MONOGRAPHIC SECTION

Redesigning diabetes care delivery in Serbia, using JA CHRODIS Recommendations and criteria

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Abstract

Introduction. Managing non-communicable diseases (NCDs) requires redesigning health care delivery to achieve better coordination of services at all levels of health care. The aim of this study was improving prevention and strengthening high quality of care for NCDs by using type 2 diabetes as a model disease.

Methods. The mix method approach served to analyse the impact of the intervention processes. Source of information were routine health statistics, interviews and observation. Key Performance Indicators in defined Improvement Areas assisted in the quality of diabetes care assessment.

Results and discussion. During the study the National Diabetes Centre (NDC) was established. The NDC experts organized numerous educational events, 316 physicians and nurses have participated. New electronic data base was implemented in 20 pilot Primary Health Care Centres (PHCCs) with 38,833 electronic diabetes records.

Conclusions. The intervention led to establishment of the NDC, strengthening competences of health care professionals and to the renewal of the Diabetes Care Units in PHCCs included in the study.

INTRODUCTION

Non-communicable diseases (NCDs) present the major burden of morbidity and mortality in Serbia. In 2017, the diabetes was the 7th leading cause of death and 4th leading cause of burden of disease measured by DALYs per 100,000 population [1]. According to National Health Survey from 2013, 7.6% of adult population had been diagnosed with diabetes, while estimates in 2018 are presenting 600,000 people living with diabetes (8.1% of total population) [2, 3]. However, it is estimated that 36% of individuals with type 2 diabetes (T2D) are not diagnosed to have a disease. Almost half of the people with diabetes are at working age and approximately one third already have one or more late complications by the time of diagnosis. This is why the diabetes presents a large economic burden on individuals, their families and national health care system in Serbia.

Today, based on the new Health Care Law, the health care system in Serbia is centrally managed and vertically structured [4]. The 2019 Health Care Law and 2019 Health Insurance Law foster the concept of the "chosen doctor", which was established by the 2005 Health Care Law to promote a culture of continuous quality improvement at all levels of health care. The health care system is improving information for patients on their rights and their roles in decision-making processes. Patient choice is linked to the concept of the "chosen doctor" in primary care, who acts as a gatekeeper to other levels of care. Until 2005, significant role in diabetes care had Diabetes Care Units (DCU) in Primary Health Care Centres (PHCCs). However, the Law on Health Care in 2005, changed the structure of diabetes care [5]. The majority of diabetes care units were cancelled, which had the negative influence on the quality of diabetes care and contributed to the overload of services on secondary and tertiary level. The new incentive was the National Programme for Early Detection and Prevention of Type 2 Diabetes at the Primary Health Care in Serbia adopted

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in 2009 [6]. This programme is guiding continuous quality improvement of diabetes care at primary health care level up to today. Although, Serbia developed modern electronic health record on primary health care level, there is a lack of specific data on patients with diabetes for monitoring the burden of diabetes and boosting the quality of diabetes care. Altogether, this emphasizes the importance of comprehensive implementation and further upgrading of preventive measures, early detection of diabetes and improvement of diabetes health care and quality of life of people with diabetes, as well as other non-communicable diseases.

In that context, the aim of the study was improving prevention and strengthening high quality of care for NCDs by using T2D as a model disease.

The study was based on the National Program for Prevention and Early detection of T2D and involves relevant stakeholders in the area (Ministry of Health, Republic Institute of Public Health of Serbia, Medical Faculty, and Clinical Centre of Serbia). The project has used the Quality Criteria and Recommendation Tool (QCR Tool) aimed to reintroduce the practice recognized as efficient both among patients and health professionals [7, 8]. The use of QCR tool enabled the implementers to assess the intervention and to identify its strengths and weaknesses, and also to adjust the action plan accordingly.

METHODS
Intervention(s) and population
Based on the scope of the study, and staring from the Quality Criteria and Recommendation Tool (QCR Tool), Strengths-Weaknesses-Opportunities-Threads (SWOT) analysis was performed to identify possible strategic options after cross-cutting of strengths/weaknesses and opportunities/ threads. The QCR were adopted and implemented as described below.

Practice design
The action plan defined the aims, objectives and methods of the study clearly. The data on the prevalence of T2D is drawn from the National Health Survey and the registry for the diabetes. Representatives of patient organization are included in the design of the action (PA). There is a need for more thorough assessment of the needs for employment of health care professionals in Primary Health Care Centres (PHCCs) who would be in charge of Diabetes Care Units (DCUs).

