

Policy progress, stakeholder engagement and challenges in pharmacist-led vaccination

Findings from FIP
reports and literature

2025



FIP Development Goals



International
Pharmaceutical
Federation

Colophon

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International Pharmaceutical Federation (FIP)
Andries Bickerweg 5
2517 JP The Hague
The Netherlands
www.fip.org

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Authors:

Ms Farah Aqqad, Data and Intelligence Lead (GPO)
Ms Nisa Masyitah, Data and Intelligence Manager (GPO)
Ms Grace Oluwakemi Adebayo, Project and Data Support Coordinator (GPO)

Editor:

Dr Catherine Duggan, FIP Chief Executive Officer (CEO)

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Foreword

Vaccination remains one of the most effective public health interventions, significantly reducing mortality and morbidity while safeguarding health, functional ability, and well-being across all ages. The success of vaccination programmes depends not only on the availability of vaccines but also on the widespread administration and accessibility to all population groups.

As highly trained and trusted healthcare professionals, pharmacists are uniquely positioned to play a pivotal role in vaccine administration. Their accessibility—particularly in community pharmacy settings—enables them to reach populations that might otherwise face challenges to access vaccination services, such as those in rural areas, or limited access to primary healthcare providers, or underserved communities. By incorporating vaccination services into pharmacy practice and service provision, healthcare systems can ease the burden on traditional immunisation providers, improve patient convenience, and enhance public adherence to vaccination schedules.

Recognising this potential, an increasing number of countries have expanded the scope of pharmacists' practice to include vaccine administration, marking a significant contribution to global vaccination efforts. In 2023, FIP released a [statement of policy on the role of pharmacy in life-course vaccination](#) (a global policy for the profession). This statement underscored the importance of expanding vaccination schedules and strategies beyond infancy vaccination, as well as integrating pharmacists into patient immunisation pathways. Building on this statement, FIP has been actively gathering data from its member organisations to monitor global trends in pharmacist-administered vaccination through a multinational needs assessment and surveillance programme.

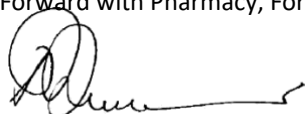
This report presents the findings of that programme, offering an overview of the evolving landscape of pharmacist-administered vaccination worldwide. The report lays out the regulatory developments, highlights stakeholder engagement—including collaborations with other healthcare professionals, policymakers, and the public—and examines the challenges and enablers influencing the expansion of pharmacists' roles in vaccination. By showcasing evidence-based insights and best practices from different regions, this report provides a valuable resource for shaping policy development.

FIP remains committed to supporting countries in their efforts to introduce or expand pharmacist-administered vaccination. Empowering pharmacists as key contributors to vaccination efforts is a crucial step towards building more accessible, integrated and efficient healthcare systems. Pharmacists can bridge gaps in vaccine access, enhance public trust, and support broader vaccination coverage. By identifying effective strategies, sharing best practices and offering tailored recommendations, FIP seeks to equip pharmacists and stakeholders with the necessary tools to strengthen vaccination programmes.

This report also draws on FIP's broader contributions to this area through key publications and events, such as the [global vaccination policy development summit](#), which showcased the growing role of pharmacists in life-course immunisation, and the [2024 global intelligence report](#) which provides a detailed analysis of pharmacists' roles in vaccination across regions. These resources, along with many others, continue to guide the profession in advancing vaccination efforts and are accessible [here](#).

With this report, FIP aims to support member organisations in advancing policy discussions and facilitating evidence-based decision-making to expand the role of pharmacists in vaccination. It is our hope that this report serves as a foundation for meaningful dialogue and collaboration among healthcare professionals, policymakers, and researchers, ultimately driving the adoption and implementation of effective vaccination policies and strengthening global immunisation efforts.

Forward with Pharmacy, Forward with FIP.



Paul Sinclair

President

International Pharmaceutical Federation

Executive summary

Pharmacy-based vaccination (PBV) represents a significant advancement in healthcare delivery, addressing key challenges such as accessibility, affordability, and efficiency. By leveraging the widespread availability and accessibility of community pharmacies, PBV has the potential to improve immunisation rates, reduce the burden on traditional healthcare settings, and contribute to the achievement of broader public health goals.

Pharmacists, as accessible healthcare providers, are uniquely positioned to contribute to this mission by promoting and administering vaccines across all stages of life. Recognising the urgent need to address these gaps, FIP has significantly expanded its advocacy and policy efforts to advance pharmacists' roles in vaccination promotion and administration at global, regional, and national levels. FIP has been actively gathering data from its member organisations through a surveillance programme to monitor trends in pharmacy-based vaccination globally.

The primary objective of this report is to provide an evidence-based understanding of the global progress and disparities in pharmacy-based vaccination policies and practices. By reviewing legislative frameworks, stakeholder roles, and implementation strategies, the report aims to offer actionable insights that support the advancement of PBV globally. The insights drawn from this report may be particularly useful for countries with similar contexts, enabling them to learn from successful strategies and avoid common pitfalls.

Global PBV legislations

a. Administration and prescribing authority

- Based on data from 116 countries (2016-2024), 56 countries now have PBV legislation, marking a 22-country increase (64.7%) since 2020. However, 60 surveyed countries still lack PBV legislation.
- Among the 56 countries with PBV legislation, 43 allow pharmacists to administer vaccines, while 13 restrict administration only to other healthcare professionals in pharmacies.
- Of the 43 countries that allow pharmacists to administer vaccines, 29 grant both administration and prescribing authority, while 14 allow administration only.
- Europe leads, with 25 countries implementing PBV, 13 of which authorise both administration and prescribing.
- PBV adoption is observed in Africa (11 countries), the Americas (eight countries), and the Eastern Mediterranean (seven countries). However, only a subset of countries in these regions grants pharmacists the authority to administer or prescribe vaccines.
- Limited PBV implementation exists in the Western Pacific (three countries), with only two granting both administration and prescribing authority.
- Southeast Asia has the lowest PBV implementation (two countries), where vaccine administration is restricted to other healthcare professionals only (excluding pharmacists).

b. Ongoing policy developments in pharmacist-administered vaccination

- Countries with PBV are working to broaden the scope of pharmacist-administered vaccines and refining regulations.
- Several jurisdictions are engaged in policy discussions that could lead to expanded PBV services.
- Regions without PBV frameworks continue to rely on traditional healthcare providers for vaccine administration, with limited or no discussions on pharmacist involvement.
- The evolution of PBV is ongoing, with notable progress and challenges shaping its future implementation.

c. Snapshots of pharmacist-administered vaccination in seven countries (Australia, Canada, France, Ireland, Portugal, the UK and the USA)

- PBV implementation timelines vary across countries. The USA was the first to introduce PBV legislation in 1998, followed by Portugal and Canada in 2007. Ireland implemented PBV in 2011, while Australia and

the UK joined in 2014. France was the most recent adopter among the seven countries, introducing PBV in 2019.

- PBV policies have evolved significantly, with pharmacists initially trained to administer flu vaccines before expanding to include a broader range, such as pneumococcal, shingles, and HPV.
- The COVID-19 pandemic accelerated PBV expansion, leading to permanent policy changes that broadened pharmacists' vaccination authority.

Stakeholder contributions

a. Advocacy activities in community pharmacies

- Pharmacists support vaccination efforts by providing information, addressing hesitancy, participating in campaigns, collaborating with healthcare professionals, targeting high-risk groups, distributing educational materials, and checking immunisation status.

b. Stakeholder engagement

- This report outlines the engagement with other stakeholders, including other health professionals, policymakers and the public. Efforts have been made to address challenges in introducing and expanding pharmacist-administered vaccination. Health professionals have collaborated with pharmacists and contributed to education and training initiatives. Advocacy strategies and evidence-based approaches have been employed to engage policymakers, while educational campaigns have been used to foster public acceptance and increase demand for pharmacy-based vaccination services.

Challenges and best practices in pharmacist-administered vaccination

a. Key challenges identified in the 2024 FIP intelligence survey

Countries are categorised into four groups based on pharmacist involvement in vaccination administration: Comprehensive range of vaccines (11 countries); limited range of vaccines (21 countries); under policy discussion (10 countries); no PBV legal framework (30 countries). Key challenges include:

- Government and health system support: The most reported barrier, especially in countries with no PBV legal framework (22 reports).
- Financial barriers: Lack of remuneration cited in countries with both limited vaccination administration scope (13 reports) and no PBV legal framework (eight reports).
- Healthcare professional resistance: Reported in 15 countries with no legal PBV framework and seven where pharmacist-led vaccination is under discussion.
- Training gaps and pharmacist confidence: Reported in some countries but less significant than policy and financial barriers.

b. Thematic analysis of barriers and opportunities for pharmacists administering vaccines

1. Regulatory and policy barriers:

- Many countries lack clear legal frameworks or have fragmented policies that delay pharmacists' integration into immunisation programmes.
- Even where pharmacists are authorised to vaccinate, scope limitations (e.g., restricted to flu and COVID-19 vaccines) hinder expansion.
- Bureaucratic inconsistencies and procurement laws (such as in Portugal and France) restrict pharmacists' access to government-funded vaccines.

2. Professional resistance and scope of practice conflicts:

- Physicians and nurses in several countries resist expanding pharmacists' roles in vaccination due to concerns over clinical oversight, training, and competition.
- Countries such as Canada and the UK have addressed this through structured agreements and joint training programmes.

- Resistance remains strong in countries such as Greece, Romania, and Hungary, where medical associations oppose policy changes.

3. Infrastructure and training gaps:

- Standardised immunisation training is essential but varies widely between countries, leading to inconsistencies.
- Digital integration remains a challenge; many countries lack centralised immunisation databases, making patient tracking difficult.
- Cold storage, consultation spaces, and digital records remain barriers in lower-income countries such as Sierra Leone and Yemen.

4. Financial and reimbursement challenges:

- Lack of equitable remuneration discourages pharmacists from fully engaging in vaccination services.
- Countries such as South Africa and Portugal have structured funding models for PBV services, but compensation disparities persist.
- In countries such as Greece and Poland, pharmacists receive little to no remuneration for vaccine administration.

5. Public acceptance and vaccine confidence:

- Misinformation, vaccine hesitancy, and lack of awareness about pharmacists' vaccination roles affect uptake.
- Countries such as Portugal, France, and Australia have implemented national awareness campaigns to increase trust.
- In countries such as Bangladesh and Morocco, low public awareness has slowed advocacy efforts.

c. Enablers

The enablers for pharmacist-administered vaccination services include clear legal frameworks, alignment of national policies, and pharmacist inclusion in immunisation strategies. Addressing professional resistance through shared training programmes and role clarification is key, while investment in infrastructure, interoperable vaccination records, and financial incentives ensures sustainability. Public education initiatives and trust-building efforts further enhance vaccine confidence and acceptance.

d. Best practices

This report outlines successful strategies that countries have implemented to overcome challenges in expanding pharmacist-administered vaccination. Key lessons include:

1. **Gradual, nationwide regulatory changes** have been pivotal in countries, such as Australia and Germany, enabling pharmacists to play a broader role in immunisation. Incremental implementation helped secure stakeholder support while demonstrating the benefits of expanded access.
2. **Structured training programmes**, such as those in Saudi Arabia and Belgium, ensured pharmacists were equipped with the skills and certifications required for vaccine administration, building public and professional confidence.
3. **The integration of vaccination records** into national electronic health systems, as seen in Belgium, Ireland, and Portugal, streamlined vaccination workflows, improved coordination with healthcare providers, and reduced fragmentation in data collection.
4. **Targeted public awareness campaigns** in Canada and Sweden addressed vaccine hesitancy by countering misinformation, enhancing vaccine literacy, and building trust in pharmacist-administered vaccination services.
5. **Interprofessional collaboration**, as demonstrated in France and Greece, helped address resistance from other healthcare providers by supporting mutual understanding and co-developing training standards.

1 Background and objectives

1.1 Background

The evolving role of community pharmacists in public health has positioned them as key contributors to enhancing immunisation access and uptake globally.^{1,2} Pharmacy-based vaccination (PBV) represents a significant advancement in healthcare delivery, addressing key challenges such as accessibility, affordability, and efficiency.^{2,3} By leveraging the widespread availability and accessibility of community pharmacies, PBV has the potential to improve immunisation rates, reduce the burden on traditional healthcare settings, and contribute to the achievement of broader public health goals.^{1,4} Other pharmacy sectors, such as hospital pharmacists, also play a role in immunisation efforts, and future research could explore these collaborations further.

Vaccines are among the most effective public health interventions, second only to clean water, in reducing mortality and morbidity.⁵ They save lives and protect health, functional ability, and well-being across all ages.^{5,6} However, vaccination coverage targets, particularly for vulnerable groups, remain unmet in many parts of the world.⁷ While childhood vaccination targets are set at 90%, the WHO's target for influenza vaccination among older adults is only 75%, and few countries achieve even this.⁷ Critical vaccines, such as pneumococcal, are often underutilised in these populations, further underscoring the need for expanded efforts to enhance immunisation coverage.⁷

Recognising the urgent need to address these gaps, FIP has significantly expanded its advocacy and policy efforts to advance pharmacists' roles in vaccination promotion and administration at global, regional, and national levels. FIP's work is grounded in the conviction that prevention is better than cure and that improving vaccination coverage through a life-course approach is a global imperative.^{4,8-14} Pharmacists, as accessible healthcare providers, are uniquely positioned to contribute to this mission by promoting and administering vaccines across all stages of life.²

FIP's vaccination efforts align closely with global strategies such as the [WHO Immunisation Agenda 2030](#), which aims to leave no one behind.¹⁵ Two key strategic objectives of this agenda are directly relevant to our work:

- **Objective #3:** Ensuring everyone is protected by full immunisation, regardless of location, age, socioeconomic status, or gender-related barriers.
- **Objective #4:** Enabling all individuals to benefit from recommended immunisations throughout life, integrated with other essential health services.

FIP has further cemented its commitment to this cause through its [FIP Statement of Policy on the Role of Pharmacy in Life-Course Vaccination \(September 2023\)](#).¹³

As of 2024, and according to FIP data, pharmacy-based vaccination is available in 55 countries. However, as shown in Figure 1 and Table 1, pharmacists are only authorised to administer vaccines in 43 of these countries, while the remaining countries include administration by other healthcare professionals. The extent of pharmacists' authority also varies significantly, with some countries permitting both administration and prescription, while others limit involvement to specific vaccines, such as those for influenza or COVID-19.

FIP has been actively gathering data from its member organisations to monitor trends in pharmacy-based vaccination globally. The findings will offer a detailed overview of the global landscape, enabling evidence-based policies and fostering expanded collaboration across sectors.

