

Advocating expansion of the pharmacist's role in immunisation

A focus on diphtheria-
tetanus-pertussis booster,
COVID-19 and meningitis
vaccinations

2022



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Colophon

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Executive summary

The importance of vaccines for public health creates opportunities for the pharmacy profession to contribute to improving vaccination coverage. In 2020, FIP published a report highlighting pharmacists' and pharmacies' role in vaccination. Since then, the number of countries and territories where pharmacists have gained the authority to administer vaccines has grown. One area where the role of pharmacists could be further harnessed is related to the administration of booster vaccinations that do not induce life-long immunity, such as diphtheria-tetanus-pertussis (DTP) booster and vaccines for other diseases such as meningitis. The need for mass and urgent vaccination against COVID-19 has also led several countries to introduce pharmacy-based vaccination or expand the scope of practice of pharmacists, enabling them to administer vaccines.

It is important to monitor how pharmacists are participating in vaccination strategies worldwide and maintain the intelligence and current data that can support advocacy of a broader role for pharmacists in vaccination. To that end, a global survey was conducted among 46 countries that already have regulated pharmacy-based vaccination services to identify pharmacists' current role in DTP booster vaccination, COVID vaccination and meningococcal meningitis vaccination and establish factors, gaps and needs for further expanding their vaccination role. This report provides intelligence from 36 responding countries on their current status on these specific vaccines.

Key findings:

Pharmacists' role in vaccine administration, prescribing and records

- Out of 36 countries, 28 (78%) allow vaccine administration at community pharmacies. Trained pharmacists can administer vaccines at community pharmacies in 11 countries (39%) for DTP booster vaccines, 20 countries (71%) for COVID-19 vaccines, and 10 countries (28%) for meningococcal meningitis vaccines.
- Out of 36 countries, trained pharmacists can administer vaccines outside of a community pharmacy setting in 10 countries (28%) for DTP booster vaccines, 16 countries (44%) for COVID-19 vaccines, and 10 countries (28%) for meningococcal meningitis vaccines.
- Out of 36 countries, trained pharmacy support staff (e.g., pharmacy technicians) can administer vaccines in two countries (6%) for both DTP booster and meningococcal meningitis vaccines and in seven countries (19%) for COVID-19 vaccines.
- Pharmacists are authorised to prescribe at least one of the three vaccines in 12 of the responding countries. Pharmacists are authorised to prescribe COVID-19 vaccines in 11 countries, DTP booster vaccines in five countries, and meningococcal meningitis vaccines in four countries.
- When looking at access to patients' vaccination records as well as rights to make records in them, significantly more countries have authorised pharmacists' access, recording and reporting capabilities related to COVID-19 vaccines than for other vaccines.
- Overall, pharmacist authority to vaccinate target population groups appears to be based on age limits rather than other demographics or other factors.

Remuneration for vaccination services

- There was considerable variation in how pharmacists and pharmacies were reimbursed for vaccination services related to DTP booster and meningococcal meningitis vaccines, with remuneration broadly evenly distributed between third party payers, patients as payers, and no payment for services for both vaccines.
- In contrast, almost all remuneration for COVID-19 vaccines occurred through third-party payers.

Drivers for pharmacy-based vaccination services

- The desire of pharmacists to provide vaccination services was the most common driver for all types of vaccines. This was followed by the availability of education and training and patient demand/lack of access.

- The least common driver for DTP booster and meningococcal vaccinations were low vaccine coverage rate and availability of remuneration, while for COVID-19 vaccination, the least common driver was the lower cost of pharmacist-provided services.

Barriers to pharmacy-based vaccination services

- In general, there were more barriers selected for DTP booster and meningococcal meningitis vaccination services than for COVID-19 vaccination services.
- The most common barriers selected by countries that have introduced pharmacy-based vaccination for DTP booster and meningococcal vaccinations were inadequate remuneration models or a lack of them, and limited acceptance or support by governments and health systems.
- The most common barrier to COVID-19 vaccination services was a lack of regulatory support.
- The least selected barrier across all three vaccines was the lack of interest by pharmacists or pharmacies to administer vaccinations.
- For COVID-19 vaccines specifically, the lack of patient demand or acceptance was the least selected barrier. For DTP booster and meningococcal vaccines, logistical supply chain issues, such as cold-chain compliance and insufficient pharmacy workforce capacity, were the least selected barriers.

Needs for expanding pharmacy-based vaccination services

- The expanded role of pharmacists and pharmacies in vaccination services has been achieved through legislative, regulatory and advocacy efforts. The education and training of pharmacists in immunisation was also often undertaken prior to a change in policy to demonstrate that pharmacists were ready to advocate the expansion of their role and thereby support increasing vaccination rates in their countries.
- To leverage pharmacists' role in vaccination and pharmacy-based vaccination services, support related to (i) development of regulation and policy on vaccination authority, (ii) stakeholder engagement, acceptance and recognition of pharmacists' role, (iii) logistics for pharmacy-based vaccination services, and (iv) education and training were highlighted.

Evidence of pharmacists' impact on improving vaccination coverage globally is growing. The COVID-19 pandemic has provided further affirmation of the accessibility and availability of pharmacists as front-line providers of people-centred care. Beyond the pandemic, efforts to support and expand pharmacy-based vaccination services must continue as a necessary route to achieving universal health coverage.

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1 Introduction

1.1 Pharmacists' role in immunisation

The Global Vaccine Action Plan¹ stressed the importance of vaccines and immunisation as one of the most effective interventions in population health and access to immunisation as a key step towards access to health and universal health coverage. The importance of vaccines for public health has been brought into sharp focus, particularly during the COVID-19 pandemic. Pharmacists have contributed to improving vaccine coverage by expanding their role in this area, including vaccine administration and raising awareness about the value of vaccines for individuals and society.

The huge task of vaccinating a high enough percentage of a nation's population to reduce the public health threat of COVID-19 has meant that coordination of new and existing services has had to be undertaken on an enormous scale. In many countries, pharmacists have already played an important role in the supply and administration of various vaccines, such as those for preventing the spread of influenza, thereby contributing to increased vaccination coverage in the nation's population. The 2020 FIP report "An overview of pharmacy's impact on immunisation coverage" evaluated pharmacy practice in the area of immunisation.² The report highlighted key findings that included:

- Pharmacy-based immunisation services were available in at least 36 countries and territories;
- Vaccine administration by pharmacists was authorised in 26 countries and territories;
- A number of countries were preparing to develop pharmacist vaccination policies; and
- Vaccines commonly administered in pharmacies include influenza, hepatitis B and tetanus.

Since the FIP 2020 report, the number of countries and territories where pharmacists have gained the authority to administer vaccines has grown. One particular area where the role of pharmacists could be further harnessed is related to the administration of booster vaccinations that do not induce life-long immunity, such as diphtheria-tetanus-pertussis booster (DTP) vaccines and also vaccines for other diseases such as meningitis. The need for mass and urgent vaccination against COVID-19 has also led several countries to introduce pharmacy-based vaccination or expand the scope of practice of pharmacists, enabling them to administer vaccines.

1.2 Vaccine-preventable diseases

1.2.1 Diphtheria-tetanus-pertussis

Global vaccination coverage for DTP has been reported³ to be stabilised at 85%, i.e., the proportion of the world's children who have received the recommended schedule of three doses of DTP vaccines as protection against serious infectious disease.

Tetanus is a serious illness contracted through exposure to the spores of the *Clostridium tetani* bacterium, which lives in soil, saliva, dust and manure. Infection leads to painful muscle contractions. Tetanus can affect people of all ages, but the disease is particularly common and serious in new-born babies and their mothers. The disease remains an important public health problem in many parts of the world, but especially in low-income countries or districts, where immunisation coverage is low and unclean birth practices are common. The World Health Organization (WHO) estimates that, in 2018, 25,000 new-borns died from neonatal tetanus.⁴

Diphtheria is an infectious disease caused by the *Corynebacterium diphtheriae* bacterium, which is spread through coughing and sneezing. This bacterium produces a toxin that can harm or destroy human body tissues and organs. Diphtheria affects people of all ages but, most often, it strikes unimmunised children.⁵ The disease can be fatal. Between 5% and 10% of diphtheria patients die, even if properly treated. Untreated, the disease claims even more lives.⁶

Pertussis, also known as whooping cough, is a highly contagious respiratory infection caused by the *Bordetella pertussis* bacterium. Pertussis spreads easily, mainly through droplets produced by coughing or sneezing. A hacking cough then a whooping cough are the main symptoms. Pertussis is a major cause of disease and death in infants. In 2018, there were more than 151,000 cases of pertussis globally.⁷

The current WHO recommendation states that a primary series of DTP vaccines should be administered in three doses, starting from six weeks of age, and given with a minimum interval of four weeks. Industrialised

countries add childhood boosters of diphtheria toxoid to the primary immunisation series of infancy. Boosting at the age of 12 months, at school entry and just before leaving school are all recommended options based on the local epidemiology.

In addition to childhood (and adolescent) immunisations, the WHO currently recommends that people living in low-endemic or non-endemic areas may require booster injections of diphtheria toxoid at about 10-year intervals to maintain life-long protection.⁶ Furthermore, the United States Centers for Disease Control and Prevention (CDC) currently recommends that every adult should get a tetanus, diphtheria, and acellular pertussis (Tdap) vaccines once if they did not receive them as an adolescent, and then a Td (tetanus, diphtheria) or Tdap booster shot every 10 years.⁸

1.2.2 Meningococcal meningitis

Meningococcal meningitis is a severe infection of the membrane that covers the brain and spinal cord caused by the *Neisseria meningitidis* bacterium. *N. meningitidis* is found in the nose and throat without causing disease and most people exposed to it do not become ill. Only a few people develop illness, which might be associated with genetic, immune, societal or physical factors. The fatality rate among those who develop meningococcal disease ranges from 10% to 15%, even with prompt medical intervention. Meningococcal disease can occur at any age; however, it is more common in infants and children under five. Teenagers and young adults aged 15–24, household contacts of a person known to have had this disease, immunocompromised people, and people travelling to parts of the world where meningococcal disease is prevalent are also at increased risk of contracting the disease.⁹

Meningococcal meningitis is largely a vaccine-preventable disease, and several vaccines are available for protection from the most common serogroups causing the disease. They are used both for routine immunisation and to respond to meningitis epidemics. The WHO recommends that countries with high (more than 10 cases per 100,000 population/year) or intermediate (2–10 cases per 100,000 population/year) endemic rates or frequent epidemics of invasive meningococcal disease conduct appropriate large-scale meningococcal vaccination programmes. The importance of conducting high-quality surveillance and vaccination programme evaluation in these countries is also stressed.¹⁰

1.2.3 COVID-19

The SARS-CoV-2 virus causes coronavirus disease (COVID-19), which in some cases can lead to a serious respiratory illness requiring intensive medical treatment. The virus is spread via small liquid particles from an infected person's mouth or nose when they cough, sneeze, speak, sing or breathe.¹¹ Safe and effective COVID-19 vaccines are reducing serious illness and deaths.¹² There is also some evidence that getting vaccinated will reduce the risk of passing the illness on to others.¹³ Although COVID-19 vaccines are effective, public health experts are beginning to detect a decrease in protection against mild and moderate disease with time, particularly in some groups. Booster shots are now recommended for most people.¹⁴

Globally, as of March 2022, there have been reported to the WHO 470,839,745 confirmed cases of COVID-19, including 6,092,933 deaths, and a total of 10,925,055,390 vaccine doses have been administered.¹² Every country should have access to vaccines and the ability to distribute them to protect their citizens because it's not vaccines that will stop the pandemic; it is vaccination (the administration of a vaccine).¹⁵

1.3 Aim and objectives

Strengthening the health system, including the regular collection and use of reliable data, is important to achieve universal health coverage through primary health care. The importance of having high-quality data was also highlighted in the Global Vaccine Action Plan, and this was further emphasised in the WHO Immunisation Agenda 2030, which sets a global vision and strategy for vaccinations and immunisation from 2021 to 2030. The core principles highlighted in the immunisation agenda include people-centred, country-owned, partnership-based and data-guided.¹⁶ Building on this principle, therefore, it is crucial not only to monitor how pharmacists are participating in vaccination strategies around the world but also to collate current data that may support advocating a broader role for pharmacists in vaccination. In 2022, FIP conducted a project that included a survey of its member organisations and other partner organisations to update our intelligence and inform our advocacy with current evidence. This project is a part of the FIP Multinational

Needs Assessment Programme, which is an overarching programme providing a structure for data-driven, evidence-led projects based on the needs of nations.

