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QUALIFICATION WORK

on the topic: «**RESEARCH ON INVOLVEMENT OF COMMUNITY PHARMACISTS IN VACCINATION SERVICES»**

Performed by: higher education graduate of group Фм20 (4,10д)англ-02
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ANNOTATION

The qualification work explores the involvement of community pharmacists in vaccination services. It analyzes international practices, legal frameworks, and models of pharmacist-led immunization. Based on a survey in Morocco, key barriers and facilitators are identified, and recommendations for expanding pharmacists' role in vaccination are proposed.

The qualification work consists of an introduction, 3 chapters, conclusions, a list of used sources and is laid out on 51 pages of printed text. The work is illustrated with 19 figures and 6 tables. The bibliography includes 49 information sources.

Keywords: community pharmacist, public health, vaccination services, health promotion, role of pharmacists, pharmacy-led vaccination.

АНОТАЦІЯ

У кваліфікаційній роботі досліджується участь фармацевтів у наданні послуг з вакцинації. У ній аналізуються міжнародні практики, правові бази та моделі імунізації під керівництвом фармацевтів. На основі опитування, проведеного в Марокко, визначено ключові перешкоди та фактори, що сприяють цьому, а також запропоновано рекомендації щодо розширення ролі фармацевтів у вакцинації.

Кваліфікаційна робота складається зі вступу, 3 розділів, висновків, списку використаних джерел та розміщена на 51 сторінках друкованого тексту. Робота ілюстрована 19 рисунком та 6 таблицями. Бібліографія містить 49 джерел.

Ключові слова: фармацевт громади, громадське здоров'я, послуги вакцинації, промоція здоров'я, роль фармацевтів, вакцинація під керівництвом аптек.

CONTENT

LIST OF ABBREVIATIONS

APHA – American Public Health Association

CPhA – The Canadian Pharmacist's Association

CPs – Community Pharmacists

CPBVS – Community Pharmacy Based Vaccination Services

EPI – Expanded Program on Immunization

FIP – International Pharmaceutical Federation

GVAP – The Global Vaccine Action Plan

IPIP – The International Pharmacists-as-Immunizers Partnership

SAGE – Strategic Advisory Group of Experts on Immunization

WHO – The World Health Organization

INTRODUCTION

Pharmacists play a primordial role in maintaining and promoting public health. All pharmacists have a responsibility to participate in global, national, state, regional, and institutional efforts to promote public health and to integrate the goals of those initiatives into their practices.

Vaccination is one of the most efficient strategies for preventing infectious diseases. Despite the immunization recommendations, vaccine-preventable diseases continue to pose a significant burden in many countries.

Morocco's Expanded Program on Immunization (EPI) must implement tailored interventions. This is because continuous efforts to improve vaccine coverage have uncovered preexisting obstacles.

To improve vaccination coverage challenges, several developed countries, including Canada, the United Kingdom, and the United States, have successfully implemented community pharmacy-based vaccination services (CPBVS), and since the 1990s, more than 30 countries have adopted this approach. The CPBVS initiative has expanded the roles of community pharmacists (CPs), empowering them to administer vaccines, handle storage, report adverse events, and educate the public, provided they receive adequate training and certification in vaccine delivery.

Pharmacists in community pharmacy settings can play a crucial role in increasing immunization rates by providing convenient and accessible options for receiving vaccines. They have successfully fulfilled these roles in community pharmacy settings in various countries by providing immunization services.

Although community pharmacy staff members in Morocco are actively engaged in providing health services related to advice on vitamins and supplements, newborn milk or formulas, and minor symptoms, they are not involved in vaccination, as reported in a recent study. Analyzing the barriers and advantages of CPBVS in Morocco

will provide valuable insights for improving the healthcare system and addressing the challenges related to vaccination services.

The purpose of the study: to analyze the role of community pharmacist in vaccination services.

Research objectives:

- To conduct a review of literary sources about current functions of community pharmacist;
- To investigate of regulatory policies governing the pharmacy profession in Public Health;
- To make comparative analysis of the activity of pharmacists in vaccination services and health promotion in different countries;
- To survey the role of pharmacists in vaccination services and health promotion in morocco.
- To generalize recommendations for enhancing the role of community pharmacists in vaccination services and health promotion.

The object of the research became literary sources on the community pharmacist role and functions, the regulatory and legal framework, research by international public organizations, statistical data, and results of the survey.

The subject of the study: the identification and assessment of modern aspects of the role of community pharmacists in public health care.

Research methods. During the research, we used such methods as systemic, analytical and comparative, graphic and logical methods, the method of descriptive and abstract modeling and generalization, and the sociological method.

The scientific novelty and practical significance of the study lie in the identification of untapped opportunities for involving community pharmacists in vaccination services in Morocco, based on original sociological data. The research provides practical recommendations for integrating pharmacists into national

immunization efforts, aiming to improve vaccine accessibility, support public health outcomes, and enhance the resilience of the healthcare system.

The study results were approved at the XXXI International scientific and practical conference of young scientists and students "TOPICAL ISSUES OF THE NEW MEDICINES DEVELOPMENT" held on April 23-25, 2025

Structure and scope of qualification work. The qualification work consists of the introduction, three chapters, a conclusion to each chapter, a general conclusion, and list of used sources. The results of the study are presented on 51 pages of text, the number of figures – 19, number of tables – 6, and the list of references – 49 titles

CHAPTER I.
REVIEW OF THE LITERATURE ON THE ROLE OF COMMUNITY PHARMACISTS IN VACCINATION SERVICES

1.1 Evolution of community pharmacy and its role in public health

The role of community pharmacy has shifted markedly from a traditional focus on medication dispensing to a comprehensive engagement in public health services. Pharmacists now serve as educators, immunizers, and frontline healthcare providers, with their contributions increasingly acknowledged as essential to public health infrastructure.

Public health aims to promote wellness and prevent disease at the population level. Unlike clinical care, it focuses on improving health outcomes through community-wide interventions. In this evolving context, community pharmacists are increasingly central, especially in underserved or rural settings [4, 41].

This evolution gained momentum in 2006 with the American Public Health Association's (APHA) policy statement advocating for pharmacists' expanded contributions to public health [41, 42]. In 2013, the American Association of Colleges of Pharmacy incorporated public health and health equity into its curriculum framework [4], signaling a broader expectation of pharmacists as part of the interdisciplinary public health workforce.

Globally, organizations such as the International Pharmaceutical Federation (FIP) recognize pharmacists as the most accessible healthcare providers. Their integration into services like immunization, health screening, and patient education reflects their growing importance in public health strategies [2, 3, 32].

The role of pharmacists in public health varies internationally, but typically includes:

- Health promotion and education – Providing guidance on chronic disease management, nutrition, and smoking cessation [8, 25].

- Vaccination services – Administering vaccines such as influenza and COVID-19, significantly improving immunization coverage [16, 21, 28]. For example, during the COVID-19 pandemic, Moroccan pharmacists contributed to frontline care [9].
- Opioid and substance abuse prevention – Distributing naloxone, recognizing patterns of misuse, and educating patients [4, 31].
- Emergency response and preparedness – Maintaining medication supply chains and supporting public health interventions during crises [11, 38].
- Policy and research participation – Contributing to public health policy development and conducting local health research [27, 31].

In Morocco, legal frameworks are gradually adapting to include pharmacists in national immunization strategies [6, 22].

Global trust in pharmacists has grown. Studies from Saudi Arabia, the United Kingdom, and Nigeria indicate that patients increasingly view pharmacists as reliable sources of health advice [1, 18, 25, 35].

Empirical evidence supports this trust. Countries that have involved pharmacists in immunization initiatives report improved vaccine uptake, particularly in underserved populations [21, 30, 33]. Pharmacist-led interventions in managing chronic diseases also contribute to better patient outcomes and reduced hospitalizations [27, 31].

Pharmacy education now integrates public health principles, preparing students to engage in community-based healthcare teams [4, 43]. Licensed pharmacists continue to expand their competencies through certification in immunization delivery, smoking cessation, and public health programs [27, 31, 34].

Several countries, including Australia, Canada, and various European nations, are granting pharmacists increased authority to prescribe medications, manage treatments, and conduct public health screenings [24, 29, 36].

Given their strong community presence and established credibility, pharmacists are well-positioned to contribute to public health. Their potential remains underutilized, yet they represent a powerful resource for advancing healthcare.

1.2 Vaccination as a public health priority: historical and current perspectives

Vaccination has been one of the most transformative public health achievements of the past century [17, 39]. Its origins trace back to the work of Benjamin Jesty and Edward Jenner, whose smallpox experiments laid the foundation for modern immunology [19].

The rise in life expectancy and the decline in mortality from infectious diseases can be largely attributed to improved sanitation, food safety, access to clean water, and especially widespread immunization.

The COVID-19 pandemic reemphasized the critical importance of vaccines. In response, the WHO launched the Immunization Agenda 2030 to promote lifelong access to vaccines globally [17, 38].

This significance is underscored by three primary contributions of vaccination to public health:

1. Immunization saves lives and protects people's health. Immunization keeps people healthy and has reduced the number of deaths from infectious diseases. Between 2010 and 2017, the mortality rate of children under 5 years of age declined by nearly a quarter. Measles vaccines alone prevented 25.5 million deaths since 2000, and enormous progress towards the eradication of polio, which can cause lifelong paralysis and sometimes death, has brought cases down by over 99% since 1988 [17].

Vaccines benefit not only infants and children but also older people. They can prevent infection-related cancers caused by viruses like hepatitis and HPV, and protect the health of the working population, the elderly and the vulnerable, allowing people to live longer, healthier lives. In addition, fewer infections mean less risk of transmitting disease to relatives and other members of the community [17, 39].

2. Immunization improves countries' productivity and resilience. Immunization is the foundation of a healthy, productive population. Every dollar invested in

immunization programmes in 94 low- and middle-income countries over the next decade will return more than US$ 52 by lowering treatment costs, boosting productivity, and reducing long-term disability.

Vaccines also protect countries from the overwhelming economic impact of disease outbreaks. As we have seen with the COVID-19 pandemic, disease outbreaks are disruptive and costly. They can overwhelm and profoundly disrupt public health programmes, clinical services, and health systems, and keep children out of school. They may also have adverse effects on travel, tourism, trade and overall development [17].

For seasonal diseases like influenza, the costs of treatment and lost productivity are borne repeatedly. Immunized communities are resistant to infectious disease outbreaks, and strong health systems and immunization programmes can rapidly detect and limit the impact of infectious diseases [17, 44].

At the individual level, preventing infections through immunization helps reduce families' healthcare costs and provides financial protection against out-of-pocket payments that could have a catastrophic impact on household finances.

3. Immunization helps ensure a safer, healthier world. Vaccines are key to global health security. Outbreaks of highly infectious diseases, such as measles and COVID-19, have shown us how quickly disease can spread between countries in an increasingly interconnected world. In 2019, measles cases increased in countries where it had been previously eliminated, partially due to low vaccination rates among travelers [44].

Immunization can help us prevent and respond to future infectious disease threats. Immunization and disease surveillance are core capacities required by the International Health Regulations (2005). They contribute to resilient, sustainable health systems that can respond to outbreaks, public health risks and emergencies. A recent study found that a 10% increase in these core capacities (e.g., surveillance and risk communication) is associated with a 20% decrease in the incidence of cross-border infectious disease threats [17].

Immunization is critical to the prevention and control of communicable diseases; strengthening country productivity, which contributes to economies; and helping to ensure a safer, healthier world. Vaccines provide a profound return on investment and are a key component of improving health and well-being for everyone, everywhere.

The WHO's Strategic Advisory Group of Experts on Immunization (SAGE) raised alarms about mounting pressures threatening global vaccination efforts. At its 10–13 March meeting, SAGE highlighted both hard-won gains and looming risks, warning that funding cuts and shifting priorities are jeopardizing decades of progress. With countries still recovering from COVID-19, the diversion of resources away from public health, especially vaccination could undo critical strides in child survival and disease prevention [14].

Vaccination remains one of the most cost-effective public health tools, but without sustained support, the gains achieved under the Immunization Agenda 2030 are at serious risk [39, 44].

Conclusion to Chapter 1

An analysis of literary sources on the role of community pharmacists in public health and vaccination services was conducted. It was established that community pharmacists are increasingly recognized as key actors in public health due to their accessibility, patient trust, and expanded competencies. The literature review demonstrated that pharmacists are involved in a range of public health services, including vaccination, health education, and emergency preparedness. Historical and contemporary sources confirmed the effectiveness of vaccination as a public health measure, contributing to decreased mortality, economic resilience, and disease prevention. These findings form the basis for further research into optimizing pharmacists' involvement in national immunization programs.

CHAPTER II.
STUDY OF INTERNATIONAL EXPERIENCE OF COMMUNITY PHARMACIST INVOLVEMENT IN VACCINATION SERVICES

2.1 Global trends in the involvement of pharmacists in immunization services

In 1796, Edward Jenner undertook an experiment on eight-year-old James Phipps that was to change the world of infectious disease. The resulting story about this first instance of immunization against smallpox is well known. The outcomes of this innovation would be published two years later and coined by Jenner as the vaccine era had begun [19].

In 1980 the WHO declared smallpox an eradicated disease. This was the result of coordinated public health efforts by many people, but vaccination was an essential component [14, 37].

Today, it is estimated that the eradication of smallpox currently saves approximately 5 million lives each year. Although smallpox has been the only successfully and fully eradicated infectious disease to date, other diseases may also be potentially eradicated, provided that effective vaccination programs, treatments and diagnostics are available [19].

Between 1990 and 2015, the WHO Millennium Development Goal aimed to reduce child mortality by implementation of robust strategies such as national and global EPI [14].

Later in 2012, the Global Vaccine Action Plan (GVAP) 2011-2020 was endorsed by 194 WHO Member States to stimulate universal access to immunisation. Poliomyelitis, in particular, is one the infectious diseases targeted for eradication, although there are still significant global challenges to be addressed in this area [14].

Pharmacists play an increasingly recognized role in public health by contributing to immunization efforts as educators, advisers, and providers of pharmacy-based vaccination services. These practices have been adopted in numerous countries, illustrating the

expanding scope of pharmacists in global vaccination strategies. This report presents and summarizes the current global trends on the role of pharmacists in immunization [2, 27, 30].

The role of pharmacists as educators, facilitators and immunisers is particularly important during pandemics (e.g. influenza) and/or other challenging situations that may significantly affect the morbidity and mortality of the general population. Vaccination policies tend to vary across the world; the legal authority to perform immunisation activities can vary significantly across countries and territories and the integration of community pharmacies and pharmacists in the vaccination policy tends to develop as a gradual process over time. Nevertheless, a significant number of countries and territories have been actively involved in this type of activities and helping to tackle a significant number of vaccination barriers and challenges [20, 23, 30].