Figure 1: Vaccine administration by pharmacists across countries (n=43)

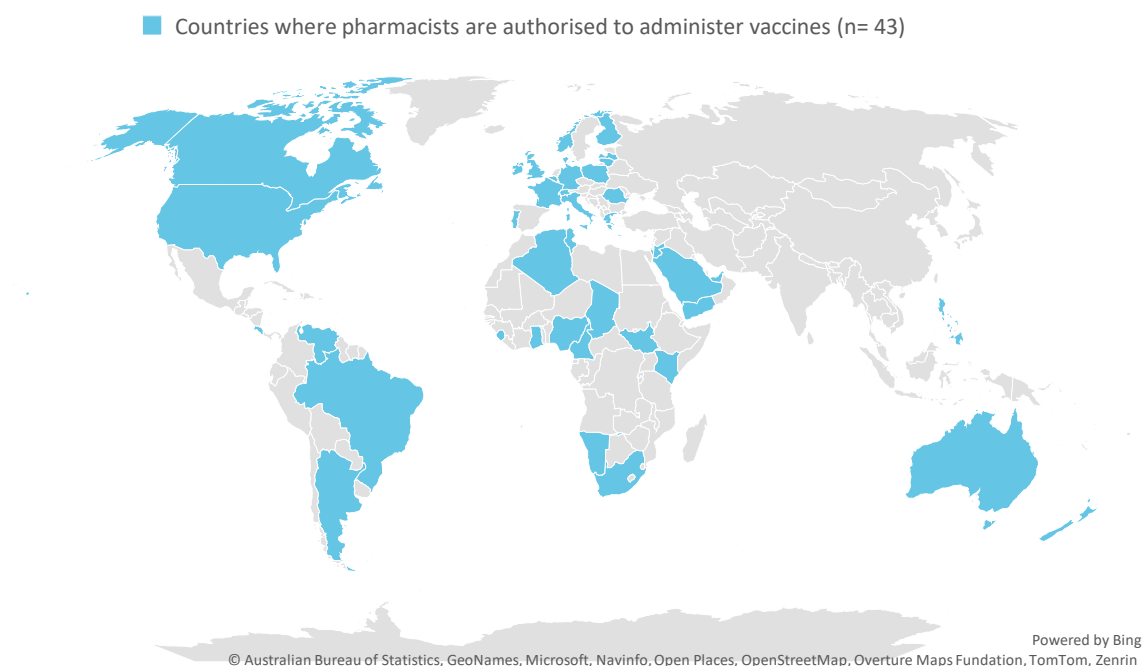
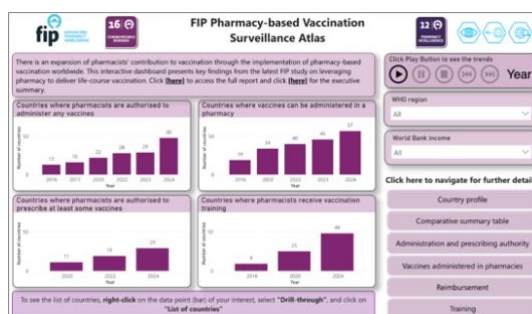


Table 1: List of countries where pharmacists can administer vaccines

List of countries where pharmacists can administer vaccines (n=43)			
Algeria	Finland	Latvia	Saudi Arabia
Argentina	France	Lithuania	Sierra Leone
Australia	Germany	Luxembourg	South Africa
Belgium	Ghana	Namibia	South Sudan
Brazil	UK	New Zealand	Switzerland
Cameroon	Greece	Nigeria	Tunisia
Canada	Ireland	Norway	United Arab Emirates
Cape Verde	Israel	Philippines	USA
Chad	Italy	Poland	Venezuela
Costa Rica	Jordan	Portugal	Yemen
Denmark	Kenya	Romania	

For further insights into the latest data, the [FIP pharmacy-based vaccination surveillance atlas](#) provides an open-access, interactive tool with detailed information on pharmacy-based vaccination services globally. This resource includes country profiles, summaries, maps, and graphs based on contributions from FIP members.





To explore more FIP publications in the area of vaccination, visit the FIP Prevention microsite [here](#).¹⁶

Countries with established pharmacy-based vaccination (PBV) legislation are actively expanding immunisation programmes but continue to face challenges in achieving full uptake and equitable access, highlighting the need for complementary approaches. Meanwhile, some countries without PBV legislation are beginning to explore implementation or have yet to introduce PBV at all. These varied contexts present unique obstacles that require tailored solutions. This report examines these differing environments, offering insights and shared lessons to inform global efforts in adopting and strengthening PBV practices.

This full report presents the findings of desk-based research conducted using FIP surveys and existing documentation. The report focuses on:

1. Classifying countries by PBV policies and stakeholder roles.
2. Highlighting key strategies, challenges, and factors impacting PBV implementation.
3. Sharing best practices to support global progress in PBV adoption and advancement.

FIP remains committed to supporting countries in their efforts to implement or expand PBV. By identifying effective strategies, sharing best practices, and offering tailored recommendations, we aim to empower pharmacy professionals and stakeholders to advocate for and implement effective vaccination policies. This work seeks to bridge disparities, strengthen global immunisation efforts, and elevate the role of pharmacy in public health.

1.2 Objectives

The primary objective of this report is to provide an evidence-based foundation for understanding the global progress and disparities in pharmacy-based vaccination (PBV) policies and practices. By analysing legislative frameworks, stakeholder roles, and implementation strategies, the report aims to offer actionable insights that support the advancement of PBV globally. The insights drawn from this report may be particularly useful for countries with similar contexts, enabling them to learn from successful strategies and avoid common pitfalls.

The report's objectives are:

1. To categorise countries according to the status and scope of their PBV policies, including legislative support for pharmacist administration and prescription of vaccines.
2. To analyse the roles of key stakeholders, including governments, professional pharmacy associations, public health organisations, and private entities, in driving legislative and operational changes.
3. To document strategies such as advocacy campaigns, public awareness initiatives, and capacity-building efforts that have influenced policy and practice.
4. To uncover factors that have facilitated or hindered PBV implementation, providing a foundation for addressing gaps and disparities in access.
5. To document examples of best practices and challenges from countries with varying levels of PBV adoption, offering insights into what has worked well and what can be improved.

6. To provide preliminary recommendations that empower pharmacy professionals, policymakers, and other stakeholders to advocate for and implement effective PBV strategies in their respective contexts.
7. To establish a foundation for further exploration in the forthcoming detailed report, which will expand on the findings with additional data, literature reviews, and case studies.

By meeting these objectives, the report aims to address legislative gaps, promote evidence-based advocacy as well as evidence-based decision-making, and strengthen the role of pharmacists in achieving equitable and comprehensive immunisation coverage globally.

2 Methodology

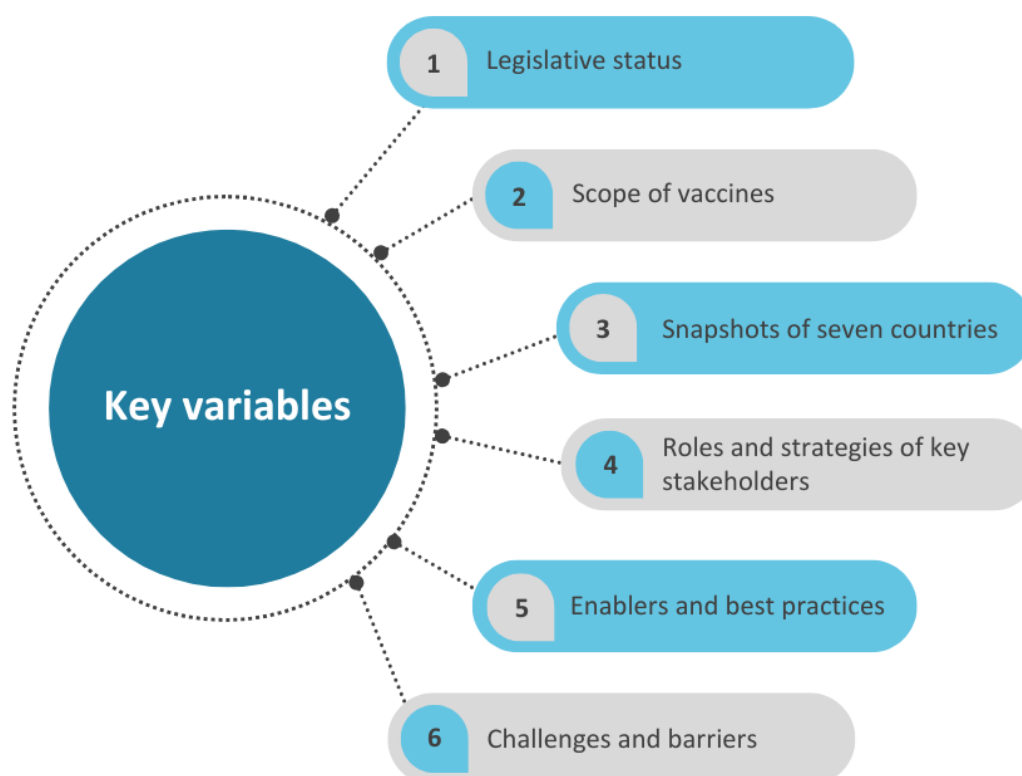
The methodology employed in this report adopts a structured and evidence-based approach to categorising countries, analysing policy environments, and identifying key enablers and challenges associated with PBV.

2.1 Data collation

The data collation began with the identification of key variables for categorising countries and analysing their PBV legislation. As shown Figure 2, the key variables include:

1. Legislative status: Assessing whether pharmacists have the authority to administer or prescribe vaccines and identifying any ongoing policy discussions aimed at introducing or expanding pharmacist-administered vaccination.
2. Scope of vaccines: Identifying the types of vaccines covered under PBV legislation and whether the offerings are limited or comprehensive.
3. Snapshots of countries with pharmacist-administered vaccination: Showcasing examples of countries with well-established PBV legislation, highlighting authorised vaccine providers, the range of vaccines covered, and the evolution of PBV.
4. Roles and strategies of key stakeholders: Identifying contributions from governments, pharmacy associations, and public health organisations.
5. Challenges and barriers: Highlighting obstacles to PBV implementation, including operational, financial, regulatory, public awareness, and opposition from other health professionals.
6. Enablers and best practices: Examining key success factors that facilitate the implementation of PBV policies.

Figure 2: Key variables identified for the data collation process



2.2 Data management

Relevant information was extracted and organised into a structured spreadsheet, enabling categorisation of countries based on legislative frameworks, stakeholder contributions, and implementation challenges.

2.3 Data analysis

The data was coded into the following categories and analysed accordingly. These categories are:

1. **Policy categorisation:** Countries were grouped based on their legislative frameworks and pharmacist vaccination policies as follows:
 - a. **Legislative framework:**
 - Countries without PBV legislation.
 - Countries with PBV legislation, further divided into:
 1. Those allowing administration only.
 2. Those allowing both administration and prescription.
 - b. **Pharmacist vaccination policies:**
 1. Countries with pharmacists administering vaccines – comprehensive vaccine offerings
 2. Countries with pharmacists administering vaccines – limited vaccine offerings
 3. Countries without pharmacists administering vaccines – ongoing policy discussions
 4. Countries without pharmacists administering vaccines – no legal framework

Details of categorisations of pharmacist vaccination policies can be seen in Table 2.

2. **Stakeholder analysis:** The roles and strategies of key stakeholders, such as governments, pharmacy associations, and public health organisations, were analysed. This phase focused on identifying the strategies and enablers that influenced legislative progress.
3. **Challenge identification:** Barriers and challenges in policy implementation, including operational, financial, regulatory, public awareness, and opposition from other health professionals were documented to provide insights into gaps and disparities.
4. **Preliminary insights:** Synthesis of findings to highlight best practices, successful strategies, and potential lessons for countries in similar contexts.

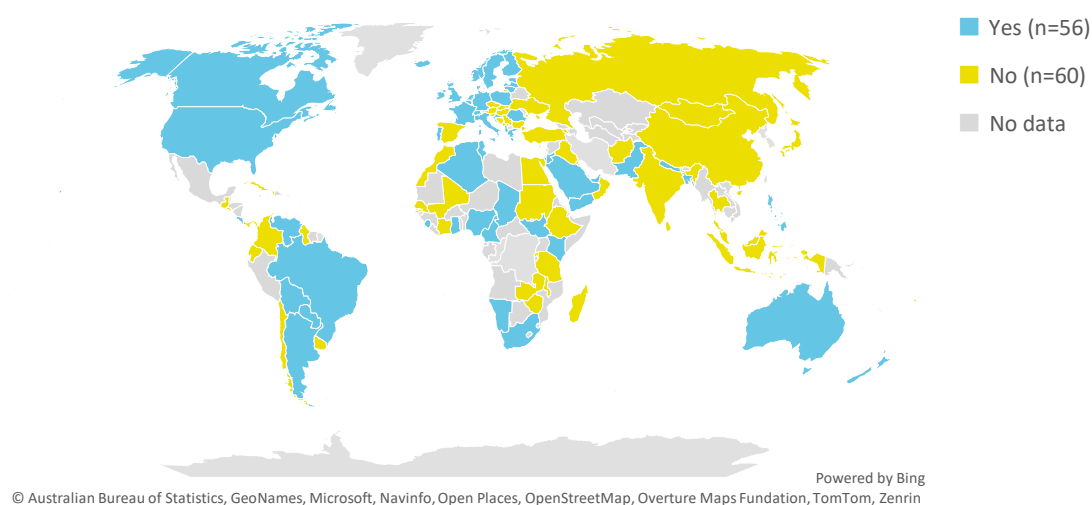
3 Global PBV legislations

3.1 Administration and prescribing authority in PBV

Since 2016, FIP has conducted surveillance surveys to assess the evolving role of pharmacists in vaccination. These surveys aim to monitor recent developments in pharmacists' scope of practice and to advocate for their expanded role in increasing vaccination uptake and coverage. In 2024, FIP continues to collect country-level data on advocacy efforts, regulatory and contractual frameworks, vaccine administration practices, education and training, and additional services related to vaccination.

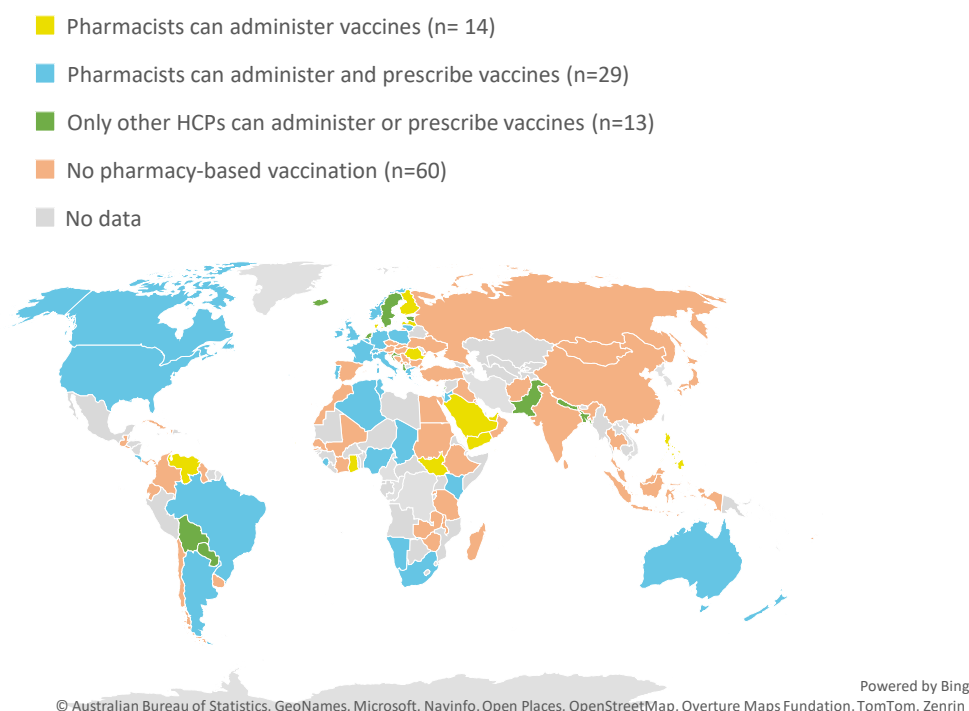
Based on longitudinal data from 116 countries collected between 2016 to 2024, 56 countries currently have PBV legislation in place.⁴ Singapore recently introduced a pilot PBV programme, authorising pharmacists to administer influenza vaccines. However, since full implementation has yet to occur, Singapore is not listed among countries with PBV legislation.¹⁷ With a total of 56 countries implementing PBV, this marks a remarkable increase of 22 countries (64.7%) since 2020 when only 34 countries had PBV legislation. Despite this progress, 60 surveyed countries still have not introduced PBV.⁴ A geographic overview of countries with or without PBV legislation can be seen in Figure 3.

