



COMPARATIVE ANALYSIS OF LEBANON DEVELOPMENT. PROSPECTS FOR COOPERATION WITH THE RUSSIAN FEDERATION

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The objective of the research was to conduct a comparative analysis of the development of Lebanon based on a number of demographic, economic and social indicators characterizing the health care of Lebanon, and to determine the prospects for the cooperation with the Russian Federation (RF) in the pharmacy field.

Materials and methods. The studies were conducted from 2009 to 2016. The objects were the statistical data accumulated on the basis of the data from national institutions and international organizations. These data were published annually in the reports of the Department of Economic and Social Affairs, the United Nations Population Division for 11 countries in the **Middle East**: Bahrain, Jordan, Yemen, Kuwait, Lebanon, United Arab Emirates, Oman, Saudi Arabia (Asian countries); Egypt, Sudan, Tunisia (North African countries). The research methods were: a comparative analysis, analytical grouping of data, ranking.

Results. A comparative analysis of demographic, economic and social indicators revealed that low mortality rates and high life expectancy in Lebanon were achieved both due to a satisfactory level of health care financing (Rank 5) and due to the adoption of adequate decisions in organizing and managing the Lebanese health care system. The positive trends that were inherent in the Lebanese health care system in previous decades continued to operate within the framework of earlier inertia, while migration flows intensified. However, there has been a slowdown in the decline in infant mortality in the dynamics of growth rates, which is a signal of the emergence of negative processes in the social sphere of the country.

Conclusion. The current situation in the Lebanese health care system, associated with limited financial resources, poses new challenges in the search for managerial decisions in the field of organizational management. The import of drugs from the Russian Federation will provide a significant reduction in the financial costs of providing the population of Lebanon and migrants with medicines which will increase the monetary costs of providing medical care.

Keywords: demographic, economic and social indicators; health care system; medicines

Abbreviations: GDP by PPP – gross domestic product by purchasing power parity per capita; VEM – Vital and essential medicines; CJSC – closed joint stock company; PM-pharmaceutical medicines; MF – medicinal form; INN – International non-patented; OJSC – open joint stock company; UAE – United Arab Emirates; UN – United Nations; LLC – limited liability company; COR – certificate of registration; USA, Beirut-CIP – carriage and insurance paid to Beirut. Freight/transportation and insurance paid to Beirut.

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КОМПАРАТИВНЫЙ АНАЛИЗ РАЗВИТИЯ ЛИВАНА. ПЕРСПЕКТИВЫ СОТРУДНИЧЕСТВА С РОССИЙСКОЙ ФЕДЕРАЦИЕЙ

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Цель: провести компаративный анализ развития Ливана на основе ряда демографических, экономических и социальных показателей, характеризующих здравоохранение Ливана и определить перспективы сотрудничества с Российской Федерацией (РФ) в фармацевтической сфере.

Материалы и методы. Исследования проводились за период с 2009 по 2016 гг. Объектами явились статистические данные, аккумулируемые на основе данных национальных институтов и международных организаций, ежегодно публикуемые в отчетах Департамента по экономическим и социальным вопросам, Отдела народонаселения Организации Объединенных Наций по 11 странам Ближнего Востока: Бахрейн, Иордания, Йемен, Кувейт, Ливан, Объединенные Арабские Эмираты, Оман, Саудовская Аравия (страны Азии); Египет, Судан, Тунис (страны Северной Африки).

Методы исследования: компаративный анализ, аналитическая группировка данных, ранжирование.

Результаты. Компаративный анализ демографических, экономических и социальных показателей выявил, что низкий уровень смертности населения и высокий уровень продолжительности жизни в Ливане достигнуты как вследствие удовлетворительного уровня финансирования здравоохранения (ранг 5), так и вследствие принятия адекватных решений в организации и управлении в системе здравоохранения Ливана. Положительные тенденции, которые были заложены в системе здравоохранения Ливана в предыдущие десятилетия, продолжали действовать в рамках полученной ранее инерции при усилении миграционных потоков. Однако произошло замедление снижения показателей младенческой смертности в динамике темпов роста, что является сигналом возникновения негативных процессов в социальной сфере страны.

Заключение. Сложившаяся ситуация в системе здравоохранения Ливана, связанная с ограниченностью финансовых ресурсов, ставит новые задачи поиска управленческих решений в сфере организационного управления. Импорт лекарственных препаратов (ЛП) из РФ обеспечит существенное снижение финансовых затрат на лекарственное обеспечение населения Ливана и мигрантов, что позволит увеличить денежные затраты на обеспечение медицинской помощи.

Ключевые слова: демографические, экономические и социальные показатели; система здравоохранения; лекарственные препараты

Список сокращений: ВВП ППС – валовой внутренний продукт по паритету покупательной способности на душу населения; ЖНВЛП – жизненно необходимые и важнейшие лекарственные препараты; ЗАО – закрытое акционерное общество; ЛП – лекарственные препараты; ЛФ – лекарственная форма; МНН – международное непатентованное название; ОАО – открытое акционерное общество; ОАЭ – Объединенные Арабские Эмираты; ООН – Организация Объединенных наций; ООО – общество с ограниченной ответственностью; РУ – регистрационное удостоверение; США – Соединенные Штаты Америки; СР Бейрут (carriage and insurance paid to Beirut) – фрахт/перевозка и страхование оплачены до г. Бейрут.

