

## Accessibility of Health Care and Recent Changes in Health System of the Republic of Belarus

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The accessibility of health care to the population in Belarus is illustrated in terms of indicators of health care provision: medical services personnel density, hospital bed / population ratio and development of medical education. Through the prism of WHO-defined “financial profile” of health care, several aspects of state policy are analyzed. Particular attention is given to the quality of medical education, employment and financial motivation of health care workers. The areas for further health care development in the Republic are specified.

**Keywords:** accessibility of health care, medical personnel, medical services, medical education, health care reforming, health care financing.

## Dostępność opieki zdrowotnej oraz ostatnie zmiany w systemie ochrony zdrowia w Republice Białorusi

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Dostępność opieki zdrowotnej na Białorusi zilustrowano za pomocą wskaźników świadczeń zdrowotnych dla ludności: gęstości personelu medycznego, wskaźnika liczby łóżek szpitalnych do liczby ludności oraz rozwoju kształcenia medycznego. Przez pryzmat zdefiniowanego przez WHO „profilu finansowego” opieki zdrowotnej dokonano analizy szeregu aspektów polityki państwa. Szczególną uwagę poświęcono jakości kształcenia medycznego, zatrudnieniu i motywacji finansowej pracowników służby zdrowia, a także wskazano obszary dalszego rozwoju opieki zdrowotnej w kraju.

**Słowa kluczowe:** dostępność opieki zdrowotnej, personel medyczny, świadczenia zdrowotne, kształcenie medyczne, reforma opieki zdrowotnej, finansowanie opieki zdrowotnej.

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A universal feature of healthcare systems of countries worldwide is a continual increase in the cost of medical care. Solutions to the problems of effective financing of medical sphere and ensuring that the population is guaranteed access to medical care have specific features in every particular country.

The purpose of the study is to evaluate the changes occurring in the health system of the Republic of Belarus after gaining the state independence, from the standpoint of accessibility of health care for the population and changes in the status of medical personnel.

## 1. Methodology

To evaluate the effectiveness of health systems, the average life expectancy (Ryć and Skrzypczak, 2011) and consumer satisfaction indexes (for example, the Euro Health Consumer Index – EHCI) could be useful as universal indicators. However, average life expectancy does not reflect the full availability of medical care and EHCI is not calculated for Belarus. So, we use in this work some universal statistical indexes of providing the population with health services. The availability of medical care is estimated as a real possibility to obtain necessary medical care regardless of social status, wealth and place of residence, and analyzed by indicators of official health statistics: bed / population ratio, number of practitioners (real number of practicing doctors) per capita, percent of household expenditures in the health sphere.

The analysis of wages, social status of medical workers and issues of medical personnel training was also conducted.

## 2. Results and Discussion

According to the World Health Organization data, the financial profile of health care of the Republic of Belarus for 2010 was as follows: the country expended 3.1 billion US dollars upon health care; and specifically household expenditures were 20%, whereas expenditures upon health care per capita – 320 US dollars (WHO, 2012). Almost 99% of health care consumers were the residents of the Republic of Belarus. The financial profile of the Republic of Belarus in 2014 underwent several changes: for example, as much as 450 US dollars was spent per capita upon the health care, of which 32% was household expenditure (WHO, 2014).

If you compare the profile of Belarus, for example, with Poland, will see that Poland in 2014 spent 910 US dollars per capita upon the health care, and 71% was state spending (including funds received under the health insurance system). Thus, the costs of health care are approximately two times lower in Belarus. At the same time, low costs do not mean the lack of effectiveness.

As published data indicated, there are no significant differences, based on social or economic status of the patients in Poland, in the access to primary health care. However, specialized care and dental services are more

accessible to the urban patients with high levels of income and education; there is limited public access to diagnostic equipment in the public health system and this is especially true for oncologic pathology (Boulhol et al., 2012). According to the Euro Health Consumer Index (EHCI) 2016, Poland ranks 30th out of 35: worse results for European countries can be found only for Romania, Montenegro, Bulgaria and Albania. Thus, the insurance system of health care in Poland does not give the expected effect.