The aim of the project was to identify the current role of the pharmacist in DTP booster, COVID-19 and meningococcal meningitis vaccination, and to establish factors, gaps and needs for expanding that role in countries that already have regulated pharmacy-based vaccination services. The objectives were to:

1. Describe who can legally administer DTP booster, meningococcal and COVID-19 vaccinations within and outside community pharmacies;
2. Identify how administration authority was achieved for legally administered vaccines for pharmacists or pharmacy support staff;
3. Determine whether pharmacists can prescribe DTP booster, meningococcal and COVID-19 vaccinations;
4. Indicate pharmacy access and input to patient vaccination records;
5. Document those nations developing policy, legislation or regulations for an expanded role of the pharmacy workforce in vaccination services;
6. List target population groups that the pharmacy workforce can vaccinate for DTP booster, meningococcal meningitis and COVID-19;
7. Explain how pharmacists and pharmacies are reimbursed for vaccination services related to DTP booster, meningococcal meningitis and COVID-19 vaccinations;
8. Illustrate the drivers for pharmacists and pharmacies to provide DTP booster, meningococcal meningitis and COVID-19 vaccinations;
9. Illustrate the barriers for pharmacists and pharmacies in providing DTP booster, meningococcal meningitis and COVID-19 vaccinations;
10. Acquire additional information for leveraging the role of pharmacists and pharmacies in increasing vaccination coverage.

This project consists of two parts: a review of the literature and existing data on pharmacy-based vaccination services, and a survey of our member organisations and selected non-member organisations in countries that have already regulated pharmacy-based vaccination services.

2 A review of the literature and existing data on pharmacy-based vaccination services

We conducted a review of existing data on pharmacy-based vaccination services by searching the literature systematically and collating existing datasets within FIP. This review aimed to identify countries that already have regulated pharmacy-based vaccination services and to identify any existing information related to the current role of pharmacists in DTP booster, COVID-19 and meningococcal meningitis vaccination and related to factors, gaps and needs for expanding this role.

2.1 Search strategy and inclusion criteria

2.1.1 Review of literature

The databases used for the literature search included PubMed, Scopus and Web of Science (see Table 1 for combinations of keywords used).

Table 1: Literature search combinations

Database (up to 2 October 2021)	Controlled vocabulary and keywords			Citations retrieved	Articles included in this review
PubMed	(("Pharmacists"[Mesh]) OR "Pharmacy Technicians"[Mesh])	AND	("Vaccination"[Mesh])	179	After removing duplicates: 3,747 articles.
Scopus	(TITLE-ABS-KEY (pharmacist OR pharmacists OR pharmacies OR pharmacy))	AND	TITLE-ABS-KEY (vaccin*)	3,365	After title screening: 179 articles.
Web of Science	(TITLE-ABS-KEY (pharmacist OR pharmacists OR pharmacies OR pharmacy))	AND	TITLE-ABS-KEY (vaccin*)	1,485	After subsequent content screening: 50 articles.

We used Rayyan, a systematic review software,¹⁷ to support the screening process of the articles. The inclusion criteria for the articles were:

- Articles with countries where there is an established pharmacy-based vaccination service;
- Articles that described vaccinations administered by pharmacists and/or other pharmacy workforce cadres;
- Articles where practice settings included any settings where pharmacists can administer vaccines, namely, hospitals, communities, universities, community health centres, government institutions, non-governmental institutions; and
- Articles where any study designs and publication types were included.

Abstract and title screening resulted in 179 articles to be included for further screening by team members. There were 129 articles excluded because they did not meet inclusion criteria. The screening process led to a hand search of other articles. A total of 50 articles were included in the data extraction and analysis. These were reviewed by team members to identify information on additional countries that have established pharmacy-based vaccination services (except for 37 countries identified in the FIP 2020 vaccination report²).

2.1.2 Existing datasets within FIP

We reviewed all FIP's existing datasets related to vaccination. The inclusion criteria for datasets were reports, raw data of surveys and digital event collections on vaccination or immunisation. The existing datasets included the FIP 2020 vaccination report,² the FIP 2020 Transforming Vaccination Globally & Regionally

Collection,¹⁸ FIP 2021 transforming vaccination digital events,¹⁹ FIP member engagement data from member organisations,²⁰ the FIP pandemic preparedness survey, and the Pharmaceutical Forum of the Americas data on pharmaceutical services in immunisation.²¹

2.2 Data extraction and analysis

The data extraction tool was developed according to the aims of the review. It has the following structure:

- Source — source of information, such as from literature review or from FIP existing datasets;
- Country — the country where there is an established pharmacy-based vaccination service;
- Vaccine — vaccines that pharmacists are administering, specifically for DTP booster, COVID-19 and meningococcal meningitis vaccines;
- Role of pharmacists — the role of pharmacists stated in the literature review or existing FIP datasets;
- Driver — drivers supporting the role of pharmacy in vaccination; and
- Barrier — barriers preventing pharmacists from vaccinating or taking a role in vaccination.

To aid the analysis, data from the included articles and existing datasets were summarised according to the above structure of data extraction tool. To identify existing countries that have regulated pharmacy-based vaccination services, we developed a decision flowchart (Figure 1). Our target countries were those that already have regulated pharmacy-based vaccination services, which were defined as where (i) pharmacists or pharmacy technicians are allowed to administer vaccines, and (ii) vaccines can be administered in a pharmacy.

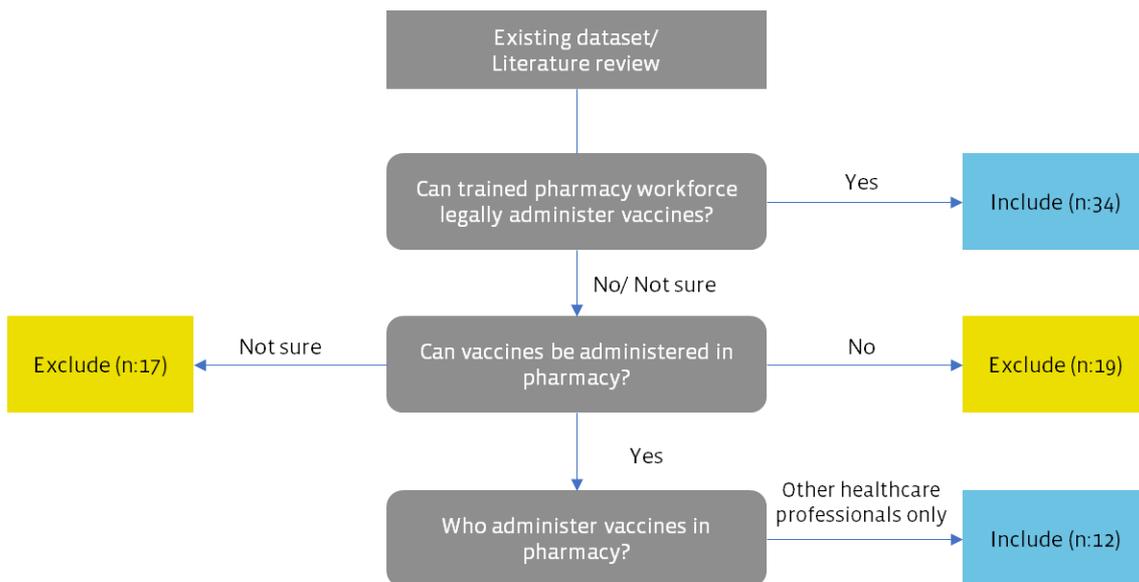
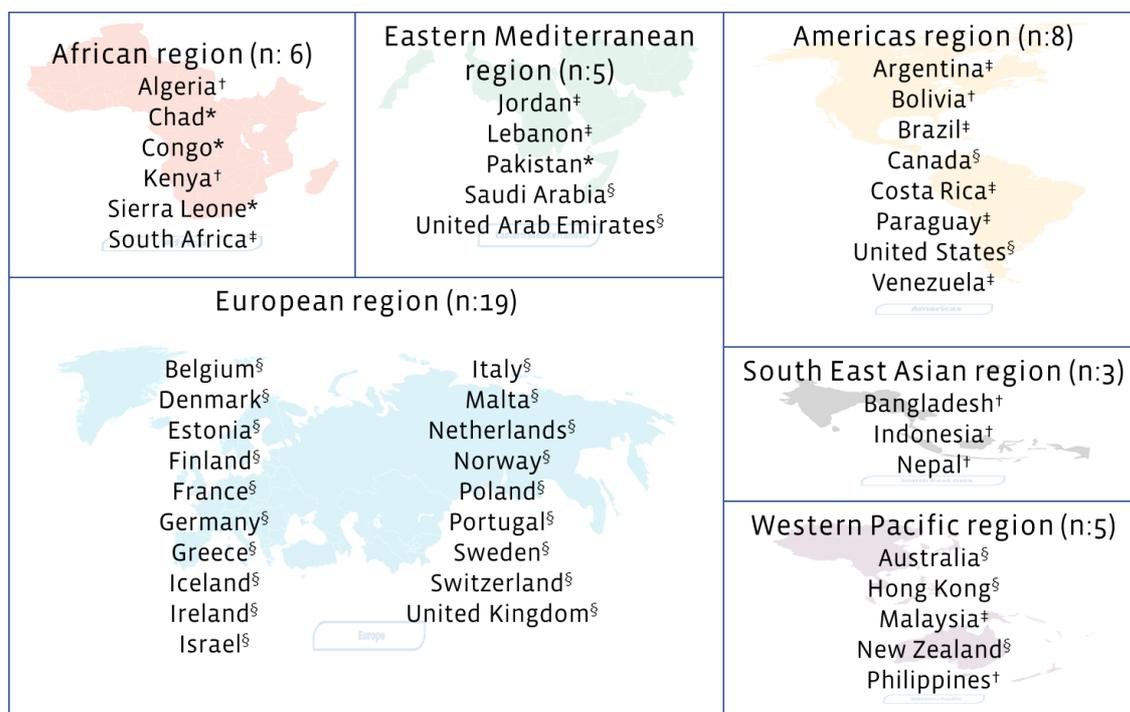


Figure 1: Decision flowchart for targeted countries

2.3 Countries that have existing regulated pharmacy-based vaccination services

A total of 46 countries were included across six WHO regions and a range of income levels. The distribution of countries that were approached to undertake the survey can be seen in Figure 2.



*Low income; †Lower middle income; ‡Upper middle income; §High income

Figure 2: List of countries being approached

2.4 Vaccines that pharmacists were administering

There is a variety of vaccines that pharmacists have been administering in these countries, including influenza, pneumococcal, herpes zoster, diphtheria, tetanus, flu, encephalitis, human papilloma virus and travel vaccines.²²⁻²⁶ There was no literature identified that provided information on pharmacy-based vaccination specific for the DTP booster or meningococcal meningitis vaccination. Apart from in community pharmacies, vaccine administration could be undertaken in hospitals, nursing homes, emergency departments, schools, clinics, primary healthcare centres, general practitioners' facilities, large community centres such as stadiums, and in patients' own homes.^{27,28} Pharmacists were also able to administer vaccines in mobile and outreach settings.²⁹

2.5 Role of pharmacists in vaccination

Many articles described the impact of the role of pharmacists in increasing vaccination uptake by the population.²⁹ Two articles provided a summary of pharmacists' involvement in COVID-19 vaccination in different countries,^{30,31} but no articles described specific involvement of pharmacists in DTP booster or meningococcal meningitis vaccinations. The role of pharmacists in vaccination included vaccines development, supply chain management (including storage of cold-chain products), safety and quality assurance, acting as vaccinators, prescribers, vaccination advocates and patient educators,^{19,32,33} and vaccines monitoring and surveillance.¹⁹

2.6 Drivers of and barriers to pharmacists' roles

Included articles provided insights on the drivers of and barriers to pharmacists' roles from the perspectives of pharmacists and patients.³⁴⁻⁴⁰ We obtained national perspectives on these drivers and barriers from data gathered during the six regional digital events organised by FIP as part of the FIP Transforming Vaccination Globally and Regionally programme in December 2020. These events discussed the regional needs and drivers for transforming vaccination, which included barriers and drivers for pharmacists' role.¹⁸

Drivers included:

- Patient demand/lack of access in other healthcare providers;^{37,38}
- Low vaccine coverage rate;³⁴
- Lower cost of pharmacist-provided service;³⁷
- Insufficient workforce capacity of other healthcare professionals;¹⁸
- Pharmacists' desire to provide vaccination services;^{39,41}
- Remuneration available to provide vaccination services;^{35,36} and
- Education and training available for pharmacists.^{35,36}

Barriers included:

- Limited acceptance or support by governments and health systems;^{2,38,41}
- Lack of regulatory support;²
- Limited acceptance or support by other healthcare professionals;^{2,41}
- Inadequate remuneration models or a lack of them;^{2,37,40,41}
- Lack of means to get vaccine products in pharmacies, including lack of supply by wholesalers and lack of vaccine availability;⁴⁰
- Insufficient pharmacy workforce capacity;⁴¹
- Lack of patient demand or acceptance;^{2,41}
- Lack of confidence among pharmacists to administer vaccines;^{2,41}
- Lack of interest by pharmacists or pharmacies to administer vaccines;⁴¹ and
- Limited access to training opportunities for pharmacists.^{2,38,41}

3 A survey on the role of pharmacists and pharmacies in vaccination

Section 2 provided insights on a range of vaccines that pharmacists were administering, which included DTP booster, meningococcal meningitis and COVID-19 vaccines. However, there was a lack of evidence specifically on pharmacists' role in DTP booster and meningococcal meningitis vaccinations. This highlighted a need to explore this topic further and to advocate the expansion of pharmacists' and pharmacies' role in vaccine-preventable diseases. This survey aimed to gather information on the current role of the pharmacist in DTP booster, COVID-19 and meningococcal meningitis vaccinations and to establish factors, gaps and needs for expanding the role in countries that already have regulated pharmacy-based vaccination services.

