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MINISTRY OF HEALTH OF UKRAINE
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QUALIFICATION WORK

on the topic: «**MARKETING RESEARCH OF THE LIPID-LOWERING DRUGS MARKET**»

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ANNOTATION

The qualification work is devoted to marketing research of the global and Ukrainian market of drugs for lowering cholesterol levels (statins). The role of statins in reducing the risk of cardiovascular diseases is described, trends in the development of the global, regional and national statin market are analyzed. The structure of consumption, physical and economic availability of statins in Ukraine is analyzed.

The work is presented on 54 pages of printed text and consists of an introduction, three sections, conclusions, a list of references and appendices. The work is illustrated with 13 figures and 8 tables and contains 32 sources of scientific literature.

Key words: pharmaceutical market, hypolipidemic drugs, statins, physical accessibility, economic accessibility.

АНОТАЦІЯ

Кваліфікаційна робота присвячена маркетинговим дослідженням світового та українського ринку лікарських засобів для зниження рівня холестерину (статинів). Описано роль статинів у зниженні ризику серцево-судинних захворювань, проаналізовано тенденції розвитку світового, регіонального й національного ринку статинів. Проведено аналіз структури споживання, фізичної й економічної доступності статинів в Україні.

Робота викладена на 54 сторінках друкованого тексту і складається зі вступу, трьох розділів, висновків, списку використаних джерел, додатків. Робота ілюстрована 13 рисунками і 8 таблицями, містить 32 джерела літератури.

Ключові слова: фармацевтичний ринок, гіполіпідемічні лікарські засоби, статини, фізична доступність, економічна доступність.

CONTENT

INTRODUCTION

Relevance of the topic. According to a report by the World Heart Federation, more than half a billion people in the world suffer from cardiovascular diseases. The number of cases and deaths from CVDs continues to grow globally. According to expert estimates, up to 80 % of premature heart attacks and strokes can be prevented. Despite the overall progress in the development of cardiology, funds for the diagnosis, prevention and treatment of CVDs are often concentrated in high-income countries. As a result, approximately every 4 out of 5 deaths from CVDs occur in low- and middle-income countries. In 2022, CVDs were the cause of 64.1% of deaths in Ukraine [10, 13].

The impact of individual CVD risk factors, such as elevated low-density lipoprotein cholesterol, can be significantly reduced. According to estimates by international organizations, elevated cholesterol levels caused 3.8 million premature deaths in 2021 alone [30, 31].

The main method of hypolipidemic therapy for both primary and secondary prevention of atherosclerotic CVD is the use of statins, or HMG-CoA reductase inhibitors, which can reduce LDL cholesterol levels [26].

The purpose of the qualification work is to study the global and Ukrainian market of the lipid-lowering drugs.

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

• to study and generalize the data of scientific literature regarding the role of statins in reducing the risk of cardiovascular disease;

• to analyze the main trends in the development of the global statin market;

• to analyze factors affecting the statin market in different regions of the world;

• to carry out market analysis of lipid-lowering drugs of the statin group registered in Ukraine;

• to carry out pharmacoeconomic analysis of statin medicines;

• to analyze statin consumption in Ukraine, physical and economic

accessibility of statin therapy.

The object of the study is the segment of the lipid-lowering drugs (statins) on the global and Ukrainian pharmaceutical market.

The subject of the study is the development trends of the global statin market, the peculiarities of consumption, physical and economic availability of statins in Ukraine.

Research methods. Methods of desk marketing research (document analysis), economic and statistical method, methods of pharmacoepidemiological and pharmacoeconomic research (formal VN-analysis, cost minimization analysis).

The practical significance of the obtained results. The findings of this qualification work have practical significance for developing measures to improve patients' physical and economic accessibility to hypolipidemic therapy.

Approbation of research results and publication. The results of the qualification work were presented at the XXXII International scientific and practical conference of young scientists and students "TOPICAL ISSUES OF NEW MEDICINES DEVELOPMENT" (April 15-17, 2026) [25].

Structure and scope of qualification work. The work is presented on 54 pages of printed text. It consists of an introduction, three sections, conclusions, references, and appendices; includes 13 figures, 8 tables and 32 sources of scientific literature.

CHAPTER 1
THEORETICAL JUSTIFICATION OF THE ROLE OF STATINS IN REDUCING THE RISK OF CARDIOVASCULAR DISEASE

1.1 Assessment of the prevalence and risk factors of cardiovascular diseases

Cardiovascular disease (CVD) has remained the primary cause of global mortality for several decades [19]. Expert data suggests that in 2021, approximately 320 million men and an equal number of women worldwide were living with heart and circulatory conditions [27].

That same year, ischemic heart disease, including myocardial infarction, accounted for 11% of all deaths across Organisation for Economic Co-operation and Development (OECD) countries. Within these nations, mortality rates among men are 83% higher than among women. This disparity is largely attributed to a higher prevalence of key risk factors in the male population, such as tobacco use, hypertension, and elevated cholesterol levels.

According to the World Heart Report 2023, CVDs continue to affect over half a billion people globally, claiming 20.5 million lives in 2021. This represents nearly one-third of all global deaths — a significant increase from previous estimates. Currently, ischemic heart disease is the leading cause of premature mortality in 146 countries for men and 98 countries for women [31]. These conditions, affecting the heart and vasculature, stem from a complex interplay of socio-economic, metabolic, behavioral, and environmental factors, including unhealthy diets, air pollution, obesity, physical inactivity, and chronic stress.

International health organizations estimate that up to 80% of premature heart attacks and strokes are preventable. While advancements in cardiovascular medicine over the last five decades have equipped the global community with the essential tools and knowledge to mitigate the impact of cardiovascular diseases (CVDs), these resources remain unevenly distributed. A significant disparity persists in the accessibility of diagnostic, preventive, and therapeutic measures, which often fail to reach the most vulnerable populations. Consequently, approximately 80% of CVD-

related fatalities occur in low- and middle-income countries. Conversely, progress in cardiovascular outcomes is increasingly concentrated in high-income nations, underscoring a profound health inequity that necessitates urgent global intervention. [19, 32].

There is no singular, universal strategy for enhancing cardiovascular health on a global scale. Different populations are subject to varying risk profiles influenced by their geographical context and lifestyle patterns. These disparities may manifest as elevated tobacco and alcohol consumption, excessive dietary sodium, increased exposure to environmental pollutants, or sedentary behavior. Consequently, it is imperative that policymakers and stakeholders conduct rigorous analyses of the risk factor prevalence within their specific regions. Such localized assessment is essential for identifying priority areas and developing targeted interventions that effectively advance cardiovascular health [32].

According to rough estimates, up to 67 % of all deaths in Ukraine are caused by cardiovascular diseases. Globally, the estimated death toll from cardiovascular diseases has risen significantly, climbing from approximately 12.1 million in 1990 — then almost equally distributed between genders — to 18.6 million in 2019. In the latter year, this total included 9.6 million deaths among males and 8.9 million among females (fig. 1.1) [32].

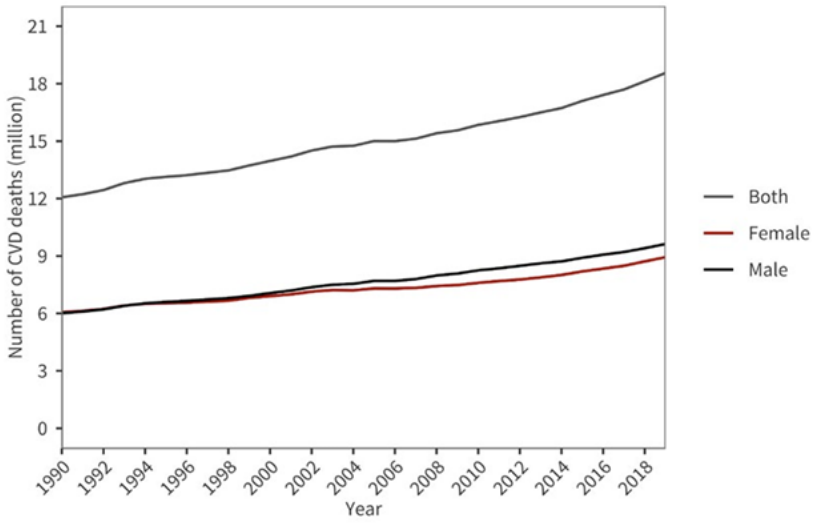

Fig. 1.1 Global trends in number of deaths due to cardiovascular diseases, 1990–2019 (Source: Institute for Health Metrics and Evaluation)

In 2019, cardiovascular diseases accounted for 33% of all global deaths. Within this category, ischaemic heart disease was responsible for 9.1 million fatalities, while stroke caused 6.6 million. Together, these two conditions represented 85% of all CVD-related deaths worldwide [32].

While age-standardized CVD mortality rates have declined globally, the absolute number of deaths has increased from 12.1 million in 1990 to 18.6 million in 2019. Significant disparities persist across different regions and income levels. For instance, the lowest mortality rates are observed in high-income countries within the Asia-Pacific, Europe, and North America. Conversely, the highest rates are found in low- and middle-income regions, including Eastern Europe, the Middle East, North Africa, and South Asia. Over the past three decades, the burden of CVDs has expanded in almost all developing nations, which now account for approximately 80% of cardiovascular deaths worldwide [32].

Despite a global increase in total deaths from cardiovascular diseases (CVDs) over the last 30 years — driven largely by population growth and an ageing demographic — the age-standardized mortality rate has actually decreased by approximately one-third. Specifically, this rate fell from 354.5 per 100,000 population in 1990 to 239.9 per 100,000 in 2019 (fig. 1.2).

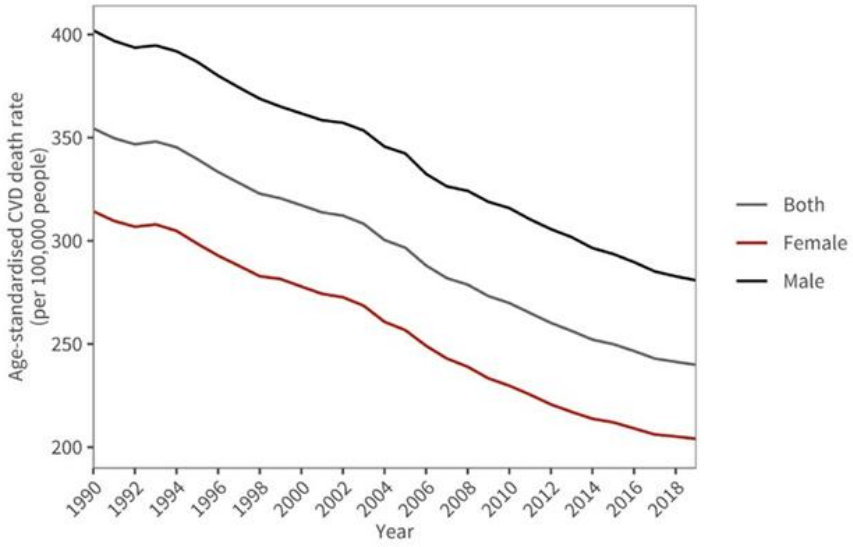

Fig. 1.2 Global trends in age-standardized cardiovascular disease death rate per 100,000 people, 1990–2019 (Source: Institute for Health Metrics and Evaluation)

Age-standardization is a statistical method used to facilitate more accurate comparisons of health outcomes, such as mortality rates, across diverse populations. By estimating what the outcome would be if all populations shared a uniform age structure, this approach allows researchers to determine whether observed variations are driven by the disease itself rather than underlying demographic differences, such as population ageing.

Between 1990 and 2019, cardiovascular disease mortality rates declined across all global regions. However, the pace of this reduction has slowed over the past decade and remains notably uneven. The high-income region achieved the most rapid average annual decrease in death rates for both men and women during this period, recording a steady yearly decline of 2.6% [32].

Conversely, the most gradual declines in cardiovascular mortality for both sexes were observed in Southeast Asia, South Asia, East Asia and Oceania, and Sub-Saharan Africa. Notably, male CVD death rates in these regions showed little to no improvement over the decades. These disparities are stark: while the CVD mortality rate in Sub-Saharan Africa was 1.2 times higher than in high-income countries in 1990, by 2019, this gap had widened significantly, with the rate becoming 2.1 times higher.

High-income countries consistently recorded the lowest cardiovascular mortality rates, with 102.1 deaths per 100,000 females and 153.8 per 100,000 males. Among all other regions, only Latin America and the Caribbean achieved a female mortality rate by 2019 that was comparable to the levels reached by high-income nations nearly three decades earlier, in 1990. For the male population, the lowest CVD mortality rates in 1990 were concentrated in Latin America and the Caribbean, Sub-Saharan Africa, and the high-income region; however, South Asia only managed to reach these historical benchmarks by 2019 [32].

The most elevated age-standardized CVD mortality rates for both sexes were identified in Central Europe, Eastern Europe, and Central Asia. In 1990, these regions recorded 670.2 deaths per 100,000 males and 467.2 per 100,000 females; by 2019, these figures had shifted to 524.1 and 345.7, respectively. The second-highest

mortality rates in 2019 were documented in North Africa and the Middle East, with 376.7 deaths per 100,000 males and 339.8 per 100,000 females (fig. 1.3).

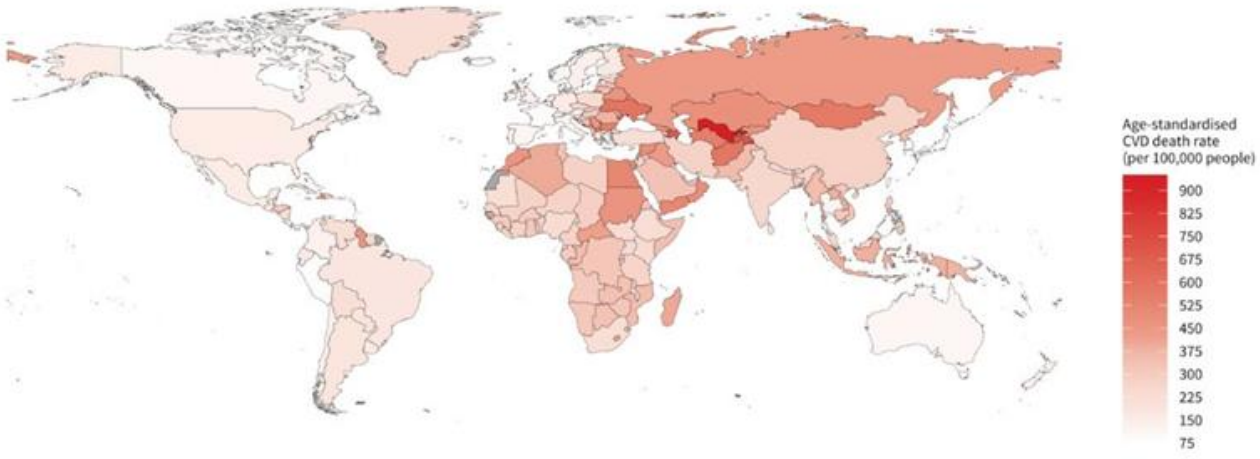

Fig. 1.3 National age-standardized cardiovascular disease death rate (per 100,000 people) in 2019 (Source: Institute for Health Metrics and Evaluation)

The development of cardiovascular diseases is associated with several modifiable risk factors, which can be categorized as follows:

1. Behavioral Factors. These include physical inactivity, excessive dietary sodium intake, harmful alcohol consumption, and tobacco use.