Figure 3: Countries with or without PBV legislation



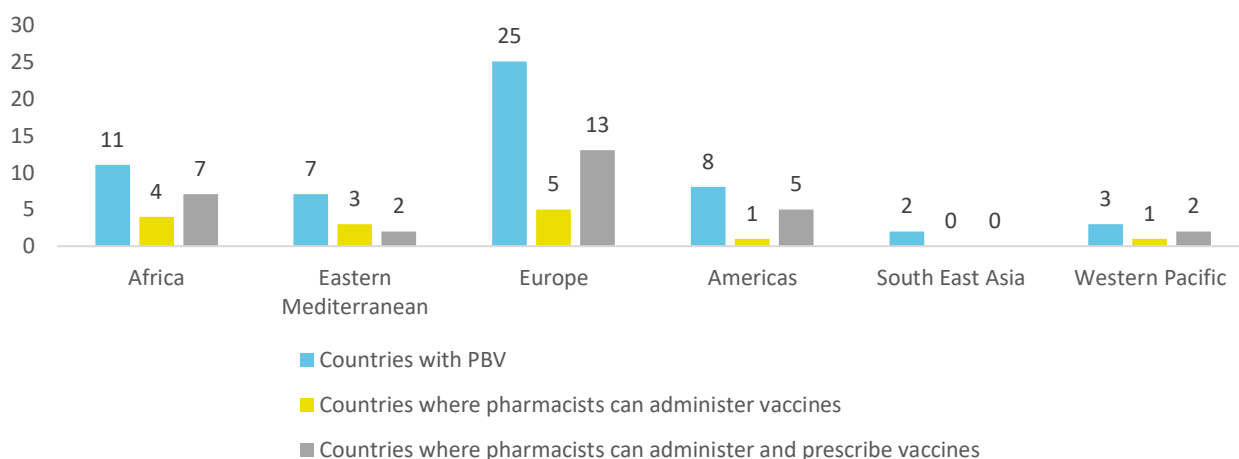
Among the 56 countries that have implemented PBV, 43 authorise pharmacists to administer vaccines, while in 13 countries, vaccines are administered by other healthcare professionals in pharmacies. According to the 2024 survey, Iceland reported that a pilot programme for pharmacist-administered vaccination is currently underway. Only countries with legislation on pharmacist-administered vaccines are included in this report, while those with pilot programmes or without formal legislative authority, such as Iceland, are excluded. Of the 43 countries, 29 allow both administration and prescribing of vaccines in pharmacies, while 14 countries allow administration only. Prescribing authority is defined as the authorisation for pharmacists to administer or dispense vaccines without a medical prescription, taking on the responsibility of assessing vaccine eligibility for individuals.⁴ The administration and prescribing authority across countries is illustrated in Figure 4.

Figure 4: Scope of administration and prescribing authority across countries



Regional disparities were evident in PBV implementation. The European region has the highest number of countries with PBV adoption. Among the 25 countries in Europe with legislation in place, 13 countries authorise pharmacists to both administer and prescribe vaccines, while five countries allow administration only. The African, Americas and Eastern Mediterranean regions show moderate PBV adoption, with 11, eight and seven countries having PBV legislation, respectively. However, in these regions, only a subset of countries grants pharmacists the authority to administer or prescribe vaccines. The Western Pacific region has limited PBV implementation, with three countries having legislation in place. Among them, two countries allow pharmacists to administer and prescribe vaccines, while one country allows administration only. In contrast, the Southeast Asian region has the lowest PBV implementation. While two countries have PBV legislation, vaccination in pharmacies is restricted to other healthcare professionals.⁴ Figure 5 illustrates these regional disparities in PBV implementation. Appendix 1 provides detailed information on administration and prescribing authority.

Figure 5: PBV legislation across regions and the scope of authorised vaccine providers



PBV implementation in Southeast Asia is considerably low because vaccination services are primarily administered by doctors, nurses, and other allied health professionals in hospitals, primary health centres, and community health camps. While pharmacists play a crucial role in managing the supply chain, storage, and dispensing of vaccines, their direct involvement in vaccine administration is minimal. In several countries within the region, such as India, Sri Lanka, and Indonesia, government-led programmes or national immunisation initiatives dominate vaccine delivery.¹⁸ Even though some countries allow pharmacists to vaccinate—such as in Indonesia where vaccine administration by pharmacists is confined to military personnel in specific healthcare facilities⁴—these roles remain underutilised due to limited training, regulatory barriers, or a preference among pharmacists to focus on logistics and supply chain management rather than direct patient care.¹⁸

In the Western Pacific region, the diversity in income levels and healthcare system development has resulted in a varied landscape of PBV practices, with only a few countries, such as Australia, New Zealand, and the Philippines, actively incorporating pharmacists into vaccination efforts. In many other countries in the region, pharmacists continue to be recognised primarily for their role in vaccine management, leaving vaccine administration predominantly to traditional healthcare providers. Regulatory frameworks and evolving policies play a crucial role in this dynamic, with ongoing discussions about expanding pharmacists' roles beyond supply chain management. Although there is evidence that pharmacy-based vaccination can increase overall vaccine coverage, many countries in the region have yet to establish the necessary infrastructure, training, and legal support to allow pharmacists to serve as primary vaccinators.¹⁸

3.2 Policy developments in pharmacist-administered vaccination

This section presents countries that have reported ongoing policy changes, regulatory reforms, or advocacy efforts aimed at expanding pharmacist-based vaccination. While many countries have established PBV frameworks, policy evolution continues as governments refine regulations, expand pharmacists' immunisation roles, and address implementation challenges. The focus here is on jurisdictions actively working toward legislative advancements, whether by enhancing pharmacist training, increasing vaccine offerings, or integrating pharmacists more deeply into national immunisation strategies. These developments span across three key groups: countries with a comprehensive range of pharmacist-administered vaccines seeking further expansion, those with limited vaccine offerings working to broaden their scope, and those where pharmacist-led vaccination remains under policy discussion.

Table 2 outlines the classification of countries into four categories based on the extent of pharmacist involvement in immunisation services.

1. Comprehensive vaccination programmes: Pharmacists administer a wide range of vaccines.
2. Limited vaccination programmes: Pharmacists administer a restricted selection of vaccines.
3. Under policy discussion: Pharmacist-led vaccination is being debated but not yet implemented.
4. No legal framework: Pharmacists are not authorised to administer vaccines.

Table 2: Classification of pharmacist-administered vaccination policies

Archetype	Description	Countries
Countries where pharmacists administer a comprehensive range of vaccines.	These countries have well-established PBV programmes, allowing pharmacists to administer a broad spectrum of vaccines, including those from national immunisation schedules and travel vaccines.	Argentina, Australia, Brazil, Canada, France, UK, New Zealand, Norway, Portugal, South Africa, Switzerland, USA
Countries where pharmacists administer a limited range of vaccines.	In these countries, pharmacists can administer specific vaccines, most commonly influenza and COVID-19	Algeria, Chad, Belgium, Cameroon, Cape Verde, Costa Rica, Denmark, Finland, Germany, Ghana, Greece, Ireland, Israel, Italy, Jordan, Latvia, Lithuania, Luxembourg, Kenya, Namibia, Nigeria, Philippines,

Archetype	Description	Countries
	vaccines, but are not authorised to provide routine immunisations.	Poland, Romania, Saudi Arabia, Sierra Leone, South Sudan, Tunisia, United Arab Emirates, Venezuela, Yemen
Countries where pharmacist-led vaccination is under policy discussion but not yet implemented.	These countries are actively considering regulatory changes that would permit pharmacists to administer vaccines, with ongoing policy discussions and advocacy efforts.	Croatia, Estonia, Hungary, Iceland*, India, Malta, Serbia, Singapore*, Slovenia, Tanzania, Turkey, Uruguay
Countries where pharmacists are not authorised to administer vaccines, with no clear legal framework in place.	These countries lack explicit policies governing pharmacist-led immunisation, and no formal discussions on expanding pharmacists' vaccination roles have been reported.	Afghanistan, Albania, Armenia, Austria, Bangladesh, Bosnia & Herzegovina, Bolivia, Bulgaria, Chile, China, China Taiwan, Colombia, Congo (Dem. Rep. of the), Congo (Rep. of), Côte d'Ivoire, Cuba, Cyprus, Czech Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Guatemala, Guyana, Haiti, Hong Kong SAR (China), Indonesia, Iraq, Japan, Korea (Rep. of), Kosovo, Kuwait, Lebanon, Madagascar, Malawi, Malaysia, Mali, Mauritius, Mongolia, Montenegro, Morocco, Nepal, Netherlands, North Macedonia (Republic of), Oman, Pakistan, Panama, Paraguay, Russian Federation, Rwanda, Senegal, Slovak Republic, Spain, Sri Lanka, Sudan, Sweden, Thailand, Ukraine, Zambia, Zimbabwe

*Iceland is conducting a pilot project where two selected pharmacies have been authorised to administer vaccines. This initiative aims to evaluate the feasibility and impact of expanding vaccination services through pharmacies.

*Singapore has introduced pharmacist-administered flu vaccination in three pharmacies as part of a trial service launched by the Ministry of Health on 28 October 2024.

3.2.1 Countries where pharmacists administer a comprehensive range of vaccines

Reported by 10 countries: Argentina, Australia, Brazil, Canada, France, UK, Portugal, South Africa, Switzerland, and USA.

In Argentina, a nationwide initiative has been introduced to standardise training, registration, and vaccine administration in community pharmacies, allowing pharmacists to administer all vaccines approved by ANMAT, the national regulatory authority. This policy includes updates to the vaccine registry and provisions for pharmacists to administer national vaccination calendar vaccines without prescriptions under certain conditions. A revised vaccination guide is also being developed to support pharmacist training.

Australia is considering expanding the role of pharmacists by authorising them to administer respiratory syncytial virus (RSV) vaccines. Additionally, a pilot programme in Victoria is assessing the feasibility of pharmacist-led travel health services, with potential national implementation if successful.

Brazil is implementing measures to strengthen pharmacy-based vaccination, with new regulatory standards focusing on licensing, quality control, and safety. The introduction of RDC/Anvisa No. 197/2017 outlines specific guidelines for storage, administration, and record-keeping. The Brazilian Federal Council of Pharmacy has further detailed the necessary prerequisites for pharmacists to provide vaccination services, aiming to ensure consistency and safety in practice.

Canada is working towards greater harmonisation of pharmacist roles across provinces, addressing current variations in vaccine authorisation, prescribing, and funding. Ongoing advocacy efforts aim to streamline these processes, ensuring uniform access to pharmacist-led immunisation services.

France has introduced significant legislative changes under Decree No. 2023-736, expanding pharmacists' vaccination responsibilities to include a wide range of vaccines for both children and adults. In addition, efforts are being made to enhance vaccinology training for healthcare professionals, aligning with recommendations from the Haute Autorité de Santé (HAS).

The UK is implementing legislative changes allowing pharmacy technicians to administer vaccines under patient group directions, broadening their role in national immunisation programmes. This shift is expected to improve vaccine accessibility and efficiency within community pharmacies.

Portugal is assessing the feasibility of including additional vaccines, such as the tetanus booster, within the national vaccination programme for pharmacist administration.

South Africa has introduced [accreditation criteria](#) through a short immunisation course, allowing pharmacists to administer a wider range of vaccines without requiring a doctor's prescription. Additionally, advocacy efforts are underway to reclassify COVID-19 vaccines under Schedule 2, enabling pharmacists to dispense them based on their own prescriptions.

Switzerland is expanding pharmacy-based vaccinations, with Pharmasuisse publishing a detailed [breakdown of authorised vaccines](#) by canton. This structured approach aims to integrate pharmacies more effectively into the national immunisation framework.

In the USA, legislative efforts are ongoing to make the expanded pharmacist vaccination authority under the Public Readiness and Emergency Preparedness Act (PREP Act) permanent. While some states have already incorporated these provisions, others are in the process of formalising new policies at the federal and state levels.

3.2.2 Countries where pharmacists administer a limited range of vaccines

Reported by five countries: Belgium, Finland, Ghana, Ireland, and Jordan

Belgium has mandated influenza vaccinations through legislative action until the end of 2024. However, efforts are underway to develop a more permanent legal framework that would sustain pharmacists' involvement in influenza vaccination beyond this period. These legislative advancements signal a shift towards integrating pharmacists more fully into national immunisation strategies.

In Finland, a legislative proposal was submitted in December 2023 to allow pharmacists to administer vaccinations. If approved, this measure would significantly expand pharmacists' role in public health by enabling them to provide vaccination services directly, reducing the burden on other healthcare providers and increasing vaccine accessibility.

Ghana has introduced its first policy framework focused specifically on COVID-19 vaccination, which serves as the foundation for training pharmacists across the country. This initiative aims to equip pharmacists with the skills required for COVID-19 vaccine administration. The experiences and data collected from this initial phase will inform policy revisions and potential expansions to include additional vaccines in pharmacist-led immunisation services. (Guidelines available at: [Ghana College of Pharmacists](#).)

Ireland is advancing legislative reforms to broaden the role of pharmacists in vaccination. The Health (Miscellaneous Provisions) Bill 2023, published in January 2024, grants the Minister for Health greater authority to regulate vaccination services, explicitly permitting pharmacists to administer vaccines as part of public programmes managed by the Health Service Executive. Additionally, the Medicinal Products (Prescription and Control of Supply) (Amendment) (No. 5) Regulations 2023 (S.I. No. 422/2023) allow pharmacists to administer all primary immunisation vaccines, such as MMR, in the event of a declared public health emergency. (Full legislation available at: [Irish Statute Book](#).)

In Jordan, the Jordanian Pharmacists Association (JPA) is actively lobbying the Ministry of Health to expand pharmacists' authority to administer additional vaccines. This advocacy effort aims to integrate pharmacists more comprehensively into the country's immunisation programmes, enhancing vaccine accessibility and public health outcomes.

3.2.3 Countries where pharmacist-led vaccination is under policy discussion but not yet implemented

Reported by nine countries: Croatia, Estonia, Hungary, India, Malta, Serbia, Slovenia, Turkey, Uruguay

Several countries are currently engaged in policy discussions regarding pharmacist-led vaccination, with efforts focused on legislative reforms, advocacy initiatives, and pilot programmes to integrate pharmacists into national immunisation strategies. While these countries have yet to implement full pharmacist-administered vaccination programmes, their

ongoing policy dialogues highlight the increasing recognition of pharmacists as key healthcare providers in immunisation services.

Croatia is actively considering new legislation that would formally authorise pharmacists to administer vaccines within pharmacies. The proposed policy is currently under review by the Ministry of Health, awaiting approval. If enacted, this change will significantly expand the role of pharmacists in public health by allowing them to provide direct vaccination services. However, specific legislative details have yet to be disclosed.

In Estonia, discussions with the Ministry of Social Affairs are ongoing regarding legislative amendments that would broaden pharmacists' roles in healthcare services. The Drug Policy 2030 document anticipates that pharmacists will be authorised to administer vaccines by 2026, aligning with the country's long-term public health objectives to enhance vaccine accessibility. These legislative changes aim to integrate pharmacists more comprehensively into Estonia's national immunisation strategy. (Policy references: [Estonian Drug Policy 2030 White Paper](#); [EMCDDA Policy Brief](#).)

Hungary has recently taken steps toward pharmacist-led vaccination, with the national pharmaceutical chamber submitting a formal proposal to the Ministry of Health advocating for pharmacists' involvement in immunisation services. The proposal is currently under review, and further developments are awaited.

In India, the Ministry of Health has recognised pharmacists as potential alternate vaccinators to expand vaccination coverage, particularly in urban areas and underserved communities. The Indian Pharmaceutical Association has initiated a training of trainers programme to equip pharmacists with the necessary skills for vaccine administration and is actively engaging with the government to secure formal authorisation. Existing operational guidelines, including those for pneumococcal conjugate vaccine introduction and COVID-19 vaccination efforts, have already acknowledged pharmacists' roles in immunisation teams. (References: [PCV Operational Guidelines](#); [COVID-19 Vaccine Guidelines](#).)