The intervention proposed is leading to earlier detection of T2D and better control of the disease. The indicators for monitoring are taken from the Rulebook on Indicators of Quality in Health Care and show the possibilities for the successful disease control.

Education and training
Educational elements are included in the practice to promote the empowerment of the target population – health personnel of DCUs.

Governance
The practice included organizational elements, identifying the necessary actions to remove legal, managerial, and financial or skill barriers. The practice is based on the recommendations from the National Program for Prevention and Early Detection of Type 2 Diabetes. The contribution of the target population, carers and professionals was appropriately planned, supported and resourced. The action plan is created in collaboration with all the relevant stakeholders and the National Diabetes Centre NDC) as a reference institution monitors the implementation.

Serbia is in the process of implementation of the integrated health information system, which allows easier communication between the health care professional on the different levels of the health care. There was a defined policy to ensure acceptability of information technologies among users (professionals and target population) as Serbia has adopted the National Program for Prevention and Early Detection of Type 2 Diabetes.

Sustainability and scalability
All the relevant stakeholders show strong support for the sustainable implementation of the program. The program includes the work on the primary health care level which is easily accessible for patients, regular educations for health care professionals done by the experts and the formation of the NDC which would be the referral and the crown organization for the process. The implementers and the stakeholders support the broader implementation of the practice.

Several barriers were found during the implementation, which were gradually overcome. At the beginning of the implementation, the Local Implementation Working Group (LIWG) saw the absence of national coordination centre for overall management of diabetes care as the main barrier. Despite the existence of a national Registry for Diabetes, it could provide only data about mortality and morbidity related to diabetes, but not for the comprehensive monitoring of quality of diabetes care and its cost implications. In addition, DCUs at PHCCs had limited opportunities to provide quality care for diabetes type 2 patients, as the legislation foresaw the possibility to establish DCUs within a PHCC only if the catchment area sufficiently large (equal to one district). Due to the shortage of health care staff, workload in DCUs was high, and specific training on the utilisation of toolkit for prevention of T2D was missing.

However, important enablers supported implementation. The LIWG stirred stakeholder's support (particularly from the Ministry of Health). The willingness to improve the legislation regarding health care quality, to strengthen DCUs at the primary level by investing additional funds in continued education on diabetes care were important enablers. National guidelines for diabetes care with well-defined, evidence based practice design was in place. Also, the National Program for Prevention and Early Detection of Type 2 Diabetes supported the strengthening of primary health care activities during the implementation. The process of improvement of the national health information system already started. Within this, the introduction of the Book of Electronic Diabetes Record (BEDR), improved the possibilities for evaluation of the quality of diabetes care.

In Serbian action, target population were adults aged over 45 years with risk for diabetes and adult people with diabetes. The implementation working group defined five improvement areas (IA) and consequently five interventions:

- IA1: Establishment of NDC) at Clinic for Endocrinology Diabetes and Metabolic Diseases, Clinical Centre of Serbia;
- IA2: Innovative service delivery by reintroducing DCUs in PHCCs;
- IA3: Control of implementation of the National Program for Prevention and Early Detection of Type 2 Diabetes. The intervention plan is presented in the *Figure 1*;
- IA4: Intensifying capacity building of health staff through training and education of physicians and nurses, through the newly established NDC;
- IA5: Implementation of the health information technologies with the focus on the electronic registries of patients and high-risk individuals.

Members of the implementation working group started an intensive work on improving the electronic health record of patients with diabetes at the PHCC in order to establish the electronic Register of Patients and high risk individuals. In cooperation with the CEDMD, the Institute for Public Health has developed Manual for physicians at the PHCCs for the appropriate data entry in Registry.

Intervention aiming to implementation of the BEDR contains all functionalities necessary for the integration to existing electronic health record. The system allows user-friendly monitoring of T2D control, but also, supports education and self-control of patients. Physicians obtained a useful tool to identify a patient with bad diabetes control.

Study of the intervention(s)

In order to analyse the impact of the intervention processes, mixed methods approach (quantitative and qualitative) was used. Key performance indicators for evaluation activities in defined improvement areas of the action were:

- IA1: Report on establishment of NDC. List of indicators for quality of diabetes care. Report on indicators of quality of diabetes care during each year of implementation.
- IA2: Report on the number of detected high risk individuals for *T2D* during each year of the project period. Report on the number of patients with newly diagnosed *T2D* included in the health care system during each year of the project period. Report on the number of high risk individuals for *T2D* included in preventive intervention during each year of implementation, report on the effectiveness of the preventive treatment of high-risk patients for *T2D* during each year of implementation.
- IA3: Report on improvement of DCU. List of amendments for diabetes care legislation (National Plan for Development of Diabetes care).

