

Improving The Prevention Of The Circulatory System Diseases Among The Adult Population By Health Workers In Primary Health Care Facilities

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ABSTRACT

In the context of reforming the general health care system, the performers of preventive measures remain medical workers of primary health care institutions, control, and responsibility for the work of which is entrusted to the institution itself. In connection with the Order of the Ministry of Health of Ukraine dated January 26, 2018, No. 157, the existing organizational technologies for quality control and adaptation to the healthcare sector need to be updated. We propose at the regional level to approve regional protocols for organizing the provision of medical care to patients with cardiovascular diseases, depending on the level of prevention, create a regional training center to improve the level of knowledge of medical workers and introduce targeted training programs for medical workers providing primary health care; at the level of health care institutions providing primary health care - to approve indicators of the quality of medical care for patients with cardiovascular diseases and a methodology for monitoring and evaluating quality indicators. The proposed model helps to determine approaches to the formation of indicators of the quality of preventive measures at the regional level, which will allow using the information obtained from the estimated data to support managerial decisions on coordinating actions in the system and improving the quality of medical care, will lead to an improvement in population health indicators.



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1. INTRODUCTION

Today prevention is becoming a widely accepted standard, as world experience shows that reducing the prevalence of risk factors (RF) among the population is accompanied by a decrease in morbidity and mortality due to chronic noncommunicable diseases, among which the leading are diseases of the circulatory system. According to a study by the World Economic Forum and Harvard University, the lack of an adequate prevention system for noncommunicable diseases over the next 20 years will cost the global economy more than 30 trillion US dollars, equivalent to 48% of global GDP. So, the introduction of insufficiently effective preventive measures will increase the number of chronic conditions [1]. Significant changes during the reform of the general health care system of Ukraine at all levels of its provision have led

almost to the destruction of preventive work: restructuring of regional health centers, creation of public health centers in the regions with their subsequent reorganization [2]. As a result, medical workers of primary health care facilities (PHC) remain the constant performers of preventive measures, which is even specified in the specification of providing medical services in the field of "Primary Medical Care", but there are no conditions of external control in the purchase of medical services. It means that control and responsibility rests itself with the PHC facilities directly in this area [3]. The PHC doctor exactly has a unique opportunity to correct RF in patients with the help of medical and non-medical interventions, which determined the purpose of our study.

2. The aim of work

Scientific substantiation of the organizational and structural model of prevention of diseases of the circulatory system among the adult population in primary health care facilities at the regional level.

3. Materials and research methods

The recommendations and program documents of the WHO, the UN, the current normative legal documents of Ukraine were analyzed. The primary operational documentation - "Medical card of an outpatient" - form 025/o (512 units) among the adult population diagnosed with "Hypertension", which is the most common nosology of cardiovascular diseases (CVDs) was analyzed to assess the effectiveness of the proposed model. The cards were sampled by mechanical type with step 5, the data from the cards were summarized in a specially designed form. The proportional ratio of rural and urban residents was considered, which allowed to obtain representative data. The evaluation of the obtained results was performed by calculating the relative value per 100 processed medical cards. We analyzed the data in the dynamics as the gradual implementation of some elements of the proposed model began in 2017, and a comprehensive analysis of data starting in 2015, which allowed us to assess the effectiveness of model.

4. Results of the research

The basis for improving the prevention of CVDs among the adult population in the PHC facilities at the regional level were:

1. Recommendations and program documents of WHO [4- 6], UN [7- 9], STEPS: [10].
2. Current legal documents of Ukraine [11- 14].
3. The results of own research [15- 18] allowed to identify the shortcomings of the organization of work in PHC facilities for prevention of CVDs among adult population and to scientifically substantiate the developed organizational and structural model of CVDs prevention among adults in PHC at the regional level and evaluate the results of the implementation of individual elements in practice during its development.

The relevance of the proposed model is greatly enhanced by the need to define general methodological approaches to the formation of indicators of quality of preventive measures at the regional level, which will use the information obtained to support management decisions to coordinate actions in the system and improve quality of care, especially after the Ministry of Health Order of Ukraine № 1422 dated December 29, 2016 [19].