Malta has seen proactive efforts from the Chamber of Pharmacists to prepare pharmacists for an expanded healthcare role, including training in basic life support and vaccination administration. Despite these initiatives, policy barriers have stalled full implementation of pharmacist-led vaccination services. The Chamber continues to engage with health authorities and other stakeholders to advocate for policy changes that would enable pharmacists to serve as vaccinators.

Since 2020, Serbia has been advocating for pharmacist-led vaccination through the Pharmaceutical Chamber of Serbia. A key initiative, 'The importance and role of pharmacies in the promotion of vaccination', was submitted to the Ministry of Health in late 2020. Additionally, Serbian pharmacists have participated in several WHO and USAID-supported projects focused on COVID-19 vaccination, flu immunisation, and HPV awareness campaigns. Despite these efforts, the Ministry of Health has yet to respond to the proposed pilot project for pharmacist-led seasonal flu vaccination. (More details: [Pharmacy-led Immunisation Campaign](#).)

Slovenia has taken steps toward pharmacist-led vaccination by launching a pilot project and developing an educational programme aimed at training pharmacists in vaccine administration. The Slovene Chamber of Pharmacy is currently in negotiations with the Ministry of Health to formalise these changes, with the goal of integrating pharmacists into the national vaccination strategy.

In Turkey, advocacy efforts are actively underway to secure authorisation for pharmacists to administer vaccines. Stakeholders, including pharmacy organisations, have engaged with public authorities to outline pharmacists' potential role in immunisation services. Surveys have been conducted among general practitioners and pharmacists to assess perspectives on this initiative. Additionally, training resources and guidelines have been developed to prepare Turkish pharmacists for potential vaccination responsibilities. (References: [Pharmacist Immunisation Guidelines](#); [Pharmacy-based Vaccination Report](#).)

In Uruguay, the ProVacuna group has been actively advocating for pharmacist involvement in immunisation by engaging in discussions with the Ministry of Public Health. Additionally, a partnership with the Faculty of Chemistry has led to plans for introducing a course on immunisation within pharmacy education programmes. This initiative aims to prepare future pharmacists with the necessary expertise to contribute to national vaccination efforts.

Overall, while pharmacist-led vaccination has yet to be fully implemented in these countries, ongoing policy discussions, advocacy efforts, and pilot projects indicate significant momentum toward integrating pharmacists into immunisation programmes. These initiatives reflect a growing recognition of the role pharmacists can play in improving vaccine access and public health outcomes.

3.3 Snapshots of pharmacist-administered vaccination programmes in seven countries

PBV programmes have been implemented in various countries to expand access to vaccination services. In some nations, well-established PBV legislation grants pharmacists the authority to administer or prescribe vaccines in pharmacies, often covering a broad range of vaccines. This section examines PBV legislation across seven countries in three regions: Western Pacific, Americas and Europe. Australia, Canada, France, Ireland, Portugal, the UK and the USA were selected based on their substantial evidence of PBV implementation, as outlined in FIP's publications.^{4, 10, 14, 16} This analysis covers three aspects such as the evolution of the policy to introduce and advance PBV, the scope of authorised vaccine providers, and the range of vaccines that can be administered in pharmacies.

The introduction of PBV in these seven countries has occurred at different times, reflecting variations in healthcare priorities. The USA was the first to implement PBV legislation in 1998, setting a precedent for other nations. Portugal and Canada followed in 2007, marking an expansion of vaccination efforts. Ireland introduced PBV in 2011, with Australia and the UK joining in 2014. France was the most recent among the listed countries, adopting it in 2019. While all seven countries authorise pharmacists to administer vaccines, the scope of authorised vaccine providers varies. Canada, France, the UK and the USA stand out by also authorising pharmacy technicians to provide vaccinations, reflecting a more integrated pharmacy workforce. In contrast, France and Ireland restrict vaccine administration in pharmacies exclusively to pharmacists. In Australia, Canada, Portugal, the UK and the USA, other healthcare professionals are authorised to administer vaccines in pharmacies. A detailed overview of PBV legislation and the scope of authorised vaccine providers is provided in Table 3.

Table 3: PBV legislation and the scope of vaccine providers across seven countries

Country	Region	Year PBV legislation was enacted	Administration by pharmacists	Administration by pharmacy technicians	Administration by other healthcare professionals
Australia	Western Pacific Region	2014	Yes	No	Yes
Canada	Region of the Americas	2007	Yes	Yes	Yes
France	European Region	2019	Yes	Yes	No
Ireland	European Region	2011	Yes	No	No
Portugal	European Region	2007	Yes	No	Yes
UK	European Region	2014	Yes	Yes	Yes
USA	Region of the Americas	1998	Yes	Yes	Yes

Table 4 provides an overview of pharmacist-administered vaccines, indicating variations in the types of vaccines pharmacists are authorised to administer in pharmacies. The included vaccines—influenza, COVID-19, hepatitis B, HPV, meningococcal, pneumococcal, RSV, shingles, and Tdap booster—were selected in the latest FIP surveillance survey. It is important to note that some countries may allow pharmacists to administer additional vaccines beyond those listed.

All seven countries included in the snapshot authorise pharmacists to administer influenza and COVID-19 vaccines, reflecting their prioritisation in public health strategies. In Ireland, pharmacists are only authorised to administer a limited selection of vaccines, including influenza, COVID-19, HPV, pneumococcal, and shingles. Pharmacist involvement in RSV vaccines remains restricted, with France and Ireland yet to authorise its administration in pharmacies.

Table 4: Variations in the types of vaccines that can be administered by pharmacists

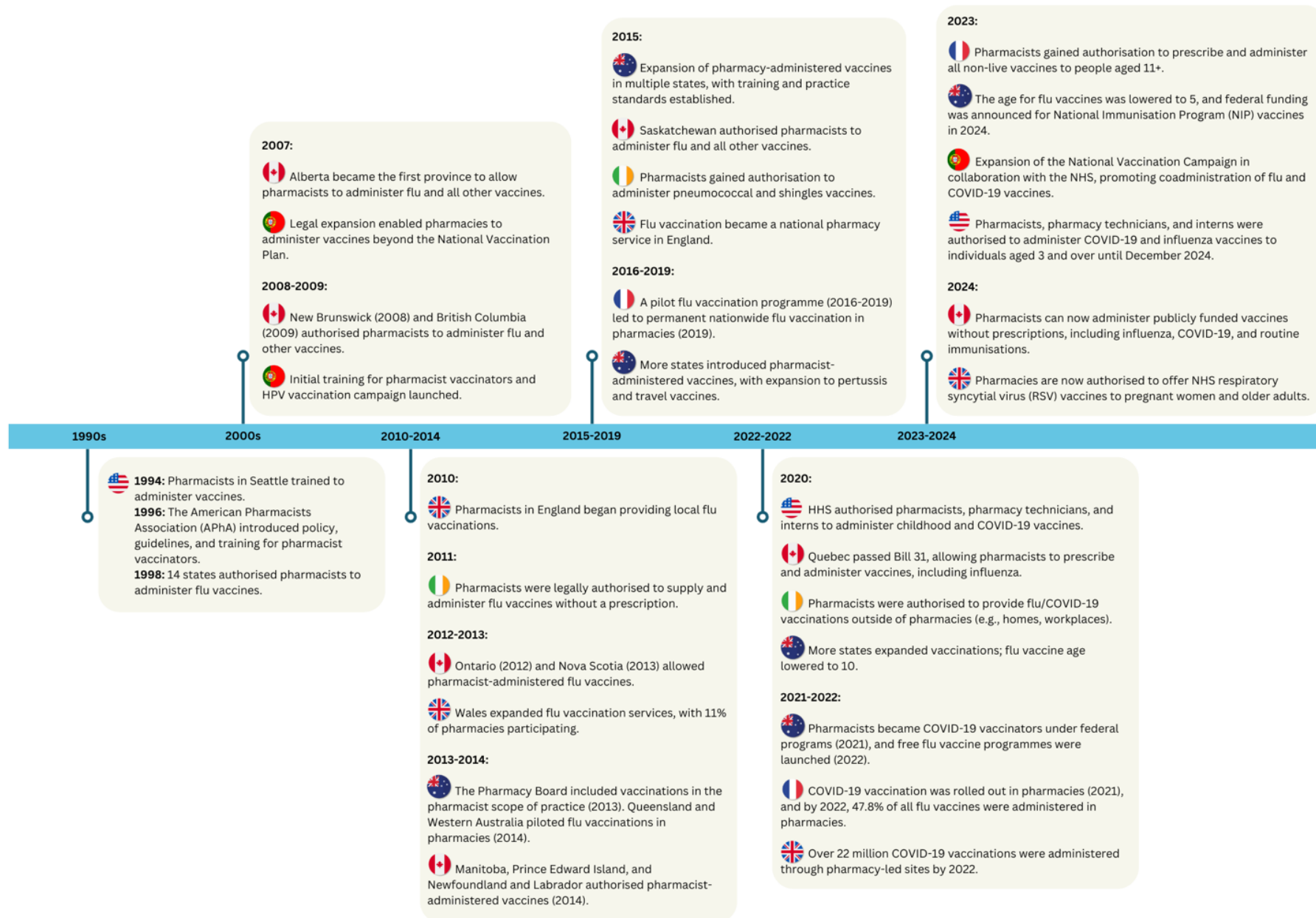
Country	Influenza	COVID-19	Hepatitis B	HPV	Meningo-coccal	Pneumo-coccal	RSV	Shingles	Tdap booster
Australia*	Y	Y	Y	Y	Y	Y	Y	Y	Y
Canada*	Y	Y	Y	Y	Y	Y	Y	Y	Y
France	Y	Y	Y	Y	Y	Y	N	Y	Y
Ireland	Y	Y	N	Y	N	Y	N	Y	N
Portugal	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	Y	Y	Y	Y	Y	Y	Y	Y	Y
USA	Y	Y	Y	Y	Y	Y	Y	Y	Y

* Y = Yes; N = No

* In some countries, the vaccines that pharmacists are authorised to administer or prescribe may vary by region or jurisdiction. For instance, while pharmacists in Canada, Australia, and the USA are generally authorised to administer or prescribe a broad range of vaccines, the specific vaccines approved can differ depending on local regulations or provincial/state laws.

PBV has undergone significant policy evolution across seven countries. The timeline in Figure 6 highlights the progressive expansion of pharmacist-administered vaccination over the past few decades, driven by regulatory changes, public health needs, and increasing trust in pharmacists' role in vaccination. This reflects a global shift towards using pharmacies as accessible vaccination hubs. Initially, pharmacists were trained and authorised to administer flu vaccines, with policies and guidelines gradually developed to support their role. Over time, pharmacist-administered vaccination expanded beyond flu to include a broader range of vaccines, such as pneumococcal, shingles and HPV, among others. Many countries implemented pilot programmes that later led to widespread policy adoption, demonstrating the growing recognition of pharmacists as key contributors to immunisation efforts.

In recent years, the COVID-19 pandemic accelerated the expansion of PBV, leading to permanent policy changes that broadened pharmacists' authority in vaccination. Age restrictions for vaccine administration were lowered in several countries. The pharmacy workforce, including technicians and interns, gained the ability to administer vaccines in pharmacies. Governments introduced funding and national programmes to further integrate PBV into healthcare systems, strengthening immunisation efforts. Moving forward, as more countries recognise the value of pharmacist-administered vaccines, future developments may further integrate pharmacies into national immunisation strategies, ensuring greater accessibility and broader immunisation coverage.

Figure 6: Timeline of policy evolution in introducing and expanding pharmacist-administered vaccination¹⁶

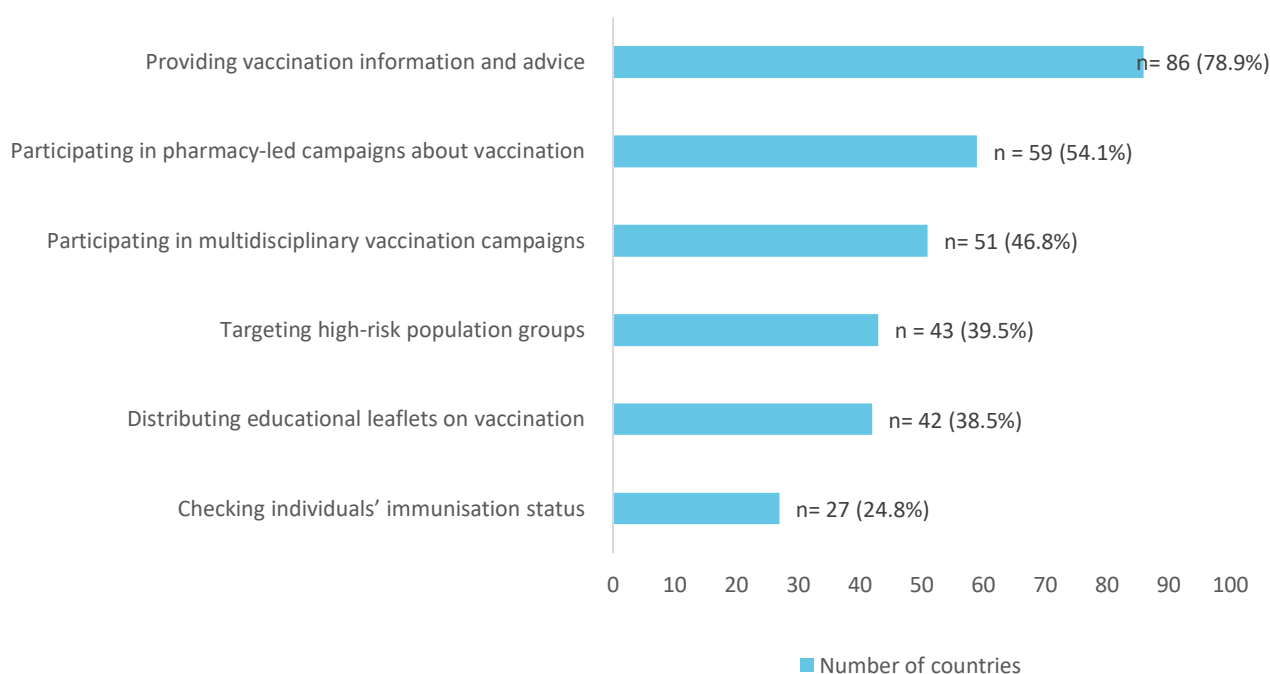
4 Stakeholder contributions

4.1 Advocacy activities in community pharmacies

The latest intelligence report⁴ outlines the advocacy activities conducted in community pharmacies across countries. As shown in Figure 7, community pharmacists play a crucial role in vaccination efforts, with vaccination information and advice being the most frequently reported activity, conducted in 86 countries (78.9%). This highlights their role in educating the public, addressing vaccine hesitancy, and dispelling misinformation. By offering guidance, community pharmacists help individuals make informed decisions about their vaccination. Additionally, participating in pharmacy-led vaccination campaigns is a common strategy, adopted in 59 countries (54.1%). These campaigns help improve vaccine awareness, increase accessibility, and reach diverse populations, particularly those who may not regularly engage with traditional healthcare providers.

Collaboration between healthcare professionals is also key to enhancing immunisation efforts. Multidisciplinary vaccination campaigns, which involve pharmacists working alongside other healthcare professionals, are reported in 51 countries (46.8%), demonstrating the growing recognition of pharmacists as integral members of vaccine providers. Another important focus is targeting high-risk population groups, such as older adults, pregnant individuals, and those with chronic conditions, advocated in 43 countries (39.5%). Distributing educational leaflets on vaccination is also practised in 42 countries (38.5%), serving as an effective tool to improve public understanding of vaccines. However, checking individuals' immunisation status remains the least common, with only 27 countries (24.8%) engaging in this activity. This suggests that greater efforts are needed to enhance pharmacists' access to immunisation records, enabling them to identify gaps in vaccine coverage and provide timely recommendations.

