statistics; other data extracted from the WHO Global Health Observatory, 24 July 2013.

By January 1, 2014 number of physicians and nurses was 1.9. per 1000 population and 4.6 per 1000 population accordingly. The numbers have been relatively stable over the past few years, but are among the lowest in the WHO European region. Staffing levels vary tremendously, from 100% in Bishkek to 44% in regions of the country. These official staffing levels are artificially inflated, as many doctors occupy more than one position, with an overall rate of 1.4 staff positions per doctor.

A family group practice should have at least three physicians, yet 60 FGPs in the country have no doctors and 198 have only one. The number of people enrolled in a practice can be up to 18 000, compared with a typical patient population of 1000 per provider in Bishkek. Nearly 97% of nurse positions in the country are filled, with little urban/rural variation; most nurses occupy only one staff position.

³ BETTER NONCOMMUNICABLE DISEASE OUTCOMES:CHALLENGES AND OPPORTUNITIES FOR HEALTH SYSTEMS, No. 3. Kyrgyzstan Country Assessment: Focus on cardiovascular disease. Melitta Jakab et al.
⁴ BETTER NONCOMMUNICABLE DISEASE OUTCOMES:CHALLENGES AND OPPORTUNITIES FOR HEALTH SYSTEMS, No. 3. Kyrgyzstan Country Assessment: Focus on cardiovascular disease. Melitta Jakab et al.

However, currently despite good staffing contribution of nurses is still low. Virtually, all nurses are full-time employees, staffing is high and a part of NCD control functions could be delegated to them to solve the issues of service accessibility and decrease workload of physicians by redistributing responsibilities between physicians, feldshers and nurses.

Medical education is being reformed with an emphasis on preparing broadly trained doctors for the primary health care workforce. There are plans to introduce a mandatory internship in family medicine for all graduates. However, reforms are slow and it will be a challenge to train adequately such large numbers of interns, given the limited clinical skills of medical school graduates and the very small number of clinic-based family medicine trainers in the country. Similar challenges exist in nurse training, which has traditionally not prepared nurses or feldshers in basic clinical assessment or management of common, uncomplicated NCDs., for example hypertension and diabetes. These skills may become essential to provide care to rural populations with the expected shortage of primary care physicians.

2. RESEARCH METHODOLOGY

2.1. Research objective and tasks

The objective is to assess practice of family doctors in managing patients with NCD and the barriers impeding involvement of nurses in the process of effective NCD management (hypertension, diabetes, COPD, stroke)

Tasks:

1. Assessment of nurses' role in managing NCD (diabetes, hypertension, COPD, palliative care) by analyzing legislation, educational programs, regulatory documents regulating practice of nurses in the KR;
2. Assessment of family doctors' role in managing NCD, their role, functions and the barriers impeding effective NCD management;
3. Assessment of barriers and nurses' role in managing some NCD, health promotion, primary prevention, early diagnosis, patient education etc. from the perspective of doctors, patients and nurses;
4. Identification of areas requiring further efforts and effective interventions in order to effectively manage NCD by family doctors and to strengthen role of nurses in NCD management.

2.2. Research plan

The research will have two stages.

The first assessment stage will include:

1. Desk review by reviewing literature and analyzing existing legislation regulating nursing practice:
 - Review of available statistical data on practice of nurses

- Review of regulatory documents regulating practice of nurses, their role, communication with family doctors.
- Identification of available legal and juridical barriers restricting role of nurses in NCD management
- Review and assessment of content of available educational programs for nurses (undergraduate, postgraduate and continuous education), available access to practice, availability of specialized training programs on different non-communicable diseases (diabetes, hypertension etc.).

2. First assessment stage will be complemented with conduction of qualitative interviews with key informants involved in the process of making policy and practice of family doctors and nurses: Ministry of Health, educational institutions dealing with education of nurses, Association of Nurses etc.

Second assessment stage:

The second stage of assessment will include field collection of data in order to obtain information about available barriers, roles and practices of both family doctors and nurses in managing some NCDs by studying perceptions of health professionals (managers and physicians of health organizations), patients and nurses.

2.3. Data collection methods:

1. **In-depth interviews** with key actors to identify challenges for strengthening roles of family doctors and nurses, effectiveness of interventions and factors affecting it as well as to identify areas requiring further efforts.
2. **Semi-structured interviews** with health personnel (physicians, nurses) of primary and secondary health facilities (FMC and TH) to explore the important effectiveness aspects of regulatory systems for roles and practice of nurses in managing some NCDs, health promotion, primary prevention, early diagnosis, patient education etc.
3. **Structured interviews and focus group discussions** with population to better understand the extent of population awareness about their status and roles of family doctors and nurses in managing their diseases.

2.4. Data collection tools and sampling

- Appropriate questionnaires will be developed for survey of target groups: questionnaire for key informants, questionnaires for health specialists, managers of health facilities, physicians, nurses and patients with NCD.
- Survey of these target groups will be held in terms of identifying barriers in playing roles by family doctors and nurses in conducting some NCDs, health promotion, primary prevention, patient education etc.
- Questionnaires for nurses will also include assessment of their knowledge of some NCDs (diabetes, hypertension), their practical skills, relationship with family doctors, patients and oth.

- Questionnaires will be developed using the results and findings obtained based on the first assessment stage and include questions aimed at exploring role of nurses.
- To develop survey tools the available international practices of similar assessments⁵ will be used. The tools will be adapted to the context of the country.
- Purposive sampling of doctors, patients and nurses will be provided based on obtained findings of the first assessment stage and through discussion with stakeholders (MoH, educational institutions etc.).

2.5. Sampling of regions (oblasts) for the research

It is suggested to select regions (oblasts) for the research based on the results of the first assessment stage, however, representation of northern and southern regions will be ensured.

The sample will definitely include Naryn oblast where pilot postgraduate education improvement project will be implemented.

3. FINDINGS OF PHASE 1

3.1. Review of regulations of nurse practice at primary healthcare

3.1.1. List of regulations of nurse practice at primary healthcare

Currently, there is a number of regulations that govern the nursing staff activities in the Kyrgyz Republic. Main laws and regulations in the field of public health are as follows:

1. Law of Public Health of the Kyrgyz Republic (Bishkek, 9 January, 2005, N 6)

2. Law of 'Status of the Medical Worker' (Bishkek, 28 May, 2013, N 81)

These laws govern the legal and socioeconomic relations around the healthcare workers, including nurses, and create conditions for improving their legal status and guaranteed social protection, as well as define their basic rights, duties and responsibilities in relation to medical practice.

The Article 97 'Duties of healthcare workers' of the Law of Public Health of the Kyrgyz Republic (Bishkek, dated January 9, 2005 N 6) provides that healthcare workers, including nurses are required to conduct their professional activities complying with regulations established by the public health authority, that is the Ministry of Health. Thus, all functional activities of nurses, her authorities and responsibilities will be regulated by acts approved by the Ministry of Health.

3. The main document that regulates activities of nursing professionals at primary healthcare level is **MoH Order N 289 of 02.07.2005 'On approval of normative and legal documents that regulate activities of nursing professionals in FAPs, FGPs, and FMCs'**. The Order defines the scope of activities of nursing professionals in FAPs, FGPs, and FMCs and distinguishes functions of doctors and nurses within these healthcare facilities. The Order approves the following provisions:

⁵ 95. Drass JA, *et al.* Perceived and actual level of knowledge of diabetes mellitus among nurses. *Diabetes Care* 1989; **12**:351-356.

96. Francisco MA. Instruments that measure nurses' knowledge about diabetes: an integrative review. *J Nurs Meas* 2013; **21**:137-152.