Also, for the IA4 the number of trained staff served as a key indicator together with before-after evaluation of each training. The focus of study for the IA5 was success in implementation of the BEDRs assessed by achieved expectation of the health care staff, usability in self-control of patients with *T2D* and number of records entered in BEDR per PHCC.

To establish relations between the interventions performed, the results of the key indicators will be ready only at the end of 2019, and then they will be compared with the period before intervention. For the IA4 and IA5 comparison is not possible as the organized system
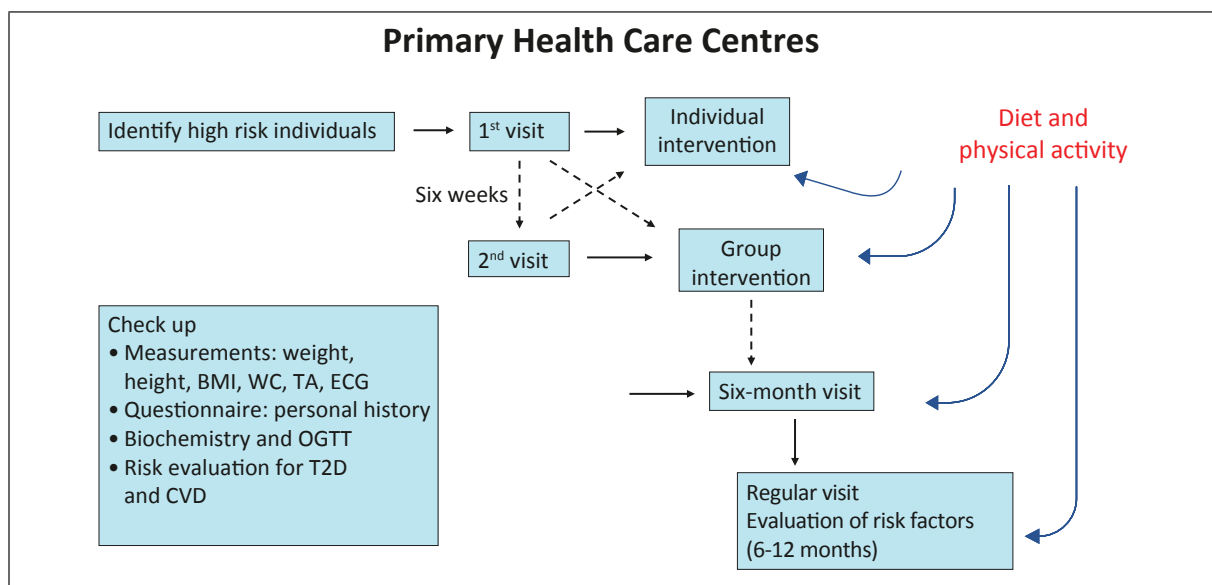
*BMI body mass index, WC waist circumference, TA blood pressure, ECG electrocardiography, OGTT oral glucose tolerance test, T2D type 2 diabetes, CVD cardiovascular disease.

Figure 1
Prevention of type 2 diabetes in Republic of Serbia Intervention plan.

of continuing education for better diabetes care and the system BEDR did not exist.

Measures

Processes and outcomes of the intervention were measured by selected Organization for Economic Co-operation and Development (OECD) indicators for process and proximal outcomes of diabetes care. These indicators are recommended by OECD international expert group for assessing the effectiveness of health care delivery on a global scale.

1. Process measures:
   a. annual HbA1c testing: percentage of patients with one or more HbA1c tests annually;
   b. annual eye exam: percentage of patients who received a dilated eye exam by an ophthalmologist during the current year.
2. Outcome measures:
   c. HbA1c control: percentage of patients with most recent HbA1c level <7.0% during the measurement period of one year before the control (target value for the most individuals with diabetes).

All measures use the number of clinically diagnosed patients with diabetes as their denominator. These measures are routinely published by the Republic Institute of Public Health of Serbia, and there were no additional costs.

In 2020, the electronic system of the BEDRs will allow more possibilities for monitoring and new measures.