2. Metabolic Factors. Key indicators include hypertension (high blood pressure), elevated fasting plasma glucose, increased body mass index (BMI), high levels of low-density lipoprotein (LDL) cholesterol, and diabetes mellitus.

3. Environmental Factors. A significant contributor is prolonged exposure to ambient and household air pollution.

While certain risk factors, such as family history and genetic predisposition, are non-modifiable, others — including tobacco use and hypertension — can be effectively managed through preventive strategies or clinical intervention. According to the Global Burden of Disease Study, high blood pressure was identified as the primary modifiable risk factor for global mortality in 2021, responsible for approximately 10.8 million deaths attributed to cardiovascular diseases.

The global mortality burden of cardiovascular diseases is driven by several key modifiable risk factors. According to recent data, the following factors contributed significantly to CVD-related fatalities:

1. Hypertension: 10.8 million deaths.
2. Environmental factors (Air Pollution): 4.8 million deaths.
3. Elevated LDL (low-density lipoprotein) cholesterol: 3.8 million deaths.
4. Tobacco use: 3.0 million deaths.
5. Hyperglycemia (high fasting plasma glucose): 2.3 million deaths.
6. High body-mass index (BMI): 2.0 million deaths.
7. Physical inactivity: 397,000 deaths.

Global cholesterol levels exhibit substantial geographical variability (fig. 1.4–1.5).

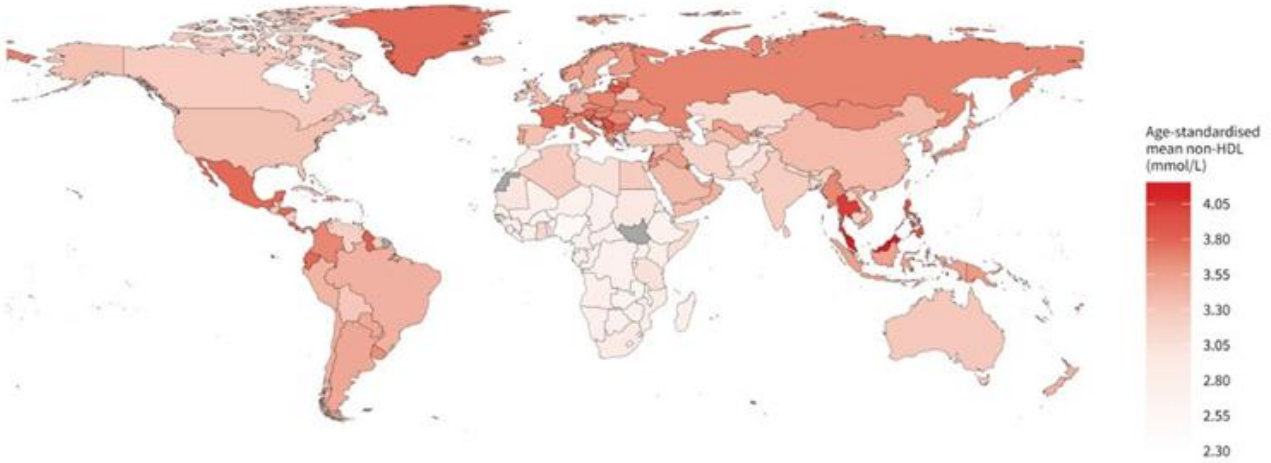

Fig. 1.4 Age-standardized mean non-HDL cholesterol for men aged 18 years and above in different countries, mmol/l

In 2018, average non-HDL cholesterol levels exhibited significant global variation, ranging from 2.4 mmol/L in men and 2.6 mmol/L in women in Lesotho to a high of 4.2 mmol/L in Malaysia (both sexes) and Tokelau (women). Mean non-HDL concentrations consistently exceeded 3 mmol/L for both genders across Central and Eastern Europe, Central Asia, Southeast Asia, East Asia, and Oceania.

Conversely, levels were notably lower in Sub-Saharan Africa; while Lesotho reported the lowest global figures, Ghana recorded slightly higher values of 3.2 mmol/L for men and 3.4 mmol/L for women.

Fig. 1.5 Age-standardized mean non-HDL cholesterol for women aged 18 years and above in different countries, mmol/l

Historically, elevated cholesterol levels were predominantly associated with high-income regions, particularly Northwestern Europe, North America, and Australasia. However, a significant geographical shift has occurred; the highest cholesterol-related health risks are now concentrated in middle-income countries across East and Southeast Asia, as well as several nations within Central Latin America.

Between 1980 and 2018, non-HDL cholesterol levels improved significantly across high-income regions, with reductions reaching as much as 1.7 mmol/L for both sexes in Belgium. Conversely, mean non-HDL levels rose in both men and women across all South Asian nations and the majority of Sub-Saharan African countries. Notable increases, reaching 0.8 mmol/L, were recorded among women in Cambodia and men in Tokelau. Furthermore, high-income countries not only achieved substantial declines in non-HDL cholesterol but also maintained higher

average HDL cholesterol levels — often referred to as 'good' cholesterol — compared to low- and middle-income countries.

The World Heart Federation (WHF) Roadmap for Cholesterol Management provides a comprehensive strategic framework designed to guide national policy and the optimization of healthcare systems. Its primary objective is to address systemic barriers in cholesterol management and the prevention of atherosclerotic cardiovascular disease (ASCVD).

The roadmap identifies several critical priority areas:

1. Enhancing initiatives that prevent the emergence of risk factors at the population level.

2. Ensuring that lipid profile testing is both economically accessible and widely available.

3. Improving the accuracy of cardiovascular risk assessment within clinical practice;

4. Facilitating broader availability of essential cholesterol-lowering treatments.

In summary, cardiovascular disease remains the preeminent cause of global mortality, affecting more than half a billion individuals and resulting in over 20 million deaths in 2021 alone. While age-standardized mortality rates have trended downward due to clinical and pharmaceutical advancements, the absolute number of CVD-related fatalities continues to rise. This burden is disproportionately concentrated in low- and middle-income countries, which currently account for approximately 80% of the global CVD mortality burden.

This widening disparity is primarily driven by inequitable access to preventive services, diagnostic tools, and essential treatments, compounded by regional variations in the prevalence of risk factors such as hypertension, dyslipidemia, tobacco use, and environmental pollutants. Effectively addressing these systemic challenges necessitates the implementation of targeted, region-specific strategies. Initiatives such as the World Heart Federation Roadmap for Cholesterol provide a vital framework for optimizing healthcare delivery, ultimately aiming to mitigate the

global burden of cardiovascular disease and foster international equity in cardiovascular health outcomes.

1.2 Statins as a group of drugs to reduce the risk of cardiovascular disease

In clinical practice, the prevention of cardiovascular diseases is categorized into primary and secondary stages. Given that cardiovascular disease is characterized by the continuous progression of the atherosclerotic process, the distinction between these categories is often conditional. Consequently, preventive measures are recommended throughout the entire lifespan — from birth, or even prenatally, into old age [15].

The core strategies for cardiovascular disease prevention involve systematic risk factor identification, comprehensive global risk assessment, and targeted interventions. These interventions aim to mitigate cumulative risk through the promotion of healthy lifestyle principles alongside both pharmacological and non-pharmacological corrections. Universally recognized risk factors include arterial hypertension, dyslipidemia, and impaired glucose metabolism, as well as lifestyle-related factors — specifically smoking, poor nutrition, and physical inactivity. Additionally, social determinants and psychological traits play a significant role in the overall cardiovascular risk profile [15].

Statins, or HMG-CoA reductase inhibitors, represent a cornerstone class of lipid-lowering agents utilized in the primary, secondary, and tertiary prevention of coronary heart disease. Their mechanism involves the competitive inhibition of the enzyme 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase. By effectively blocking the conversion of HMG-CoA to mevalonate — a critical rate-limiting step in the biosynthetic pathway — statins significantly reduce endogenous cholesterol production within the liver [18].

Statins — including atorvastatin, rosuvastatin, simvastatin, lovastatin, pravastatin, and fluvastatin — are established as first-line pharmacotherapy for the management of dyslipidemia. Extensive clinical evidence demonstrates that statin therapy significantly reduces low-density lipoprotein (LDL) cholesterol levels and

the associated risk of cardiovascular disease (CVD). Notably, statins have been proven to decrease all-cause mortality, including fatal and non-fatal cardiovascular events, while reducing the clinical necessity for invasive procedures such as surgical revascularization or angioplasty post-myocardial infarction. Furthermore, evidence suggests that even among low-risk populations (with a <10% projected risk of major vascular events within five years), every 1 mmol/L reduction in LDL cholesterol achieved through statins results in a 20–22 % relative risk reduction in major cardiovascular events, without a statistically significant increase in adverse side effects [30].

The analysis of pharmaceutical consumption through internationally recognized methodology utilizes the Defined Daily Dose (DDD) — a standardized unit of measurement representing the average maintenance dose per day for a drug used for its main indication in adults. Expressing consumption in DDDs, categorized by the Anatomical Therapeutic Chemical (ATC) classification system, facilitates a rigorous comparative analysis of drug utilization patterns across diverse regions and national healthcare systems. By correlating these utilization metrics with epidemiological data on morbidity or clinical outcomes (such as the development of antimicrobial resistance), researchers can identify causal relationships and evaluate the rationality of pharmacotherapy. Compared to alternative metrics—such as sales volume in physical units (packages) or monetary equivalents — the ATC/DDD methodology remains the most robust and objective framework for assessing the quality and efficiency of medical treatment [17].

The Anatomical Therapeutic Chemical (ATC) classification system has been formally adopted by the World Health Organization (WHO) as the international standard methodology for conducting comparative statistical studies on pharmaceutical consumption. A central component of this system is the Defined Daily Dose (DDD) — a technical unit of measurement based on the average maintenance dose for a 70 kg adult. It is important to note that the DDD is a fixed unit of measurement for analytical purposes and may not always align with the clinical doses prescribed in medical literature or used in individual practice. The

application of the ATC/DDD methodology enables researchers to rigorously evaluate drug utilization patterns at various levels, ranging from individual clinical departments and healthcare institutions to broader territorial entities, such as regions or entire nations.

Consequently, the utilization of statins across different nations is analyzed using the ATC/DDD methodology, specifically through the metric of Defined Daily Doses (DDD) per 1,000 inhabitants per day (DID). This standardized indicator accounts for variations in population size, enabling researchers to conduct objective cross-national comparisons and evaluate the intensity of pharmacological intervention across diverse healthcare systems [17].

Table 1.1 presents the ATC classification codes and the Defined Daily Doses (DDD) for various international non-proprietary names (INNs) of statins, as established by the WHO Collaborating Centre for Drug Statistics Methodology.

Table 1.1

Daily define doses for statins

ATC code	Name	DDD, mg	Administration route
C10AA01	simvastatine	30	oral
C10AA02	lovastatine	45	oral
C10AA03	pravastatine	30	oral
C10AA04	fluvastatine	60	oral
C10AA05	atorvastatine	20	oral
C10AA06	cerivastatine	0.2	oral
C10AA07	rosuvastatine	10	oral
C10AA08	pitavastatine	2	oral

Statin consumption demonstrates substantial geographic variation, with the highest utilization rates observed in high-income economies, such as the United Kingdom and the United States. This trend is primarily attributed to robust cardiovascular screening programs, high levels of clinical guideline adherence, and advanced reimbursement systems that enhance patient access to chronic care medications. In contrast, consumption patterns in low- and middle-income regions

remain lower, often reflecting systemic barriers in healthcare infrastructure and diagnostic accessibility (fig. 1.6).

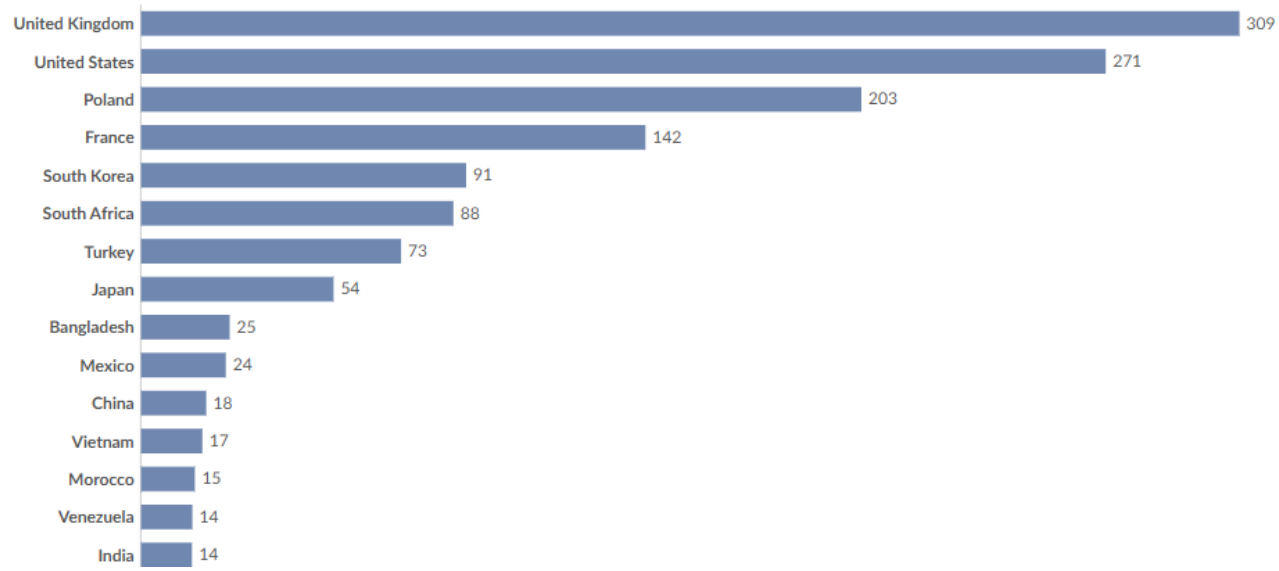

Fig. 1.6 The use of statins in different countries, in DDD per 1,000 people

Conversely, a significant paradox is observed in several nations where high average levels of non-HDL cholesterol persist alongside disproportionately low rates of statin consumption. This discrepancy highlights a critical 'treatment gap,' often driven by systemic barriers such as inadequate public health screening, high out-of-pocket medication costs, and a lack of integrated chronic disease management protocols (fig. 1.7) [24].