INTRODUCTION

A significant growth in the population of Lebanon, due to the increased flow of refugees from the border country of Syria, since the outbreak of the civil war (March 2011), from 4,145.57 thousand people to 6,071.69 thousand people from 2009 to 2016, had revealed the need to eliminate the lack of knowledge regarding the processes currently occurring in the country's health care, and the trends of its further development.^{1,2,3}

¹ Naufal, Hala. Syrian Refugees in Lebanon: The humanitarian approach under political divisions / Hala Naufal // Migration Policy Centre Research Report. – 2012/13. – URL: <http://www.migrationpolicycentre.eu> (accessed: 2019 Apr 26).

² Rating of countries in the world by population // the United Nations Population Fund (UNFPA). – URL: <http://www.un.org> (date accessed: 2018 Feb 5).

³ National Health Statistics. Report in Lebanon. 2011. – URL: http://habitat3.org/wp-content/uploads/National-Report_LEBANON.pdf (accessed: 2019 Apr 24)

THE AIM of the work is to conduct a comparative analysis of the development of Lebanon on the basis of a number of demographic, economic and social indicators that characterize the health of Lebanon and to determine the prospects for cooperation with the Russian Federation in the pharmaceutical field.

MATERIALS AND METHODS

The research was conducted from 2009 to 2016. The objects were statistical data accumulated on the basis of the data from national institutions and international organizations, published annually in the reports of the Department of economic and social Affairs and the United Nations population Division⁴ for 11 countries in the Mid-

⁴ The Department of economic and social Affairs of the United Nations. – URL: <https://esa.un.org> (date accessed: 2019 Apr 26).

dle East: Bahrain, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia (Asian countries), Egypt, Sudan, Tunisia (North African countries), Yemen. The research methods were: a comparative analysis, analytical grouping of data, ranking.

RESULTS AND DISCUSSION

One of the main demographic indicators is the population size in a certain period of time (Fig. 1).

We found out that for the period of 2009–2016, the average population growth rate (relative to the base year of 2009) in Lebanon was 123.51% (Tab. 1).

Previously, in 2004–2009 (relative to the base year of 2004), they were significantly lower: the average value was 104.73%. The analysis of the population growth rate in Lebanon relative to the previous period showed that the average value in 2009–2016 was 105.61% (Table 2). For comparison, in 2004–2009 it was 101.34%.

Based on the United Nations data of the population, it was found out that among the 11 countries analyzed, the largest population (Rank 1) was in Egypt – 92519.54 thousand people (Table 3). It should be notified that Jordan had a close value to the population in Lebanon in the descending order of the indicator value in 2016 – 7734.38 thousand people (Rank 7). For all the countries analyzed in the region, there was a steady increase in the population, which is typical for the countries of the Middle East.

The interaction between the processes of renewal of new generations and the replacement of one generation by another ensures a continuous reproduction of the population. To characterize the social and demographic well-being of Lebanon and the degree of the development of its public health services, not only the basic and chain growth rates of the population were analyzed, the mortality rates of men, women, and infants separately as the indicators that more objectively reflect the level of development of the country's health care, were also taken into account.

In the analysis of the mortality rates of men and women it was found out that in Lebanon they were the lowest among the analyzed countries in the region, both in absolute and relative values (Rank 1), in the ascending order of the indicator value. The absolute values of mortality rates for men and women in Lebanon by 2016 had decreased simultaneously by 14.78% and 14.23% compared to 2009. The similar dynamics of the negative growth was observed when analyzing the chain growth rates of mortality of men and women during the analyzed period: on average, minus 2.26% and minus 2.17%, respectively.

In Lebanon, the negative dynamics of the chain growth rate of male mortality from 2009 to 2012 was stable, and it was minus 2.84% per year at an average. However, in the period from 2013 to 2016, the opposite

trend was observed: in 2016, relative to 2015, the chain growth rate of male mortality increased from minus 2.84% (2009–2012) to minus 1.00%.

In general, analyzing the basic growth rates of male mortality, it was found out that in all the 11 countries of the Middle East in the period of 2009–2016, the negative dynamics remained: at an average, the values of the basic growth rates of male mortality decreased by 5.28%.

In the Middle East, the mortality rates of women also tended to decrease during the analyzed period. According to this indicator, Lebanon had Rank 1 again. Rank 2 was assigned to the United Arab Emirates, where these indicators were higher than in Lebanon by 8% and 12% in 2009 and 2016, respectively.

An important result of the analysis of the chain growth rates of women's mortality relative to the previous period is the following: as in the chain growth rates of men's mortality, the opposite trend was observed in Lebanon, i.e. the negative vector showed its slowdown. Under these circumstances, in 2016, relative to 2015, the chain growth rate of mortality increased to minus 2.10% (Rank 2) from minus 2.50% in the period of 2009–2012.

It should be notified that in all the analyzed countries, there was a dynamic decrease in women's mortality. The baseline rate of increase in women's mortality was negative at an average (minus 5.82%), which indicates an improvement in women's living conditions and advances in hygiene and health in the Arab countries in general.