Study analysis

All actors in the public system are obliged to report regularly to the institutes of public health on their activities related to public health and health care services at primary, secondary and tertiary level. The Institute of Public Health of Serbia (IPH) Batut is responsible for the collection of data on population health, the work of health institutions (that is, classical indicators related to health services outpatient and inpatients visits, average length of stay in hospital, indicators of healthcare quality, cancer screening coverage, etc.), the analysis of collected health indicators, templates of measures to improve public health (for example, in health promotion: number of mass-media campaigns per regional IPH or health education interventions for prevention of the risky life styles). The system of health reporting serves the monitoring and analysis of the health status of the population, the planning and programming of health care, the monitoring and evaluation of the implementation of health care plans and programmes, statistical and scientific research and other needs.

Currently more than 200 health care institutions in the public sector, from a total of 355, have electronic health records (EHRs). Out of 158 PHCC, 152 have electronic information systems that are in use, as well as the electronic history of the disease in over 50 hospitals. All software is compliant with the national standard, the 2009 Rulebook on the Content of Technological and Functional Requirements for Establishing the Integrated Health Information System. This situation will serve as an advantage to perform analysis of data within the BEDR.

For the purpose of this intervention analysis, the data are presented descriptively as the percentages of patients with HbA1c determined and of patients referred to ophthalmologist examination.

The support from the stakeholders was assessed through the number of face-to-face meetings with them. Regarding patients as the most important stakeholders, the national survey on patient satisfaction has been on-going annually since 2004 [9].

The local implementation team held series of face-to-face meetings with the relevant stakeholders in order to insure their support for the project and for further steps. Ministry of Health expressed long-term commitment to support newly established NDCs, together with provision of financial resources for continuing education of health personnel employed in DCUs. Patient organizations articulated readiness to involve more members with T2D, while professional staff appreciated working together with their T2D patients to develop the culture of patient-centred care.

The satisfaction of participants with educational meetings was assessed using the questionnaire on the satisfaction [9] with lectures, lecturers, topics, usefulness of the presented information, etc. Also, entrance and exit test of knowledge served for assessment of competences gained through training.

The program includes the work on the primary health care level which is easily accessible for patients, regular educations for health care professionals done by the experts, the formation of the NDC which would be the reference organization for the process of integrated care, while the book of electronic diabetes records makes improved monitoring of the diabetes care quality.

RESULTS

The intervention led to the establishment of the NDC as reference institution, which is the coordinating centre for Diabetes care and education in Serbia now. The NDC has its mission, vision, objectives, planned activities with performance indicators, responsible personnel, and sources and amounts of budgeting. In total, 39 health professionals are performing planned activities within this functional centre, out of which 14 physicians (specialist of internal medicine, and among them 10 subspecialists in endocrinology, 11 teaching staff – 6 professors, one associate professors, 4 teaching assistants) and 25 nurses. The NDC operates within the Clinic for Endocrinology, Diabetes and Metabolic Diseases of the Clinical Centre of Serbia. This institution is the International Diabetes Federation (IDF) Centre of excellence for education and patient care. Objectives of the NDC are education of health professionals in advancements of diabetes care, health technology assessment (HTA), patient care, counselling in application of different interventional tools such as motivational interview in changing behaviour by introducing healthier nutritional habits or regular physical activities. The experts from the NDC are conducting monthly educations for the health care staff from PHCC who are working with patients with diabetes.

During the study 316 health professionals attended training performed by NDC – two per each of 158 PHCC. The educations lead to improvement of diabetes care and the abilities of health professionals to embrace population based approach in improving health status and quality of life of patients with diabetes through regular, adequate treatment, and lifestyle interventions.

Prevention of T2D should be carried out in accordance with the recommendations of the National programme for prevention and early detection of T2D:

1. detection of high risk patients for T2D by a systematic approach;
2. detection of high risk patients for T2D by special approach;
3. determination of pre-diabetes diagnosis;
4. introduction of high-risk individuals for T2D in the registry;
5. prevention of T2D by population-based approach to society;
6. prevention of T2D by a population-based approach to an individual;
7. T2D prevention by special approach for people at high risk for T2D;
8. introduction of a patient with newly diagnosed T2D into the diagnostic and treatment system, as well as in the registry of patients with T2D within the PHC.