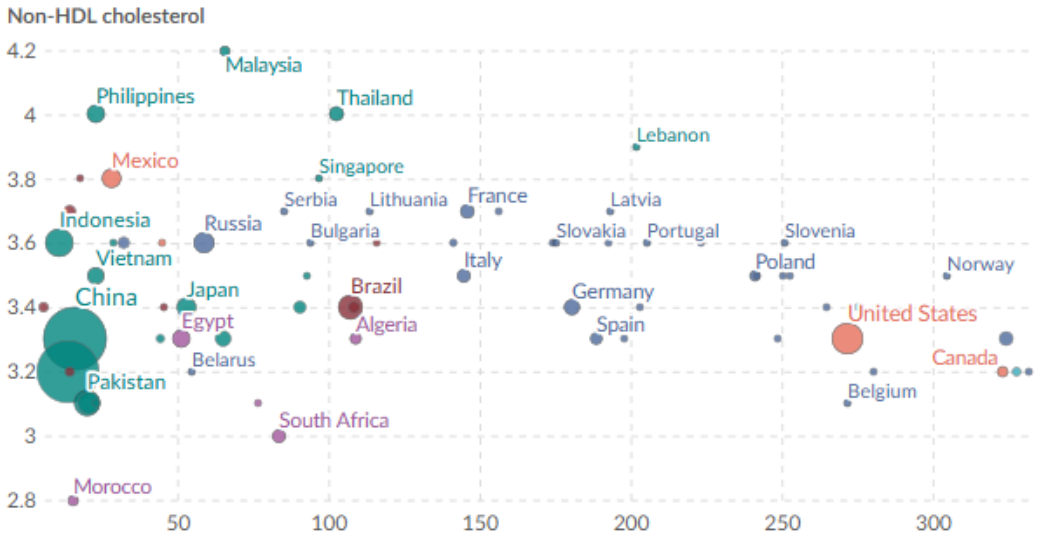

Fig. 1.7 The use of statins in some countries (in DDD per 1,000 people) compared with the average non-HDL cholesterol level (in mmol/l)

The availability of comprehensive statistical datasets enables a robust comparative analysis between cardiovascular disease mortality rates and statin utilization levels on a global scale. This correlation is essential for evaluating the effectiveness of national pharmaceutical policies and their direct impact on long-term public health outcomes (fig. 1.8) [24].

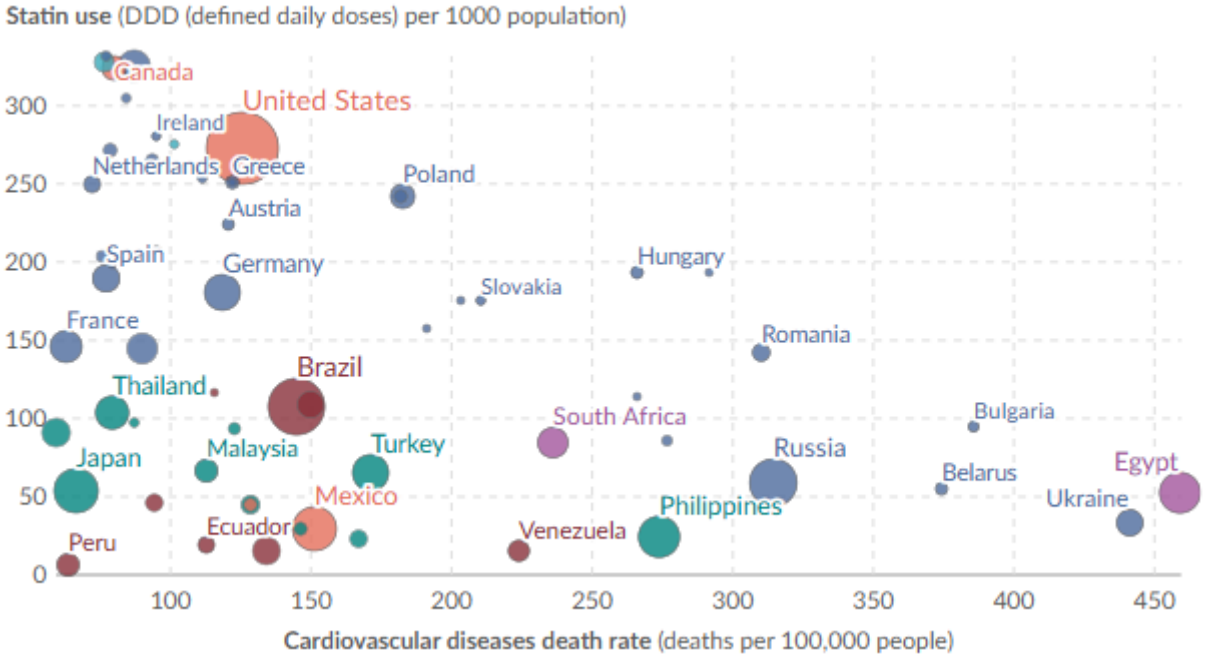

Fig. 1.8 The use of statins in some countries (in DDD per 1,000 people) compared with the CVD death rate (deaths per 100,000)

As illustrated in fig. 1.8, a clear inverse relationship exists between statin utilization and cardiovascular outcomes. High-income countries — including Canada, the United States, Ireland, the Netherlands, and Greece — demonstrate high levels of statin consumption correlated with significantly lower cardiovascular mortality rates. Conversely, countries such as Egypt, Ukraine, and Bulgaria exhibit a high burden of cardiovascular mortality alongside low statin utilization. This disparity underscores a substantial “prevention gap” and suggests that increasing access to essential lipid-lowering therapies could be a primary driver for reducing premature mortality in these regions [24].

Modern statins, categorized within the fifth level of the ATC classification system, exhibit substantial variations in therapeutic efficacy, safety profiles, and price points. These factors, combined with differing national reimbursement

policies, directly influence their economic accessibility for diverse patient populations. Global utilization patterns indicate a clear clinical and market preference for atorvastatin and rosuvastatin, which have emerged as the most frequently prescribed agents due to their potent lipid-lowering capabilities and extensive evidence-based support [7].

Conclusions to Chapter 1

1. Cardiovascular diseases (CVDs) remain the leading cause of mortality worldwide, particularly in low- and middle-income countries where access to healthcare services and preventive measures is limited. Major risk factors include high blood pressure, elevated cholesterol, tobacco use, obesity, and environmental pollution.

2. Statins, as effective lipid-lowering agents, play a key role in the primary and secondary prevention of ischemic heart disease. Their consistent use significantly reduces the risk of cardiovascular events and overall mortality.

3. The ATC/DDD methodology, adopted by the WHO, enables objective comparison of statin consumption levels across countries and reveals correlations between drug usage and CVD mortality rates. However, high average cholesterol levels do not always align with high statin use, highlighting disparities in treatment accessibility.

4. Global evidence demonstrates that countries with high levels of statin consumption tend to have lower cardiovascular mortality rates. This underscores the importance of national policies aimed at ensuring availability and effective use of statins, especially among high-risk populations.

CHAPTER 2
ANALYSIS OF THE GLOBAL, REGIONAL AND NATIONAL STATIN MARKET

2.1 Analysis of the main trends in the development of the global statin market

Statins represent a class of medications primarily used to lower blood cholesterol levels and prevent cardiovascular diseases. Their therapeutic history began in the 1970s when the Japanese biochemist Akira Endo discovered mevastatin — the first HMG-CoA reductase inhibitor — derived from the fungus Penicillium citrinum. Although mevastatin was never commercialized due to potential side effects, this breakthrough laid the essential foundation for subsequent pharmaceutical research in the field of lipid-lowering therapy.

In 1987, Merck received FDA approval for lovastatin (brand name Mevacor), marking it as the first statin available for clinical use. Isolated from the fungus Aspergillus terreus, lovastatin demonstrated a significant capacity to reduce low-density lipoprotein (LDL) cholesterol levels. This milestone transformed the management of hyperlipidemia and initiated the widespread use of HMG-CoA reductase inhibitors in preventive cardiology.

During the 1990s, additional statins, including pravastatin (Pravachol) and simvastatin (Zocor), entered the market. Notably, the 1994 Scandinavian Simvastatin Survival Study (4S) demonstrated that simvastatin reduced LDL cholesterol levels by 35% and decreased the risk of coronary mortality by 42%.

In 1996, atorvastatin (Lipitor) received approval and rapidly became one of the best-selling pharmaceuticals in history. By 2012, Lipitor's cumulative global sales exceeded $125 billion, underscoring its immense clinical impact and commercial dominance within the cardiovascular market.

In 2003, rosuvastatin (Crestor) was introduced, quickly establishing itself as a highly potent cholesterol-lowering agent. By 2013, Crestor had become the fourth best-selling pharmaceutical in the United States, generating approximately $5.2 billion in annual revenue. Its clinical success further diversified the options for

intensive lipid-lowering therapy and reinforced the commercial significance of the statin class.

By 2009, global statin sales peaked at $35.3 billion. However, following the expiration of key patents, the subsequent market entry of high-quality generic versions significantly reduced treatment costs. This shift transformed the economic landscape of cardiovascular therapy, making these essential medications more accessible to a broader population and easing the financial burden on national healthcare budgets.

According to a report by IMARC Group, the global statin market reached a valuation of USD 15.9 billion in 2024. Based on the analysis of the 2019–2024 period, the market is projected to expand at a compound annual growth rate (CAGR) of 2.74 % from 2025 to 2033. Consequently, the global market size is anticipated to reach USD 20.3 billion by 2033 [22].

Quantitative indicators of the statin market are given in table 2.1.

Table 2.1

Quantitative indicators of the global statin market

Indicator name	Indicator value
Market size in 2024	USD 15.9 billion
Market growth rate 2025–2033	2.74 %
Market size in 2023	USD 20.3 billion

Statin consumption is consistently increasing across various global regions. The primary drivers of this growing demand for lipid-lowering therapies include:

- the rising prevalence of cardiovascular diseases and hypercholesterolemia worldwide;
- enhanced public awareness regarding cardiovascular risk factors;
- the growing clinical necessity for highly effective treatments;
- continuous improvements in healthcare infrastructure;
- the expansion of insurance coverage and the implementation of robust reimbursement systems in many countries [29].

The COVID-19 pandemic negatively impacted the global statin market as research and development resources were temporarily redirected toward combating the coronavirus, leading to a brief curtailment of new statin studies.

Advances in personalized medicine, genomics, and bioinformatics are driving the statin market. By tailoring treatments to individual patients, these technologies enhance efficacy and minimize side effects, significantly improving global market prospects [29].

Precision medicine is a key trend, with statin treatments now being tailored to individual genetic profiles to maximize efficacy and minimize side effects. Additionally, a growing global focus on preventive healthcare is further driving demand for statins as a primary tool for cardiovascular disease prevention.

Government health policies and clinical guidelines increasingly prioritize cardiovascular prevention, establishing statins as a primary treatment for cholesterol control. National initiatives and public awareness campaigns are driving market growth by emphasizing prevention over reactive treatment. Furthermore, the inclusion of statins in international medical protocols has standardized and expanded their use in global clinical practice [29].

Statin consumption is highest in regions with aging populations and prevalent lifestyle-related cardiovascular risks. While North America and Europe currently dominate the global market, demand is rapidly growing in emerging economies due to rising health awareness and improving healthcare infrastructure.

The global statin market is characterized by several key players, including Abbott Laboratories, AstraZeneca, Aurobindo Pharma, Biocon, GlaxoSmithKline, Merck & Co., Novartis, and Pfizer. Competition among these firms drives innovation, the development of new drugs, and the refinement of marketing strategies. Furthermore, the market is increasingly witnessing collaborations between pharmaceutical companies and healthcare providers to enhance the accessibility and effectiveness of statin therapy [29].

Addressing side effects remains a major challenge as they negatively impact patient compliance. However, this creates opportunities for developing new, safer statin molecules.

The global statin market is segmented into synthetic and natural (bio-statins) categories. Natural statins currently hold a significant market share, often perceived as safer due to their biological origins. A key example is lovastatin, found in red yeast rice. The rising demand for bio-statins aligns with the global trend toward organic products, particularly among patients wary of synthetic side effects. Consequently, marketing campaigns often position natural statins as a holistic alternative, contributing to their widespread adoption [29].

Synthetic statins, such as atorvastatin and rosuvastatin, are engineered for maximum therapeutic efficacy. Their primary strength lies in significantly lowering LDL cholesterol, making them indispensable for high-risk patients. This superior clinical performance drives their widespread use in preventing cardiovascular complications.

The statin market can be segmented by therapeutic application into cardiovascular disorders, obesity, inflammatory conditions, and other emerging indications.

The cardiovascular segment remains the most significant for statin application, as lowering cholesterol is critical for mitigating key heart disease risks. Statins are the primary therapy for preventing stroke, coronary heart disease, and myocardial infarction. Driven by an aging population and lifestyle shifts, the rising global incidence of cardiovascular conditions ensures consistently high consumption in this area.

In obese patients, statins serve as adjunctive therapy for lipid dysfunctions common in overweight individuals. As global obesity rates rise — particularly in developed countries — statin prescriptions are increasing in parallel with lifestyle-driven metabolic changes. Consequently, integrating statins into comprehensive obesity management strategies is a key driver of market growth.

The potential of statins to reduce chronic inflammation is a promising driver of market growth. Research suggests statins can mitigate inflammatory responses linked to poor diet and autoimmune diseases. Ongoing clinical trials are expected to formalize this application, potentially establishing a new therapeutic area for statin use [29].

According to the ATC classification, the statin market is segmented into atorvastatin, fluvastatin, lovastatin, pravastatin, simvastatin, and others.

Atorvastatin holds the largest share of the statin market, primarily due to its efficacy in significantly reducing low-density lipoprotein (LDL) cholesterol. Its dominance is attributed to its potent lipid-lowering ability combined with a well-established safety profile. Atorvastatin is highly effective in patients with high cardiovascular risk, and its use is supported by a vast body of clinical data highlighting its benefits in reducing the risk of heart attacks and strokes [20, 26].

Rosuvastatin is among the most potent statins for lowering LDL cholesterol and mitigating cardiovascular risk. It demonstrates higher efficacy at lower doses compared to atorvastatin, simvastatin, and pravastatin. Due to its extended half-life, rosuvastatin provides sustained effects with once-daily dosing. Unlike simvastatin and atorvastatin, it carries a lower risk of drug interactions as it is less dependent on CYP450 liver enzyme metabolism, making it a safer option for polymedicated patients. Its hydrophilic nature reduces the likelihood of muscle-related side effects, such as myopathy, which are more common with lipophilic statins. Rosuvastatin is frequently prescribed for patients with severe hypercholesterolemia or high cardiovascular risk, including those with familial forms, due to its robust lipid-lowering effects and overall cardiovascular benefits [26, 28].

On the other hand, fluvastatin possesses unique pharmacokinetic properties that make it a suitable option for specific patient groups. Due to its favorable drug interaction profile, fluvastatin is prescribed to patients at increased risk when using other statins. It is effective in lowering cholesterol levels and is particularly appropriate for patients who require moderate lipid reduction [21, 26].

