

**MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY
faculty for foreign citizens' education
department of organization and economy of pharmacy**

QUALIFICATION WORK

on the topic: « **A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world** »

Prepared by: higher education graduate of group

ΦМ18 (5,0д) eng -08

specialty 226 Pharmacy, industrial pharmacy

educational program Pharmacy

Aya EL MENEBBEHY

Supervisor: associate professor of higher education institution of department of organization and economy of pharmacy, PhD,

associate professor Viktoriia MISHCHENKO

Reviewer: associate professor of higher education institution of department of pharmaceutical management and marketing, PhD,

associate professor Svitlana ZHADKO

ANNOTATION

The qualification work is devoted to the study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world. The main directions of development of modern pharmaceutical care in Morocco are analyzed: modern pharmacies and shops "Parapharmacy", pharmaceutical production, distribution.

The work is laid out on 46 pages of printed text and consists of an introduction, three sections, general conclusions, a list of used sources and appendices. The work is illustrated with 10 figures, 10 tables, contains 51 literary sources.

Key words: pharmaceutical care, pharmacist; pharmaceutical production; pharmacy, Morocco

АНОТАЦІЯ

Кваліфікаційна робота присвячена дослідженням принципів організації фармацевтичної опіки в Марокко та країнах світу. Проаналізовано головні напрямки розвитку сучасної фармацевтичної опіки в Марокко: сучасні аптеки та магазини «Парафармація», фармацевтичне виробництво, дистрибуція.

Робота викладена на 46 сторінках друкованого тексту і складається зі вступу, трьох розділів, загальних висновків, списку використаних джерел, додатків. Робота ілюстрована 10 рисунками, 10 таблиць, містить 51 джерело літератури.

Ключові слова: фармацевтична опіка, фармацевт, виробництво ліків, аптека, Марокко

CONTENT

INTRODUCTION	5
PART 1.OVERVIEW OF THE STATE OF ECONOMIC ACTIVITIES OF THE KINGDOM OF MOROCCO.....	8
1.1 Terminological definition of pharmaceutical care.....	8
1.2 Features of the organization of pharmaceutical care in different countries of the world.....	11
1.3 Morocco Economy - Leading Industries, Gross Domestic Product.....	14
PART 2. MOROCCAN PHARMACEUTICAL AND HEALTHCARE SECTOR STUDY.....	18
2.1 Overview of the development of the pharmaceutical industry in Morocco...	18
2.2 Review of developments in the training of doctors and pharmacists in Morocco.....	22
2.3 Characteristics of pharmacies in Morocco and pharmaceutical manufacturing	28
Conclusions of part 2	30
PART 3. ANALYSIS OF THE CONDITIONS OF THE MODERN OF PHARMACEUTICAL BUSINESS OF MOROCCO	31
3.1 Features and prospects of opening a pharmaceutical company in Morocco according to the global project "Doing Business"	31
3.2 Analysis of legislative acts regulating the production, sale and control of pharmaceutical products in Morocco	35
3.3. The Parapharmacy shops in Morocco.....	39
Conclusions to the part 3.....	43
CONCLUSIONS.....	44
REFERENCES	47
APPENDICES.....	55

LIST OF ABBREVIATIONS

AMU – Arab Maghreb Union

ASCP – American Society of Consultant Pharmacists

CCASG – Cooperation Council for the Arab States of the Gulf

FAIMER – Foundation for the Development of International Medical Education and Research

FIP – International Pharmaceutical Federation

FM –pharmaceutical market

GDP – Gross Domestic Product

LNCM – Laboratory for the Control of Medicines

PCNE – Pharmaceutical Care Network Europe

PhC – pharmaceutical care

thous. – thousand

TM – trademark

WFME – World Federation for Medical Education

WHO – World Health Organization

INTRODUCTION

Since the introduction of pharmaceutical care (PhC) concept by Helper and Strand in 1990, community pharmacists worldwide have been realigning their roles from being product-focused to patient-orientated to improve patient's quality of life.

Providing PhC to pediatric and geriatric patients requires a scientific approach that forces every pharmacist to use all aspects of their pharmaceutical education.

Morocco has adopted a system of compulsory health insurance, which has led to the growth and development of the pharmaceutical market. In 2013-2014 The growth of Moroccan pharmaceutical products amounted to 6%, but, unfortunately, from 2015 to 2018, its decline was established. At that time, growth was only 2.2%.

PhC of Morocco that need improvement included collaboration with patients' other health care providers; more proactive management of patient's medicine regimen; having proper patient monitoring and follow-up mechanisms, and documentation.

Morocco is a new player in the global pharmaceutical market, despite the fact that its local industry has a long tradition. A stable political structure and its central location in the Mediterranean region, connecting Sub-Saharan Africa, the Middle East and Europe, could help Morocco achieve further consolidation of the pharmaceutical, health sectors in the coming years and PhC in the kingdom. The country is part of the Arab Maghreb Union (AMU), which also includes Algeria, Tunisia, Mauritania and Libya. Currently 6 pharmaceutical sales represent approx. 1.47 % of Morocco's GDP and 24.4 % of the total health expenditure of the African countries.

Specialized knowledge and skills in pharmaceuticals, pharmacokinetics, therapeutics, drug information, drug safety practices and communication are required to work as an active member of the PhC team. It also requires the ability to navigate the literature and make therapeutic judgments in the absence of data.

The issue of the principles of organizing PhC in Morocco was considered in the publications of such scientists and researchers as A.S. Nemchenko, V.I. Mishchenko, O.V. Vinnik, A.M. Lebedin, Z.M. Mnushko and others, and are also widely discussed at specialized conferences, congresses and seminars.

The **aim** of this work is to analyze the conditions of the modern PhC of the of Morocco. Historical aspects of development, cultural traditions of the country and economic problems have been studied. The factors decreasing the economic development of the country have been analyzed; they are a low level of drug consumption per capita, as well as a shortage of medical and PhC in rural areas.

Materials and methods. The materials were the laws and regulations of Morocco; information resources on the development of medical and PhC in the country; data on maternal and child health in the Morocco; the analysis indicators for the “Doing Business” international project, government health site. Such methods as: historical, retrospective, content analysis, comparison, analytical, logical, and economic-statistical were used in the studies.

To achieve this **goal**, the following tasks are defined:

- overview of the state of economic activities of the Kingdom of Morocco;
- features of the organization of pharmaceutical care in different countries of the world and Morocco;
- Moroccans pharmaceutical and healthcare sector study;
- pharmaceutical manufacturing and the characteristics of pharmacies in Morocco;
- characteristics of pharmacies in Morocco and pharmaceutical manufacturing.

Objects of research is scientific: literature, companies report, data of conferences, seminars and workshops for development of pharmaceutical care, Internet sources, web-sites companies.

The subject of research is the organization of approaches to the provision of pharmaceutical assistance to the Moroccans population.

Research methods. The qualification work uses methods of desk marketing research: analysis of documents, comparative and descriptive method, content-analysis, a case study.

The practical significance of the results. The research results are of great importance for pharmaceutical companies in improving the MRs' work in the condition of digital marketing development.

Approbation of research results and publication.

Review of developments in the training of doctors and pharmacists in Morocco / A. S Nemchenko., V. I Mishchenko., Y. Y. Kurylenko, El Menebbehi Aya. *Формування Національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики: матер. VI Всеукр. наук.-практ. конф., м. Харків, 14-15 березня 2023 р. / ред. кол.: А.С. Немченко та ін. – Х. : Вид-во НФаУ, 2023. – 63-70 с. [38].*

Structure and volume of qualification work. The work is presented on 46 pages of printed text and consists of an introduction, three sections, general conclusions, a list of references and appendices.

PART 1.OVERVIEW OF THE STATE OF ECONOMIC ACTIVITIES OF THE KINGDOM OF MOROCCO

1.1 Terminological definition of pharmaceutical care

The basic principles of modern pharmaceutical care (PhC) were formulated in 1989 by American scientists Helper K.D. and Strand L.M. The main goal of PhC is to ensure the reliability of drug therapy in order to achieve a certain result, which would improve the patient's quality of life (Fig. 1.1) [20, 21].

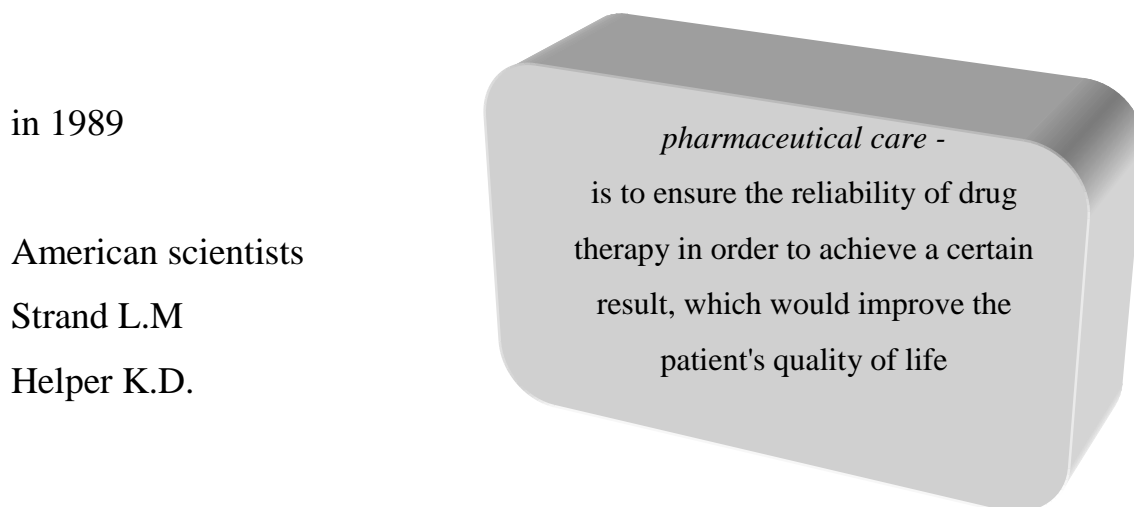


Fig. 1.1. Global Principles of Modern Pharmaceutical Care

Twenty-three years after Helper and Strand published their well-known definition of PhC, confusion remains about what the term includes and how to differentiate it from other terms. The board of the Pharmaceutical Care Network Europe (PCNE) felt the need to redefine PhC and to answer the question: “What is Pharmaceutical Care?” [20, 21].

PCNE is one of leading research groups on quality of services. The working group of PCNE conducted the extensive investigation of provision of pharmaceutical services in two large multinational studies in Europe in 2006 (Hughes, 2010) and 2012/2013 (Costa, 2017). The results showed that implementation of pharmaceutical care in Europe varies between countries, and

efforts are needed to minimize difference between developed and developing countries in the future. In the 2013 PCNE researchers reviewed all published definitions of pharmaceutical care and redefined the core term stating that “Pharmaceutical Care is the pharmacist's contribution to the care of individuals in order to optimize medicines use and improve health outcomes” (Allermann, 2014) [50].

Pharmaceutical Care - is the pharmacist's contribution to the care of individuals in order to optimize medicines use and improve health

At the global level, the World Health Organization (WHO) in every possible way contributes to the development of this direction. Pharmaceutical assistance in all countries is characterized as progress towards civilized trends. Each country uses its own model of PhC, taking into account national specifics. WHO contributes to the development of this area, plays an important role in shaping the basic principles of PhC [20, 21].

Helper K.D. and Strand L.M. noted that the professional knowledge and skills of pharmacists should contribute to ensuring the availability of medicines and their appropriate use. In this regard, scientists have proposed a new concept of pharmacy care, focused primarily on a comprehensive solution to the problems of optimizing drug supply and developing the pharmacy service. PhC is gradually being integrated into the medical care and healthcare system as specialized care at the pharmacy level [20, 21].

PhC is a philosophy of practice in which the patient is the primary beneficiary of the pharmacist's actions. Pharmaceutical health care providers are members of the health care team focused on the core value of human life. Through drug management, they promote adequate drug use and limit unintended harm caused by drugs. PhC, which can be defined as the digital delivery of responsible pharmaceutical care with the aim of achieving outcomes that positively affect the patient's quality of life. Optimal PhC is supported by a personal health record, i.e.

an electronic application that can help a patient or patient representative store and manage all patient health-related data in a confidential and secure environment. The chapter also discusses the principles of treatment adherence and possible approaches to address non-adherence [23].

In modern conditions, the problem of improving PhC can be solved in two directions, which are shown in the fig. 1.2.

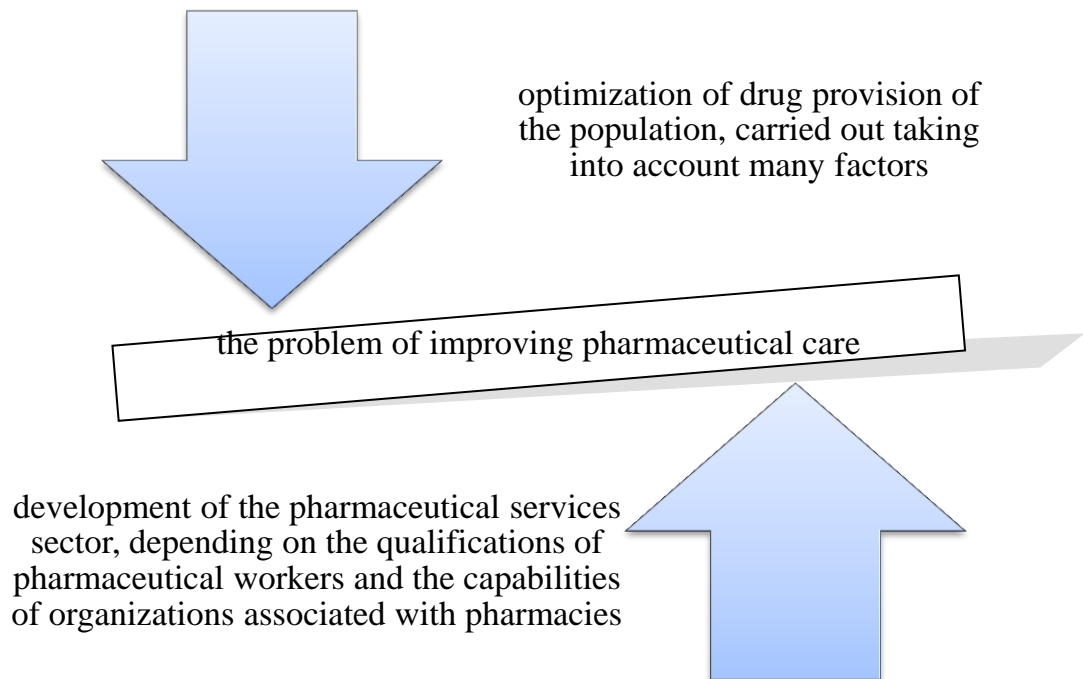


Fig. 1.2. The main directions for improving PhC

Currently, the new professional roles of pharmacists require new professional standards that define the quality and safety of pharmacists. WHO and FIP have developed and published international guidelines for improving the quality of pharmacy services. Over the past four decades, the pharmaceutical care philosophy and good pharmacy practice standards have continually expanded and expanded to provide a wide range of national professional standards (Australia, Canada, US and UK). International initiatives to evaluate pharmacy services provide data on the distribution of services and quality measurement tools (EDQM Quality Metrics Project, PCNE studies) [20, 21].