The central elements of the organizational and structural model of prevention of CVDs among the adult population in the PHC facilities at the regional level (Fig.1) are:

- 1) the adult population of the region that is need of health monitoring.
- 2) PHC facilities and its head-manager, who must organize and ensure the provision of affordable, high- quality medical care to the population that has concluded declarations with doctors working in PHC

facilities.

3) preventive orientation in the work of health care workers who provide PMC to the population. We offer a set of measures for implementation:

at the regional level:

- approval of regional protocols for the organization of medical care for patients with CVDs and for stratification of their risk in accordance with the standards with the introduction of indicators of quality of preventive work in health care facilities that provide PMC depending on the level of prevention (primary, secondary, tertiary);
- to approve the methodology of monitoring and evaluation of indicators of quality of preventive work for patients with CVDs and for stratification of their risk;
- creation of a regional training center for medical workers for increasing the level of knowledge for CVDs prevention at a specialized health care institution (Center for Cardiovascular Diseases, Cardiac Dispensary, etc.);
- development and implementation of a targeted training program for health workers who provide PHC to the population of the region, considering the identified shortcomings in the provision of medical care to patients with CVDs and stratification of their risk in accordance with standards based on continuous monitoring of health care quality indicators.

at the level of health care facilities that provide primary care:

- approval of local protocols for the organization of medical care for patients with CVDs and for stratification of their risk in accordance with the standards;
- order on approval of quality indicators of medical care for patients with CVDs and for stratification of their risk in accordance with the standards in the health care facility as criteria for evaluating the work of the doctor;
- approve the methodology for monitoring and evaluation of indicators of the quality of medical care for patients with CVDs and for stratification of their risk.

The use of the methodology in accordance with the Order of the Ministry of Health of 11.09.2013 № 795 "On monitoring of clinical indicators of quality of medical care" and clinical guidelines of the European Society of Cardiology [20] at the regional level allowed to develop indicators of quality of preventive work. depending on the level of prevention (primary, secondary, tertiary), which are shown in figure 1.

	Level of prevention		
	Primary	Secondary	Tertiary
- stratification of the risk of CVDs		- the number of people (new cases) whom hypertension was diagnosed;	- the percentage of patients with CVDs, who have established a disability group for the first time during the year
- body mass index (height, weight)		- the number of people who have reached the target blood pressure level	- the percentage of patients with CVDs, which strengthened the disability group during the year
- waist circumference (abdominal obesity)		- blood pressure monitoring	
- blood glucose level		- blood glucose monitoring	
- questionnaire on a healthy lifestyle		- conducting a conversation about maintaining a healthy lifestyle	
- referral to health school			

Figure 1. Indicators of the quality of preventive work in primary health care facilities

Evaluation of the effectiveness of the implementation of individual elements of the proposed model (Fig. 2) was performed by calculating the above indicators of the quality of preventive work in the dynamics, the data are shown in figure 3.