Reduction in the children's mortality, including the infant mortality, is one of the main goals of the Millennium Declaration adopted by the UN General Assembly on 08.09.2000. (Resolution No. A / RES/52 / 2)⁵. It was found out that there was a tendency to reduce the infant mortality in the analyzed countries by 12.86%. The rate of its changing was negative at an average. The analysis of the infant mortality showed that Lebanon had Rank 3 after Bahrain and the United Arab Emirates. For example, in Bahrain (Rank 1), the indicator was 7.60 and 5.10 in 2009 and 2016, respectively. In the UAE, the indicator of 7.60 in 2009 decreased to 5.70 in 2016. Lebanon (Rank 3) had the infant mortality rate of 9.20 in 2009 and 7.60 in 2016. Rank 3 of Lebanon in terms of the basic growth rate of the infant mortality reduction, corresponds to the average value for the analyzed period. In 2016, there was a slowdown in the decline in the negative values of the basic growth rate of the infant mortality, lowering the rating of Lebanon to Rank 8. According to the chain growth rate of the indicator, Lebanon also had Rank 8 out of the 11 countries analyzed.

⁵ Millennium Declaration adopted by the UN General Assembly on 08.09.2000 (Resolution No. A / RES/52/2). – URL: <http://www.un.org>. (date accessed: 2019.Apr 26)

Table 1 – Basic growth rates (relative to 2009) of demographic and socio-economic indicators in Lebanon

Year	Total-population	Male mortality	Female mortality	Total mortality per 1,000 adults	Infant mortality per 1,000 live births	Birthrate	Life expectancy	GDP (PPP) per capita	Volume of health care expenditures per capita, Intern. dollar	Volume of expenditures on medicines per capita, Intern. dollar	Share of drugs expenses in the structure of health care expenses, %	Number of doctors per 10,000 population	Number of pharmacists per 10,000 population
2009	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2010	102.75	97.24	97.46	97.33	94.57	102.54	100.26	106.37	101.01	109.70	108.62	110.98	99.23
2011	107.69	94.47	94.93	94.66	90.22	105.92	100.64	104.53	99.67	117.18	117.58	108.11	101.19
2012	114.77	91.71	92.39	91.99	85.87	109.46	100.86	102.71	100.35	124.66	124.24	108.67	102.86
2013	123.16	89.84	90.79	90.23	82.61	112.59	101.09	99.65	95.72	139.12	145.36	111.02	104.81
2014	131.45	87.96	89.21	88.48	79.35	114.98	101.32	96.93	91.15	145.67	159.83	110.71	107.04
2015	138.25	86.08	87.61	86.71	77.17	116.49	101.53	94.09	96.01	152.42	158.77	103.01	102.37
2016	146.47	85.22	85.77	85.44	82.61	125.00	101.66	90.95	99.68	186.60	187.21	98.11	100.77
Average:	123.51	90.36	91.16	90.69	84.63	112.43	101.05	99.32	97.66	139.34	143.09	107.23	102.61

Table 2 – The growth rate of the chain (relative to the previous period) of demographic, socio-economic indicators in Lebanon

Year	Total population	Male mortality	Female mortality	Total mortality per 1,000 adults	Infant mortality per 1,000 live births	Birthrate	Life expectancy	GDP (PPP) per capita	Volume of health care expenditures per capita, Intern. dollar	Volume of expenditures on medicines per capita, Intern. dollar	Share of health care expenses in the structure of health care expenses, %	Number of doctors per 10,000 population	Number of pharmacists per 10,000 population
2009	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2010	102.75	97.24	97.46	97.33	94.57	102.54	100.26	106.37	101.01	109.70	108.62	110.98	99.23
2011	104.81	97.15	97.40	97.25	95.40	103.30	100.38	98.27	98.67	106.82	108.25	97.42	101.97
2012	106.58	97.08	97.33	97.18	95.18	103.34	100.22	98.26	100.68	106.38	105.66	100.52	101.65
2013	107.31	97.96	98.27	98.09	96.20	102.86	100.23	97.02	95.39	111.60	117.00	102.16	101.90
2014	106.74	97.91	98.26	98.06	96.05	102.12	100.23	97.27	95.23	104.71	109.95	99.72	102.13
2015	105.17	97.85	98.21	98.00	97.26	101.32	100.21	97.07	105.33	104.63	99.34	93.05	95.64
2016	105.94	99.00	97.90	98.54	107.04	107.30	100.13	96.66	103.82	122.43	117.91	95.24	98.43
Average:	105.61	97.74	97.83	97.78	97.39	103.25	100.24	98.70	100.02	109.47	109.53	99.87	100.14