1.2 Features of the organization of pharmaceutical care in different countries of the world

It should be noted that today there is no single definition of the term “Pharmaceutical Care”. Each country has its own understanding of PhC [17].

In the United States, consultant pharmacists do most of the consulting work. In addition to their core business, they also provide their professional services to medical institutions, institutions for the care of the elderly and people with disabilities. The pharmacist independently chooses the place of his work: medical institutions of any profile, an agreement in a pharmacy or other organization providing pharmaceutical services. A pharmacist in the country has the opportunity to work individually. A family pharmacist can serve individuals and their families, advise and monitor treatment, and provide advice on disease prevention and healthy living. There is a "Home Care Pharmacy" in the United States. These pharmacies employ several pharmacists who provide the following services:

- caring for patients in both outpatient and inpatient settings,
- deliver medicines to your home [8, 9, 10].

Specialists have access to medical history, which prevents duplication of similar drugs and interactions between them. A clinical pharmacist in the United States puts a second signature on a doctor's prescription, because without his signature, the prescription is considered invalid, and both specialists are legally liable [28].

In the Great Britain, a project has been developed - "Pharmacy of the new century - "Pharmacy 2020"", which focuses on the role of pharmaceutical workers as clinicians. The project program includes the following methods:

- weight loss,
- prevention of drug addiction,
- help in the fight against smoking and overweight

- Long-term programs for improving the quality of life and health of the population are being developed [28].

A feature of the organization of pharmacy care in the country is the rules for storing medicines at home. British engineers, together with pharmaceutical workers, have developed a special container («child-proof container»), in which you can store a certain amount of medicines that are inaccessible to children. Pharmacies also have special equipment for the disposal of unused drugs brought by patients [27. 28].

In France, a feature of the organization of pharmaceutical care is the availability of compulsory health insurance, supported by private health insurance services. According to the report “The Global Use of Medicines 2022. Outlook to 2026” by the analytical company "IMS Health", in terms of drug consumption per capita, France occupies a middle position among the top EU-5 countries. Developed countries – those with upper middle or high incomes – are expected to grow from 2–5 % through 2026, similar by comparison to the past five years [44]. About 97% of French people self-medicate. All these factors make pharmacists particularly responsible for advising patients when dispensing drugs [28].

In Scotland, the specifics of the implementation of pharmaceutical care are to provide assistance to the elderly at home. One of the tasks of the NHS and the Scottish Government today is to develop a national educational framework to train pharmacists in this job. Pharmaceutical workers need to know the specifics of caring for a certain category of people.

Latvian pharmacies are rapidly developing additional services for customers:

- pressure measurement,
- cholesterol and blood sugar levels;
- since 2009, collection points for expired medicines have been organized;
- pharmacies open doctor's offices, who have full information about the availability of drugs in the pharmacy, which speeds up and facilitates the patient's treatment process.

In South Africa, the specifics of the organization of the PhC include the developed standards for pharmacists, which provide for the following functions and responsibilities:

- establishing the reason for contacting the pharmacy;
- providing information on the correct and safe use of medicines and medical devices;
- analysis of the patient's medical history;
- recommendations for referring the patient to other specialists (if necessary);
- identification of symptoms and signs of disease in a patient;
- drawing up an appropriate treatment plan together with the patient;
- participation in the education and training of the population and medical workers on issues of assistance not only to humans, but also to animals;
- promotion of the rational use of medicines and a healthy lifestyle [37].

In Ukraine, PhC is a comprehensive program of interaction between a pharmacist and a patient, a pharmacist and a doctor throughout the entire period of drug therapy, from the moment the drug is dispensed to the complete end of its action. In this case, the pharmacist assumes responsibility to a particular patient for the result of treatment with the recommended medicine [2, 9, 10, 11].

The Ministry of Health of Ukraine, together with the State Enterprise "State Expert Center of the Ministry of Health of Ukraine" and the National University of Pharmacy, have updated the protocols of the pharmacist when taking medicines from pharmacies and their structural divisions. Order of the Ministry of Health of Ukraine dated 05.01.2022 № 7 "On approval of protocols for pharmacists" approved 36 protocols for pharmacists to provide pharmaceutical assistance [15]. Today they are the main source of information for pharmaceutical professionals.

1.3 Morocco Economy - Leading Industries, Gross Domestic Product

Today Morocco is an agrarian country with a well-developed industry. In recent years, this country has become one of the most developed countries in Africa. Gross domestic product (GDP) in 2000 amounted to more than 112 billion dollars. Since the early 2000s, the country has seen an annual GDP growth of at most 5.5%, while inflation does not exceed 2,5 % [19].

There is unemployment in Morocco, which covers more than 22% of the working population. The problem is not the lack of graduates, but the outdated system of clan-family ties, as a result of which vacancies are provided not to worthy candidates, but to relatives who, most often, do not have the necessary competence. As a result, more and younger professionals are gradually leaving Morocco, hindering the development of the country [2, 8].

Most of the GDP is formed by the service sector, which brings about 52 % of the profit. About 33 % is accounted for by industry and about 15 % by agriculture (cereals, legumes, sugar beets). About 44% of the local population is employed in agriculture. (Fig. 1.3) [2, 8].

The main branch of modern Moroccan industry is the mining structure, which employs about one and a half million people. Phosphorites and phosphates are mainly mined - salts of phosphoric acids that are part of fertilizers and used for the production of many medicines - preparations with calcium phosphate (calcium phosphate):

- Maxamin Forte №. 50 Anglo-French preparations. India;
- Aluminum phosphate – international non-proprietary name "Phosphalugel" №. 6 – stick pack 16 g (6) – cardboard pack "Farmatis", France.

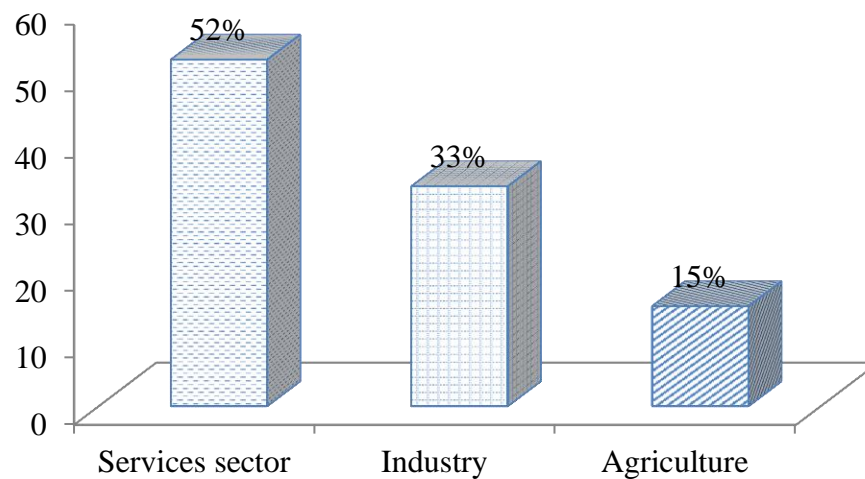


Fig. 1.3. Structure of GDP in Morocco

Mechanical engineering in Morocco is poorly developed and is represented by small factories for the production of agricultural and industrial equipment. There are also several car assembly plants. Recently, Morocco has been increasing the competitiveness of its textile industry through the production of denim [18].

For the most part, Morocco buys oil, telecommunications equipment, wheat, gas and electricity. The main importers are France, China, Italy, Spain, Germany, USA and Saudi Arabia. Despite encouraging economic growth, the country's external public debt remains at more than 19 billion dollars, and a third of Africans do not earn more than 300 dollars a year. About 5,000,000 people still have an income of no more than 1 dollar a day, and social payments cover only 1/5 of the country's low-income residents. Health care costs are minimal. To date, medical care is not available to 90% of the local population, and about 60 % continue to live in the absence of drinking water and electricity [18].

Job creation declined from about 144,000 jobs to 69,000 jobs per year on average between 2000–2009 and 2010–2019.

According to the High Commission for Planning, the growth rates of the Moroccan economy increased from an annual average of 4.8 in the period 2000-

2009 up to 3,5 % in the period 2010-2019 (2,8 % in the period 2018-2019) and are characterized by a low level of employment. As a result, it is not possible to accept new labor market entrants into the market, most of whom are young people [20,21].

Table 1.1.

Economic growth rate in Morocco from 2000 to 2019

Years	Average growth rate, %
2000-2009	4,8%
2010-2019	3,5%
2018-2019	2,8%

The slowdown in economic activity reflects weak productivity gains and limited diversification of growth drivers across economic sectors and regions. This situation undermines the competitiveness of Moroccan businesses. The state incentive system supports the development of enterprises engaged in: traditional activities and activities with low value added [44].

At this time, the state system supports to a lesser extent:

- productive and innovative activity;
- activities, with high potential for the development of export deliveries with high added value.

After phosphates, the Moroccan pharmaceutical industry constitutes the second largest chemical industry in Morocco, and ranks second in the African continent. This industry has a large potential for development.

The main companies in the Moroccan pharmaceutical sector include: COOPER MAROC, MAFAR, SANOFI MAROC, SOTEMA, LAPROFAN.

To date, Morocco has a strategic axis of the industrial acceleration plan, which includes 10 areas: creating and animation of ecosystems; instruments for financial intervention; rent of infrastructure is possible; rent of infrastructure is possible; ecosystems qualification; international integration of the Kingdom; strengthening African recognition and others [29].

Summary of Part 1

1. At the end of the twentieth century (in 1989) American scientists Helper K.D., Strand L.M. proposed a new concept of PhC, focused on a comprehensive solution to the problems of optimizing drug supply and developing pharmaceutical services. It should be noted that today there is no single definition of the term "Pharmaceutical Care". Each country has its own understanding of PhC.
2. Each country has its own unified approaches to PhC. In the United States, consultant pharmacists do most of the consulting work. In the Great Britain, a project has been developed - "Pharmacy of the new century - "Pharmacy 2020"", which focuses on the role of pharmaceutical workers as clinicians. FP in Ukraine is a comprehensive program of interaction between a pharmacist and a patient, a pharmacist and a doctor throughout the entire period of drug therapy. There are 36 pharmaceutical protocols recommended in the country to ensure proper pharmaceutical care, over-the-counter drug dispensing.
3. In South Africa, the specifics of the organization of the PhC include the developed standards for pharmacists, which provide for: establishing the reason for contacting a pharmacy; providing information on the correct and safe use of the medicinal product; analysis of the patient's medical history.
4. According to literary sources, it has been established that in Morocco, most (52%) of GDP is formed by the service sector, 33% falls on industry and about 15% on agriculture, 44% of the local population is employed in agriculture. After phosphates, the Moroccan pharmaceutical industry is the second largest chemical industry and the second-largest on the African continent. This industry has great potential for development. Today, 5 large pharmaceutical companies operate in the country: COOPER MAROC, MAFAR, SANOFI MAROC, SOTEMA and LAPROFAN.
5. In Morocco, in the "Plan of industrial development for 2014-2020", the priority areas were: the creation and revitalization of ecosystems; advanced training, increased competitiveness, strengthening the African continent.

**PART 2. MOROCCAN PHARMACEUTICAL AND HEALTHCARE
SECTOR STUDY**

2.1 Overview of the development of the pharmaceutical industry in Morocco

As mentioned above, the leading place in Morocco in the country's economy is occupied by the production of phosphates, the second most important industry is the pharmaceutical industry. Ten years ago, starting in 2013, she was included in the National Program for the Development of Priority Industries in the country. The pharmaceutical market in Morocco is one of the top 5 fastest growing markets in Africa. It is valued at about 2.5 USD billion and represents about 0.13% of the total value of the medicines trade on the African continent. The turnover of the pharmaceutical industry in Morocco is 13.7 billion Dirhams, which today is 1.4 billion USD [42, 47].

More than 13 years ago, in 2010, France was the main importer of pharmaceutical products in Morocco (accounting for 66 % of exports). Since 2011, the country has recorded a reorientation of Moroccan pharmaceutical exports to the countries of Africa and the Persian Gulf (Fig. 2.1) [47].

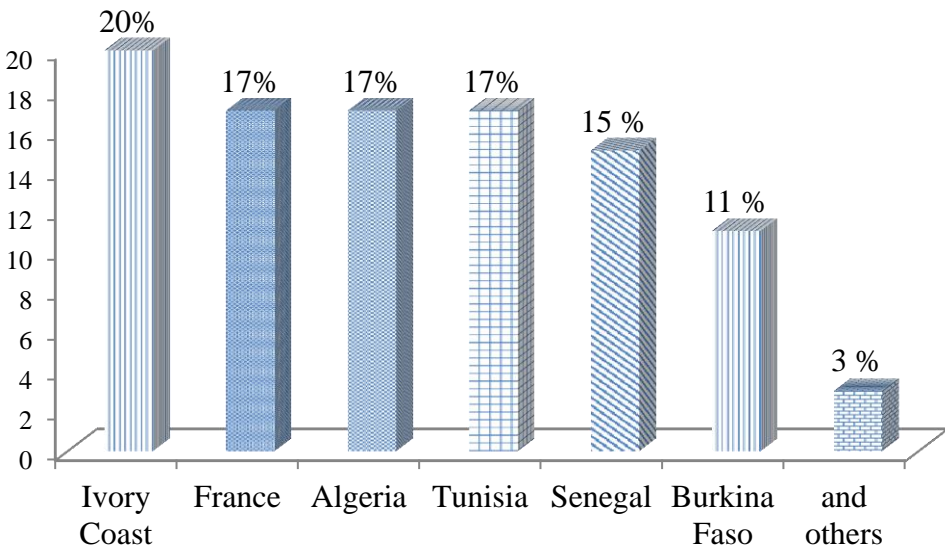


Fig. 2.1 Moroccan Pharmaceutical Export Ranking, %

Today, France accounts for 17% of exports. The countries shown in the figure mainly export:

- antibiotics;
- painkillers;
- substances used in infectious diseases [40].

In 2015, domestic consumption of medicines was 75%. The government plans to return to this number, for this it is necessary to balance the pharmaceutical market:

- reduce the import of drugs by increasing local production
- increase the export of Moroccan pharmaceuticals.

From 2007 to this day, Moroccan drug exports still cannot offset the strong growth in imports, leading to a widening trade gap. In 2016, Morocco imported drugs and preventive health products worth 5.4 billion dirhams. Unfortunately, local production covers only 65 % of consumption, and imports 35 %, while in 2010 these figures were 75 % and 25 % respectively (Fig. 2.2.) [40].