For seasonal influenza, for example, a resolution of the Executive Board of the WHO recommended the establishment and implementation of vaccination strategies, particularly aimed at all people at-risk, to increase seasonal influenza vaccination coverage to 75% or higher by 2010. Throughout the years, it has been challenging to translate these recommendations into action. Increasingly, pharmacists have an essential role in immunisation activities to ensure that these goals are met [14].

Since the beginning of the 21st century, pharmacy-based vaccination services have developed at a rapid pace and are now well established in countries such as the USA (1994-2009), Portugal (2007) and Australia (2014-2016). Nationally or regionally, the role has been supported and encouraged by several groups and associations and is gaining notable acceptance and endorsement from the public, governments and other healthcare professionals across the world [2, 21].

Throughout the years, a number of countries and jurisdictions have allowed pharmacists to play a key role in administering vaccines. A resolution from November 1958 authorised pharmacists in Argentina to administer intramuscular or subcutaneous injections under medical indication. Later, this regulation was extended and ratified to

incorporate specific details on vaccination in pharmacies and by pharmacists as well as specifications for each of Argentina's 24 jurisdictions [2].

The Canadian Pharmacists Association (CPhA) promotes pharmacists' involvement in immunization efforts, particularly through advocacy and public health education. The profession gained the acceptance from the public, with 88% of Canadians trusting pharmacists to provide advice on vaccinations. From a public health perspective, a national immunization strategy is one of the three top advocacy priorities for CPhA [2].

Pharmacists can also be very much involved in vaccine supply policies, from manufacturing to procurement, storage and distribution. Inappropriate procedures may compromise the supply chain and put vaccines at risk of degradation. For this reason, explicit legal requirements, comprehensive guidelines or recommendations as well as robust procedures should be in place during the process. Pharmacists can be pivotal to ensure that high quality cold chain storage systems are established and efficiently maintained throughout the whole supply chain.

In the UK, pharmacists are actively involved in the supply chain. In primary care in particular, pharmacists can be responsible for the re- distribution of vaccines in areas where there are fewer vaccines than required. In Scotland, community pharmacies successfully control the complete supply process of all the seasonal flu vaccines surgeries, from procurement and purchasing to distribution and delivery, ensuring the maintenance of the cold chain [2].

In USA, in 1994, a group of 50 pharmacists undertook the first organised immunisation training for pharmacists, held in Seattle, Washington. Later in 1996, the APhA House of Delegates passed a resolution calling for pharmacists to assume a key role as vaccination advocates, facilitators and/or immunisers. During the latter half of 2009, amid fears of a H1N1 pandemic, several states enabled pharmacists to administer vaccinations together with other health professionals. This event highlighted the important role of pharmacists as immunisation providers and was the stepping stone to generalise pharmacy-

based vaccination across all 50 states. Today, pharmacy-based vaccination in USA is extremely successful, increasing significantly vaccine uptake throughout the country [2].

Recent statistics illustrate the rapid global adoption of pharmacy-based vaccination. In 2016, pharmacists provided vaccination services in 19 countries and territories; by 2020, the number had risen to 33, and by 2022, to 40. As of the latest data, 57 countries involve pharmacists in vaccination efforts, reflecting steady growth in international engagement.

At least 25 countries in the European region now involve pharmacists in vaccination. Nineteen of those 25 countries authorise pharmacists to prescribe some vaccines, but there are differences across the continent. Thirteen countries allow pharmacists to prescribe influenza vaccines, but only ten allow them to prescribe COVID vaccines; five allow them to prescribe pneumococcal vaccines; and just one permits pharmacists to prescribe the vaccine for RSV [47].

Global trends in the involvement of pharmacists in immunization services highlight their significance within the healthcare system and the fight against infectious diseases. The growing number of countries (US, UK, Germany, Canada, Australia etc.) involving pharmacists in vaccination efforts reflects the recognition of their importance in the healthcare system. Pharmacists not only administer vaccines but also participate in promoting vaccination by providing patients with essential information and support. Successful examples from various countries demonstrate that integrating pharmacists into vaccination programs can significantly enhance population coverage and reduce barriers to vaccine access.

2.2 Regulatory and legal frameworks enabling pharmacist-led immunization: comparative overview

In many parts of the world, and especially among older adults and other risk groups for vaccine-preventable diseases, vaccination coverage rates remain suboptimal. Through their expertise, accessibility and trusted relations with the community,

pharmacists are uniquely positioned to improve vaccination coverage rates. The delivery of vaccination services has been, and is increasingly becoming, part of pharmacists' scope of practice in many countries, and FIP's monitoring of this evolution is essential to demonstrate the impact of pharmacists' services and to support further change. Last year, 2024 FIP has published two intelligence reports and one interactive online atlas that provide case studies, best practices, data and compelling evidence of the role of pharmacists in immunisation, highlighting trends and reporting on the global progress in pharmacy-based vaccination.

Leveraging pharmacy to deliver life-course vaccination [21]: An FIP global intelligence report. Based on a cumulative dataset of 120 countries, FIP's 2024 Vaccination surveillance report evaluates many aspects of pharmacist-led vaccination. These include advocacy activities, regulatory frameworks, vaccination administration and prescribing, training, certification, access to vaccination records, remuneration models and identifying barriers to extending these services. This study forms part of the FIP Vaccination Surveillance Project, an ongoing initiative aimed at continuously monitoring and assessing the development of pharmacists' roles in immunisation globally.

Formation of the International Pharmacists-as-Immunizers Partnership (IPIP) [2, 3]: Initiated through the International Research Partnership Grant by the University of Waterloo, Canada, and matched by Queensland University of Technology, Australia. The partnership aimed to tackle the global implications of pharmacist-led immunization research. Goals included:

- Identifying research gaps and building research capacity.
- Fostering international collaboration.
- Developing funding applications to address gaps.
- Translating research findings into policy and practice changes.

Participants included pharmacy researchers and practicing pharmacists from diverse regions. A systematic literature review and evidence brief were prepared to guide discussions.

Key Outcomes of IPIP's First Meeting (2017): Held in Waterloo, Canada, with attendees from five countries. Discussions revolved around [2, 3]:

- Country-specific policies and challenges in pharmacist-led immunization.
- Identifying research priorities, including outcomes, perspectives, economic and legislative factors, safety, education, and emergency preparedness.
- Strategic directions for future research, partnerships, and stakeholder engagement.
- Examples of research gaps identified.

As outlined in Table 2.1, the IPIP identified several thematic research gaps during its first collaborative meeting. These gaps encompass pharmacist perspectives, patient engagement, economic outcomes, and policy challenges, among others.

Table 2.1

Identified Research Gaps in Pharmacy-based Vaccination Programs

Theme	Example of Research Gap Identified
Impact on outcomes	Impact on hard-to-reach, high-risk, and vulnerable groups
Pharmacist perspectives	Operational challenges to vaccination
Patient/public perspectives	Vaccine hesitancy in community pharmacy
Other healthcare professional perspectives	Strategies to increase inter-professional collaboration
Pharmacy operational factors	Task shifting to registered pharmacy technicians
Legislative/policy factors	Lessons learned and strategies identified from policy change across different jurisdictions
Economic outcomes	Immediate and long-term economic outcomes of pharmacists-as-immunizers
Emergency/disaster preparedness	Linking universities and pharmacies with the public through a disaster preparedness plan
Educational outcomes	Differences in national competencies and accreditation requirements

2.3 Study on models of pharmacist-delivered vaccination services in different countries

To better understand the evolving role of pharmacists in immunization worldwide, we looked at a detailed report resulting from a global survey conducted by University College London in partnership with the FIP. This survey was focused mainly on advocating for immunization, administering vaccines, training the pharmacy workforce for immunization and vaccination services, access to vaccination records, additional services related to vaccination and main limitations to the development of pharmacists' role in immunization.

The survey gathered data from 137 FIP member organizations across 45 countries and territories (Fig. 2.1), providing a comprehensive look at pharmacist involvement in vaccination (Table 2.2). Below, we summarize the key findings from this report.

Fig. 2.1. FIP members or organisations and countries/territories responded to the survey

Table 2.2

Country-Level Overview of Pharmacist Involvement in Vaccination Services, Training Requirements, and Access to Records

Countries	Advocacy for vaccination	Vaccination administration	Training required	Access to Records
Argentina	Y	P	Y	N
Australia	Y	PH	Y	Y
Belgium	Y	N	N	Y
Bolivia	Y	H	N	N
Brazil	Y	N	N	Y
Canada	Y	PH	Y	Y
China (People's Republic)	Y	N	N	N
Congo (Democratic Republic)	Y	H	Y	N
Costa Rica	Y	P	Y	Y
Denmark	Y	PH	Y	Y
Ecuador (Quito's province)	N	N	N	N
Ethiopia	Y	N	N	N
Finland	Y	H	N	N
France	Y	N	N	Y
Germany	N	N	N	Y
Hong Kong, People's Republic of China	N	N	N	N
Hungary	N	N	N	N
Iceland	N	H	N	N
India	N	N	N	-
Iraq	Y	N	N	N
Ireland	Y	P	Y	Y
Israel	N	N	N	-
Italy	Y	N	N	N
Japan	Y	N	N	N
Jordan	Y	-	-	-
Lebanon	N	H	N	N
Netherlands	Y	H	N	Y
New Zealand	Y	P	Y	N
Nigeria	Y	N	Y	Y
Norway	N	N	N	N
Pakistan	Y	H	N	Y
Paraguay (Asunción)	N	N	N	N
Philippines	Y	PH	Y	N
Poland	Y	N	N	N
Portugal	Y	PH	Y	Y
Russian Federation	Y	N	N	N
Senegal	Y	N	Y	N
South Africa	Y	PH	Y	Y
Spain	Y	N	Y	N
Switzerland	Y	PH	Y	Y
United Arab Emirates	N	N	N	N
Ukraine	N	N	N	N
United Kingdom	Y	PH	Y	Y
United States of America	Y	PH	Y	Y
Uruguay	N	N	N	N

Legend

Y	Yes
N	No
P	Pharmacist
H	Other healthcare professional
PH	Pharmacist and other healthcare professional
-	No response

First published in 2016, this global report gives us a clear picture of how pharmacists are integrated into vaccination efforts around the world. It looks at the specific roles they play, the legal frameworks in place, the training required, and the impact these roles have on public health. One major takeaway from the report is that pharmacists, far beyond their traditional role of dispensing medications, are increasingly becoming key players in public health, particularly in improving vaccine access.

Given their accessibility, credibility, and pharmaceutical expertise, pharmacists are well positioned to help address gaps in vaccination coverage. This report is all about showing what that looks like globally.

The report demonstrates the substantial contribution pharmacists can make to improving vaccine access when supported by appropriate policy and training frameworks. When they're trained, legally supported, and plugged into patient systems, they can be a total game-changer for public health.

From another side, in the post-COVID world, things have evolved fast. An updated version of this report would probably show even more clearly how essential pharmacists are in making healthcare more accessible, especially for vaccines.

The administration of vaccines was less common in our sample, with 29% (13) of respondents stating that pharmacist-administration is possible. However, 44% (20) stated that using pharmacies (as accessible healthcare premises), including both pharmacists and other healthcare professionals administering vaccines, was possible in their countries. Table 2.3 summarises this, with the list of countries where administration of vaccines is possible shown in Table 2.4.

Table 2.3

Administration of vaccines in pharmacies and/or by pharmacists

Countries and territories where administration of vaccines in pharmacies is allowed (in our sample)	% (n)
Yes (by pharmacists and other HCPs)	29 (13)
Yes (but only by other HCPs)	16 (7)
No	55 (25)
Total	100 (45)

Table 2.4

Countries where the administration of vaccines in pharmacies and/or by pharmacists is allowed

Country	Administration in pharmacies	Administration by pharmacists
Argentina	Yes	Yes
Australia	Yes	Yes
Bolivia	Yes	-
Canada	Yes	Yes
Congo (Dem Rep)	Yes	-
Costa Rica	Yes	Yes
Denmark	Yes	Yes
Finland	Yes	-
Iceland	Yes	-
Ireland	Yes	Yes
Lebanon	Yes	-
Netherlands	Yes	-
New Zealand	Yes	Yes
Pakistan	Yes	-
Philippines	Yes	Yes
Portugal	Yes	Yes
South Africa	Yes	Yes
Switzerland	Yes	Yes
UK	Yes	Yes
USA	Yes	Yes
Total	20	13

In this sample, around 20% of all country-level pharmacies (approximately 193,000) are being used as community-based immunisation centres, with an outreach to a combined population size of 940 million people. In addition, around 120,000 pharmacies in this sample (14% of all represented) have the potential for pharmacist-provided vaccination administration services (serving a collective population of around 655 million people).

It is also clear from this sample that there is an association between advocacy and support for vaccination activities and being able to legally provide administration in pharmacy premises (by either pharmacists or other healthcare professionals). Table 2.5 (and Figure 2.2) shows a generally higher level of engagement associated with vaccination advocacy activities and being able to physically provide the opportunity for the administration of vaccination.

Table 2.5

Association between advocacy and support for vaccination activities

	Countries and territories allowing vaccines to be administered in pharmacies or by pharmacists	
	Column % (n)	
	No	Yes
Distribute leaflets	64% (9)	94% (16)
Provide information and advice	78% (11)	94% (16)
Engage with campaigns	50% (7)	77% (13)
Multi-disciplinary campaigns	29% (4)	47% (8)
Keep vaccination status/reminders for patients	29% (4)	47% (8)
Identify and advise high risk patient groups	28% (4)	77% (13)
Serve or advise immunisation committees/groups	14% (2)	47% (8)
Count (country cases responding)	14	17

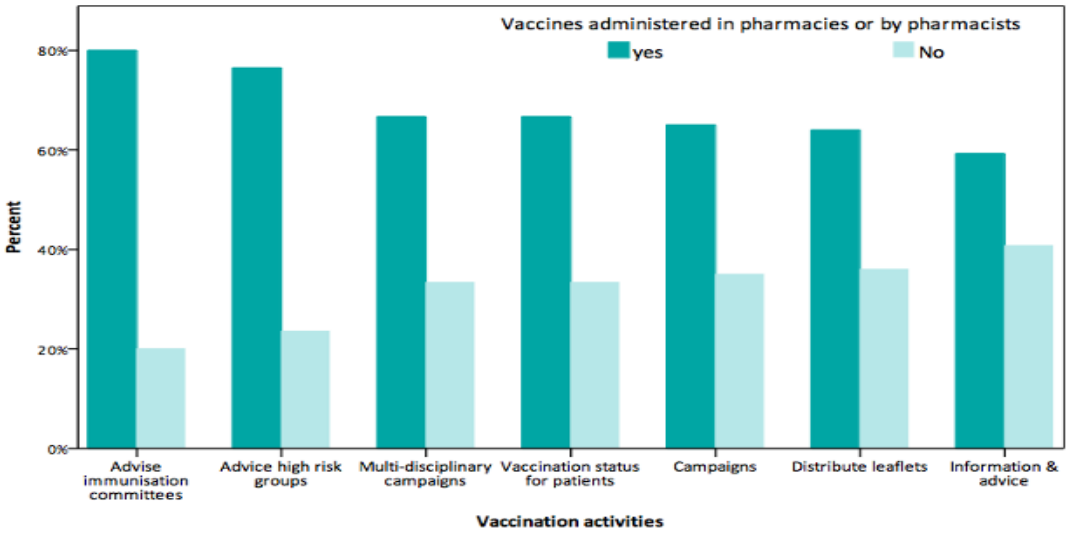

Fig. 2.2. Vaccination activities undertaken by pharmacists/pharmacies by vaccination provision status.