Lovastatin, a naturally occurring statin, is highly regarded by patients and healthcare professionals who prefer natural alternatives. Although it is less potent than certain synthetic statins, it is effective in managing cholesterol levels in patients with mild to moderate hypercholesterolemia. The lovastatin segment is gaining attention due to the growing demand for natural and organic therapies [26].

Pravastatin stands out in the market due to its hydrophilic nature, which is generally associated with a lower risk of muscle-related adverse effects. This makes pravastatin a preferred choice for patients who may be susceptible to or have a history of statin-associated myopathy. Pravastatin's efficacy in lowering cholesterol and its favorable safety profile contribute to its stable market presence [20].

Simvastatin represents another significant segment of the statin market, known for its efficacy and affordability. It is commonly prescribed to manage cholesterol levels. There is extensive clinical experience with simvastatin in reducing the risk of cardiovascular events. The widespread use of simvastatin is also due to its cost-effectiveness and availability, making it a viable option for many patients [8, 20].

Simvastatin is the second most frequently prescribed cholesterol-lowering drug, surpassed only by atorvastatin. In 2021 alone, over 70 million prescriptions for simvastatin were issued worldwide [7].

The main application of statins is in the dyslipidemia segment, as they are primarily prescribed for their lipid-lowering properties. Dyslipidemia, characterized by abnormal blood lipid levels, is a major risk factor for cardiovascular diseases. Statins effectively reduce high levels of low-density lipoprotein (LDL) cholesterol and triglycerides, thereby mitigating the risk of heart attacks and strokes. The high prevalence of dyslipidemia—driven by unhealthy diets, sedentary lifestyles, and genetic predisposition — contributes to the sustained demand for statins. Treatment with statins has been well-established in clinical practice, supported by extensive studies confirming their efficacy and safety during long-term use [29].

The main channels for prescribing and distributing statins are hospitals (inpatients) and clinics (outpatients).

The global market is dominated by the distribution of statins through hospitals, owing to their critical role in diagnosing and treating cardiovascular diseases. These institutions are key centers for initiating therapy, especially for patients with acute cardiovascular events or those undergoing cardiac procedures. Furthermore, the availability of a wide range of statins in hospital pharmacies, combined with specialized healthcare professionals, makes these facilities a central hub for distribution. Additionally, hospital infrastructure often includes comprehensive cardiac care units and regular follow-up mechanisms, ensuring effective management of patients receiving therapy [29].

Medical clinics, including private and specialty facilities, are a pivotal channel for prescribing and distributing statins. These institutions provide long-term care for chronic conditions, including dyslipidemia and cardiovascular disease prevention. In clinic settings, statins are integrated into comprehensive treatment plans. Clinics are often more accessible than hospitals for regular patient visits and lipid monitoring, which promotes treatment adherence among patients [29].

In conclusion, the global statin market continues to evolve through a balance of established clinical standards and emerging trends in personalized medicine. The shift toward generic accessibility, combined with diverse therapeutic applications and robust distribution channels, ensures that statins remain a cornerstone of modern cardiovascular prevention and management.

2.2 Analysis of factors affecting the statin market in different regions of the world

Geographical segmentation of the global statin market involves division into the following regional markets:

- North American (United States and Canada);
- Asia-Pacific (China, Japan, India, South Korea, Australia, Indonesia, etc.);
- European (Germany, France, Great Britain, Italy, Spain, etc.);
- Latin America (Brazil, Mexico, etc.);
- Middle East and Africa region [29].

According to the IMARC Group report, the North American region, comprising the United States and Canada, represented the dominant share of the global statins market.

Factors contributing to the growth of the statins market and the high demand for statins in North America include:

- high prevalence of cardiovascular diseases;
- well-developed healthcare system;
- presence of prominent pharmaceutical companies involved in the production and research of statins;
- increasing public awareness about the importance of cholesterol control and preventive healthcare measures;
- favorable healthcare policies and a comprehensive reimbursement framework for lipid-lowering therapy [29, 32].

Factors driving the growth of the statin market in Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, etc.) include:

- escalating number of patients with cardiovascular diseases;
- increasing prevalence of lifestyle-related diseases (such as obesity and diabetes);
- growing population and morbidity of heart-related diseases in countries such as China and India;
- advancing healthcare infrastructure;
- rising healthcare expenditure;
- expanding awareness among the public and healthcare professionals about cholesterol control [29].

Factors characterizing the development of the statin market in the European region (Germany, France, UK, Italy, Spain, etc.) include:

- the presence of advanced healthcare systems;
- extensive awareness of the population about cardiovascular health;
- a large elderly population prone to heart diseases;
- the presence of a comprehensive healthcare policy;

- large-scale research and development;
- high healthcare expenditure;
- the presence of effective cholesterol control strategies, including the utilization of statins [29].

Factors driving the growth of the statin market in Latin America include:

- expanding access to healthcare;
- increasing awareness of cardiovascular disease;
- countries such as Brazil and Mexico are witnessing rising prevalence of heart disease, partly due to urbanization and lifestyle changes;
- improving economic conditions;
- escalating healthcare spending and availability of medications, including statins.

Factors contributing to the growth of the statin market in the Middle East and Africa region include:

- strengthening awareness among the population about cardiovascular health;
- increasing incidence of lifestyle-related diseases;
- gradual enhancement of healthcare infrastructure.

A key barrier restraining the development of the statin market in this region is inequality in access to healthcare and limited affordability of statin therapy, especially in less developed countries [29].

Thus, the dynamics of the global statin market are shaped by a combination of demographic aging in developed nations and rapid urbanization in emerging regions. Despite the overall growth trend, ensuring equitable access to therapy in low- and middle-income countries remains a key challenge.

2.3 Market analysis of lipid-lowering drugs of the statin group registered in Ukraine

In the context of the growing importance of economical use of healthcare resources, marketing research of the pharmaceutical market is key to optimizing

costs and meeting the needs of patients and medical institutions [10, 12]. To analyze the market of hypolipidemic drugs registered in Ukraine, we analyzed the State Register of Medicines of Ukraine [2].

The State Register of Medicinal Products of Ukraine is an official database containing information on medicinal products registered in Ukraine. It is maintained by the Ministry of Health of Ukraine and contains information on the name of the drug (international non-proprietary and trade name), release form (tablets, capsules, solution, etc.), active substance and its concentration, manufacturer (company name and country), registration certificate number, registration validity period, pharmacotherapeutic group and conditions of release (prescription or non-prescription) [2].

This registry allows to check whether a particular medicine is officially approved for use in Ukraine, which helps doctors, pharmacists, and patients avoid counterfeit or unregistered drugs. The search was carried out using the ATC code C10AA as of 01.03.2026. 257 records of registration of statins of the following groups were found: simvastatin, atorvastatin, rosuvastatin and pitavastatin (table 2.2).

All statins are produced in the form of film-coated tablets and are dispensed from pharmacies on prescription. Statins of the following groups are not available on the pharmaceutical market of Ukraine: lovastatin, cerivastatin, pravastatin and fluvastatin [2, 9, 10, 11].

The State Register has identified 21 registration records for drugs containing simvastatin in dosages of 10, 20 and 40 mg. Registered drugs from one domestic and seven foreign manufacturers, 8 trade names [2].

90 registration records for drugs containing atorvastatin in dosages of 10, 20, 40 and 80 mg, four domestic and 15 foreign manufacturers were identified [2].

90 registration records for drugs containing atorvastatin in dosages of 10, 20, 40 and 80 mg, four domestic and 15 foreign manufacturers were identified [2].

The largest number of registered drugs belong to the rosuvastatin group — 139 registration records for drugs in dosages of 5, 10, 15, 20, 30 and 40 mg, eight domestic and 23 foreign manufacturers [2].

Table 2.2

Monocomponent drugs containing statins registered in Ukraine

INN, ATC code	Trade name	Number of entries in the registry	Number of manufacturers		Dosage, mg
			domestic	foreign	
Simvastatin C10AA01	Cardak, Simvastatin Ananta, Simvastatin Sandoz®, Simvastatin-Teva, Simvasterol, Vasostat-Zdorovya, Vazilip®, Allesta®	21	1	7	10, 20, 40
Atorvastatin C10AA05	Atorvastatin Ananta, Storvas, Limistin, Tolevas®, Atorvasterol, Torzax®, Lipodemin, Atocor, Atorvastatin KRKA, Atorvastatin-Darnitsa, Atorvacor®, Atorvastatin-Teva, Modlip, Astin®, Atorvastatin Macleods, Liprimar®, Atoris®, Livostor, Etset®, Escolan-Sanovel	90	4	15	10, 20, 40, 80
Rosuvastatin C10AA07	Rozart, Mertenil, Rosucard®, Roxera®, Rozulip®, Suvardio, Klivas, Romazyk, Rosuvasin, Rozvator, Romestin®, Rosuvastatin KRKA, Rofast, Redistatin, Rovamed®, Rosuvastatin IC, Evoid®, Rosustat, Rosuvastatin Xantis, Ozalex®, Preventor, Rosumak, Rosastin®, Lipretto, Rosustar, Rosuvastatin-Darnitsa, Rosuvastatin ("Kyivmedpreparat"), Rosister®, Rosuvastatin (Antibiotics CA), Rosuvastatin-Teva, Lipirastor, Crestor	139	8	23	5, 10, 15, 20, 30, 40
Pitavastatin C10AA08	Livazo	3	-	3	1, 2, 4

The smallest number of registered drugs belong to the pitavastatin group — three registration records for drugs from one foreign manufacturer in dosages of 1, 2 and 4 mg.

Thus, on the pharmaceutical market of Ukraine, the largest number of records of drug registration, trade names, domestic and foreign manufacturers among statins was found in the rosuvastatin segment. For drugs of the simvastatin, atorvastatin and rosuvastatin groups, the prevalence of foreign manufacturers is characteristic. For the pitavastatin group, the absence of domestic manufacturers was found.

Conclusions to Chapter 2

1. The global statin market has experienced significant growth since its introduction, with increasing accessibility due to the availability of generic versions. The market is expected to continue expanding, driven by the rising prevalence of cardiovascular diseases, growing health awareness, and government initiatives promoting cholesterol control.

2. The global statin market reached $15.9 billion in 2024 and is projected to grow at an annual rate of 2.74% from 2025 to 2033, reaching $20.3 billion by 2033. The statin market is divided into synthetic and natural statins, with natural statins gaining popularity due to perceived safety. Atorvastatin dominates the market due to its strong lipid-lowering ability. Pharmaceutical companies such as Pfizer, Merck, and AstraZeneca play a key role in market competition, driving innovation and strategic collaborations to improve statin accessibility and effectiveness.

3. The global statin market is segmented by region, with North America leading in market share in 2024, followed by Europe and the Asia-Pacific region. North America’s dominance is driven by a well-developed healthcare system, high cardiovascular disease prevalence, and strong pharmaceutical industry presence. The Asia-Pacific region is experiencing rapid growth due to increasing heart disease cases, rising healthcare investments, and growing public awareness in countries like China and India.

4. Europe benefits from an aging population, advanced healthcare policies, and extensive cholesterol control strategies. Latin America and the Middle East & Africa are expanding due to improved healthcare access and rising

awareness, but challenges like healthcare inequality and affordability remain, particularly in less developed countries.

5. As of March 2026, rosuvastatin has the highest number of registered drugs (139 records), produced by both domestic (8) and foreign (23) manufacturers at the Ukrainian pharmaceutical market. Atorvastatin follows with 90 registrations, while simvastatin has 21. Pitavastatin has the lowest availability, with only 3 registered drugs from a single foreign manufacturer.

6. The majority of statins in Ukraine are supplied by foreign pharmaceutical companies, with limited domestic production. While atorvastatin and simvastatin have a small share of local manufacturers, pitavastatin lacks domestic production entirely. This highlights Ukraine’s dependence on imported statins, which may impact pricing, availability, and accessibility for patients.

CHAPTER 3
ANALYSIS OF THE STRUCTURE OF STATIN CONSUMPTION AND AVAILABILITY OF HYPOLYPIDEMIC THERAPY

3.1 Pharmacoeconomic analysis of statin medicines

At the next stage of the study, we conducted a pharmacoeconomic analysis of statin drugs using the VEN-analysis method.

VEN-analysis (Vital, Essential, Non-essential analysis) is a method used in healthcare and pharmaceutical management to classify medicines based on their importance and necessity in medical practice. It helps in optimizing the selection, procurement, and distribution of drugs, especially in resource-limited settings [8].

The VEN classification divides medicines into three categories:

- V (vital) — life-saving medicines that are essential for emergency and critical care. Their absence can lead to severe health consequences or death. Example: insulin, antibiotics for severe infections.
- E (essential) — medicines that are necessary for treating common diseases and maintaining public health. They are important but not as critical as vital medicines. Example: antihypertensive drugs, painkillers.
- N (non-essential) V — medicines that are less necessary, have alternative options, or are used for minor ailments. Their absence does not significantly impact healthcare outcomes. Example: vitamins, some symptomatic treatments [8].

This analysis is widely used in hospital management, supply chain optimization, and rational drug use policies to ensure efficient allocation of medical resources.

To analyze statin drugs, we used formal VN analysis (Vital-Non-vital analysis), a method used to assess the importance of drugs in the healthcare system and taking into account treatment protocols, international and national standards of medical care.

To conduct a formal VN analysis, we used the following regulatory and medical-technological documents:

1. State Formulary of Medicines of Ukraine, 17th edition. The State Formulary of Medicines is a component of the system of industry standards in the field of healthcare. It is a list of medicines registered in Ukraine, which includes medicines with proven efficacy, an acceptable level of safety, the use of which is economically acceptable [3].

2. National List of Essential Medicines. The National List of Essential Medicines is an official list of medicines that are recognized as priorities for providing the population with effective, safe and affordable medicines. It is formed on the basis of international standards, takes into account WHO recommendations on essential medicines, is based on evidence-based medicine and pharmacoeconomic studies. It contains the most necessary drugs for the treatment of common diseases [4].

3. List of medicines subject to reimbursement under the program of state guarantees of medical care for the population. This list contains medicines (monocomponent and combined) for the treatment of cardiovascular diseases, bronchial asthma, type II diabetes and other common diseases. The list includes drugs with proven clinical efficacy and minimal side effects, which provide an optimal price-quality ratio. These are drugs for the treatment of diseases with high prevalence among the population. Drugs prescribed by a doctor according to electronic prescriptions are dispensed from pharmacies with full or partial reimbursement of the cost. This List is an important tool for ensuring the availability of necessary medicines for the population and increasing the efficiency of the healthcare system [5, 14].

4. Unified clinical protocol for primary, secondary (specialized) and tertiary (highly specialized) medical care "Prevention of cardiovascular diseases". This document was developed taking into account the modern requirements of evidence-based medicine and considers medical and organizational approaches to the prevention of cardiovascular diseases in Ukraine from the perspective of ensuring the continuity of the stages of medical care [15].

According to the results of the formal VN analysis, category V was established if the drug was present in the relevant regulatory and medical-technological documents, category N - in its absence.