- Qualification requirements to the Family nurse;
- Regulation on the Family nurses;
- Regulation on the Family nurse unit (cabinet);
- Regulation on the nursing process;
- List of medical registration documents in FGPs.

4. Order №202 of 20.06.2000 ‘Regulation on the Unit for Nurse Admission’ and Order №445 of 05.08.2014 ‘Establishment of Nurse Unit (Unit for non-communicable diseases) within Family Medicine Centres and General Practice Centres’.

Currently, the Ministry of Health⁶ as part of the Den Sooluk health reform program, is actively working to reduce mortality, morbidity, and disability associated to non-communicable diseases (NCDs), such as cardiovascular diseases, bronchopulmonary diseases, diabetes and cancers. Considering the main causes of NCDs, the high prevalence of risk factors such as high blood pressure, tobacco use, harmful use of alcohol, obesity, etc., as well as finding of studies⁶ that demonstrated a gap between numbers of registered patients and estimated numbers of patients with hypertension⁷, it was decided to establish Nurse Units or Units for Non-communicable Diseases in all FMCs.

According to the approved Regulation, the Nurse Units should be part of FGPs. The named Order has approved the following provisions:

- Model provisions of the Nurse Units (Unit for NCDs) within the Family Medicine Centres and General Practice Centers
- List of equipment, medical devices, and consumables required to run the Nurse Units within the Family Medicine Centres and General Practice Centers
- Patient card for admissions in the Nurse Unit (Unit for NCDs)

5. Order № 327 of 31.07.2003 ‘Approved nomenclature of medical and pharmaceutical specialties, the nomenclature of staff positions, and the list of medical and pharmaceutical specialties relevant to staff position in healthcare facilities’. This Order approved the nomenclature of staff positions (posts) of healthcare workers with nurse education in primary healthcare facilities:

- Family nurse,
- Senior Family nurse, and
- Assistant Family nurse.

6. Order № 627 of 24.11.2006 ‘Approved legal and normative documents regulating the activities of FAPs⁸’. In the previous health reform program, ‘Manas-Taalimi’ for 2006 – 2010, a particular emphasis was on quality and access to healthcare services in rural area. In 2006, the

⁶ ‘Health Module’ KIHD, 2007

⁷ Hypertension prevalence estimates in the «Step» study, 2014

⁸ FAP is an abbreviation for Fieldsher-Akusherskiy Punkt, that is a Feldsher- Midwifery Station

Regulations of FAP in rural area were reviewed and approved and, accordingly, the Regulations of Paramedics were approved.

7. Order № 338 of 04.07.2011 ‘Approved Regulation of the certification and registration of healthcare professionals in the Kyrgyz Republic’. This regulation is the basis for certification of healthcare professionals, including nurses, that will be a basis to assign qualifications.

8. Order № 337 of 06.13.2013 ‘Approved Ethical Code of nurses in the Kyrgyz Republic’. The Ethical Code of nurses was approved to improve moral norms in professional activities of nurses, with emphasis to improved cohesion, enhanced prestige of the nursing profession within the society, and the overall development of nursing in the Kyrgyz Republic.

9. Government’s Resolution N53 of February 3, 2004 ‘Regulation on state educational standards of professional⁹ education in the Kyrgyz Republic’. The Resolution approved provisions of standards for nurse educational institutions that are mandatory for all nurse education institutions, regardless of ownership.

10. Government’s Resolution № 610 of September 5, 2012 ‘Approved List of specialties and standard timeframes of trainings under secondary professional education in the Kyrgyz Republic’. The Resolution approved the list of specialties of secondary medical education (10 specialties) and timeframes of training to pursue the specialties.

3.2. Review of main aspects of nurse activities in primary healthcare facilities on the basis of studied regulations

3.2.1. Main requirements to qualifications of family nurses

In accordance with the approved Regulations on Family nurses, any specialist certified in family medicine nursing and possessing higher nursing education or secondary nursing education can qualify to work as a Family nurse. The Family nurse should regularly undergo the evaluation, in order to receive a qualification category in the relevant specialty.

The approved qualification requirements of the Family nurse comprise of the following:

- List of general knowledge;
- List of general skills;
- List of medical manipulations\procedures

Lists of general knowledge and general skills that nurses should know and be able to exercise are of declarative nature and are more about basic knowledge of legislation and regulations. It should be noted that there is no logical link between the knowledge, the skills and the manipulations/procedures that comprise components of ‘competences’ of the Family nurses. For example, the qualification requirements of Family nurse stipulate that they need to know only basics of the nursing process, which is clearly insufficient for management of patients, including those with arterial hypertension and diabetes. Qualification requirements such as ‘decision-making within their professional competence and authority’, ‘perform diagnostic, therapeutic, resuscitation, rehabilitation, prevention, sanitation & hygiene, and health education

⁹ Hereby, the term ‘professional education’ is equivalent to terms ‘technical education’ and ‘vocational education’

activities within the scope of competence' are also rather general and do not reflect specific knowledge and skills that should nurses should know and be able to perform.

Educational profile of the nurse in the approved Regulation stipulates only the availability of education. There is no indication that the position of nurse in family medicine can be taken by specialists with secondary professional education in the specialty of 'Nursing' only.

In addition, the approved Regulation of qualification requirements of the Family nurse does not account for selection criteria, such as record of service (seniority) or working experience in specialty.

3.2.2. Nomenclature of nursing staff in PHC facilities

The MoH order regulating the nomenclature of medical positions provides that in relation to the primary healthcare institutions there are 3 nurse positions approved:

- Family nurse
- Senior family nurse
- Assistant family Nurse

The approved nomenclature of positions implies that the PHC facilities will have a staff unit of Assistant family nurse. However, at present, this position has been enforced in none of the FMCs. This position has not been introduced because the approved standards of staffing units do not enable this because FMCs have not been allocated additional staff units.

It is worth noting that, be that available, this staff unit (position) could positively affect the empowerment of nurses when managing NCDs. Having an Assistant nurse would reduce the workload of Family nurses and enable more time to management of NCDs (hypertension, diabetes), including preventive activities.

3.2.3. Organization of work of the Family nurses in FMCs

The Regulation provides the main points in the organization of activities of the Family nurse:

The Family nurse is appointed and dismissed by the Director or the head of the legally independent FMC, in accordance with applicable legislation.

Deputy director in charge of nursing or senior nurse performs as a nurse executive in the PHC facility, Family Medicine Centre. He/she oversees the nursing service in the facility and guides the work of senior nurses in FGPs and all nurses in the FMC. Thus, all nurses in FMCs are directly subordinate to the senior nurse.

The Regulation provides that the Family nurse will work under supervision of the Senior nurse of FGP, in partnership with the Family doctor. The Regulation does not have provisions about the partnership between the Family doctor and the Family nurse, nor it provides a detailed description of how this partnership should be built.

3.2.4. The duties, responsibilities, and rights of the Family nurse

The Regulation formulates the duties of nurses mostly in general terms. For example, 'the nurse will provide comprehensive nursing care to secure and maintain the public health, hold records of the enrolled population, reveals the demographic and medical and social compositions of the population and so on'.

Most of the duties provided in the Regulation are of indicative contents, i.e. they do not specify what actions the nurse is obliged to do with patients.

A number of the Family nurse's duties involve activities in cooperation with the Family doctor. Three activities are identified which the Family nurse must carry out in cooperation with the Family doctor:

- Analysis of the health status of the population;
- Identification of population groups with early stages and latent forms of diseases;
- Detection of public health risk factors and assisting in their mitigation.