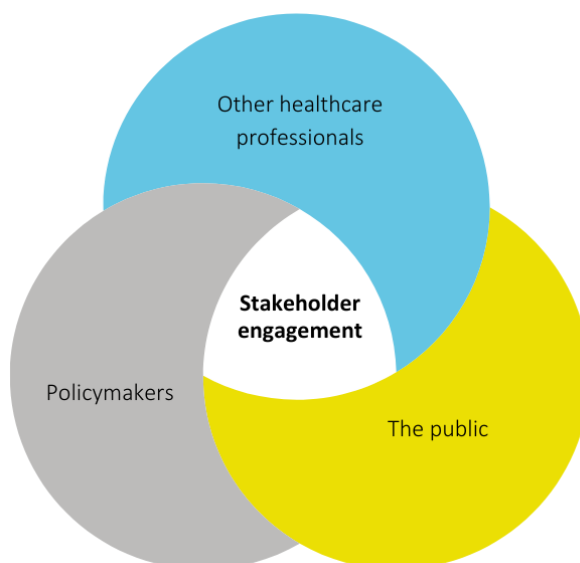
Figure 7: Vaccination advocacy activities in community pharmacies



4.2 Stakeholder engagement

As shown in Figure 8, stakeholders, including health professionals, policymakers and the public all play crucial roles in introducing and expanding pharmacist-administered vaccination. Efforts have been made to address challenges, enhance education and training, and build supportive environments for PBV implementation. Health professionals have collaborated with pharmacists and contributed to education and training initiatives. Advocacy strategies and evidence-based approaches have been employed to engage policymakers, while educational campaigns have been used to foster public acceptance and increase demand for pharmacy-based vaccination services.

Figure 8: Stakeholder engagement in introducing and expanding pharmacist-administered vaccination



4.2.1 Health professionals

The successful implementation of pharmacist-led vaccination services depends on collaboration with other healthcare professionals. While initial resistance from doctors and nurses has been observed in several countries, ongoing dialogue, regulatory changes, and demonstrated effectiveness have helped build trust and acceptance.

a. Collaboration between pharmacists and other healthcare professionals

Initially, doctors and nurses in France were hesitant about pharmacists administering vaccines.⁴ However, this changed due to the rapid expansion of pharmacist-led vaccinations, reaching 21 million doses between 2016 and 2021, and involving over 90% of French pharmacies. Additionally, pharmacists helped alleviate healthcare system pressures by addressing staff shortages and workload concerns. By 2022, they had administered around 26 million COVID-19 vaccine doses, accounting for half of all injections during the pandemic.¹⁹

Israel had difficulties in gaining support from medical professionals due to licensing requirements, though the collaboration increased once this was addressed. Since 2017, trained community pharmacists have been authorised to administer influenza vaccines to eligible adults during flu season. Although previously focused on dispensing medications, pharmacists now provide expanded services, including prescribing and vaccination.²⁰ While pharmacists actively engage in vaccine advocacy, vaccine facilitation, and vaccine administration, efforts are still needed to broaden pharmacist-led vaccination across all community pharmacies in Israel.²¹

In Brazil, the involvement of pharmacists in vaccination services also faced initial resistance from medical professionals who viewed vaccination as the primary role of doctors and nurses. However, regulation has evolved to expand pharmacists' role in vaccination. Law No 13,021/2014 recognised pharmacies as healthcare establishments, allowing them to provide a range of health services, including vaccinations. This was further reinforced by Resolution No 197/2017, which specifically authorised pharmacies and drugstores to administer vaccines, integrating them into the

country's immunisation efforts. To ensure compliance and safety, Resolution No 654/2018 established guidelines that pharmacists must follow when providing vaccination services. Despite these advancements, challenges such as expanding the number of pharmacists accredited to provide immunisation services and increasing public awareness about the importance of vaccination needs to be overcome.²²

b. Education and training of vaccine administration

The USA, Switzerland, and Ireland implemented extensive training programmes involving medical specialists to ensure pharmacists were well-prepared for safe vaccination practices. Switzerland and Germany emphasised high-quality postgraduate education, often in collaboration with medical professionals, to maintain safety and competency standards. In Israel, training efforts faced challenges, with a push to offer evening courses to accommodate working pharmacists. In Brazil, pharmacists' involvement in vaccination requires completing a complementary training course and presenting supporting documentation to the Regional Pharmacy Councils of each state. These courses must be certified by the Federal Council of Pharmacy or approved Higher Education Institutions. Only pharmacists with a postgraduate degree meeting the resolution's requirements or those with certified knowledge of at least one year are authorised to provide vaccination services.²²

4.2.2 Policymakers

Policymakers influence PBV legislation through advocacy strategies and by reviewing supporting evidence that demonstrates the benefits and safety of vaccination services in pharmacies.

a. Advocacy strategies

The support of policymakers played a critical role in advancing PBV in countries such as Australia, Canada, and Portugal, where governments enacted legislation to authorise this service. Although France and the USA initially faced resistance from policymakers, persistent advocacy and the presentation of compelling evidence eventually led to expanded vaccination authority for community pharmacists. In Jordan, the Philippines, and Portugal, successful lobbying efforts with health ministries and national legislators were instrumental in gaining approval for pharmacists to participate in vaccination efforts.

b. Supporting evidence

In the USA, Wales, and Switzerland, pilot projects and evidence-based strategies were used to demonstrate the benefits of PBV, gaining the support of policymakers. Portugal and Romania produced strong evidence, particularly highlighting how pharmacy vaccination services increased overall vaccine uptake, helping policymakers to expand the scope of pharmacist involvement.

In Australia, the Queensland Pharmacist Immunisation Pilot highlighted gaps in adult vaccination coverage and showed how pharmacists could help close this gap, supported by international evidence of pharmacist-led vaccination efforts. In Belgium, real-time monitoring from the community pharmacy network was used as evidence. In France, a positive public opinion survey revealed that 60% of French people supported pharmacists vaccinating against the flu.

In Norway, evidence from pharmacies with high vaccination standards demonstrated their role in reducing the workload of other health professionals, while their accessibility and long hours could boost vaccination rates. In Switzerland, discussions with the Ministry of Health and successful pilot projects expanded from Zurich to other cantons, proving the value of including pharmacists in national vaccination strategies. Lastly, in the Philippines, visits to health and regulatory bodies highlighted the benefits of pharmacists as adult vaccinators.

4.2.3 The public

The public influences PBV legislation through their acceptance and demand for vaccination services in pharmacies, often driven by educational campaigns that raise awareness and build confidence in pharmacists' role in vaccination.

a. Public acceptance and demand

In Australia, the USA, and Portugal, public acceptance of pharmacist-administered vaccination grew rapidly, driven by the convenience and trust in pharmacists. In Israel, the USA, and Portugal, word-of-mouth recommendations further fuelled demand, reflecting increased confidence in pharmacist-administered vaccines. However, in countries like

Lebanon, Malaysia, and Italy, while pharmacists were trusted for adult vaccinations, parents showed reluctance when it came to vaccinations for children.

b. Educational campaigns

Portugal, Romania, and the Philippines launched educational campaigns using leaflets, media, and surveys to inform the public about pharmacists' role in vaccination and address misconceptions. Similarly, the USA, Switzerland, and Costa Rica leveraged media campaigns and local pharmacy advertisements to raise public awareness and build confidence in PBV.

5 Pharmacist-administered vaccination: challenges and best practice

5.1 Introduction

Barriers to pharmacy-based vaccination vary depending on a country's policy environment and level of implementation. In countries without PBV, foundational barriers such as regulatory restrictions and professional hesitancy often prevent pharmacists from playing a role in vaccination. Meanwhile, in nations with established PBV programmes, challenges tend to be more operational, including issues related to reimbursement, workforce training, and public confidence. Addressing these barriers is essential for ensuring that pharmacists can contribute effectively to national immunisation strategies, improving vaccine accessibility and uptake.

This chapter presents a comprehensive analysis of PBV barriers, integrating insights from two primary sources: the 2024 FIP intelligence survey⁴ and a broader literature review.^{14, 11, 18, 23-26} These insights provide a global perspective on the limitations faced by pharmacists in delivering vaccination services.

5.2 Key challenges identified in the 2024 FIP survey

The first section provides a quantitative overview of the limitations reported by 71 countries in the FIP survey,⁴ categorising them based on the extent of pharmacist involvement in immunisation. Table 55 categorises the countries responding to the FIP 2024 intelligence survey based on four categories.

Table 55: Countries responding to the FIP 2024 intelligence survey categorised by pharmacist involvement in vaccination

Archetype	Countries that have replied to the survey (n=71)
Countries where pharmacists administer a comprehensive range of vaccines (n=11)	Argentina, Australia, Brazil, Canada, France, Norway, Portugal, South Africa, Switzerland, UK, USA
Countries where pharmacists administer a limited range of vaccines (n=21)	Belgium, Cameroon, Cape Verde, Costa Rica, Denmark, Finland, Germany, Ghana, Ireland, Israel, Italy, Jordan, Lithuania, Namibia, Nigeria, Philippines, Romania, Sierra Leone, South Sudan, Tunisia, Yemen
Countries where pharmacist-led vaccination is under policy discussion but not yet implemented (n=10)	Croatia, Estonia, Hungary, Iceland*, India, Malta, Serbia, Slovenia, Turkey, Uruguay
Countries where pharmacists are not authorised to administer vaccines, with no clear legal framework in place (n=30)	Albania, Austria, Bangladesh, Bosnia & Herzegovina, Bulgaria, China, China Taiwan, Colombia, Congo (Dem. Rep. of the), Cyprus, Ecuador, Guyana, Hong Kong SAR (China), Indonesia, Japan, Kosovo, Lebanon, Malawi, Malaysia, Mongolia, Montenegro, Morocco, Nepal, Netherlands, Paraguay, Russian Federation, Spain, Sri Lanka, Sweden, Ukraine

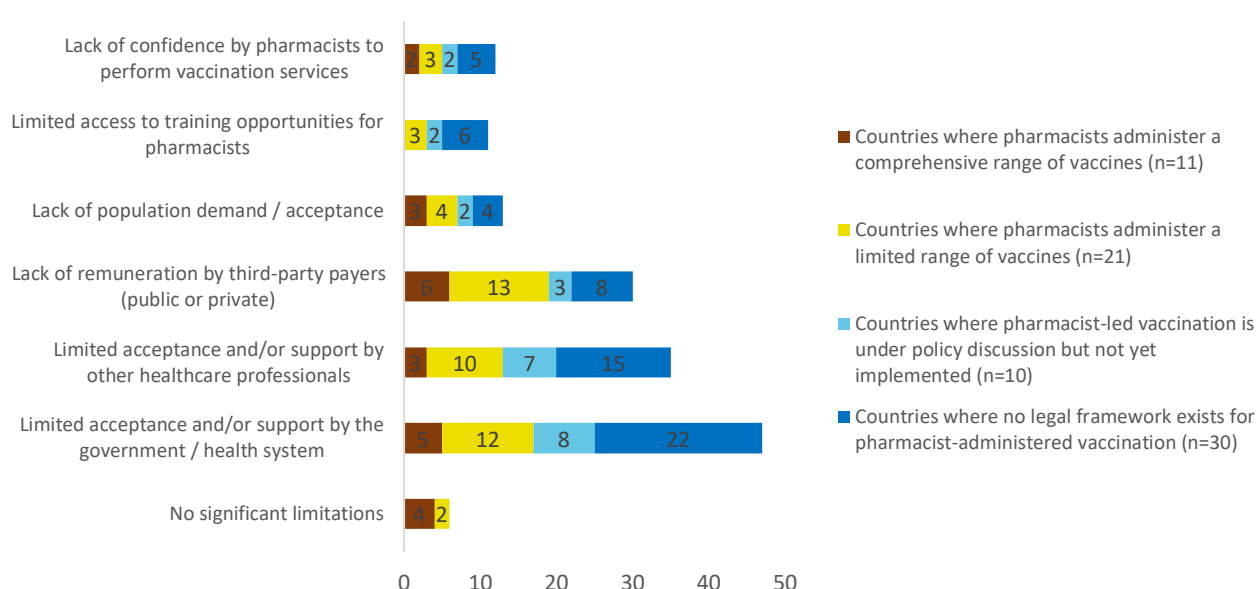
*Iceland is conducting a pilot project where two selected pharmacies have been authorised to administer vaccines. This initiative aims to evaluate the feasibility and impact of expanding vaccination services through pharmacies.

Table 6 and Figure 9 illustrate the prevalence of perceived barriers to pharmacist-administered vaccination across four country categories. The table provides a detailed breakdown of how challenges—such as government support, remuneration, and training—vary based on the extent of pharmacists' involvement in vaccination services. Meanwhile, the figure offers a visual summary of these key challenges, highlighting the complexity and multidimensional nature of the barriers as reported in FIP's 2024 intelligence survey. Countries were allowed to select more than one challenge, underscoring the interrelated nature of these limitations.

Table 6: Perceived key challenges across pharmacist vaccination categories

Challenges n (%)	Categories			
	Countries where pharmacists administer a comprehensive range of vaccines	Countries where pharmacists administer a limited range of vaccines	Countries where pharmacist-led vaccination is under policy discussion but not yet implemented	Countries where pharmacists are not authorised to administer vaccines, with no clear legal framework in place
No perceived limitations or barriers	4 (36%)	2 (10%)	0 (0%)	0 (0%)
Limited acceptance and/or support by the government / health system	5 (45%)	13 (57%)	8 (80%)	22 (73%)
Limited acceptance and/or support by other healthcare professionals	3 (27%)	10 (48%)	7 (70%)	15 (50%)
Lack of remuneration by third-party payers (public or private)	6 (54%)	13 (62%)	3 (30%)	8 (27%)
Limited patient demand / acceptance	3 (27%)	4 (19%)	2 (20%)	4 (13%)
Limited access to training opportunities for pharmacists	0 (0%)	3 (14%)	2 (20%)	6 (20%)
Lack of confidence by pharmacists to perform vaccination services	2 (18%)	3 (14%)	2 (20%)	5 (17%)

Figure 9: Perceived limitations to the development of pharmacists' role in vaccination (based on 2024 FIP survey responses, n=71 countries)



Across all categories, the most reported challenge was limited acceptance and support from the government or health system (cited by 48 countries in total, with the highest prevalence in countries lacking a legal framework (22 reports)). This reflects the need for stronger policy advocacy and regulatory reforms to integrate pharmacist-led vaccination services into national health strategies.

Financial barriers, particularly the lack of remuneration by third-party payers, were most frequently cited in countries where pharmacists administer a limited range of vaccines (13 reports) and those lacking a legal framework (eight

reports). The absence of dedicated reimbursement mechanisms may hinder the expansion of pharmacist-based vaccination services.

Resistance from other healthcare professionals remains a significant challenge, particularly in countries with no legal framework (reported 15 times) and in those where pharmacist-led vaccination is under policy discussion (seven reports). These findings highlight the importance of fostering interprofessional collaboration and recognition of pharmacists' roles in immunisation efforts.