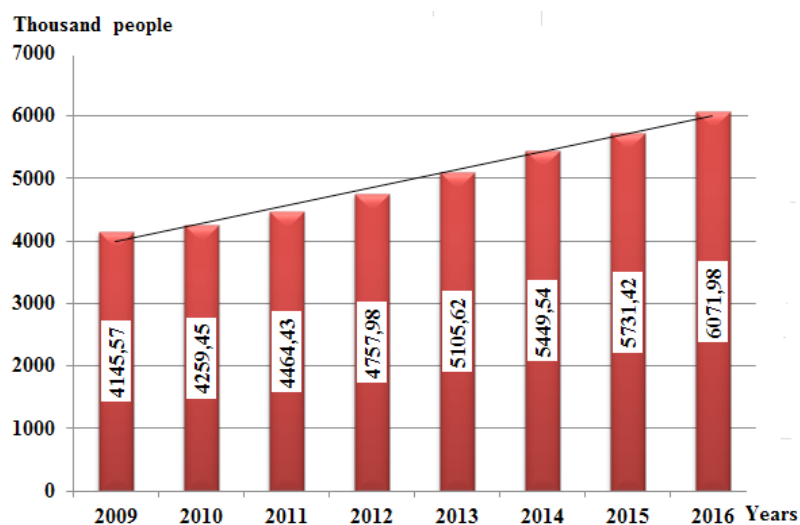


Figure 1 – The total population of Lebanon in 2009-2016, thousand people

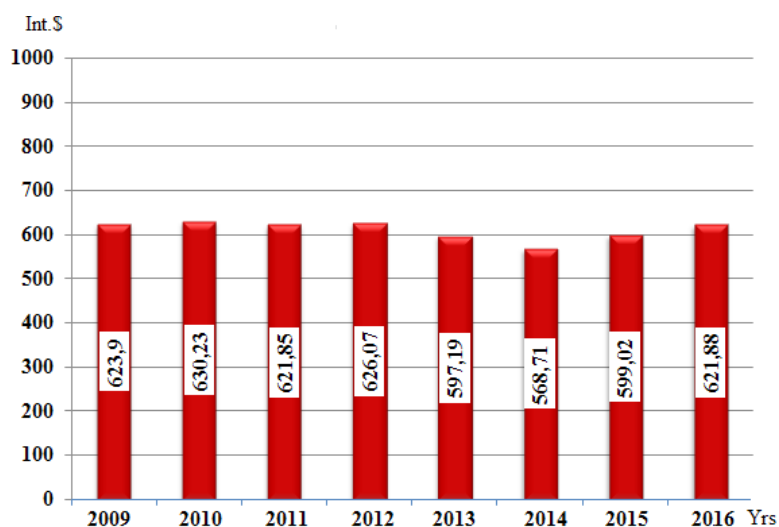


Figure 2 – Financial expenditures on health per capita in Lebanon in 2009–2016

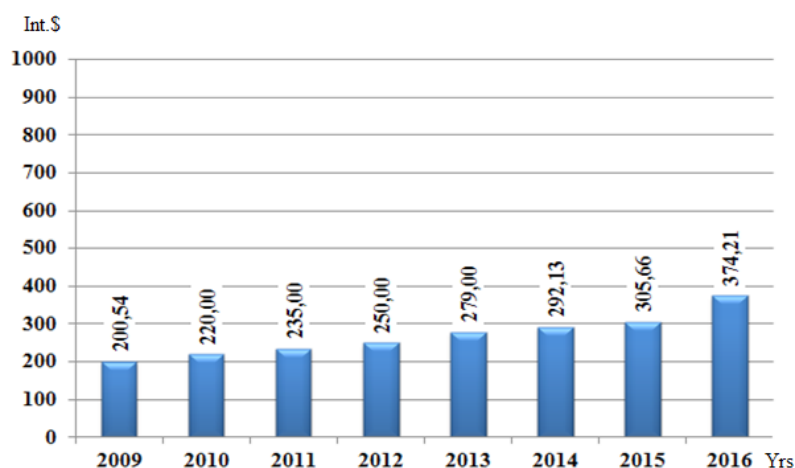


Figure 3 – Per capita expenditures on medicines in Lebanon in 2009–2016, in international dollars

Table 4 – Ranks of socio-economic indicators for the Middle East countries in 2009–2016

Country	Ranks of values						Ranks of base growth rates						Ranks of chain growth rates					
	GDP (PPP), per capita	Health care expenditure, per capita	Expenditure on Medicines, per capita	Share of drugs expenses in the structure of health care expenses,	Number of doctors per 10,000 population	Number of pharmacists per 10,000 population	GDP (PPP), per capita	Health care expenditure, per capita	Expenditure on Medicines, per capita	Share of drugs expenses in the structure of health care expenses, per capita	Number of doctors per 10,000 population	Number of pharmacists per 10,000 population	GDP (PPP), per capita	Health care expenditure, per capita	Expenditure on Medicines, per capita	Share of drugs expenses in the structure of health care expenses, per capita	Number of doctors per 10,000 population	Number of pharmacists per 10,000 population
Lebanon	6	5	5	3	5	3	8	10	1	1	6	11	9	11	1	1	10	11
UAE	2	1	1	1	7	5	5	6	5	4	7	6	4	8	5	4	6	6
Bahrain	5	3	6	4	9	9	4	2	7	10	10	2	3	2	7	10	9	3
Kuwait	1	2	3	10	4	8	9	11	3	2	2	10	8	7	3	2	3	10
Saudi Arabia	3	4	4	6	2	6	1	1	6	11	4	8	1	1	6	11	4	8
Oman	4	6	2	11	6	4	10	4	2	8	9	9	10	4	2	9	7	4
Tunisia	8	8	7	8	8	7	3	5	11	9	3	1	5	9	11	7	2	2
Jordan	9	7	9	7	1	2	6	9	4	3	5	7	7	10	4	3	5	9
Egypt	7	9	8	2	3	1	2	3	10	7	11	4	2	3	10	5	11	7
Yemen	11	11	11	5	10	10	11	7	8	5	8	3	11	6	8	6	8	5
Sudan	10	10	10	9	11	11	7	8	9	6	1	5	6	5	9	8	1	1

Table 3 – Ranks of demographic indicators for the Middle East countries in 2009–2016