The above duties of the Family nurse in cooperation with the Family doctor are also of declarative nature, do not imply clear functions, and place the Family nurse as a physician's assistant in the provision of medical care to people.

In general, the approved duties of Family nurses are formulated in general terms. There are no specific duties of the Family nurse in management of NCD patients, in particular patients with hypertension and diabetes. No clear up-to-date activities delegated from doctors to nurses on service provision based on family principle, nor indication of specific activities of the Family nurse to do on her/his own. Therefore, the absence of clearly defined duties prevents us from defining the authorities of nurses and isolating their responsibilities from those of Family doctors.

The order type section of the Regulation on Family nurse stipulates the FMC managers to individually draft job descriptions for nursing staff. These instructions must fully regulate the activities of the Family nurse, including duties, rights, responsibilities, and the extent of cooperation with the doctor. However, to date there is no Single model job description that could be a basis for each health facility to formulate the job descriptions for each Family nurse. For this reason, it is necessary to examine in the field the availability of job descriptions, their contents and their compliance with standards and practices of nurses.

3.2.5. Organization of the nursing process

Despite the fact that a nurse's activities are often about clear and 'automatic' fulfillment of the doctor's instructions, the organization of the nursing process, according to the approved Regulation, involves a number of activities that the nurse should decide on her/his own. In accordance with the Regulation on the nursing process, the nursing process is a systematized nursing activity that involves planning and analysis of functions and the joint evaluation of the results with the patient.

The nursing process comprises of 5 stages and involves a chain of actions performed by a nurse in relation to the patient, in order to prevent, alleviate, reduce and minimize the patient's challenges and difficulties.

When a patient comes to the FGP, the nurse, following the procedures of the nursing process, should collect data about the case, identify the patient's problems or needs (nursing diagnosis), the objectives of care, the end outcomes of care, and choose appropriate measures. Finally, after completing all planned activities, the nurse should assess the effectiveness of the care planning by end outcomes, together with the patient. Doing this process has several advantages. One of the advantages is that this process enables the nurse to carry out activities on her/his own (information gathering, formulation of the nursing diagnosis, etc.).

In general, the nursing process is a systematic approach to the provision of professional medical care, has its own characteristics in terms of assessment of needs and concerns of the patient, and requires specialized knowledge in psychology, interpersonal communication, etc.

According to the approved Regulation, the nursing process must necessarily be based on standards of nursing practice. Therefore, the application of this process requires the compulsory training and introduction in the field, including the standards of nursing practice.

In this regard, it is necessary to study how this process is applied in healthcare organizations, how the work is organized, and whether the nurses, doctors, and patients understand the meaning and value of the nursing process.

3.2.6. Standards of nursing practice

To date, there are only two standards of nursing practice:

- **Standard of Techniques of Clinical Procedures**
- **Standard of the nursing practice on management of patients with essential hypertension** (Clinical Protocol of Nursing Process on Management of Essential Hypertension, 2005).

According to the standards of the nursing practice on management of patients with hypertension, the family nurse will train patients to tonometry technique, administration of antihypertensive drugs, healthy lifestyles (diet therapy, physical exercise, controlling addictions), collection of biological specimens for tests, and train patients to self-care or the family members to care and prevention of complications of hypertension.

This protocol of nursing process on hypertension was not widely applied in the practice. There were no actions to introduce and implement this standard to regulate and monitor the activities of the family nurse. This situation could be explained by the fact that the regulations of nurses in FAPs, FGPs, and FMCs had been approved before this clinical protocol was approved and, hence, the approved regulations of nurse activities and duties did not account for these standards.

Also it is worth noting that this clinical protocol of the nursing process on hypertension was adopted over 10 years ago and currently it requires revision. This standard needs revision also because of the Guidelines of Hypertension Management adopted in 2010.

There are no standards of nursing practice on management of diabetes.

3.2.7. Organization of Nursing Units (Units of Non-communicable Diseases)

The Nurse Unit (NCD Unit) is intended to identify risk factors for non-communicable diseases (NCDs), early initiation of treatment, and reduction of disability and mortality from NCDs. In addition, one of the main objectives of these units is to introduce as a routine the procedure of measuring blood pressure in people over 40 years old when attending the primary healthcare facilities, in order to improve case detection of high blood pressure.

In this process, an important value is attributed to nurses, who work in the Nurse Units. The Regulation defines the qualification characteristics, abilities, and skills of clinical procedures that nurses must hold. These units can employ nurses with both secondary and higher nursing education and with working experience of at least 5 years. Nurses in the Nurse Unit will examine and admit patients, identify risk factors (smoking, alcohol, etc.), measure height, weight, and blood pressure, run breast palpation, and, when necessary, conduct the peak flow metry and measure the carbon monoxide in exhaled air using the smokerlyzer. The nurses will record the data in the registration form (Form 025 - 9 y) and pass to the doctor.

The nurse's functions, according to the Regulation, include independent decision making about patient referrals, formal referral to a hospital, a laboratory, etc. In this regard, it is required to study the NCD Units in the field, in order to find out how the work is organized and the extent to which the nurse's decision making is independent. Assessment of the way the NCD Units are organized to NCDs would be a good example and experience for the plans of expanding the powers of nurses in managing the hypertension and diabetes at primary healthcare facilities.

It should also be noted that the Regulation will cover only general requirements to knowledge and skills of nurses in Nurse Units. In this regard, it is also essential to develop relevant standards of nursing practice on management of patients specifically in the Nurse Unit.

3.2.8. Assessment of nurses

Currently there are two methods applied in the Kyrgyz healthcare to evaluate the Family nurses:

- Regular (monthly), which is held on the ground;
- Attestation conducted to award the qualification category (once every 5 years); conducted by a commission at the national level.

The regular evaluation of nurses on the ground is carried out based on the Regulation of the deputy director in charge of nursing / senior nurse of FMCs, where it is her/his duty. There is no regulation on procedures of regular monitoring and evaluation of nurses, which would regulate the deputy director in charge of nursing / senior nurse of FMCs in assessing the nurses.

One of the main instruments of the senior nurse in FMCs in relation to family nurses is the use of material incentives in the form of additional wages through the Coefficient of Labour Participation (referred locally as KTU) and bonuses. However, there are no regulations in place to specify the ways, criteria, and performance indicators in using the material incentives.

The Attestation of nurses to assignment the qualification categories is conducted based on the Regulation of Attestation, which was approved by the Ministry of Health **Order №338 of 04.07.2011 ‘Approved Regulation of Attestation and Registration of healthcare professionals in the Kyrgyz Republic’**).

The process is voluntary and proposes relevant incentives for undergoing the Attestation as the awarded category of nurses will imply top-ups to salaries. Attestation will award three categories, whereby the main factor is the experience: the second category is awarded if the professionals continuous has 3 years of experience, the first category is awarded when 5 years of experience is present, and the highest category is awarded when 7 years of experience is present.

It should be noted that the requirements to length of service for nursing professionals in the primary healthcare to award a professional qualification category are significantly less than those imposed to professionals working in hospitals, making respectively 5 years, 8 years, and 10 years.

According to the Regulation of Attestation, all healthcare professionals, including nurses should assessed every 5 years to confirm their qualification categories, or, when a certain length of service is achieved, they should claim to qualify for a higher level category, which will ensure higher wage supplements. The Attestation is carried out by professional associations, - in this case by the Association of Family Doctors and Family Nurses, and within the timeframes set out by the Commission following the MoH orders. The Attestation is held in two stages: by passing the written tests and interviews. The written test is held by computer-based testing; the interview takes place in an arbitrary manner and evaluates the professional features of the assessed person, thinking and professional skills, ability to solve professional problems, analyze the information available and make relevant decisions.