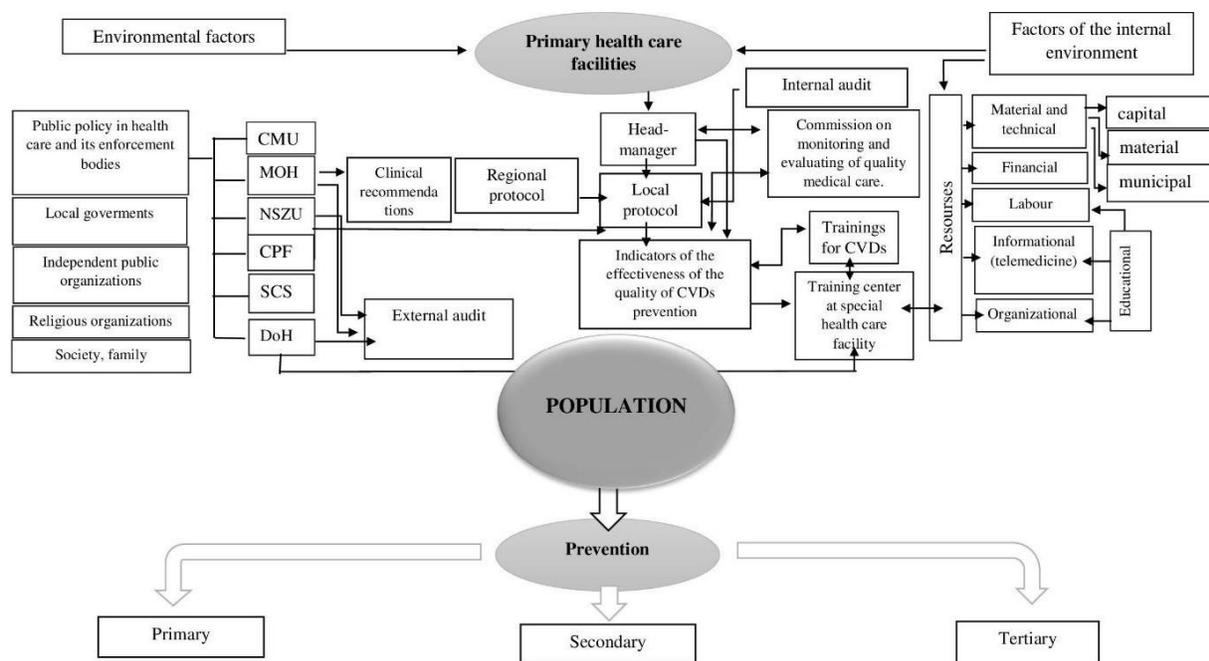


Figure. 2. Organizational and structural model of prevention of circulatory system diseases among the adult population in health care facilities that provide primary care at the regional level.

According to our data for 2017 to the verification of primary accounting documentation, PHC doctors most often calculate the risk level of $67,8 \pm 2,07\%$, but at the same time records of smoking are available in less than half of the examined persons ($30,7 \pm 2,04\%$), the body mass index was calculated at $47,9 \pm 2,21\%$, data on waist circumference were recorded only at $28,3 \pm 1,99\%$, and any patient was referred to group classes at a health school it can be associated with their absence in the PHC facilities. The best situation with the measurement of blood glucose: $61,5 \pm 2,15\%$ of the population at the time of admission was set blood glucose, which can be associated not only with the prevention of CVDs, but also with the implementation of preventive measures for diabetes. After the introduction of some elements of the proposed model (training, updating of health schools at the PHC of communal ownership, development of indicators of quality of preventive work) there is a significant increase in all indicators except for the calculation of body mass index, which may indicate not only lack of knowledge, but also a formal attitude to their work, lack of interest in the result and control.

Indicator of quality	Index		P ₃₋₄
	2017 year	2019 year	
1	2	3	4
Primary prevention			
CVDs risk stratification was performed, (III±m) %	50,6±2,21	88,5±1,41	>0,05
The level of risk is calculated, (III±m) %	67,8±2,07	98,6±0,51	>0,01
Record about smoking, (III±m)	30,7±2,04	72,5±1,97	>0,001
Body mass index, (III±m)	47,9±2,21	52,3±2,21	<0,05
Waist circumference, (III±m)	28,3±1,99	69,1±2,04	>0,001
Blood glucose level, (III±m)	61,5±2,15	91,6±1,23	>0,001
Referral to health school, (III±m)	0,0	28,5±2,0	>0,001
Secondary prevention			
Number of persons (new cases) who were firstly diagnosed "Hypertension" by PMC doctors, (III±m)	83,6±1,64	91,6±1,23	<0,05
Diagnosed with "hypertension" through screening, (III±m)	4,5±0,92	28,5±2,0	>0,001
Blood pressure monitoring for 12 months, (III±m)	78,1±1,83	97,3±0,72	>0,01
Blood glucose monitoring for 12 months, (III±m)	32,6±2,07	69,0±2,16	>0,001
Medication is prescribed immediately after the diagnosis of "Hypertension", (III±m)	58,2±2,18	97,7±0,67	>0,001
The target blood pressure level was reached during the year, (III±m)	58,6±2,18	91,6±1,23	>0,001
Conducting a conversation about maintaining a healthy lifestyle, (III±m)	26,8±1,96	56,5±2,19	>0,001
Number of monitoring visits from the moment of diagnosis within 12 months	1,7±0,8	2,3±0,6	<0,05

