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INFORMATIZATION OF HEALTHCARE SYSTEM – BASIS OF EFFECTIVE CHANGE MANAGEMENT: THE CASE OF ZOLOTONOSHA DISTRICT OF CHERKASY REGION

Abstract

In this article was conducted analysis of current state policy on healthcare in conditions of system changes in Ukraine in part of creation of the conditions for effective work of healthcare: case in Zolotonosha District of Cherkasy Region. Analysis was conducted on primary health care concerning: workforce, finance, structure and cooperation. Analysis was based on general statistical data. In particular, population regarding district and region, statistics on appeals for primary health care.

According to results of conducted analysis, developed scientifically обоснований propositions about directions of improvement of healthcare management in conditions of system changes in Ukraine in Zolotonosha District of Cherkasy Region with as an example.

Key words: health care, changes management, public health policy, public administration in health care, informatization of healthcare system, primary health care.

JEL Classification: D19, H51, I10, I18, O15

Аңдатпа

Мақалада Черкасская облысы Золотоноша ауданының медициналық саласының тиімді жұмыс істеуі үшін жағдай жасау тұрғысынан Украинадағы жүйелі өзгерістердің адам денсаулығын қорғау бойынша мемлекеттік саясатына талдау жасалады. Кадрлық, материалдық-техникалық, қаржылық қолдау, құрылымдық ұйымдастыру және өзара іс-қимыл сияқты функционалдық блоктар бойынша алғашқы медициналық көмек деңгейі тұрғысында талдау жүргізілді. Талдау үшін негізге, атап айтқанда, бастапқы деңгейде көмек іздеп келгендер бойынша статистика, аудан мен облыс тұрғындарының жалпы саны алынды.

Талдау нәтижелері бойынша, Черкасс облысының Золотоноша ауданы мысалында Украинада денсаулық сақтау жүйесін өзгерістер тұрғысынан басқаруды жетілдіру жолдары туралы ғылыми негізделген ұсыныстар әзірленді.

Тірек сөздер: денсаулық сақтау саласы, өзгерістерді басқару, денсаулық сақтауды мемлекеттік басқару, денсаулық сақтауды ақпараттандыру, медициналық көмектің алғашқы деңгейі.

JEL коды: A120, B490, H110, O210.

Аннотация

В статье приведен анализ современной государственной политики по охране здоровья в условиях системных изменений в Украине в части создания условий для эффективной работы медицинской отрасли на примере Золотоношского района Черкасской области. Анализ осуществлялся в разрезе первичного уровня оказания медицинской помощи по таким функциональным блокам: кадровое, материально-техническое, финансовое обеспечение, структурная организация и взаимодействие. За основу для анализа были взяты общие статистические данные, в частности, численность населения по району и области, статистика по обращениям за медицинской помощью на первичном уровне.

По результатам проведенного анализа разработаны научно обоснованные предложения по направлениям совершенствования государственного управления здравоохранением в условиях системных изменений в Украине на примере Золотоношского района Черкасской области.

Ключевые слова: сфера здравоохранения, управление изменениями, государственное управление здравоохранением, информатизация здравоохранения, первичный уровень медицинской помощи.

JEL-коды: A120, B490, H110, O210.

Problem statement in general and its connection with important scientific and practical tasks. In conditions of national economy transformation phase, the development of public health should be seen as the development of the economic system, in accordance with regularities of economic and social processes, that reflects general tendencies of market relationship formation in modern Ukraine. Nowadays imbalance between real needs of healthcare and its funding with objective necessity requires search for ways to overcome formed controversy and develop management models for healthcare with goal to provide balance between its medical and economical parts while keeping social component unchanged. To form such balance, healthcare management must provide higher level of order, then level and influence of variable external factors. In current case only reviewing healthcare system as complex social and economic system and systematic approach to the healthcare management problem, is able to provide dynamical balance between its components, while at the same time saving it's one of the main functions – social.

This can be achieved only by implementing healthcare management model that is based on analysis of authentic and operative information, gathered through implementation of modern innovative management information technologies. Implementation of information and analytical models of medical technological and economic activity of healthcare system in the end is aimed on providing its controllability as economical system, and thus increasing its effectiveness. Only such orientation of management technologies can form mechanism of change management, which minimizes expenses while saving high quality of guaranteed medical aid.

This being said, scientific justification of mechanisms for increasing healthcare management effectiveness, as social and economic system in conditions of system changes in Ukraine, based on usage of complete information technologies is very relevant.

Analysis of last researches, which started finding solution for the problem indicates that critical condition of Ukrainian healthcare system concerns both practitioners and lead scientists. In fact question of state policy in healthcare was examined by lead Ukrainian scientists such as: M. Bilynska [1], L. Zhalilo [1], D. Karamyshev [1], Y. Radysh [1], I. Rozhkova [1] and other. They look into fundamental theoretical principals of state policy in Ukrainian healthcare system, state, that negative situation with health system is caused by shortcomings in organization and management of the area.