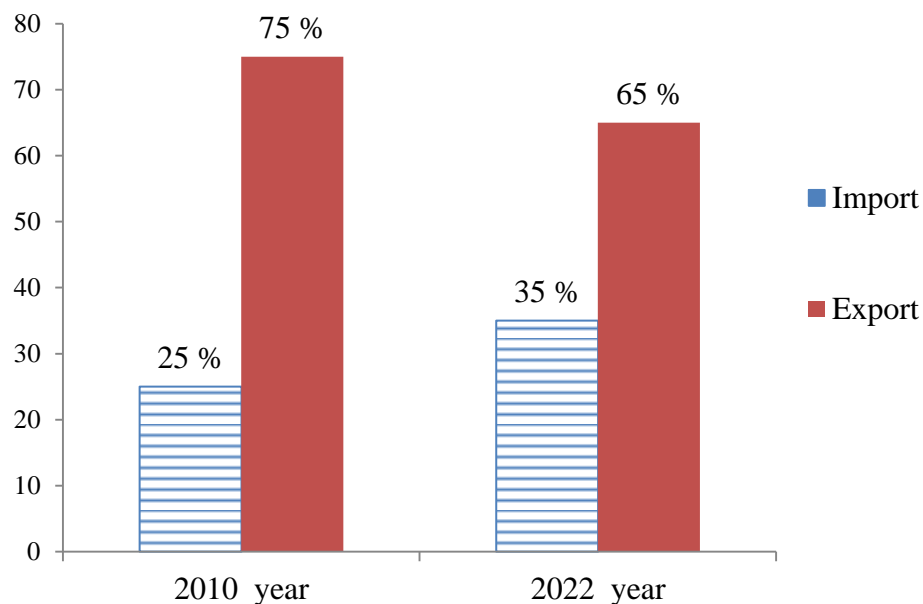


Fig. 2.2. Import and export of medicines in Morocco, %

Experts attribute this trend to the components shown in the fig. 2.3.

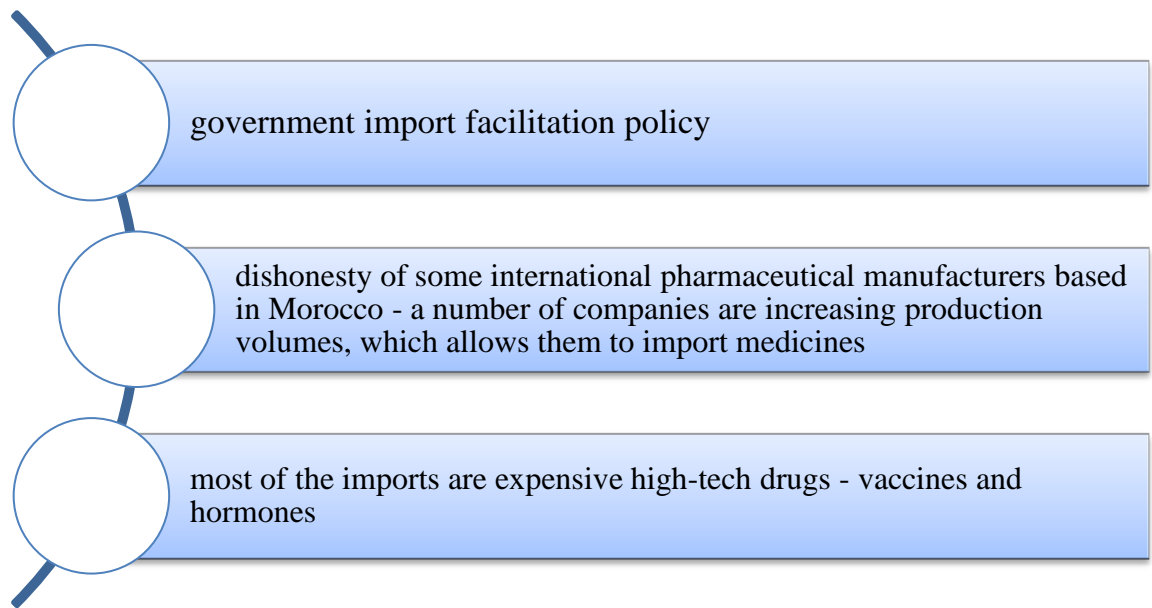


Fig. 2.3. The main reasons for the development of medicines imports in Morocco

It should be noted that in 2015 domestic drug consumption was 75%. The government plans to return to this figure, for this it is necessary to balance the pharmaceutical market – by increasing local production and increasing the export of Moroccan pharmaceuticals (fig. 2.4) [42].

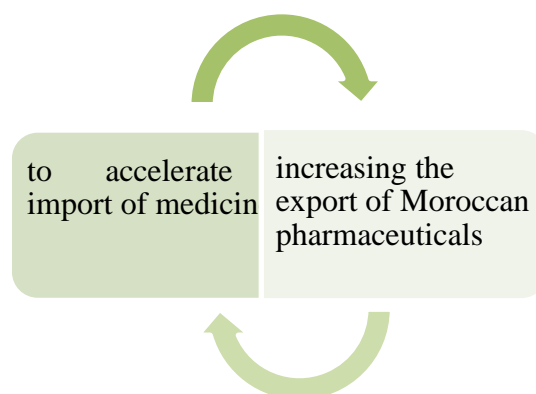


Fig. 2.4. The balance the pharmaceutical market in Morocco

Currently, about 10% of drugs produced in Morocco are exported, usually to African countries. By 2023, it is planned to increase the export of pharmaceuticals to 1 billion USD [43].

In 2013-2014, the growth of the Moroccan pharmaceutical market was 6%. Unfortunately, starting from 2020 and to this day, the annual market growth does not exceed 2.2%. The main factors hindering and reducing its growth include:

- low drug consumption per capita
- the lack of medical care in rural areas.

Moroccan pharmaceutical industry markets approximately 4000 drugs of which 80% are produced locally.

Pharmaceutical industry makes for Morocco an annual average savings of 1.5 billion dirham through local production.

Pharmaceutical industry ensures almost the totality of its needs by a local production which exceeds the 411 million units [42].

Morocco exports nearly 10% of its production in drugs, of which a good part towards the Western and European countries.

Over the past 10 years, Moroccan drug exports have increased by 21 %. 150 items are exported annually to 33 countries in West Africa and Europe with a turnover of 909 Dirhams.

The national sales are of 12 billion Dirhams. It takes part for 2 % in the Moroccan GDP. An average annual of investment of 300 million Dirhams is required to improve the quality and reach the European standard [47].

Unfortunately, the annual growth of the pharmaceutical sector is only about 2% per year, instead of double digits a decade ago, due to the deteriorating international and national economic situation [47].

To increase pharmaceutical assistance, the Moroccan government more than 17 years ago - in 2006 introduces measures such as: compulsory health insurance and mode of medical care. But, unfortunately, these drastic measures did not lead to an increase in demand for medicines [32, 47].

2.2 Review of developments in the training of doctors and pharmacists in Morocco

In 2018, according to information released by Morocco's Higher Council for Education, Training and Research, about 432,000 students dropped out of public school programs without graduating. It should be noted that 78% of them studied under the programs of primary and higher education.

The Education Index is a composite indicator of the United Nations Development Program (UNDP) that measures the achievements of a country in terms of the level of education achieved by its population [26].

According to studies on the ranking of countries in the world by level of education, as of September 2022, out of 191 countries, Morocco ranks 124th in terms of duration of education - the average duration of education in the country is 5.9 years (Table 2.1) [26].

Table 2.1

United Nations Development Programme: Education Index 2022

№	A country	Expected duration of study (in years)	Average length of study (in years)
1	Australia	21.1	12.7
2
3	Ukraine	15.0	11.1
4
124	Morocco	14.2	5.9
125
191	Niger	7.0	2.1

Today in Morocco, for a medical school to be internationally recognized, it must be listed in the World Directory of Medical Schools (<http://www.wdoms.org/>), which is an updated version of what was formerly called

Avicenna's Directory. This is a list compiled by three major international organizations:

- the World Federation for Medical Education (WFME)
- the Foundation for the Development of International Medical Education Research (FAIMER), which brings together all the medical faculties of the world [40].

Today, the World Directory of Medical Schools lists more than 3,700 medical schools in operation around the world [49]. In Morocco, according to the World Directory, 9 universities are registered (which is 0.24 % of the total), where you can get medical and pharmaceutical education. Students study at institutes for 7 years, the language of instruction is French (tabl. 2.1) [49]. The largest number of universities is concentrated in Casablanca and Rabat (22 % each). It should be noted that one of them – «Université Mohammed V de Rabat Faculté de Médecine et de Pharmacie», located in Rabat, was opened back in 1964. Today, this university has the alternative name "Université Mohammed V Souissi Faculté de Médecine et de Pharmacie de Rabat" (tabl. 2.1) [38, 49].

From 2022 in Morocco, in the city of Ben Guerir (near Marrakech), a new university «Université Mohammed VI Polytechnique» was opened where you can get medical and pharmaceutical education. But he has not yet gained popularity among the population [38, 45].

The cost of medical and pharmaceutical education in Morocco is very expensive - from 9,000 USD to 12,000 USD per year (tabl. 2.1). Dentist training is cheaper – from 9,000 USD. The university «Université Mohammed VI Polytechnique» tuition fee is 14 000 USD. For Moroccans, this is very expensive. The average salary in Morocco in 2022 was 121,946 dirham which is 12,000 USD [32].

In general, in 2022, the Moroccan city of Casablanca was ranked the world's third cheapest city for international education, with an average tuition fee of 4,067 USD or 41,245 dirham per year, according to the International Schools Database.

Universities in Morocco, where you can get medical, stomatological
pharmaceutical and education

No	City	Medical School	Year Instructi on Began	School Type	Annu al tuitio n USD
1	Tanger	Université Abdelmalek Essadi Faculté de Médecine et de Pharmacie de Tanger	2016	Public	-
2	Marrakech	Université Cadi Ayyad Faculté de Médecine et de Pharmacie de Marrakech	1999	Public/ Private	-/ 12 000
3	Agadir	Université Ibn Zohr Faculté de Médecine et de Pharmacie d'Agadir	2016	Public	-
4	Rabat	Université Internationale Abulcasis des Sciences de la Santé Faculté de Médecine	2014	Private	9 000
5		Université Mohammed V de Rabat Faculté de Médecine et de Pharmacie <u>Name for today</u> * Alternate Names:Rabat University Université Mohammed V Souissi Faculté de Médecine et de Pharmacie de Rabat	1962	Public	-
6	Oujda	Université Mohammed I	2008	Public	-

		Faculté de Médecine et de Pharmacie Oujda			
7	Casablanca	Université Hassan II de Casablanca Faculté de Médecine et de Pharmacie	1975	Public	-
8		Université Mohammed VI des Sciences de la Santé Faculté de Médecine	2014	Private	14 000
9	Fes	Université Sidi Mohammed Ben Abdellah Faculté de Médecine et de Pharmacie de Fès	1999	Public	-

The Moroccan education system provides for two forms of university ownership – public and private. In Morocco, where you can get medical and pharmaceutical education, 66% of universities are public, 22% are private

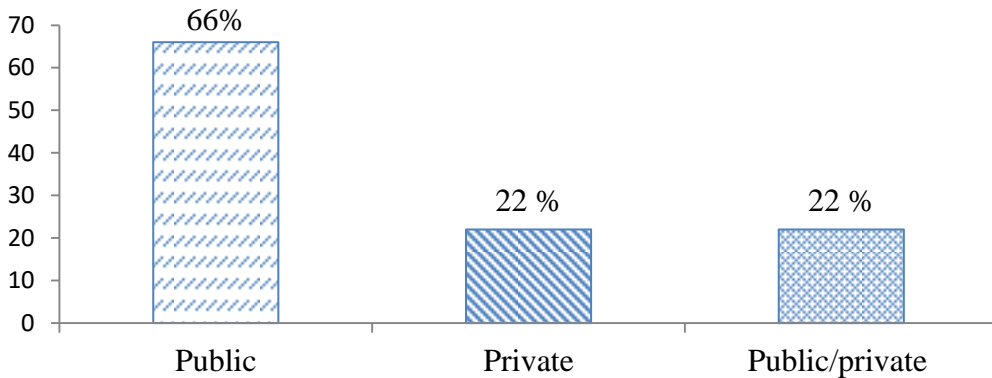


Fig. 2.5. Types of ownership of universities where you can get medical, pharmaceutical and dental education in Morocco, %

The report “The Truth about Health in Morocco”: There is no health without workforce development shows that the number of medical and paramedical personnel providing direct care to patients in Morocco is barely more than 1.65 per

1000 people. This is well below the critical threshold of 4.45 medical personnel per 1,000 people required under the proposed rates as of April 2020. Morocco is short of 32,387 health workers and 97,161 nurses. “This deficit will worsen over the next 10 years with the retirement of 24 % of the current medical staff: more than 8,500 people [38, 46].

Minister of Health of Morocco in an report on medical training shows that, as of January 2022, there is a "severe shortage" in Moroccan hospitals, with only 32,000 doctors and 65,000 nurses working in the sector, serving nearly 37 million citizens and residents (Fig. 2.6). Since 2023, due to an acute shortage of medical and pharmaceutical personnel in the country, the Moroccan Ministry of Higher Education has decided to reduce the training of doctors in nine public and private institutions from seven to six years [38].

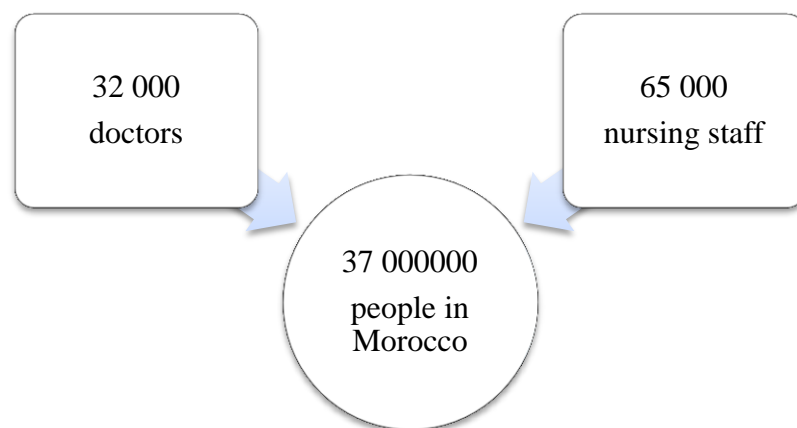


Fig. 2.6. Number of doctors and nurses serving the citizens and residents of Morocco, as of January 2022

The Minister of Higher Education of Morocco, Abdellatif Miraoui, in an instruction to rectors of public universities in the country, which was published in World News in 2022, brought to the attention of the government's decision to reduce the period of study of students in medicine, pharmacy and dentistry by one year, due to the growing shortage of medical workers. In this regard, the Ministry of Higher Education of Morocco announced an increase in the number of students in the specialty of medicine, pharmacy and dentistry at the expense of public

education. Also, all the necessary financial resources will be mobilized within the framework of a contractual program between the state and specialized universities. Only 1,200 young doctors graduate in Morocco every year. To address this problem, the government is planning to raise the salaries of public sector health workers in an attempt to attract Moroccan doctors from its vast diaspora. In addition, healthcare workers serving understaffed regions known as "medical deserts" must receive government assistance or tax breaks [46].