Table 3.1

Summary of results of formal VN analysis of statins

Document name	Search result	VN analysis category
State Formulary of Medicines of Ukraine, 16th edition.	17 records about simvastatin	V
	67 records about atorvastatin	V
	81 records about rosuvastatin	V
	no records about pitavastatin	N
National List of Essential Medicines	simvastatin tablets 5, 10, 20, 30, 40, 80 mg	V
	not listed atorvastatin	N
	not listed rosuvastatin	N
	not listed pitavastatin	N
List of medicines subject to reimbursement under the program of state guarantees of medical care for the population	12 records about simvastatin	V
	not included rosuvastatin	N
	12 records about atorvastatin (from April 2026)	V
	not included pitavastatin	N
Unified clinical protocol for primary, secondary (specialized) and tertiary (highly specialized) medical care "Prevention of cardiovascular diseases"	simvastatin — treatment in the “low” (10 mg) and “moderate intensity” (20–40 mg) regimen	V
	atorvastatin — treatment in a “moderate” (10–20 mg) and “high” (40–80 mg) intensity regimen	V
	rosuvastatin — treatment in the “moderate” (5–10 mg) and “high” (20–40 mg) intensity regimen	V
	pitavastatin — treatment in a “moderate” intensity regimen (2–4 mg)	V

It was found that one simvastatin drug of a domestic manufacturer (LLC "Pharmaceutical Company "Zdorovya") and 16 simvastatin drugs of foreign

manufacturers (from North Macedonia, India, Turkey, Germany, Romania, Poland, Hungary) were included in the State Formulary.

The State Formulary revealed 22 records about the drug atorvastatin from four domestic manufacturers (JSC "Farmak", PrJSC "Pharmaceutical Firm "Darnytsia", LLC "Kusum Pharm", JSC "Kyiv Vitamin Plant") and 45 records about the drug atorvastatin from 12 foreign manufacturers [3].

The State Formulary of Medicines includes 81 entries for rosuvastatin (36 trade names, 9 domestic and 27 foreign manufacturers). Pitavastatin is not included in the State Formulary. Since the State Formulary includes medicines with proven efficacy, an acceptable level of safety, the use of which is economically acceptable, the medicines included in the formulary are classified by us as category V (vital) of the formal VN-analysis [3].

The National List of Essential Medicines includes simvastatin by INN, tablets 5, 10, 20, 30, 40, 80 mg. Atorvastatin, rosuvastatin, and pitavastatin are not included in this document [4].

Only simvastatin and atorvastatin drugs according to a specific list are subject to reimbursement under the state health care guarantee program [5, 14].

All drugs with the INN simvastatin, atorvastatin, rosuvastatin and pitavastatin are included in the unified clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care "Prevention of cardiovascular diseases" [15].

According to this document, statins are prescribed with the aim of achieving a reduction in LDL-C levels of 50% or more from baseline (high-intensity treatment) or 30–50% (moderate-intensity treatment) [15].

Thus, simvastatin is presented in all analyzed regulatory and medical-technological documents; atorvastatin and rosuvastatin — only in the State Formulary and Unified Clinical Protocol, pitavastatin — only in the clinical protocol.

3.2 Analysis of statin consumption in Ukraine

The consumption of monocomponent drugs of the statin group by the number of daily doses (DD) was studied according to the sales data for 2024 from 1746 pharmacies that are part of three large pharmacy chains of Ukraine. The sample of pharmacies includes all regions of Ukraine, except for temporarily occupied territories. Analysis of drug sales volumes according to the data of three pharmacy chains allows to reduce the influence of random factors, such as the peculiarities of the location of individual pharmacies and the contingent of their visitors, possible complications in the work of individual pharmacies, interruptions in the supply of drugs, and to obtain more relevant data on drug consumption trends.

We analyzed an electronic database on the volumes and structure of statin sales in pharmacies operating under the brands of three pharmacy chains. Since statins are produced in packages containing from 10 to 90 tablets, and in practice, when dispensing drugs, the packaging is allowed to be divided into blisters, the structure of sales was studied by the number of daily doses (DD) dispensed.

To compare the number of drugs released by different manufacturers and identify leaders in each segment, the shares of DD released for each product line item of all INNs of statins (taking into account the amount of active substance) were calculated.

It was found that at the level of three pharmacy chains, the largest share of statin consumption by the number of DDs is held by rosuvastatin (56.31%). Atorvastatin preparations occupy 25.39% of all dispensed DDs. Simvastatin, which patients could receive with reimbursement in 2024, occupies the third position in terms of the share of dispensed DDs (18.11%). The share of pitavastatin is the smallest and is only 0.19% (Fig. 3.1). Therefore, the cost of more than 80% of dispensed DD statins (rosuvastatin, atorvastatin and pitavastatin) could not be reimbursed under the “Affordable Medicines” program in 2024 [25].

It was found that during 2024, the studied pharmacies sold 11 assortment items of simvastatin drugs from domestic and foreign manufacturers in dosages of 10, 20 and 40 mg. The sales volume during the year amounted to almost 2.200 million DD

[25]. The largest share in the structure of sales of simvastatin drugs is held by tablets in a dosage of 20 mg (70.13%) (fig. 3.2).

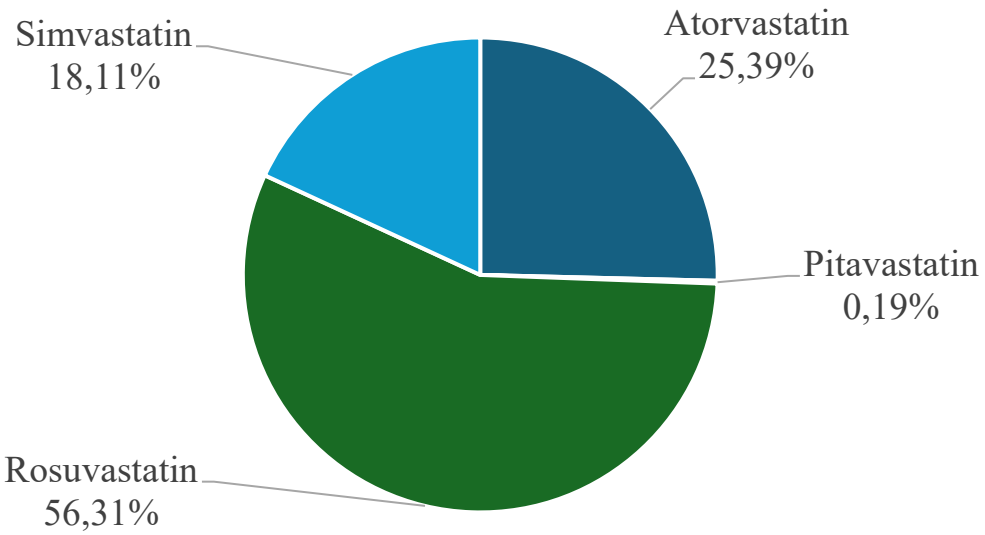

Fig. 3.1 Share of statins by number of DDs dispensed

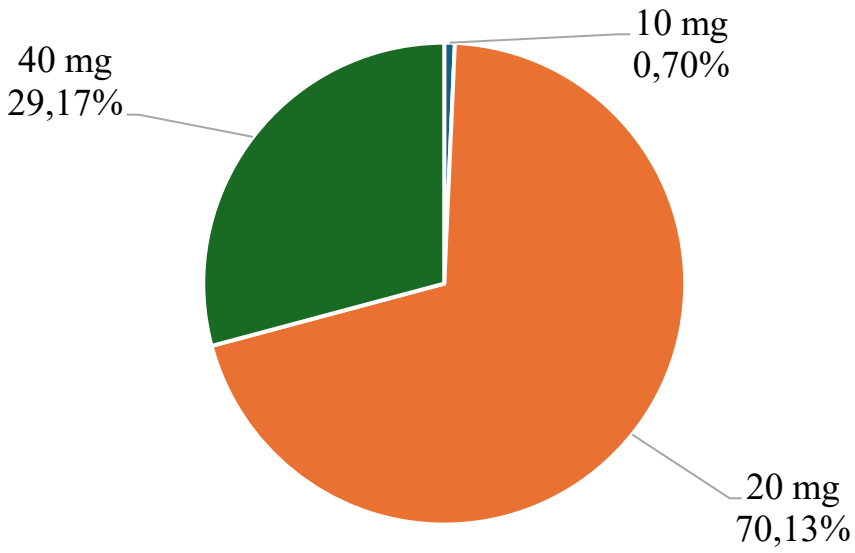

Fig. 3.2 Share of simvastatin DDs dispensed by dosage

According to the results of our calculations, we found that the share of foreign manufacturers in terms of the number of DD simvastatin released is almost 98.96%, while domestic manufacturers account for only 1.04% [25].

The analysis showed that during the year, the studied pharmacies had 42 assortment positions of the drug atorvastatin of domestic and foreign manufacturers

in dosages of 10, 20, 40 and 80 mg. In total, 3.085 million DD of atorvastatin were released. The largest share in the structure of sales of the drug atorvastatin is tablets in a dosage of 20 mg (60.0%) (fig. 3.3).

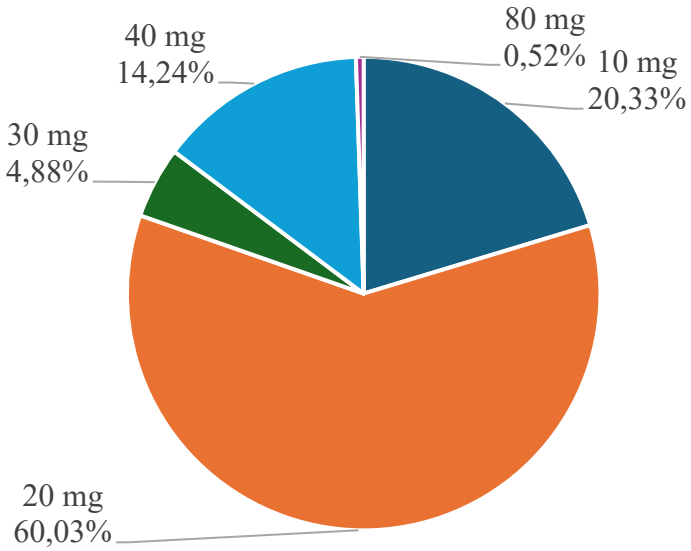

Fig. 3.3 Share of atorvastatin DDs dispensed by dosage

The most widely represented in the assortment of the studied pharmacies were rosuvastatin drugs — 73 assortment positions of domestic and foreign manufacturers in dosages of 5, 10, 15, 20, 30 and 40 mg. A total of 6.840 million DD of rosuvastatin were released during the year. The largest share in the structure of sales of rosuvastatin drugs is held by tablets in dosages of 20 mg and 10 mg (46.83 and 42.54%, respectively) (fig. 3.4).

During the year, the studied pharmacies sold 4 assortment positions of the drug pitavastatin from one foreign manufacturer in dosages of 1, 2 and 4 mg. In total, 23,175 DD of pitavastatin were released. It was found that the largest share in the structure of sales of the drug pitavastatin (61.88%) is held by tablets in a dosage of 2 mg (fig. 3.5).

Thus, the analysis of statin drug consumption based on 2024 sales data from major Ukrainian pharmacy chains reveals a clear dominance of rosuvastatin in the market, accounting for over half of all daily doses (DDs) dispensed. Atorvastatin follows with a significant share, while simvastatin, despite being eligible for

reimbursement, ranks third [25]. The study highlights notable differences in dosage preferences and market presence between domestic and foreign manufacturers, with imported drugs overwhelmingly prevailing.

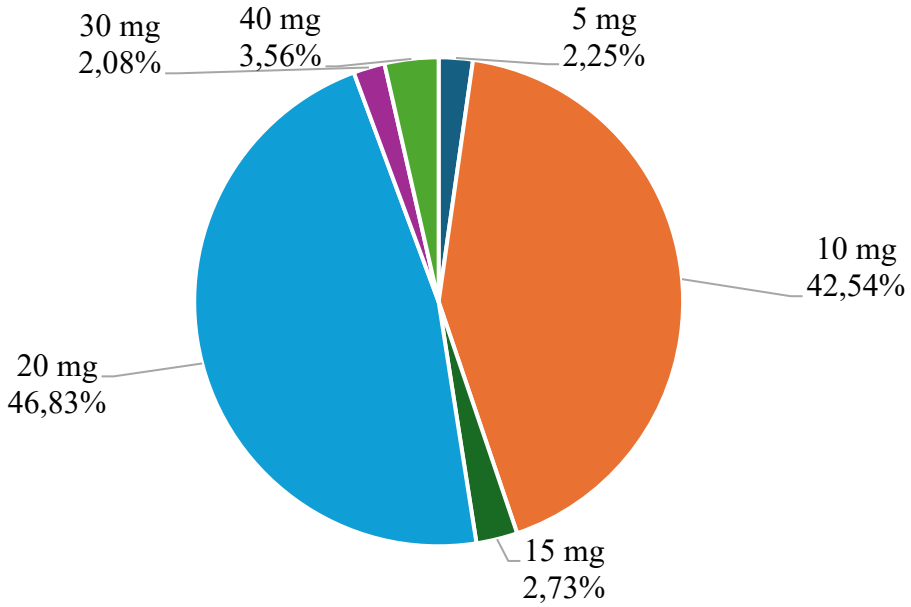

Fig. 3.4 Share of rosuvastatin DDs dispensed by dosage

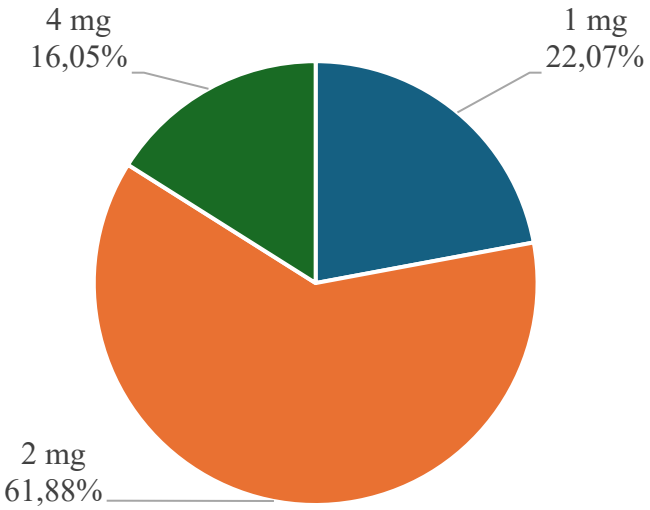

Fig. 3.5 Share of pitavastatin DDs dispensed by dosage

In summary, the analysis reveals a distinct shift in the Ukrainian pharmaceutical market toward high-potency statins, specifically rosuvastatin and atorvastatin. The data suggests that clinical efficacy remains the primary driver of

consumption, frequently outweighing the financial incentives of state-funded initiatives. Consequently, a substantial portion of cardiovascular prevention in Ukraine continues to rely on out-of-pocket expenditures, highlighting a critical gap between current reimbursement policies and actual clinical demand.