One of the mandatory requirements for the Attestation is the evaluation of the nurse’s activities. However, the lack of relevant criteria and mechanisms for assessing the nurse’s activities will make this process difficult and largely a formality.

3.3. Review of nursing education in the Kyrgyz Republic

3.3.1. Providers of the nursing education

There are 18 medical colleges and one medical school under the KSMA by the name of I. Akhunbaev that spread across all regions of the country. Of them eleven are government-owned medical colleges, which are in the double subordination under the Ministry of Education and Science and the Ministry of Health. Two colleges in Osh and Uzgen are under the Osh State University; one medical college is under the Osh State Social Science University; one college is under the Jalalabad State University; and four colleges are privately owned (namely, medical college under the Institute of Modern Information Technology in Education with two branches in Tokmok and Toktogul; Medical College by the name of N.I. Pirogov in Kara-Balta; Kochkor-Ata Regional College; and the Medical and Social College in Bishkek).

In 2013, based on the developed and approved criteria, all medical schools were reorganized into medical colleges. This reorganization was supposed to prepare specialists following advanced curriculums that would provide graduates with higher qualifications.

Along with the increased number of nursing colleges, the total number of trained specialists tends to increase annually (Table 1).

In addition, the KSMA provides nursing education with warded higher education degree, with 16 higher education nurses graduating annually.

Table 1. Education of nurses

Medical college	2007	2008	2009	2010	2011	2012	2013
Bishkek	572	516	382	536	616	365	538
Tokmok	120	128	137	170	214	315	336
Talas	144	151	131	144	122	122	193
Kara-Balta	267	281	265	277	307	336	329
Karakol by the name of I. Akhunbaev	90	82	98	97	107	151	144
Naryn	74	97	98	86	103	123	154
Kyzyk-Kia	336	349	375	360	376	347	352
Jalalabad	427	575	469	432	501	501	514
Mailusuu	117	96	129	132	132	137	155
Osh	340	350	358	360	349	337	359
Nursing School under the Kyrgyz State Medical Academy	41	50	69	10	10	10	10
Medical college under the Osh State University	232	232	512	458	617	633	633
Uzgen Medical College under the Osh State University	87	115	123	106	106	106	145
Medical college of Osh State University of Social Sciences	508	303	320	374	385	395	171
Medical college by the name of N. Pirogov	-	-	-	-	-	-	120
Kochkor-Ata regional college	-	-	-	-	-	-	40
Total	3355	3325	3466	3542	3945	3878	4193

The secondary education of nurses is provided on the following areas: nursing, nursing and massage, general medicine, midwifery, medical and midwifery, dentistry and orthopedic, dentistry, medical and preventive work and laboratory diagnostics.

The highest number of trainees are found in the specialty of 'Nursing', which tends to grow annually. These specialists are referred to work mainly in primary healthcare facilities: FMCs, FAPs, and FGPs.

Table 2. Education of nurses by specialties

Number of graduates by departments	2007	2008	2009	2010	2011	2012	2013
Nursing	1116	1188	1194	1181	1363	1209	1297
Nursing and Massage (disabled on ophthalmic function)	10	10	9	10	10	10	10
General nursing	399	385	414	491	557	564	539
Midwifery	951	884	1050	946	1003	1026	957
Nursing and Midwifery	-	-	-	-	-	-	-
Dentistry and Orthopedics	163	150	134	167	164	167	215
Dentistry	102	137	183	151	213	262	316
Medicine and prevention	51	39	35	38	35	38	38
Laboratory diagnostic	101	100	65	90	70	92	414
Pharmacy	462	432	382	468	540	510	733

The analysis of staffing of FGPs with nurses suggests a relatively high staffing levels, with figures like 97.4% in 2013 (see Table 3). However, it is clear that the contribution of nurses, even with good staffing levels is low because the nursing process are not implementation in nursing practice and the lack of standards of nursing practice.

Nearly all nurses work in facilities for one staffing unit (referred locally as 'Stavka') and the staffing rates in PHC facilities are high - this may be a good motive to delegate some NCD management functions to nurses to address the access to care.

Table 3. Staffing of nurses in PHC facilities in the Kyrgyz Republic, 2013

Year	FMC					Including FGP				
	Positions		Number of individuals working	% of occupied staffing units	Coefficient of combined jobs /positions	Positions		Number of individuals working	% of occupied staffing units	Coefficient of combined jobs /positions
	Staffing units	Occupied staffing units				Staffing units	Occupied staffing units			
2011	12870	12288,3	10153	95,5	1,2	7230,5	7004,8	6043	96,9	1,2
2012	12910	12302,8	10393	95,3	1,2	7264,75	7021,3	6262	96,6	1,1
2013	12824	12356,0	10549	96,4	1,2	7075,5	6889,75	6191,0	97,4	1,1

3.3.2. The National education standard

Started in 2013, all medical colleges run instructions across all nurse specialties based on the National Education Standard (hereinafter NES) of the new generation.

The NES is the main normative document for developing the professional technical education programs, the mechanisms and criteria for objective supervision of the education quality provided by educational institutions, the final certification of graduates, as well as for national accreditation (Attestation) of the education institutions, their departments, and the curricula employed.

The NES provides the following:

- mandatory minimum content of core educational programs;
- maximum amount of academic load of students;
- requirements to level of education of graduates;
- requirements to the implementation conditions of the basic educational programs, the final Attestation of graduates, the conditions of admission to each level of education;
- timeframes of obtaining the professional educational programs by students;
- competencies of education authorities and professional technical education providers in defining the content and volumes of education, i.e. the mandatory national components of education content and components that are defined by the educational institutions.

A distinctive feature of the new NES is that the content of the basic professional curriculum is measured by new units, credits, whereby one credit equals 36 hours of study (including in-class, individual work, and all kinds of Attestation) and competency building approach is used in the design of the curricula.

Implementation of the NES is compulsory for all secondary professional schools / medical colleges providing secondary professional education, regardless of their organizational and legal forms.

Failure to comply with the national educational standards by medical colleges will cause liabilities in the established procedures and in the form of reduced status of educational institutions, suspended right to award qualification or academic degrees on all or certain professions or competencies, termination of the right to provide education services. The form of liability of educational institutions is established during the national accreditation (Attestation).

One of obstacles to implement the new generation NES by medical colleges is that instructors are not able to develop new content without relevant methodological materials and trainings.

3.3.3. Organization of curriculum development in accordance to the NES

Based on the **Government Resolution of the Kyrgyz Republic of September 5, 2012 № 610 'Approved List of specialties and standard timeframes of secondary technical education in the Kyrgyz Republic'**, the Ministry of Education and Science has established a working group that is composed of the leading instructors of medical colleges. They will develop the NES on 10 specialties, following the list of specialties and standard timeframes of secondary technical education in the Kyrgyz Republic.

In addition, following the MoH order N 491 of 08.17.2013 'Approved structure of the Bishkek Medical College' (hereinafter - BMC), the Training and Methodology Center (TMC) was established. This pursued the improved content of educational activity and methodological set-up in nursing education, developed structure of curricula by disciplines and the normative guidelines and educational documents. According to the Regulation of TMC, its main function is to organize and develop curricula and plans for nursing education, with involved variety of professionals, including directors, deputy directors and experienced instructors of medical colleges.