The indication is that where pharmacists are engaged with actual administration, there is a deeper engagement with a wider scope of activities associated with public health delivery. This is not wholly surprising, but does provide some evidence that allowing pharmacists to vaccinate, or using pharmacies as accessible healthcare premises for vaccination, can enhance the public health messaging and provide greater opportunity for public health provision in relation to vaccination. In particular, there is a greater tendency for pharmacies, where vaccination services are delivered, to be engaged with multi-disciplinary campaigning activities and – significantly – to be identifying and advising high risk patient groups, which is a key strategy for public health policy for vaccination access.

Legal Framework and Training Requirements for Vaccine Administration in Pharmacies. The survey addressed the specific prerequisites for vaccine administration within pharmacy settings, focusing on two main dimensions: (1) the legal and regulatory requirements for utilizing pharmacies as vaccination sites (including safety standards, operational guidelines, and infrastructure considerations), and (2) the training requirements for pharmacists in jurisdictions where vaccine administration is

permitted. These aspects are illustrated in Table 2.6, with each dimension assessed using different sample sizes. Among the answers that FIP got from the countries where legal authorization for pharmacist-administered vaccination exists, formal training was reported as mandatory in eight countries, representing approximately 57% of those with such legal provisions.

Table 2.6

Association between specific requirements for the administration of vaccines in pharmacies and access to training for vaccine administration.

	Countries and territories with specific requirements for administration of vaccines in pharmacies (legal, guidelines, training, etc.) % (n)	Countries and territories where pharmacists can access training for vaccine administration % (n)
No	33% (8)	62%(28)
Yes	67% (16)	38% (17)
Total (country cases responding)	100% (24)	100% (45)

For the majority of countries in this sample, formal training for vaccination administration and services is a post-registration activity (79%), although some indicated that vaccination administration education was part of initial education and training. There is scope here for a review of how access to training (particularly for physical skills) is being organised as part of overall professional education; making better links with education and training will strategically have a greater impact on widening access to vaccination through pharmacies and pharmacists as a routine service provision.

Currently, mandatory and specified pharmacist training is required in: Argentina, Portugal, Australia, Canada, Congo (Dem Rep), Denmark, Ireland, Philippines, Senegal, South Africa, Spain, UK, USA [21, 28].

There is variance, globally, in the engagement of pharmacists in direct vaccination and immunisation services, with a rising proportion of countries that have legislation in place to allow administration in pharmacies and by pharmacists. This

policy increases the accessibility of wider vaccination coverage for populations and enhances vaccination programmes by allowing patients to have a wider medicines review or ask for other healthcare advice. In this sample alone, it was estimated that community pharmacy-based access to vaccination is currently available to over 940 million people (assuming all pharmacies take the opportunity to provide these available immunisation services). Furthermore, pharmacist-administered vaccinations are available to 655 million people (with similar assumptions) [21].

It is clear from this sample that those pharmacies/pharmacists who are providing direct vaccination services are also more engaged with a wider range of public health activities and with higher risk patient groups and other healthcare professionals; these respondents also tend to have a more positive attitude about removing restrictions and barriers and indicate better patient acceptance. The country case studies provide support for this association, and there is a clear theme of proactivity that runs through those countries that have embraced, legally and professionally, the concept of widening access to vaccines and immunisation services, often working closely with fellow healthcare professionals.

In most countries that allow the provision of vaccination services in pharmacies, there is a strong element of mandatory training or at least access to training to support the activity. Education and training of the pharmacy workforce is a key strategic lever towards making direct vaccination services acceptable for governments and other healthcare professionals [21,28].

What stands out from this report is the undeniable potential pharmacists have in transforming immunization delivery, particularly in underserved areas. The evidence clearly shows that, when trained and supported by appropriate legislation, pharmacists can play a crucial role in increasing vaccination rates. While there is still work to be done, especially in terms of training accessibility and harmonizing legal frameworks, pharmacists have already proven their value in public health, especially in the wake of global health challenges like the COVID-19 pandemic.

The integration of pharmacists into vaccination services not only helps improve accessibility but also fosters a more holistic approach to healthcare delivery. In countries where pharmacists are actively involved in immunization efforts, there tends to be a broader integration into public health initiatives, supporting a more cohesive and proactive health system.

The findings from the global FIP survey emphasize the importance of regulatory support, structured training, and integration into healthcare systems as key factors enabling pharmacists to contribute effectively to vaccination services. When empowered with the appropriate tools and legal frameworks, pharmacists extend their involvement beyond vaccine administration to include patient education, advocacy, and support for high-risk groups. These insights highlight the expanding role of pharmacists as accessible and trusted healthcare providers who can significantly strengthen public health infrastructure.

Conclusion to Chapter 2

1. An analysis of literary sources on global pharmacist-led immunization trends was conducted. It was established that the involvement of pharmacists in immunization programs has expanded significantly over the past decades, with many countries recognizing their role in public health delivery.

2. Also, it was identified the regulatory and legal conditions necessary for effective pharmacist participation in vaccination. The review of FIP data confirmed that advocacy, legislation, access to patient records, and structured training are crucial enablers for successful integration.

3. The next step presented models of pharmacist-delivered immunization services across different countries. It was determined that pharmacists' ability to administer vaccines correlates with broader involvement in public health activities and patient outreach. These international examples demonstrate the potential for pharmacists to play an expanded role in national vaccination strategies under supportive conditions.

CHAPTER III.
ANALYSIS OF THE CURRENT STATE AND PROSPECTS FOR COMMUNITY PHARMACISTS' INVOLVEMENT IN VACCINATION SERVICES IN MOROCCO

3.1 Sociological survey results on pharmacist involvement in vaccination

While there aren't large-scale national surveys yet, interviews with pharmacists in both urban and semi-urban settings provide valuable insight into the current sentiment and challenges faced by Moroccan pharmacists regarding vaccination services.

So, to explore the readiness, awareness, and perspectives of Moroccan pharmacists regarding their potential role in vaccination, a structured survey was developed and distributed. The questionnaire was composed of four main parts, each targeting a specific area of interest:

1. Demographic Characteristics – to better understand who the respondents are (gender, age, location).
2. Knowledge and Awareness – to assess what pharmacists know about vaccination, both globally and locally.
3. Attitudes and Beliefs – to gauge how pharmacists feel about providing vaccination services.
4. Readiness and Perceived Barriers – to identify their willingness to vaccinate and the obstacles preventing them from doing so.

The survey included a total of 14 questions, covering both closed-ended and scaled (Likert-type) responses to allow for both statistical analysis and nuanced insights.

The questionnaire was designed and distributed in French, the working language of most Moroccan pharmacists, ensuring clarity and accessibility for participants. Some

sections also included space for open comments, giving pharmacists the chance to express personal views, experiences, and suggestions beyond the predefined questions.

In total, 33 pharmacists completed the survey, providing a rich and representative snapshot of professional sentiment across the country. While the survey sample consisted of 33 pharmacists, it offers valuable initial insights and serves as a basis for further, more extensive research into pharmacist involvement in vaccination.

To better determine the Demographic Characteristics of Respondents, the following questions were asked.

Gender dynamics in healthcare often influence professional perspectives and participation levels. By identifying the gender breakdown of respondents, we gain insight into who is more engaged in this conversation and potentially more invested in the evolving role of pharmacists in public health. Figure 3.1 shows that A total of 33 respondents completed the survey. The majority were female (73%), while males represented 27%. This may reflect the higher proportion of women in community pharmacy practice or a greater willingness to participate in surveys.

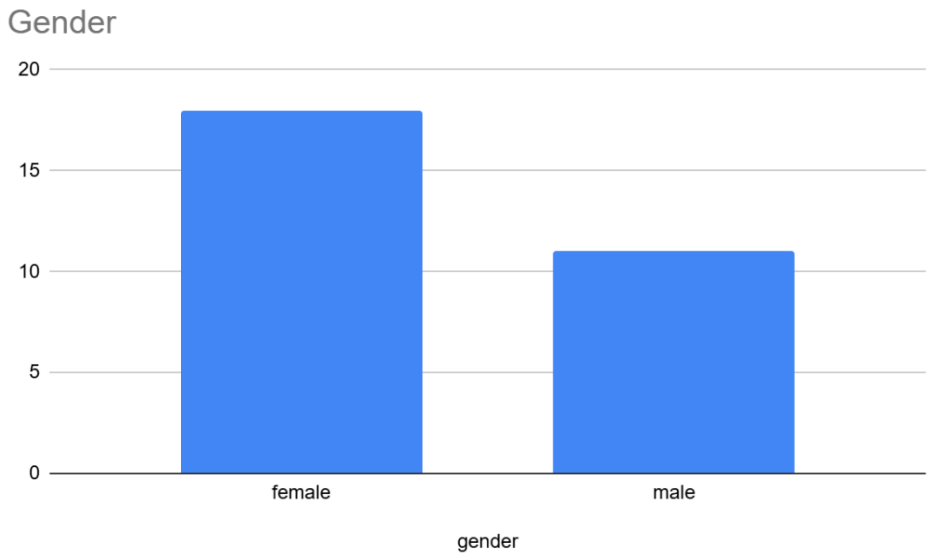

Fig. 3.1. Gender Distribution of respondents.

Out of the 33 pharmacists who completed the survey, 73% were female and 27% male. This could reflect two things: either that women are more prominent in the Moroccan pharmacy sector, especially in community practice, or that they may be more likely to engage with survey-based research.

The predominance of female respondents may indicate gender-specific trends in workforce representation or survey participation highlights either a gendered composition of the workforce or differences in survey participation rates. In both cases, it's a reminder that gender considerations may shape how expanded pharmacy roles are perceived and implemented.

The regional spread of the pharmacies provides context about the diversity of professional environments represented in the study, from urban centers to potentially underserved rural areas (Fig. 3.2).

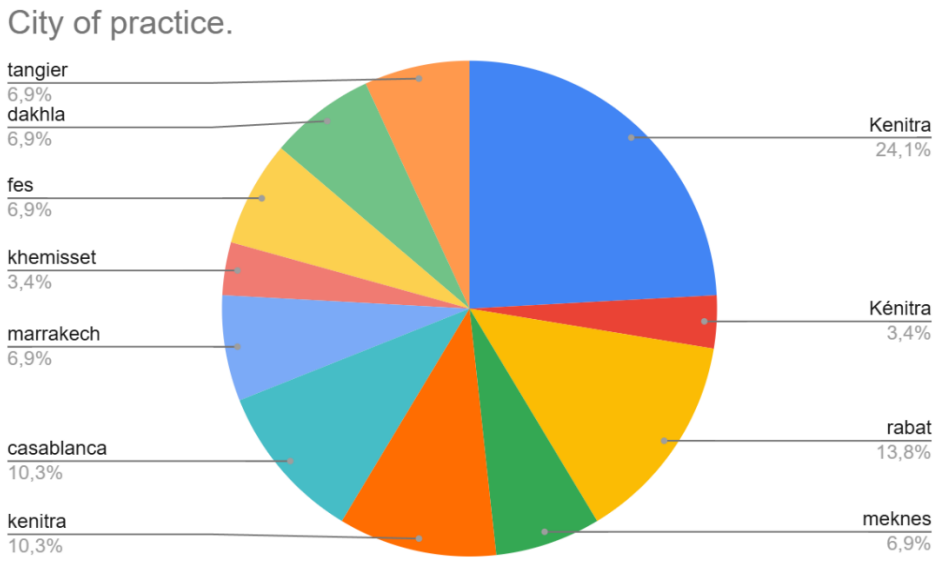

Fig. 3.2. Geographical distribution of pharmacies of respondents

Respondents came from a range of geographic locations across Morocco, ensuring a representative sample of different practice settings. This diversity adds depth and credibility to the survey results, as the attitudes and knowledge assessed are informed by a variety of real-world experiences.

A geographically varied respondent pool strengthens the generalizability of the findings. It suggests that the insights shared are not confined to a specific region but reflect broader national trends among pharmacists.

Age plays a role in shaping both experience and openness to change. Exploring age distribution helps us understand how seasoned or early-career the respondents are—and how this might influence their readiness to take on new roles. Most respondents were between 40 and 55 years old, indicating a relatively experienced workforce (Fig. 3.3). The average age was around 44 years. This indicates a generally experienced group, likely to have deep insight into the operational realities of pharmacy practice. Their opinions are therefore shaped by years of engagement with both patients and the healthcare system.