3.3 Analysis of physical and economic accessibility of statin therapy

To analyze the physical availability of statins, penetration rates were calculated for each product line item as the proportion of pharmacies that stock these drugs among the total number of pharmacies in the study sample.

The cost of a course of drug treatment per month was calculated using the "cost minimization" method using the weighted average retail prices at which drugs were actually dispensed from pharmacies, taking into account discounts, loyalty programs, and personal offers to customers. To assess the economic affordability of statin therapy, a solvency adequacy ratio was calculated for each product line item. The calculation was performed using the formula:

$$C_{a.s.} = \frac{\bar{P}}{\overline{W a.s.}} * 100\ \%, \quad (3.1)$$

where $C_{a.s.}$ — solvency adequacy ratio; P — weighted average cost of hypolipidemic therapy per month; $W_{a.s.}$ — minimum wage in Ukraine in 2024 (in this study 8000 UAH) [1, 6, 10, 16].

It was found that all simvastatin drugs have high economic accessibility for the population, which in practice may increase even more, taking into account the possibility of full or partial reimbursement of the cost under the "Affordable Medicines" program [13, 14]. For the most expensive drug, which is Vazilip, tablets 40 mg No. 28, the solvency adequacy ratio is 1.07% (table 3.2).

It was found that during the year, the only simvastatin sold in the studied pharmacies in a dosage of 10 mg was a domestic manufacturer — Vazostat-Zdorovya, which is characterized by high economic accessibility ($C_{a.s.}$ =0,37).

Table 3.2

Results of the analysis of physical and economic accessibility and the share of dispensed DD of simvastatin

Trade name, manufacturer, dosage	Physical accessibility (penetration), %	Cost of treatment per month, UAH	Solvency adequacy ratio, %	Share of dispensed DD (among drugs with the same dosage), %
Simvastatin 10 mg				
Vasostat-Zdorovya, LLC "Pharmaceutical Company "Zdorovya", tablets 10 mg No. 10(3)	11,11	29,74	0,37	100
Simvastatin 20 mg				
Simvastatin-Teva, Teva Pharmaceutical Plant, Hungary, tablets 20 mg No. 10(3)	88,20	37,13	0,46	51,17
Vazilip®, KRKA, Slovenia, tablets 20 mg No. 7(4)	79,32	43,78	0,55	23,49
Simvastatin Sandoz®, Sandoz Group, Turkey, tablets 20 mg No. 10(3)	67,93	55,56	0,69	14,26
Allesta®, Alkaloid AD, Republic of North Macedonia, tablets 20 mg No. 10(3)	27,38	37,41	0,47	10,73
Vasostat-Zdorovya, LLC "Pharmaceutical Company "Zdorovya", tablets 20 mg No. 10(3)	6,64	38,66	0,48	0,35
Simvastatin 40 mg				
Simvastatin Sandoz®, Sandoz Group, Turkey, tablets 40 mg No. 10(3)	41,87	74,30	0,93	38,22
Simvastatin-Teva, Teva Pharmaceutical Plant, Hungary, tablets 40 mg No. 10(3)	65,86	74,24	0,93	32,76
Vazilip®, KRKA, Slovenia, tablets 40 mg No. 7(4)	59,74	85,20	1,07	28,51
Vasostat-Zdorovya, LLC "Pharmaceutical Company "Zdorovya", tablets 40 mg No. 10(3)	2,41	78,79	0,98	0,31
Allesta®, Alkaloid AD, Republic of North Macedonia, tablets 40 mg No. 15(2)	1,26	72,27	0,90	0,21

Among simvastatin drugs in a dosage of 20 mg, the imported drug Simvastatin-Teva has the best physical and economic availability and the largest share of dispensed DDs. Among simvastatin drugs in a dosage of 40 mg, the best physical availability is Simvastatin-Teva and Vazilip; the best economic availability is Allesta, Simvastatin Sandoz and Simvastatin-Teva; the largest share of dispensed DDs is Simvastatin Sandoz and Simvastatin-Teva.

Vazostat-Zdorovya, the only domestic simvastatin drug, with high economic availability and cost reimbursement capabilities, has very low physical availability indicators (2.41–11.11% depending on the dosage).

The cost of treatment per month with atorvastatin from different manufacturers varies significantly within the same dosage. For example, the cost of treatment per month with atorvastatin 20 mg ranges from UAH 148.76 (Atorvastatin Ananta) to UAH 378.16 (Tolevas®). Calculation of the adequacy solvency showed that all atorvastatin drugs in dosages of 10, 20 and 30 mg have high economic accessibility for the population; among atorvastatin drugs in dosage of 40 mg there are drugs with high and medium economic accessibility; all atorvastatin drugs in dosage of 80 mg have medium economic accessibility (table 3.3).

In terms of sales in physical terms, foreign manufacturers are the leaders among atorvastatin drugs, accounting for 60.86% of all DD sold in pharmacies, while domestic manufacturers account for only 39.14%.

Among atorvastatin drugs in dosages of 10, 20 and 40 mg, the largest share of DD sold is held by the imported drug Atoris, KRKA, Slovenia, which has high physical availability, but is not the cheapest treatment option. Atoris is the only representative of atorvastatin drugs in dosages of 30 mg.

As can be seen from table 3.4, the cost of hypolipidemic treatment with rosuvastatin from different manufacturers differs significantly within the same dosage. For example, the cost of treatment per month with rosuvastatin 5 mg ranges from UAH 97.13 (Rosuvastatin-Teva) to UAH 343.83 (Crestor), although according to the value of the solvency adequacy coefficient, all rosuvastatin 5 mg drugs have high economic availability.

Table 3.3

Results of the analysis of physical and economic accessibility and the share of dispensed DD of atorvastatin

Trade name, manufacturer, dosage	Physical accessibility (penetration), %	Cost of treatment per month, UAH	Solvency adequacy ratio, %	Share of dispensed DD (among drugs with the same dosage), %
Atorvastatin 10 mg				
Atoris®, KRKA, Slovenia, tablets 10 mg No. 10(9)	83,05	243,45	3,04	33,02
Livostor, JSC "Kyiv Vitamin Plant", Ukraine, tablets 10mg No. 10(3)	47,42	140,76	1,76	13,15
Atoris®, KRKA, Slovenia, tablets 10 mg No. 30	41,41	253,00	3,16	12,30
Atorvastatin-Darnitsa,"Pharmaceutical Company "Darnitsa", Ukraine, tablets 10mg No. 14(2)	65,81	129,71	1,62	11,46
Atorvastatin 10 Ananta, Flamingo Pharmaceuticals Ltd., India, tablets 10mg No. 10(3)	43,24	106,32	1,33	9,46
Atorvacor®, "Farmak", Ukraine, tablets 10mg No. 10(6)	28,18	141,45	1,77	9,16
Etset, Kusum Pharm LLC, Ukraine, tablets 10mg No. 14(2)	28,64	147,52	1,84	5,72
Other drugs (6)				5,74
Atorvastatin 20 mg				
Atoris®, KRKA, Slovenia, tablets 20 mg No. 10(9)	94,22	300,07	3,75	25,96
Livostor, JSC "Kyiv Vitamin Plant", Ukraine, tablets 20mg No. 10(7)	83,91	162,22	2,03	15,78
Atorvastatin-Darnitsa,"Pharmaceutical Company "Darnitsa", Ukraine, tablets 20mg No. 14(2)	90,15	166,32	2,08	14,59
Atorvastatin 20 Ananta, Flamingo Pharmaceuticals Ltd., India, tablets 20mg No. 10(3)	80,64	148,76	1,86	9,86

Trade name, manufacturer, dosage	Physical accessibility (penetration), %	Cost of treatment per month, UAH	Solvency adequacy ratio, %	Share of dispensed DD (among drugs with the same dosage), %
Atoris®, KRKA, Slovenia, tablets 10 mg No. 10(9)	83,05	243,45	3,04	33,02
Livostor, JSC "Kyiv Vitamin Plant", Ukraine, tablets 10mg No. 10(3)	47,42	140,76	1,76	13,15
Atoris®, KRKA, Slovenia, tablets 10 mg No. 30	41,41	253,00	3,16	12,30
Atorvastatin-Darnitsa,"Pharmaceutical Company "Darnitsa", Ukraine, tablets 10mg No. 14(2)	65,81	129,71	1,62	11,46
Atorvastatin 10 Ananta, Flamingo Pharmaceuticals Ltd., India, tablets 10mg No. 10(3)	43,24	106,32	1,33	9,46
Atorvacor®, "Farmak", Ukraine, tablets 10mg No. 10(6)	28,18	141,45	1,77	9,16
Etset, Kusum Pharm LLC, Ukraine, tablets 10mg No. 14(2)	28,64	147,52	1,84	5,72
Other drugs (6)				5,74
Atorvastatin 20 mg				
Atoris®, KRKA, Slovenia, tablets 20 mg No. 10(9)	94,22	300,07	3,75	25,96
Livostor, JSC "Kyiv Vitamin Plant", Ukraine, tablets 20mg No. 10(7)	83,91	162,22	2,03	15,78
Atorvastatin-Darnitsa,"Pharmaceutical Company "Darnitsa", Ukraine, tablets 20mg No. 14(2)	90,15	166,32	2,08	14,59
Atorvastatin 20 Ananta, Flamingo Pharmaceuticals Ltd., India, tablets 20mg No. 10(3)	80,64	148,76	1,86	9,86
Etset, Kusum Pharm LLC, Ukraine, tablets 20mg No. 14(2)	59,39	204,37	2,55	8,18
Etset, Kusum Pharm LLC, Ukraine, tablets 20mg No. 14(6)	40,09	163,99	2,05	6,74

Trade name, manufacturer, dosage	Physical accessibility (penetration), %	Cost of treatment per month, UAH	Solvency adequacy ratio, %	Share of dispensed DD (among drugs with the same dosage), %
Atorvacor®, "Farmak", Ukraine, tablets 20mg No. 10(3)	38,95	190,74	2,38	5,17
Atorvasterol, Polpharma S.A., Poland, tablets 20mg No. 10(3)	30,76	316,85	3,96	3,47
Limistin 20, Marksans Pharma Ltd., India, tablets 20mg No. 10(3)	35,80	226,84	2,84	3,33
Atoris®, KRKA, Slovenia, tablets 20 mg No. 10(3)	20,50	338,26	4,23	2,34
Other drugs (5)				4,58
Atorvastatin 30 mg				
Atoris®, KRKA, Slovenia, tablets 30 mg No. 10(9)	45,70	134,79	1,68	88,38
Atoris®, KRKA, Slovenia, tablets 30 mg No. 10(3)	16,61	162,17	2,03	11,62
Atorvastatin 40 mg				
Atoris®, KRKA, Slovenia, tablets 40 mg No. 10(9)	72,51	438,10	5,48	42,43
Livostor, JSC "Kyiv Vitamin Plant", Ukraine, tablets 40mg No. 10(3)	41,92	299,59	3,74	14,69
Atorvacor®, "Farmak", Ukraine, tablets 40mg No. 10(3)	37,00	293,72	3,67	15,87
Etset, Kusum Pharm LLC, Ukraine, tablets 40mg No. 14(2)	30,99	272,83	3,41	11,65
Atorvasterol, Polpharma S.A., Poland, 40mg No. 10(3)	15,12	541,78	6,77	6,93
Limistin 40, Marksans Pharma Ltd., India, tablets 40mg No. 10(3)	17,75	299,77	3,75	5,82
Other drugs (2)				2,62
Atorvastatin 80 mg				
Atorvacor®, "Farmak", Ukraine, 80 mg No. 6(5)	9,85	467,23	5,84	75,00
Etset, Kusum Pharm LLC, Ukraine, 80mg No. 14(2)	2,69	452,85	5,66	14,04
Liprimar®, Pfizer Menufektur Deutschland GmbH, Germany, 80 mg No. 10(3)	1,89	1154,13	14,43	10,96

Among rosuvastatin 10 mg drugs, Crestor and Rozart have middle affordability, among rosuvastatin 20 mg drugs — Crestor, Rozart and Rozulip, and among rosuvastatin 40 mg drugs — Rosuvastatin IC and Rosastin. The remaining rosuvastatin 10, 15, 20 and 40 mg drugs have high affordability.

Table 3.4

Results of the analysis of physical and economic accessibility and the share of dispensed DD of rosuvastatin

Trade name, manufacturer, dosage	Physical accessibility (penetration),%	Cost of treatment per month, UAH	Solvency adequacy ratio, %	Share of dispensed DD (among drugs with the same dosage), %
Rosuvastatin 5 mg				
Roxera, KRKA, Slovenia, tablets 5 mg No. 10(3)	48,85	175,88	2,20	51,45
Crestor, IPR Pharmaceuticals Inc., Puerto Rico, USA, tablets 5mg No. 14(2)	32,93	343,83	4,30	28,94
Rosuvastatin IC, "Interchem", Ukraine, tablets 5 mg No. 10(3)	14,78	176,71	2,21	6,61
Roxera, KRKA, Slovenia, tablets 5 mg No. 10(9)	4,12	135,29	1,69	6,00
Rosuvastatin-Teva, Teva Pharma S.L.U., Spain, tablets 5 mg No. 10(3)	5,38	97,13	1,21	5,38
Other drugs (3 drugs)				1,62
Rosuvastatin 10 mg				
Roxera, KRKA, Slovenia, tablets 10 mg No. 10(9)	95,42	185,29	2,32	26,90
Rosuvastatin-Darnitsa, "Pharmaceutical Company "Darnitsa", Ukraine, tablets 10mg No. 10(3)	93,41	166,20	2,08	9,95
Ozalex, Kusum Pharm LLC, Ukraine, tablet 10mg No. 14(2)	87,40	162,09	2,03	9,34
Klivas, Pharma Start LLC, Ukraine, tablets 10mg No. 10(3)	87,86	211,28	2,64	8,03
Klivas, Pharma Start LLC, Ukraine, tablets 10mg No. 10(9)	43,64	171,22	2,14	7,26