Belarus remained one of the few countries of the former USSR which preserved the state budget system of financing health care (Rogos and Skrzypczak, 2006). Although the main proportion of expenses on health care is covered by the state, basic statistical indexes of accessibility of health care are still satisfactory. With such indicators of health care provision as bed/population ratio and the number of practitioners per capita (real number of practicing doctors) in the Republic of Belarus still having certain differences across the regions (Figure 1, Figure 2), the budgetary system of health care financing in Belarus has provided the citizens with the available medical services in sufficient amounts for all years of state independency (Tables 1, 2, 3).

However, together with the maximal social profile, the system reasonably shows several drawbacks. Principally, this relates to the issues of salaries of health care workers (Figure 3).

According to the official statistical data, salaries in health care system, though being higher than in the social sphere, are still lagging behind the average amounts in the Republic in all sectors of the national economy.

At the individual level, the solution to the financial problems by health care workers themselves infrequently lies in the strategies of part-time work or official secondary employment (Tables 4, 5).

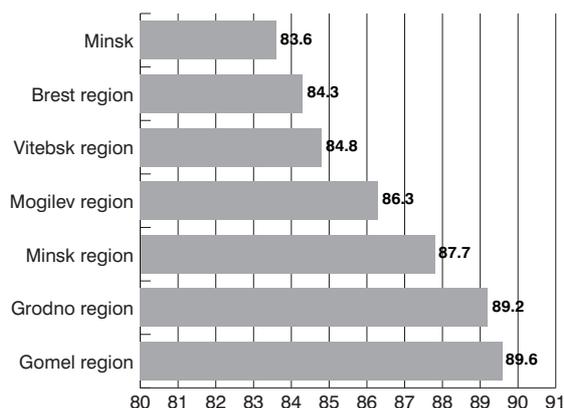


Fig. 1. The number of beds in health care institutions across the regions and Minsk-city in 2015 (per 10,000 population). Source: *Nacional'nyj statisticheskij komitet Respubliki Belarus'. (2015c). Chislo koek v bol'nichnyh organizacijah.*

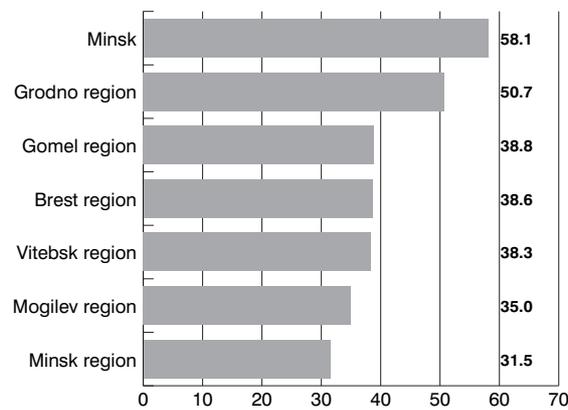


Fig. 2. The number of practitioners across the regions and Minsk-city in 2015 (per 10,000 population) Source: Nacional'nyj statisticheskij komitet Respubliki Belarus'. (2015b). Chislennost' praktikujushhijh vrachej.