Country	The ranks of values						Ranks of base growth rates						Ranks of chain growth rates					
	Total population in 2016	Male mortality	Female mortality	Total mortality per 1,000 adults	Birthrate	Average life expectancy	Total population in 2016	Male mortality	Female mortality	Total mortality per 1,000 adults	Birthrate	Average life expectancy	Total population in 2016	Male mortality	Female mortality	Total mortality per 1,000 adults	Birthrate	Average life expectancy
Lebanon	8	1	1	3	10	1	2	1	1	3	1	5	2	1	1	8	1	6
UAE	6	3	2	2	11	2	4	5	4	5	11	8	4	2	2	4	11	9
Bahrain	11	2	4	1	9	4	6	6	6	11	8	10	6	6	4	1	7	10
Kuwait	10	4	3	4	8	6	3	11	8	6	10	9	3	11	7	3	10	8
Saudi Arabia	3	5	5	7	5	7	8	4	5	9	9	4	8	5	6	10	8	2
Oman	9	8	7.5	5	6	3	1	10	10	11	7	3	1	9.5	9.5	11	9	3
Tunisia	5	7	6	6	7	5	11	2	11	4	3	11	11	3	11	6	3	11
Jordan	7	6	7.5	8	3	8	5	9	10	8	4	7	5	9.5	9.5	7	4	5
Egypt	1	9	9	9	4	9	10	7	2	7	2	6	10	7	3	5	2	7
Yemen	4	10	10	10	2	10	7	8	7	2	6	2	7	8	8	2	6	4
Sudan	2	11	11	11	1	11	9	3	3	10	5	1	9	4	5	9	5	1

The negative dynamics of the chain growth rates of men's and women's mortality since 2013 has slowed down, which is a signal of the presence of negative processes in the social sphere of Lebanon. This signal is also seen in infant mortality rates. The process of a slow decline in infant mortality rates reflected not only on the dynamics of the chain growth relative to the previous period, but also on the dynamics of the basic growth relative to 2009.

In terms of the birth rate, Lebanon experienced an 18.03% growth trend from 2009 to 2016. The base and chain growth rates of this indicator were significant: 25.00% and 3.25%, respectively. Our ranking, calculated in the descending order by birth rate, showed that Lebanon had Rank 10. Bahrain and the United Arab Emirates had similar ranks. It should be notified that, in contrast to Lebanon, the birth rate in these two countries tended to decrease.

When analyzing the basic rate of birth rate growth, it was found out that Lebanon (Rank 1) was the only country among the 11 analyzed countries that had a stable increase in the birth rate of the population: in 2016, compared to 2009, by +25.00%. For example, in Kuwait (Rank 10), it was minus 10.59%; in the United Arab Emirates (Rank 11), it was minus 12.40%. It should be emphasized that the average chain growth rate of fertility was positive only in two countries: Lebanon and Egypt (the average values of 103.25% and 100.34%, respectively).

All the other countries of the analyzed statistics population had negative chain growth rates in the birth rate of the population.

The study found out the following: having low absolute birth rates (Rank 10), Lebanon had Rank 1 in terms of basic and chain growth rates, which indicates the absence of a birth control policy. On the whole, the analyzed countries showed a general decline in the rate of birth rate growth. In terms of life expectancy, Lebanon had Rank 1, with an average life expectancy of 79.02 years in the analyzed period. For example, in the UAE it was 77.07 years (Rank 2). Life expectancy in Lebanon increased by 1.4 years from 78.30 years in 2009 up to 79.60 years in 2016, while in the UAE, this figure increased by less than 1 year.

Therefore, an analysis of the economic indicators has also been carried out. In particular, the gross domestic product by purchasing power parity per capita (GDP PPP) was considered⁶. It should be notified that this indicator has a multidirectional character in different countries. In most countries, the dynamics were positive. From 2009 to 2016, the negative dynamics were observed annually in only four countries: Leba-

non, Kuwait, Oman and Yemen. The average decline was 17.36%. At the same time, in Oman, Kuwait and Yemen in 2016 compared to 2014 and 2015, there was stabilization in the decline of this indicator, while in Lebanon the slowdown in the growth rate of this indicator increased (Table 1). Thus, while in 2013 and 2014 the indicator of basic growth rates decreased by 0.35% and 3.07%, in 2015 and 2016 it decreased by 5.91% and 9.05%, respectively. A more complex situation in the dynamics of chain growth rates (Rank 9, Table 4) should be highlighted. While in 2013–2015, the GDP PPP indicator was relatively stable at minus 2.93% in Lebanon, in 2016 there was a decrease of 0.41% compared to 2015 and it amounted to minus 3.34%. The analysis of GDP PPP dynamics in 2009–2016, revealed the existence of problems in the economy of Lebanon, and their impact on the development of the health care system was considered on this basis. An important condition that determines a positive demographic situation is the development of the health sector in the country and training of specialists in the fields of medicine and pharmacy. An analysis of financial expenditure on health showed that in Lebanon, it had increased by 45.99% between 2009 and 2016.

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It should be notified that the volume of health care expenditures per capita did not undergo any significant changes in 2016 compared to 2009 due to an increase in the population by 46.47% (Fig. 2).

A comparative analysis of per capita health expenditures showed that Lebanon had Rank 5 (Tab.4). The volume of expenditures, while decreasing in 2013–2015, stabilized in 2016, slightly decreasing by 0.32% compared to 2009. The basic growth rate of health financing was stagnant (Rank 10). It is important to increase the volume of the expenditures on medicines per capita during the analyzed period (Fig. 3).