Higher education in Morocco is very expensive. In 2022, a study by the International Schools Database found that the Moroccan city of Casablanca is the third cheapest city in the world for international education, with an average tuition fee of 4,067 USD, which is 41,245 Dirham per year [46].

Medical students in Morocco spend five years in medical school, then from the sixth year they enter university hospitals as trainee doctors, and in the seventh year they work in regional hospitals. To meet current staffing needs, the Moroccan government has shortened the study period by one year for students studying medicine, pharmacy and dentistry [46].

Morocco is currently undergoing a reform to achieve the goals of the new health development model and the establishment of the normative health standards adopted by the World Health Organization for 2025. In this regard, by the beginning of 2035 [46].

Morocco plans to complete a new model for the development of education. Therefore, the study of a new development model that provides for the provision of medical and pharmaceutical services throughout the country by increasing the number of highly qualified medical workers is an urgent issue. The Moroccan High Council of Education released data showing that in 2018, about 432,000 students dropped out of public school programs without completing a diploma. It should be noted that 78 % of them studied under the programs of primary and higher education [46].

2.3 Characteristics of pharmacies in Morocco and pharmaceutical manufacturing

Currently, the pharmaceutical industry is actively developing around the world. Innovative drugs are being developed, factories are being built, new pharmacies are opening. Morocco is not an exception.

In the course of the research, we compared the number of pharmacies in different countries in Table. 2.3. For comparison, pharmacies in Morocco, Ukraine, Germany, Italy, India were selected as quite contrasting societies [49].

Table 2.2

Number of pharmacies in different countries in 2021

A country	Population, persons.	Number of pharmacies	Number of people per pharmacy
Germany	81 147 265	22 000	3 688,5
Italy	61 482 297	17,800	3 454
Ukraine	45 000 000	16 200 and 3700 pharmacy points	before the war in 2019 - 2021, 1 pharmacy accounted for about 1 900
Morocco	37 080 000	14 000	2 332
India	1 220 800 359	No data	-

The TOP Pharmaceutical Company: Afric Phar, Bottu Pharmaceuticals, Galenica, Laprophan, Amanys Pharmaceutical (Ex Saham Pharma), Cooper Pharma, Pharma 5.

The local pharmaceutical industry is represented by domestic companies:

- Founded in 1933 as a subsidiary of Cooper Melun France, such as Cooper Maroc;
- currently part of the French group Eurapharma CFAO "Mafar";

- was founded in 1976 and manufactures ‘Sotema’ sterile products and antibiotics;
- founded in 1949 the first Moroccan laboratory with a research center and "Laprofan".

As well as subsidiaries of foreign multinational companies such as Sanofi Maroc. The total production capacity in 2016 consisted of 46 different sites producing approx. 425 million units [49].

As reported by the Association of the Pharmaceutical Industry, the Moroccan National Laboratory for the Control of Medicines has been certified both by the World Health Organisation and the European Directorate for the Quality of Medicines, thus acknowledging for the quality of the production run under GMP conditions [49].

Currently generics and biosimilars cover 80-90 % of the public medicines market and only 25 % of the private one. The OTC sector would undergo the same competition from generics, and is expected to decrease its share up to 22.8 % in 2026 [49].

Morocco mainly adopts the Good Manufacturing Practice (GMP) formulated by the World Health Organization, the European Medicines Agency and the US Food and Drug Administration.

Therefore, the World Health Organization has classified the Moroccan pharmaceutical industry within the scope of the European region. In addition, even if the drug enters the Moroccan local market in the form of samples or gifts, it still needs to be marketed by government authorities

Currently, Morocco has nearly 40 pharmaceutical factories, 50 wholesalers and more than 11,000 pharmacies. Its drug sales channel participants include pharmaceutical factories, wholesalers, pharmacies, hospitals and clinics. Among them, 20% of medicines are sold directly through direct sales channels, that is, pharmaceutical companies complete transactions directly with pharmacies, hospitals and clinics. In addition, 80 % of medicines are sold through the medium of 50 wholesalers [47, 49].

Conclusions of part 2

1. In Morocco, you can get medical and pharmaceutical education at 9 universities. Students have been studying in them for 7 years in French. The largest number of universities is located in two cities of the country – Casablanca and Rabat. “The University of Muhammad against Rabat Faculty of de - Medsin and Farmas”, wchih is Rabat, was opened back in 1964. In the country, 66 % of universities are public, the same number of 22% have private and 22 % have public/private.
2. The cost of medical and pharmaceutical education in Morocco has been found to be very high, ranging from 9,000 USD to 12,000 USD per year. The tuition fee at the University "Université Mohammed VI Polytechnique", city of Ben Guerir is 14,000 USD. For Moroccans, this is very expensive. The average salary in Morocco in 2022 was 121,946 Dirham, which is 12,000 USD.
3. Morocco has problems with medical and pharmaceutical staff. According to data in 2020, the number of medical and nurses in the country barely exceeded 1.65 per 1000 people, which indicates a critical level of service of medical personnel – a threshold level of 4.45 per 1000 population. This is 2.8 times lower than the threshold level. Since 2023, from the acute absence of medical and pharmaceutical personnel in Morocco, the government decided to reduce the duration of medical, pharmaceutical education from seven to six years.
4. In 2022, the Moroccan city of Casablanca was ranked the world's third cheapest city for international education, with an average tuition of \$4,067 (dirham 41,245 per year), according to data from the International Schools Database.
5. Today in Morocco, due to the growing shortage of medical workers, the Moroccan Ministry of Higher Education announced an increase in the enrollment of students in the field of medicine, pharmacy and dentistry through the preparation of students from the state budget.

PART 3. ANALYSIS OF THE CONDITIONS OF THE MODERN OF PHARMACEUTICAL BUSINESS OF MOROCCO

3.1 Features and prospects of opening a pharmaceutical company in Morocco according to the global project "Doing Business"

The pharmaceutical industry, which is an integral part of the national economy, is faced with the challenge of guaranteeing partial investment and demanding growth and the opening of new enterprises [25].

The opening of a new pharmaceutical business in Morocco was analyzed by us according to the data of the global «Doing Business project». It provides an objective assessment of business rules and law enforcement in 190 countries. The information data of the project makes it possible to evaluate data for individual cities at the international and regional levels. The «Doing Business project», launched in 2002, focuses on the activities of national small and medium-sized enterprises and the assessment of the regulations that govern their activities throughout their life cycle. The Doing Business methodology and the common cost analysis model are the only common tools used in a wide variety of countries to assess the impact of government rulemaking on business operations [25].

In the course of research within the framework of the «Doing Business project», the following is carried out:

- collection and analysis of complex quantitative data to compare business regulation conditions between countries;
- analysis of business development dynamics by years;
- calls on countries to better regulate economic activity;
- provides measurable benchmarks for reforms;
- serves as a resource for scientists, journalists, researchers who are interested in the business climate in each country specifically [25].

Table 3.1.

Positions of countries in the ranking of ease of doing business (excerpt)

A country	Ease of Doing Business Rank	Rank within group	Starting a business	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
Somalia	190	190	18	186	187	153	186	190	190	166	116	168
Eritrea	189	132	143	156	67	149	176	189	132	156	67	149
Palau	188	113	178	139	153	47	104	188	113	139	125	166
Mongolia	81	81	100	29	152	50	25	25	71	143	75	150
Greece	79	79	11	86	40	156	119	37	72	34	146	72
Ukraine	64	64	61	20	128	61	37	45	65	74	63	146
Morocco	53	53	43	16	34	81	119	37	24	58	60	73
Israel	35	35	28	35	83	75	48	18	13	67	85	29
Turkey	33	33	77	53	41	27	37	21	26	44	24	120
France	32	32	37	52	17	99	104	45	61	1	16	26
Iceland	26	26	64	72	16	16	94	28	42	53	33	12
Singapore	2	2	4	5	19	48	2	3	7	47	1	27
New Zealand	1	1	1	7	48	2	1	3	9	63	23	36

Ease of Doing Business in Morocco (table 3.2).

Table 3.2

Doing Business in Morocco 2020

Doing Business	Index
Region	Middle East & North Africa
Income Category	Lower middle income
Population	36,029,138
City Covered	Casablanca
DB RANK	53
DB SCORE	73.4

Doing Business 2020 Ease of Doing Business Index, Countries are ranked in terms of ease of doing business by sorting scores by indicator. The country's overall score for starting a business is the arithmetic mean of all the constituent indicators for Starting a Business. Registration of enterprises in Morocco - Procedures, Time and Cost are presented in the fig. 3.1 [25].

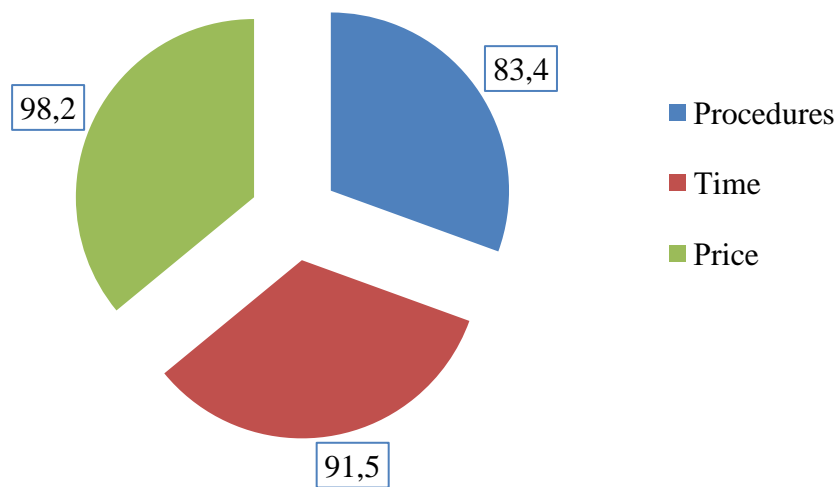


Fig. 3.1. Registration of enterprises in Morocco

Table 3.3

Rankings on Doing Business topics – Morocco

N ^o	Rank (procedures)	DB rank	Change in Rate (%)
1.	Global	53	↑ 1,7
2.	Starting a Business (rank)	43	”
3.	Dealing with Construction Permits	16	↑ 0,7
4.	Getting Electricity	34	↑ 6
5.	Registering Property	81	↓ 0.8
6.	Getting Credit	119	...
7.	Protecting Minority Investors	37	↑ 6
8.	Paying Taxes	24	↑ 1,5
9.	Trading across Borders	58	↑ 0,8
10	Enforcing Contracts	60	↑ 2,8
11	Resolving Insolvency	73	↑ 0,1

Today, only 40% of the production capacity of Moroccan enterprises is operated: insufficient use of successful and high-quality industrial tools. Therefore, the opening of new enterprises is widely supported by the state.

Countries are ranked by ease of doing business from 1 to 190. A high ease of doing business rating indicates that the regulatory environment is more conducive to starting and running a local firm. The rankings are determined by sorting the cumulative scores across 10 topics, each of which is made up of several indicators that give each topic equal weight. Ratings of all economies are given as of May 2019. Morocco ranks 53rd out of 190 countries. Almost all indicators of doing business show growth, except for Registering property (↓ 0.8) (tab. 3.3) [25].

3.2 Analysis of legislative acts regulating the production, sale and control of pharmaceutical products in Morocco

Today, the pharmaceutical industry is actively developing all over the world. Pharmaceutical assistance includes the development of innovative drugs, the opening of new pharmaceutical plants and factories and the opening of pharmacies. Each country has its own characteristics of the pharmaceutical lifestyle, which have distinctive and similar features that deserve attention in order to exchange experiences and improve the quality of services provided. Morocco, like any country, has its own characteristics [32].

Of course, the government of each country considers it a priority to improve the welfare of the population and provide the population with affordable pharmaceutical care.

To date, the main legislative act regulating the production, sale and control of pharmaceutical products in Morocco is Law № 17-04, which entered into force in November 2006 (Dakhir № 1-06-151 of 22.11.2006 “Official Bulletin” 5480). The law shall be the supreme expression of the will of the Nation. All shall abide by it. The law shall have no retroactive effect [31, 32].

According to article 42 of Law № 17-04, advertisements for pharmaceutical products that do not require a doctor's prescription must also be approved by the relevant department of the Moroccan Ministry of Health. Advertisements for vaccines, family planning products, and the treatment of nicotine dependence are not subject to such approval [31, 32].

The rules governing the development of pharmacy in the country change frequently. Organizations that opened before the adoption of the new law are not subject to its action. This is a kind of protection of pharmacies from the sometimes excessive influence of legislators. Today in Morocco there is a public association of pharmacists – "Syndicate". He is endowed with extremely large powers, up to holding boycotts in protest against innovations that do not suit pharmacy [31, 32].

According to the Law, the procedure for opening a pharmaceutical production in Morocco involves the issuance of a preliminary approval by the General Secretariat of the Government (Secretariat Général du Gouvernement, SGG), and then final approval after receiving a notification of conformity (avis conforme) from the Ministry of Health and the National Guild of Pharmacists of Morocco (Ordre des pharmaciens) (Fig. 3.1)

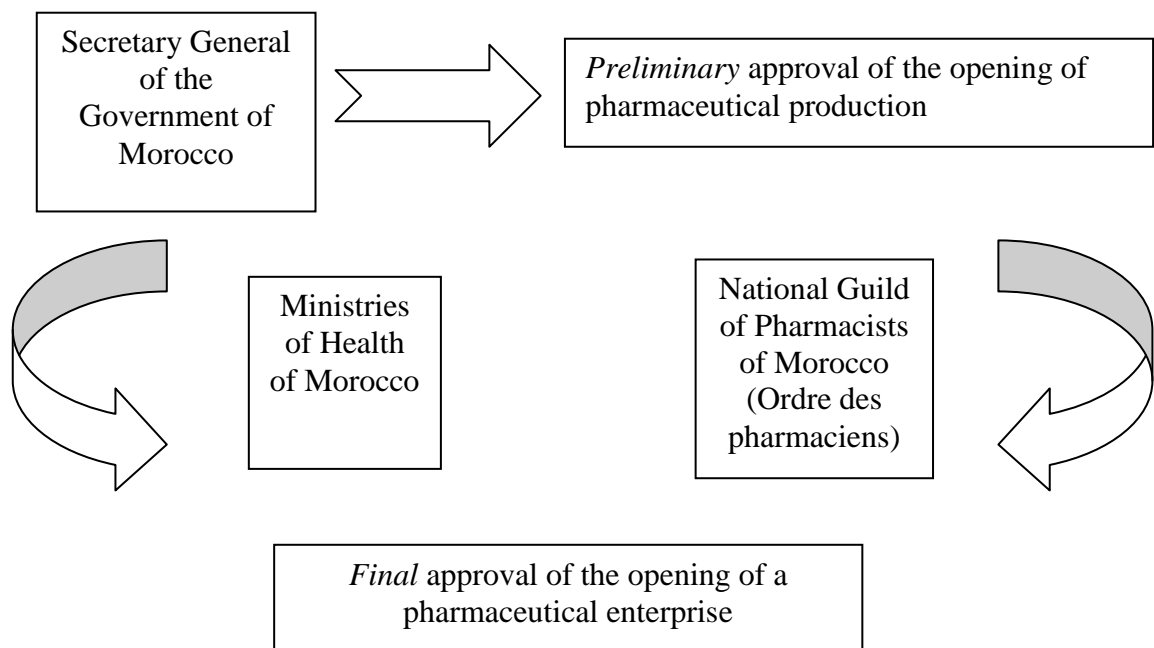


Fig. 3.1. Procedure for opening a pharmaceutical production in Morocco

From the 60s in the 20th century, Morocco had a system of fixed prices for medicines. Back in early 2010, the Ministry of Health put forward proposals to change the regulation of pricing policy in the pharmaceutical market, which would reduce the prices of medicines and make them more affordable for the majority of the population. Since 06.09.2014, the Decree of the Government of Morocco № 2-13-852 of 12.18.2013 has been legally in force in the country. The Decree regulates the drug pricing system in the country. Changes in legislation will reduce prices in the entire pharmaceutical market [40].