To identify adults at high risk for T2D we have been used Finnish Diabetes Risk Score (FINDRISC). It is a questionnaire that gives an estimate of risk for getting diabetes in the next 10 years. It serves as a "mini- intervention" as it gives information about diabetes risk factors in a simple and easy-to-understand way. If the score value is high (>15) a blood test is recommended to detect previously undiagnosed diabetes (OGTT being the "gold standard" test). Diabetes patients are further introduced into treatment system within the PHC, while the rest high risk individuals without diabetes undergo lifestyle intervention. Lifestyle modification is focused on healthy diet and physical activity.

The improvement and/or renewal of DCUs leads to easier access to proper diabetes care, which are easily accessible to patients and patients do not need specialists at secondary or tertiary services for routine treatment of diabetes. This intervention also leads to reduction of workload on secondary and tertiary levels, as only patients in need for specialist care are referred to higher levels of health care.

The capacity building of health care professionals working in DCUs was done by trainings in the NDC which academic staff conducted monthly education and included total of 316 health care professionals as mentioned above, physicians and nurses who are working in PHCC. The lectures were held for teams consisted of physicians and nurses, but also there were separate educational workshops, different workshops for the doctors and nurses. All trainings included case studies of real life situations and demonstration of clinical skills with role playing. All health care professional who attended trainings expressed great satisfaction with the education, as the average score for all conducted workshops was 4.97/5. Total of 89.15% of the participants stated that they will use the knowledge acquired during the workshops in every day practice. The participants stated that the workshops were creative, useful and interactive and commended the organization of the education by the NDC.

Out of eight PHCC included in the study, the percentage of patients with diabetes who were referred to the ophthalmologists for fundoscopy and the percentage of patients who have had their HbA1c level examined at least once per year rose in five PHCC. According to the latest data the highest percentage of patients referred to ophthalmologist was in PHCC Uzice. Unfortunately, in 2018, the percentages of patients referred to ophthalmologist varied depending on existence of ophthalmologists in the PHCC. As the year 2018 does not represent the best year to assess the results of the intervention (which started in the second half of 2018), data that will come in the first half of 2020 will be better to make analysis. The same is with the percentages of patients with HbA1c level determined annually in 2018. The highest rise in the percentage of patients with HbA1c levels determined was in PHCC Kragujevac which rose more than three times in 2018 comparing to the year before intervention (Table 1).

Besides development of the BEDR, the intervention was spread to additional 12 PHCCs, in total 20 PHCCs established BEDR. The motivation of staff to utilize the new system was remarkable, as only in two weeks, during 2019, 38,833 electronic records were

Table 1
Selected quality indicators retrieved from the BEDR system (based on 38,833 patients' records)

Quality indicators (%)	Zemun	Stari grad	Novi Sad	Kragujevac	Kruševac	Total
HbA1c >1	37	39	35	32	29	34
LDL-c >1	38	29	22	53	24	33
Screening rethinopathy	19	30	30	20	13	22
Screening nephropathy	14	10	20	11	10	13
Frequency of dialysis	1	0.3	1	0.2	0.5	0.6
Frequency of amputations	0.1	0.3	1	0.2	0.1	0.3

*The data are presented as percentages of patients with one or more HbA1c and LDL-c tests annually. Also, it was presented the percentages of patients screened for microvascular complication (retinopathy and neuropathy), and frequency of dialysis or amputations as indicators for macrovascular complications of diabetes in the PHC.

formed by transferring data about patients with T2D from the paper records of PHCC *(Figure 2)*.

Also, the BEDR allows direct improvement in monitoring of diabetes care with presentation of quality indicators on daily basis *(Table 2)*, while full impact of the action will be visible only in 2021.

After implementation of the BEDR, before deployment in all PHCCs in Serbia, BEDR started with implementation in 12 more PHCCs.

DISCUSSION

The establishment of NDC creates the coordinating reference organization for the health care professionals working in DCUs in Serbia and enables better health care outcomes. In that context, by organization of continuous education it provides the support for physicians working at the primary and secondary health care level in a form of tertiary institution with experts in the field of diagnostics and treatment of diabetes.

The implementation of step-wise protocols for identification of patients in high risk for T2D and of patients with previously undiagnosed T2D leads to establishment of systematic approach to these patients.

The action plan was developed in accordance with National Program for Prevention and Early Detection of Type 2 Diabetes, National Guidelines for Diabetes Care and results of relevant international studies. Many randomized, controlled clinical trials have demonstrated a significant impact of lifestyle changes in prevention of T2D among high risk individuals [10-12]. Two most important interventions, Finnish Diabetes Prevention Study (DPS) and Diabetes Prevention Program (DPP) showed that people who were at high risk reduced their risk of developing diabetes by 58% over 3 years through lifestyle intervention [13, 14].