3.3.4. Review and assessment of contents of undergraduate nursing education curricula

Curriculum of nursing education of specialty of 'Nursing'

The evaluation team reviewed the nursing education curriculum developed by instructors of the Bishkek Medical College (BMC) in the specialty of 'Nursing' with emphasis to development of competencies in hypertension and diabetes, which were approved at the methodical council within the BMC in 2013.

The curriculum on the specialty of 'Nursing' well accounts for the logical associations and sequences of studying the issues of hypertension and diabetes. For example, a student, having

studied the theme 'Physical activity', proceeds to studying the diseases that may have risk factors associated with low physical activity, and then studies the disciplines of prevention of NCDs. (Table 4)

Table 4. List of disciplines covering hypertension and diabetes

No	Discipline	Theme	Number of hours theory/practice	Semester/course
	Specialty of 'Nursing'			
1.	Pharmacology	Medications active in relation to cardiovascular system (coronary arterial disease, hypertension).	2/2	2 Semester – 1 course
2.	Healthy human and the environment	Physical activity	8/	4 Semester – 2 course
3.	Nursing in therapy and first aid	Disease of circulatory system (atherosclerosis, hypertension)	2/6	4 Semester -2 course
		Diseases of endocrine system (Diabetes)	2/4	5 Semester -3 course
4.	Clinical pharmacology	Antihypertensive medicines	2/2	5 Semester – 3 course
5.	Nursing in Family medicine	Role of Family nurse in care of patients with cardiovascular diseases	2/6	5 Semester – 3 course
		Role of Family nurse in care of patients with endocrine disease	2/6	
6.	Nursing in geriatrics	Age related changes in disease of circulatory and respiratory systems	2/6	6 Semester – 3 course

See Annex 1 for detailed curriculum with breakdown by hours.

1. Curriculum of 'Pharmacology' discipline of specialty of 'Nursing'

In the 2nd semester of the first year, the students study the discipline of 'Pharmacology' designed for 72 hours (theory is 42 hours, and practice 30 hours), including the topic of 'Cardiovascular medicines (medicines used in coronary insufficiency and hypertension)' that is allocated 2 hours for theory and 2 hours for practice.

The program of basic pharmacology includes sections such as 'Pharmaceutical formulations', 'General Pharmacology', 'Particular pharmacology'.

Objective of the section ‘Pharmaceutical formulations’ is to introduce students to modern formulations, correct use to achieve the desired therapeutic effect, as well as the rules of recording the recipes.

The section of ‘General Pharmacology’ draws attention to practical issues such as characteristics of modes of administration and major effects of medicines, general features of the pharmacodynamics and pharmacokinetics, familiarization with variety of adverse effects of therapy.

The section of ‘Particular Pharmacology’ focuses on pharmacokinetics and pharmacodynamics of main pharmacological groups and bridges them to clinical disciplines. The program includes pharmaceuticals that nurses most commonly deal with in their routine work. With respect to pharmaceuticals such as used in epilepsy, Parkinsonian diseases, depression, or cancers, there is only focus on general issues. The program covers pharmaceuticals included in the List of Essential Medicines.

Objectives of the discipline:

- To introduce basics of pharmacokinetics and pharmacodynamics;
- Studying the effects of major pharmaceutical groups;
- Formation of pharmacotherapeutic thinking in nurses involved in the treatment process or acting at the patient bedside;
- Development of skills of prescribing.

The program of ‘Pharmaceuticals affecting the cardiovascular system’ presents knowledge about antihypertensive agents:

- Classification of antihypertensive medicines,
- Effects and administration of individual medicines (Clonidine, Methyldopa, Reserpine, Propranolol, Nifedipine, Magnesium Sulfate, Hydrochlorothiazide, Captopril),
- Combined use of antihypertensive medicines,
- Side effects of antihypertensive medicines.

The practical session on this subject focuses on training students on key issues of classification, pharmacodynamics, use of pharmaceuticals affecting the cardiovascular system, tasks of recipe prescription, problem solving and case studies, and demonstration of the pharmaceuticals.

2. The discipline of ‘Healthy human and the environment’ in specialty of ‘Nursing’.

This program is designed to meet requirements of the National Educational Standard in relation to the level of education of students on the subject of ‘Healthy human and the environment’ and is constructed to cover health and diseases prevention.

The program of ‘Human and Environment’ covers the effects of environmental hazards on public health. The program is designed for theoretical and practical training of specialists on ‘Healthy human and the environment’ and is delivered to students as a course of theoretical and practical trainings conducted in the Nurse Units and clinical academic departments.

This discipline is designed to form basic professional knowledge and skills on healthy lifestyles necessary for the nurse's routine activities. Its program covers mastering the nursing process as a method of providing nursing care and acquiring skills in counseling patients and families on securing and promotion of health at different ages.

This program is delivered in semester four (2nd year of study) and is designed for 8 hours of theoretical classes.

3. The discipline of 'Nursing in therapy and first aid' is designed to meet requirements of the National Education Standard to the level of education of students on specialty of 'Nursing'. The program focuses on the organization of therapeutic care and the provision of first aid in emergency cases.

Objectives of the discipline:

- Maximum focus towards formation of basic professional knowledge required for nursing;
- Mastery of the nursing process and first aid;
- Teaching students to counseling patients on treatment, care, and prevention.

The program includes topics that consider concepts, main clinical manifestations, principles of treatment, prevention, care, and rehabilitation of patients with diseases of the respiratory, circulatory, gastrointestinal, kidneys and urinary tract, endocrine system, musculoskeletal, and occupational diseases.

This program is held from 3 to 6 semesters and is designed for 234 hours, of which 80 hours are allocated to theoretical classes and 154 hours are allocated to practical training.

The program includes several themes on various types of internal diseases. For example, the theme of 'Diseases of the circulatory system' is allocated 72 hours (20 hours of theoretical classes and 52 hours of practice), of which the Hypertension is allocated 2 hours of theory and 6 hours of practice. The endocrine system diseases are allocated 12 hours (6 hours of theory and 6 hours of practice), of which the study of diabetes is 2 hours of theory and 4 hours of practice.

It should be noted that the **practical classes are held in training rooms with use of training devices and manikins and do not involve the contact with patients in medical facilities.**

The program has an approved list of knowledge and skills that students are expected to acquire after studying the discipline of 'Nursing in therapy and first aid'.

Exit tests (exam / test) are held based on current marks, interim attestation, and final state attestation.

The program of 'Diseases of the circulatory system' includes a presentation to students of the following theoretical skills / knowledge in Hypertension:

- Definition of the Essential Hypertension,
- Classification, risk factors, symptoms, diagnostic methods, treatment principles,
- Nursing process - the nurse's role in preventing the Essential Hypertension,
- Patient counselling on diet therapy,

- Hypertensive crisis - definition, symptoms, emergency first aid and nursing care in Hypertensive crisis.

The practical sessions on this theme deliver to students the physical examination of patients with diseases of the circulatory system, assessment of the condition severity, use of tonometer in measuring blood pressure, heart rate calculation, drip infusions of medicines, familiarization with laboratory (biochemical) blood tests and instrumental tests (ECG, EchoCG, Veloergometry) in diseases of the circulatory system.

In addition, the practical classes will separately address the data collection and physical evaluation of the patient with Hypertension:

- Identification of priority issues,
- Pulse identification and blood pressure measurement,
- Advising patients on antihypertensive drugs, prevention of Hypertension, and principles of diet therapy,
- Physical examination of the patient, assessment of the condition severity, and first aid in Hypertensive crisis.