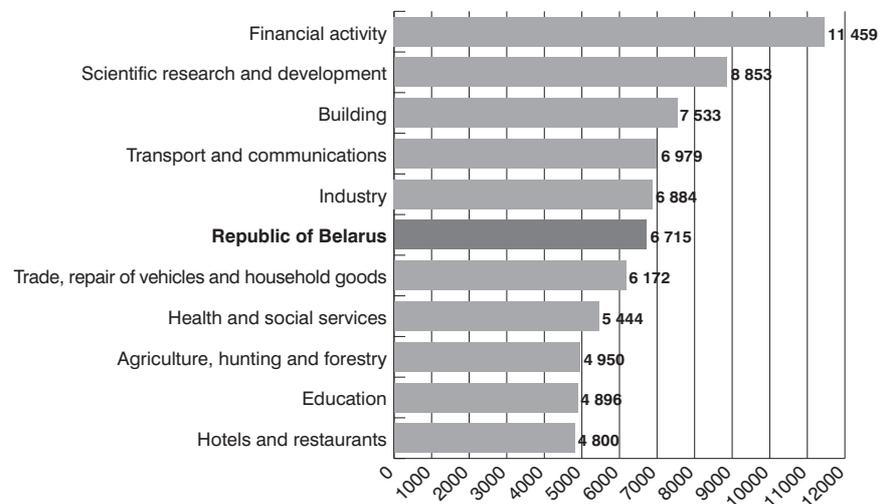


Fig. 3. Average wages of workers in the Republic of Belarus by certain types of economic activities in 2015. Source: Nacional'nyj statisticheskij komitet Respubliki Belarus'. (2015). Nominal'naja nachislennaja srednjaja zarabotnaja plata.

Year	Number of physicians	Including dentists	Nursing staff number	Including dentists and nurse practitioners	Number of qualified pharmaceutical chemists and pharmacutists	Number of hospital beds
1970	20996	798	63128	2553	5344	90805
1980	29889	1591	79998	2259	7617	117230
1990	37927	2948	101846	1652	9394	131367
2000	40750	3798	113065	1837	7659	118591
2005	40478	3666	108605	1826	6961	100539
2006	41048	3686	108383	1862	6932	100272
2007	41743	3733	109265	1827	7016	102143
2008	42153	3782	108458	1835	6836	101206
2009	42891	3800	108180	1799	6806	100545
2010	39194	3577	107347	1600	6439	102456
2011*	41915*	3608	107939	1723	6711	101506
2012	43288	3644	112607	1882	6682	101630
2013	44048	3585	110933	1673	6572	99818
2014	45131	3653	111158	1615	6600	98212
2015	46835	3735	113259	1660	6774	97304

Tab. 1. Health care personnel and bed capacity (system of the Ministry of Health) in 1970–2015. Source: Zdravooхранenie v Respublike Belarus': oficial'nyj statisticheskiy sbornik za 2015 god. (2015). Minsk: GU RNMB.

Year	Number of physicians	Including dentists	Nursing staff number	Including dentists and nurse practitioners	Number of qualified pharmaceutical chemists and pharmacutists	Including qualified pharmaceutical chemists	Number of hospital beds
1970	23.2	0.9	69.8	2.8	5.9	1.7	100.4
1980	30.9	1.6	82.8	2.3	7.9	2.5	121.3
1990	37.1	2.9	99.7	1.6	9.2	3.2	128.6
2000	40.8	3.8	113.2	1.8	7.7	3.1	118.7
2005	41.5	3.8	111.4	1.9	7.1	2.9	103.1
2006	42.2	3.8	111.6	1.9	7.1	2.9	103.2
2007	43.1	3.8	112.8	1.9	7.2	3.0	105.4
2008	43.6	3.9	112.1	1.9	7.1	3.0	104.6
2009	45.2	4.0	114.1	1.9	7.2	3.1	106.8
2010	41.3	3.7	113.2	1.7	6.8	2.8	108.1
2011	44.3	3.8	114.0	1.8	7.1	3.1	107.2
2012	45.7	3.8	119.0	2.0	7.1	3.2	107.4
2013	46.5	3.8	117.2	1.8	6.9	3.2	105.4
2014	47.6	3.8	117.2	1.7	7.0	3.3	103.6
2015	49.3	3.9	119.2	1.7	7.1	3.5	102.4

Tab. 2. Provision of the Belarusian population with health care personnel and bed capacity (per 10,000 population) (system of the Ministry of Health) in 1970–2015 (from 2011 – with physicians working as medical specialists). Source: Zdravoohranenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015). Minsk: GU RNMB.