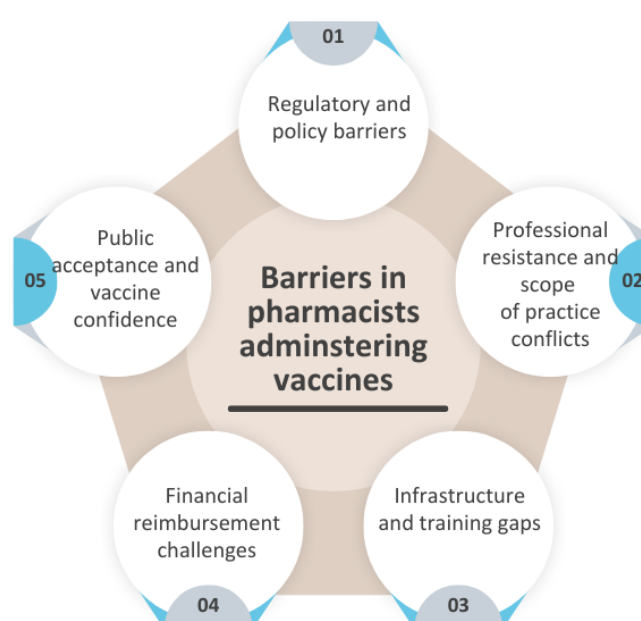
5.3 Barriers and opportunities in pharmacists administering vaccines

While survey findings provide direct insights from national pharmacy organisations, they capture only part of the broader landscape influencing pharmacists' role in vaccination. To gain a more comprehensive understanding, this section presents a thematic analysis based on FIP publications and a broader literature review, identifying key barriers to expanding pharmacist-administered vaccination services.

Although these challenges vary depending on a country's policy environment and level of implementation, common obstacles emerge across different stages of development. To provide a structured analysis, this section categorises these barriers into five key areas (see Figure 10 for an overview):

1. **Regulatory and policy barriers:** Challenges related to the absence of clear legal frameworks, fragmented policies, and bureaucratic delays.
2. **Professional resistance and scope of practice conflicts:** Tensions between pharmacists and other healthcare professionals regarding roles and responsibilities in vaccination.
3. **Infrastructure and training gaps:** Limitations in training opportunities, vaccination facilities, and integration with national health systems.
4. **Financial and reimbursement challenges:** Inequitable or unclear payment models and low compensation for vaccination services.
5. **Public acceptance and vaccine confidence:** Barriers linked to vaccine hesitancy, misinformation, and low awareness of pharmacists' roles in vaccination.

Figure 10: Barriers in pharmacists administering vaccines



Each category is explored with examples from different country categories, demonstrating how these challenges manifest and are addressed in contexts where pharmacists' roles vary from comprehensive vaccine administration to complete exclusion from immunisation services.

While the focus of this section is on barriers, opportunities often arise as countries address these challenges. Identifying these enablers is essential for fostering progress in pharmacist-led vaccination. Section 5.5 will explore how countries have successfully navigated these challenges, offering best practices and mitigation strategies that can guide others in advancing pharmacists' contributions to national vaccination efforts.

5.3.1 Regulatory and policy barriers

Regulatory barriers remain one of the most significant obstacles to pharmacists administering vaccines. Even in countries where pharmacists are authorised to vaccinate, the scope is often limited to specific vaccines such as influenza and COVID-19, preventing full integration into national immunisation programmes. In many cases, the expansion of pharmacists' immunisation roles is hindered by bureaucratic delays, fragmented legislation, and the absence of clear policy frameworks.

Countries with comprehensive pharmacist-administered vaccination programmes, such as Australia, Canada, and France, have well-established legal frameworks but continue refining policies to expand the list of vaccines pharmacists can administer. For example, in Australia, a key obstacle is the lack of uniformity across states, which results in varying availability of vaccination services and differences in the types of vaccines that can be administered in pharmacies.²⁴ Similarly, while Portugal and France have successfully integrated pharmacists into national immunisation programmes, public procurement laws prevent pharmacies from accessing government-funded vaccines, limiting their role to privately purchased immunisations.

In countries with limited pharmacist-administered vaccines, such as Belgium, Germany, Ireland, and Sierra Leone, pharmacists face a range of challenges in expanding their roles beyond administering select vaccines like seasonal flu and COVID-19. In Sierra Leone, while the Pharmacy and Drug Act permits pharmacists to prescribe and administer medicines, the absence of clear guidelines for vaccination services creates significant barriers. This lack of clarity results in inconsistent implementation, with some pharmacies offering limited vaccination services and others not participating at all. Furthermore, inadequate documentation of vaccination services complicates patient vaccine schedules and impedes effective monitoring of immunisation efforts.²⁴ In contrast, countries like Italy and Finland struggle with regional inconsistencies, where pharmacists in some areas have greater authority to administer vaccines than others. These disparities lead to fragmented service delivery and unequal access to vaccination services.

In countries where pharmacist-led vaccination is still under policy discussion, such as India, Hungary, and Croatia, regulatory progress remains stalled due to the absence of finalised legislation. Feasibility studies have been conducted to assess the potential for pharmacist-administered immunisation, yet no concrete legal frameworks have been established, preventing full implementation. In Serbia and Turkey, engagement with policymakers is ongoing, but resistance from medical stakeholders has slowed progress.

In many countries, the absence of legal frameworks prevents pharmacists from contributing to vaccination efforts. Nations such as China, Japan, Lebanon, and Pakistan do not recognise pharmacists as vaccinators, adhering to a traditional physician-led immunisation model, despite global evidence supporting their role in expanding vaccine accessibility and coverage. Similarly, in countries like Barbados, Bulgaria, Cyprus (Northern), and Estonia, laws explicitly prohibit pharmacists from administering vaccines.

In Lebanon, the ministry of public health have explicitly emphasised this restriction, stating that pharmacies are not authorised to provide vaccine administration services, despite pharmacists' willingness to participate in immunisation efforts.²⁴ Throughout the pandemic, these laws remained unchanged, restricting pharmacists' involvement to tasks such as handling vaccines—retrieving them from cold storage, dilution, drawing from multidose vials, and labelling.²⁴

5.3.2 Professional resistance and scope of practice conflicts

One of the most persistent challenges in expanding pharmacist-administered vaccination services is resistance from other healthcare professionals, particularly physicians and nurses. Many medical associations express concerns over clinical oversight, patient safety, competition, and the adequacy of pharmacists' training.

Countries with comprehensive pharmacist-administered vaccination programmes, such as France, Canada, and Switzerland, initially faced opposition from medical associations. However, these concerns were mitigated through structured agreements, interprofessional collaboration, and joint training programmes. Canada and the UK developed shared immunisation protocols to ensure that pharmacists work alongside physicians rather than replacing them, while France worked closely with medical councils to clarify pharmacists' roles in immunisation programmes.

In countries with limited pharmacist-administered vaccines, such as Belgium, Ireland, and Greece, physician opposition has slowed policy advancements. Medical professionals argue that vaccines should only be administered under medical supervision, delaying efforts to expand pharmacists' immunisation roles beyond flu and COVID-19 vaccines. In Greece and Romania, medical lobbies have actively campaigned against pharmacists administering vaccines, leading to legislative deadlocks. In contrast, Portugal initially faced resistance from the Nursing Society. However, over time, support from other healthcare professionals and the public helped drive broader acceptance of pharmacist-administered vaccination.²⁶

In countries where pharmacist-led vaccination is still under discussion, including India, Estonia, and Hungary, medical associations actively resist policy changes that would include pharmacists in immunisation programmes. Their concerns focus on patient safety, training requirements, and perceived infringements on medical authority.

5.3.3 Infrastructure and training gaps

Effective pharmacist-administered vaccination programmes require robust infrastructure, standardised training, and seamless access to vaccination records. These elements enable pharmacists to assess immunisation status, recommend appropriate vaccines, and monitor for contraindications. However, without integrated digital systems linking pharmacy records to national immunisation databases, continuity of care and proper vaccine documentation remain significant challenges.

In countries with comprehensive pharmacist-administered vaccination programmes, structured immunisation training programmes ensure pharmacists remain updated on emerging vaccines, patient risk assessments, and adverse event management. The certifying authorities typically include the National Pharmacy Council, the Ministry of Health, or professional organisations in the country. For example, in Canada, courses must be approved by the Canadian Council on Continuing Education in Pharmacy.^{8, 10} Training in the USA is certified by the Accreditation Council for Pharmacy Education, and is recognised by the US Center for Disease Control and Prevention for its quality and content; these training programmes have been reviewed by physicians, nurses and public health professionals who acknowledged that the programme met or exceeded the immunisation training most other health professionals receive.^{8, 10} However, variability in training content across jurisdictions, as seen in Argentina, often leads to inconsistent knowledge levels. In Argentina, training courses vary significantly in duration and content, creating disparities in vaccine delivery practices. This highlights the need for harmonised training standards to ensure consistent competency among pharmacists.⁹

Portugal, for example, has demonstrated the value of integrating digital systems. The National Vaccine Bulletin, introduced in 2017, enables vaccination records from pharmacies to be automatically transferred to a centralised database, reducing administrative burdens and improving coordination with healthcare providers. However, pharmacies in Portugal still face limited access to the full database, as vaccination records are only accessible to hospitals, health centres, or through patients sharing their records.²⁴

In contrast, the USA highlights the challenges of fragmented immunisation reporting systems. Each state operates its own immunisation registry, with no unified national database. This creates barriers to tracking patient vaccine histories across states, especially when individuals move or receive vaccinations in different locations. Many pharmacies in the USA still rely on manual entry, which becomes a significant bottleneck during peak vaccination seasons, such as influenza campaigns or COVID-19 mass vaccination drives. While health systems with electronic health records (EHRs) allow providers to integrate vaccination information, this access does not extend consistently to pharmacies. As a result, pharmacists face difficulties in reconciling vaccination data with broader healthcare systems, complicating follow-ups and patient care.²⁴

In countries with limited pharmacist-administered vaccination, such as Nigeria, Namibia, and South Sudan, inconsistent training leads to varying pharmacist competencies. Meanwhile, infrastructure issues—such as inadequate cold storage and consultation spaces—hinder vaccination delivery in places like Sierra Leone and Yemen. These gaps reflect the urgent need for both capacity building and investment in infrastructure to support PBV services.

Costa Rica presents a unique case where pharmacists have long been authorised to administer vaccines, supported by progressive legislation such as the National Vaccination Law of 2013 and the Health Monitoring Regulation of 2017. These frameworks established clear legal requirements and safety measures for pharmacists providing immunisation services in community pharmacies. The introduction of the Sinovac system, a key component of Costa Rica's national health monitoring infrastructure, has been pivotal in digitising vaccination records and replacing the previous manual, paper-based reporting processes. This system aims to achieve comprehensive national vaccine registration while enabling the health authority to strategically monitor immunisation efforts across the country.²⁴

Despite these advancements, Costa Rica faces challenges in fully leveraging the potential of its digital infrastructure. Pharmacies are granted access to the Sinovac system through shared user registration rather than individual access codes for pharmacists. This approach limits pharmacists' ability to provide personalised consultations and effectively track patient vaccine histories. Additional barriers include the need for enhanced remote training in immunisation services and individualised user codes to ensure accurate tracking of patients across different pharmacies.²⁴

For countries without pharmacist-administered vaccines, such as Ethiopia, Nepal, and Zambia, the absence of pharmacist immunisation training programmes underscores the need for workforce capacity-building measures before meaningful policy development can occur. Addressing these foundational gaps is essential for expanding pharmacist-administered vaccination services and improving vaccine accessibility globally.

Existing literature indicates that in some countries, vaccination providers are not required to document individuals' vaccination details in vaccination registries. There is also variability in jurisdictions across several countries regarding the requirement for pharmacists and other vaccination providers to update the vaccination registries. The lack of a shared and integrated system that enables all providers to document vaccination details could potentially increase the risk of both under- and over-vaccination among patients.²⁷ This situation may also impede other healthcare providers in their follow up procedure for at-risk patient groups.²⁸

5.3.4 Financial and reimbursement challenges

For pharmacist-administered vaccination services to be sustainable, equitable reimbursement is crucial. However, the reality often involves unclear payment models and low compensation rates, which deter many pharmacists from fully engaging in vaccination programmes.

In countries with comprehensive pharmacist-administered vaccines, such as Brazil, South Africa, and Ireland, pharmacists are not compensated at the same rate as physicians, discouraging full participation in immunisation efforts. South Africa provides a multifaceted example of reimbursement models but also highlights the complexities of ensuring financial sustainability. The country employs a "cost plus-plus" model where the vaccine cost, dispensing fee, and administration fee are determined separately. While insurers and government schemes cover many vaccines, the average administration fee ranges from EUR2 to EUR6, which varies depending on the funding source. Despite this structured approach, challenges persist, including additional costs related to patient consultations, clinical waste disposal, and safe storage of vaccines.²⁴ These factors often make it difficult to sustain vaccination services, particularly during pandemics or large-scale immunisation campaigns, when accurate cost assessments are critical.

Portugal and Ireland have public reimbursement models, but limitations in funding continue to challenge the long-term sustainability of these services. In Portugal, pharmacists are reimbursed EUR2 per dose for vaccine administration, which poses financial difficulties for pharmacies despite their integration into the national immunisation programme. Similarly, in Ireland, while pharmacists have been fully integrated into the NHS vaccination strategy, reimbursement disparities with other healthcare professionals, such as physicians, remain a challenge.

In Australia, key financial innovations included government-funded vaccines, such as COVID-19 and flu, and remunerated administration fees, such as AUD27.35 for urban settings and AUD30.50 for rural areas. However, reimbursement disparities between pharmacists and other healthcare providers for National Immunisation Programme vaccines remained a challenge until 2024 when the government introduced an AUD18.85 administration fee for pharmacists.

In countries with limited pharmacist-administered vaccines, such as Poland, Tunisia, and Costa Rica, pharmacists struggle with low or non-existent reimbursement rates, making vaccination services financially unviable. In Greece, while pharmacists play a key role in flu vaccination, they currently receive no remuneration for administering vaccines, with compensation limited to arranging vaccine appointments for patients. This lack of reimbursement remains a significant barrier to the financial sustainability of vaccination services.²⁴ In the United Arab Emirates, pharmacist-

administered vaccination is largely dependent on private insurance payments, leading to disparities in accessibility and affordability.

5.3.5 Public acceptance and vaccine confidence

Public trust in pharmacist-administered vaccination is crucial for programme success. While some countries have achieved strong public support, others face vaccine hesitancy, misinformation, and low pharmacist visibility in immunisation campaigns.

In countries with comprehensive pharmacist-administered vaccines, such as Portugal, France, and Australia, national awareness campaigns and pharmacy-led outreach programmes have significantly increased trust in pharmacists as immunisation providers.

In countries with limited pharmacist-administered vaccines, such as Greece, Romania, and South Sudan, many patients continue to prefer physician-administered vaccines, particularly for childhood immunisation, due to a lack of awareness of pharmacist vaccination training.

In countries without pharmacist-administered vaccines, including Bangladesh and Morocco, low public awareness of pharmacists' immunisation roles has delayed advocacy efforts and prevented meaningful policy discussions.

While these barriers vary by country, many have adopted solutions to address them successfully. The following section presents an analysis of experiences from different countries, highlighting best practices and strategies that have effectively mitigated these challenges. These case studies offer evidence-based solutions that can inform policymakers, pharmacy organisations, and healthcare stakeholders as they work toward expanding pharmacist-administered vaccination services globally.

5.4 Enablers of pharmacist-administered vaccination

Based on the identified barriers in pharmacist-administered vaccination services, Table 77 highlights the enablers reported by FIP member organisations. These enablers summarise the strategies, systems, and conditions that facilitate the successful integration and expansion of pharmacists' roles in immunisation. Each enabler represents a targeted intervention to overcome a specific barrier, while the best practice examples in the next section illustrate how various countries have successfully applied these approaches.