Trade name, manufacturer, dosage	**Physical accessibility (penetration),%**	**Cost of treatment per month, UAH**	**Solvency adequacy ratio, %**	**Share of dispensed DD (among drugs with the same dosage), %**
Rosister®, "Kyiv Vitamin Plant", Ukraine, tablet 10 mg No. 10(3)	67,41	153,29	1,92	6,06
Rosuvastatin-Teva, Teva Pharma S.L.U., Spain, tablets 10mg No. 10(3)	59,34	113,78	1,42	4,36
Rosucard, Zentiva LLC, Czech Republic, tablets 10mg No. 10(9)	28,92	128,83	1,61	4,21
Romazyk, Polpharma S.A., Poland, tablets 10mg No. 10(3)	41,18	242,34	3,03	3,78
Rozulip®, "Pharmaceutical Plant "Egis", Hungary, tablets 10 mg No. 7(4)	51,20	277,65	3,47	3,66
Crestor, IPR Pharmaceuticals Inc., Puerto Rico, USA, tablets 10mg No. 14(2)	51,03	688,09	8,60	2,96
Other drugs (16 drugs)				13,32
Rosuvastatin 15 mg				
Roxera, KRKA, Slovenia, tablets 15 mg No. 10(9)	60,88	160,66	2,01	97,22
Roxera, KRKA, Slovenia, tablets 15 mg No. 10(3)	4,75	191,36	2,39	2,78
Rosuvastatin 20 mg				
Roxera, KRKA, Slovenia, tablets 20 mg No. 10(9)	96,62	286,33	3,58	22,80
Rosuvastatin-Darnitsa, "Pharmaceutical Company "Darnitsa", Ukraine, tablets 20mg No. 10(3	96,05	224,34	2,80	13,19
Ozalex, Kusum Pharm LLC, Ukraine, tablet 20mg No. 14(2)	87,51	212,01	2,65	9,05
Rosister®, "Kyiv Vitamin Plant", Ukraine, tablet 20 mg No. 10(3)	86,94	216,27	2,70	8,85
Klivas, Pharma Start LLC, Ukraine, tablets 20mg No. 10(9)	52,35	253,63	3,17	8,58
Klivas, Pharma Start LLC, Ukraine, tablets 20mg No. 10(3)	89,69	328,21	4,10	7,41

Trade name, manufacturer, dosage	**Physical accessibility (penetration),%**	**Cost of treatment per month, UAH**	**Solvency adequacy ratio, %**	**Share of dispensed DD (among drugs with the same dosage), %**
Rosuvastatin-Teva, Teva Pharma S.L.U., Spain, tablets 20mg No. 10(3)	64,20	177,04	2,21	4,80
Romazyk, Polpharma S.A., Poland, tablets 20mg No. 10(3)	43,93	348,11	4,35	3,99
Evoid, "Farmak", Ukraine, tablets 20 mg No. 10(3)	44,22	274,64	3,43	2,87
Preventor, "Pharmaceutical Company "Darnitsa", Ukraine, tablets 20 mg No. 10(3)	51,03	290,21	3,63	2,59
Crestor, IPR Pharmaceuticals Inc., Puerto Rico, USA, tablets 20mg No. 14(2)	52,41	1022,62	12,78	2,18
Other drugs (17 drugs)				13,67
Rosuvastatin 30 mg				
Roxera, KRKA, Slovenia, tablets 30 mg No. 10(9)	58,19	243,17	3,04	96,94
Roxera, KRKA, Slovenia, tablets 30 mg No. 10(3)	4,18	285,75	3,57	3,06
Rosuvastatin 40 mg				
Rosuvastatin IC, "Interchem", Ukraine, tablets 40 mg No. 10(3)	85,68	460,38	5,75	74,24
Rosastin, Micro Labs Limited, India, tablets 40 mg No. 30	29,55	488,95	6,11	17,06
Crestor, IPR Pharmaceuticals Inc., Puerto Rico, USA, tablets 40mg No. 7(4)	2,92	296,26	3,70	1,14
Rosastin, Micro Labs Limited, India, tablets 40 mg No. 10(3)	0,63	287,95	3,60	0,16

Among rosuvastatin drugs of 5, 10 and 20 mg, the largest share of dispensed DDs is held by Roxera, which is not the cheapest alternative for use. During 2024, in the studied pharmacies, Roxera was the only representative of rosuvastatins with an active substance content of 15 and 30 mg. Among drugs containing 40 mg of

rosuvastatin, Rosuvastatin IC, which is not the cheapest treatment option, has the highest physical availability and the largest share of dispensed DDs.

According to the results of our calculations, it was found that the share of foreign manufacturers among all DDs of rosuvastatin released is 68.50 %, while domestic manufacturers account for only 31.50 %.

It was found that pitavastatin drugs have low physical availability and middle economic availability (table 3.5).

In 2024, for Ukrainian people there was a possibility of reimbursement of the cost of treatment only with simvastatin, which is classified as a low-effective statin [10]. Ukrainian consumers could choose atorvastatin and rosuvastatin drugs from domestic and foreign manufacturers in a wide range of prices, however, but some drugs with high economic availability have very low penetration rates in pharmacies.

Table 3.5

Results of the analysis of physical and economic accessibility and the share of dispensed DD of pitavastatin

Trade name, manufacturer, dosage	**Physical accessibility (penetration),%**	**Cost of treatment per month, UAH**	**Solvency adequacy ratio, %**	**Share of dispensed DD (among drugs with the same dosage), %**
Livazo, Recordati Industria Chimica e Farmaceutica S.p.A., Italy), tablets 1mg No. 15(2)	4,18	658,43	8,23	**100,0**
Livazo, Recordati Industria Chimica e Farmaceutica S.p.A., Italy), tablets 2mg No. 15(2)	4,18	563,75	7,05	39,16
Livazo, Recordati Industria Chimica e Farmaceutica S.p.A., Italy), tablets 2mg No. 15(2)	5,38	875,74	10,95	60,84
Livazo, Recordati Industria Chimica e Farmaceutica S.p.A., Italy), tablets 4mg No. 15(2)	3,32	1047,28	13,09	**100,00**

Conclusions to Chapter 3

1. According the results of formal VN analisys, simvastatin is presented in all analyzed regulatory and medical-technological documents (category V); atorvastatin and rosuvastatin — only in the State Formulary and Unified Clinical Protocol, pitavastatin — only in the clinical protocol. For Ukrainian patients, there is a possibility of reimbursement of the cost of treatment with simvastatin and atorvastatin.

2. It was found that at the level of three pharmacy chains, the largest share of statin consumption by the number of DDs is held by rosuvastatin (56.31%). Atorvastatin preparations occupy 25.39% of all dispensed DDs. Simvastatin, which patients could receive with reimbursement, in 2024 occupied only the third position in terms of the share of dispensed DDs (18.11%). The share of pitavastatin is the smallest and is only 0.19%

3. The Ukrainian statin market has revealed a predominance of foreign manufacturers in terms of the share of DDs sold from pharmacies. The drugs that lead in sales volume, in most cases, have high physical availability, but are not the cheapest treatment options.

4. Ukrainian consumers have the opportunity to choose atorvastatin and rosuvastatin drugs from domestic and foreign manufacturers in a wide range of prices, however, some drugs with high economic availability have very low penetration rates in pharmacies.

5. The low physical availability of the only domestic drug of the simvastatin group and the absence of domestic drugs of the pitavastatin group may limit patients' access to more economically affordable treatment options.

6. The high proportion of rosuvastatin and atorvastatin consumption in 2024 demonstrated the feasibility of expanding the reimbursement program to increase access to modern, highly effective statin therapy for more patients. A positive factor is the inclusion of atorvastatin in the reimbursement program in 2026.

CONCLUSIONS

1. CVDs remain the leading cause of mortality worldwide, particularly in low- and middle-income countries where access to healthcare services and preventive measures is limited. Major risk factors include high blood pressure, elevated cholesterol, tobacco use, obesity, and environmental pollution. Statins, as effective lipid-lowering agents, play a key role in the primary and secondary prevention of ischemic heart disease.

2. The ATC/DDD methodology, adopted by the WHO, enables objective comparison of statin consumption levels across countries and reveals correlations between drug usage and CVD mortality rates. However, high average cholesterol levels do not always align with high statin use, highlighting disparities in treatment accessibility. Global evidence demonstrates that countries with high levels of statin consumption tend to have lower cardiovascular mortality rates. This underscores the importance of national policies aimed at ensuring availability and effective use of statins, especially among high-risk populations.

3. The global statin market has experienced significant growth since its introduction, with increasing accessibility due to the availability of generic versions. The market is expected to continue expanding, driven by the rising prevalence of cardiovascular diseases, growing health awareness, and government initiatives promoting cholesterol control.

4. The global statin market reached $15.9 billion in 2024 and is projected to grow at an annual rate of 2.74% from 2025 to 2033, reaching $20.3 billion by 2033. The statin market is divided into synthetic and natural statins, with natural statins gaining popularity due to perceived safety. Atorvastatin dominates the market due to its strong lipid-lowering ability. The global statin market is segmented by region, with North America leading in market share in 2024, followed by Europe and the Asia-Pacific region.

5. At the Ukrainian pharmaceutical market, rosuvastatin has the highest number of registered drugs (139), atorvastatin follows with 90 registrations, while

simvastatin has 21. Most statins in Ukraine are supplied by foreign pharmaceutical companies. While atorvastatin and simvastatin have a small share of local manufacturers, pitavastatin lacks domestic production entirely.

6. According the results of formal VN analisys, simvastatin is presented in all analyzed regulatory and medical-technological documents (category V); atorvastatin and rosuvastatin — only in the State Formulary and Unified Clinical Protocol, pitavastatin — only in the clinical protocol. For Ukrainian patients, there is a possibility of reimbursement of the cost of treatment with simvastatin and atorvastatin.

7. It was found that at the level of three pharmacy chains, the largest share of statin consumption by the number of DDs is held by rosuvastatin (56.31%). Atorvastatin preparations occupy 25.39% of all dispensed DDs. Simvastatin, which patients could receive with reimbursement, occupied only the third position in terms of the share of dispensed DDs (18.11%). The share of pitavastatin is the smallest and is only 0.19%.

8. The Ukrainian statin market has revealed a predominance of foreign manufacturers in terms of the share of DDs sold from pharmacies. The drugs that lead in sales volume, in most cases, have high physical availability, but are not the cheapest treatment options.

7. Ukrainian consumers can choose atorvastatin and rosuvastatin drugs from domestic and foreign manufacturers in a wide range of prices, however, some drugs with high economic availability have very low penetration rates in pharmacies. The low physical availability of the only domestic drug of the simvastatin group and the absence of domestic drugs of the pitavastatin group may limit patients' access to more economically affordable treatment options. The high proportion of rosuvastatin and atorvastatin consumption in 2024 demonstrated the feasibility of expanding the reimbursement program to increase access to modern, highly effective statin therapy for more patients. A positive factor is the inclusion of atorvastatin in the reimbursement program in 2026.

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APPENDICES

Appendix A


НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
СЕРТИФІКАТ УЧАСНИКА
Цим засвідчується, що
Jean-Jacques Kankolongo-Kabeya
Scientific supervisor: Zhadko S.V.
брав(ла) участь у роботі
XXXII Міжнародної науково-практичної конференції молодих вчених та студентів
«АКТУАЛЬНІ ПИТАННЯ СТВОРЕННЯ НОВИХ ЛІКАРСЬКИХ ЗАСОБІВ»
Ректор
Національного фармацевтичного
університету
Олександр КУХТЕНКО
15-17 квітня 2026 р., м. Харків, м. Ужгород

Appendix B

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

АКТУАЛЬНІ ПИТАННЯ СТВОРЕННЯ НОВИХ ЛІКАРСЬКИХ ЗАСОБІВ

МАТЕРІАЛИ
XXXII МІЖНАРОДНОЇ НАУКОВО-ПРАКТИЧНОЇ
КОНФЕРЕНЦІЇ МОЛОДИХ ВЧЕНИХ ТА СТУДЕНТІВ

15–17 квітня 2026 року
м. Харків

Харків
НФаУ
2026

УДК 615.1

Редакційна колегія: проф. Кухтенко О. С., проф. Рубан О.А., доц. Буряк М.В.
Укладачі: Комісаренко М.А., Сурікова І. О., Боднар Л. А.,

Актуальні питання створення нових лікарських засобів: матеріали XXXII міжнародної науково-практичної конференції молодих вчених та студентів (15-17 квітня 2026 р., м. Харків). – Харків: НФаУ, 2026. – 453 с.

Збірка містить матеріали міжнародної науково-практичної конференції молодих вчених та студентів «Актуальні питання створення нових лікарських засобів, які представлені за пріоритетними напрямами науково-дослідної роботи Національного фармацевтичного університету. Розглянуто теоретичні та практичні аспекти синтезу біологічно активних сполук і створення на їх основі лікарських субстанцій; стандартизації ліків, фармацевтичного та хіміко-технологічного аналізу; вивчення рослинної сировини та створення фітопрепаратів; сучасної технології ліків та екстемпоральної рецептури; біотехнології у фармації; досягнень сучасної фармацевтичної мікробіології та імунології; доклінічних досліджень нових лікарських засобів; фармацевтичної опіки рецептурних та безрецептурних лікарських препаратів; доказової медицини; сучасної фармакотерапії, соціально-економічних досліджень у фармації, маркетингового менеджменту та фармакоекономіки на етапах створення, реалізації та використання лікарських засобів; управління якістю у галузі створення, виробництва й обігу лікарських засобів; суспільствознавства; фундаментальних та мовних наук.

УДК 615.1

XXXII Міжнародна науково-практична конференція молодих вчених та студентів
«АКТУАЛЬНІ ПИТАННЯ СТВОРЕННЯ НОВИХ ЛІКАРСЬКИХ ЗАСОБІВ»

STRUCTURAL AND ECONOMIC ANALYSIS OF THE LIPID-LOWERING DRUGS MARKET IN UKRAINE

Jean-Jacques Kankolongo-Kabeya
Scientific supervisor: Zhadko S.V.
National University of Pharmacy, Kharkiv, Ukraine
svzhadkopharm@gmail.com

Introduction. Cardiovascular diseases (CVDs) remain the leading cause of mortality worldwide, particularly in low- and middle-income countries where access to healthcare services and preventive measures is limited. Major risk factors include high blood pressure, elevated cholesterol, tobacco use, obesity, and environmental pollution. Statins, as effective lipid-lowering agents, play a key role in the primary and secondary prevention of ischemic heart disease.

Aim. The aim of the study is to analyze the structure and economic characteristics of the Ukrainian market of lipid-lowering drugs.

Materials and methods. We used desk marketing research methods (document analysis), as well as economic, statistical, pharmacoepidemiological, and pharmacoeconomic approaches. To analyze statin drugs, we used formal VN analysis (vital-non-vital analysis), which assesses the importance of drugs in the healthcare system, taking into account treatment protocols and international and national standards of medical care.

Results and discussion. The ATC/DDD methodology, adopted by the WHO, enables objective comparison of statin consumption levels across countries and reveals correlations between drug usage and CVD mortality rates. However, high average cholesterol levels do not always align with high statin use, highlighting disparities in treatment accessibility. Global evidence demonstrates that countries with high levels of statin consumption tend to have lower cardiovascular mortality rates. This underscores the importance of national policies aimed at ensuring availability and effective use of statins, especially among high-risk populations.

A total of 253 statin drug registrations were identified in the State Register of Medicinal Products of Ukraine: simvastatin, atorvastatin, rosuvastatin, and pitavastatin. On the Ukrainian pharmaceutical market, rosuvastatin has the highest number of registered drugs (139), atorvastatin follows with 90 registrations, while simvastatin has 21. All statins are produced in the form of film-coated tablets and are available by prescription only. Most medicines are supplied by foreign pharmaceutical companies. While atorvastatin and simvastatin have a small share of local manufacturers, pitavastatin lacks domestic production entirely. Statins of the following groups are not available on the pharmaceutical market of Ukraine: lovastatin, cerivastatin, pravastatin and fluvastatin.