EU/IMAGE project, development of European guidelines for prevention of T2D and toolkit for the pre-

Table 2
Percentage of patients with diabetes who were referred to the ophthalmologists for fundoscopy and HbA1c level examined at least once yearly (2018) in PHCC

Primary health care centres (PHCC)	Ophthalmologists exam (%)	Measurement of HbA1c (%)
Palilula	24.5	52.12
Savski venac	40.13	37.22
Stari grad	20.55	33.97
Zemun	12.39	23.11
Uzice	94.5	94.5
Novi Sad	46.4	18.47
Kragujevac	8.7	61.85

*The data are presented as percentages of patients referred to ophthalmologist varied depending on existence of ophthalmologists in the PHCC. The same is with the percentages of patients with HbA1c level determined annually in 2018.

vention of T2D in Europe with practical guidance for the lifestyle intervention with the population based approach. Deliverables of this project are incorporated in our National Program for Early Detection and Prevention of Type 2 Diabetes [15, 16]. The implementation of higher quality health services for diabetes in primary health care practice in Serbia bears an enormous potential to save lives, respectively to decrease years lived with reduced quality of life and it may reduce clinical costs by as much as a quarter [17]. In addition, Serbian burden of disease study has shown that a preventive programme with a relatively small budget may achieve risk factor reductions resulting in about the same amount of quality adjusted life years saved, not only through the prevention of diabetes but also of other diseases [18].

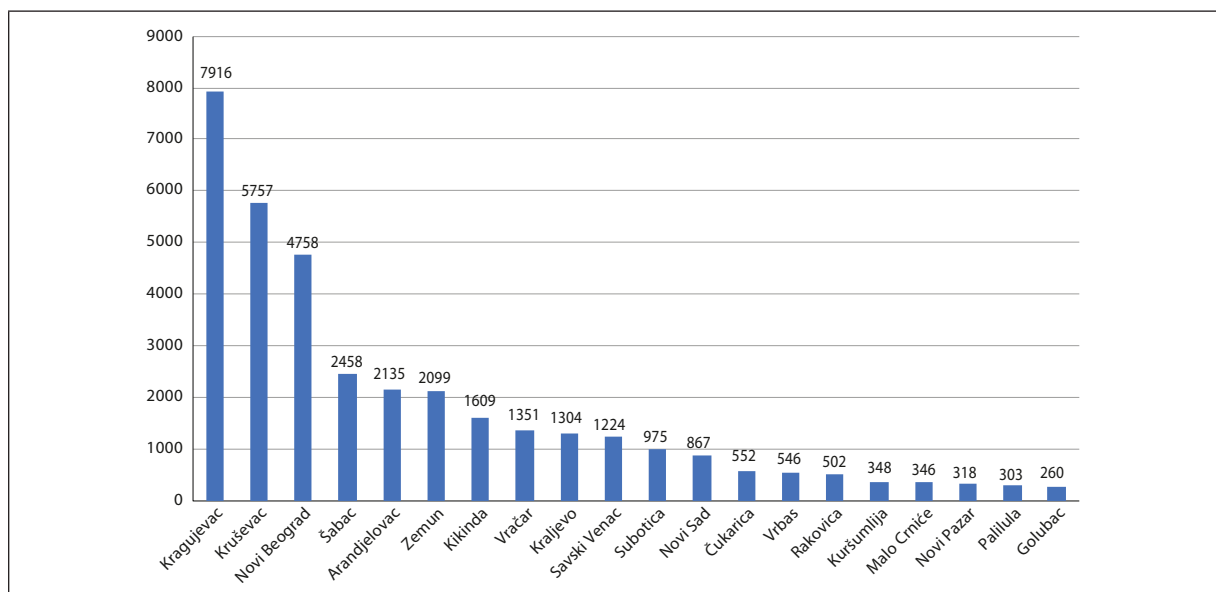The regular educations for physicians and nurses,

Figure 2
The number of established records per Primary Health Care Centres. Republic of Serbia.

which are organized in the NDC create opportunities for health care professionals who are working with patients with T2D to improve on their knowledge and every day practices, as well as to create the uniform approach to diabetes care in the entire country. Also, the regular educational events serve for upgrading of staff motivation and their satisfaction leading indirectly to better quality of diabetes care.