When analyzing the structure of the expenditures in the health sector in Lebanon, significant changes were found out: the share of expenditures on health care increased from 32.14% in 2009 to 60.17% in 2016, thereby reducing the expenditures on general health items.

⁶ Global ranking of countries and territories of the world in terms of gross domestic product // Information and analytical portal "Humanitarian technologies and human development. URL: <http://gtmarket.ru> (date accessed: 2019 Apr 24).

The conducted correlation analysis between this indicator and male, female and infant mortalities revealed a correlation, which, at first glance, is a contradictory situation: the decrease in health care funding had a positive impact on the reduction of male, female and infant mortalities: the correlation coefficient was 0.930.

However, at the stage of analyzing the chain growth rates of male, female and infant mortalities, there was no correlation: the correlation coefficient was minus 0.078. Accordingly, the inconsistency of the situation is explained by the difference in the rate of decline of the correlated parameters. The mechanism for reducing male, female and infant mortalities is more conservative, and the positive trends that had been laid down in the Lebanese health system in previous decades, continued to operate within the framework of the previously received inertia with reduced funding. The situation in which the chain growth rates in terms of mortality rates no longer correlated with funding indicators clearly showed a slowdown in the decline in mortality rates among the analyzed groups of the Lebanese population.

Further on, the hypothesis on the possibility of finding additional financial resources in the health care system by optimizing current expenses through the purchase of inexpensive medicines in the new for Lebanon dynamically developing pharmaceutical market of the Russian Federation was tested by the authors [7]. The imports of goods from the Pharmaceutical products group to Lebanon from the Russian Federation during the period of December 2017 – October 2018 amounted to 1.1 million US dollars, with a total weight of 14.6 tons.

The mainly imported products were the following: “human blood”; “animal blood”; “immune serums” (91%) and “Pharmaceutical products mentioned in Note 4 to this group” (9%), which include chemical contraceptives based on hormones, other compounds of the heading “Hormones, prostaglandins, thromboxane and leukotrienes, natural or synthesized; their derivatives and structural analogues, including chain modified polypeptides used mainly as hormones” or spermicides; contrast agents for x-ray examinations; diagnostic reagents intended for introduction to patients, and others.

In the structure of the exports of goods from the group “Pharmaceutical products” from the Russian Federation, Ukraine and Kazakhstan occupy the 1st (16%) and the 2nd (16%) places. Lebanon is Russia’s partner number 42 with a 0.2% share of all MP supplies.

The cooperation between the Russian Federation and Lebanon has a significant potential [8–10]. The implementation of joint projects in the pharmaceutical industry and trade will expand the cooperation between the countries [11–19]. The interest of the Russian Federation in the export of the MP according to Strategy of

the Pharmaceutical Provision of the Population of the Russian Federation for the Period Until 2025 is the key to this mutually beneficial cooperation and expanding economic ties between Russia and Lebanon.

To study the economic feasibility of introducing a mechanism for purchasing medicines from the Russian Federation, wholesale prices according to the reference and analytical publication of “Farm index” (for medical and pharmaceutical specialists) in the segment of vital and essential drugs were considered. The analysis was performed for 31 international non-proprietary names produced in the Russian Federation from Russian substances and imported by Lebanon from other countries. The comparative analysis of wholesale prices was based on the calculation of the cost of 1 gram of MPs under the terms of delivery of CIP Beirut (carriage and insurance paid to Beirut). The terms of delivery included: cargo packing, customs clearance, delivery to the port of loading, loading on the ship, sea transportation, unloading from the ship in the port of Beirut, delivery to the destination, insurance.

For a better visual representation, the VEDs nomenclature was presented in the form of 4 quartiles, depending on the price ratio (Lebanon/Russia): quartile I – 7.6–10.0 and higher ranked quartiles; quartile II – 5.1–7.5; quartile III – 2.6–5.0; quartile IV – 2.5 and lower ranked quartiles. The carried out ranking showed that at the time of the study, the current prices of Lebanon for all positions exceeded the book prices of the Russian Federation. The following was established: the highest rank, No. 1, when the ratio of prices amounted to 11, 21, was appointed to Olanzapine, 10 mg film-coated tablets (according to the Russian Commodity Nomenclature it is Olanzapine-TL, in Lebanon it is Zyprexa).

The lowest rank was 31, wherein the minimum ratio of the price index was 1.13. It was represented by Gemcitabine, 200 mg, in the form of lyophilisate for preparation of infusion solutions (according to the Russian Commodity Nomenclature it is Gemzar®, in Lebanon it is Gemcitabine™).

A comparative analysis of the prices revealed that the MPs purchased in Lebanon in this segment, have an average of 4.54 times the price of MPs with the corresponding international non-proprietary name in the Russian Federation, taking into account the delivery to the port of Beirut.

At the same time, the calculations showed a high economic efficiency of importing 35.48% (11 nomenclature items) of medicinal products that had been included in quartiles I and II, from the Russian Federation, which showed the possibility of improving the drug supply in Lebanon by reducing the financial costs of purchasing medicinal products at the country level (Tab. 5).