3.1 Method

To gather a number of responses in a short period, an online questionnaire was chosen as a way of collecting data using the Qualtrics platform. There were 46 countries that have regulated pharmacy-based vaccination services identified (see Figure 2 above). A total of 57 FIP member organisations and seven additional non-member organisations were identified and invited to participate in the survey.

The questionnaire was developed and designed by FIP, incorporating elements and questions from the 2020 vaccination survey² with some modifications on questions to focus on DTP booster, COVID-19 and meningitis vaccinations. The questionnaire combined open-ended questions and multiple-choice questions. It was broadly sectioned into vaccination authority, remuneration for vaccination services, drivers for provision of vaccination services, and barriers to providing vaccination services. Section 2 identified some drivers of and barriers to pharmacists' roles, which were used as categories in the drivers and barriers sections. The questionnaire draft was reviewed by the FIP Global Pharmaceutical Observatory team and previous survey developer for feedback. All feedback was incorporated into the final survey draft.

The final questionnaire draft was agreed upon and translated into four languages: Arabic, French, Portuguese and Spanish. Considering the terms used may have different interpretations across countries, a short glossary was developed to help countries in understanding some terminologies in the survey (see Figure 3). The final questionnaire is included in Appendix 1 of this report.

Vaccination: the administration of a vaccine to stimulate immunisation.

Vaccination authority: the authority granted by a legal or regulatory body to administer a vaccine to individuals.

Prescribing authority: the authority granted by a legal or regulatory body to write a prescription allowing a vaccine to be dispensed and administered to an individual.

Jurisdiction/locality: refers to defined subdivisions of a country/territory where a specific set of legislation and/or regulations apply — can include states, provinces, regions, cities or other divisions.

Third party payer: public or private organisation that pays or insures health or medical expenses on behalf of beneficiaries or recipients.

Figure 3: Glossary in the questionnaire

The questionnaire was distributed between January and March 2022 to 64 targeted organisations. Biweekly reminders were sent to increase the response rate. Apart from the online questionnaire, we also developed the questionnaire in Microsoft Word format (to facilitate data collection). Emails and the Microsoft Word format of the survey were translated to Spanish, French and Portuguese as appropriate, and FIP regional account holders were engaged to assist in outreach efforts to increase participation and response rates.

The analysis of survey data was conducted only for the respondents who completed the full survey, which was defined as respondents who progressed through to the end of the survey and clicked to submit their responses. There was no requirement to answer all questions before submitting. Therefore, a completed survey response could have missing answers to some questions. The data captured in Microsoft Word format were entered manually into the online survey link. Responses from organisations based in the same country

or territory were combined to form a joint response. All compiled data captured were translated into English where necessary and compiled before the analysis. A survey analysis plan was developed to guide the analysis process based on the questionnaire structure. The analysis was conducted independently by the authors of this report. For analysing drivers and barriers ranking, we calculated the sum of the ranking score as a weighted calculation, and items ranked first are given a higher value. We only analysed countries where pharmacists can administer each specific vaccine.

3.2 Sample demographics

A total of 43 organisations from 38 countries responded to our invitation (82.6% response rate). Of these 43 organisations, one organisation said that it did not have pharmacy-based vaccination services, and one responded in the form of a letter to describe the current status of pharmacy-based vaccination services in its country. Therefore, a total of 41 organisations from 36 countries and territories were included in the analysis and this report.

Table 2 shows the list of countries and territories that responded to the survey. Among the 36 countries and territories, two (5.6%) were located in the African region, five (13.9%) in the Americas region, four (11.1%) in the Eastern Mediterranean region, 19 (52.8%) in the European region, two (5.6%) in the South-East Asian region, and four (11.1%) in the Western Pacific region. Respondents represented 15.3% of the world's 236 countries and territories. The total population covered in this study was 1,377 million, which accounts for 17.9% of the world's population in 2019.

Table 2: Countries and territories included in the analysis (n=36)

Region	Number of targeted countries and territories	Number of countries and territories included in the analysis (%)	List of countries and territories included in the analysis
African	6	2 (33.3%)	Sierra Leone, South Africa
Americas	8	5 (62.5%)	Argentina, Bolivia, Canada, Costa Rica, United States
Eastern Mediterranean	5	4 (80.0%)	Lebanon, Jordan, Saudi Arabia, United Arab Emirates
European	19	19 (100.0%)	Belgium, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Israel, Italy, Malta, Netherlands, Norway, Poland, Portugal, Sweden, Switzerland, France, United Kingdom (from Wales and Northern Ireland)
South East Asian	3	2 (67.7%)	Indonesia, Nepal
Western Pacific	5	4 (80.0%)	Australia, Malaysia, New Zealand, Philippines

3.3 Vaccine administration

3.3.1 Vaccines administered in community pharmacies

Out of 36 countries, 28 (78%) were identified as allowing vaccine administration in community pharmacies.

Figure 4 shows that in 16 (57%) of the 28 countries, DTP booster vaccines can be administered in community pharmacies. This number includes six more countries than were identified by FIP in 2020.² Eleven countries (39%) allowed trained pharmacists to administer, and two countries (7%) allowed other trained pharmacy workforce cadres (e.g., pharmacy technicians) to administer DTP booster vaccines. Appendix 2 provides details of what countries do.

In 23 (82%) of the 28 countries, COVID-19 vaccines were authorised to be administered in community pharmacies (Figure 4). Twenty countries (71%) allowed trained pharmacists to administer, and eight countries (29%) allowed trained pharmacy support staff to administer COVID-19 vaccines. Considering the earliest that COVID-19 vaccines were available to the public was December 2020,⁴² this is a significant shift in the scope of pharmacist and pharmacy support staff authority within a relatively short time frame.

In 16 (57%) of the 28 countries, meningococcal meningitis vaccines can be administered in community pharmacies (Figure 4). This number includes seven more countries than were identified by FIP in 2020.² Out of those 16 countries, 10 (36%) allowed trained pharmacists to administer, and two (7%) allowed trained pharmacy support staff to administer meningococcal meningitis vaccines.

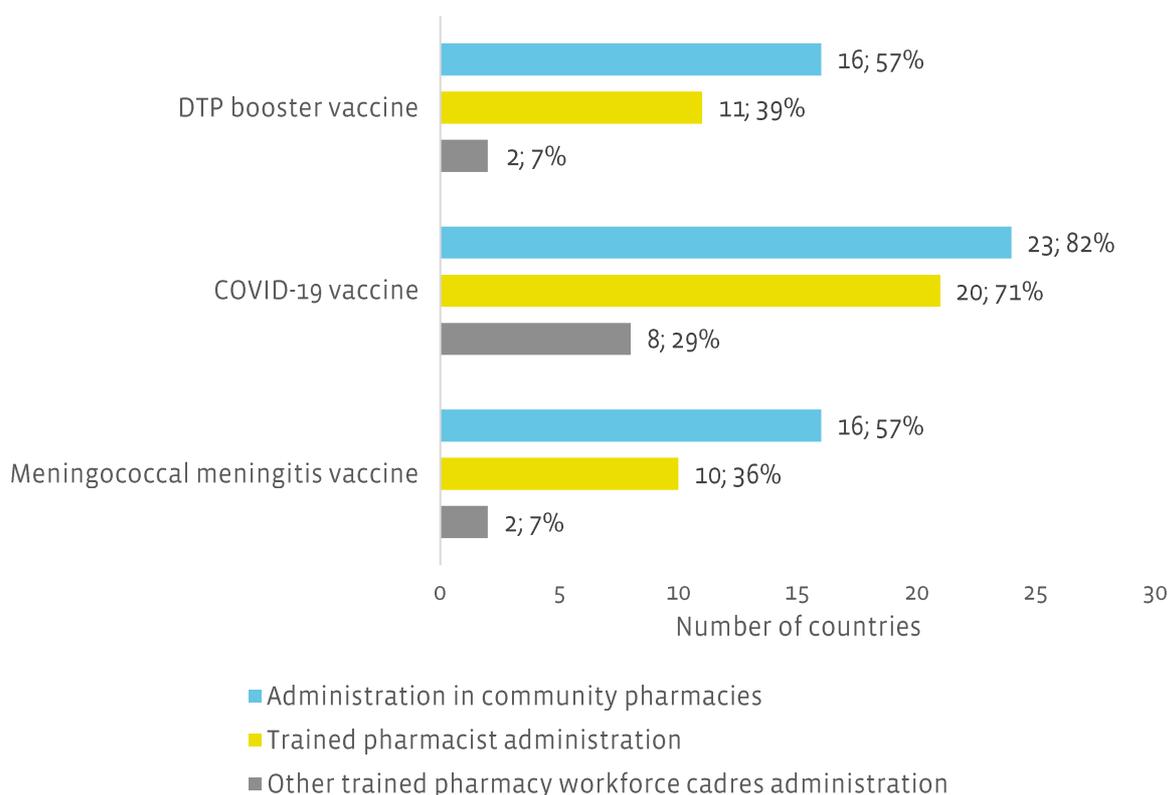


Figure 4: Vaccine administration authority in community pharmacies (n=28)

3.3.2 Vaccines administered outside of community pharmacies

Out of 36 countries, trained pharmacists can administer vaccines outside of a community pharmacy setting in 10 countries (28%) for DTP booster vaccines, 16 (44%) for COVID-19 vaccines, and 10 (28%) for meningococcal meningitis vaccines.

Other trained pharmacy workforce cadres (e.g., pharmacy technicians) can administer vaccines outside of a community pharmacy setting in two countries (6%) for both DTP booster and meningococcal meningitis vaccines, and in seven countries (19%) for COVID-19 vaccines.

3.3.3 Variation in vaccine administration authority

In some countries, pharmacists' and other trained pharmacy workforce cadres' authorities to administer vaccines can vary from region to region or jurisdiction to jurisdiction. This can mean that the pharmacy workforce in certain parts of the country may be able to administer vaccines, while those in other parts of the country may not be able to administer or may face more policy or legal barriers to administering. Out of 11 countries where trained pharmacists can administer DTP booster vaccines, four indicated the authority in their country varies. Three countries indicated varying authority among the 20 countries where pharmacists can administer COVID-19 vaccines. Three countries also indicated varying authority for pharmacist

administration of meningococcal meningitis vaccines among the 10 countries where pharmacists can administer. For administration by other pharmacy workforce cadres, Canada and the United States indicated variation in authority for DTP booster vaccines and meningococcal meningitis vaccines and, for COVID-19, only Canada indicated variation in authority.

3.4 Achieving vaccination administration authority

The expanded role of pharmacists and pharmacies in vaccination services has been achieved through numerous parallel methods. Many of the participating countries responded that vaccination authority was mainly achieved through legislative, regulatory and advocacy efforts. A sampled organisation in Israel indicated that the advocacy efforts of other countries indirectly supported a change in policy in the country, as regulators took note of the policy changes occurring elsewhere.

Another method employed to achieve vaccination authority was the education and training of pharmacists in immunisation, even prior to a change in policy. By training pharmacists and pharmacy support staff first, advocates were able to argue that the pharmacy workforce was an untapped public health resource that was ready and waiting to assist and that allowing pharmacists to vaccinate in order to increase access for communities was a practical decision.