According to the results of formal VN analysis, simvastatin is presented in all analyzed regulatory and medical-technological documents (category V); atorvastatin and rosuvastatin — only in the State Formulary and Unified Clinical Protocol, pitavastatin — only in the clinical protocol. For Ukrainian patients, there is a possibility of reimbursement of the cost of treatment only with simvastatin, which is classified as a less effective statin. Analysis of three pharmacy chains showed that the largest share of statin consumption by the number of DDs is accounted for by rosuvastatin (56.31%). Atorvastatin preparations occupy 25.39% of all dispensed DDs. Simvastatin, which patients can receive with reimbursement, occupies only the third position in terms of the share of dispensed daily doses (DDs) (18.11%). The share of pitavastatin is the smallest and is only 0.19%. The Ukrainian statin market has revealed a predominance of foreign manufacturers in terms of the share of DDs dispensed by pharmacies. The drugs that lead in sales volume, in most cases, have high

physical availability, but are not the cheapest treatment options. Ukrainian consumers can choose atorvastatin and rosuvastatin drugs from domestic and foreign manufacturers in a wide range of prices. However, some drugs with high economic availability have very low penetration rates in pharmacies.

Conclusions. The low physical availability of the only domestic drug of the simvastatin group and the absence of domestic drugs of the pitavastatin group may limit patients' access to more economically affordable treatment options. The high share of consumption of rosuvastatin and atorvastatin highlights the need to expand the reimbursement program to increase patient access to modern, highly effective statin therapy.

Ф А 2.2.1–36-366

National University of Pharmacy
Faculty Pharmaceutical
Department of Management, Marketing and Quality Assurance in Pharmacy
Level of higher education master
Specialty 226 Pharmacy, Industrial Pharmacy
Educational and professional program Pharmacy

APPROVED
The Head of Department
of Management,
Marketing and Quality
Assurance in Pharmacy

_____
Volodymyr MALYI
"01" September 2025

ASSIGNMENT
FOR QUALIFICATION WORK
OF AN APPLICANT FOR HIGHER EDUCATION
Jean Jacques KANKOLONGO-KABEYA

1. Topic of qualification work: «Marketing research of the lipid-lowering drugs market», supervisor of qualification work: Svitlana ZHADKO**,** PhD, assoc. prof.

approved by order of NUPh from "06" of October 2025 № 266

2. Deadline for submission of qualification work by the applicant for higher education: May 2026.

3. Outgoing data for qualification work: scientific literature, statistical data, reports of marketing research companies, The State Register of Medicinal Products of Ukraine, National List of Essential Medicines, State Formulary of Medicines of Ukraine, clinical protocols, pharmacy chain data.

4. Contents of the settlement and explanatory note (list of questions that need to be developed):
to study and generalize the data of scientific literature regarding the role of statins in reducing the risk of cardiovascular disease; to analyze the main trends in the development of the global statin market; to analyze factors affecting the statin market in different regions of the world; to carry out market analysis of lipid-lowering drugs of the statin group registered in Ukraine; to carry out pharmacoeconomic analysis of statin medicines; to analyze statin consumption in Ukraine, physical and economic accessibility of statin therapy.

5. List of graphic material (with exact indication of the required drawings):
Table – 8, figures – 13

6. Consultants of chapters of qualification work

Chapters	Name, SURNAME, position of consultant	Signature, date	
		assignment was issued	assignment was received
1	Svitlana ZHADKO, assistant professor of department of Management, Marketing and Quality Assurance in Pharmacy	01.09.2025	01.09.2025
2	Svitlana ZHADKO, assistant professor of department of Management, Marketing and Quality Assurance in Pharmacy	30.11.2025	30.11.2025
3	Svitlana ZHADKO, assistant professor of department of Management, Marketing and Quality Assurance in Pharmacy	16.02.2026	16.02.2026

7. Date of issue of the assignment: «01» September 2025

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 2025	**Done**
2	Analysis of the global, regional and national statin market (part 2)	December 2025	**Done**
3	Analysis of the structure of statin consumption and availability of hypolypidemic therapy (part 3)	March 2026	**Done**
4	Writing and design of a qualification work	April 2026	**Done**
5	Approbation of a qualification work	May 2026	**Done**
6	Submission of a qualification work to the EC of NUPh	May 2026	**Done**

An applicant of higher education _____ Jean Jacques KANKOLONGO-KABEYA

Supervisor of qualification work _____ Svitlana ZHADKO

ВИТЯГ З НАКАЗУ
По Національному фармацевтичному університету

«06» жовтня 2025 р. **№ 266**
Фармацевтичний факультет

Затвердити теми кваліфікаційних робіт здобувачам вищої освіти 5 курсу 2025-2026 н. р., група Фм21(4,10д)англ-01, освітньо-професійна програма «Фармація», спеціальність «226 Фармація, промислова фармація», галузь знань «22 Охорона здоров'я», рівень вищої освіти другий (магістерський), денна форма здобуття освіти, термін навчання 4 роки 10 місяців, мова навчання англійська.

Прізвище, ім'я здобувача вищої освіти	Тема кваліфікаційної роботи (українською мовою)	Тема кваліфікаційної роботи (англійською мовою)	Керівник кваліфіка-ційної роботи	Рецензент кваліфіка-ційної роботи
Кафедра менеджменту, маркетингу та забезпечення якості у фармації				
Канколонго Кабея Джан Джакуес	Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину	Marketing research of the lipid-lowering drugs market	доц. Жадько С.В.	проф. Назаркіна В.М.

Підстава: подання декана фармацевтичного факультету доцента Олександра ГОНЧАРОВА

Ректор
Вірно. Секретар

ФА2.8-03-317

ВИСНОВОК

експертної комісії про проведену експертизу

щодо академічного плагіату у кваліфікаційній роботі

здобувача вищої освіти

«11» травня 2026 р. № 333817617

Проаналізувавши кваліфікаційну роботу здобувача вищої освіти КАНКОЛОНГО-КАБЕЯ Джан-Джакуеса, групи Фм21(4,10д)англ-01, спеціальності 226 Фармація, промислова фармація, освітньої програми «Фармація» очної (денної) форми здобуття освіти на тему: «Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину / Marketing research of the lipid-lowering drugs market», експертна комісія дійшла висновку, що робота, представлена до Екзаменаційної комісії для захисту, виконана самостійно і не містить елементів академічного плагіату (компіляції).

Заступник голови Комісії,
заступник директора інституту
в складі ЗВО ННІПФ,
доцент Олена НОВОСЕЛ

Ф А 2.2.1-36-353

REVIEW

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

Jean Jacques KANKOLONGO-KABEYA

on the topic: «Marketing research of the lipid-lowering drugs market»

Relevance of the topic. This research addresses the critical issue of optimizing pharmaceutical care for cardiovascular patients, which is of strategic importance to Ukraine's healthcare system amid constrained economic resources. The study places significant emphasis on the role of cholesterol control as a fundamental tool for primary and secondary prevention, which substantially reduces the risk of critical cardiovascular events such as myocardial infarction and stroke.

Practical value of conclusions, recommendations and their validity. The author conducted a large-scale study based on real-world data from over 1,700 pharmacies using the international DDD-analysis methodology, providing an objective view of statin consumption and the dominance of foreign manufacturers. The study revealed a significant misalignment between state reimbursement programs and actual clinical needs, proving that over 80% of the doses of modern, high-potency statins consumed are paid for out-of-pocket by patients.

Assessment of work. Jean Jacques KANKOLONGO-KABEYA 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 tables and figures. 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 Phm21(4.10)eng-01 Jean Jacques KANKOLONGO-KABEYA on the topic «Marketing research of the lipid-lowering drugs market» 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 _____ Svitlana ZHADKO

«13» of May 2026

Ф А 2.2.1-36-356

REVIEW

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

Jean Jacques KANKOLONGO-KABEYA

on the topic: «Marketing research of the lipid-lowering drugs market»

Relevance of the topic. The topic is particularly relevant, as it addresses the critical need to optimize pharmaceutical care for patients with cardiovascular diseases, a matter of strategic importance for Ukraine's healthcare system under current economic constraints.

Theoretical level of work. The author provides a comprehensive theoretical review of statin development based on a synthesis of scientific literature. The work details the essential role of statins in cardiovascular prevention, highlighting their status as the gold standard in lipid-lowering treatment.

Author's suggestions on the research topic. The author conducted a comprehensive pharmacoeconomic analysis by implementing the ATC/DDD methodology to evaluate consumption and determine the actual intensity of statin therapy in Ukraine. Based on assessment of physical and economic accessibility, the study highlights a critical disparity where patients remain heavily dependent on out-of-pocket expenditures for modern, high-potency medications.

Practical value of conclusions, recommendations and their validity. The results of the qualification work are of great importance for optimizing pharmaceutical care and enhancing the efficiency of cardiovascular disease prevention in Ukraine. The identified trends regarding in-demand dosages and brands enable pharmacy chains to optimize inventory management, minimize stockouts, and more effectively meet consumer demand.

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 Jean Jacques KANKOLONGO-KABEYA on the topic «Marketing research of the lipid-lowering drugs market» 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 _____ assoc. prof. Victoria NAZARKINA

«13» of May 2026

Ф А2.2.1-36-230

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

ВИТЯГ З ПРОТОКОЛУ № 19

14 травня 2026 року
м. Харків

засідання кафедри менеджменту, маркетингу
та забезпечення якості в фармації

Голова: завідувач кафедри ММЗЯФ, доктор фарм. наук, професор Малий В. В.
Секретар: доцент ЗВО, канд. фарм. наук, доц. Жадько С.В.

ПРИСУТНІ: зав. кафедри ММЗЯФ, доктор фарм. наук, проф. Малий В.В., професор ЗВО, докт. фарм. наук, проф. Пестун І.В., професор ЗВО, докт. фарм. наук, проф. проф. Літвінова О.В., професор ЗВО, докт. фарм. наук, проф. проф. Коваленко С.М., професор ЗВО, докт. фарм. наук, проф. Крутських Т.В., професор ЗВО, докт. фарм. наук, проф. проф. Посилкіна О.В., доцент ЗВО, канд. фарм. наук, доц. Бабічева Г.С., доцент ЗВО, канд. фарм. наук, доц. Бондарєва І.В., канд. екон. наук, доц. Деренська Я.М., доцент ЗВО, канд. фарм. наук, доц. Жадько С.В., канд. фарм. наук, доц. Зборовська Т.В., канд. юрид. наук, доц. Коляда Т.А., канд. фарм. наук, доц. Лісна А.Г., доцент ЗВО, канд. фарм. наук, доц. Малініна Н.Г., доцент ЗВО, канд. фарм. наук, доц. Рогуля О.Ю., здобувачі вищої освіти фармацевтичного факультету.

ПОРЯДОК ДЕННИЙ: Про допуск здобувачів вищої освіти випускного курсу фармацевтичного факультету спеціальності «226 Фармація, промислова фармація», освітньо-професійної програми «Фармація» до захисту кваліфікаційних робіт в Екзаменаційній комісії НФаУ.

СЛУХАЛИ: Про допуск здобувача вищої освіти випускного курсу фармацевтичного факультету спеціальності «226 Фармація, промислова фармація», освітньо-професійної програми «Фармація» Джан Джакуес КАНКОЛОНГО КАБЕЯ до захисту кваліфікаційної роботи в Екзаменаційній комісії НФаУ. Кваліфікаційна робота на тему «Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину».

ВИСТУПИЛИ: В обговоренні кваліфікаційної роботи взяли участь докт. фарм. наук, проф. Малий В.В., докт. фарм. наук., проф. Пестун І.В., канд. фарм. наук, доц. Рогуля О.Ю., канд. фарм. наук, доц. Бабічева Г.С., канд. фарм. наук, доц. Бондарєва І.В., к. канд. фарм. наук, доц. Жадько С.В., канд. фарм. наук, доц. Малініна Н.Г. Керівник кваліфікаційної роботи: канд. фарм. наук, доц. Жадько С.В.

УХВАЛИЛИ: Допустити здобувача вищої освіти Джан Джакуес КАНКОЛОНГО КАБЕЯ до захисту кваліфікаційної роботи на тему «Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину» в Екзаменаційній комісії НФаУ.

Зав. каф. ММЗЯФ, доктор фарм. наук,
професор Володимир МАЛИЙ

Секретар
канд. фарм. наук, доцент Світлана ЖАДЬКО

Ф А2.2.1-36-042

НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

ПОДАННЯ
ГОЛОВІ ЕКЗАМЕНАЦІЙНОЇ КОМІСІЇ
ЩОДО ЗАХИСТУ КВАЛІФІКАЦІЙНОЇ РОБОТИ

Направляється здобувач вищої освіти Джан Джакуес КАНКОЛОНГО КАБЕЯ до захисту кваліфікаційної роботи
за галуззю знань 22 Охорона здоров'я
спеціальністю 226 Фармація, промислова фармація
освітньо-професійною програмою Фармація
на тему: «Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину».

Кваліфікаційна робота і рецензія додаються.

Декан факультету _____ / Олександр ГОНЧАРОВ /

Висновок керівника кваліфікаційної роботи

Здобувач вищої освіти Джан Джакуес КАНКОЛОНГО КАБЕЯ виконав на кафедрі менеджменту, маркетингу та забезпечення якості у фармації НФаУ кваліфікаційну роботу, яка присвячена маркетинговим дослідженням ринку лікарських засобів для зниження рівня холестерину.

У першому розділі роботи описано роль статинів у зниженні ризику серцево-судинних захворювань. У другому розділі окреслені тенденції розвитку світового ринку статинів, наведено результати аналізу статинів, зареєстрованих в Україні. У третьому розділі проведено фармакоекономічний аналіз, досліджено структуру споживання, фізичну та економічну доступність статинів.

У цілому подана до захисту кваліфікаційна робота Джан Джакуес КАНКОЛОНГО КАБЕЯ на тему «Маркетингові дослідження ринку лікарських засобів для зниження рівня холестерину» відповідає вимогам, що висуваються до кваліфікаційних робіт, оцінюється позитивно і може бути рекомендована для захисту в Екзаменаційній комісії НФаУ.

Керівник кваліфікаційної роботи

_____ Світлана ЖАДЬКО

«13» травня 2026 р.

Висновок кафедри про кваліфікаційну роботу

Кваліфікаційну роботу розглянуто. Здобувач вищої освіти Джан Джакуес КАНКОЛОНГО КАБЕЯ допускається до захисту даної кваліфікаційної роботи в Екзаменаційній комісії.

Завідувач кафедри
менеджменту, маркетингу
та забезпечення якості у фармації _____ Володимир МАЛИЙ
«14» травня 2026 р.

Qualification work was defended
of Examination commission on
«09» of June 2026
with the grade _____
Head of the Examination commission,
DPharmSc, Professor
_____ / Volodymyr YAKOVENKO/