Program of ‘Diseases of the endocrine system’ presents to students the following theoretical skills / knowledge of Diabetes:

- Definition of Diabetes,
- Causes, Symptoms, treatment, and care principles,
- Preparation of patients to laboratory and instrumental tests,
- Special diet,
- Complications of Diabetes mellitus,
- Role of the nurse in providing first aid at coma,
- Role of the nurse in counselling patients on diet therapy.

The practical session on this theme covers the care of patients with Diabetes and obesity, collection of information and assessment of the patient’s overall condition, priority problems of the individual patient, nursing care, counselling the patients and families on prevention and diet, case studies to substantiate the individual patient care, patient education to rules of subcutaneous Insulin injection, care in Diabetes complications.

4. The discipline of ‘Clinical pharmacology’ in specialty of ‘Nursing’.

This program is delivered on the 3-d year of study in semester 5 and is designed for 36 hours, of which 20 hours are allocated to theory and 16 hours to practical classes.

The discipline focuses on forming pharmaceuticals thinking in nurses involved in the treatment process and the timely identification of adverse effects of medications.

The discipline addresses key issues of pharmacotherapy of inflammatory disorders, allergic processes, pain syndrome, cardiovascular diseases, and bacterial infections. The topic of ‘Pharmaceuticals to treat Hypertension’ is allocated 2 hours of theory and 2 hours of practice.

The theme of 'Pharmaceuticals for treatment of the Arterial Hypertension' presents to students the following theoretical skills / knowledge:

- Pharmacological groups of hypotensive medicines (Reserpine, Raunatin, Rauvazin, Clonidine, Dibazol, Papaverine, No-spa, Captopril, Kellin),
- Hypertensive crisis (hyperkinetic and hypokinetic types) and emergency aid.

The practical session on this theme delivers the self-monitoring and self-observation of patients with continuous treatment with antihypertensive medications.

5. The discipline of 'Nursing in family medicine'

The discipline of 'Nursing in Family Medicine' examines issues of providing the primary healthcare, the Family nurse's role in the healthcare system of the Kyrgyz Republic, and the list of main activities in disease prevention in the family medicine.

Studying this discipline ends with a test.

This program is carried out in the semester 5 and is designed for 90 hours, of which 36 hours are allocated to theory and 54 hours to practical sessions.

The program also includes several themes on different types of internal diseases. For example, the 'Diseases of the circulatory system' is allocated 72 hours (20 hours for theory and 52 hours for practice), including 2 hours for theory of Hypertension and 6 hours of practice. The theme of 'Diseases of the endocrine system' is allocated 12 hours (6 hours of theory and 6 hours of practice), of which Diabetes is allocated 2 hours of theory and 4 hours of practice.

The theme of 'The Family nurse's role in the care of patients with cardiovascular diseases' presents to students the following theoretical skills and knowledge of Hypertension:

- Definition of Essential hypertension,
- Classification, risk factors, symptoms, diagnostic methods, treatment principles,
- Nursing process - the nurse's role in prevention of Essential hypertension,
- Counselling patients on diet therapy,
- Hypertensive crisis - definition, symptoms, emergency first aid and nursing care for Hypertensive crisis.

The practical session on this theme focuses on acquiring skills of counseling patients on antihypertensive medicines, prevention of Hypertension, principles of diet therapy, and providing first aid in Hypertensive crisis.

The contents of the two disciplines, the 'Nursing in therapy and first aid' and the 'Nursing in Family medicine', coincide in relation to Hypertension. This suggests that students study the same issues in different themes, the 'Role of the Family nurse in care of patients with cardiovascular diseases' and the 'Diseases of circulatory system'.

The theme of 'Role of the Family nurse in care of patients with diseases of the endocrine system' presents to students the following theoretical skills / knowledge of Diabetes:

- Definition of Diabetes,
- Causes, Symptoms, treatment and care principles,
- Preparation of patients to laboratory and instrumental tests,
- Specifics of diet,
- Complications of Diabetes mellitus,
- Nurse's role in first aid at coma,
- Nurse's role in counselling patients on diet therapy.

The practical session on this theme instructs students the rules of the subcutaneous injection of Insulin and first aid at complications.

Similarly, the didactic units of same disciplines, - 'Nursing in therapy and first aid' and 'Nursing in Family medicine', - overlap around themes of 'Role of Family nurse in care of patients with diseases of the endocrine system' and 'Diseases of endocrine systems'.

6. The discipline of 'Nursing in geriatrics' in specialty of 'Nursing'

The program is rationally constructed to the extent that the elements of geriatric care look well harmonized across the stages of geriatric care.

The course of 'Nursing in geriatrics' focuses on delivering the basics of clinical thinking, medical and social care to elderly people.

The program is designed for the theoretical and practical training of specialists in geriatric nursing and is delivered to students as a course of theoretical and practical sessions conducted in offices of FMCs and in nursing homes.

The discipline completes with tests that are based on current evaluation marks of students.

This program includes several themes on different types of internal diseases, is delivered in semester 6, and is designed for 36 hours (12 hours of theory and 24 hours of practice). The topic of 'Age-related changes in respiratory and cardiovascular diseases' is allocated 8 hours (2 hours for theory and 6 hours of practice), of which 1 hour is allocated to theory of Hypertension 2 hours to practice. The diseases of the endocrine system are not considered here.

The theme of 'Diseases of cardiovascular system' presents to students the following theoretical skills / knowledge in Hypertension: course of the disease, observation and care of the elderly, blood pressure measurement, pulse and its interpretation.

The practical session on this theme instructs students to observation and care of elderly patients with Hypertension and emergency medical care in hypertensive crisis.

3.3.5. Review of contents of curriculums at continuous medical education of nurses

To review the curriculum of continuous medical education of nurses, the program and curriculum of CME of FGP / FMC nurses called 'Nursing in Family medicine' was reviewed. That was developed by instructors of the Department of 'Nursing in Family medicine' of the Kyrgyz State Medical Institute of Continuous Medical Education (hereinafter referred KSMICME) and approved at the meeting of the Educational and Methodical council of the KSMICME.

Objective of the program: Train qualified nursing in the field of Family medicine.

Tasks:

1. Improve knowledge of nurses on common diseases,
2. Improve quality of nursing procedures when working with patients and their families,
3. Train skills of counselling patients and their families, based on the principles of interpersonal communication.

Duration of the program is 384 hours (2 months).

In accordance with the teaching and thematic plan of 'Essential Hypertension', only 3 hours are allocated, of which 1 hour for lecture and 2 hours for practical trainings. The topic of 'Diabetes' is allocated 4 hours, with 2 hours for theory and 2 hours for practice. The curriculum of these themes is based on the Clinical Guidelines of Diagnosis and Treatment of type 2 Diabetes in primary healthcare, the Clinical Guidelines for Diagnosis and Treatment of Hypertension in adults, and the Clinical protocol of Nursing Process in Hypertension Management.

The program considers the nurse's role in providing nursing care in Hypertension and Diabetes at PHC, with emphasis to counseling and patient education.

The practical classes on these topics are delivered in clinical classes, do not involve contact with patients, and trains students to management of patients with Hypertension and Diabetes based on the nursing process: collection and evaluation of subjective and objective data, nursing diagnosis, nursing recommendations, basics of insulin therapy, prevention and care of the so called 'diabetic foot'. The practical program only trains students to techniques of insulin administration so that nurses could train patients. The program provides for mandatory instructions to patients on preventing the development of the diabetic foot: examination of the feet, foot hygiene, foot care, and selection of shoes. However, it should be noted that the number of hours allocated both to practice and theory is inadequate.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Legal and regulatory acts

1. In the context of healthcare reform, with significantly increased role of nurses in the primary healthcare in providing care to patients with NCDs, there is an obvious need in establishing regulations of nursing staff with delegation of specific functions of doctors and creating regulatory documents.