According to the new rules, the end-user price for medicines in Morocco will be calculated and fixed by the Ministry of Health depending on the minimum

manufacturer price for similar medicines without paying taxes and fees in the markets of 6 countries:

- Saudi Arabia,
- Belgium,
- Spain,
- France,
- Portugal,
- Turkey [32].

In the absence of an imported drug on the markets of any of these countries, the price of the drug on the Moroccan market is calculated depending on the price of this drug on the market of the manufacturing country (in terms of Moroccan dirhams at the rate of the Central Bank of Morocco). The fixed commercial margin of the importing company is 10 % of the cost of the drug in the market (markets) of the country. This commercial margin also includes marketing ("frais d'approche") and customs fees (2.5 %). For example, a drug manufacturer's price in Turkey of 10 USD would be around 18 USD for the final consumer in Morocco, with the importing company's maximum commercial profit being 0.75 USD.

Legal regulation of pharmacy (Opportunities and Threats) is presented in the table 3.4 [42].

Table 3.4

Legal regulation of pharmacy

Opportunities	Threats
<ul style="list-style-type: none"> • council of Europe Convention, ratified by Morocco, on Counterfeit Medical Devices and Similar Violations threatening public health, better known as 	<ul style="list-style-type: none"> • presence of the regulatory barriers at the entry; • registration of the pharmaceutical product, a long process that can last up to 2 years. Indeed, the marketing authorization is the main obstacle for the Moroccan

<p>"Médicrime", was adopted;</p> <ul style="list-style-type: none"> • in last 5 years in order to efficiently and effectively regulate and organize the pharmaceutical sector, 20 laws and regulations relating to medicines and pharmacy (3 laws, 4 decrees and 13 orders) were published; 	<p>pharmaceutical industrialists;</p> <ul style="list-style-type: none"> • the agreement of validation of the European patents in Morocco. The validation of the European patents in Morocco will open the door to the abuses the great pharmaceutical groups which will not hesitate, according to the Moroccan generics, to use artifices to prolong 10 or even 15 years the duration of protection (20 years) their initial patents; • a circular of the Direction of the drug and the pharmacy whose object is to address, as soon as possible, a benchmark of principle whose marketing authorization was renewed in 2015 and pharmaceutical laboratories fear a new price drop of the drugs; • the drug continue to sell illegally out said pharmacist.
--	--

The sector draws about 400 million dirhams investments every year and more than 9000 direct jobs [33].

There are three professional associations in the country representing the different industries, i.e.

- the Moroccan Association of Pharmaceutical Industry (AMIP),
- Les entreprises du médicament au Maroc (LEMM) of multi-national companies
- the Moroccan Association of Generic Medicines (AMMG) [33].

3.3. The Parapharmacy shops in Morocco

Despite all current trends, Moroccans do not forget about national traditions that play an important role in the pharmaceutical business. We are talking about the so-called Berber pharmacies, which sell traditional medicine such as herbs, argan oil, amber, musk, various minerals and stones [31, 32].

The drug store industry consists of establishments that are concerned with retailing prescription and non-prescription drugs and other “front-end” products. Drug stores may also retail additional merchandise to walk-in customers such as

- health products (like vitamins and supplements),
- toiletries,
- cosmetics,
- pharmaceutical products,
- greeting cards,
- and non-perishable food products to walk-in customers [31, 32].

Some drug stores provide photo processing services. Drug stores may be stand-alone establishments, or may be incorporated into other retail outlets. Drug stores purchase their merchandise from manufacturers in other industries, including: toiletry preparation manufacturers, soap and cleaning compounds manufacturers, drug wholesalers, and photo supplies and equipment manufacturers.

It is the aggregation of all dietary supplements: Minerals, fish oils/omega fatty acids, garlic, ginseng, ginkgo biloba, evening primrose oil, Echinacea, St John's Wort, protein supplements, probiotic supplements, eye health supplements, co-enzyme Q10, glucosamine, combination herbal/traditional supplements, non-herbal/traditional supplements, and all other dietary supplements specific to country coverage [31, 32].

Table 3.5

Combination Dietary Supplements, which are sold in parapharmaceutical stores in Morocco *

Herbal/Traditional Dietary Supplements	Non-Herbal/Traditional Dietary Supplements	Minerals
<ul style="list-style-type: none"> • <u>Aloe</u> (Forever Maroc Detox Aloe vera1 457,00 MAD) • <u>Combination Herbal/Traditional Dietary Supplements</u> (Gelée royale arkoreal Arkopharma, ARKOROYAL® 189,00 MAD) • <u>Cranberry</u> (Zazzee D-Mannose Powder Plus, 67 Servings, 6.5 Ounces, Plus 5 Billion CFU Probiotics, Enhanced with Pure Cranberry Juice, Includes Free Scoop, Fast-Acting, Vegan, Non-GMO and All-Natura 1, 559,00 MAD) • <u>Echinacea</u> (Echinacea Goldenseal Capsules - 10 in 1 Immune Support Supplement - 1455mg - Vegan Echinacea Capsules Supplement Made With Organic Whole Foods - Herbal Immune System Support - 2 Month Supply, 413,00 MAD) • <u>Evening Primrose Oil</u> (Aroma Tierra Evening Primrose Oil 30 ml, 664,00 MAD) • <u>Garlic</u> (Black Garlic Made in Canada Whole Black Garlic Bulbs Fermented for 90 Days High in 	<ul style="list-style-type: none"> • <u>Co-Enzyme Q10</u> (CoQ10 240 SoftGels High Absorption Coenzyme Q10 Made in The USA to GMP Standards Up to 8 Month's Co Q 10 Supply Satisfaction with Our Product Ensured, 479,00 MAD) • <u>Combination Non-Herbal/Traditional Dietary Supplements</u> (Source Naturals Wellness Formula Bio-Aligned Vitamins & Herbal Defense for Immune System Support - Dietary Supplement & Immunity Booster № 120, 534,00 MAD) • <u>Eye Health Supplements</u> (Ocuvite Eye Vitamin & Mineral Supplement, Contains 	<ul style="list-style-type: none"> • <u>Calcium Supplements</u> (Pure Encapsulations Calcium (Citrate) Supplement for Bones and Teeth, Colon Health, and Cardiovascular Support № 180 Capsules, 457,00 MAD) • <u>Mineral Supplements</u> (Biofar 12 vitamines 12 mineraux boite 20cp 79.00 MAD) • <u>Probiotic Supplements</u> (Culturelle Pro Strength Daily Probiotic, Digestive Capsules, Naturally Sourced Probiotic Strain Proven to Support Digestive and Immune Health, Gluten and Soy Free, 60 Count, 519,00 MAD) • <u>Protein Supplements</u> (Orgain Organic Vegan Protein Powder, Creamy Chocolate Fudge - 21g of

<p>Antioxidants Black Garlic Cloves All Natural 8.82 Oz, 251,00 MAD)</p> <ul style="list-style-type: none"> • <u>Ginkgo Biloba</u> (Ginkgo Biloba 500mg Per Serving, 240 Capsules, 4 Months Supply, Grown in Northern Asia Extra Strength, Promotes Brain Function 283,00 MAD) • <u>Ginseng</u> (Panax Ginseng + Ginkgo Biloba Tablets - Premium Non-GMO/Veggie Superfood - Traditional Energy Booster and Brain Sharpener № 120 397,00 MAD) • <u>St John's Wort</u> (St Johns Wort 900mg-Mood Support Supplement*-Calm Supplements*-120 Vegetable St Johns Wort Capsules(2 Month Supply),450mg of Vegan, Non-GMO St. John's Wort (Hypericum Perforatum),0.3%Hypericin per Cap, 414,00 MAD) • <u>Other Herbal/Traditional Dietary Supplements</u> (Deve Herbes Pure Evening Primrose Oil (Oenothera Biennis) with Glass Dropper 100% Natural Therapeutic Grade Cold Pressed for Personal Care, 50 ml, 398,00 MAD) 	<p>Zinc, Vitamins C, E, Omega 3, Lutein, & Zeaxanthin, 90 Softgels (Packaging May Vary 367,00 MAD)</p> <ul style="list-style-type: none"> • <u>Fish Oils/Omega Fatty Acids</u> (Omega3 bio naturel/huile de poisson № 120 149,00 MAD) • <u>Glucosamine</u> (Glucosamine Chondroitin MSM Turmeric Boswellia - Joint Support Supplement. Antioxidant Properties. Helps with Inflammatory Response. Occasional Discomfort Relief for Back, Knees & Hands. № 90, 350,00 MAD) 	<p>Plant Based Protein, Low Net Carbs, Non Dairy, Gluten Free, No Sugar Added, Soy Free, Kosher, Non-GMO, 2.03 Lb (Packaging May Vary, 488,00 MAD)</p> <ul style="list-style-type: none"> • <u>Other Non-Herbal/Traditional Dietary Supplements</u> (Flothy Turmeric Curcumin Liquid, 500mg Turmeric Extract(Pack of 6) Joint Curcumin Supplement,Nano Curcumin High Absorption,Immunity Turmeric Shots,Liposomal Curcumin Supplements,Lemon&Honey Flavor, 298,00 MAD)
---	--	---

*the table shows the average prices of drugs in the country, taken from Internet sources.

We analyzed sites where parapharmaceutical products are sold We analyzed the most advertised. It should be noted that, on almost all sites, there is an ad that says: "The medicine can only be bought in pharmacies." (Table 3.6) [31, 32].

Table 3.6

The Parapharmacy shops Morocco

Nº	Name	Adresse	Nº	Name	Adresse
1.	M'GOUNA PARAMEDICAL	Kalaat M'Gouna	11	Pharmacie kihel	Outat el Haj
2	Pharmacie Centre Santé Alomrane	Casablanca	12	Pharmacie essalam	Casablanca
3	Parapharmacie N°1 au Maroc 100% Discount	Casablanca	13	Herboriste des Amis	Marrakesh
4	Bio Shop Atlas Argan Marrakech	Marrakesh	14	Parapharmacie Les cinq sens	Casablanca
5	Pharmacy BNI GUIL	Tendrar	15	Pharmacie Messaoudi	Tit Mellil
6	Pharmacy Siberia	Enjil Ikatarn	16	Pharmacie noamania	Casablanca
7	Pharmacie BOUTAYNA	Ben Slimane	17	Pharmacie Shems El Madina	Sidi Hajja
8	Pharmacie Jar El Khair	Khouribga	18	Pharmacie M'zab	Ben Ahmed
9	Pharmacy Para Pharmacy Yasir	Casablanca	19	Pharmacie Fedalate	Benslimane
10	Pharmacie 20 Aout	Kasbah Tadla	20	Paracasa	Casablanca

Conclusions to the part 3

1. The main document regulating the circulation of medicines (production, sale and control) in Morocco is Law № 17-04. The law has been in force in the country for more than 17 years - since November 2006 (Dakhir № 1-06-151 of November 22, 2006, Official Gazette 5480).
2. The law pays great attention to the advertising of medicines. Pharmaceutical care of pharmacists is provided by a large number of over-the-counter drugs. Advertising for each drug must be approved by the relevant department of the Moroccan Ministry of Health. The country banned advertising of vaccines, family planning and treatment of nicotine addiction. These drugs are sold by prescription only.
3. Law № 17-04 regulates the opening of pharmaceutical production in Morocco. Two documents are required by law: prior approval from the General Secretariat of the Government (Secretariat Général du Gouvernement, SGG) and final approval (avis conforme) from the Ministry of Health and the National Guild of Pharmacists. Morocco (Order of Pharmacists).
4. Since 06.09.2014, the Decree of the Government of Morocco № 2-13-852 of 12.18.2013 has been legally in force in the country. The Decree regulates the drug pricing system in the country. Changes in legislation led to price reductions in the entire pharmaceutical market.
5. Decree of the Government of Morocco № 2-13-852 of 12.18.2013. The decree regulates the pricing system for medicines in the country and at the present time. According to the law, there was a price reduction in the entire pharmaceutical market of the country. This law increased the availability of medicines for all segments of the population, thereby making pharmaceutical care more accessible. The markup in the pharmacy is 30% and the fixed commercial markup of the importing company is 10%.
6. In Morocco, next to official pharmacies, there are ‘Parapharmacy shops’ shops selling parapharmaceutical products: soaps, shampoos, creams, oils (working in such stores does not require pharmaceutical education).

CONCLUSIONS

1. The basic principles of modern PhC were formulated in 1989 by American scientists Helper K.D. and Strand L.M. The development of PhC in the world is a response to the development of self-treatment, an increase in the list of medicines available without a doctor's prescription, and an increase in the patient's responsibility for their own health. PhC is gradually being integrated into the medical care and healthcare system as specialized care at the pharmacy level. The main goal of PhC is to ensure the reliability of drug therapy in order to achieve a certain result, which would improve the patient's quality of life.
2. It has been established from literary sources that today there is no single term "Pharmaceutical care". Each country has its own understanding of the PhC due to the peculiarities of approaches in each country. In the United States, consultant pharmacists do most of the consulting work. In the Ukraine, the New Age Pharmacy - Pharmacy 2020 project has been developed, which focuses on the role of pharmaceutical workers as clinicians. PhC in Ukraine is a comprehensive program of interaction between a pharmacist and a patient, a pharmacist and a doctor throughout the entire period of drug therapy. There are 36 pharmaceutical protocols recommended in the country to ensure proper PhC, over-the-counter drug dispensing.
3. Morocco has developed standards for pharmacists to ensure pharmaceutical care, which include: establishing the reason for contacting a pharmacy, providing information on the correct and safe use of the drug, analyzing.
4. According to literary sources, it is established that in Morocco chains are prohibited; the pharmacist is the owner of his or her pharmacy; minimum area is 24 sq.m.; distance between pharmacies is at least 300 meters; the assistant pharmacist does not have a pharmaceutical education; in large cities, it is forbidden to work at night, on Sundays and on holidays, except once a month, when the pharmacy is on duty; drug prices and margins are fixed; drugs for the treatment of the digestive system are most in demand (21.8 % of the market in packages).