Table 5 – Ranking of the ratio of wholesale prices for VEDs in the Russian Federation and Lebanon based on the cost of 1 gram of Medicines on the terms of CIP delivery to Beirut

RANK	INN	Trade name in Lebanon	Trade name in the Russian Federation	Manufacturer in Russia	Type of Dosage form	Dosage	Price ratio (Lebanon/ Russia)
Quartile I							
1.	Olanzapine	Zyprexa™	Olanzapine-TL	“Drugs technology”, Rabochaya St., Himki, Moscow region	Film-coated tablets	10 mg	11.21
2.	Ceftriaxone	Ceftriaxone Panpharma®	Ceftriaxon – AKOS	“Sintez Pharmaceuticals”, Kurgan	Powder for solution preparation for I.M. and I.V. administration	1g	9.88
3.	Olanzapine	Zyprexa™	Olanzapine-TL	“Drugs technology”, Himki, Moscow region	Film-coated tablets	5 mg	9.22
4.	Ceftriaxone	Ceftriaxon Labatec®	Ceftriaxon – AKOS	“Sintez Pharmaceuticals”, Kurgan	Powder for solution preparation for I.M. and I.V. administration	2 g	8.98
5.	Levofloxacin	Levofloxacin Hameln	Leflobact	“Sintez Pharmaceuticals”, Kurgan	Infusion solutions	5 mg/ml	8.63
			Levofloxabol	“Abolmed” Company, Novosibirsk			
			Levofloxacin	JSC “Kraspharma” , Krasnoyarsk			
Quartile II							
6.	Bortezomib	Velcade®	Boramilan	“Nativa”, vil. Petrovo-Dal'neye, Moscow region 143422	Lyophilized for lyophilisate for preparation of I.V. and subcutaneous infusion solutions	3.5 mg	7.34
7.	Simvastatin	Simvastatin-Remedica®	Simvastatin	Valenta Pharm, Shchelkovo	Film-coated tablets	40 mg	7.23
			Simvastatin- SZ	“Severnaya Zvezda” CJSC, Vsevolozhsky district, the town of Kuzmolovsky, Leningrad region,			
			Simvastatin	“Ozon”, Zhigulevsk (holder of reg. / UD. LLC «Atoll»)			
8.	Cefotaxime	Panpharma®	Cefotaxime	“Sintez Pharmaceuticals”, Kurgan	Powder for solution preparation for I.M. and I.V. administration	1 g	7.05
			CEFOTAXIME	DEKO Company LLC, Tver region, p. Zelenogorsk			
			Cefabol	Company «Abolmed», Novosibirsk			
			Cefotaxime	CJSC «Pharmaceutical company «LECCO», The Vladimir region, p. Volejnsk			

RANK	INN	Trade name in Lebanon	Trade name in the Russian Federation	Manufacturer in Russia	Type of Dosage form	Dosage	Price ratio (Lebanon/Russia)
9.	Gentamicin	Gentamicine Panpharma®	Gentamycine	JSC "MosChimPharmPreparaty" n.a. N.A. Semashko», Moscow "Atompharm", Vashutinsk highway, Himki, Moscow region Russia	Solutions for for I.M. and I.V. administration	40 mg/ml	6.11
10.	Metronidazole	Metronidazole*	Metronidazole – AKOS Metronidal Metronidazole	"Sintez Pharmaceuticals", Kurgan «Abolmed» Company, Novosibirsk "Dalkhimpharm", 22, Tashkent St, Khabarovsk,	Solution for infusions	5 mg/ml	5.49
11.	Cefazolin	Cefazolin Inj.	Cefazoline	Sintez Pharmaceuticals, Kurgan "Redkinsky Experimental Plant", Zavodskaya St., vil. Redkino, Tver region., "DEKO Company" LLC, Vil. Zelenogorsky, Tver region. "Biochimic", Saransk	Powder for preparation of solution for intravenous and intramuscular administration	1 g	5.20
Quartile III							
12.	Vancomycin	Vancomycin Hikma®	Vancorus	"Sintez Pharmaceuticals", Kurgan	Lyophilisate for preparation of solutions for infusions and oral administration	500 mg	4.98
13.	Vancomycin	Vancomycin Hikma®	Vancorus	"Sintez Pharmaceuticals", Kurgan	Lyophilisate for preparation of solutions for infusions and oral administration	1000 mg	4.50
14.	Tamoxifen	Tamoxifen Ebewe	Tamoxifen Tamoxifen citrate	"Ozon pharmaceutical", Zhigulevsk JSC "Obolenskoe – the pharmaceutical enterprise"	Tablets	10 mg	4.09
15.	Cefepime	Cefepime Panpharma®	Maxicef	"Prebend Production and Pharmaceutical company", Novosibirsk	Powder for preparation of solution for I.M. and I.V. administration	1 g	4.02
16,5.	Tamoxifen	Tamoxifen Ebewe	Tamoxifen	"Ozon pharmaceuticals", Zhigulevsk	Tablets	20 mg	3.25