Region	Number of nurses				Number of qualified pharmaceutical chemists				Number of pharmacutists			
	absolute number		per 10 thousand population		absolute number		per 10 thousand population		absolute number		per 10 thousand population	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Minsk-city	21124	21829	109.0	111.4	740	783	3.8	4.0	434	463	2.2	2.4
Brest	17185	17423	123.7	125.6	465	494	3.3	3.6	533	533	3.8	3.8
Vitebsk	14694	14883	122.6	124.7	587	625	4.9	5.2	323	309	2.7	2.6
Gomel	17352	17599	121.9	123.7	405	412	2.8	2.9	544	549	3.8	3.9
Grodno	12919	13070	122.7	124.5	340	370	3.2	3.5	433	429	4.1	4.1
Minsk	14989	15334	106.5	108.2	356	373	2.5	2.6	446	421	3.2	3.0
Mogilev	12895	13121	120.4	122.9	286	301	2.7	20.8	708	712	6.6	6.7
Republic of Belarus	111158	113259	117.2	119.2	3179	3358	3.4	3.5	3421	3416	3.6	3.6

Tab. 3. Provision of the Belarusian population across the regions with health care personnel working as nursing staff, qualified pharmaceutical chemists and pharmacutists (system of the Ministry of Health). Source: Zdravoozhanenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015). Minsk: GU RNMB.

Region	Physician position			Nursing staff positions		
	number of basic workers in occupied positions (without those who work at staff-training institutions or governing bodies)	number of occupied positions	coefficient of part-time employment	number of basic workers in occupied positions*	number of occupied positions	coefficient of part-time employment
Minsk-city	11017	15049	1.37	19629	28090	1.43
Brest	5967	7726	1.29	16099	18395	1.14
Vitebsk	5033	7239	1.44	14229	17773	1.25
Gomel	5856	8348	1.43	16223	19920	1.23
Grodno	5410	6633	1.23	12259	14582	1.19
Minsk	4880	7432	1.52	13557	17805	1.31
Mogilev	4325	6493	1.50	12990	16108	1.24
Republic of Belarus	42488	58920	1.39	104986	132673	1.26

Tab. 4. Coefficient of part-time employment of physicians and nurses in the Republic of Belarus across the regions in 2015. Source: Zdravoohranenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015). Minsk: GU RNMB.

Region	Coefficient of part-time employment			
	physicians		nurses	
	2014	2015	2014	2015
Minsk-city (without entities of regional subordination)	1.38	1.37	1.46	1.43
Brest	1.31	1.29	1.14	1.14
Vitebsk	1.46	1.44	1.26	1.25
Gomel	1.44	1.43	1.24	1.23
Grodno	1.23	1.23	1.19	1.19
Minsk (together with entities of regional subordination in Minsk-city)	1.52	1.52	1.31	1.31
Mogilev	1.52	1.50	1.27	1.24
Republic of Belarus	1.40	1.39	1.27	1.26

Tab. 5. Coefficient of part-time employment of physicians and nurses in the Republic of Belarus across the regions in 2014–2015. Source: *Zdravoohranenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015). Minsk: GU RNMB.*

Providing fair wages for health care workers as well as an overall proper reform of the financing system in health care are the topical issues at the country level. So, for example, several organizers of public health services offered changes in the mechanisms of the financing system in health care by means of establishing a health insurance mandate (Sharabchiev, 2002, 2005) or by creating a universal system of mandatory medical and social insurance (Sharabchiev, 2001; Sharabchiev and Dudina, 2013). However, the analysis of all “pros and cons” of a prospective reform demonstrated the relevancy of abstaining from radical changes. At the same time, the search for proper ways to resolve financial issues is being continually carried out, among other things considering the experience of neighboring countries (Snezhitskiy and Surmach, 2013, 2013a; Snezhitskiy and Surmach, 2015).