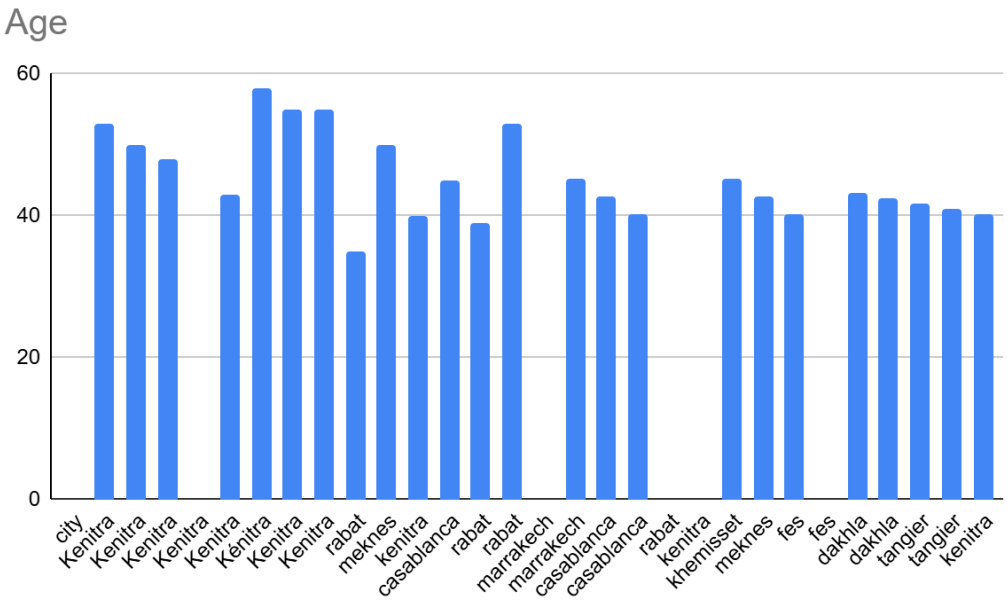

Figure 3.3. Age Distribution

The survey reflects the views of a mature and experienced pharmacist workforce. Their high level of professional exposure lends weight to their perspectives on vaccination and their readiness to take on broader healthcare responsibilities.

To get an overview about the Knowledge and Awareness of the pharmacists who responded to the survey, this part was conducted as followed.

Before looking at opinions on local practice, it's useful to ask: do Moroccan pharmacists even know that colleagues in other countries are vaccinating? This question helps us gauge international awareness, a key indicator of how informed respondents are about the broader evolution of pharmacy practice. Approximately 72% of respondents were aware that pharmacists are authorized to vaccinate in other countries, reflecting a good level of international awareness (Fig. 3.4).

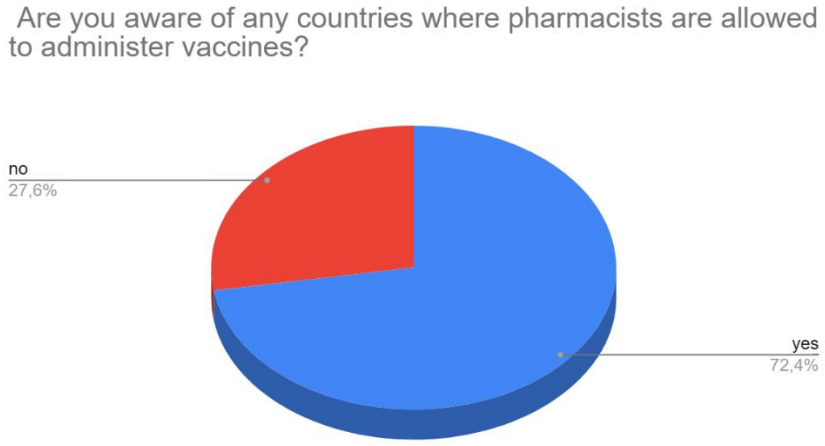

Fig. 3.4 Awareness of Pharmacists' Role in Vaccination Globally

Roughly 85% of pharmacists said they were aware that pharmacists in other countries are legally allowed to administer vaccines. This shows a significant level of professional curiosity and global awareness. It suggests that many are not only paying attention to local discussions but are also keeping up with how the role of the pharmacist is expanding internationally.

Survey results indicate that Moroccan pharmacists are well-informed about global developments in pharmacy-based vaccination. This sets the stage for forward-thinking conversations about adopting similar models locally.

To assess practical knowledge, pharmacists were asked to identify the vaccines included in the Moroccan national immunization schedule. Their answers reflect whether they are already engaged with public health policies in their day-to-day understanding. Around 83% correctly identified the vaccines included in the Moroccan national vaccination program, showing a strong foundational knowledge. This suggests a strong foundational knowledge of the country's vaccination priorities, which is essential if pharmacists are to play an expanded role in vaccine delivery.

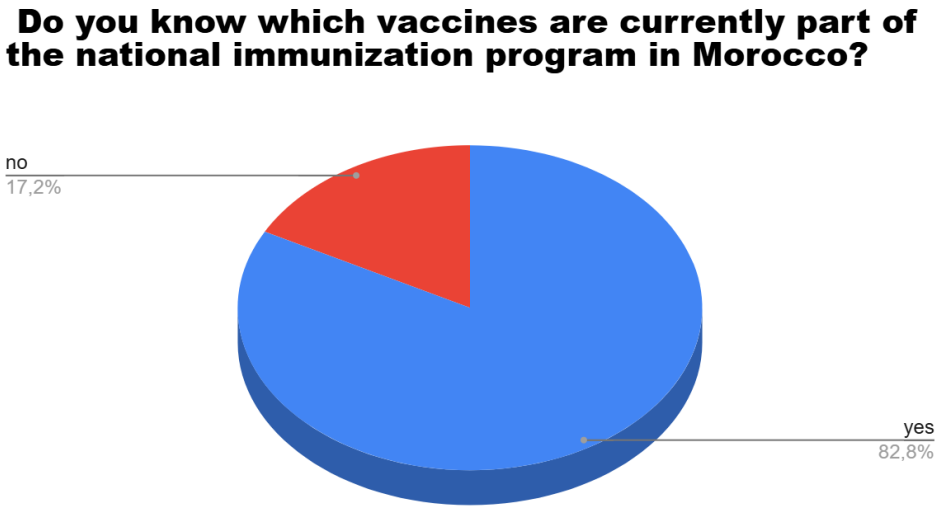

Fig. 3.5. Knowledge of the Moroccan National Immunization Program

Pharmacists appear well-acquainted with the components of the national vaccination program, a crucial requirement for safe and effective participation in immunization initiatives. It's one thing to know about global trends, but are pharmacists aware of what's allowed in Morocco right now? This question aimed to clarify whether professionals understand their current legal limitations. 100% of respondents answered "No", indicating clear awareness of the current legal restrictions (Fig. 3.6). This level of unanimous awareness is striking and reflects a clear understanding of their current professional boundaries.

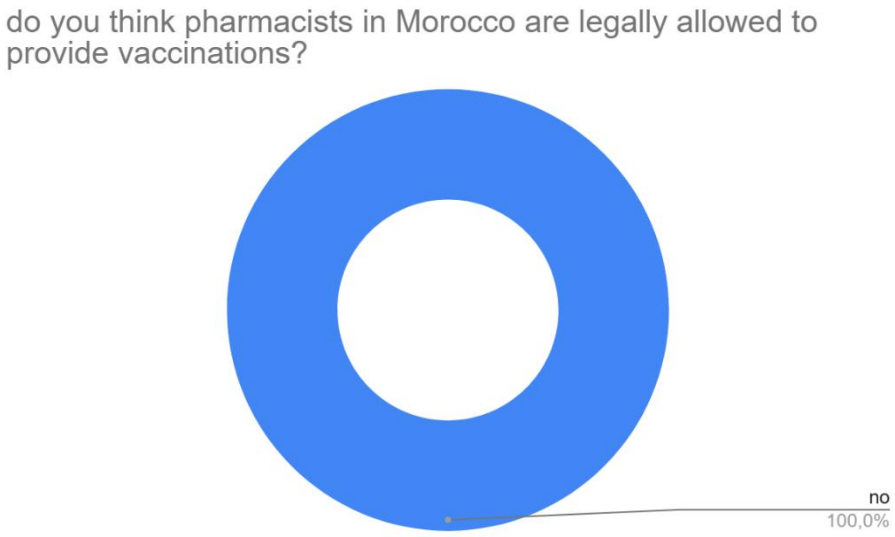

Fig. 3.6. Response on question “Do You Think Pharmacists in Morocco Are Currently Legally Allowed to Vaccinate?”

The pharmacists surveyed are fully aware of the current legal restrictions that prevent them from vaccinating. This eliminates any concern about confusion or misinformation in the field and emphasizes that their calls for expanded responsibilities are rooted in a well-informed understanding of the law.

Across all three questions, pharmacists demonstrated high levels of awareness of global practice, national vaccine protocols, and Moroccan legal constraints. This combination of knowledge suggests that their interest in expanding their role in vaccination is not speculative or uninformed, but grounded in a solid grasp of public health structure and professional scope.

Regarding the Attitudes and Beliefs of the respondents, the following questions were asked to better understand the position of pharmacists in front of pharmacy-led vaccination. This figure 3.7 shows exceptionally strong support among pharmacists for being granted the legal right to vaccinate patients. With an average score of **4.9/5**, it's clear that this is not a marginal opinion but a widely shared professional belief. Pharmacists recognize the potential impact they could have and are eager for policy change that reflects this readiness.

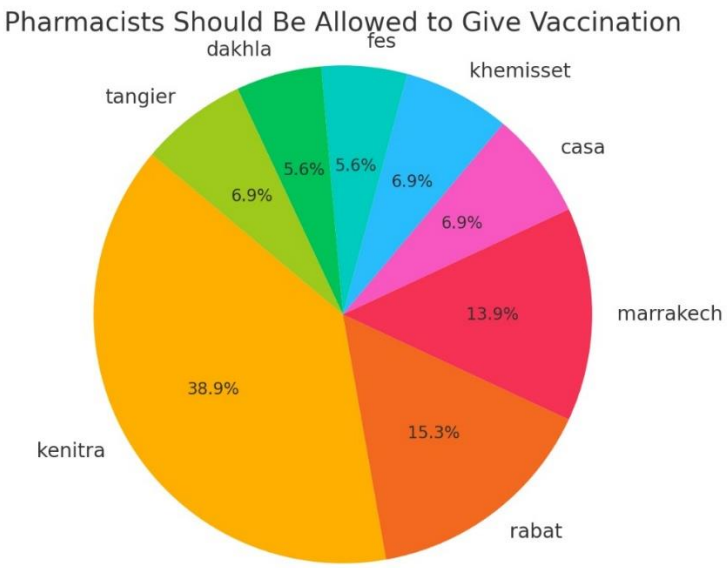

Fig. 3.7. Agreement with Pharmacists Being Allowed to Vaccinate

Pharmacists are not only open to the idea of administering vaccines, they're firmly in favor of it. The near-unanimous agreement indicates a strong push for legal reform from within the profession itself. Pharmacists overwhelmingly agreed that pharmacies are easily accessible for the population and thus well-positioned to support vaccination campaigns (Fig. 3.8). With an average rating of 4.8/5, pharmacists overwhelmingly believe their workspaces are easily accessible to the general public and therefore ideal for delivering vaccination services. This belief reflects their day-to-day experience of being approached by patients with medical questions and requests, and it suggests that they see pharmacies as natural extensions of the healthcare system.

Pharmacies are perceived by pharmacists as highly accessible, convenient healthcare hubs. This perception supports the idea that pharmacy-based vaccination could significantly reduce barriers to immunization.

Of course, willingness is one thing, but what about confidence? We asked if pharmacists would feel prepared to vaccinate with proper training. The majority of pharmacists indicated they would feel confident vaccinating patients if provided with appropriate training (4.7/5).

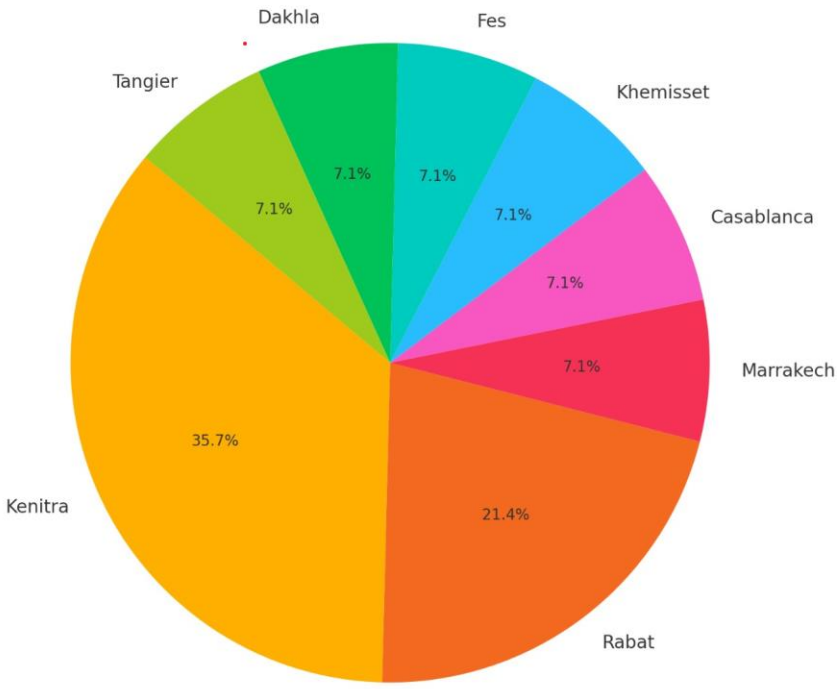

Fig. 3.8. Perceived accessibility of pharmacies for supporting vaccination campaigns, based on survey responses

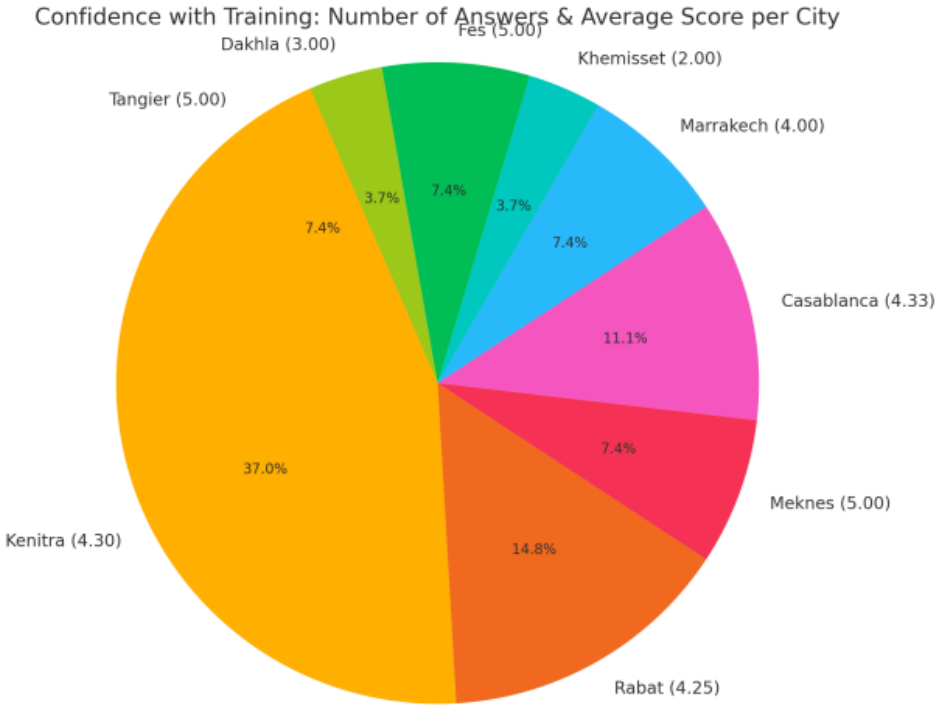

Fig. 3.9. Confidence in Administering Vaccines with Proper Training

The average score here was 4.7/5, showing strong self-belief among respondents. Many pharmacists shared that they would be willing, even eager, to undergo training or certification to ensure safe and effective vaccine administration.