Table 77: Enablers for advancing pharmacist-administered vaccine services

Barrier	Enabler	Examples of best practices
Regulatory and policy barriers	Development of clear and comprehensive legal frameworks authorising pharmacists to vaccinate.	Australia Belgium Germany Italy UK
	Alignment of national and regional policies to standardise vaccination practices across jurisdictions.	
	Inclusion of pharmacists in national immunisation strategies and vaccination planning.	
	Engagement with policymakers and health authorities to develop supportive legislation.	
	Incorporating immunisation-related competencies into pharmacy education and training to strengthen the professional argument for expanded scope.	
	Gradual policy implementation to expand vaccine scope (e.g., starting with flu and COVID-19 vaccines).	

Professional resistance and scope of practice conflicts	Establish shared immunisation training programmes with physicians and nurses to build mutual understanding and trust.	Canada France Greece Ireland Italy
	Encourage partnerships with medical professionals to clarify roles and reduce resistance.	
	Clear role definitions and shared immunisation protocols.	
	Evidence-based advocacy: Use of data to highlight the impact of pharmacist-administered vaccines on immunisation rates and public health outcomes.	
Infrastructure and training gaps	Provide ongoing, standardised professional development for pharmacists to address emerging vaccines and protocols.	Germany Norway Saudi Arabia Sweden UK
	Develop and maintain interoperable vaccination registries to ensure pharmacists can update records and coordinate with healthcare providers.	
	Ensure pharmacies are equipped with private consultation rooms, cold storage, and other essential infrastructure to support safe and effective vaccination.	
	Simplify administrative procedures for pharmacies to reduce operational barriers to vaccination services.	
Financial and reimbursement challenges	Advocate for pharmacists to receive remuneration on par with other vaccine providers, such as physicians and nurses.	Germany Portugal
	Integration of pharmacy services into public health funding schemes (e.g., NHS integration).	
	Collaborate with private insurers to subsidise out-of-pocket costs for non-funded vaccines, making immunisation services affordable for patients.	
	Introduce financial incentives for pharmacists in underserved areas to address regional disparities in vaccine accessibility.	
Public acceptance and vaccine confidence	Conduct targeted education initiatives to improve understanding of pharmacists' roles in immunisation and dispel vaccine hesitancy.	France Sweden UK
	Highlighting pharmacists' expertise through trust-building initiatives (i.e., community outreach and mobile vaccination units).	
	Data-driven public engagement strategies.	

5.5 Best practice and mitigation strategies

Building on the challenges outlined in previous sections, this chapter highlights successful strategies that have enabled countries to expand pharmacist-administered vaccination. While barriers vary by policy environment, targeted reforms—such as legal expansions, workforce training, digital integration, and financial sustainability—have helped strengthen pharmacists' role in immunisation. This section presents key case studies, offering insights for policymakers seeking to enhance vaccine access and integrate pharmacists into national immunisation programmes.

This best practice addresses the following challenges:

- Regulatory and policy barriers
- Public acceptance and vaccine confidence

Australia initiated pharmacist-administered vaccination in 2014, beginning with influenza vaccines in Queensland as a pilot project. Over time, the role of pharmacists expanded across states, culminating in most states authorising COVID-19 vaccinations by 2021. This gradual adoption allowed stakeholders to evaluate the benefits of pharmacist involvement, with pharmacists emerging as key immunisers during the COVID-19 pandemic, administering over 9.2 million vaccine doses nationwide.

As shown in the [landmark vaccine legislation change](#), South Australia became the first jurisdiction in 2025 to allow pharmacists to administer all vaccines listed in the Australian Immunisation Handbook to patients of all ages. This transformative legislation eliminated administrative barriers, empowered pharmacists to determine their own scope of practice, and enhanced accessibility to immunisation services, particularly in underserved and rural areas where pharmacists are often the sole healthcare provider.

The reforms replaced the outdated Vaccine Administration Code, originally designed for nurse immunisers, with a streamlined system that reduced redundant paperwork and enabled pharmacists to focus on patient care. Pharmacists can now provide a broader range of vaccines, including travel and private vaccines like hepatitis A and B, typhoid, cholera, and rabies, addressing immunisation gaps and improving access for all demographics.

Australia's regulatory framework, which includes the Therapeutic Goods Administration and the Australian Technical Advisory Group on Immunisation, ensures vaccine safety, accessibility, and effective implementation. Pharmacists are required to record all vaccinations in the Australian Immunisation Register (AIR), enabling seamless continuity of care. The AIR consolidates vaccination data across jurisdictions, reducing fragmentation and enabling continuity of care, even as Australia continues to address regulatory inconsistencies across states.

The incremental expansion of pharmacist-administered vaccines—from one state to nationwide—showcased the benefits of increased access, convenience, and public acceptance. This success story highlights how gradual implementation, backed by robust governance and public trust, can drive the growth of pharmacist-led vaccination services, particularly during public health emergencies.

Belgium – Addressing legal and workforce barriers to expand pharmacists' role in vaccination

This best practice addresses the following challenges:

- Regulatory and policy barriers
- Infrastructure and training gaps

Belgium faced significant regulatory restrictions in the early stages of pharmacist-based vaccination. Initially, pharmacists were only allowed to dispense vaccines, with no authority to administer them. The introduction of pharmacist-led immunisation required targeted legislative changes, as well as structured workforce training and quality assurance measures to ensure competency. A further challenge was the requirement for pharmacists to undergo recertification every three years, which while designed to maintain safety standards, also imposed an additional administrative burden. The lack of digital integration into national immunisation systems also limited pharmacists' ability to update patient records and track vaccination history.

To overcome these barriers, Belgium introduced a series of policy and infrastructure reforms. The government expanded pharmacists' scope of practice in 2021, authorising them to administer influenza vaccines, and later extended this to COVID-19 vaccinations in 2022. Structured training programmes were launched, ensuring pharmacists completed comprehensive vaccinator certification, which has since been undertaken by over 4,600 pharmacists. A Quality Management System was implemented to guarantee adherence to vaccination protocols and reinforce public confidence in pharmacist-led immunisation. Furthermore, Belgium integrated pharmacists into the national electronic health system, allowing them to record vaccinations, report adverse events, and ensure better coordination with primary healthcare providers.

The final step in solidifying PBV's sustainability in Belgium was the introduction of an equal reimbursement model, ensuring pharmacists received the same payment as physicians and nurses for administering vaccines. These measures resulted in seamless integration of pharmacists into the national immunisation strategy, improving vaccine accessibility, particularly in rural and underserved areas. By prioritising policy continuity, workforce development, digital health integration, and equitable reimbursement, Belgium created a robust PBV framework that could serve as a model for other nations.

Canada - Tackling vaccine misinformation with advocacy and community engagement

This best practice addresses the following challenge:

- Public acceptance and vaccine confidence

Canada successfully implemented a holistic approach to pharmacist-led vaccination, emphasising community engagement and public education. One of the primary challenges in Canada was vaccine misinformation, which contributed to vaccine hesitancy in certain communities.

To address this, pharmacists in Canada worked closely with public health officials, community leaders, and healthcare providers to counter misinformation and improve vaccine literacy. The government also expanded pharmacists' scope to allow them to prescribe and administer a wide range of vaccines, ensuring better vaccine accessibility. Additionally, Canada focused on equity-driven immunisation strategies, ensuring that vulnerable and underserved populations had access to pharmacist-led vaccination services.

France - Overcoming professional resistance through collaboration

This best practice addresses the following challenges:

- Professional resistance and scope of practice conflicts
- Public acceptance and vaccine confidence

France's expansion of PBV was initially met with strong resistance from physicians and medical associations, who feared that pharmacist-led vaccination would infringe on the responsibilities of doctors. The lack of interprofessional collaboration created challenges in establishing clear guidelines for pharmacists' vaccination roles. Additionally, public awareness of PBV was limited, which contributed to vaccine hesitancy and scepticism regarding pharmacists' ability to vaccinate safely.

To address these challenges, structured engagement between pharmacists and physicians was initiated to define clear professional boundaries and foster collaboration. Pharmacists worked closely with medical associations to co-develop immunisation training programmes that ensured pharmacists adhered to standardised competency requirements. This approach helped reassure physicians that pharmacist-administered vaccination complemented, rather than competed with, primary care services. Concurrently, public awareness campaigns were launched to educate communities on the safety and efficacy of pharmacist-led vaccination, emphasising pharmacists' training, accessibility, and ability to provide convenient vaccination services.

These efforts led to a remarkable transformation in public and professional perceptions of PBV in France. Pharmacists became the leading providers of influenza vaccinations, and during the COVID-19 pandemic, they administered nearly 80% of the total vaccine doses delivered in France. This shift demonstrated increased public confidence in PBV and validated pharmacists as key players in national immunisation efforts. While some resistance from physicians remains, the implementation of structured professional collaboration and public engagement strategies has significantly strengthened PBV in France.

Germany - Standardising regulations and training to overcome regional disparities

This best practice addresses the following challenges:

- Regulatory and policy barriers
- Infrastructure and training gaps

Germany's initial approach to PBV was fragmented, with regional disparities in pharmacists' ability to vaccinate. This led to inconsistencies in implementation, as some states allowed pharmacists to administer vaccines while others restricted their participation.

To address this, Germany standardised PBV regulations across federal states, ensuring a consistent framework for pharmacist immunisation services. Pharmacists underwent mandatory postgraduate vaccination training, which was embedded into pharmacy education to ensure that new graduates were adequately prepared. Additionally, Germany introduced structured payment models, ensuring pharmacists were compensated fairly for both vaccine administration and patient education.

These reforms successfully aligned PBV regulations across Germany, providing a structured, competency-based framework that enabled pharmacists to play a greater role in national immunisation programmes.

Greece - Addressing resistance to establishing pharmacist-led vaccination²⁴

This best practice addresses the following challenges:

- Professional resistance and scope of practice conflicts

In Greece, the journey toward pharmacist-administered vaccination began with flu vaccination, chosen as an initial focus due to its high demand and the significant role community pharmacies already played in flu immunisation. However, efforts to establish legislation faced strong resistance from physicians, who feared losing authority over vaccination services.

To overcome this obstacle, pharmacists collaborated with academics, health economists, and primary care advocates to build a robust case for their involvement in immunisation. They provided evidence to policymakers and politicians, demonstrating the potential benefits of expanding vaccination services through community pharmacies. This collaborative and data-driven approach proved successful, leading to the approval of pharmacist-administered flu vaccination by the Greek parliament in 2019.

Ireland - Integrating pharmacists into the NHS immunisation strategy

This best practice addresses the following challenges:

- Regulatory and policy barriers
- Professional resistance and scope of practice conflicts

Ireland's success in institutionalising PBV was driven by strong governance and structured implementation. Initially, pharmacists faced regulatory challenges, as their role in vaccination was not fully recognised within national immunisation strategies. Professional scepticism also hindered pharmacist participation, as physicians and healthcare professionals raised concerns about overlapping responsibilities.

To overcome these barriers, Ireland fully integrated pharmacists into the NHS vaccination strategy, ensuring that they had access to electronic health records and could document vaccinations in real-time. The government ensured that pharmacists were actively involved in decision-making processes, helping shape vaccination policies and strategies. Additionally, Ireland aligned flu and COVID-19 vaccination laws, simplifying regulatory requirements and reducing legal barriers to pharmacist-led immunisation.

These measures resulted in a well-coordinated and structured PBV model, where pharmacists played an essential role in increasing vaccination accessibility and uptake. The integration of pharmacists into the national immunisation programme ensured continuity and sustainability, making Ireland a model for governance-driven PBV expansion.

Italy - Addressing regional disparities through standardisation

This best practice addresses the following challenges:

- Professional resistance and scope of practice conflicts
- Regulatory and policy barriers

Italy's decentralised National Health System created inconsistencies in PBV implementation, as each of the 21 regional health authorities had different policies on whether and how pharmacists could administer vaccines. This led to fragmented implementation, where some regions fully incorporated pharmacists into immunisation programmes while others restricted their involvement. Additionally, physician scepticism about pharmacists' capacity to safely administer vaccines further slowed PBV expansion.

To mitigate these challenges, Italy introduced a nationally standardised vaccination training programme for pharmacists, ensuring that all professionals underwent a 16-hour vaccination course, with annual competency updates. Some training sessions were conducted in collaboration with medical professionals, reinforcing confidence in pharmacists' skills and increasing physician support. Furthermore, in early 2024, legislative proposals were introduced to expand pharmacists' authority to administer all vaccines to individuals over 12 years old, ensuring a nationwide, standardised approach to PBV implementation.

Infrastructure challenges were also addressed through new pharmacy facility regulations, requiring pharmacies to establish dedicated vaccination areas and post-vaccination monitoring spaces. These initiatives helped reduce professional hesitancy,

ensure regulatory consistency, and improve the safety and quality of pharmacy-based immunisation services. While legislative efforts to further expand PBV beyond flu and COVID-19 are still ongoing, early evidence suggests that structured training programmes and infrastructure investments are paving the way for greater pharmacist involvement in immunisation.

Norway - Empowering pharmacists to administer vaccines through training and advocacy²⁴

This best practice addresses the following challenges:

- Infrastructure and training gaps

In Norway, pharmacists were first authorised to administer flu vaccines in 2020 and COVID-19 vaccines in 2021 after completing a comprehensive education programme. This marked a significant step in expanding their role in immunisation, traditionally managed by municipalities under the national immunisation programme. To support this transition, the Norwegian Pharmacy Association developed targeted training programmes for pharmacists and pharmacy technicians, alongside patient education materials and digital systems to document the impact of pharmacy-based vaccination.

Key drivers for this shift included the COVID-19 pandemic, which highlighted the accessibility of pharmacies and their potential to alleviate pressure on general practitioners. Norway's approach showcases how training and advocacy can enable pharmacists to expand vaccination access, offering valuable lessons for integrating pharmacies into national immunisation strategies.

Portugal - Strengthening PBV through NHS integration and financial reforms²⁴

This best practice addresses the following challenges:

- Financial and reimbursement challenges

Portugal has successfully developed a model for pharmacist-administered vaccinations through strategic integration into the national healthcare system, structured training, and public-private collaborations. Pharmacists were authorised to administer vaccines in 2007, with mandatory accreditation by the Portuguese Pharmaceutical Society ensuring high standards through rigorous training and biannual recertification. Over time, pharmacists' scope expanded, including partnerships with private companies and health insurers to fund vaccine administration.

The COVID-19 pandemic posed significant challenges to Portugal's immunisation strategy. While mass vaccination centres initially took the lead, their closure left a gap in routine immunisation delivery. Pharmacists were expected to step in, but low government reimbursement rates (EUR2 per dose) created financial difficulties for pharmacies, threatening the sustainability of their vaccination services.

To address these issues, Portugal formally integrated community pharmacies into the National Health Service (NHS) vaccination strategy in 2018. The NHS began reimbursing pharmacists for vaccinating specific at-risk groups, marking their full integration into public health initiatives. Pharmacists were also granted real-time access to vaccination records through the National Vaccine Bulletin, improving coordination across healthcare providers. Public awareness campaigns further boosted trust in pharmacist-led vaccinations, leading to increased demand for these services.

By 2022, 88.7% of community pharmacies in Portugal provided influenza and COVID-19 vaccinations, making the country the first to surpass WHO vaccine coverage targets. Despite these achievements, financial sustainability remains a challenge, with ongoing discussions about enhancing pharmacist remuneration to ensure the long-term viability of their services. Portugal's experience highlights the importance of collaborative approaches, innovative funding models, and governmental support in expanding pharmacist-administered vaccination services.

Saudi Arabia - Developing a standards-based training programme for pharmacist vaccination²⁴

This best practice addresses the following challenges:

- Infrastructure and training gaps

During the COVID-19 pandemic, Saudi Arabia took decisive steps to expand the role of pharmacists in immunisation efforts. Recognising the critical need for accessible vaccination services, the Saudi Ministry of Health collaborated with key regulatory bodies, including the Saudi Society of Clinical Pharmacy, to pass a rule allowing pharmacists to vaccinate.