Figure 3. Indexes of indicators of quality of preventive work in primary health care facilities in dynamics (per 100 examined)

Despite the relatively high percentage of patients in whom RF stratification was performed and the risk level was calculated, only $4,5 \pm 0,92\%$ (2017) and $28,5 \pm 2,0\%$ (2019) were diagnosed with «Hypertensive disease» was found during the screening, all other cases mainly in connection with the patient's complaints. The positive fact is that there is a gradual insignificant increase to $91,6 \pm 1,23\%$ in 2017 against the background of a sufficiently high baseline level ($83,6 \pm 1,64\%$, 2017) diagnosis of "Hypertension" directly by PHC doctors. In addition, a significant increase to $97,7 \pm 0,67\%$ ($p > 0,001$) was found not only for the appointment of drug treatment immediately after diagnosis, but one of the more effective criteria is the fact that a significant increase in the percentage of patients who managed to achieve target level of blood pressure during the year: $91,6 \pm 1,23\%$ (2019) against $58,6 \pm 2,18\%$ (2017) ($p > 0,001$).

5. Discussion

Our data on the implementation of preventive measures by PMD physicians, especially lifestyle changes, remain skeptical today, and their effectiveness is questionable because they believe that the results of prevention are insignificant and do not justify the effort, which coincides with other scientific studies. [21]. The advisability of maintaining a healthy lifestyle has been highlighted in many prospective studies, as

many programs have been devoted to centuries of prevention: CINDI, which aims to reduce morbidity and mortality from major noncommunicable diseases, the Bangkok Charter (2005), SOPCARD prevention programs in Poland, the Jakarta Declaration etc. [16]. At the same time, the leading authors emphasize that only the coordinated work of the patient and the doctor can lead to a quality result of prevention and treatment of any disease [22], which in turn is influenced by the organization of medical care. We have identified organizational shortcomings of the existing CVDs prevention system, such as: imperfection of the internal system of management and quality control of medical activities in compliance with the requirements for their organization; formalized development of indicators of quality of medical care for patients with CVDs; lack of indicators of the quality of dynamic monitoring of patients with CVDs using physical, laboratory and instrumental methods of examination in accordance with industry standards in the field of health care; lack of control over the continuous monitoring of evaluation indicators and quality criteria for the provision of medical care to patients with CVDS; imperfection of control over indicators of quality of preventive work: calculation of individual risk of CVDs development, assessment of general cardiovascular risk, body mass index, waist circumference, percentage of population among which the target level of arterial pressure was reached, etc; lack of effective control and management of preventive work by primary care workers; lack of knowledge among primary care physicians about the RF of CVDs and standards of medical care; lack of proper information due to the incomplete transformation of the state system of medical statistics into an electronic health care system. But most of these shortcomings can be significantly improved due to the proposed model, the effectiveness of which is confirmed by the fact that the rate of the conversation on maintaining a healthy lifestyle increased from $26,8 \pm 1,96$ in 2017 to $56,5 \pm 2,19$ in 2019 ($p > 0,001$), and the number of monitoring visits from the moment of diagnosis within 12 months increased from $1,7 \pm 0,8$ (2017) to $2,3 \pm 0,6$ ($p > 0,05$), which is an unreliable indicator over a short period of time (2 years), but in the future it should lead to improved health.