5. The main regulatory document regulating the industry is Dahir (Royal Law) 17-04 "Code of Medicines and Pharmacy" 2006; pharmacies opened before the adoption of the new regulation are governed by the old legislation. The assortment of pharmacies: abortion drugs are prohibited; extemporaneous medicines are divided into trunk, official, specialized, hospital; personal hygiene products and cosmetic products contain biologically active substances and are classified as medicines; through pharmacies, the sale of chemical reagents is allowed.
6. The assortment of pharmacies: abortion drugs are prohibited; extemporaneous medicines are divided into trunk, official, specialized, hospital; personal hygiene products and cosmetic products contain biologically active substances and are classified as medicines; through pharmacies, the sale of chemical reagents is allowed.
7. In Morocco, you can get medical and pharmaceutical education at 9 universities. The largest number of universities is located in two cities of the country – Casablanca and Rabat. “The University of Muhammad against Rabat Faculty of de - Medsin and Farmas”, wchih is Rabat, was opened back in 1964. In the country, 66 % of universities are public, the same number of 22 % has private and 22 % have public/private.
8. Moroccan health spending in 2017 reached \$6.15 billion, up 5.1 % from 2016, according to Business Monitor International. The firm predicts annual spending on pharmaceutical care in the country will rise, reaching approximately 5-6 % per year.
9. Currently, generics and biosimilars occupy 80-90 % of the public drug market and only 25 % of the private one. The OTC sector will experience the same generic competition and is expected to decline to 22.8% in 2026. Currently pharmaceutical sales are approx. 1.47% of Morocco's GDP and 24.4% of African countries' total health spending. GDP in 2020: 114.725 billion USD\$; GDP per capita: 3009 USD; GDP growth rate: -6.29 %.

10. Since the 1960s, the Moroccan government has introduced a system of fixed prices for medicines. The main goal of this policy was to reduce the prices of medicines throughout the country, to provide high-quality and affordable pharmaceutical care to all residents of Morocco, both in large cities and in rural areas. Since 06.09.2014, the Decree of the Government of Morocco № 2-13-852 of 12.18.2013 has been legally in force in the country. The Decree regulates the drug pricing system in the country. Changes in legislation led to price reductions in the entire pharmaceutical market.
11. All pharmacists practicing in pharmaceutical companies are represented by the COPFR (Council of Pharmacists) working in the pharmaceutical industry and distribution. This institution controls access to the pharmaceutical profession for those who provide PhC to the public. COPFR provides an advisory opinion on applications by pharmacists to enter the pharmaceutical industry and to establish, expand or modify pharmacies and pharmaceutical establishments.
12. Today in the country 70 % pharmaceutical market consumption is produced by local pharmaceutical companies, and the remaining 30% is mainly imported from Europe, especially France. TOP-5 Pharmaceutical Company: Afric Phar, Bottu Pharmaceuticals, Galenica, Laprophan, Amanys Pharmaceutical (Ex Saham Pharma. Large companies are also Cooper Pharma, Pharma 5.
13. In Morocco, next to official pharmacies, there are ‘Parapharmacy shops’ shops selling parapharmaceutical products: soaps, shampoos, creams, oils (working in such stores does not require pharmaceutical education). The sale of medicines in such stores is prohibited. Various preparations, powders, natural oils are sold here, not only in liquid form, but also in the form of powders, herbs, herbal infusions. Such stores are found in every town and village. We analyzed the range of ‘Parapharmacy shops’: Herbal/Traditional Dietary Supplements (Aloe (Forever Maroc Detox Aloe vera 1 457,00 MAD), Combination Herbal/Traditional Dietary Supplements (Gelée royale arkoreal Arkopharma, ARKOROYAL® 189,00 MAD) at others.

REFERENCES

1. До історичних аспектів розвитку фармацевтичної опіки в світі та в Україні / О. Я. Міщенко, В. Ф. Осташко, І. М. Риженко, О. Л. Халєєва, А. В. Березняков, О. С. Сініцина, К. О. Калько // *Сучасна фармація: історія, реалії та перспективи розвитку* : матеріали наук.-практ. конф. з міжнар. участю, присвяченої 20-й річниці заснування Дня фармацевтичного працівника України, м. Харків, 19-20 верес. 2019 р. : у 2 т. – Харків : НФаУ, 2019. – Т. 2. – С. 445-446.
2. Котвіцька, А. А. Дослідження складових та індикаторів оцінки фармацевтичної допомоги у країнах світу / А. А. Котвіцька, А. В. Волкова // *Соціальна фармація в охороні здоров'я*. - 2015. - № 1. - С. 25-31.
3. Котвіцька А. А. Методологія соціальноєфективної організації фармацевтичного забезпечення населення [Текст] : автореферат дис. ... д-ра фармац. наук : 15.00.01 / А. А. Котвіцька ; Нац. фармац. ун-т. – Х., 2008. – 43 с.
4. Немченко, А. С. Анализ основных тенденций развития рынка спортивного питания в королевстве Марокко / А. С. Немченко, В. И. Мищенко, Е. В. Винник, Шатеи Аюб. *Соціальна фармація: стан, проблеми та перспективи* : матер. VII Міжнар. наук.-практ. інтернет-конференції 23-24 вер. 2021 р., Х.: НФаУ, 2021. С. 511-513.
5. Немченко, А. С. Анализ показателей легкости ведения бизнеса в Королевстве Марокко / А. С. Немченко, В. И. Мищенко, Е. В. Винник, Хассани Таха. *Менеджмент та маркетинг у складі сучасної економіки, науки, освіти, практики* : матер. IX міжнар наук-практ дистанційної конф., м. Харків, 18 березня 2021 р.. Х. : Нац. фармац. ун-т, 2021. С. 151-153.
6. Немченко, А. С. *Анализ условий ведения фармацевтического бизнеса Королевства Марокко* / А. С. Немченко, В. И. Мищенко, Е. В. Винник, А. Н. Лебедин. *Соціальна фармація в охороні здоров'я*. 2019. Т. 5. № 3. С. 75-82.

7. Немченко, А. С. Исследование механизмов ценообразования на лекарственные средства в Королевстве Марокко / А. С. Немченко, В. И. Мищенко, Е. В. Винник, А. Н. Лебедин, Римах Фатимаеззахра. *Формування Національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики: матер. IV Всеукр. наук.-практ. конф., м. Харків, 12-13 березня 2019 р. X.* : НФаУ, 2019. с. 153-164.
8. Немченко, А. С. Исследование получения и производства косметического арганового масла в Королевстве Марокко и пути его реализации в Украине / А. С. Немченко, В. И. Мищенко, Е. В. Винник, Эшажири Сальма. *Менеджмент та маркетинг у складі сучасної економіки, науки, освіти, практики* : матер. IX міжнар наук-практ дистанційної конф., м. Харків, 18 березня 2021 р.. X. : Нац. фармац. ун-т, 2021. С. 198-200.
9. Немченко, А. С. Исследование предоставления медицинской помощи и фармацевтической опеки лечения аллергии в Марокко / А. С. Немченко, В. И. Мищенко, Е. В. Винник, Худа Халил. *Механізми розвитку патологічних процесів і хвороб та їхня фармакологічна корекція* : тези доповідей IV Науково-практичної інтернет-конференції з міжнародною участю. 18 лист. 2021 р. м. X.: НФаУ. С. 201-203.
10. Немченко, О. А. Наукове узагальнення сучасних підходів до надання фармацевтичної допомоги населенню в різних країнах світу з традиційною організацією аптечних мереж / О. А. Немченко // *Соціальна фармація в охороні здоров'я.* - 2015. - № 1. - С. 38-44.
11. Немченко А. С. Фармацевтична допомога / А. С. Немченко, Г. Л. Панфілова // *Фармацевтична енциклопедія.* [Електрон- ний ресурс]. – Режим доступу : [http:// www.pharmencyclopedia.com.ua/article/310/farmasevtichna-dopomoga](http://www.pharmencyclopedia.com.ua/article/310/farmasevtichna-dopomoga) – Назва з екрану.
12. Особенности организации аптек в Марокко / Шукри Мохамед Шариф [та ін.] // *Актуальні питання практичної підготовки студентів НФаУ в Україні та за кордоном* : матеріали наук.-практ. конф. з практики

- студентів НФаУ та Коледжу НФаУ, м. Харків, 6 квіт. 2017 р. – Х., 2017. – С. 41–42.
13. Панфілова, Г. Л. Порівняльний аналіз країн ЄС за рівнем витрат, що пов'язані з організацією надання медичної та фармацевтичної допомоги населенню / Г. Л. Панфілова, Л. Г. Бобошко, Я. В. Страшко // *Актуальні питання клінічної фармакології та клінічної фармації - Topical issues of clinical pharmacology and clinical pharmacy* : матеріали Міжнар. наук.-практ. Internet-конф., м. Харків, 22-23 жовт. 2020 р. – Харків : НФаУ, 2020. – С. 74.
14. Пилюга, Л. В. Современные аспекты развития фармацевтической промышленности в Королевстве Марокко / Л. В. Пилюга, Б. Басри // *Соціальна фармація : стан, проблеми та перспективи: матеріали IV міжнар. наук.-практ. інтернет-конф.*, м. Харків, 24-25 квіт. 2018 р. - Харків, 2018. - С. 152-154.
15. Про затвердження протоколів фармацевта : Наказ МОЗ України 05.01.2022 № 7. URL: <https://zakon.rada.gov.ua/rada/show/v0007282-22> (Accessed: 06.03.2023)
16. Тетерич, Н. В. Анализ мотивационной направленности профессиональной карьеры фармацевтических работников Марокко / Н. В. Тетерич, Асуфи Амин // *Формування національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики* : матеріали V Всеукр. наук.-освітньої Internet конф., м. Харків, 12-13 берез. 2019 р. – Х. : НФаУ, 2019. – С. 311-312.
17. Терещенко, Л. В. Аналіз сучасних проблем при наданні фармацевтичної опіки / Л. В. Терещенко, М. П. Журба // *Технологічні та біофармацевтичні аспекти створення лікарських препаратів різної направленості дії* : матеріали V Міжнар. наук.-практ. інтернет - конф., м. Харків, 26 листоп. 2020 р. - Харків : Вид-во НФаУ, 2020. – С. 474-475.

18. Чура, Д. Аналіз сучасних підходів до удосконалення фармацевтичної допомоги в аптеках : кваліф. робота / наук. керівник Ю. Куриленко. - Харків, 2022. - 55 с.
19. Хажжами Мохаммед Аминю Исследование проблем развития здравоохранения и систем фармацевтического обеспечения населения в Марокко / Хажжами Мохаммед Амин, Г. Н. Юрченко // *Формування національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики* : матеріали V Всеукр. наук.-освітньої Internet конф., м. Харків, 12-13 берез. 2019 р. – Х. : НФаУ, 2019. – С. 186-195.
20. Allemann, S. S, van Mil JW, Botermann L, Berger K, Griese N, Hersberger KE. Pharmaceutical care: the PCNE definition 2013. *Int J Clin Pharm.* № 36(3). 2014. P. 544–555.
21. Allemann, S. S., van Mil, J.W.F., Botermann, L. et al. Pharmaceutical Care: the PCNE definition. 2013. *Int J Clin Pharm.* 2014. P. 544–555.
22. Developing pharmacy practice – A focus on patient care / K. Wiedenmayer, R. S. Summers, Cl. A. Mackie et al. – Netherlands: WHO and IPF, 2006. – 87 p.
23. Claudia Rijcken. Scenery of pharmaceutical care. 2019. P. 47-63
<https://www.sciencedirect.com/science/article/pii/B9780128176382000067>
(Accessed: 07.02.2023)
24. Definitions of Pharmaceutical Care and Related Concepts / Alves da Costa, F., van Mil, J., Alvarez-Risco, A. (eds). The Pharmacist Guide to Implementing Pharmaceutical Care. *Springer, Cham.* 2019. URL: https://doi.org/10.1007/978-3-319-92576-9_1 (Accessed: 06.03.2023)
25. DOING BUSINESS. Country rating. URL: <http://russian.doingbusiness.org/rankings?region=middle-east-and-north-africa>.
(Accessed: 25.03.2023)
26. Education Index 2022. URL: <https://gtmarket.ru/ratings/education-index>
(Accessed: 20.03.2023).

27. Gerasymenko, O. V. Pathophysiological mechanisms of cardialgia and pharmaceutical care in the heart pain / O. V. Gerasymenko // *Клінічна фармація*. - 2013. - № 4. - С. 18-24.
28. Filipa Alves da Costa, J. W. Foppe van Mil, Aldo Alvarez-Risco. The Pharmacist Guide to Implementing Pharmaceutical Care. Book. 2019. URL: <https://link.springer.com/book/10.1007/978-3-319-92576-9> (Accessed: 22.01.2023).
29. Industrial Development Plan 2014–2020. URL: <https://www.mcinet.gov.ma/en/content/pharmaceuticals> (Accessed: 04.02.2023)
30. Nemchenko, A. S Review of developments in the training of doctors and pharmacists in Morocco / A. S. Nemchenko, V. I. Mishchenko, Y. Y. Kurylenko, El Menebbehi Aya. *Формування Національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики: матер. VI Всеукр. наук.-практ. конф., м. Харків, 14-15 березня 2023 р. / ред. кол.: А.С. Немченко та ін. – Х. : Вид-во НФаУ, 2023. – 63-70 с.*
31. Morocco. Salary. URL: <https://www.averagesalarysurvey.com/ru/salary/morocco> (Accessed: 25.02.2023).
32. Morocco: The opportunities for the pharmaceutical industry. URL: <https://www.pharmaworldmagazine.com/from-morocco-the-opportunities-for-the-pharmaceutical-industry/> (Accessed: 25.02.2023).
33. Moroz, V. A. Modern approaches to performing pharmaceutical care in women with anemia of pregnancy when treatment with iron preparations / V. A. Moroz, Yu. V. Tymchenko // *Фармацевтична наука та практика: проблеми, досягнення, перспективи розвитку - Pharmaceutical science and practice: problems, achievements, prospects* : матеріали III наук.-практ. інтернет-конф. з міжнар. участю, м. Харків, 15-16 квіт. 2021 р. – Харків : НФаУ, 2021. – С. 270-271.