This figure reassures us that pharmacists are not just enthusiastic; they are realistic. They understand the need for proper preparation and are more than willing to pursue it if it opens the door to a more active healthcare role.

Respondents rated highly the idea that pharmacy-based vaccination could improve vaccine access and public health outcomes (Fig. 3.10). Pharmacists were nearly unanimous (average 4.8/5) in agreeing that involving pharmacies in vaccination programs would improve vaccine access and positively affect public health. This strong agreement aligns with global health models that already incorporate pharmacy-based vaccination as a key part of preventive care.

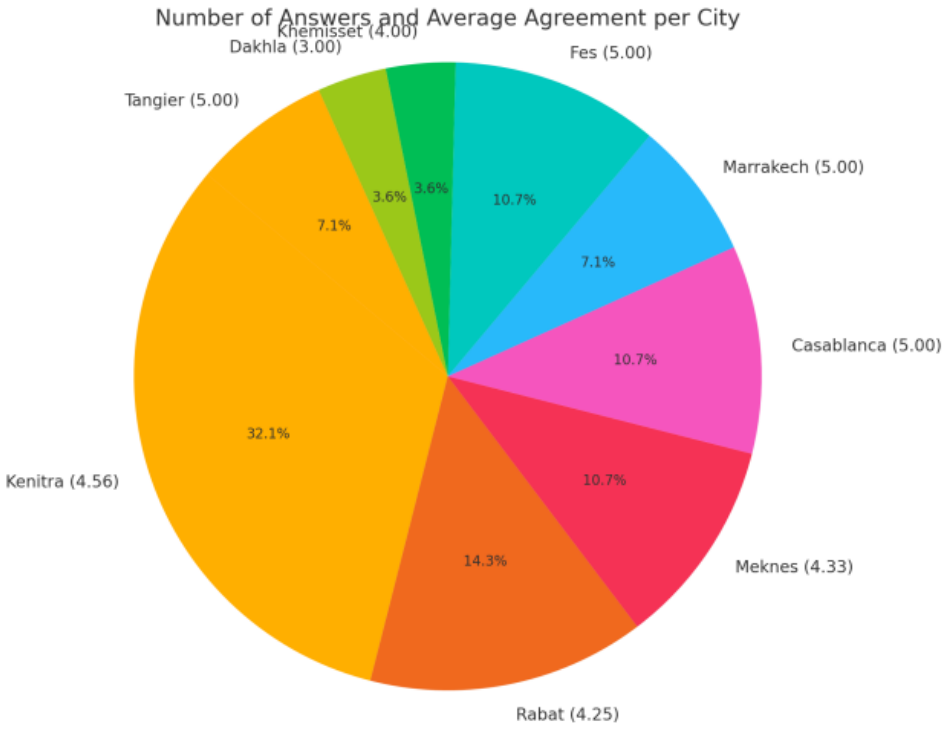

Fig. 3.10. Perceived Public Health Benefit of Pharmacy-Based Vaccination

Survey results clearly indicate that pharmacists not only see themselves as capable but also as valuable contributors to national public health goals, particularly in extending vaccine reach and improving coverage rates.

Are pharmacists ready to provide vaccination services in Morocco? If yes, then what prevents them? To respond to that general question and identify Readiness and Perceived Barriers of pharmacy-led vaccination in Morocco, this part was conducted as below. Nearly all respondents (89,7%) said they would be willing to administer vaccines in their pharmacies if legally allowed (Fig. 3.11). This strong consensus reflects the professional openness of pharmacists to expand their roles beyond traditional dispensing duties. Their willingness suggests a growing interest in being more directly involved in preventive care, particularly when it comes to vaccination. The absence of legal authorization is the main limiting factor, not a lack of motivation among pharmacists themselves.

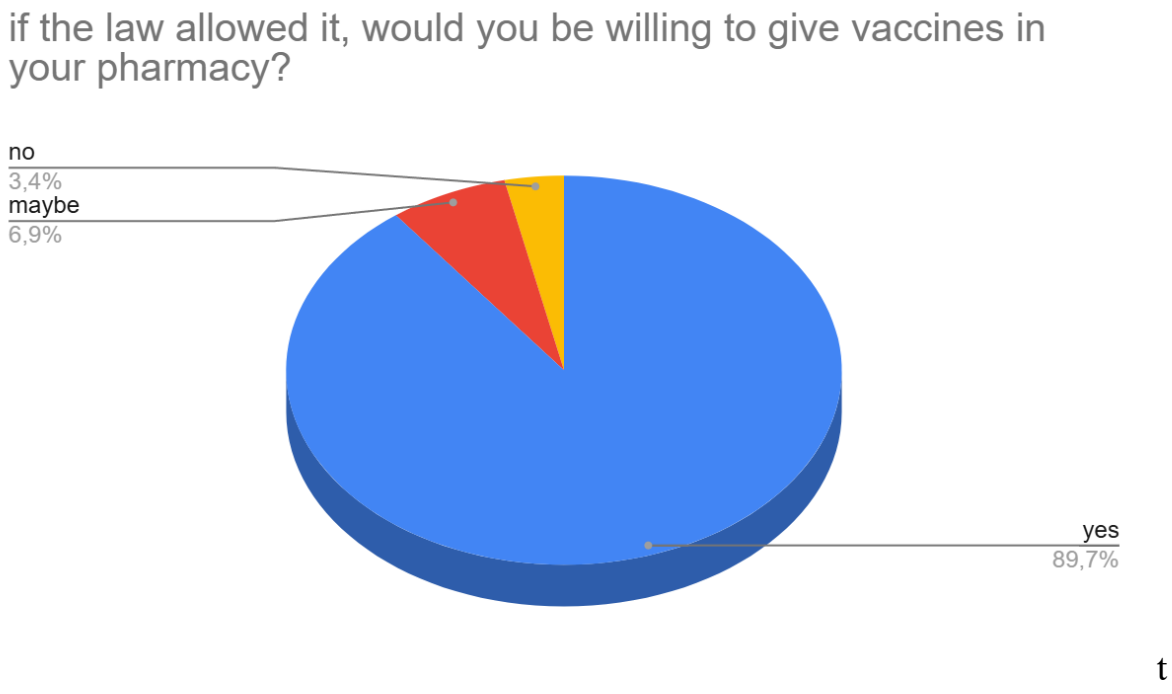

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Fig. 3.11. Willingness to Administer Vaccines If the Law Permits

Figure 3.12 shows that the Participants indicated several specific training areas they would need in order to feel fully prepared to administer vaccines, including:

injection techniques, management of side effects, legal and ethical responsibilities, vaccine storage and cold chain procedures.

Fig. 3.12. Identified Training Needs for Vaccination Services

The clarity with which respondents identified these needs shows that pharmacists are aware of the professional responsibilities involved in vaccination. Rather than expressing vague concerns, they point to concrete skills they wish to acquire, a sign of both realism and readiness.

Survey results indicate that the pharmacists demonstrate a clear understanding of the competencies required and are open to training, which positions them as responsible and proactive professionals.

The barriers most commonly reported by respondents were: lack of legal framework (91%), inadequate pharmacy infrastructure or equipment (73%), resistance from other health professionals (46%) (Fig. 3.13).

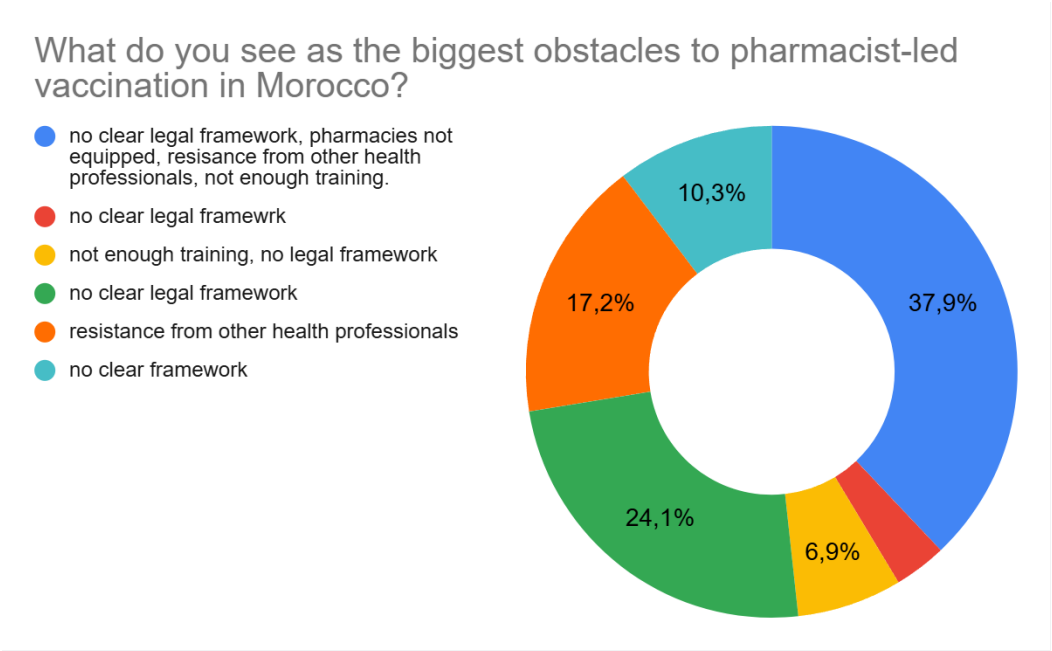

Fig. 3.13. Main Barriers to Pharmacist-Led Vaccination

These results highlight that the major obstacles are systemic rather than personal. Pharmacists are not held back by unwillingness or fear, but by external limitations — legal gaps, structural deficits, and a lack of interprofessional collaboration. The mention of resistance from other healthcare providers also reveals a need for better integration and recognition of the pharmacist's role.

So we can clearly understand that in order to move forward, reforms are needed at both policy and institutional levels, including improved collaboration across healthcare professions, and mutual support for the public health benefits.

The diagram indicates that the majority of the respondents (~90%) agreed that a national awareness campaign would be beneficial to support the role of pharmacists in vaccination (Fig. 3.14).

Beyond regulatory change, pharmacists recognize the need for public communication. Such campaigns would help educate patients, reduce potential resistance, and reinforce the credibility of pharmacists as vaccination providers. It also reflects an understanding that legal change alone is not enough, public acceptance is equally important.

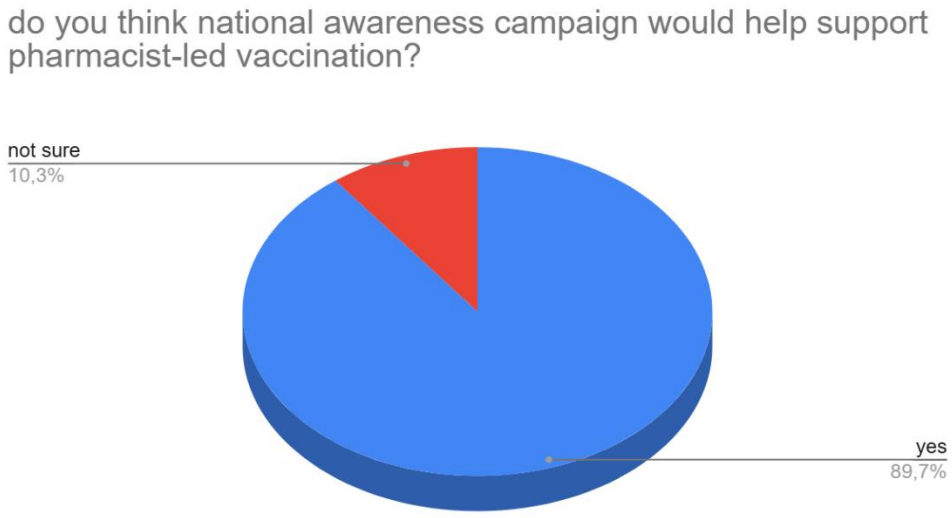

Fig. 3.14. Importance of a National Awareness Campaign

Survey responses consistently reflected the shared perspective that national awareness efforts are essential for the successful integration of pharmacists into vaccination services, about the fact that awareness-raising at the national level is perceived as essential to ensure that both the public and the healthcare system are prepared to accept pharmacist-led vaccination.

In addition to answering structured questions, many pharmacists took the opportunity to share personal reflections, offering a deeper look into their day-to-day realities and professional frustrations. Their voices bring the data to life and underline just how invested they are in being more than just dispensers of medicine.

One of the clearest messages that emerged is that pharmacists are often the first point of contact for patients when it comes to vaccines. About 40% of respondents made this point directly. One pharmacist captured it simply: *"Patients come to us first. When they hear about a new vaccine, they ask us questions, not their doctors. We're here, we're accessible, but we can't do anything beyond giving advice."*

There is a shared sense of being ready to help, and being held back. Many pharmacists talked about how the COVID-19 pandemic changed how people see them.

Suddenly, the public started recognizing pharmacists again as real healthcare professionals. One respondent said: *"People started seeing us as part of the health system again, not just as pill dispensers. That was powerful. But we still have no legal or institutional support to take on a larger role."*

Training was another recurring topic. Pharmacists want to be fully prepared. Many said they would happily take part in certification programs if they were available in Morocco. Some had already looked abroad, completing international online training courses, only to find that local authorities do not recognize these. The desire to grow professionally is clearly there; the official pathways just are not.

Although this study did not include direct input from patients, several pharmacists shared anecdotes suggesting that patients would welcome the possibility of getting vaccinated at their local pharmacy. Convenience, trust, and familiarity seem to drive this openness.

Across Morocco, what pharmacists are saying is strikingly consistent: they are ready. They don't just want to hand out medication; they have expressed a clear intention to enhance their professional role and actively contribute to national vaccination strategies. They already have the trust of their communities. Patients are asking questions, seeking advice, and in many cases, wishing they could just get vaccinated right then and there, at the pharmacy counter.

The frustration is not about fear or lack of confidence, it's about being left out of the system. Pharmacists see where things fall short, especially during health crises like COVID-19, and they know they can help. But they're still waiting for the legal green light, for recognition, for inclusion.