6. Conclusions

1. A model is proposed to help identify approaches to the formation of indicators of quality of preventive measures at the regional level, which will use the information obtained from the assessment data to support management decisions to coordinate actions in the system and improve the quality of care.
2. The effectiveness of the proposed model is proved, which will further improve the health of the population.

7. References

- [1] World economic forum «Diagnostics for Better Health: Considerations for Global Implementation» - insight report of FEBRUARY 2021 [Internet]. Available from: http://www3.weforum.org/docs/WEF_Diagnostics_for_Better_Health_Considerations_for_Globa_%20Implementation_2021.pdf (accessed on 11 June 2021)
- [2] Pro vnesennia zmin do postanovy Kabinetu Ministriv Ukrainy vid 27 lystopada 2019 r. № 1121. Postanova KMU № 106 vid 17.02.2021r. Rezhym dostupu: <https://www.kmu.gov.ua/npas/pro-vnesennya-zmin-do-postanovi-kabinetu-ministriv-ukrayini-vid-27-listopada-2019-r-1121-i170221-106>
- [3] Vymohy PMH 2021. Spetsyfikatsii ta umovy zakupivli za prohramoiu medychnykh harantii na 2021 rik (Internet) Rezhym dostupu: <https://nszu.gov.ua/vimogi-pmg-2021>
- [4] Action Plan for the Prevention and Control of Noncommunicable Diseases in the WHO European Region. -39p. [Internet]. 2016 Available from: https://www.euro.who.int/data/assets/pdf_file/0008/346328/NCD-ActionPlan-GB.pdf (cited 2021 June 7)

- [5] Preparation for the third High-level Meeting of the General Assembly on the prevention and control of non-communicable diseases, to be held in 2018. Report by the Director-General. In: Seventy-first World Health Assembly, Geneva, 19 April 2018. Geneva: World Health Organization; 2018. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_14-en.pdf (cited 2021 June 7)
- [6] A VISION FOR PRIMARY HEALTH CARE IN THE 21ST CENTURY 64p. [Internet]. 2018 Available from: <https://apps.who.int/iris/bitstream/handle/10665/328065/WHO-HIS-SDS-2018.15-eng.pdf?sequence=1&isAllowed=y> (cited 2021 June 7)
- [7] Basic facts about the United Nations / UN. – 42nd ed. – New York: UN, 2017. – XVI, 279 p. <https://doi.org/10.18356/2faf3279-en>
- [8] Building Disability-Inclusive Societies in Asia and the Pacific- 89 p. [Internet]. 2020 Available from: <https://doi.org/10.18356/33d778b1-en> [cited 2021 June 7]
- [9] Global Assessment Report on Disaster Risk Reduction (GAR) [Internet] 2021 Available from: <https://doi.org/10.18356/83cdc99a-en> [cited 2021 June 7]
- [10] Doslidzhennia STEPS: poshyrenist faktoriv ryzyku neinfektsiinykh zakhvoriuvan v Ukraini u 2019 rotsi. Kopenhagen, Yevropeiske rehionalne biuro VOOZ; 2020. Litsenziia: CCBY-NC-SA3.0IGO], [STEPwise Approach to NCD Risk Factor Surveillance (STEPS) [Internet] 2021 Available from: <https://www.who.int/teams/noncommunicablediseases/surveillance/systems-tools/steps> [cited 2021 June 11]
- [11] Pro zatverdzhennia Natsionalnoho planu zakhodiv shchodo neinfektsiinykh zakhvoriuvan dlia dosiahnennia hlobalnykh tsilei staloho rozvytku. ROZPORIA DZHENNIA KMU № 530-r vid 26 lypnia 2018 r. [Internet] Dostup: <https://www.kmu.gov.ua/npas/pro-zatverdzhennya-nacionalnogo-planu-zahodiv-shchodo-neinfektsiinykh-zahvoryuvan-dlya-dosyagnennya-globalnih-cilej-stalogo-rozvitku>
- [12] Pro zatverdzhennia Poriadku vyboru likaria, yakyi nadaie pervynnu medychnu dopomohu, ta formy deklaratsii pro vybir likaria, yakyi nadaie pervynnu medychnu dopomohu. Nakaz MOZ Ukrainy №503 vid 19.03.2018r. [Internet] Dostup: <https://zakon.rada.gov.ua/laws/show/z0347-18#Text>
- [13] Pro zatverdzhennia Poriadku nadannia pervynnoi medychnoi dopomohy. Nakaz MOZ Ukrainy № 504 vid 19.03.2018r. [Internet] Dostup: <https://zakon.rada.gov.ua/laws/show/z0348-18#Text>
- [14] Pro zatverdzhennia Prymirnoho tabelia materialno-tekhnichnoho osnashchennia zakladiv okhorony zdorovia ta fizychnykh osib – pidpriansiv, yaki nadaiut pervynnu medychnu dopomohu. Nakaz MOZ Ukrainy vid 26.01.2018 № 148 [Internet] Dostup: <https://moz.gov.ua/article/ministry-mandates/nakaz-moz-ukraini-vid-26012018--148-pro-zatverdzhennja-primirnogo-tabelja-materialno-tehnichnogo-osnashchennja-zakladiv-okhorony-zdorov%e2%80%99ja-ta-fizychnykh-osib-%e2%80%93-pidpriemciv-jaki-nadajut-pervynnu-medychnu-dopomogu>
- [15] Klymenko V.I., Kremsar I.M., Kovalenko A.V. Resursne zabezpechennia tsentriv pervynnoi medyko- sanitarnoi dopomohy ta profilaktyka khvorob systemy krovoobihu. Ukraina. Zdorovia natsii, 2017 № 4(45) S.56-62
- [16] Klymenko V.I., Kremsar I.M., Korohod N.O. «Medychni kadry - naiholovnishyi resurs zakladiv