34. Pengyeow Loh. Siew Siang Chua. Mahmathi Karuppanan. The extent and barriers in providing pharmaceutical care services by community pharmacists in Malaysia: a cross-sectional study. *BMC Health Services Research*. № 822 volume 21. 2021. URL: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-06820-7> (Accessed: 22.01.2023).
35. Rachel, Lipson, Salim, Benouniche, Abdoulaye Keita, Khadija Faridi. Public procurement reform in Morocco. 2014. №11. URL: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://openknowledge.worldbank.org/server/api/core/bitstreams/38c9ffc9-9689-578c-885d-e952c2127a74/content (Accessed: 06.03.2023)
36. Rashid Saud Ayad The components' analysis of the provision of pharmaceutical care for population / Rashid Saud Ayad // *Topical issues of new drugs development* : abstracts of XXIII international scientific and practical conference of young scientists and student, April 21, 2016. - Kh., 2016. - Vol. 2. - P. 229.
37. Resolution CM/Res(2020)3 on the implementation of pharmaceutical care for the benefit of patients and health. Adopted by the Committee of Ministers on 11 March 2020 at the 1370th meeting of the Ministers' Deputies) URL: services chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://rm.coe.int/09000016809cdf26 (Accessed: 12.02.2023).
38. Review of developments in the training of doctors and pharmacists in Morocco / A. S Nemchenko., V. I Mishchenko., Y. Y. Kurylenko, El Menebbahi Aya. Формування Національної лікарської політики за умов впровадження медичного страхування: питання освіти, теорії та практики: матер. VI Всеукр. наук.-практ. конф., м. Харків, 14-15 березня 2023 р. / ред. кол.: А.С. Немченко та ін. – Х. : Вид-во НФаУ, 2023. – 63-70 с.

39. Hjjiej, Salim. Reconnaissance de la formation médicale marocaine. Jul 22, 2017. URL: <https://salimhjjiej.medium.com/article-1-reconnaissance-de-la-formation-m%C3%A9dicale-marocaine-980b32bdac73> (Accessed: 25.02.2023).
40. Seniuk, I. V., El Mehdi Tolbi. Development of the pharmaceutical industry in Morocco. URL: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://dspace.nuph.edu.ua/bitstream/123456789/28320/1/8-10.pdf>. (Accessed: 06.02.2023)
41. Tkachenko, A. E. Marketing research of the pharmaceutical company / A. E. Tkachenko, L. P. Dorokhova // *Topical issues of new drugs development: Abstracts of International Scientific And Practical Conference Of Young Scientists And Student*, April 23, 2015, Kharkiv. – Kh.: NUPh, 2015. - P. 465.
42. Soukaina El-Akhdar, Abdelhakim Mardhy, Ebrahim Kerak. Strategic Analysis of the Pharmaceutical Sector in Morocco and Quality Approach. *IJSR*. P. 876 – 885. URL: https://www.academia.edu/79718621/Strategic_Analysis_of_the_Pharmaceutical_Sector_in_Morocco_and_Quality_Approach (Accessed: 09.04.2023)
43. The Board of PCNE 2013: Hersberger K.E, Griese N, Cordina M, Tully MP, Foulon V, Rossing C, van Mil JW. Position paper on the PCNE definition of Pharmaceutical Care 2013. Pharmaceutical Care Network Europe; 2013. URL: <http://pcne.org/docs/PCNE%20Definition%20Position%20Paper%20final.pdf> (Accessed: 06.03.2023)
44. The Global Use of Medicines 2022. Outlook to 2026. Dec 09, 2021. INSTITUTE REPORT. URL: <https://www.iqvia.com/insights/the-iqvia-institute/reports/the-global-use-of-medicines-2022> (Accessed: 06.03.2023)
45. Université Mohammed VI Polytechnique <https://um6p.ma/fr> <https://um6p.ma/> (Accessed: 25.02.2023).
46. Wagdy Sawahel. Changes in training of doctors, pharmacists and dentists 24.04.2022 URL: <https://www.universityworldnews.com/post.php?story=20220321103347903> (Accessed: 25.02.2023).

47. WEST AFRICA INSIDE THE THE AFRICAN MARKET International Business and Investment Forum UN Campus, Bonn, Germany, 1st to 2nd March 2018. URL: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unido.org/sites/default/files/files/2018-03/Assane%20Coulibaly_%20UNIDO_West%20Africa_Inside%20the%20African%20Pharma%20Market_01032018%20Bonn.pdf (Accessed: 06.02.2023)
48. World development indicators. URL: <https://datatopics.worldbank.org/world-development-indicators/> (Accessed: 09.04.2023)
49. World Directory of Medical Schools. URL: <https://search.wdoms.org/> (Accessed: 25.02.2023).
50. Zinaida Bezverhni, Olga Grintsova. Pharmacy Professional Standards Defining Quality of Services. 2019. URL: <https://www.sciencedirect.com/science/article/pii/B9780128127353001254> (Accessed: 06.03.2023)
51. Zerej, S. Arabic loan words in the russian language / S. Zerej, T. V. Krysenko // *Topical issues of new drugs development: Abstracts of International Scientific And Practical Conference Of Young Scientists And Student*, April 23, 2015, Kharkiv. – Kh.: NUPh, 2015. - P. 606.

APPENDICES



МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ
УНІВЕРСИТЕТ
КАФЕДРА ОРГАНІЗАЦІЇ ТА ЕКОНОМІКИ
ФАРМАЦІЇ
ГО «ХАРКІВСЬКА ОБЛАСНА АСОЦІАЦІЯ
ФАРМАЦЕВТИЧНИХ ПРАЦІВНИКІВ»



ФОРМУВАННЯ НАЦІОНАЛЬНОЇ ЛІКАРСЬКОЇ ПОЛІТИКИ ЗА УМОВ
ВПРОВАДЖЕННЯ МЕДИЧНОГО СТРАХУВАННЯ: ПИТАННЯ ОСВІТИ,
ТЕОРІЇ ТА ПРАКТИКИ

МАТЕРІАЛИ

VI Всеукраїнської науково-освітньої internet конференції

(м. Харків, 14-15 березня 2023 р.)



Харків

2023

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
КАФЕДРА ОРГАНІЗАЦІЇ ТА ЕКОНОМІКИ ФАРМАЦІЇ

ФОРМУВАННЯ НАЦІОНАЛЬНОЇ ЛІКАРСЬКОЇ
ПОЛІТИКИ ЗА УМОВ ВПРОВАДЖЕННЯ МЕДИЧНОГО
СТРАХУВАННЯ: ПИТАННЯ ОСВІТИ, ТЕОРІЇ ТА ПРАКТИКИ

МАТЕРІАЛИ

*VI Всеукраїнської науково-освітньої internet конференції
(м. Харків, 14-15 березня 2023 р.)*

Харків

2023

UDC 615.12;614.39:614.2

**REVIEW OF DEVELOPMENTS IN THE TRAINING OF DOCTORS AND
PHARMACISTS IN MOROCCO**

Nemchenko A.S., Mishchenko V.I., Kurylenko Y.E.,
El Menebbeh Aya

National Pharmaceutical University, Kharkiv, Ukraine

economica@nmpu.edu.ua

Резюме. У роботі оглянуто питання отримання медичної та фармацевтичної освіти у Марокко, яку на сьогодні можливо одержати у 9 університетах країни, більшість з яких є державні – 66 %. Вартість медичної та фармацевтичної освіти у країні висока – від 9 000 до 12 000 USD на рік. Середня зарплата в Марокко у 2022 р. становила 121 946 дирхамів, що складає 12 000 USD. Вартість освіти поступово збільшується. Ціна навчання в університеті "Université Mohammed VI Polytechnique" складає 14 000 доларів США. Починаючи з 2020 р. в Марокко зафіксовано критичний рівень обслуговування медичного, фармацевтичного та стоматологічного персоналу – 1,65 на 1000 осіб, що на 2,8 нижче у порівнянні з пороговим рівнем, який складає 4,45 на 1000 населення. У 2023 р., у зв'язку з гострою відсутністю обслуговуючого персоналу в Марокко, уряд країни прийняв рішення щодо скорочення тривалості медичної та фармацевтичної освіти з семи до шести років. Це дасть змогу надати робочі місця молодим фахівцям та поступово підвищить рівень медичної та фармацевтичної опіки марокканського населення.

Ключові слова: *медична та фармацевтична освіта, медична та фармацевтична опіка в Марокко*

Introduction. The education system in Morocco includes pre-school, primary, secondary and tertiary levels. School education is overseen by the Ministry of National Education with significant devolution of authority to the regional level. Higher education is administered by the Ministry of Higher Education and Leadership Training. In Morocco, higher education institutions are private and public. In public universities, the branches of medicine, technology and business are

predominantly developing. A bachelor's degree is required for admission. If a Moroccan wants to enter a technical university, he will be given the opportunity to pass special tests. The higher education system of Morocco has 174 universities and 1,866 study programs. Of these, 164 universities have 922 Bachelor programs, 148 universities have 786 Master programs and 46 universities have 158 PhD programs. Of these, 164 universities and 922 Bachelor programs. The country is ranked № 117 in the world educational ranking. Morocco ranks 96th in the world economy ranking.

Aim. Carry out a study on the training of doctors and pharmacists in Morocco.

Methods and materials. Overview of developments in the training of doctors and pharmacists in Morocco. The object of analysis is the system of medical and pharmaceutical education in Morocco. Subject of study: literary sources, sites on the analyzed topic in the country. Analysis methods: retrospective, system analysis, comparison.

Research results. Today, for a medical school to be internationally recognized, it must be listed in the World Directory of Medical Schools (<http://www.wdoms.org/>), which is an updated version of what was formerly called Avicenna's Directory. This is a list compiled by two major international organizations: the World Federation for Medical Education (WFME) and the Foundation for the Development of International Medical Education and Research (FAIMER), which brings together all the medical faculties of the world [1]. Today, the World Directory of Medical Schools lists more than 3,700 medical schools in operation around the world [2]. In Morocco, according to the World Directory, 9 universities are registered (which is 0.24% of the total), where you can get medical and pharmaceutical education. Students study at institutes for 7 years, the language of instruction is French (tabl.) [2]. The largest number of universities is concentrated in Casablanca and Rabat (22% each). It should be noted that one of them – «Université Mohammed V de Rabat Faculté de Médecine et de Pharmacie», located

in Rabat, was opened back in 1964. Today, this university has the alternative name "Université Mohammed V Souissi Faculté de Médecine et de Pharmacie de Rabat". (tabl.) [2].

Table

Universities in Morocco, where you can get medical and pharmaceutical education

No	City Name	Medical School Name	Year Instruction Began	School Type	Annual tuition USD
1.	Tanger	Université Abdelmalek Essadi Faculté de Médecine et de Pharmacie de Tanger	2016	Public	-
2.	Marrakech	Université Cadi Ayyad Faculté de Médecine et de Pharmacie de Marrakech	1999	Public/Private	-/12 000
3.	Casablanca	Université Hassan II de Casablanca Faculté de Médecine et de Pharmacie	1975	Public	-
4.	Agadir	Université Ibn Zohr Faculté de Médecine et de Pharmacie d'Agadir	2016	Public	-
5.	Rabat	Université Internationale Abulcasis des Sciences de la Santé Faculté de Médecine	2014	Private	9 000
6.	Oujda	Université Mohammed I Faculté de Médecine et de Pharmacie Oujda	2008	Public	-
7.	Rabat	Université Mohammed V de Rabat Faculté de Médecine et de Pharmacie Alternate Names: Rabat University + Université Mohammed V Souissi Faculté de Médecine et de Pharmacie de Rabat	1962	Public	-
8.	Casablanca	Université Mohammed VI des Sciences de la Santé Faculté de Médecine	2014	Private	14 000
9.	Fes	Université Sidi Mohammed Ben Abdellah Faculté de Médecine et de Pharmacie de Fes	1999	Public	-

From 2022 in Morocco, in the city of Ben Guerir (near Marrakech), a new university «Université Mohammed VI Polytechnique» was opened where you can get medical and pharmaceutical education.

The cost of medical and pharmaceutical education in Morocco is very expensive - from 9,000 USD to 12,000 USD per year (tabl.). Dentist training is cheaper – from 9,000 USD. The university «Université Mohammed VI Polytechnique» tuition fee is 14 000 USD. For Moroccans, this is very expensive. The average salary in Morocco in 2022 was 121,946 dirham which is 12,000 USD [5]. In general, in 2022, the Moroccan city of Casablanca was ranked the world's third cheapest city for international education, with an average tuition fee of 4,067 USD or 41,245 dirham per year, according to the International Schools Database. The Moroccan education system provides for two forms of university ownership - public and private. In Morocco, where you can get medical and pharmaceutical education, 66% of universities are public, 22% are private and public/private 22% (Fig.).

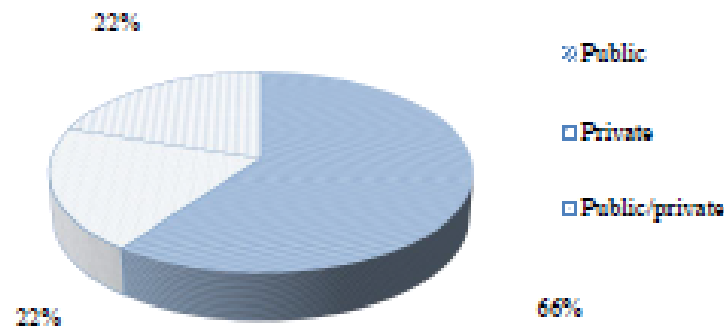


Fig. Types of ownership of universities where you can get medical, pharmaceutical and dental education in Morocco, %

The report The Truth about Health in Morocco: There is no health without workforce development shows that the number of medical and paramedical

personnel providing direct care to patients in Morocco is barely more than 1.65 per 1000 people. This is well below the critical threshold of 4.45 medical personnel per 1,000 people required under the proposed rates as of April 2020. Morocco is short of 32,387 health workers and 97,161 nurses. "This deficit will worsen over the next 10 years with the retirement of 24% of the current medical staff: more than 8,500 people.

Minister of Health of Morocco in an report on medical training shows that, as of January 2022, there is a "severe shortage" in Moroccan hospitals, with only 32,000 doctors and 65,000 nurses working in the sector, serving nearly 37 million citizens and residents. Since 2023, due to an acute shortage of medical and pharmaceutical personnel in the country, the Moroccan Ministry of Higher Education has decided to reduce the training of doctors in nine public and private institutions from seven to six years.

The Minister of Higher Education of Morocco in an instruction to the rectors of public universities in the country, which was published in World News in 2022, brought to the attention of the government the decision to reduce the period of study of students in medicine, pharmacy and dentistry by one year, due to the growing shortage of medical workers. In this regard, the Ministry of Higher Education of Morocco announced an increase in the number of students in the specialty of medicine, pharmacy and dentistry at the expense of public education. Also, all the necessary financial resources will be mobilized within the framework of a contractual program between the state and specialized universities. Only 1,200 young doctors graduate in Morocco every year. To address this problem, the government is planning to raise the salaries of public sector health workers in an attempt to attract Moroccan doctors from its vast diaspora. In addition, healthcare workers serving understaffed regions known as "medical deserts" must receive government assistance or tax breaks.

Higher education in Morocco is very expensive. In 2022, a study by the International Schools Database found that the Moroccan city of Casablanca is the

third cheapest city in the world for international education, with an average tuition fee of 4,067 USD, which is dirham 41,245 per year.

Medical students in Morocco spend five years in medical school, then from the sixth year they enter university hospitals as trainee doctors, and in the seventh year they work in regional hospitals. To meet current staffing needs, the Moroccan government has shortened the study period by one year for students studying medicine, pharmacy and dentistry.