Several countries also mentioned a general workforce need for additional vaccinators, and this drove changes in policy. Pharmacies serve as a key access point to care for many communities, and authorising vaccination services at pharmacies allowed previously unreached individuals to be immunised.

3.5 Prescribing vaccination authority

There has been a significant increase in countries authorising pharmacists to prescribe vaccines since the FIP 2020 report.² As seen in Table 3, 12 countries indicated that pharmacists were authorised to prescribe at least one of the three vaccines. In this 2022 survey, the vaccine with the most countries authorising pharmacist prescribing authority was the COVID-19 vaccine, with 11 countries. Five countries authorised pharmacists to prescribe DTP booster vaccines, and four countries authorised pharmacists to prescribe meningococcal meningitis vaccines. Two countries — Lebanon and Poland — indicated that while pharmacists cannot currently prescribe any of the three target vaccines, they were allowed to prescribe other vaccines.

Just as administration authority can vary depending on jurisdiction or locality, prescribing authority can also vary. Most of the responding countries have consistent authority for pharmacist prescribing, but three countries indicated the authority varied depending on jurisdiction or locality for both DTP booster and meningococcal meningitis vaccines. One country indicated COVID-19 vaccine prescribing authority varied. These countries are indicated in Table 3 with an asterisk.

Table 3: Pharmacist prescribing authority for vaccines

DTP booster (n:5)	COVID-19 (n:11)	Meningococcal meningitis (n:4)
Australia*	Australia*	Australia*
Canada*	Belgium	Canada*
South Africa	Canada	United Kingdom*
United Kingdom*	France	United States*
United States*	Germany	
	Greece	
	Ireland	
	Norway	
	Switzerland	
	United Kingdom*	
	United States	

*Countries where the pharmacists' prescribing authority varied

3.6 Pharmacy access to and input to vaccination records

In order to fully realise the role of pharmacists and pharmacies in vaccination services, pharmacists require full access (reading), recording (writing), and reporting (sharing) capabilities for vaccination records. This is still an area that needs significant intervention to remove barriers to optimising the role of the pharmacist in vaccination. Less than half of the countries that responded allowed pharmacists to access (Figure 5), record (Figure 6) or report vaccines (Figure 7) in a patient's vaccination record for DTP booster and meningococcal meningitis vaccines. However, significantly more countries have authorised pharmacists' access, recording and reporting capabilities related to COVID-19 vaccines.

Appendix 3 provides a detailed list of countries authorising access, recording and reporting to vaccination records for pharmacists and pharmacies.

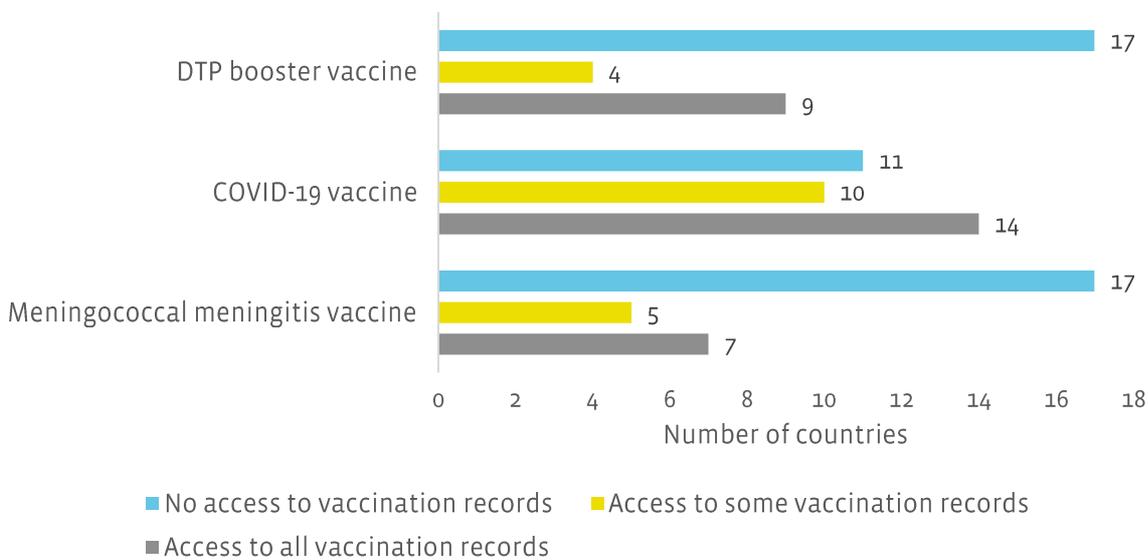


Figure 5: Access to vaccination records

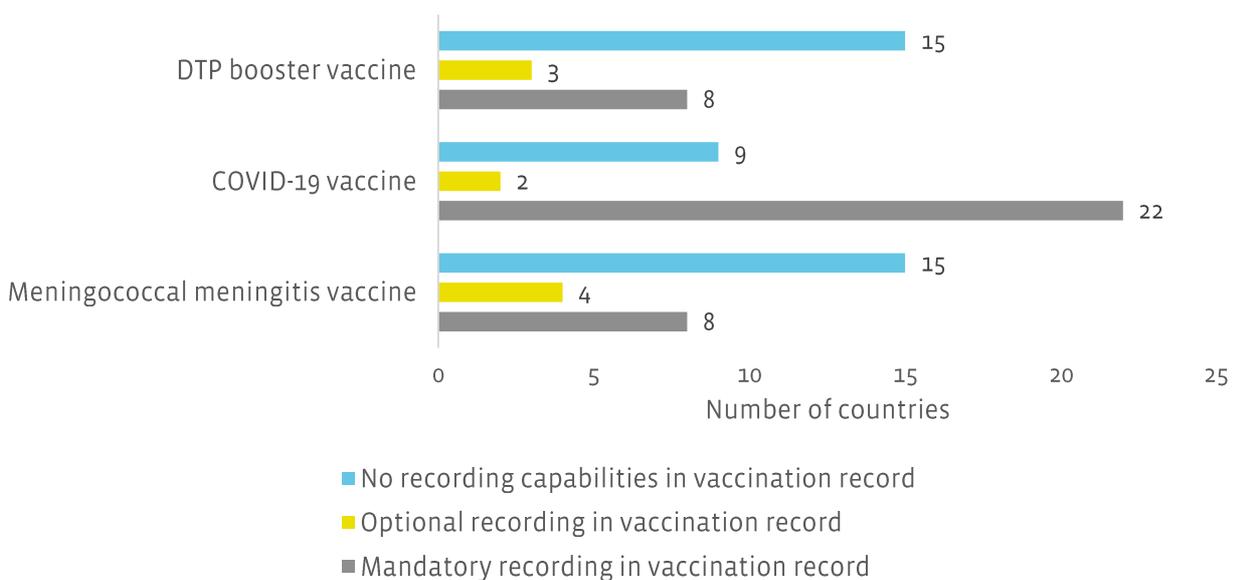


Figure 6: Recording in vaccination records

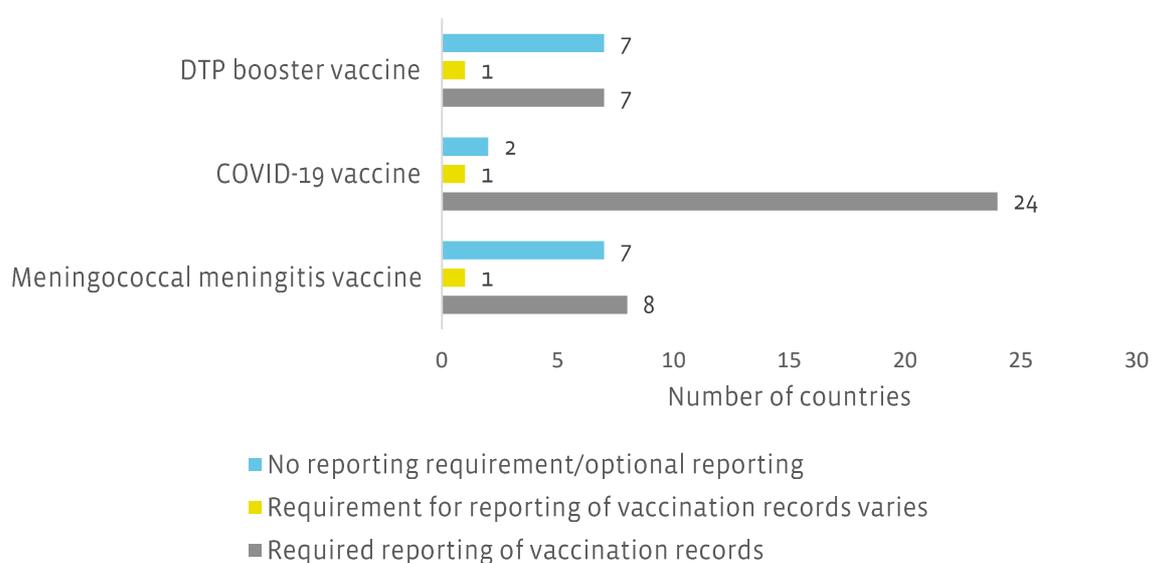


Figure 7: Reporting to vaccination records

3.7 Ongoing policy, legislation or regulations development for an expanded role of pharmacists

While significant strides have been made in achieving vaccination authority for pharmacists over the past two years, several countries are still working toward a greater role for pharmacists and pharmacies in vaccination services. Table 4 shows countries that are currently developing policy, legislation or regulations related to an expanded role of the pharmacy workforce in vaccination. Other related policies development includes assuring consistency of authority across jurisdictions, law development for administering authority, expansion of pharmacists' role to administer other vaccines, provision of free-of-charge vaccines in pharmacy and remuneration policy.

Table 4: Policy, legislation, and regulation development around pharmacy workforce engagement in vaccination services

Region	Country	Pharmacist administering	Pharmacy support staff administering	Pharmacist prescribing	Other related policies
A. DTP booster vaccine					
Americas region	United States	✓	✓	✓	✓
Eastern Mediterranean region	Jordan	✓			
	Lebanon	✓			
European region	France	✓		✓	
	Greece	✓			✓
	Iceland	✓		✓	✓
	Israel	✓		✓	
Western Pacific region	Philippines	✓			
Total		8	1	4	3

Region	Country	Pharmacist administering	Pharmacy support staff administering	Pharmacist prescribing	Other related policies
B. COVID-19 vaccine					
African region	South Africa			✓	
Americas region	Argentina	✓			✓
	United States	✓	✓	✓	✓
Eastern Mediterranean region	Lebanon				✓
	Saudi Arabia	✓			
European region	Belgium			✓	
	Estonia	✓			
	Germany	✓		✓	
	Greece	✓			✓
	Iceland	✓		✓	✓
	Portugal				✓
	United Kingdom	✓	✓	✓	
Western Pacific region	Australia	✓		✓	
	Malaysia	✓			
	New Zealand		✓		
	Philippines	✓			
Total		11	3	7	6
C. Meningococcal meningitis vaccine					
Americas region	United States	✓	✓	✓	✓
Eastern Mediterranean region	Jordan	✓			
	Lebanon	✓			
European region	Iceland	✓		✓	✓
Western Pacific region	Philippines	✓			
Total		5	1	2	2
D. Other vaccines*					
Americas region	United States	✓	✓	✓	✓
Eastern Mediterranean region	Lebanon	✓		✓	✓
European region	Estonia	✓			
	France	✓		✓	
	Iceland	✓		✓	✓
	Israel	✓	✓	✓	✓
	Malta	✓			✓
	Poland	✓			✓
	Portugal				✓
	Switzerland	✓		✓	✓
United Kingdom	✓	✓	✓		
Western Pacific region	New Zealand	✓	✓		
	Philippines	✓			
Total		12	4	7	8

*Other vaccines include flu vaccines, non-living vaccines for immunocompromised patients and yellow fever vaccines.

3.8 Target population groups for vaccination

Vaccinations are often recommended for different target populations based on a variety of factors, including age, comorbidities and increased susceptibility to the disease or likelihood of exposure to the pathogen. Table 5 shows key target population groups asked about in the survey for DTP booster, COVID-19 and meningococcal meningitis vaccines.