Problem of population health and ineffectiveness of healthcare system caught eye not only of Ukrainian scientists. This problem worries scientists of whole world: with the help of which mechanisms can be achieved maximum effectiveness of healthcare in conditions of significant social and economic changes in the society?

In fact, basic conceptual principals of development, activity and management of healthcare are explained in scientific works of foreign scientists such as Martin McKee (2008) [2], E. Mossialos (2010) [3], S. Tomson (2010) [3], L. Georgieva (2007) [4], P. Salchev (2007) [4] and other.

In the same time, despite the thorough research of this problem, state policy questions of healthcare development stay relevant, since nowadays there are only few practical, resultative steps for its realizations. In our opinion, it is caused by absence of single state strategy on healthcare development and scientific research on outer and inner changes on its activity.

So system changes in healthcare require more thorough analysis, due to which we have chosen this topic for our research.

Purpose of the paper lies in research of healthcare management innovation features and development scientifically backed proposition for improvement healthcare activity in conditions of system changes based on usage of information and communicational technologies on example of Zolotonosha District of Cherkasy Region, Ukraine.

Main materials of research with full substantiation of scientific results.

According to economic theory, planning is one of main components of management system that is responsible for innovation activity of the enterprise (organization). As an element of innovation management system strategic planning is partially independent subsystem that covers a complex of special instruments, regulation, structural bodies, information flows and processes, directed on

preparation and execution of plans. Prominent economist F. Kotler defines strategic planning as management process of creation and support of strategical match between goals of enterprise (organization, sphere of social activity), its potential opportunities and chances in marketing [5].

Modern managements is - first of all - management that bases on strategic planning. Currently strategic planning can be viewed as system of actions and solutions, that are accepted on higher hierarchical level of management with the goal of development of strategic plan on certain perspective, which contains defined steps of realization of organization`s strategical goals and tasks. Process of strategical planning is based on results of execution of previous stages of innovative management – analysis and forecast of innovation development of enterprise (sphere of social activity).

Healthcare, as economic system, which must adapt to inconsistent conditions of the environment to survive, can be assigned to the category of such complex areas. By the nature of interaction with outer environment healthcare can be classified as open – it is intensively interacts with the environment. Therefore, the full implementation of management models in health care based on management system organization of the production type provides transparency and independent from subjective factors controllability by medical establishments only under conditions of thorough analysis of timely and reliable information.

On example of Zolotonosha District of Cherkasy Region we will show principals of strategic planning of healthcare changes implementation, which base on thorough analysis of reliable information of healthcare present resources of District (Rayon) with the help of information technologies - GIS. Software ArcGIS for Desktop (ESRI) was used to carry out defined tasks.

First of all, it should be noted, that main directions of changes implementations are:

- maximum coverage of whole population in District: primary, emergency, secondary (specialized) care;
- development of District social area by providing Single address (in the future personalized) mobile medical and social aid for each citizen;
- patients routing and informing;
- informatization of healthcare system.

Using overall statistics (table 1), in Zolotonosha District there is noticeable disproportion of requests for health care between primary health care (PHC) and secondary health care (SHC): only 24,8% - PHC and 75,2% - SHC. While by the WHO recommendations, proportion of requests for health care between PHC and SHC should be: 80% / 20%.

Table 1
Health care: general statistics

Indicators	Cherkasy Region absolute value / percentage	Zolotonosha District (incl. Zolotonosha) absolute value / percentage	
Total population	1 257,7 thsd. people	71,5 thsd. people	
Urban population	711,8 thsd. people (57%)	27,9 thsd. people (39%)	
Rural population	545,9 thsd. people (43%)	43,6 thsd. people (61%)	
Number of appeals for medical aid (year)	11 881,6 thsd.	546,2 thsd.	
		Primary health care	Secondary health care
		135,2 thsd.	411,0 thsd.
		24,8%	75,2%

Let's give causes of such situation, that were discovered during conduction of thorough analysis (table 2).

Table 2
Primary health care (PHC): coverage of population

Population coverage norms for establishment						
№	PHC	Population coverage norms for establishment, thsd.		Number of establishments in Rayon	Population coverage by network of establishments, thsd.	
		min	max		min	max
1.	Ambulatories	1000	3 000	11	11 000	33 000
2.	Feldsher-midwife station (FAP)	300	1 000	34	10 200	34 000
Total, population coverage					21 200	67 000
Actual averaged coverage of the network of establishments					44 100	
Population in district					71 483	
Population in district, not covered by network of establishments					27 383	

From the provided table, it is seen that:

- in Zolotonosha District, there still wasn't created a Centre of Primary Health Care as institutionally separate legal entity, in which all establishments of PHC will be included;
- in Zolotonosha District practically absent patient routes, because of this urban population appeal for the primary care to Central Rayon hospital;
- existing network of PHC establishments practically does not provide healthcare services to 27.4 thousand people;
- because in Zolotonosha there is lack of PHC institutions, urban population of 27,9 thousand appeal for the health care to specialists (SHC) of Zolotonosha Central Rayon hospital.