The review of regulations governing the nurse' activities at PHC found that at present there are no regulations or rules that may prevent nurses from expanding their scope of responsibilities in managing NCDs.

Transforming the Family nurse's role from the doctor's assistant into an equal participant of the treatment and prophylactic processes with responsibilities on certain NCDs will require all regulations of nurses be brought in line with nurse's tasks.

There is also a need in clear association and consistency between the normative documents regulating the nurse activities and available education programs at all levels of education, both undergraduate and continuous education levels. For example, the education system trains nurses to the nursing process, while in practice it has no use nor implemented. The regulations only stipulate that new nursing technologies would be implemented, but no mechanisms and leverages of implementation are in place, there is no responsibility nor evaluation of the activities. Therefore, often the knowledge and skills acquired during the training process do not find practical application and are not in demand.

2. Review of the existing regulations governing the nurse practice at PHC suggests that Family nurses is assigned a valuable role, he/she must be a qualified specialist in nursing, including preventive and rehabilitative measures. The regulations stipulate that the Family nurse must work in team with the Family doctor; however, there are no provisions on how this cooperation should be implemented. Most likely, the clinical aspects are not accounted for, with only administrative aspects of this interaction being substantiated.

3. To date, there are only two standards of nursing practice:

- Standard on techniques of clinical procedures
- Standard of nursing practice for management of patients with Essential Hypertension (Clinical Protocol of Nursing process in management of Hypertension, adopted in 2005; see Annexes). This clinical protocol was adopted over 10 years ago and requires revision.

There are no standards of nursing practice in Diabetes.

4. Most of regulations governing the nurse practice at PHC were adopted before 2005. The only regulation adopted after that period, in 2014, was the Regulation of Establishment of NCD Units within FMCs, or Nurse Units. These units were established as part of the healthcare reform program 'Den Sooluk', whereby an emphasis was on NCDs (cardiovascular diseases and diabetes). This Regulation will create units for non-communicable diseases or nurse units within all FMCs.

To date, there are already positive achievements where these units have been introduced and there is a firm opinion that this practice should be scaled up. However, the regulations need further elaboration in terms of more clear standards of practice. Therefore, functions and job descriptions of family nurses need review and development, with included responsibilities and functions performed in the Nurse units.

5. Review of the approved regulations found that they do not propose clear criteria in the 'Functions of nurses and paramedics', nor functions delegated from doctors to nurses on family based care to population enrolled to PHC facilities, nor specific activities carried out by the Family nurse on her own. The lack of clearly defined functions prevents from setting the scope of authorities of nurses and distinct them from the Family doctors' responsibilities.

To date, there is no Single model job description, based on which all health facilities should formulate instructions for each family nurse. In this regard, it is necessary to examine on-site the availability of job descriptions, their content and compliance with standards and practices of nurses.

6. Regulations governing the nomenclature of positions will require an additional staff at the PHC, Assistant Family nurse. However, there is no regulation with the Assistant Family nurse's duties and, to date, this position has not been introduced in any of the FMCs, as the approved staffing positions do not provide for additional staff. At the same time, there is developed Regulation on the Assistant nurses for hospital services.

Perhaps, given the plans to expand powers and functions of nurses at PHC, the presence of this regular staffing unit could have positive effects. The presence of 'assistants' to nurses may enable nurses to devote more time to management of NCDs (Hypertension, Diabetes) and prevention outreach.

7. It should be noted that there is no regulated system of performance evaluation of Family nurses, which could lead to unfair financial incentives.

To date, all nurses receive salaries following the approved standards and assembled from resources provided by the Mandatory Health Insurance Fund, national budget, and special funds in the budgets of healthcare organizations. According to the approved regulations, part of funds from the three sources above is spent to cover additional payments to healthcare professionals. The Additional Wage Fund accrues following the amount of the Coefficient of Labor Participation (KTU) of each division/ unit and individual employee. However, the existing salary system in healthcare organizations is not clear and does not necessarily reflect the contribution of a particular employee.

It should be noted that in PHC facilities the nurse salaries are lower than in hospitals. This is because in hospitals the salary fund is higher due to co-payments, night work, urgent calls, and others.

Education is also a factor for salary amount, such as a qualification category that can be received based on attestation results for which the nurse will need to be trained accordingly and accumulate a required number of credit hours. However, it should be noted that the regulations and procedures of attestation do not enable assessing practical skills of nurses. To date, the process of awarding the qualification category is somewhat a formality and not objective.

4.2. Recommendations

- 1) Develop standards of nursing practice for Diabetes, including a map of nursing with account to delegation of additional functions to nurses;
- 2) Revise the standard of nursing practice for Hypertension, with account to modern recommendations on management of Hypertension and considering the expanded delegation of additional functions to family nurses;
- 3) Review MoH resolutions (MoH Order N 289 of 02.07.2005) regulating activities of nursing professionals in FAPs, FGPs, and FMCs, with account to delegating certain responsibilities in NCD management (e.g. Hypertension and Diabetes, and others) to Family nurses. Revise the responsibilities of Family nurses with involvement of more authorities and functions in management of NCDs, with necessary revision of Family doctor responsibilities.

- 4) Revise the Order regulating the qualification requirements to the position of the Family Nurse and introduce the following requirements:
 - level and profile of professional vocational education, i.e. in cases when duties require special knowledge, the specialty and / or qualification is indicated (e.g., specialty of 'Nursing');
 - service length or professional experience;
 - additional professional education;
 - personal qualities.
- 5) When developing the qualification requirements, a clear distinction should be set between knowledge, skills, and techniques of procedures, all of which should be properly formulated.

On the basis of the developed qualification characteristics of the Family nurse and the Regulation of Family nurse, a model job description of the Family nurse or the so-called model role of the nurse should be developed, which will be based on analysis of content and description of the work performed by the Family nurse. In addition, this model should perhaps be varying across FMCs by location in urban or rural settings.

- 6) Develop a system of performance evaluation of the Family nurses, which involves additional bonus for certain results of work and good performance against targets. For this purpose, it is necessary to develop indicators and criteria for evaluation of the Family nurse in healthcare organizations, including during the procedure of attestation for awarding or approval of the qualification category.

4.3. Curricula at undergraduate and continuous medical education for nurses

1. The review of the nurse education curricula found that the program of specialty of 'Nursing' provides the studies of Hypertension and Diabetes and provides consistent instruction of subjects across semesters.

The number of hours provided for studying the Hypertension and Diabetes comprises 54 hours, according to the curriculum, of which 22 hours are allocated to theory and 32 hours to practice.

2. The review of discipline of the 'Nursing in therapy and first aid' and 'Nursing in Family Medicine' found that the didactic units of the two disciplines overlap on themes of 'Cardiovascular diseases' and 'Role of Family nurse in care of Hypertension and Diabetes', despite they are different disciplines. While the 'Cardiovascular diseases' is supposed to include general concepts of these diseases, including Hypertension, the other discipline of the 'Role of Family nurse in care of Hypertension and Diabetes' should provide for development of specific knowledge and skills, and essentially include topics of education of patients, relatives, etc.

In this regard, it is essential to revise the contents of curricula of 'Nursing in therapy and first aid' and 'Nursing in Family medicine', in order to avoid overlaps and better studying of Hypertension and Diabetes within the nursing process, with use of evidence-based medicine, and in view of strengthening the role of Family nurses at PHC level. In addition, the increased number of hours assigned to Hypertension and Diabetes should be considered.