Table 5: Target population groups for DTP booster, COVID-19 and meningococcal meningitis vaccines

Vaccine	Classification	Target population group	Rationale
DTP booster	Adolescent	Adolescents/young persons	An important reservoir of the disease; individual protection
	Adult	Pregnant women	Protection of the mother and the new-born infant during 3 first months of existence
		Relatives of infant children	Indirect protection of infants too young to be vaccinated (protective “cocoon” around infant)
		Healthy adults	Individual protection against pertussis if not previously vaccinated; booster every 10 years (or after 5 years in the case of a severe or dirty wound or burn) to account for decreased effectiveness over time
		Professional groups	Individual protection due to higher risk of exposure to disease; for healthcare providers, indirect protection of patients
		Vulnerable adults	Individual protection due to increased likelihood of susceptibility or comorbidities (e.g., COPD, asthma for pertussis)
COVID-19	Adolescent	Adolescents and younger persons	High risk of susceptibility and exposure; vaccine approval and availability
	Adult	Healthy and/or vulnerable adults	High risk of susceptibility and exposure; vaccine approval and availability
Meningococcal meningitis	Infant/young children	Infants and younger children	Initial direct protection against disease
	Adolescent	Adolescents	Initial direct protection against disease; individual protection due to higher risk of exposure
	Adult	Travellers to endemic areas (e.g., Hajj/Umrah pilgrims)	Protection if travelling in countries in which serogroup A, C, W, or Y meningococcal disease is common
		People having certain medical conditions or taking specific medicines	Some medical conditions (e.g., complement component deficiency, functional or anatomic asplenia, HIV) or specific medicines (e.g., complement inhibitors) can impair the immune response to the disease and increase susceptibility
		Professional groups (e.g., microbiologists working with the pathogen, military recruits)	Increased risk of routine exposure to the pathogen
Closed communities	Increased risk of exposure when the community is experiencing an outbreak		

Table 6 shows the role of pharmacists and pharmacy support staff in vaccinating target population groups in countries where pharmacists and pharmacy support staff are authorised to administer vaccines. Overall, the largest difference in authority to vaccinate a target population group appears to be based on age rather than on other demographics or other considerations.

Table 6: Vaccination authority for target population groups

A. DTP booster						
Country	Target population groups					
	Adolescents	Pregnant Women	Relatives of infants	Healthy adults	Professional groups	Vulnerable adults
Argentina						
Australia						
Canada						
Costa Rica						
Greece						
New Zealand						
Norway						
South Africa						
Switzerland						
United States						
Total	7	9	8	10	9	10

B. COVID-19			
Country	Target population groups		
	Adolescents	Healthy adults	Vulnerable adults
Argentina			
Australia			
Belgium			
Canada			
Denmark			
France			
Greece			
Ireland			
Italy			
Jordan			
New Zealand			
Norway			
Philippines			
Poland			
Saudi Arabia			
South Africa			
Switzerland			
United Kingdom			
United States			
Total	15	19	14

C. Meningococcal meningitis							
Country	Target population groups						
	Infants	Children	Adolescents	Travelers	Medical conditions/ medicines	Professional groups	Closed communities
Argentina							
Australia							
Canada							
Costa Rica							
New Zealand							
Norway							
Portugal							
South Africa							
United States							
Total	5	6	8	8	9	9	9

Key: Blue indicates pharmacists or other pharmacy workforce cadres are authorised to administer vaccines to a particular target population group. Yellow indicates the authority to administer to a particular target population group is limited in some way (e.g., limitations in authority based on the jurisdiction or locality, regulations based on age rather than specific target groups).

3.9 Remuneration for vaccination services

There was considerable variation in how pharmacists and pharmacies were reimbursed for vaccination services related to DTP booster and meningococcal meningitis vaccines. As shown in Figure 8, the remuneration model in many countries who responded requires patients to pay for services for both vaccines. In contrast, almost all remuneration for COVID-19 vaccines occurred through third party payers. Several countries also have a hybrid structure, where pharmacists and pharmacies may be reimbursed by a combination of third party and patient pay, or in certain circumstances may not be reimbursed.

Almost all third party payers were public. One country, South Africa, indicated that third party payers were private payers, and another, the United States, indicated that third party payers were a mix of public and private.

Several countries reimbursed pharmacists at the same rate as other healthcare providers for vaccination services, especially for COVID-19 vaccination. In a comparable number of countries, pharmacists were reimbursed at a lower rate than other healthcare providers or were not reimbursed and required patients to pay for vaccination services in pharmacies.

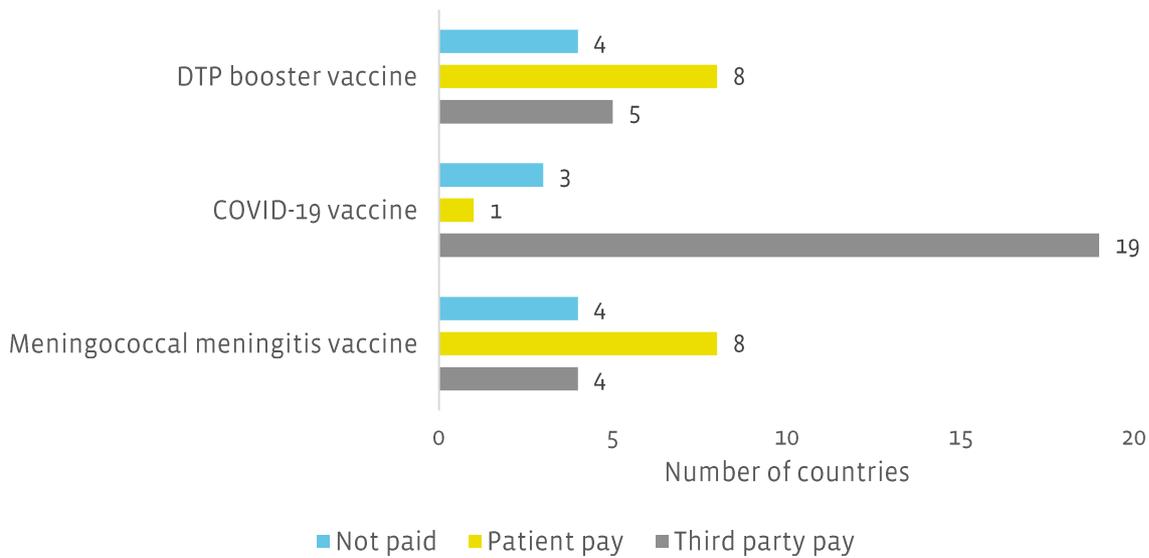


Figure 8: Remuneration for vaccination services

3.10 Drivers of vaccination services

3.10.1 Overview of drivers across types of vaccines

Table 7 illustrates drivers for pharmacists and pharmacies for providing DTP booster, meningococcal meningitis and COVID-19 vaccinations. There were more enablers selected for COVID-19 vaccinations than the DTP booster and meningococcal vaccinations. Looking at the countries where pharmacists were allowed to vaccinate, the desire of pharmacists to provide vaccination services was the most common driver across all types of vaccines. This was followed by the availability of education and training and patient demand/lack of access. The least common driver for DTP booster and meningococcal meningitis vaccinations were low vaccine coverage rate and availability of remuneration, while for COVID-19 vaccination the least common driver was the lower cost of a pharmacist-provided service. Specific for DTP booster and meningococcal meningitis vaccines, one of the drivers in Argentina was that there was a strong demand in community pharmacies to provide certain types of vaccines that are not included in the national primary vaccination scheme. For COVID-19 vaccines, some countries described other drivers, such as being part of a government roll-out strategy that supported the expansion of pharmacists' role in vaccination. Also, in some countries, certain patients can only be reached by pharmacists.

Table 7: Drivers selected across types of vaccines

Drivers	DTP booster	COVID-19	Meningococcal meningitis
No significant drivers			
Patient demand/lack of access			
Low vaccine coverage rate			
Lower cost of pharmacist-provided service			
Insufficient workforce capacity of other healthcare professionals			
Pharmacist desire to provide vaccination services			
Remuneration available to provide vaccination services			
Education and training has already been made available			
Other			

Key: Each dot represents a country; ● Pharmacists are allowed to vaccinate each specific vaccine; ● Pharmacists are allowed to vaccinate; ● Pharmacists are not allowed to vaccinate, but vaccines can be administered in a pharmacy; ● Pharmacists are not allowed to vaccinate, and vaccines cannot be administered in a pharmacy

3.10.2 Overview of drivers ranking across regions

Figure 9 illustrates the ranks of drivers for pharmacists and pharmacies to provide DTP booster vaccination across the region. Similar to the most common selected drivers, pharmacists' desire to provide vaccination services was the most impactful driver selected. In regions of the Americas, patient demand/lack of access was the most impactful driver selected compared with other regions. In contrast, this driver was the least impactful driver ranked in the Europe region.

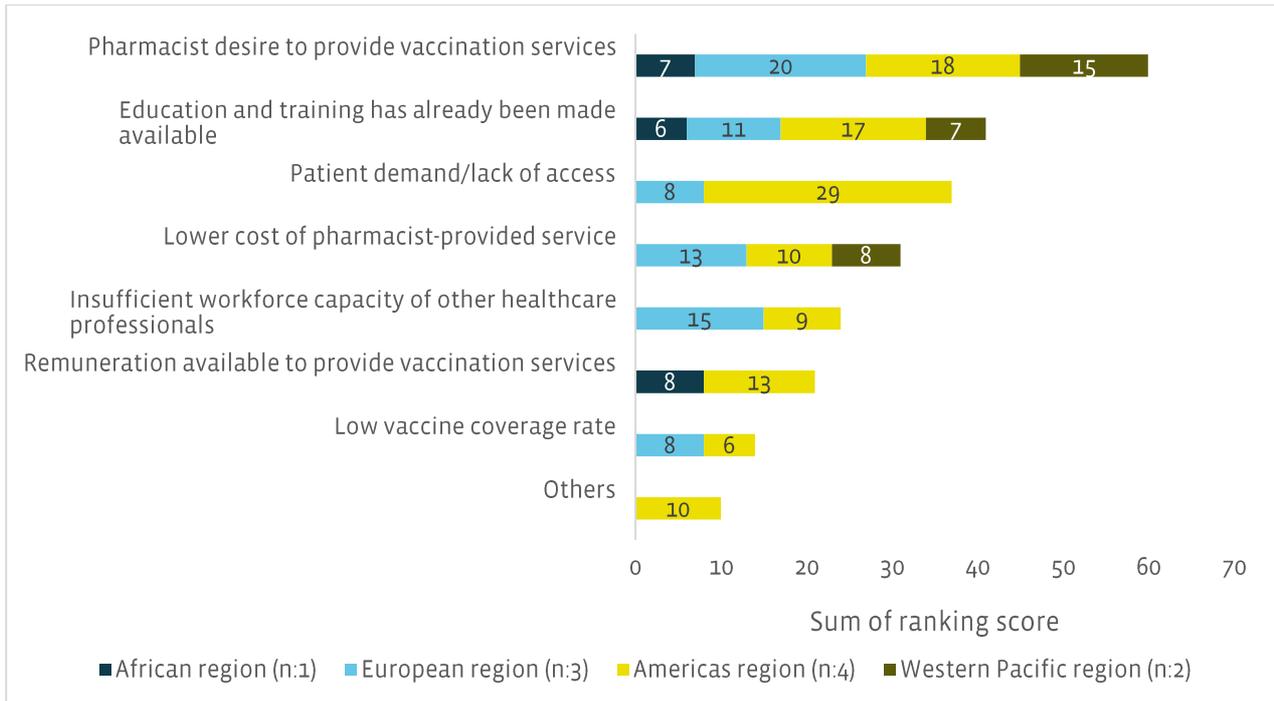


Figure 9: Ranks of drivers for pharmacists and pharmacies to provide DTP booster vaccination

Figure 10 illustrates the ranking of drivers for pharmacists and pharmacies to provide COVID-19 vaccinations. Pharmacists' desire to provide vaccination services was the most impactful driver selected in European, Eastern Mediterranean and African regions, whereas patient demand/lack of access was the most impactful driver selected in the Americas and availability of remuneration was the most impactful driver selected in the Western Pacific regions. The least impactful drivers in the Americas, European and Eastern Mediterranean regions were the lower cost of pharmacist-provided services.