At present time, one of the promising spheres in covering expenses on health care is the development of mechanisms of direct and (or) indirect (by means of voluntary health insurance) purchase of medical services by population. Several organizers of public health services offered private health care financing which must legally complement public guarantees for those consumers who are willing to pay for medical services by themselves (Zhadan, 2012). There are also suggestions on the necessity to introduce additional payments by patients for medical services provided. In the Russian Federation, where there is a system of health insurance mandate in operation, the subject of additional payments has been widely discussed since the date of health insurance mandate implementation (Sheyman, 2008).

The proportion of direct payments by population for health care services fees is different worldwide (Figure 4).

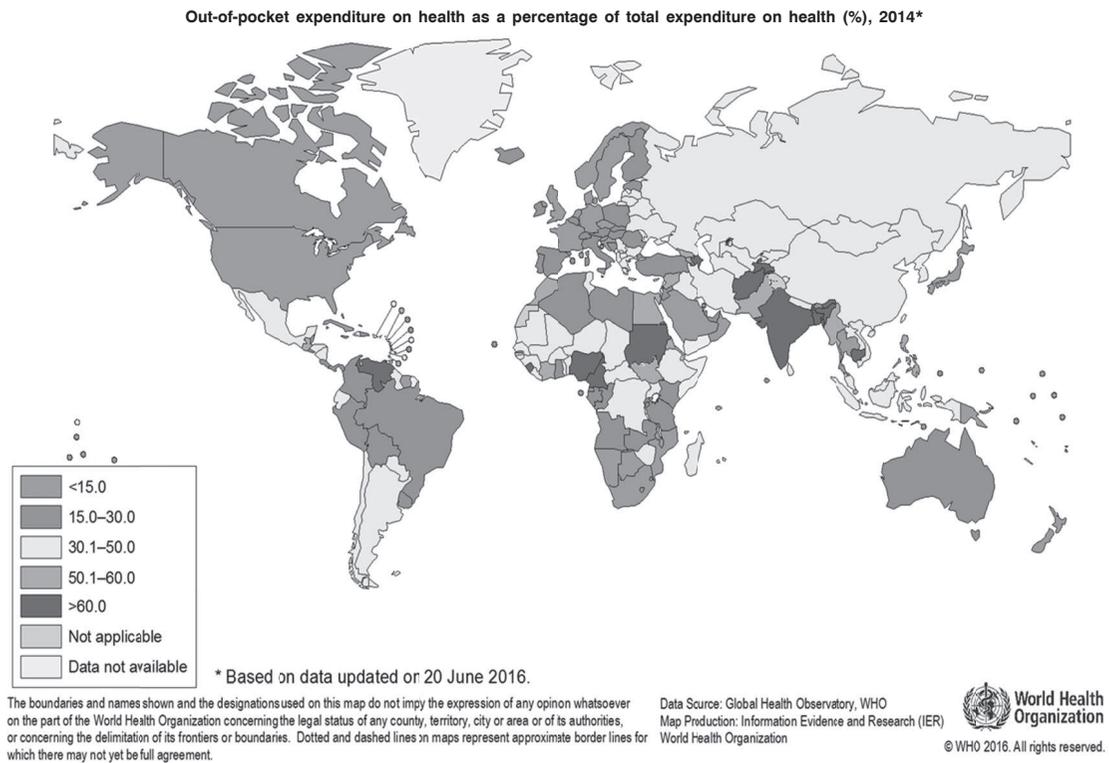


Fig. 4. Direct payments by population as a percentage of the total amount of expenses on health care. Source: WHO. (2016). WHO Global Health Observatory Map Gallery.

The experience of neighboring countries shows that a common European tendency is the combination of several ways of payment for work of physicians at the primary medical care level: per capita financing (60%), medical services fees (20–30%), payments for the achieved results (10–20%), whereas copayments by the population are common for all countries of the world (Zaycev, 2012).

One of the modern trends of development of the Belarusian health care is to increase the private financial component in health, aided by the Law of the Republic of Belarus “On health care” and the Law of the Republic of Belarus “On public-private partnership”. The same trend is observed in Poland: the number of private hospital beds in Poland increased between 1990 and 2006, repeatedly, from 446 to 9318 beds (Ryć and Skrzypczak, 2011).