This survey makes it clear. The core challenges identified are not rooted in a lack of motivation or trust, but in regulatory and structural gaps that impede progress.. What we have is a policy gap, a system that hasn't caught up to the reality on the ground. The willingness is there. The need is obvious. What's missing is the structure to let pharmacists do what they're ready and eager to do.

3.2. Generalization barriers and facilitators for pharmacist participation in immunization services

In Morocco, pharmacy-led vaccination services are still not a reality, and the reasons are pretty layered. First, there's the legal side: pharmacists simply aren't authorized by current health regulations to administer vaccines – that's a task reserved strictly for doctors and nurses (Ministère de la Santé, 2022) [6].

Then there's the missing link of official training. Unlike pharmacists in countries like the U.S. or Canada who undergo certified immunization training, Moroccan pharmacists don’t yet have structured programs that would prepare them for vaccine delivery (FIP, 2016) [6,21].

Beyond that, strong professional lobbies, especially from medical associations, continue to influence the decision-making process, keeping vaccination firmly in the hands of doctors (Elbeddini & Prabaharan, 2023) [9]. The physical setup of many pharmacies is also part of the issue: a lot of pharmacies simply aren't equipped for vaccine storage and emergency care if adverse reactions happen. And finally, on a bigger level, the health system's priorities are still focused on boosting vaccination rates in rural and underserved areas through public clinics, not necessarily diversifying into private community settings like pharmacies yet (Fondation Mérieux, 2018) [9]. All these barriers combined explain why, despite pharmacists' accessibility and trust within communities, Morocco hasn’t yet opened the door for pharmacy-based vaccination. That being said, the momentum sparked by COVID-19 has started important conversations — and change, even if slow, finally seems to be on the horizon.

To really grasp the current state of pharmacy-led vaccination in Morocco, we need to lay it out plainly: there are real obstacles, but also real reasons to be hopeful. Each barrier feels like a locked door, yet every facilitator shows there’s a key — maybe not in hand yet, but definitely within reach.

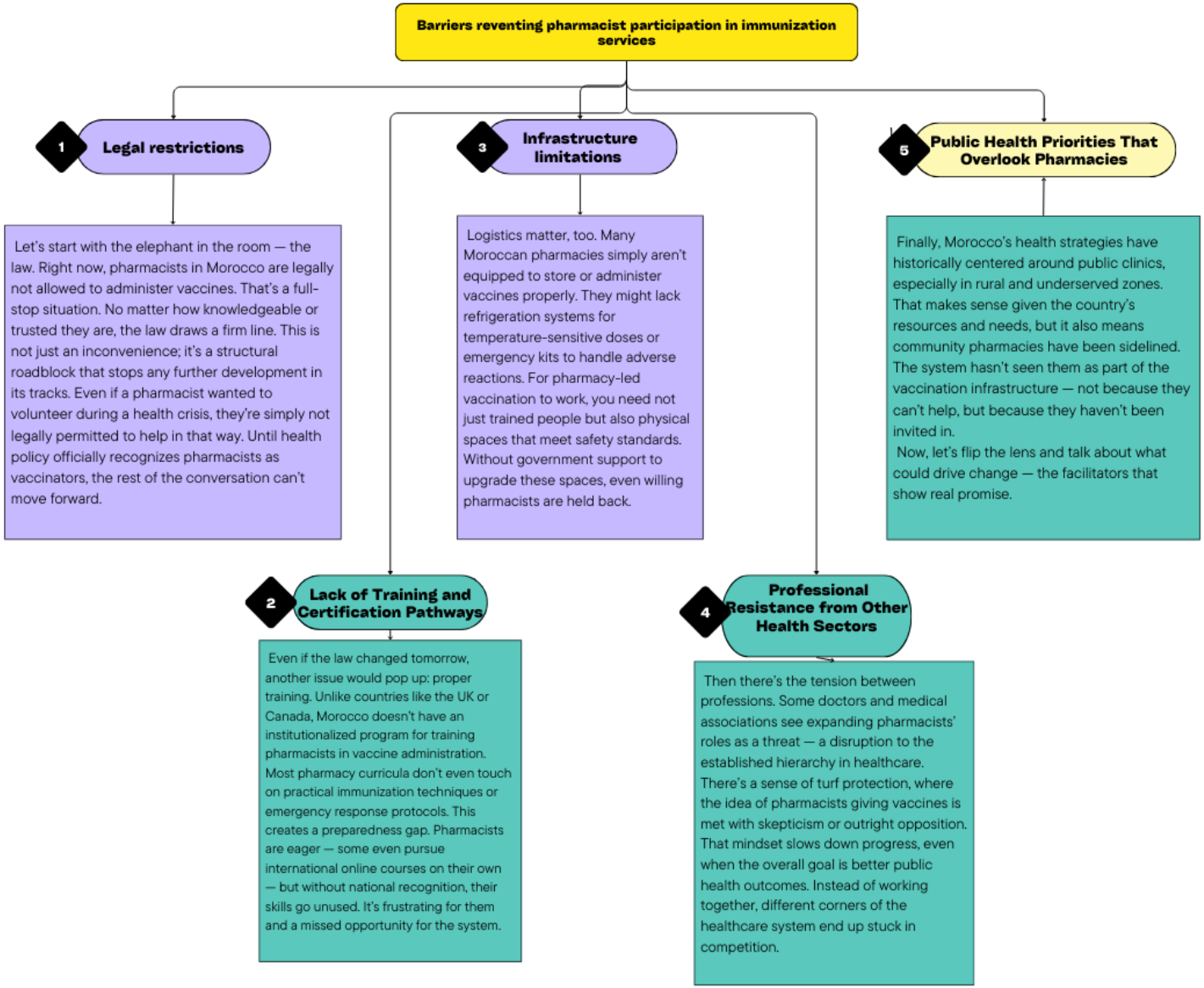

Fig. 3.15. Barriers preventing pharmacies' participation in immunization services.

Now, let's flip the lens and talk about what could drive change – the facilitators that show real promise (Fig. 3.16).

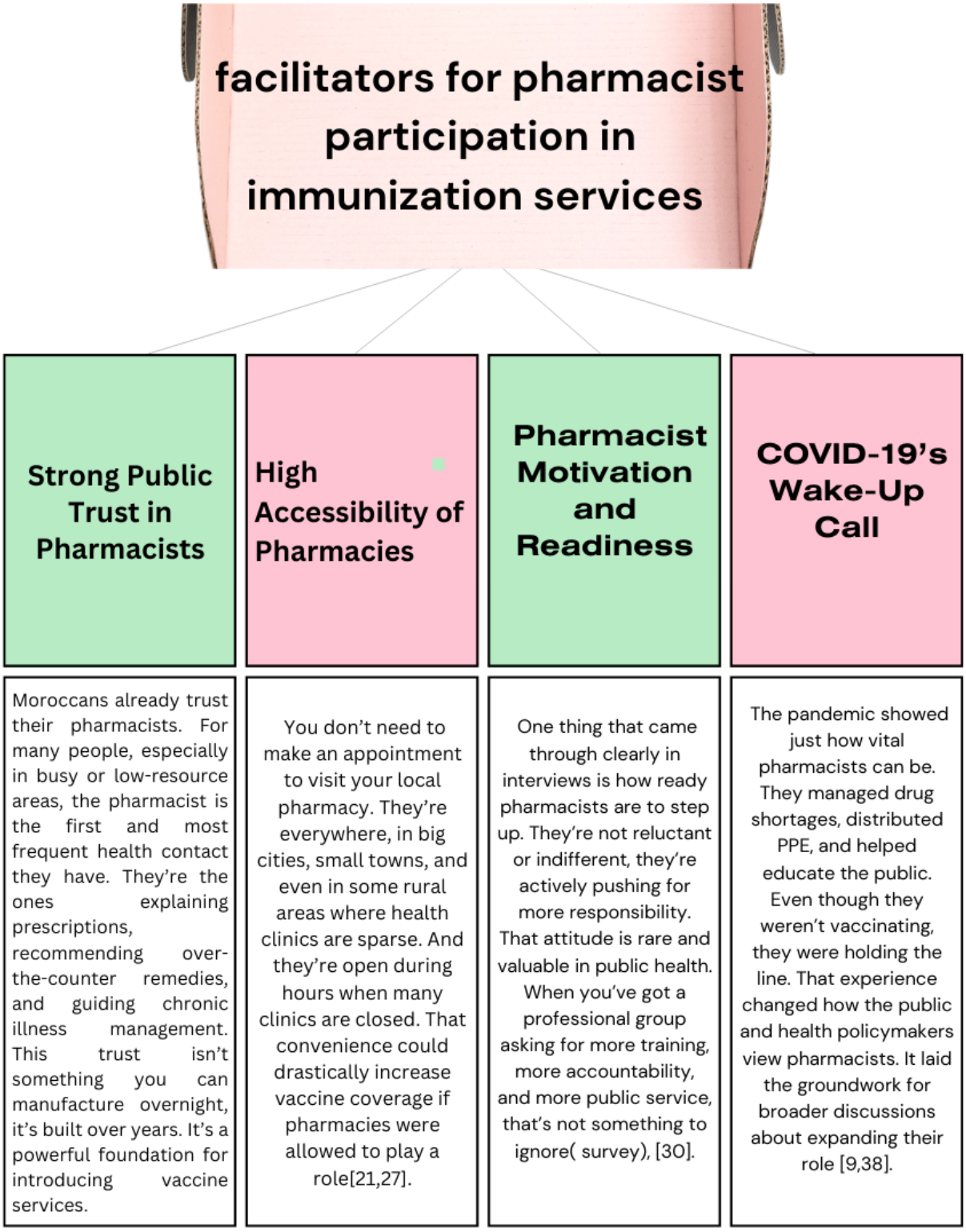

Fig. 3.16 Facilitators for pharmacists' participation in immunization services.

In conclusion, the current situation represents a pivotal juncture. Significant barriers persist—legal, cultural, and infrastructural – but none are insurmountable. At the same time, a range of enabling factors offers substantial promise. If Morocco aims to increase vaccination coverage, enhance access to healthcare services, and modernize its public health infrastructure, then integrating pharmacists more fully into the healthcare system is not merely advantageous—it is essential.

When you look at all the moving parts — the barriers and the facilitators — the picture becomes clear: Morocco is on the edge of a big shift. As shown in Figure 3.13, the main barriers identified by pharmacists include legal blocks, lack of training, and professional resistance are still holding pharmacy-led vaccination back. But the public trust is there. The pharmacies are accessible. And more importantly, pharmacists themselves are ready to rise to the challenge.

This initiative is not intended to disrupt existing healthcare systems, but rather to complement them and improve efficiency in vaccination service delivery. If policymakers can tackle these barriers one by one — updating laws, rolling out training programs, fostering collaboration, and supporting infrastructure — Morocco could open a powerful new chapter in its immunization efforts.

At the heart of this is a simple truth: pharmacists are already doing so much for their communities. Giving them the tools and the green light to vaccinate isn't a gamble — it's an upgrade. And the sooner that shift happens, the better it will be for public health across the board.

3.3 Recommendations for expanding pharmacist roles in vaccination programs

To move from theory to action, Morocco needs a strategic and people-centered roadmap to bring pharmacists into the national vaccination effort. The good news is that the foundation is already there — what's missing is the official support to make it

real. Here's what needs to happen, step by step, with real attention to human needs, logistics, and long-term vision (Fig. 3.17).

Fig. 3.17. Steps for expanding pharmacists' role in vaccination programs.

The findings presented in this chapter reflect a pivotal moment for pharmacy practice in Morocco. Community pharmacists have clearly expressed a strong willingness to expand their role in public health by participating in vaccination services. Their motivation is rooted not only in professional growth but in a genuine desire to better serve their communities — communities that already place considerable trust in them.

Despite this readiness, several systemic barriers continue to limit pharmacists' involvement in immunization efforts. Legal restrictions, absence of formal training programs, lack of appropriate infrastructure, and resistance from certain professional groups have collectively stalled progress. These are not insurmountable obstacles, but they do require thoughtful, coordinated action from policymakers, healthcare leaders, and professional bodies.

At the same time, the facilitators for change are significant. The accessibility of pharmacies, the trust pharmacists have earned, and the lessons learned during the COVID-19 pandemic all point to a clear and promising path forward. Pharmacists are already key players in health education, chronic disease management, and medication adherence — expanding their role to include vaccination is a logical and necessary next step.

What emerges from this analysis is not a question of whether pharmacists can contribute to vaccination efforts, but rather how and when the healthcare system will allow them to do so. The interest, the public need, and the professional commitment are already in place. With the right legal framework, training infrastructure, and interprofessional collaboration, pharmacy-led vaccination in Morocco could become a reality — one that strengthens the national immunization strategy and brings care closer to the people who need it most.

Ultimately, empowering pharmacists in this way is not just a matter of public health policy; it is a step toward a more inclusive, resilient, and patient-centered healthcare system.

Conclusions to Chapter 3

1. Based on the sociological survey of 33 community pharmacists in Morocco, it was determined that the majority support expanding their role to include vaccination services. Respondents demonstrated a high level of awareness of global practices, knowledge of the national immunization schedule, and a clear understanding of current legal constraints in Morocco. Strong agreement was recorded regarding the accessibility of pharmacies and the pharmacists' readiness to administer vaccines if trained and authorized.

2. An analysis of key barriers and facilitators revealed that the main obstacles to pharmacist-led vaccination in Morocco are legal limitations, insufficient training infrastructure, inadequate pharmacy facilities, and professional resistance. At the same time, facilitators include high public trust, pharmacist motivation, and international momentum following the COVID-19 pandemic. These findings suggest that despite systemic constraints, the environment is gradually becoming more favorable for reform.

3. Recommendations for expanding the pharmacist's role in vaccination emphasize the need for legal reform, structured training programs, investment in pharmacy infrastructure, and interprofessional collaboration. Proposed steps include national policy updates, awareness campaigns, and integration of pharmacists into public health strategies. These measures aim to establish pharmacists as recognized immunization providers in Morocco.

4. The analysis confirmed that community pharmacists in Morocco are prepared and willing to engage in vaccination services, but systemic reforms are necessary to enable their participation. The findings highlight a critical opportunity for Moroccan healthcare policymakers to support pharmacy-based immunization as a means of strengthening national vaccination coverage and public health outcomes.