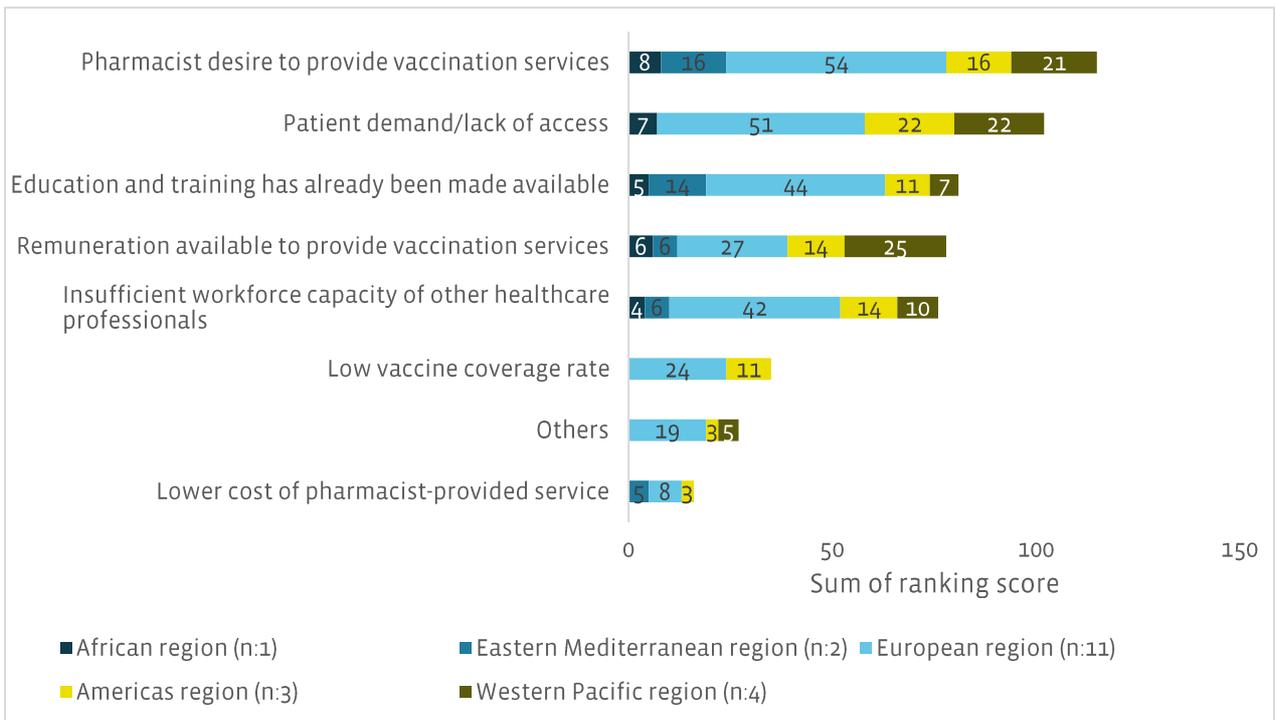


Figure 10: Ranks of drivers for pharmacists and pharmacies to provide COVID-19 vaccination

Figure 11 illustrates the ranking of drivers for pharmacists and pharmacies to provide meningococcal meningitis vaccinations. As with the other two vaccines, pharmacists' desire to provide vaccination services was, in general, the most impactful driver ranked, specifically in Western Pacific and European regions. As for DTP booster vaccination, patient demand was the most impactful driver in the Americas region. Insufficient workforce capacity of other healthcare professionals was the least impactful driver ranked in the European and Americas regions.

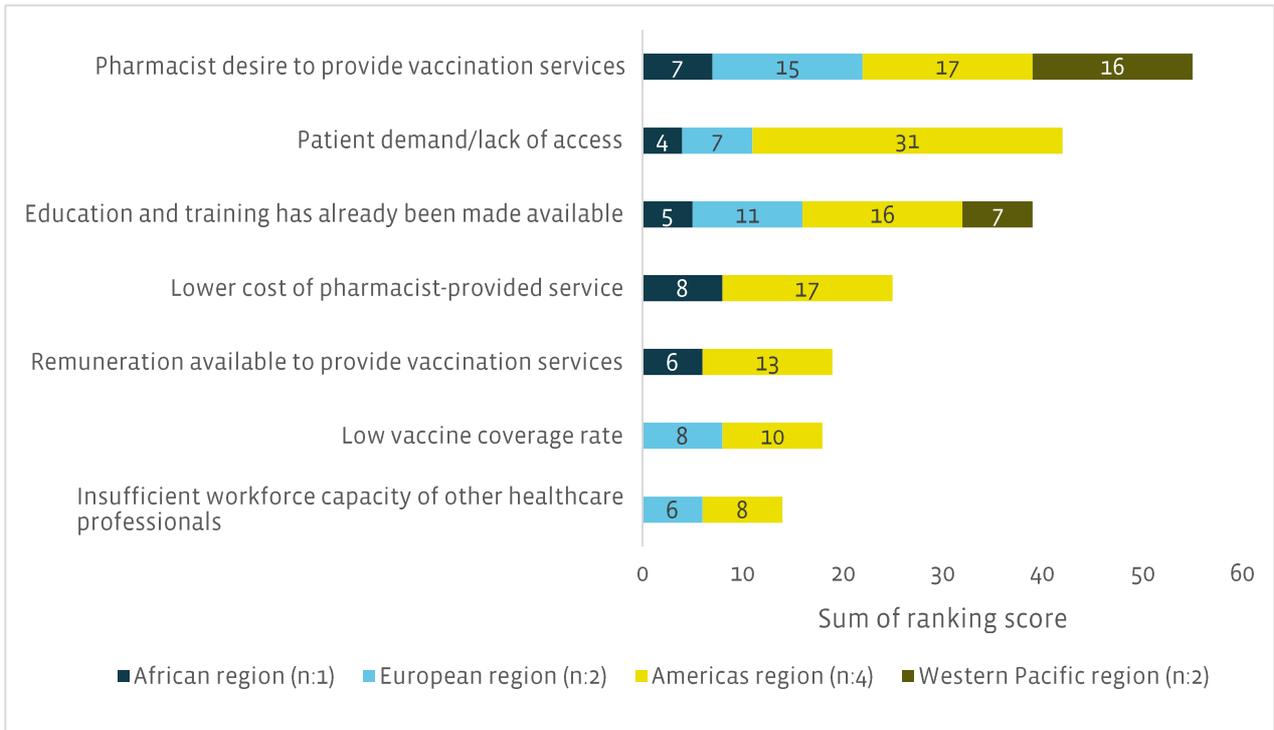


Figure 11: Ranks of drivers for pharmacists and pharmacies to provide meningococcal meningitis vaccination

3.11 Barriers to vaccination services

3.11.1 Overview of barriers across types of vaccines

Table 8 illustrates barriers for pharmacists and pharmacies to provide DTP booster, meningococcal meningitis and COVID-19 vaccinations. In general, there were more barriers selected for DTP booster and meningococcal vaccinations than for COVID-19 vaccination. The most common barriers selected by countries that have introduced pharmacy-based vaccination for DTP booster and meningococcal meningitis vaccinations were inadequate remuneration models or a lack of them, and limited acceptance or support from governments and health systems. The most common barrier to COVID-19 vaccination services was a lack of regulatory support. The least selected barriers across these three vaccines were the lack of interest by pharmacists and pharmacies to administer vaccines. Looking specifically at COVID-19 vaccines, the lack of patient demand or acceptance was the second least selected. For DTP booster and meningococcal meningitis vaccines, logistical supply chain issues, such as cold-chain compliance and insufficient pharmacy workforce capacity, were the least selected. In addition to the pre-defined barriers category in the survey, some respondents also stated some other barriers included government acceptance, support from the public, and according to the law, pharmacists were not allowed to vaccinate.

Regarding DTP booster vaccines, in Portugal, this is included in the national vaccination plan, so there was no demand for its provision at pharmacies. Our sample organisation in Australia highlighted that childhood programmes provided by other providers had achieved very high vaccination rates. Hence the demand for pharmacy-based DTP booster vaccination was limited. During disease outbreaks, pharmacists, however, had been mobilised in the past. For COVID 19, whereas the need for vaccines has been urgent, administration has been mainly undertaken in other facilities in Finland and in mass vaccination services in Portugal; therefore, support from pharmacies was not thought to be needed in these countries. Our responding organisation from South Africa stated a barrier for small independent pharmacies related to the cost and possible wastage of ordering the minimum order quantities for COVID-19 vaccines.

The most selected barriers for countries that have not introduced pharmacy-based vaccination services were aligned with those with a lack of regulatory support and limited acceptance or support by the government in the health system.

Table 8: Barriers selected across types of vaccines

Barriers	DTP booster	COVID-19	Meningococcal meningitis
No significant barriers	●	●●●●	●●●
Limited acceptance and/or support by government/health system	●●●●●●●●●● ●●●● ●●●● ●●●●●	●●●●●●●●●● ●●●● ●●●●	●●●●●●●●●● ●●●● ●●●●●
Lack of regulatory support	●●●●●●●●●● ●●●● ●●●●	●●●●●●●●●● ●●●● ●●●●	●●●●●●●●●● ●●●● ●●●●
Limited acceptance and/or support by other healthcare professionals	●●●●●●●●●● ●●●● ●●●●	●●●●●●●●●● ●●●● ●●●●	●●●●●●● ●●●● ●●●●
Inadequate and/or lack of remuneration models	●●●●●●●●●● ●●●●●● ●● ●●●●	●●●●●●●●●● ●● ●●●●	●●●●●●●●●● ●●●●●●● ●● ●
Logistical supply chain issues, such as cold-chain compliance	●●●●●● ●	●●●●●●●● ●● ●	●●●●●●
Lack of access to get vaccine products in pharmacies	●●●●●●●● ●	●●●●●●●●●● ●●●●●●	●●●●●●●●
Insufficient pharmacy workforce capacity	●●●●●● ●●●● ●	●●●●●●●●●● ●● ●	●●●●●● ●
Lack of patient demand/acceptance	●●●●●●●●●● ●● ●	●●●● ●	●●●●●●●●●● ●
Lack of confidence by pharmacists to administer vaccinations	●●●● ●● ●	●●●● ●● ●	●●●●●● ●
Lack of interest by pharmacists and/or pharmacies to administer vaccinations	●● ●	●●	●●●● ●● ●
Limited access to training opportunities for pharmacists	●●●●●●●● ●●●● ●	●●●●●●●●●● ●● ●	●●●● ●●●● ●
Others	●●	●●●●●●●● ●● ●	●●●

Key: Each dot represents a country; ● Pharmacists are allowed to vaccinate each specific vaccine; ● Pharmacists are allowed to vaccinate; ● Pharmacists are not allowed to vaccinate, but vaccines can be administered in a pharmacy; ● Pharmacists are not allowed to vaccinate, and vaccines cannot be administered in a pharmacy

3.11.2 Overview of barriers ranking across regions

Figure 12 illustrates the ranking of barriers for pharmacists and pharmacies to provide DTP booster vaccination across regions. In general, inadequate remuneration models or a lack of them were the most impactful barriers selected. This barrier was ranked the highest in the Americas, Western Pacific and African regions. Limited acceptance and support by the government was the most impactful barrier in the European region.