okhorony zdorovia Zaporizkoi oblasti pervynnoho rivnia» // «Visnyk sotsialnoi hihieny ta orhanizatsii okhorony zdorovia Ukrainy» №4, 2020, S.40-45

[17] I.M. Kremsar «Vplyv rivnia pidhotovky medychnykh pratsivnykiv pervynnoi lanky na yakist profilaktychnoi roboty(na prykladi khvorob systemy krovoobihu) // Profilaktychna medytsyna №1(15), 2021, S.4-11

[18] Iryna M. Kremsar ,Victoria I. Klymenko «The influence of the external and internal environment of primary care facilities on the prevention of diseases of the circulatory system» //«Wiadomości Lekarskie» Volume LXXIV, issue 3 part 2, March 2021, P.636-640.

[19] Pro vnesennia zmin do nakazu Ministerstva okhorony zdorovia Ukrainy vid 28 veresnia 2012 roku № 751.Nakaz MOZ Ukrainy № 1422 vid 29 hrudnia 2016 r [Internet] Dostup: <https://zakon.rada.gov.ua/laws/show/z0530-17#Text>

[20] Pro monitorynh klinichnykh indykatoriv yakosti medychnoi dopomohy ta klinichnykh nastanov European Society of Cardiology. Nakaz MOZ Ukrainy vid 11.09.2013 r. № 795 [Internet] Dostup: <http://www.escardio.org/>

[21] Lashkul Z.V. Sotsialno-hihienichne doslidzhennia faktoriv ryzyku sertsevo-sudynnykh zakhvoriuvan sered likariv riznykh fakhovykh hrup, ziasuvannia stavlennia likariv do problem profilaktyky / Lashkul Z.V., Kurochka V.L. // Zaporizkyi medychnyi zhurnal. – 2014. – № 3. – S. 23-25.

[22] Guideline on the Primary Prevention of Cardiovascular Disease: Executive Summary. WRITING COMMITTEE MEMBERS, Donna K. Arnett, Roger S.Blumenthal, Michelle A. Albert, et al. Journal of the American College of Cardiology Mar 2019, 26028; [Internet] Available from: <https://www.sciencedirect.com/science/article/pii/S0735109719338768?via%3Dihub>