To ensure safe and effective vaccine delivery, a dedicated team developed an education and training programme for pharmacists, aligned with international standards from the United States Centers for Disease Control and Prevention and its Advisory

Committee on Immunization Practices. This programme included workshops to educate pharmacists on scientific content related to vaccination, as well as compliance with regulations and best practices. Despite the challenges posed by the pandemic, the programme was finalised and endorsed by Saudi Arabia's Commission for Healthcare Specialties, validating its educational material.

Pharmacists can now access this course online and, upon completion, must pass an examination to obtain the accreditation required for vaccination services.

Sweden - Leveraging data-driven public engagement to improve PBV success

This best practice addresses the following challenges:

- Public acceptance and vaccine confidence
- Infrastructure and training gaps

Sweden has made significant progress in enhancing vaccine access through pharmacy-based immunisation services, despite the fact that pharmacists do not administer vaccines themselves. Instead, other healthcare professionals, such as nurses and physicians, provide vaccinations within pharmacy settings, ensuring that pharmacies remain key immunisation access points for the public.

One of the primary challenges in Sweden was ensuring equitable vaccine access, particularly in remote and underserved areas. Additionally, public confidence in vaccines fluctuated, requiring targeted educational strategies to address hesitancy and misinformation. While pharmacies were well-positioned to increase vaccine outreach, their role was initially limited due to policy restrictions on pharmacist-administered vaccinations.

To strengthen pharmacy-based immunisation efforts, Sweden implemented several key strategies. The country leveraged AI-driven tools to track vaccination coverage gaps and identify populations at risk, allowing pharmacies to serve as strategic touchpoints for vaccine education and referrals. Mobile vaccination units staffed by nurses were deployed in rural areas, often in collaboration with community pharmacies, ensuring that vaccines reached populations with limited healthcare access. Additionally, Sweden utilised the WHO's 3C Model (Confidence, complacency, convenience) to develop public awareness campaigns, encouraging informed vaccine decision-making.

Through effective collaboration between pharmacies, public health agencies, and medical professionals, Sweden successfully expanded vaccine accessibility while maintaining high immunisation standards. The Swedish model highlights how pharmacies can play a crucial role in immunisation strategies—even when pharmacists themselves are not administering vaccines—by serving as trusted information hubs, supporting vaccine logistics, and facilitating patient access to healthcare professionals for immunisation services.

UK - Overcoming infrastructure challenges and regulatory fragmentation

This best practice addresses the following challenges:

- Regulatory and policy barriers
- Infrastructure and training gaps
- Public acceptance and vaccine confidence

In the UK, pharmacist-led vaccination faced three primary challenges: infrastructure limitations, regulatory fragmentation, and public scepticism about pharmacists' role in immunisation. Many pharmacies lacked the necessary private consultation rooms, making it difficult to administer vaccines in a professional and confidential manner. Additionally, regulatory policies differed across England, Scotland, Wales, and Northern Ireland, leading to inconsistencies in how pharmacists could deliver vaccinations. Another significant challenge was vaccine hesitancy, particularly among communities unfamiliar with pharmacy-based healthcare services.

To address these barriers, the UK government launched the "Pharmacy First" programme, which expanded pharmacists' scope of practice, allowing them to prescribe and administer vaccines. Training programmes and national accreditation schemes were introduced to ensure pharmacists had the required competencies for these expanded roles. A centralised IT infrastructure was implemented, allowing pharmacists to document vaccinations directly into NHS records, improving continuity of care and patient tracking. Additionally, public advocacy campaigns were launched to counter vaccine misinformation and highlight pharmacists' important contributions to public health.

These initiatives significantly increased pharmacist participation in the national immunisation programme, leading to a substantial rise in flu and COVID-19 vaccinations administered in pharmacies. However, infrastructure constraints remain a challenge, particularly for independent pharmacies with limited space. The UK's experience highlights the importance of standardised training, national IT integration, and public education efforts in overcoming PBV challenges.

6 Recommendations

The global landscape of PBV demonstrates remarkable potential for pharmacists to play a key role in immunisation strategies. However, to fully realise this potential, tailored policy actions and practical measures are essential to address barriers and leverage enablers identified in this report. The following recommendations highlight priority actions for policymakers, healthcare leaders, and stakeholders to advance PBV globally and strengthen pharmacists' role in public health systems.

According to the FIP statement of policy on the role of pharmacy in life-course vaccination (September 2023),¹³ some key recommendations for policymakers include:

1. Develop **formal vaccination schedules** that support life-course immunisation.
2. Recognise, enable and fully **harness the potential and convenience of community and hospital pharmacies**.
3. Develop **country appropriate policies** and **remove regulatory barriers**.
4. Adopt **new vaccination policies** which will authorise and empower pharmacists to administer and prescribe vaccines.
5. Develop **appropriate remuneration models** for pharmacies to deliver sustainable life-course vaccination services within the private and public sector.
6. Ensure health system preparedness and **readiness for mass immunisation**.
7. **Include pharmacists** and other pharmacy workforce in **emergency preparedness and response plans as frontline health workers**.
8. Establish **effective immunisation information systems** accessible to healthcare professionals.



In addition to the abovementioned policy recommendations, several supplementary actions outlined below can further enhance the role of pharmacies in life-course vaccination. These additional recommendations focus on promoting international collaboration, improving public trust and confidence, increasing access to vaccination services, and conducting studies to measure and communicate the impact of a PBV programme.

1. Foster international collaboration by developing frameworks for knowledge exchange between countries to facilitate the sharing of best practices and innovative approaches in PBV.
2. Increase public trust and confidence by providing pharmacies with up-to-date, evidence-based resources to educate communities about vaccine safety and efficacy.
3. Integrate pharmacies into school and workplace vaccination programme to increase accessibility and ensure broader coverage across different population groups.
4. Conduct studies to measure and communicate the socioeconomic impact of a PBV programme, focusing on cost savings, improved public health outcomes, and reduced healthcare burden. Use this data to advocate for greater investment in PBV programmes globally.

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Appendix

Appendix 1: Comparison of countries where pharmacy-based vaccination is allowed⁴

Country	Administration in pharmacies	Administration by pharmacists	Administration by trained technician	Administration by other healthcare practitioner	Access (reading rights) to vaccination registries
Afghanistan	No	No	No	No	
Albania	Yes	No	No	Yes	No
Algeria	Yes	Yes	No	No	
Argentina	Yes	Yes	No	Yes	Yes, for all records
Armenia	No	No	No	No	
Australia	Yes	Yes	No	Yes	Yes, for all records
Austria	No	No	No	No	Yes, for all records
Bangladesh*	Yes	No	Yes	Yes	No
Barbados	No	No	No	No	No
Belgium	Yes	Yes	No	No	Yes, for some records
Bolivia	Yes	No	No	Yes	
Bosnia & Herzegovina	No	No	No	No	Yes, for some records
Brazil	Yes	Yes	No	No	Yes, for all records
Bulgaria	No	No	No	No	No
Cameroon	Yes	Yes	Yes	No	Yes, for some records
Canada	Yes	Yes	Yes	Yes	Yes, for some records
Cape Verde	Yes	Yes	No	No	No
Chad	Yes	Yes	Yes	No	
Chile	No	No	No	No	
China	No	No	No	No	Yes, for some records
China Taiwan	No	No	No	No	No
Colombia	No	No	No	No	No
Congo, Dem. Rep. of the*	No	No	No	No	No
Congo, Rep. Of	No	No	No	No	
Costa Rica	Yes	Yes	No	No	Yes, for some records
Côte d'Ivoire	No	No	No	No	
Croatia	Yes	No	No	Yes	No
Cuba	No	No	No	No	
Cyprus	No	No	No	No	No
Czech Republic	No	No	No	No	
Denmark	Yes	Yes	Yes	Yes	Yes, for all records
Ecuador	No	No	No	No	Yes, for some records
Egypt	No	No	No	No	
El Salvador	No	No	No	No	

Country	Administration in pharmacies	Administration by pharmacists	Administration by trained technician	Administration by other healthcare practitioner	Access (reading rights) to vaccination registries
Estonia	Yes	No	No	Yes	No
Ethiopia	No	No	No	No	
Fiji	No	No	No	No	
Finland*	Yes	No	No	Yes	No
France	Yes	Yes	Yes	No	Yes, for some records
Germany	Yes	Yes	No	No	Yes, for some records
Ghana	Yes	Yes	No	No	No
Greece	Yes	Yes	No	No	
Guatemala	No	No	No	No	
Guyana	No	No	No	No	No
Haiti	No	No	No	No	
Hong Kong SAR, China*	No	No	No	No	Yes, for all records
Hungary	No	No	No	No	No
Iceland	Yes	No (pilot phase)	No	Yes	No
India	No	No	No	No	No
Indonesia*	No	No	No	No	No
Iraq	No	No	No	No	
Ireland	Yes	Yes	No	No	Yes, for some records
Israel	Yes	Yes	No	No	No
Italy	Yes	Yes	No	No	Yes, for some records
Japan	No	No	No	No	No
Jordan	Yes	Yes	No	No	No
Kenya	Yes	Yes	No	No	
Korea (Rep. of)	No	No	No	No	
Kosovo	No	No	No	No	No
Kuwait	No	No	No	No	
Latvia	Yes	Yes	No	No	
Lebanon	Yes	No	No	Yes	Yes, for some records
Lithuania	Yes	Yes	No	Yes	Yes, for all records
Luxembourg	Yes	Yes	ND	ND	
Madagascar	No	No	No	No	
Malawi	No	No	No	No	No
Malaysia	No	No	No	No	No
Mali	No	No	No	No	
Malta*	Yes	No	No	Yes	No
Mauritius	No	No	No	No	
Mexico	ND	ND	ND	ND	
Mongolia	No	No	No	No	No
Montenegro	No	No	No	No	No

Country	Administration in pharmacies	Administration by pharmacists	Administration by trained technician	Administration by other healthcare practitioner	Access (reading rights) to vaccination registries
Morocco	No	No	No	No	Yes, for all records
Namibia	Yes	Yes	Yes	No	Yes, for some records
Nepal*	Yes	No	No	Yes	No
Netherlands	Yes	No	No	Yes	Yes, for some records
New Zealand	Yes	Yes	Yes	Yes	
Nigeria	Yes	Yes	No	Yes	No
North Macedonia (Republic of)	No	No	No	No	
Norway	Yes	Yes	Yes	Yes	Yes, for all records
Oman	No	No	No	No	
Pakistan	Yes	No	No	Yes	
Panama	No	No	No	No	
Paraguay	Yes	No	Yes	No	No
Peru	ND	ND	ND	ND	
Philippines	Yes	Yes	No	Yes	Yes, for all records
Poland	Yes	Yes	No	No	
Portugal	Yes	Yes	No	Yes	Yes, for some records
Romania	Yes	Yes	No	No	No
Russian Federation	No	No	No	No	No
Rwanda	No	No	No	No	
Saudi Arabia	Yes	Yes	No	No	
Senegal	No	No	No	No	
Serbia	No	No	No	No	No
Sierra Leone	Yes	Yes	Yes	Yes	No
Singapore	No* (pilot phase)	No* (pilot phase)	No	No	
Slovak Republic	No	No	No	No	
Slovenia	No	No	No	No	No
South Africa	Yes	Yes	No	Yes	No
South Sudan	Yes	Yes	Yes	Yes	No
Spain	No	No	No	No	No
Sri Lanka	No	No	No	No	No
Sudan	No	No	No	No	
Sweden*	Yes	No	No	Yes	No
Switzerland	Yes	Yes	No	Yes	No
Tanzania	No	No	No	No	
Thailand	No	No	No	No	
Tunisia	Yes	Yes	Yes	No	No
Türkiye	No	No	No	No	No
Uganda	ND	ND	ND	ND	
Ukraine	No	No	No	No	No
United Arab Emirates	Yes	Yes	No	No	

Country	Administration in pharmacies	Administration by pharmacists	Administration by trained technician	Administration by other healthcare practitioner	Access (reading rights) to vaccination registries
UK	Yes	Yes	Yes	Yes	Yes, for some records
USA	Yes	Yes	Yes	Yes	Yes, for some records
Uruguay	No	No	No	No	No
Venezuela	Yes	Yes	No	No	
Yemen	Yes	Yes	No	Yes	Yes, for some records
Zambia	No	No	No	No	
Zimbabwe	No	No	No	No	

*Countries where discrepancies were found and addressed.

Appendix 2. Summary of vaccination training for pharmacists: Country details⁴

[illegible]

[illegible]

[illegible]

Country	Training about vaccine administration?	Career stage(s) of vaccination training		Training mandatory?	Renewal of certification?	How long is the certificate valid for?	Vaccination training providers				Training accredited by a regulator?
		Undergraduate	Post-registration / Post-grad / CPD				Professional organisations	Ministry of health	Universities	Industry	
Netherlands*	No										
New Zealand	Yes (some)		Yes	Yes	Yes	2 years					Yes
Nigeria	Yes (some)		Yes	No	No		Yes		Yes		Yes
North Macedonia (Republic of)	No										
Norway	Yes (all)		Yes	Yes	Yes	3 years	Yes				No
Oman	No										
Pakistan*	No										
Panama	No										
Paraguay*	No										
Peru	No ⁸										
Philippines	Yes (all)	Yes	Yes	No	No	3 years	Yes	Yes			Yes
Poland	Yes (some)		Yes	Yes							
Portugal	Yes (some)		Yes	Yes	Yes	5 years	Yes				Yes
Romania	Yes (all)		Yes	Yes	Yes	5 years			Yes		No
Russian Federation*	No										
Rwanda	Yes (some)		Yes	No							Yes
Saudi Arabia	Yes (some)		Yes	Yes							
Senegal	Yes (some)	Yes	Yes	Yes							No
Serbia	Yes (all)	Yes		No	No				Yes		No
Sierra Leone	Yes (some)		Yes	No	No			Yes			No
Singapore	Yes (some)		Yes	No							Yes
Slovak Republic	No										
Slovenia*	No										
South Africa	Yes (some)	Yes	Yes	No	No				Yes		Yes

Country	Training about vaccine administration?	Career stage(s) of vaccination training		Training mandatory?	Renewal of certification?	How long is the certificate valid for?	Vaccination training providers				Training accredited by a regulator?
		Undergraduate	Post-registration / Post-grad / CPD				Professional organisations	Ministry of health	Universities	Industry	
South Sudan	Yes (some)		Yes	No	No		Yes	Yes			No
Spain	Yes (all)	Yes	Yes	Yes	No		Yes		Yes	Yes	Yes
Sri Lanka*	No										
Sudan	No										
Sweden*	No										
Switzerland	Yes (all)	Yes	Yes	Yes	No	2 years			Yes		Yes
Tanzania	Yes (some)	Yes	Yes	Yes							Yes
Thailand	No										
Tunisia	Yes (some)	Yes		Yes	No			Yes			No
Türkiye*	No										
Ukraine*	No										
United Arab Emirates	Yes (some)		Yes	Yes				Yes			
UK	Yes (all)	Yes	Yes	Yes	Yes	1 year					Yes
USA	Yes (some)	Yes	Yes ¹¹	No	No		Yes		Yes		Yes
Uruguay*	No										
Venezuela	Yes (all)	Yes	Yes	Yes			Yes ⁸				Yes
Yemen	Yes (some)		Yes	No	No		Yes			Yes	No
Zambia	No										
Zimbabwe	No										

*Data provided for subsequent questions have been removed as they are considered not applicable.

** Data are modified to 'yes (some)' because Cape Verde stated that trained pharmacists administer vaccines in a pharmacy.

International
Pharmaceutical
Federation

Fédération
Internationale
Pharmaceutique

Andries Bickerweg 5
2517 JP The Hague
The Netherlands

-
T +31 (0)70 302 19 70
F +31 (0)70 302 19 99
fip@fip.org

-
www.fip.org

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