Although the salaries of health care workers in Belarus are fairly not so high, the social status of the job in the society remains high. As it is known, the social status of a health care worker is determined by the official position of the job which is formed by the state policy (education, official reputation), and also depends on the worker’s self-esteem closely associated with the external evaluation: social importance of the work at the societal level and relations between staff members (Surmach and Tishhenko, 2007).

Health care workers are supposed to satisfy specific personal demands which differentiate this profession from other jobs. In medical sphere like in no others, there are strict social regulators which control the professional activities of medical workers. A key regulator of all medical activities is professional duty.

A particular feature of job competency status of a physician is that the professional career (job mastering, improving professional level, gaining work experience, respect by patients) is, to a physician, often more important than merely going up the career ladder. Such a criterion of a physician’s social status as reputation includes the combination of an economic factor and a socio-psychological component – job satisfaction, opportunities of self-fulfillment and success which is evaluated, awarded and recognized. Prestige is determined by the specialty (which is one of the reasons for the lack of primary care physicians and excess in single-skill specialists), place of work (lack of physicians in the rural areas and excess in regional centers). Of particular topicality are the issues of job prestige for the nursing staff.

In Belarus, there still remains the need to increase the proportion of personnel who provide primary medical care, as a correction of the imbalance of single-skill medical specialists excess. There is a characteristic concentration of health care workers in big cities and still insufficient provision of rural population with medical workers.

Without a doubt, a “city vs country” and “primary medical care vs specialized medical services” imbalance should be addressed by the state and primarily of the Ministry of Health. The tactics of compulsory distribution

and provision of employment for medical university graduates, the system of addition payments and other financial incentives for primary care physicians, as well as the implemented policy of gradual transfer of community-based therapeutic service to the activities of general practitioners contribute to the correction of this misbalance. Thus, in the State Program “Health of the Nation and Demographic Safety of the Republic of Belarus” for 2016–2020 (approved by the resolution of the Council of Ministers of the Republic of Belarus, resolution no. 200 of March 14, 2016), such an indicator as “proportion of physicians who work as general practitioners within the total number of primary care physicians” is planned to have reached 100% by 2020. In addition, a lot of attention is paid to the IT-based management initiatives in the medical field, which contributes to the elimination of inequality in information access, to the development of a teleconsultation system, computerized hospitalization system, and the optimization of document circulation in health care without reference to territorial dislocation.

Nursing personnel around the world including Belarus are represented mainly by female workers. Having a lower social status and salaries, they face similar occupation-related risk factors (Val’chuk, Matvejchik and Ivanova, 2004).

The issue of labor force in health care concerns various sectors. Neither of these can successfully resolve the problem independently. EHCI includes several subcategories having a direct association with the innovation level in the health care system. More specifically, such subcategories of EHCI as “patient rights and information”, “e-health” include components directly determined by the level of health care IT-based management (computerized document circulation within the health care system and with other organizations, computer-based forms of provider-patient interaction, e-appointments, e-prescriptions, patients’ access to the information about their laboratory investigations, etc.) (Zalewska, 2011). The creation of a single information space in the country is only possible with the integration of the former with the information space of health and health care and therefore the implementation of innovations and investments into investigations in the field of IT-based management of medicine. In the present context, IT-based management is seen as one of the basic aspects of implementation of quality management system into health care: the development of relevant indicators (quality indicators) and unbiased automatic assessment alongside with e-healthcare introduction.

At present time, the period of waiting for an outpatient visit to a therapist (general practitioner) does not exceed several minutes on average (being maximum one hour during the seasonal increase in the incidence of acute respiratory diseases or in the case of reception without an appointment). Therefore, in the present context, particular attention is given to the development of professional culture of medical workers: organizational,

administrative culture as a basis, self-control aspects in the medical field (Zharko, 2016). Organizational culture in the present context is seen as one of the most promising instruments in health care management.