3. The introduction of the new generation National Education Standards in nurse education exposed the inability of instructors to develop new competence-based curricula, unless appropriate teaching materials and training are provided.

4. Review of the program and curriculum of the continuing medical education of nurses in FGPs / FMCs of 'Nursing in Family Medicine' found that the number of hours allocated to Hypertension and Diabetes is insufficient. It is recommended to revise their contents, given the growing weight of chronic non-communicable diseases in morbidity and mortality, such as cardio vascular disease and Diabetes mellitus. In addition, it is essential to develop curricula based on developed and revised standards of the nursing practice in management of patients with Hypertension and Diabetes at the primary healthcare.

5. It is necessary to develop curricula for continuing medical education with focus on prevention, early detection, effective care and comprehensive medical and social rehabilitation (standards of nursing care of patients with Hypertension and Diabetes mellitus). To extend the scope of competence of nurses (delegation of authorities), there must be standardized components of medical care identified, for example, patient education and care, identifying needs of patients, communication and education of relatives, etc.

5. QUESTIONS FOR FIELD STUDY

- Nursing process – to what extent has this process been introduced in healthcare facilities, how is the work of nurses is organized and whether the nurses understand the meaning and value of the nursing process.
- To date, there is no Single model job description that all healthcare facilities should formulate instructions for each Family nurse. In this regard, it is necessary to examine the selected facilities for availability of the job descriptions, their content, and their compliance with standards and practices of nurses.
- Activities of the NCD Units requires studying at the field stage, in order to find out the extent to which the work is effectively organized and how the medical staff work is organized in this process.
- How is the monitoring and evaluation of the nursing activities in healthcare facilities is conducted (there are no regulations specifically designed, there is only a provision in the Senior nurse's job description that she/he will monitor and evaluate the activities of nurses).
- Attitude of nurses to the utility of the undergraduate and continuous education programs in delivering appropriate skills and knowledge on NCDs and the value of clinical practice.
- Opinions of other colleges on curricula in the studying the NCDs (Hypertension, Diabetes).
- Studying the practice of Family doctors and family nurses for the need to include an assessment of their knowledge and practical skills of selected NCDs (Diabetes, Hypertension, COPD).
- Main instruments for assessment.
- Selection of oblasts, regions.
- Representativeness of the information (number of interviewed doctors, nurses, patients)

ANNEX 1.

Thematic plan

Discipline of 'Nursing in therapy and first aid'

Specialty of 'Nursing'

Theoretical sessions – Semester 4

No	Theme	Number of hours
1	Diseases of circulatory system (methods of examination)	2
2	Diseases of circulatory system (Rheumatism)	2
3	Diseases of circulatory system (valve defect diseases)	2
4	Diseases of circulatory system (Endocarditis, Myocarditis, Pericarditis)	2
5	Diseases of circulatory system (Atherosclerosis, Essential Hypertension)	2
6	Diseases of circulatory system (Coronary arterial disease, angina pectoris)	2
7	Diseases of circulatory system (Coronary arterial disease, Acute Myocardial Infarction)	2
8	Diseases of circulatory system (Acute Heart Failure)	2
9	Diseases of circulatory system (Chronic Heart Failure)	2
10	Diseases of circulatory system (shocks)	2
	Total:	20

Practical sessions -Semester 4

No	Theme	Number of hours
1.	Diseases of circulatory system (methods of examination)	6
2.	Diseases of circulatory system (care in Rheumatism)	6
3.	Diseases of circulatory system (care in valve defect diseases)	6
4.	Diseases of circulatory system (care in Essential Hypertension, Atherosclerosis)	6
5.	Diseases of circulatory system (care in complications of the Essential Hypertension)	6
6.	Diseases of circulatory system (care in angina pectoris, Acute Myocardial Infarction)	6
7.	Diseases of circulatory system (care in Acute Heart Failure)	6

No	Theme	Number of hours
8.	Diseases of circulatory system (care in Chronic Heart Failure).	6
9.	Diseases of circulatory system (care in shock)	4
	Total:	52

Theory sessions – Semester 5

No	Themes	Number of hours
1.	Gastrointestinal tract diseases (methods of examination). Acute and chronic gastritis	2
2.	Gastrointestinal tract diseases (Gastric and Duodenal Ulcer, Gastric cancer)	2
3.	Gastrointestinal tract diseases (Hepatitis, Cirrhosis)	2
4.	Gastrointestinal tract diseases (Cholecystitis, Cholelithiasis)	2
5	Urinary tract diseases (Glomerulonephritis)	2
6	Urinary tract diseases (Pyelonephritis, Urolithiasis)	2
7	Urinary tract diseases (Acute and Chronic Renal Failure)	2
8.	Blood disorders (Disemia) (Anemia)	2
9.	Blood disorders (Disemia) (Leukemia, Hemorrhagic diathesis)	2
10.	Endocrine disorders (Hyperthyreosis, Hypothyreosis, Endemic Goiter)	2
11.	Endocrine disorders (Diabetes)	2
12.	Endocrine disorders (Obesity)	2
	Total:	24

Practical sessions – Semester 5

No	Theme	Number of hours
1.	Gastrointestinal tract diseases (methods of examination, care in gastritis, gastric and duodenal ulcers, gastric cancer)	6
2	Gastrointestinal tract diseases (care in hepatitis, hepatic cirrhosis, cholecystitis, cholelithiasis)	6
3	Urinary tract diseases.	6
4	Blood disorders (Disemia) (care)	6
5	Endocrin disorders	6
	Total:	30

Thematic plan

Discipline of 'Nursing in Family medicine'

In specialty of 'Nursing'

Theoretical sessions – Semester 5

№	Themes	Number of hours
1.	Concepts of the Family medicine, role of nurses	2
2.	Concepts of 'family' and psychological stress. Health and disorder	2
3.	Role of nurse in care of pregnant women	2
4.	Counselling of family members in care of newborns. Types of feeding	2
5.	Role of Family nurse in care of children with somatic (non-communicable) disorders	2
6.	Role of Family nurse in care of adolescents. Hygiene and sexual education. Unhealthy habits	2
7.	Role of Family nurse in care of patients with respiratory disorders. Prevention of COPD	2
8	Role of Family nurse in care of patients with cardiovascular disorders	
9.	Role of Family nurse in care of patients with gastrointestinal disorders	2
10	Role of Family nurse in care of patients with urinary tract disorders	
11	Role of Family nurse in care of patients with endocrine disorders	2
12	Role of Family nurse in care of patients with blood disorders	
13	Patient with infection in family. HIV/AIDS prevention	2
14	TB patient in family. TB prevention	2
15	Patient with a neurologic disorder in family	2
16	Cancer patient in family	
17	Surgical patient in family	
18	Role of family nurse in care of the elderly in families. Counselling of family members on care	
	Total:	36

Practical sessions – Semester 5

No	Theme	Number of hours
1.	Organization of work of the Family nurse. Nursing process and simulated problem solving	6
2.	Role of Family nurse in care of pregnant women	6
3.	Role of Family nurse in care of newborns. Types of feeding	6
4.	Role of Family nurse in care of adolescents.	6
5.	Role of Family nurse in care of patients with respiratory and cardiovascular diseases	6
6.	Role of Family nurse in care of patients with gastrointestinal tract disorders, urinary tract disorders, and endocrine disorders	6
7.	Role of Family nurse in care of patient with infections, including Tuberculosis	6
8.	Role of Family nurse in care of patients with neurologic, oncologic, and surgical disorders	6
9.	Role of Family nurse in care of the elderly. Counselling of family members on care	6
	Total:	54