RANK	INN	Trade name in Lebanon	Trade name in the Russian Federation	Manufacturer in Russia	Type of Dosage form	Dosage	Price ratio (Lebanon/ Russia)
16.5.	Ketolac	ketolac®	Ketorolac	FSUE SPC "Parmzashchita" FMBA of Russia, Khimki	Powder for preparation of solutions for I.M. and I.V. administration	30 mg/ml	3.25
				"Ozon Pharmaceuticals"- Himki, Russia			
				"Ellara", Pokrov			
				JSC «Biosynthesis», Penza			
				JSC "MosChimPharmPreparaty" n.a. N.A. Semashko», Moscow			
			Dolomine	JSC "Kurgan Joint-Stock company of medical preparations and products "Sintez", Kurgan			
				CJSC «FarmFirma "Sotex", Moscow region, vil. Belikovo			
				KETALGIN JSC "Pharmstandard-Ufa VITA", Ufa			
18.	Paroxetin	Apo-Paroxetine®	Adepress	OJSC "Veropharm", Belgorod	Film-coated tablets	20 mg	2.90
19.	Clarithromycin	Klacid RM®	Arvicin	JSC "Obolenskoye", Obolensk, Moscow region,	Film-coated tablets	500 mg	2.84
			Clarithromycin	"Ozon pharmaceuticals", Zhigulevsk			
			Ecozitrin	JSC, Avva Rus, Kirov			
20.	Acetylsalicylic acid	Aspirin Protect	Aspinat	JSC "Valenta Pharm", Shchelkovo	Tablets	100 mg	2.80
			Aspicor	JSC "VERTEX", St Petersburg			
			Sanovasc	JSC "Irbis Chemical and Pharmaceutical Plant", Irbis			
Quartile IV							
21.	Topiramate	Topamax®	Topiramate TL	LLC "Technology of Medicines", Himki	Film-coated tablets	100 mg	2.52
22.	Ketorolac	ketolac®	Ketolorac	JSC "TatChemPharmPreparaty" Kazan	Film-coated tablets	10 mg	2.42
				JSC "Vertex", St Petersburg			
				"Sintez Pharmaceuticals", Kurgan			
				JSC "PFC "Update", Novosibirsk			
				Ketalgin OJSC "Pharmstandard-Leksredstva", Kursk			
			Ketorolac-OBL "Obolenskoye", vil. Obolensk, Moscow region				

RANK	INN	Trade name in Lebanon	Trade name in the Russian Federation	Manufacturer in Russia	Type of Dosage form	Dosage	Price ratio (Lebanon/Russia)
23.	Irinotecan	Irinotecan Ebewe	Irinotecan	JSC "BIOCAD", vil. Petrovo-Dal'neye	Concentrate for preparation of infusion solutions	20 mg/ml	2.03
24.	Leflunomide	Arava®	Ralef Leflaid	OOO "Evofarm", vil. Obolensk LLC "Technology of medicines", Himki	Film-coated tablets	20 mg	1.96
25.	Cefuroxime	Cefuroxime – Panpharma®	Cefurus	"Sintez Pharmaceuticals", Kurgan	Powder for preparation of solution for I.M. and I.V. administration	1500 mg	1.68
26.						750 mg	1.63
27.	Topiramate	Topamax 25®	Topimate TL	LLC "Technology of medicines", Himki	Film-coated tablets	25 mg	1.58
28.	Acetylsalicylic acid	Aspirine	Aspinat 300	JSC "Valenta Pharmaceuticals", Shchelkovo	Tablets coated with an intestinal-soluble coating	300 mg	1.53
29.	Simvastatin	Simvastatin-Remedica®	Ovenkor Simvastatin SZ Simvastatin	"Ozon pharmaceuticals", Zhigulevsk "Severnaya Zvezda" CJSC, vil. Kuzmolovsky, Vsevolozhsky district, Leningrad region JSC "Valenta Pharmaceuticals", Shchelkovo CJSC «ALSI Pharma», Kirov JSC "Vertex", St Petersburg JSC "AVVA RUS", Kirov	Film-coated tablets	20 mg	1.36
30.	Allopurinol	Apo-Allopurinol®	Allopurinol	JSC "Organica", Novokuznetsk	Tablets	100 mg	1.27
31.	Gemcitabine	Gemcitabine®	Gemcitare	JSC "BIOCAD", Vil. Petrovo-Dal'neye	Lyophilisate for preparation of infusion solutions	200 mg	1.13
				Average 4,54			

CONCLUSION

A correlation analysis of demographic and economic indicators in Lebanon, revealed a satisfactory level of health financing (Rank 5) and making adequate decisions in the organization and management of the Lebanese health system which resulted in the low mortality rate and a high life expectancy. The positive trends that had been laid down in the Lebanese health system in previous decades continued to operate within the framework of the inertia received before, with reduced funding. It should be emphasized that the number of doctors and pharmaceutical specialists (on average 21.50 and 14.67 per 10,000 population, respectively) is fairly stable in Lebanon, which ensures the effectiveness and sustainability of the health system, especially in times of crises and wars.

However, due to the limited financial resources of the country, the current situation in the health care system poses new challenges in finding management solutions in the field of organizational management. One of them is to optimize current expenses by purchasing low-cost medicines in new and dynamically developing pharmaceutical markets in Lebanon. Import of medicinal products from the Russian Federation will significantly reduce the cost of medical CARE for the population of Lebanon and migrants from the neighboring countries, which will increase the costs of providing medical care to the population.

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AUTHOR'S CONTRIBUTION

El Moussawi MAEH – collection and processing of the materials, statistical data processing, text writing; Mironenkova Zh.V. – statistical data processing, text writing, editing; Umarov S.Z. – a research concept and design, editing; Knysh O.I. – a research concept and design, editing; Nemyatykh O.D. – text writing, editing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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