Established system of electronic diabetes records secures better monitoring and advancing in diabetes care quality.

The BEDR embraced the concept of the shared-care: quick access and information exchange, and better coordination of health care providers in the cycle of diabetes care. Also, the BEDR secures the platform for continuous quality improvement of diabetes care by allowing better monitoring of the health care quality at all levels with indicators for the process of the care, proximal and distant outcomes. The main expectations are the reduction in frequency of diabetes complications, decrease in the premature mortality among people living with diabetes and decline in costs of diabetes care.

Main results of MANAGE-CARE project demonstrated that managing chronic conditions such as diabetes, requires redesigning health care delivery to achieve better coordination of services, more integrated approach and integrated health care system across levels [19]. This project particularly emphasized empowerment of people living with T2D. While achieving improved diabetes management, according to preliminary results of Early prevention of diabetes microvascular complications in people with hyperglycaemia in Europe (ePREDICE) study, prevention and early detection of cardiovascular and other complications would have a huge impact in reducing morbidity and mortality of these chronic conditions [20]. Finally, JA CHRODIS results – Quality of Care Recommendations and SWOT analysis were recently applied, tested, adapted and implemented at the end of 2018 and throughout 2019 [7, 8].

CONCLUSION

In conclusion, Serbian intervention led to establishment of the NDC and organization of educations for health care professionals from all primary health care centres in Serbia. Furthermore, led to the renewal of the DCUs in PHCCs included. The DCUs are recognized by the patients with diabetes as the most accessible and friendly institution in the Serbian health care system. The health care professionals in the DCUs are well-informed about each patient who is regular in the DCU, and they establish the relationship full of mutual trust which ultimately leads shared decision making as the central feature for patient-physician relationship, and better health outcomes for these patients. The continuing education of the health care professionals from all primary health care centres will improve diabetes care in entire country.

The implementation of the step wise approach to identify patients with T2D and patients in high risk for development of T2D can lead to earlier diagnosis of T2D, regular physical activity and diet intervention,

timely introduction of therapeutics and prevention of the late complications of diabetes, which are highly prevalent among Serbian population.

It added to the previous practice by introduction of the NDC, and regular educations of health staff by the experts from the NDC. For the first time, Ministry of Health of the Republic of Serbia devoted direct budget resources for continuing education in T2D for primary health care professionals. The preventive intervention and lifestyle intervention can have positive consequences on population health as they reduce the likelihood of development of T2D. Nation-wade introduction of this practice will lead to reduction in incidence of T2D, in prevalence of late complications of T2D and in the improvement of quality of life of patients with diabetes.

The implementation of the BEDR system proves to be efficient in monitoring of diabetes care quality at primary health care level, and it is also appreciated by health care professionals in this phase.

The use of QCR tool enabled the implementers to assess the intervention and to identify its strengths and weaknesses, and also to adjust the action plan accordingly.

During the action, several key enablers were identified by following the QCR Tool in implementing better quality of health care for other diseases. Well-defined practice design supported by national guideline and programme of prevention was one of enablers, which also secures the comprehensiveness of the practice. To empower target population, the concept of the clear description of population (people under risk to develop certain disease) will serve for replicability of the QCR to prevention of other diseases. After full implementation of the BEDR, it became clear that similar electronic system, based on upgraded guidelines and programmes, should exist for other NCDs providing real time data for monitoring and evaluation of health care quality. Future implementations aiming to better prevention of other NCDs would need initial financial investment to provide benefits for better quality of patient care in the future. This investment is particularly necessary if the new system of continuing education and training is one of objectives within the future implementations.

Within this intervention all ethical consideration were met, but for the transferability of the results to other implementations, it would be necessary to analyse ethical requirements. Regarding governance, the action pointed to the necessity of permanent advocacy among stakeholders to obtain their readiness to improve specific legislation that maybe necessary for transferability of the model to prevention of other non-communicable diseases. The sustainability and scalability of other implementations depend on a range of contextual factors such as available specific health and social policies, digital innovations, and general trends in economy of the country.

MONOGRAPHIC SECTION

and design, data acquisition, analysis and interpretation and critically revised the manuscript. MM and JZ contributed to conception and design and data acquisition and critically revised the manuscript. All Authors gave final approval and agreed to be accountable for all aspects of work ensuring integrity and accuracy.

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