An essential aspect in the settlement of personnel problems in health care is the issue of medical personnel training. It is worth mentioning that the Republic meets the requirements for newly qualified personnel training in full, and is continually improving and developing the system of medical education, advanced training and requalification (Figures 5, 6).

At present, the reinforcement of practice-oriented undergraduate training, the creation of a three-level system of education, and the implementation of a residency equivalent in certain specialties starting from 2018 take the position of promising trends in the development of a system of training personnel with higher medical education in the country. The establishment of faculties of professional advancement and development at the premises of the functioning medical universities promotes this idea. In particular, a similar faculty was opened in the 2016–2017 academic year at the Grodno State Medical University.

Education in absolute majority of the developed countries refers to the number of the top-priority spheres of budgetary funding. The proportion of total government expenditure on education varies from less than 10% to almost 22%. Global experience shows that the issues of personnel training can be problem areas in health care (Snezhitskiy and Surmach, 2014). For instance, the lack of therapists raises a serious concern. The number, prevalence, and personnel categories of practitioners are affected by several factors including limitation criteria for joining medical professionals, choice of specialty, compensation and other aspects of work conditions as well as migration. In several countries, therapists who received their medical education abroad make up a considerable proportion of the whole body of therapists. International migration can increase the flexibility of employment markets for physicians and other health care professionals in the receiving countries; however, the issue of “brain drain” raises a serious concern in terms of the existence of a long-term legal flow of personnel from the countries with low income to the countries with higher income (Surmach, 2016).

The educational establishment “Grodno State Medical University” is one of the first higher medical educational institutions of the Republic of Belarus where the system of quality management was implemented and certified in accordance with the requirements of ISO 9001 in the national (CTB ISO 9001-2009) and German (DINEN 9001-2008) systems. At present time, all medical universities in Belarus have undergone certification of quality management systems, and practical health care is engaged in similar activities. This is becoming an opportunity for the development of export of medical and educational services. The first international students graduated from the Grodno State Medical University in 1998. At that time,

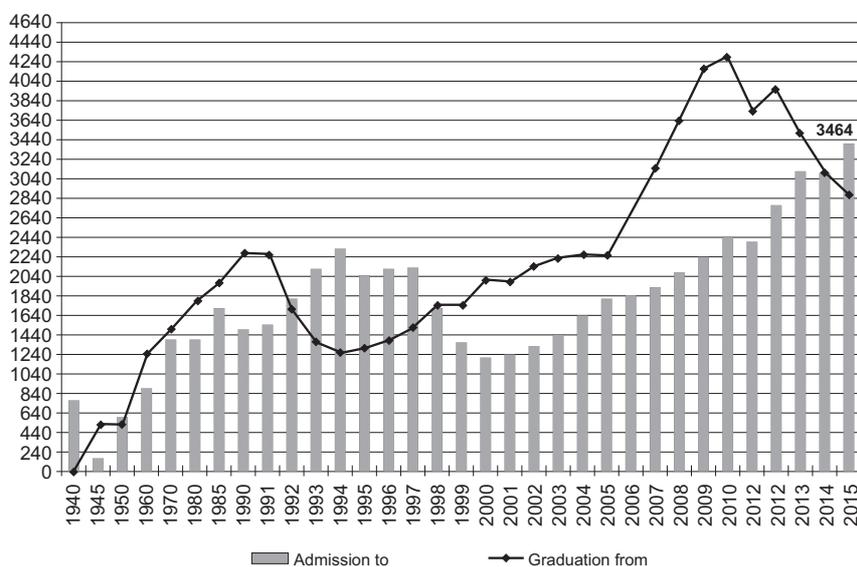


Fig. 5. Admission to and graduation from medical universities in the Republic of Belarus (1940–2015). Source: *Zdravoohranenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015)*. Minsk: GU RNMB.