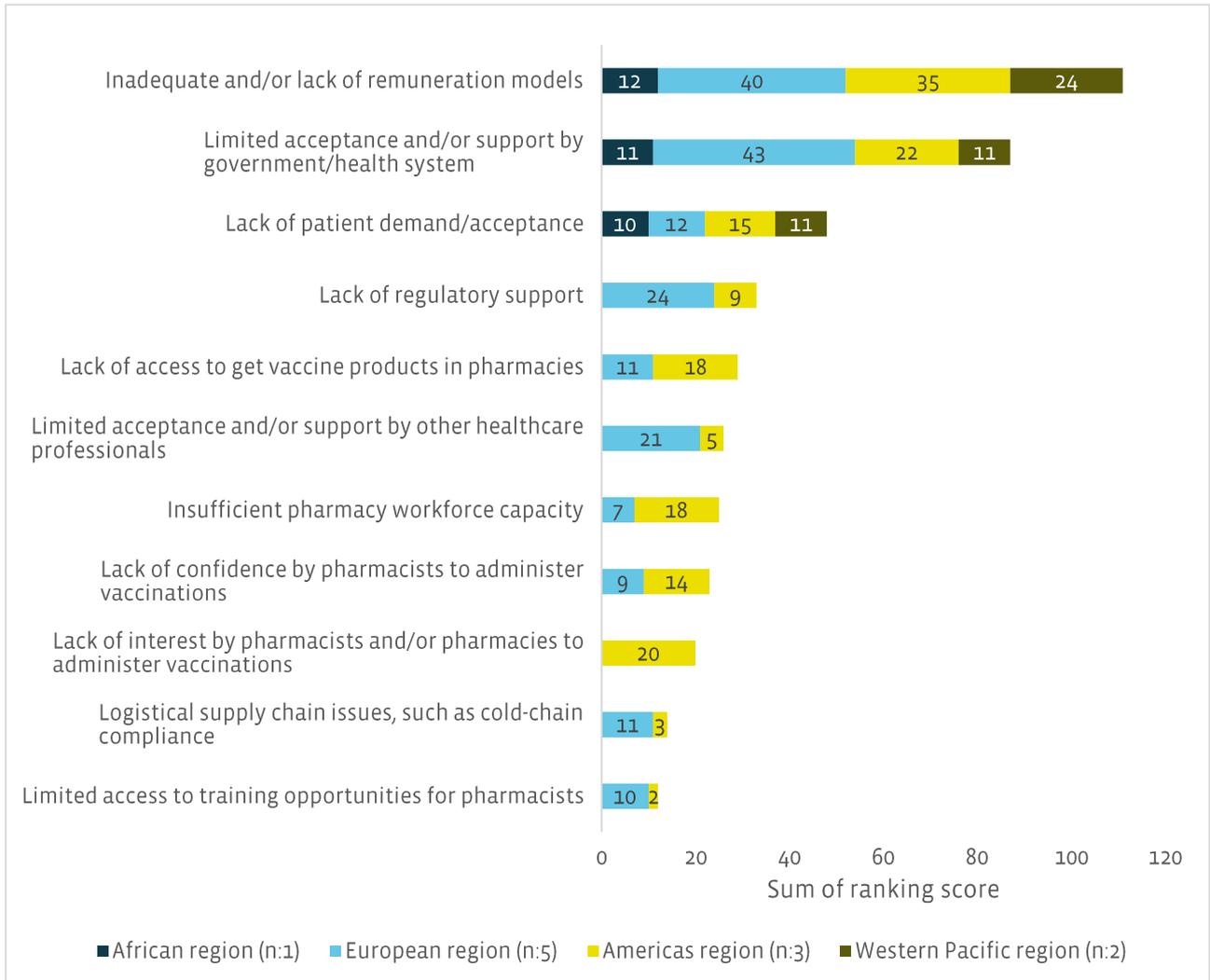


Figure 12: Ranks of barriers for pharmacists/pharmacies to provide DTP booster vaccination

Figure 13 illustrates the ranking of barriers for pharmacists and pharmacies to provide COVID-19 vaccinations. The highest ranked impactful barriers to this across regions lay in regulation, where there was limited acceptance of support by the government and a lack of regulatory support. However, in the Western Pacific region, the most impactful barrier ranked was insufficient pharmacy workforce capacity.

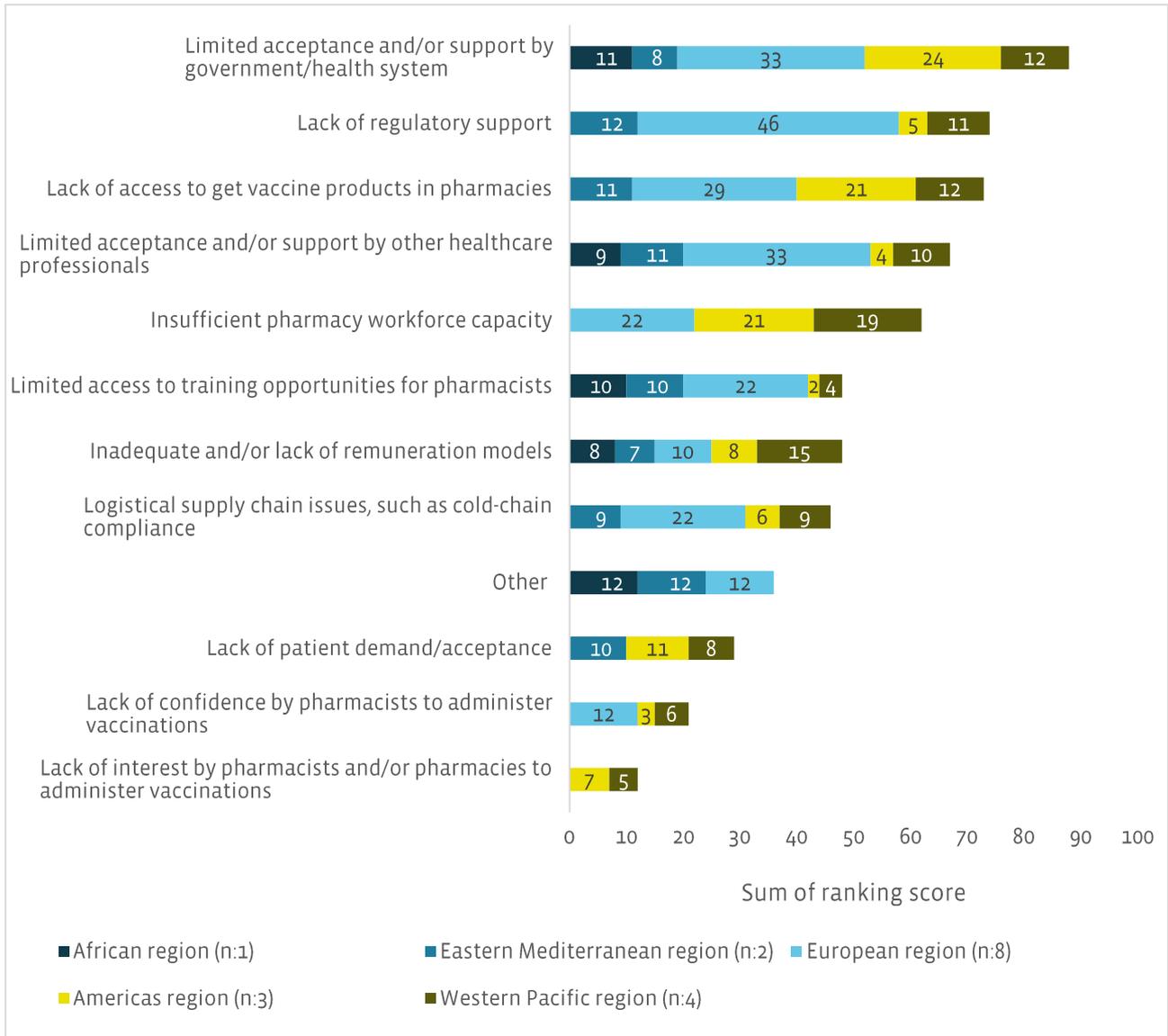


Figure 13: Ranks of barriers for pharmacists/pharmacies to provide COVID-19 vaccination

Figure 14 illustrates the ranking of barriers for pharmacists and pharmacies to provide meningococcal meningitis vaccinations. Inadequate remuneration models, or a lack of them, was selected across regions and was highlighted the most in the Western Pacific region. In the European and Americas regions, the most impactful barrier was limited acceptance and support by the health system.

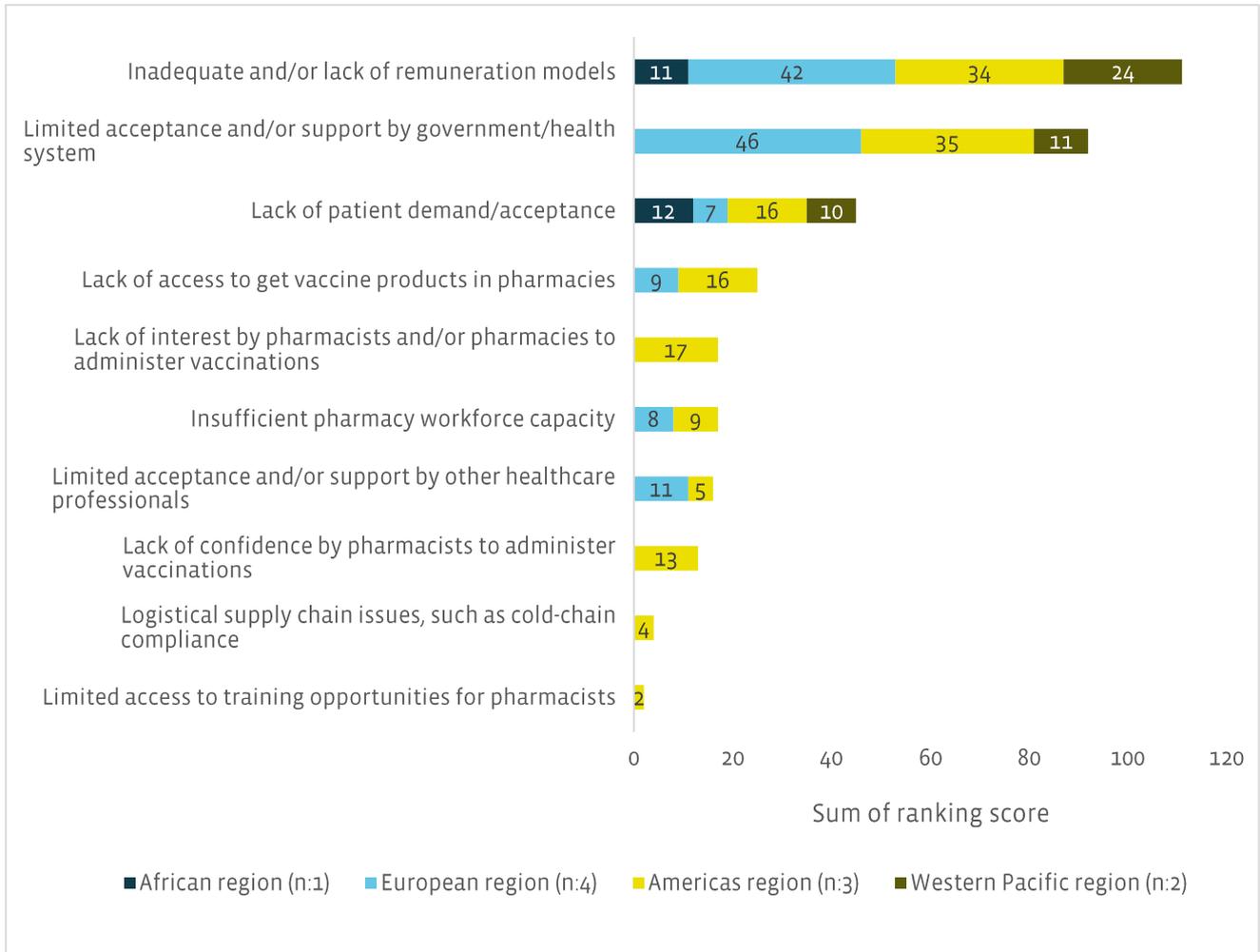


Figure 14: Ranks of barriers for pharmacists/pharmacies to provide meningococcal vaccination

3.12 Support required to increase vaccine coverage rate and uptake of vaccines

Pharmacists and pharmacies can contribute to increased vaccine coverage rates and uptake of vaccines in their countries and territories; some respondents highlighted the support needed to leverage this role. Four broad themes emerged from the respondents: (i) development of regulation and policy related to vaccination authority; (ii) stakeholder engagement, acceptance and recognition; (iii) logistics support for pharmacy-based vaccination services; and (iv) education and training support. The summary of the themes found is shown in Figure 15.