Conclusions

1. In Morocco, you can get medical and pharmaceutical education at 9 universities. Students have been studying in them for 7 years in French. The largest number of universities is located in two cities of the country – Casablanca and Rabat. “The University of Muhammad against Rabat Faculty of de -Medsin and Farnas”, located in Rabat, was opened back in 1964. In the country, 66% of universities are public, 22% are private and public/private 22%.
2. The cost of medical and pharmaceutical education in Morocco has been found to be very high, ranging from 9,000 USD to 12,000 USD per year. The tuition fee at the University "Université Mohammed VI Polytechnique", city of Ben Guerir is 14,000 USD. For Moroccans, this is very expensive. The average salary in Morocco in 2022 was 121,946 dirham, which is 12,000 USD.
3. Morocco has problems with medical and pharmaceutical staff. According to data in 2020, the number of medical and nurses in the country barely exceeded 1.65 per 1000 people, which indicates a critical level of service of medical personnel - a threshold level of 4.45 per 1000 population. This is 2.8 times lower than the threshold level. Since 2023, from the acute absence of medical and pharmaceutical personnel in Morocco, the government decided to reduce the duration of medical, pharmaceutical education from seven to six years.

Literature

1. Salim Hjiej. Reconnaissance de la formation médicale marocaine. Jul 22, 2017. URL: <https://salimhjiej.medium.com/article-1-reconnaissance-de-la-formation-m%C3%A9dicale-marocaine-980b32bdac73> (Accessed: 25.02.2023).
2. World Directory of Medical Schools. URL: <https://search.wdoms.org/> (Accessed: 25.02.2023).
3. Wagdy Sawahel. Changes in training of doctors, pharmacists and dentists 24.04.2022 URL: <https://www.universityworldnews.com/post.php?story=20220321103347903> (Accessed: 25.02.2023).
4. Université Mohammed VI Polytechnique <https://um6p.ma/fr> <https://um6p.ma/> (Accessed: 25.02.2023).
5. Morocco. Salary. URL: <https://www.averagesalarysurvey.com/ru/salary/morocco> (Accessed: 25.02.2023).

Summary. Morocco is currently undergoing a reform to achieve the goals of the new health development model and the establishment of the normative health standards adopted by the World Health Organization for 2025. In this regard, by the beginning of 2035, Morocco plans to complete a new model for the development of education. Therefore, the study of a new development model that provides for the provision of medical and pharmaceutical services throughout the country by increasing the number of highly qualified medical workers is an urgent issue. The Moroccan High Council of Education released data showing that in 2018, about 432,000 students dropped out of public school programs without completing a diploma. It should be noted that 78% of them studied under the programs of primary and higher education.

Key words: *medical and pharmaceutical education, medical and pharmaceutical care in Morocco*



National University of Pharmacy

Faculty for foreign citizens' education
Department of Organization and Economy of Pharmacy
Level of higher education master
Specialty 226 Pharmacy, industrial pharmacy
Educational program Pharmacy

APPROVED
The Head of Department
Organization and Economy of
Pharmacy

Alla NEMCHENKO
"26" of June 2022

ASSIGNMENT
FOR QUALIFICATION WORK
OF AN APPLICANT FOR HIGHER EDUCATION

Aya EL MENEbbeHY

1. Topic of qualification work: « A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world» supervisor of qualification work: Viktoriiia MISHCHENKO, PhD, assoc. prof.

approved by order of NUPh from "06st" of February 2023 № 35

2. Deadline for submission of qualification work by the applicant for higher education: April 2023.

3. Outgoing data for qualification work: the materials were the laws and regulations of Morocco; information resources on the development of medical and PhC in the country; data on maternal and child health in the Morocco; the analysis indicators for the "Doing Business" international project, government health site.

4. Contents of the settlement and explanatory note (list of questions that need to be developed): to analyse overview of the state of economic activities of the Kingdom of Morocco; features of the organization of pharmaceutical care in different countries of the world and Morocco; Moroccans pharmaceutical and healthcare sector study; pharmaceutical manufacturing and the characteristics of pharmacies in Morocco; characteristics of pharmacies in Morocco and pharmaceutical manufacturing.

5. List of graphic material (with exact indication of the required drawings): Tables – 10 , pictures – 10.

6. Consultants of chapters of qualification work

Chapters	Name, SURNAME, position of consultant	Signature, date	
		assignment was issued	assignment was received
1	Viktoriia MISHCHENKO, Associate Professor of Organization and Economy of Pharmacy Department	01.09.2022	01.09.2022
2	Viktoriia MISHCHENKO, Associate Professor of Organization and Economy of Pharmacy Department	20.12.2022	20.12.2022
3	Viktoriia MISHCHENKO, Associate Professor of Organization and Economy of Pharmacy Department	10.02.2023	10.02.2023

7. Date of issue of the assignment: «26» June 2022

CALENDAR PLAN

№ з/п	Name of stages of qualification work	Deadline for the stages of qualification work	Notes
1	Collection and generalization of data from the scientific literature in the areas of qualification work (part 1)	September 2022	Done
2	Study of Moroccan pharmaceutical and healthcare sector (part 2)	October 2022	Done
3	Analysis of the conditions of the modern of pharmaceutical business of Morocco (part 3)	November 2022	Done
4	Writing and design of a qualification work	January 2023	Done
5	Approbation of a qualification work	February 2023	Done
6	Submission of a qualification work to the EC of NUPh	March 2023	Done

An applicant of higher education

_____ Aya EL MENEbbeHY

Supervisor of qualification work

_____ Viktoriia MISHCHENKO

ВИТЯГ З НАКАЗУ № 35
По Національному фармацевтичному університету
від 06 лютого 2023 року

індивідуальним студентам 5-го курсу 2022-2023 навчального року, навчання за освітнім ступенем магістр р.о. галузь знань 22 охорона здоров'я, спеціальності 226 – фармація, промислова фармація, сервісна фармація – фармація, денна форма навчання (термін навчання 1 рік, 10 місяців та 3 роки 10 місяців), які навчються за цим трактом, затвердити теми кваліфікаційних робіт.

Прізвище студента	Тема кваліфікаційної роботи	Повне прізвище та ініціали керівника	Результат кваліфікаційної роботи
• по кафедрі організації та економіки фармації			
Г.ль Менебехі Алія	Дослідження принципів організації фармацевтичної справи у Марокко та країнах світу	A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world	доц. Міщенко В.М. доц. Жданко С.В.

Підстава: пропозиція кафедри, згода ректора

Ректор

Вірно, С.С.С.С.С.



ВИСНОВОК

**Комісії з академічної доброчесності про проведену експертизу
щодо академічного плагіату у кваліфікаційній роботі
здобувача вищої освіти**

№ 112754 від « 30 » квітня 2023 р.

Проаналізувавши випускну кваліфікаційну роботу за магістерським рівнем здобувача вищої освіти денної форми навчання Ель Менеббехі Аїя, 5 курсу, _____ групи, спеціальності 226 Фармація, промислова фармація, на тему: «Дослідження принципів організації фармацевтичної опіки у Марокко та країнах світу / A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world», Комісія з академічної доброчесності дійшла висновку, що робота, представлена до Екзаменаційної комісії для захисту, виконана самостійно і не містить елементів академічного плагіату (копіювання).

**Голова комісії,
професор**



Інна ВЛАДИМИРОВА

1%

26%

REVIEW

of scientific supervisor for the qualification work of the master's level of higher education of the specialty 226 Pharmacy, industrial pharmacy

Aya EL MENEBBEHY

on the topic: «A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world»

Relevance of the topic. The basic principles of modern pharmaceutical care (PhC) were formulated in 1989 by American scientists Helper K.D. and Strand L.M. The development of PhC in the world is a response to the development of self-treatment, an increase in the list of medicines available without a doctor's prescription, and an increase in the patient's responsibility for their own health. PhC is gradually being integrated into the medical care and healthcare system as specialized care at the pharmacy level. The main goal of PhC is to ensure the reliability of drug therapy in order to achieve a certain result, which would improve the patient's quality of life.

Practical value of conclusions, recommendations and their validity.

In Morocco, next to official pharmacies, there are 'Parapharmacy shops' shops selling parapharmaceutical products: soaps, shampoos, creams, oils (working in such stores does not require pharmaceutical education). The sale of medicines in such stores is prohibited. Various preparations, powders, natural oils are sold here, not only in liquid form, but also in the form of powders, herbs, herbal infusions. Such stores are found in every town and village. We analyzed the range of 'Parapharmacy shops': Herbal/Traditional Dietary Supplements (Aloe (Forever Maroc Detox Aloe vera 1 457,00 MAD), Combination Herbal/Traditional Dietary Supplements (Gelée royale arkoreal Arkopharma, ARKOROYAL® 189,00 MAD).

Assessment of work. Aya EL MENEBBEHY conducted significant research work and successfully coped with it, showed the ability to analyze and summarize the data of literary sources, to work independently. The results of research are properly interpreted and illustrated. In performing the qualification works, the higher education seeker showed creativity, purposefulness, independence, perseverance.

General conclusion and recommendations on admission to defend.

Qualification work of the 5th year student of higher education of the group ΦM18 (5,0д) eng - 08 Aya EL MENEBBEHY on the topic "A study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world" is a completed research study, which in terms of relevance, scientific novelty,

theoretical and practical significance meets the requirements for qualification works, and can be submitted to the EC of NUPh.

Scientific supervisor _____ Viktoriia MISHCHENKO

«14» of April 2023

REVIEW

**for qualification work of the master's level of higher education, specialty 226
Pharmacy, industrial pharmacy**

Aya EL MENEBBEHY

**on the topic: «Analysis of the work of external services of pharmaceutical
companies in the context of the development of digital marketing»**

Relevance of the topic. Morocco has developed standards for pharmacists to ensure pharmaceutical care, which include: establishing the reason for contacting a pharmacy, providing information on the correct and safe use of the drug, analyzing.

Theoretical level of work. The materials were the laws and regulations of Morocco; information resources on the development of medical and PhC in the country; data on maternal and child health in the Morocco; the analysis indicators for the "Doing Business" international project, government health site.

Author's suggestions on the research topic. The qualification work is devoted to the study of the principles of the organization of pharmaceutical care in Morocco and the countries of the world. The main directions of development of modern pharmaceutical care in Morocco are analyzed: modern pharmacies and shops "Parapharmacy", pharmaceutical production, distribution.

Practical value of conclusions, recommendations and their validity. The results of the study are of great importance for the work of pharmacies and medical institutions to improve approaches to the pharmaceutical care of the Moroccan population.

Disadvantages of work. As a remark, it should be noted that some of the results of the literature review, which are presented in the first section, need stylistic refinement. In general, these comments do not reduce the scientific and practical value of qualifying work.

General conclusion and assessment of the work. The qualification work of Aya EL MENEBBEHY on the topic "Analysis of the work of external services of pharmaceutical companies in the context of the development of digital marketing" is a science-based analytical study that has theoretical and practical significance. Qualification work meets the requirements for qualification work and can be submitted to the EC of the National University of Pharmacy.

Reviewer _____ associate professor Svitlana ZHADKO

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

ВИТЯГ З ПРОТОКОЛУ № 23

«26» квітня 2023 року

м. Харків

засідання кафедри

Організації та економіки фармації

Голова: завідувачка кафедри, доктор фарм. наук, професор Алла НЕМЧЕНКО.

Секретар: канд. фарм. наук, асистент Алла ЛЕБЕДИН.

ПРИСУТНІ:

зав. каф., проф. Алла НЕМЧЕНКО, проф. Ганна ПАНФІЛОВА, проф. Вікторія НАЗАРКІНА, проф. Інна БАРАНОВА, доц. Віталій ЧЕРНУХА, доц. Геннадій ЮРЧЕНКО, доц. Наталія ТЕТЕРИЧ, доц. Ірина ПОПОВА, доц. Наталія ДЕМЧЕНКО, доц. Вікторія МІЩЕНКО, доц. Алла ЛЕБЕДИН, доц. Тетяна ДЯДЮН.

ПОРЯДОК ДЕННИЙ:

Про представлення до захисту в Екзаменаційну комісію кваліфікаційних робіт здобувачів вищої освіти випускного курсу НФаУ 2023 року випуску.

СЛУХАЛИ: про представлення до захисту в Екзаменаційну комісію кваліфікаційної роботи на тему: «Дослідження принципів організації фармацевтичної допомоги в Марокко та країнах світу», здобувача вищої освіти Фм18 (5,0д)англ-08 групи НФаУ 2023 року випуску Айі ЕЛЬ МЕНЕББЕХІ

Науковий керівник Вікторія МІЩЕНКО

Рецензент Світлана ЖАДЬКО

УХВАЛИЛИ: Рекомендувати до захисту кваліфікаційну роботу здобувача вищої освіти Айі ЕЛЬ МЕНЕББЕХІ групи Фм18 (5,0д)англ-08 на тему: «Дослідження принципів організації фармацевтичної допомоги в Марокко та країнах світу».

Зав. кафедри організації та економіки фармації

Алла НЕМЧЕНКО

Секретар кафедри

Алла ЛЕБЕДИН

НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

ПОДАННЯ ГОЛОВІ ЕКЗАМЕНАЦІЙНОЇ КОМІСІЇ ЩОДО ЗАХИСТУ КВАЛІФІКАЦІЙНОЇ РОБОТИ

Направляється здобувач вищої освіти Айя ЕЛЬ МЕНЕББЕХІ до захисту кваліфікаційної роботи за галуззю знань 22 Охорона здоров'я спеціальністю 226 Фармація, промислова фармація освітньою програмою Фармація на тему: «Дослідження принципів організації фармацевтичної допомоги в Марокко та країнах світу».

Кваліфікаційна робота і рецензія додаються.

Декан факультету _____ / Світлана КАЛАЙЧЕВА /

Висновок керівника кваліфікаційної роботи

Здобувачка вищої освіти Айя ЕЛЬ МЕНЕББЕХІ виконала на кафедрі організація та економіка фармації НФаУ кваліфікаційну роботу, яка присвячена аналізу фармацевтичної допомоги в Марокко та країнах світу.

Кваліфікаційна робота Айі ЕЛЬ МЕНЕББЕХІ на тему «Дослідження принципів організації фармацевтичної допомоги в Марокко та країнах світу» відповідає вимогам, що висуваються до кваліфікаційних робіт, оцінюється позитивно і може бути рекомендована для захисту в Екзаменаційну комісію НФаУ.

Керівник кваліфікаційної роботи

Вікторія МІЩЕНКО

«14» квітня 2023 р.

Висновок кафедри про кваліфікаційну роботу

Кваліфікаційну роботу розглянуто. Здобувачка вищої освіти Айя ЕЛЬ МЕНЕББЕХІ допускається до захисту даної кваліфікаційної роботи в Екзаменаційній комісії.

Завідувачка кафедри
організації та економіки фармації

Алла НЕМЧЕНКО

«26» квітня 2023 року

Qualification work was defended
of Examination commission on

« ____ » of _____ 2023

With the grade _____

Head of the State Examination commission,

DPharmSc, Professor

_____ / Oleh SHPYCHAK /