CONCLUSIONS

1. An analysis of literary sources on the role of community pharmacists in public health and vaccination services was conducted. It was established that community pharmacists are increasingly recognized as key actors in public health due to their accessibility, patient trust, and expanded competencies. The literature review demonstrated that pharmacists are involved in a range of public health services, including vaccination, health education, and emergency preparedness. Historical and contemporary sources confirmed the effectiveness of vaccination as a public health measure, contributing to decreased mortality, economic resilience, and disease prevention. These findings form the basis for further research into optimizing pharmacists' involvement in national immunization programs.

2. An analysis of literary sources on global pharmacist-led immunization trends was conducted. It was established that the involvement of pharmacists in immunization programs has expanded significantly over the past decades, with many countries recognizing their role in public health delivery.

3. Also it was identified the regulatory and legal conditions necessary for effective pharmacist participation in vaccination. The review of FIP data confirmed that advocacy, legislation, access to patient records, and structured training are crucial enablers for successful integration.

4. The next step presented models of pharmacist-delivered immunization services across different countries. It was determined that pharmacists' ability to administer vaccines correlates with broader involvement in public health activities and patient outreach. These international examples demonstrate the potential for pharmacists to play an expanded role in national vaccination strategies under supportive conditions.

5. Based on the sociological survey of 33 community pharmacists in Morocco, it was determined that the majority support expanding their role to include

vaccination services. Respondents demonstrated a high level of awareness of global practices, knowledge of the national immunization schedule, and a clear understanding of current legal constraints in Morocco. Strong agreement was recorded regarding the accessibility of pharmacies and the pharmacists' readiness to administer vaccines if trained and authorized.

6. An analysis of key barriers and facilitators revealed that the main obstacles to pharmacist-led vaccination in Morocco are legal limitations, insufficient training infrastructure, inadequate pharmacy facilities, and professional resistance. At the same time, facilitators include high public trust, pharmacist motivation, and international momentum following the COVID-19 pandemic. These findings suggest that despite systemic constraints, the environment is gradually becoming more favorable for reform.

7. Recommendations for expanding the pharmacist's role in vaccination emphasize the need for legal reform, structured training programs, investment in pharmacy infrastructure, and interprofessional collaboration. Proposed steps include national policy updates, awareness campaigns, and integration of pharmacists into public health strategies. These measures aim to establish pharmacists as recognized immunization providers in Morocco.

8. The analysis confirmed that community pharmacists in Morocco are prepared and willing to engage in vaccination services, but systemic reforms are necessary to enable their participation. The findings highlight a critical opportunity for Moroccan healthcare policymakers to support pharmacy-based immunization as a means of strengthening national vaccination coverage and public health outcomes.

REFERENCES

1. Almohammed O. A., Alsanea S. Public Perception and Attitude toward Community Pharmacists in Saudi Arabia. *Saudi J Health Syst Res.* 2021. № 1(2). P. 67–74.

2. An overview of pharmacy's impact on immunization coverage: A global report / Fédération Internationale Pharmaceutique. 2016.

3. An overview of pharmacy's impact on immunisation coverage: A global report / International Pharmaceutical Federation. 2016. URL: https://developmentgoals.fip.org/resources/an-overview-of-pharmacys-impact-on-immunisation-coverage-a-global-survey-2020/ (Date of access: 25.03.2025).

4. ASHP Statement on the Pharmacist's Role in Public Health. URL: https://www.ashp.org/-/media/assets/policy-guidelines/docs/statements/pharmacists-role-public-health.pdf (Date of access: 10.04.2025).

5. Bauman K. E. Public health and the role of community pharmacists. *American Journal of Public Health*. 2000.

6. Cadre réglementaire de la vaccination au Maroc / Ministère de la Santé et de la Protection Sociale. 2022.

7. Collin J. On social plasticity: the transformative power of pharmaceuticals on health, nature and identity. *Sociol Health Illn.* 2016. № 38(1). P. 73-89.

8. Crawford S. Y. Pharmacists' Roles in Health Promotion and Disease Prevention. *American journal of pharmaceutical education*. 2005. № 69(4). DOI: 10.5688/aj690473.

9. Elbeddini A., Prabaharan T. Participation of a pharmacist in patient care for critically ill COVID-19 patients in Morocco. *Journal of Pharmaceutical Policy and Practice*. 2023. Vol. 16(1). P. 1-7.

10. Elfituri A. A., Fathi M. S. Evolving pharmacy profession around the globe towards an improved health care. *Iberoamerican Journal of Medicine*. 2020. № 2(3). P. 140–141.

11. Flu Deaths Rise in Scotland: How can Community Pharmacy in Scotland Help? URL: https://www.cps.scot/latest-news/flu-deaths-rise-in-scotland (Date of access: 25.03.2025).

12. Flu vaccination programme 2021/22 / NHS England. 2021.

13. Global Pharmacy Workforce and Migration Trends Report / International Pharmaceutical Federation. 2022.

14. Global Vaccine Action Plan 2011-2020 / World Health Organization. 2019. URL: https://www.who.int/publications/i/item/global-vaccine-action-plan-2011-2020 (Date of access: 25.03.2025).

15. Health at a Glance 2021. URL: https://www.oecd.org/en/publications/health-at-a-glance-2021_ae3016b9-en.html (Date of access: 25.03.2025).

16. How pharmacists are improving vaccine access globally. *The Pharmaceutical Journal*. 2020.

17. Immunization Agenda 2030: A Global Strategy to Leave No One Behind / World Health Organization. 2020. URL: https://www.who.int/teams/immunization-vaccines-and-biologicals/strategies/ia2030 (Date of access: 25.03.2025).

18. Janet K., Charles M. Views of the general public on the role of pharmacy in public health. *Journal of Pharmaceutical Health Services Research*. 2010. № 1. P. 33-38.

19. Jenner E. An Inquiry into the Causes and Effects of the Variolae Vaccinae. Springfield, 1798. 116 p.

20. John C. The changing role of the pharmacist in the 21st century. *The Pharmaceutical Journal*. 2018. Vol. 300. DOI: 10.1211/PJ.2018.20204131.

21. Leveraging Pharmacy to Deliver Life-Course Vaccination. / International Pharmaceutical Federation. 2024.

22. Morocco's National Immunization Programme Achievements. Retrieved from fondation-merieux.org / Fondation Mérieux. 2018.

23. Morrison C. The pharmacist as an immunizer: An evolving role. *Canadian Pharmacists Journal*. 2020.

24. National Immunisation Strategy for Australia / Australian Government Department of Health. 2020.

25. Oladipo H., Muili A., Rashidat Y., Rokibat A. The Role of Pharmacists in Strengthening the Health System in Nigeria. *Innov Pharm*. 2022. № 13(2). P. 24-26.

26. Pharmacies and Vaccination Programs / National Community Pharmacists Association. 2020.

27. Pharmacists and the Delivery of Public Health Services / S. G. Morgan et al. / Medical Care Research and Review. 2017.

28. Pharmacists delivering vaccinations / Pharmacists' Defence Association. 2022.

29. Pharmacists in 2023: Roles and remuneration / Pharmaceutical Society of Australia. 2019. URL: https://www.psa.org.au/wp-content/uploads/2019/07/PSA-Roles-Remuneration-in-2023-V3_FINAL.pdf (Date of access: 10.04.2025).

30. Pharmacists' Expanded Role in Immunization Services / Canadian Pharmacists Association. 2018. URL: https://www.uspharmacist.com/article/pharmacists-expanding-role-in-immunization-practices (Date of access: 25.03.2025).

31. Pharmacy Contributions to Improved Population Health: Expanding the Public Health Roundtable / M. A. Strand et al. *Prev Chronic Dis.* 2020. № 17. P. 113.

32. Pharmacy: A Global Overview of Workforce and Practice / International Pharmaceutical Federation. 2020.

33. Progress towards achieving global immunization goals / Global Immunization Division, WHO. 2022.

34. Public Health Skills and Knowledge Framework / Faculty of Public Health. 2020. URL: https://www.fph.org.uk/professional-development/workforce/public-health-skills-and-knowledge-framework/ (Date of access: 25.03.2025).

35. Rapado R., Prior A. L., James D. H. Public perceptions of the role of community pharmacy in public health. *International Journal of Pharmacy Practice*. 2022. Vol. 30, № 1. P. i36.

36. Role of healthcare workers, including pharmacists, in vaccine uptake / European Centre for Disease Prevention and Control. 2020.

37. State of the World's Vaccines and Immunization / Global Alliance for Vaccines and Immunization. 2021.

38. The Evolving Role of Pharmacists in Public Health / Pharmacy Times. 2021. URL: https://www.pharmacytimes.com/view/the-evolving-role-and-importance-of-pharmacists-in-the-health-care-system (Date of access: 25.03.2025).

39. The Importance of Vaccination / Centers for Disease Control and Prevention. 2021.

40. The role of community pharmacy in public health. URL: https://www.mdpi.com/journal/pharmacy/special_issues/Role_Community_Pharmacists_Public_Health (Date of access: 10.04.2025).

41. The role of the pharmacist in public health / APHA. 2006. URL: https://www.apha.org/policy-and-advocacy/public-health-policy-briefs/policy-database/2014/07/07/13/05/the-role-of-the-pharmacist-in-public-health (Date of access: 25.03.2025).

42. The Role of the Pharmacist in Public Health. URL: https://apha.org/policies-and-advocacy/public-health-policy-statements/policy-

database/2014/07/07/13/05/the-role-of-the-pharmacist-in-public-health (Date of access: 10.04.2025).

43. Urick B. Y., Meggs E. V. Towards a Greater Professional Standing: Evolution of Pharmacy Practice and Education, 1920-2020. *Pharmacy (Basel).* 2019. № 7(3). P. 98.

44. Vaccination and trust: How concerns arise and the role of communication in mitigating crises / World Health Organization. 2018. URL: https://www.who.int/europe/publications/i/item/WHO-EURO-2017-2908-42666-59448 (Date of access: 25.03.2025).

45. Vaccination Coverage among Adults in the United States, National Health Interview Survey, 2022. URL: https://www.cdc.gov/adultvaxview/publications-resources/adult-vaccination-coverage-2022.html (Date of access: 25.03.2025).

46. Vaccination policies and coverage in the WHO European Region / European Observatory on Health Systems and Policies. 2018.

47. VaccinesToday**.** "Pharmacists are uniquely positioned to expand vaccine impact." *VaccinesToday*, November 27, 2024. https://www.vaccinestoday.eu/stories/pharmacists-are-uniquely-positioned-to-expand-vaccine-impact/

48. Why we need vaccines for all / United Nations Children's Fund. 2020.

49. Zuckerman J. N. Travel medicine and the importance of immunization. *International Journal of Infectious Diseases*. 2000.

ANNEX

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

АКТУАЛЬНІ ПИТАННЯ СТВОРЕННЯ НОВИХ ЛІКАРСЬКИХ ЗАСОБІВ

МАТЕРІАЛИ
XXXI МІЖНАРОДНОЇ НАУКОВО-ПРАКТИЧНОЇ
КОНФЕРЕНЦІЇ МОЛОДИХ ВЧЕНИХ ТА СТУДЕНТІВ

23–25 квітня 2025 року
м. Харків

Харків
НФаУ
2025

УДК 615.1

Редакційна колегія: проф. Котвіцька А. А., проф. Владимирова І. М.
Укладачі: Сурікова І. О., Боднар Л. А., Комісаренко М. А., Комісарова Є. Є.

Актуальні питання створення нових лікарських засобів: матеріали XXXI міжнародної науково-практичної конференції молодих вчених та студентів (23-25 квітня 2025 р., м. Харків). – Харків: НФаУ, 2024. – 515 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

особливо у державних програмах, для гомеопатичних засобів. Це демонструє розкол між думками у суспільстві. У деяких частинах Німеччини вже прийняті регуляторні акти, щодо виключення даних препаратів із державних медичних послуг, що безумовно впливає на доступність для споживачів. Однак, незважаючи на критику гомеопатія не втрачає значної кількості прихильників, які підтримують її активний розвиток.

Висновки. Отже, гомеопатія в Німеччині пройшла шлях від звичайної альтернативної практики до визнаної медичної системи, яка регулюється державою, включає широкий асортимент препаратів і має довіру від пацієнтів. На нашу думку, майбутній розвиток гомеопатичної практики може включати ряд перешкод через наукові дебати й критику, але при цьому, ймовірно, це не вплине на її поширеність.

GLOBAL TRENDS IN THE INVOLVEMENT OF PHARMACISTS IN IMMUNIZATION SERVICES

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Introduction. Immunization is recognized as one of the most cost-effective public health interventions to prevent infectious diseases. Over the past decades, the role of pharmacists in immunization services has expanded significantly in many countries. This trend reflects the need to improve vaccination coverage, overcome healthcare system limitations, and utilize the accessibility of pharmacists within communities. The COVID-19 pandemic accelerated this global shift by highlighting pharmacists' potential to support mass vaccination campaigns and strengthen healthcare delivery systems.

Aim. To examine international experience and current trends regarding the involvement of pharmacists in immunization services.

Materials and Methods. The study is based on a review of scientific literature, international reports (including WHO and International Pharmaceutical Federation publications), and national regulatory frameworks. Sources were selected from 2015 to 2024 using PubMed, Scopus, and relevant professional platforms. A comparative analysis of legal, educational, and practical models for pharmacist participation in immunization was conducted across countries including the United States, Canada, Australia, the United Kingdom, and European Union members.

Results and discussion. The analysis demonstrates that the involvement of pharmacists in immunization services has become a global trend, with increasing formal recognition in national health policies. However, the scope and models of their participation vary across countries.

In the United States and Canada, pharmacists are fully authorized to administer a wide range of vaccines independently. In the United States, pharmacists have contributed significantly to adult immunization efforts, accounting for approximately 25–30% of influenza vaccinations nationwide. Similarly, Canadian pharmacists have played a central role in expanding access to seasonal and COVID-19 vaccines, especially in rural and remote areas.

In Australia, pharmacist-led immunization programs initially focused on influenza vaccination but were later expanded to include vaccines against measles, mumps, rubella (MMR),

and pertussis. Pharmacists' involvement was particularly effective in addressing access barriers outside major urban centers.

In the United Kingdom, community pharmacists actively support National Health Service (NHS) vaccination campaigns, including influenza, COVID-19, and shingles vaccination programs. Their convenient location and extended opening hours have improved vaccination uptake among working-age adults and elderly patients.

Among European Union countries, pharmacist involvement remains variable. Some countries, like Portugal and Ireland, allow pharmacists to vaccinate, while in others, participation is limited to advisory roles without direct vaccine administration.

Global trends indicate the following common features:

- Legislative support for expanding pharmacists' rights to administer vaccines;
- Mandatory specialized training programs in vaccine administration and storage management;
- Integration into national vaccination strategies, particularly during pandemic responses;
- Positive public perception and trust in pharmacists as accessible healthcare providers.