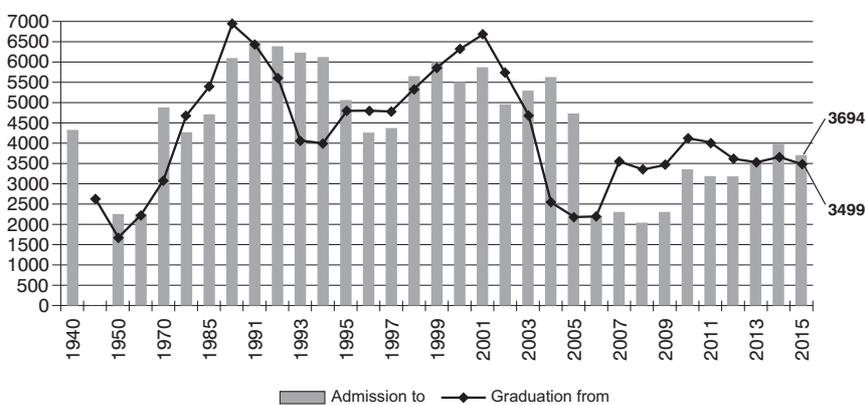


Fig. 6. Admission to and graduation from secondary medical schools and colleges in the Republic of Belarus (1940–2015). Source: *Zdravoohranenie v Respublike Belarus': oficial'nyj statisticheskij sbornik za 2015 god. (2015)*. Minsk: GU RNMB.

28 graduate students from Pakistan, Syria and Lebanon were awarded their diplomas and qualified as physicians with the title of Doctor of Medicine. Within the entire period of the functioning of the Faculty of International Students, 595 specialists have been trained for foreign countries; during the latest years, the faculty has provided enrollment and further training for over 100 international applicants annually (Figure 7).

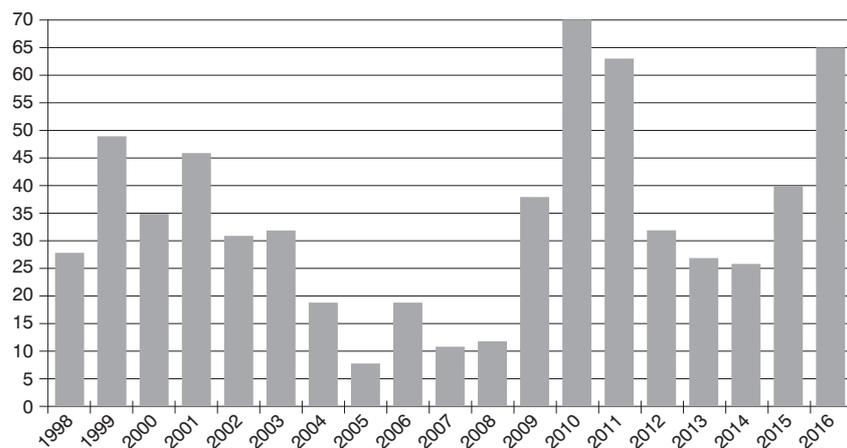


Fig. 7. The number of international students who were awarded GrSMU diploma.

In the immediate future, the student admission plan at medical universities will cover a minimum of 50% of students on a fee-paid basis. Within the total scope of financing of higher medical educational institutions and health care institutions, the proportion of so-called “non-budgetary sources” obtained primarily from the provision of commercial services will, in the coming years, be up to the amounts of finances arriving from the state budget.

### 3. Conclusions

So, we can conclude that health care is seen as a highly society-oriented area through the prism of financial state policy of Belarus.

Despite much lower spending on health care in comparison, for example, with neighboring Poland, Belarus has maintained such indexes as the availability of hospital beds and practicing physicians (bed / population ratio, real number of practicing doctors per capita) at a sufficient level, it increases human resources, develops information technology industry in the health sphere and export of medical services.

Along with some increase in the share of health expenditure of households and private sector development in health, the key principle of the system functioning is and will remain the guarantee of accessibility of high quality public health services for the population.

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