In order to assess population's access to health care, a network of current health care facilities, and service areas covered by each facility, were analyzed. By Buffer tool we located settlements, which are over 5 km and 10 km away from the PHC (figure 1). Through the results of GIS-analysis, spatial interconnections between objects of the inspected areas were identified. Information, represented on the map, allows us to include additional data, which after an appropriate analysis could influence the decision making process.



Figure 1. PHC in Zolotonosha District: ambulatories (distance 5 and 10 km).

It is known that the location of the health facility within 5 km from the settlement reduces the frequency of patients' appeals by 40%, and the location of the health facility at a distance of 10 km - three times.

Besides this in district the network of medical establishments is positioned so that distance from some settlements to healthcare establishment, that is serving the population, is over 5 km (table 3).

Table 3
Primary health care (PHC): coverage of population

№	Settlement (SHC, ambula- tories)	Number of settlements	Population	Settlement (cen- tral hospital, am- bulatories, feld- sher station)	Distance from settle- ment to establishment, serving the population, km	
					To ambula- tory	To cen- tral rayon hospital
1.	Zolotonosha	1	urban - 27 902	Central rayon hospital	To region hospital 32	3 - 15
		14	rural - 6665	6 FAP		
2.	Helmyaziv vil- lage	1	4606	ambulatory	4 - 20	15 - 55
		13	5260	10 FAP		
3.	Domantove vil- lage	1	2011	ambulatory	10 - 15	14 - 28
		2	682	2 FAP		
4.	Palmira village	1	2092	ambulatory	1 - 10	17 - 26
		7	3188	4 FAP		
5.	Den'hy village	1	1015	ambulatory	3	8 - 12
		1	304	FAP		
6.	Dmytrivka vil- lage	1	1254	ambulatory	7	18 - 25
		1	82	FAP		
7.	Drabivtsi vil- lage	1	580	ambulatory	4 - 11	12 - 27
		7	2403	5 FAP		
8.	Korobivka vil- lage	1	955	ambulatory	3 - 5	10 - 16
		3	328	1 FAP		
9.	Lukashivka vil- lage	1	328	ambulatory	2 - 6	26 - 35
		4	2271	4 FAP		
10.	Pishchane vil- lage	1	3523	ambulatory	7	16 - 20
		1	161	FAP		
11.	Nova Dmytrivka vil- lage	1	1680	ambulatory	-	5
12.	Chapaievka village	1	2986	ambulatory	-	20
13.	Bubnivska Slobidka vil- lage	1	1207	ambulatory	-	38

The analysis of healthcare system resources in Zolotonosha district also showed that the statistical information is mostly collected in "manual" mode, because in district only 6 job places for doctors and 5 for registrars are automated.

Conclusions and perspectives of further research. Thus, conducted analysis showed, that there are numerous problems in healthcare on local level, which is caused by inefficiency of public administration in healthcare as a result of lack of informatization, which allows both operatively

and strategically reacting to needs of healthcare, which is very important in conditions of system changes.

From the analysis results multiple propositions and recommendations regarding development of primary health care were formed in Zolotonosha District, priority and strategic alike.

In particular, to improve local healthcare it is proposed to prioritize development of PHC. PHC should really cover up to 70% (mark – 80%, nowadays around the district – 24,2%) of all medical aid appeals of district population and around 20% of disease nomenclature. To do this it is required to spend around 30% of total funding on PHS. It is important to discuss involvement additional financial resources for PHS development.

To provide development of PHC it is proposed to clearly divide PHC and SHC. For this it is proposed to create 2 PHC centers for district and the city, as separate legal entities and to subordinate them all PHC establishments.

To provide healthcare service it is proposed to create an ambulatory (instead therapy department in polyclinic) in the city, and for rural population to create 3 more ambulatories by reorganizing current network.

Take measures to manning primary care, including by retraining internists and pediatricians.

Take measures to staffing all PHC establishments, at least on 50%. Also review the problem of creating new PHC establishments. Provide effective usage of day-only hospital beds, particularly by converting them to social care beds.

While taking into consideration the age structure of staffing, it is required to solve problem of new staff, increasing the qualification of current personnel. It is important to provide only reasoned hospitalization and target treatment of patients in hospital beds, medical representative to establish a system training of accounting and statistics.

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