Despite variations between countries, the general trend is a gradual expansion of pharmacists' responsibilities in immunization services, driven by the need to enhance healthcare system capacity, increase vaccination coverage, and improve public health resilience.

Conclusions. International experience shows that integrating pharmacists into immunization services contributes significantly to improving vaccination accessibility and coverage. Current global trends confirm the growing recognition of pharmacists as valuable partners in public health initiatives. Strengthening and expanding pharmacists' roles in immunization services remains an important direction for the development of sustainable healthcare systems.

ANALYSIS OF THE FEATURES OF VACCINATION AS AN ADDITIONAL SERVICE IN PHARMACIES AROUND THE WORLD

El Akel Mouad
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Introduction. Vaccination in pharmacies is one of the most important additional services provided by pharmacies around the world. This legislative approach reinforces the important role of pharmacists as key professionals in national healthcare systems.

Aim. The purpose of the study was the analysis of the peculiarities of preventive vaccinations as an additional service in pharmacies around the world.

Materials and methods. Research materials include dissertations, monographs, scientific articles in periodicals, information materials from official websites of state bodies, information materials from the official website of the World Health Organization (WHO) and the international non-profit association The Pharmaceutical Group of the European Union (PGEU). The following methods were used in the course of the work: content analysis, content monitoring, system analysis, synthesis, generalisation, historical, etc.

СЕКЦІЯ 11. СОЦІАЛЬНО-ЕКОНОМІЧНІ, ОРГАНІЗАЦІЙНІ ТА ПРАВОВІ ДОСЛІДЖЕННЯ У ФАРМАЦІЇ
SOCIO-ECONOMIC, ORGANIZATIONAL AND LEGAL RESEARCH IN PHARMACY

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

СЕРТИФІКАТ УЧАСНИКА

Цим засвідчується, що

Bakkali Zaynab

Scientific supervisor: Surikova I.O.

брав(ла) участь у роботі

XXXI Міжнародної науково-практичної конференції молодих вчених та студентів

«АКТУАЛЬНІ ПИТАННЯ СТВОРЕННЯ НОВИХ ЛІКАРСЬКИХ ЗАСОБІВ»

В.о. ректора
Національного фармацевтичного
університету

Алла КОТВІЦЬКА

23-25 квітня 2025 р, м. Харків

Ф А 2.2.1–32-366

National University of Pharmacy

Faculty pharmaceutical
Department of social pharmacy

Level of higher education master

Specialty 226 Pharmacy, industrial pharmacy
Educational and professional program Pharmacy

APPROVED
The Head of Department
of Social Pharmacy

_____
Alina VOLKOVA
"11" of September 2024

ASSIGNMENT
FOR QUALIFICATION WORK
OF AN APPLICANT FOR HIGHER EDUCATION

Zaynab BAKKALI

1. Topic of qualification work: «Research on involvement of community pharmacists in vaccination services»
supervisor of qualification work: Iryna SURIKOVA, PhD, associated professor,
approved by order of NUPh from "27th" of September 2024 № 237

2. Deadline for submission of qualification work by the applicant for higher education: May 2025.

3. Outgoing data for qualification work: data from scientific and periodical literature in accordance with research objectives; reports of international organizations, statistical data.

4. Contents of the settlement and explanatory note (list of questions that need to be developed):
- To conduct a review of literary sources about current functions of community pharmacist;
- To investigate of regulatory policies governing the pharmacy profession in Public Health;
- To make comparative analysis of the activity of pharmacists in vaccination services and health promotion in different countries;
- To survey the role of pharmacists in vaccination services and health promotion in Morocco.
- To generalize recommendations for enhancing the role of community pharmacists in vaccination services and health promotion.

5. List of graphic material (with exact indication of the required drawings):
tables – 6, figures – 19

6. Consultants of chapters of qualification work

Chapters	Name, SURNAME, position of consultant	Signature, date	
		assignment was issued	assignment was received
1	Iryna SURIKOVA, associated professor of higher education institution of department Social Pharmacy	11.09.2024	11.09.2024
2	Iryna SURIKOVA, associated professor of higher education institution of department Social Pharmacy	21.11.2024	21.11.2024
3	Iryna SURIKOVA, associated professor of higher education institution of department Social Pharmacy	24.12.2024	24.12.2024

7. Date of issue of the assignment: «11» of September 2024.

CALENDAR PLAN

№	Name of stages of qualification work	Deadline for the stages of qualification work	Notes
1	Analysis of scientific, periodic literature on the topic of qualification work	September 2024	**done**
2	Investigate of regulatory policies governing the pharmacy profession in Public Health	October-November 2024	**done**
3	Comparative analysis of the activity of pharmacists in vaccination services and health promotion in different countries	December-January 2024-2025	**done**
4	Survey the role of pharmacists in vaccination services and health promotion in Morocco	February-March 2025	**done**
5	Summary of the results of the study	April 2025	**done**
6	Finalizing the work, preparing the report	May 2025	**done**

An applicant of higher education Zaynab BAKKALI

Supervisor of qualification work Iryna SURIKOVA

ВИТЯГ З НАКАЗУ № 237

По Національному фармацевтичному університету

від 27 вересня 2024 року

Затвердити теми кваліфікаційних робіт здобувачам вищої освіти 5-го курсу Фм20(4,10д) 2024-2025 навчального року, освітньо-професійної програми – Фармація, другого (магістерського) рівня вищої освіти, спеціальності 226 – Фармація, промислова фармація, галузь знань 22 Охорона здоров'я, денна форма здобуття освіти (термін навчання 4 роки 10 місяців), які навчаються за контрактом (мова навчання англійська та українська) згідно з додатком № 1.

Прізвище, ім'я здобувача вищої освіти	Тема кваліфікаційної роботи		Посада, прізвище та ініціали керівника	Рецензент кваліфікаційної роботи
по кафедрі соціальної фармації				
Баккалі Зайнаб	Дослідження участі фармацевтів у послугах вакцинації	Research on involvement community pharmacists in vaccination services	Доцент Сурікова І.О.	Доцент Бондарєва І.В.

Ректор

Вірно. Секретар

ФА2.8-03-317

ВИСНОВОК

експертної комісії про проведену експертизу
щодо академічного плагіату у кваліфікаційній роботі

здобувача вищої освіти

«14» травня 2025 р. № 331206181

Проаналізувавши кваліфікаційну роботу здобувача вищої освіти Баккалі Зайнаб, групи Фм20 (4,10д)англ-02, 226 Фармація, промислова фармація, освітньої програми «Фармація» навчання на тему: «Дослідження участі фармацевтів у послугах вакцинації / Research on involvement community pharmacists in vaccination services», експертна комісія дійшла висновку, що робота, представлена до Екзаменаційної комісії для захисту, виконана самостійно і не містить елементів академічного плагіату (компіляції).

Голова комісії,
проректор ЗВО з НПР,
професор **Інна ВЛАДИМИРОВА**

Ф А 2.2.1-32-353

REVIEW

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

Zaynab BAKKALI

on the topic: «Research on involvement of community pharmacists in vaccination services»

Relevance of the topic. Vaccination remains one of the most effective tools for preventing infectious diseases and promoting public health, yet global immunization coverage is still insufficient, particularly in low- and middle-income countries. At the same time, pharmacists are among the most accessible healthcare professionals and increasingly recognized for their potential role in expanding immunization services. The international trend toward integrating pharmacists into public health systems emphasizes the importance of reevaluating their role within national healthcare frameworks. Given the growing trust in pharmacists and their daily contact with the public, analyzing the possibilities for expanding their immunization responsibilities is of significant interest. Therefore, the chosen topic is highly relevant.

Practical value of conclusions, recommendations and their validity. The work presents a well-structured sociological study reflecting the current state of pharmacist involvement in vaccination services in Morocco. The findings are supported by a sound methodological framework and demonstrate a high level of analytical depth. The conclusions are based on empirical data and international comparative analysis, offering actionable recommendations for policymakers, such as developing legal frameworks, introducing professional training, and conducting national awareness campaigns. These suggestions are not only well-justified but also applicable to improving healthcare accessibility and vaccination coverage in Morocco.

Assessment of work. The thesis is distinguished by its logical structure, coherent argumentation, critical thinking, and the ability to synthesize international and national data. The student has demonstrated a deep understanding of the subject matter, independence in research, and the capacity to develop evidence-based proposals for public health enhancement. The work is well-organized, properly referenced, and meets academic standards in both form and conten

General conclusion and recommendations on admission to defend. In general, the qualification work of Zaynab BAKKALI on the topic: «Research on involvement of community pharmacists in vaccination services» is performed at the proper level, meets the requirements of the "Regulations on the preparation and protection of qualification works at the National University of Pharmacy" and can be recommended for defense in the Examination commission.

Scientific supervisor Iryna SURIKOVA
«14th» of May 2025

Ф А 2.2.1-32-356

REVIEW

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

Zaynab BAKKALI

on the topic: «Research on involvement of community pharmacists in vaccination services»

Relevance of the topic. The involvement of pharmacists in vaccination services is a timely and strategically important issue, especially in the context of expanding access to preventive healthcare. Given the global trends toward decentralization of immunization programs and the increasing burden on traditional vaccination providers, community pharmacists are emerging as critical public health actors. This topic is particularly relevant for countries like Morocco, where pharmacists are underutilized in national immunization strategies despite having the necessary infrastructure and public trust.

Theoretical level of work. The work demonstrates a high theoretical level. The author presents a comprehensive literature review, drawing from international sources, WHO guidelines, and regulatory frameworks. The conceptual basis of the study is well-articulated, with clearly defined research objectives, subject and object of study, and methodological approaches. The analysis is grounded in contemporary public health theory and pharmacy practice, and supported by reliable academic references.

Author's suggestions on the research topic. The author offers a number of substantiated proposals, including legislative reform to allow pharmacists to administer vaccines, the introduction of formal immunization training programs, and public awareness initiatives. These suggestions are clearly derived from the analysis of empirical data and international experience. The proposed roadmap for integrating

pharmacists into Morocco's immunization system reflects a thorough understanding of healthcare structures and public policy development.

Practical value of conclusions, recommendations and their validity. The practical significance of the work lies in its evidence-based recommendations for improving immunization accessibility through community pharmacies. The conclusions are logically derived from both the literature review and the results of the sociological survey. They are realistic and can be implemented at the institutional and national levels, contributing to better vaccine coverage and stronger public health outcomes in Morocco. The recommendations also offer guidance for professional development and health system modernization.

Disadvantages of work. Minor issues with language clarity and formatting were noted but do not compromise the scientific quality of the work.

General conclusion and assessment of the work. According to the relevance and the results of the research qualification work of Zaynab BAKKALI on the topic: «Research on involvement of community pharmacists in vaccination services» meets the requirements for master's works and can be recommended for official defense in the Examination commission.

Reviewer Assoc. prof. Iryna BONDARIEVA

«16th» of May 2025

Ф А2.5-32-231

ВИТЯГ
з протоколу засідання кафедри соціальної фармації
№ 22 від «26» травня 2025 року

ПРИСУТНІ: зав. каф. доц. Аліна ВОЛКОВА, проф. Ганна ПАНФІЛОВА, проф. Вікторія НАЗАРКІНА, доц. Галина БОЛДАРЬ, доц. Наталія ГАВРИШ, доц. Тетяна ДЯДЮН, доц. Юлія КОРЖ, асист. Альміра НОЗДРІНА, доц. Вікторія МІЩЕНКО, доц. Ірина ПОПОВА, доц. Олександр СЕВРЮКОВ, доц. Ірина СУРІКОВА, доц. Любов ТЕРЕЩЕНКО, доц. Наталія ТЕТЕРИЧ.

ПОРЯДОК ДЕННИЙ:

Про представлення до захисту в Екзаменаційній комісії кваліфікаційних робіт.

СЛУХАЛИ: завідувачку кафедри доц. Аліну ВОЛКОВУ з рекомендацією представити до захисту в Екзаменаційній комісії кваліфікаційну роботу здобувачки вищої освіти спеціальності 226 Фармація, промислова фармація Зайнаб БАККАЛІ на тему: «Дослідження участі фармацевтів у послугах вакцинації».

Науковий керівник: к. фарм. н., доцент кафедри СФ Ірина СУРІКОВА.

Рецензент: к. фарм. н., доцент кафедри ММЗЯФ, доц. Ірина БОНДАРЄВА.

УХВАЛИЛИ: Рекомендувати до захисту в Екзаменаційній комісії кваліфікаційну роботу здобувачки вищої освіти Зайнаб БАККАЛІ на тему: «Дослідження участі фармацевтів у послугах вакцинації»

Завідувачка каф. СФ, доцент Аліна ВОЛКОВА

Секретар, доцент Наталія ТЕТЕРИЧ

Ф А2.2.1-32-042

НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ

ПОДАННЯ
ГОЛОВІ ЕКЗАМЕНАЦІЙНОЇ КОМІСІЇ
ЩОДО ЗАХИСТУ КВАЛІФІКАЦІЙНОЇ РОБОТИ

Направляється здобувачка вищої освіти Зайнаб БАККАЛІ до захисту кваліфікаційної роботи
за галуззю знань 22 Охорона здоров'я
спеціальністю 226 Фармація, промислова фармація
освітньою-професійною програмою Фармація
на тему: «Дослідження участі фармацевтів у послугах вакцинації».

Кваліфікаційна робота і рецензія додаються.

Декан факультету _____ / Микола ГОЛІК/

Висновок керівника кваліфікаційної роботи

Здобувачка вищої освіти Зайнаб БАККАЛІ під час виконання кваліфікаційної роботи продемонструвала уміння працювати з науковими даними, проводити їх узагальнення, аналізувати та узагальнювати результати дослідження. Усі поставлені завдання відповідно до мети роботи було виконано у повному обсязі. Результати дослідження належним чином оброблені і представлені.

Таким чином, кваліфікаційна робота може бути рекомендована до офіційного захисту в Екзаменаційній комісії Національного фармацевтичного університету.

Керівник кваліфікаційної роботи Ірина СУРІКОВА

«14» травня 2025 р.

Висновок кафедри про кваліфікаційну роботу

Кваліфікаційну роботу розглянуто. Здобувач вищої освіти Зайнаб БАККАЛІ допускається до захисту даної кваліфікаційної роботи в Екзаменаційній комісії.

Завідувачка кафедри
соціальної фармації Аліна ВОЛКОВА

«26» травня 2025 р.

Qualification work was defended

of Examination commission on

« » June 2025

With the grade _____

Head of the State Examination commission,

DPharmSc, Professor

_____ / Volodymyr YAKOVENKO/