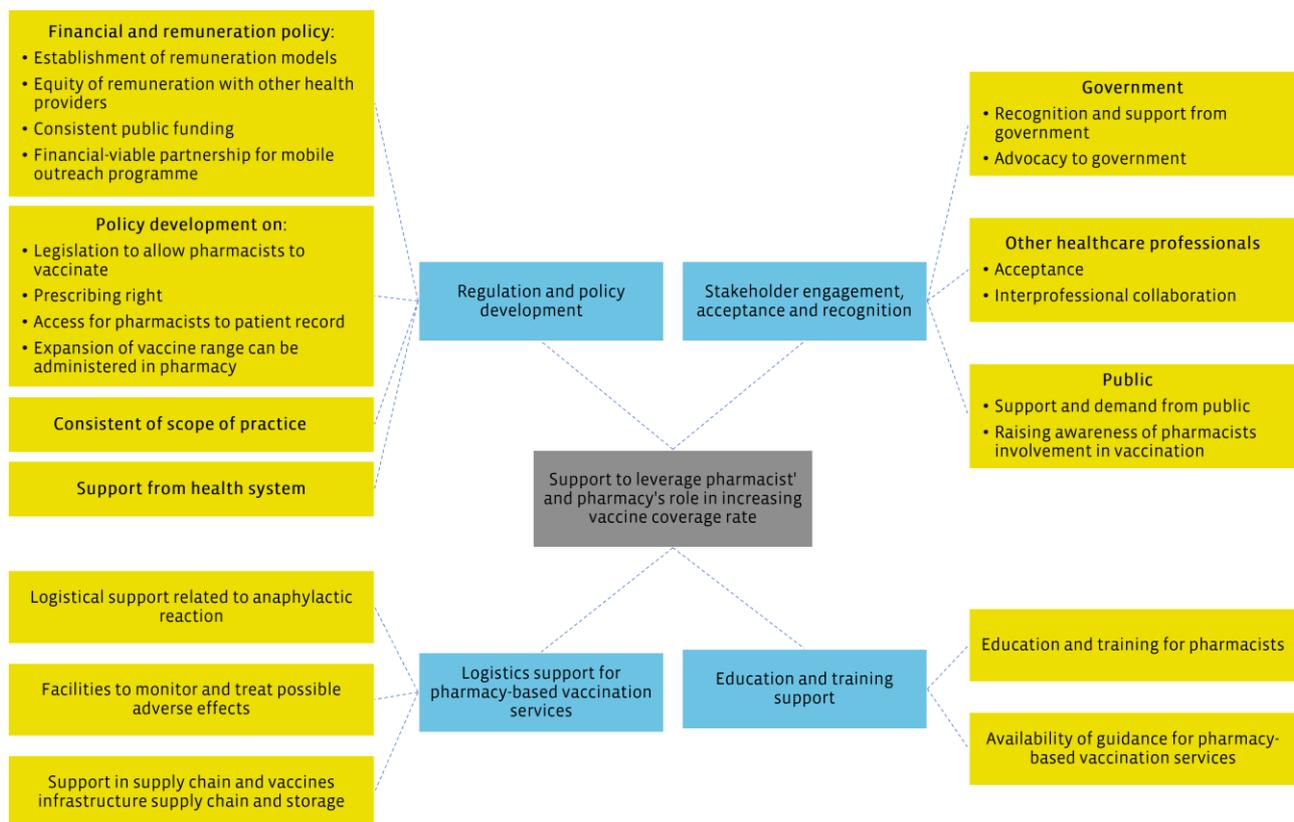


Figure 15: Four broad themes to support pharmacists' role in increasing vaccines uptake

3.12.1 Development of regulation and policy

The most common themes highlighted in policy development were related to financial and remuneration policy. Respondents suggested support related to the establishment of remuneration models was necessary, so pharmacy-based vaccination services could be remunerated. Some respondents commented on the equity of remuneration compared with other health providers and the need for policy to provide adequate compensation for pharmacy teams. In addition, consistent public funding was also highlighted, and financially viable partnerships for mobile outreach programmes could support leveraging pharmacists' role in increasing vaccination coverage rate.

Five respondents from different countries highlighted support for legislation to allow pharmacists to vaccinate. Two of them, Germany and Saudi Arabia, allowed pharmacists to administer COVID-19 vaccines; one, Sierra Leone, allowed pharmacists to administer hepatitis B vaccines; and the other two, Indonesia and the United Arab Emirates, did not allow pharmacists to vaccinate. Support from the health system and expansion of vaccine range that can be administered in pharmacy was highlighted in Jordan, and consistent scope of practice was highlighted in Canada. The responding organisation from Norway stated that pharmacists should have the right to prescribe more vaccines. In Norway, pharmacists can prescribe flu and COVID-19 vaccines.

The organisation reported that it is currently working on including more vaccines such as DTP booster and meningococcal meningitis vaccines. Respondents from Costa Rica and Ireland highlighted support in regulations related to access for pharmacists to patient and national vaccination records. Building a recording system for vaccination in Jordan was suggested as a way to support leveraging pharmacists' role in increasing vaccine coverage rate.

3.12.2 Stakeholder engagement, acceptance and recognition

Respondents highlighted three types of stakeholders: government, other healthcare professionals, and the public. Recognition and support from the government were the most common themes highlighted by respondents. Respondents also stated global acceptance of recognition of pharmacists' and pharmacy's role and advocating to governments on ways of working was needed. The second common theme found was related to acceptance by other healthcare professionals and interprofessional collaboration. Some respondents also highlighted a need for support from the public and society and raising awareness in the community about the importance of vaccinations. The involvement of pharmacists in vaccination campaigns can leverage pharmacists' role in increasing vaccination coverage rates.

3.12.3 Logistics support for pharmacy-based vaccination services

Some respondents highlighted a need for logistics support related to dealing with possible anaphylactic reactions in community pharmacies. The need for facilities for follow-up of vaccinated individuals to monitor and treat possible adverse effects or complications was also mentioned. Some respondents also highlighted a need for support in the supply chain, such as appropriate access to booking systems for vaccination, support in monitoring the quality and shelf life of vaccines and storage conditions, disposal of medical waste, and technological advancement to support tools for registration, follow up and monitoring of vaccination services.

3.12.4 Education and training support

Some organisations highlighted that vaccines should be administered by professionals with sufficient knowledge and expertise, and training of pharmacists was needed, which should include continuing education and training. Some organisations stated that support related to the availability of references and guidance to help practising pharmacists implement vaccination services in their pharmacies was needed.

4 Summary and conclusions

Since the 2020 FIP report, the role of the pharmacist in vaccination has expanded globally, as has the availability of pharmacy-based vaccination services around the world. Pharmacists now administer vaccines from a longer list of that includes DTP booster, meningitis and COVID-19 vaccines, thereby contributing to expanded immunisation coverage and reducing morbidity and mortality from these vaccine-preventable diseases.

A number of impactful drivers have been found that enabled the role of the pharmacist in vaccination. These drivers can be adopted or encouraged by members of the profession globally, especially those who seek to expand the role of the pharmacist in those countries where there is no current pharmacist involvement in vaccination. Similarly, this report identifies common barriers to pharmacist involvement, and strategies can be developed by the profession that focus on removing these barriers.

Evidence of the impact of pharmacists on improving vaccination coverage globally is growing, and the associated data and intelligence (including that which is presented in this report) will be valuable for advocating a scope of practice for pharmacists that includes the administration of vaccines. It also provides important areas for consideration and issues to address for those countries' health systems wanting to introduce pharmacists as vaccinators and pharmacy-based vaccination services.

The COVID-19 pandemic has provided further affirmation of the accessibility and availability of pharmacists as front-line providers of people-centred care, delivering important services such as vaccinations. Beyond the pandemic, the pace of advocacy, legislative and regulatory efforts to support this enhanced role and services must be kept up as a necessary route to achieving universal health coverage. FIP is ideally placed to support all elements and will ensure these are reflected in our plans for pandemic preparedness by the end of 2022.

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Argentina

Confederacion Farmaceutica Argentina

Australia

Pharmaceutical Society of Australia

Belgium

Association Pharmaceutique Belge

Bolivia

Sociedad Boliviana de Ciencias Farmaceuticas

Canada

Canadian Pharmacists Association

China Hong Kong

Pharmaceutical Society of Hong Kong

Costa Rica

Colegio de Farmacéuticos de Costa Rica

Denmark

The Association of Danish Pharmacies

Estonia

Estonian Pharmacies Association
Estonian Society of Hospital Pharmacist

Finland

Association of Finnish Pharmacies
The Finnish Pharmacists' Society

France

French Chamber of Pharmacists

Germany

Federal Union of German Associations of Pharmacists

Greece

Panhellenic Association of Hospital Pharmacists

Iceland

Pharmaceutical Society of Iceland

Indonesia

Indonesian Pharmacists Association — community health centre special interest group

Ireland

Irish Pharmacy Union

Israel

Pharmaceutical Association of Israel

Italy

FEDERFARMA

Jordan

Jordan Pharmacists Association

Lebanon

INSPECT-LB: Intitut National de Santé Publique, Epidémiologie Clinique et Toxicologie, Liban
Lebanese order of Pharmacists

Malaysia

Malaysian Pharmacists Society

Malta

Malta Pharmaceutical Association

Nepal

Kathmandu University

Netherlands

The Royal Dutch Pharmacists Association

New Zealand

Pharmaceutical Society of New Zealand

Norway

Norwegian Pharmacy Association

Philippines

Philippine Pharmacists Association, Inc.

Poland

Polish Pharmaceutical Society

Portugal

Associação Nacional das Farmácias

Saudi Arabia

Princess Nourah Bint Abdulrahman University/King Abdullah bin Abdulaziz University Hospital

Sierra Leone

Pharmaceutical Society of Sierra Leone

South Africa

Pharmaceutical Society of South Africa

Sweden

Swedish Pharmacists Association

Switzerland

pharmaSuisse

United Arab Emirates

Axa insurance gulf

United Kingdom

National Health Service — Wales

National Health Service — Northern Ireland

United States

American Pharmacists Association

American Society of Health-System Pharmacists

Venezuela

Venezuelan Pharmaceutical Federation

Appendix 1: Survey questionnaire (English version)

Background

The importance of vaccines for public health creates opportunities for the pharmacy profession to contribute to improving vaccination coverage. In 2020, FIP published a [report](#) that highlighted the role of pharmacists and pharmacies in vaccination. Feedback suggested that one particular area where the role of pharmacists could be further harnessed is related to the administration of **booster vaccinations**, such as Tdap (tetanus, diphtheria, and acellular pertussis) and also other vaccine-preventable diseases, such as **meningitis**. The need for mass and urgent vaccination against **COVID-19** has also led several countries to introduce pharmacy-based vaccination schemes or to expand the scope of vaccines administration by pharmacists. It is professionally important to monitor how pharmacists are participating in vaccination strategies around the world and to maintain intelligence and current data that can support advocacy for a broader role for pharmacists in vaccination and to share data with our Members.

We understand that pharmacy-based vaccination regulation is in operation in your country, and we would like to determine the current role of **pharmacists** and **pharmacies** specifically in **Tdap** (tetanus, diphtheria, and acellular pertussis) booster vaccination, **COVID-19** vaccination, and **meningococcal meningitis** vaccination. We would like to identify drivers, barriers, and needs for expanding the role of the pharmacist in your country with Tdap booster, COVID-19 and meningococcal meningitis vaccines. We invite you to participate in this survey to share with us the current situation in your country.

Instruction and privacy statement

This survey will take you approximately **15-20 minutes** to complete and the deadline for submission is **28 February 2022**. The survey is available in Arabic, French, English, Portuguese, and Spanish languages. If you are not the vaccination subject matter expert at your organisation, please forward this survey to the most appropriate person within your organisation and inform us (copying us on the forwarded email is sufficient).

The information collected in this survey will be used to develop an intelligence report with the survey findings, analysis and advocacy messages available to all FIP members. All retrieved data is stored securely in line with our FIP Data policy protocol. Identifiable information will be used only to make organisational contact with you (if necessary) and is maintained in a secure confidential format within FIP.

This survey is being conducted by the FIP [Global Pharmaceutical Observatory \(GPO\)](#) and resourced through an unrestricted grant. If you have any questions regarding this survey or wish to withdraw from the survey, please contact FIP Global Pharmaceutical Observatory at observatory@fip.org.

Thank you in advance for your time and collaboration.

Some keywords that have been used in this survey are as follows:

Vaccination: the administration of a vaccine to stimulate immunisation.

Vaccination authority: the authority granted by a legal or regulatory body to administer a vaccine to individuals.

Prescribing authority: the authority granted by a legal or regulatory body to write a prescription allowing a vaccine to be dispensed and administered to an individual.

Jurisdiction/locality: refers to defined subdivisions of a country/territory where a specific set of legislation and/or regulations apply - can include states, provinces, regions, cities, or other divisions.

Third party payer: public or private organisation that pays or insures health or medical expenses on behalf of beneficiaries or recipients.

Your organisation's details

Country or territory: []

Name of your organisation: []

Organisation URL: []

Please provide the following information for the name of person completing the questionnaire.

Title (Ms/Mr/Other): []

First name: []

Last name: []

Email address: []

Position/job title in organisation: []

How many pharmacists does your organisation currently represent? []

Vaccination authority

-The authority granted by a legal or regulatory body to administer a vaccine to individuals-

1. Which of the following options is applicable to your country/territory?
Select all that apply.

Vaccines can be administered at community pharmacies.

Vaccines can be administered outside community pharmacies.

Please describe where vaccines can be administered. []

1.1 For each specific vaccine performed **at community pharmacies**, who can legally administer the following vaccines in your country/territory?

	Trained pharmacists	Trained pharmacy support staff , such as pharmacy technicians	Other healthcare professionals	None of these options
Tdap (Tetanus, diphtheria, and acellular pertussis) booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.1.1 If you answered 'None of these options', please provide more detail. []

1.1.2 If you answered 'Other vaccines', what are the other vaccines? []

1.2 For each specific vaccine performed **outside community pharmacies**, who can legally administer the following vaccines in your country/territory?

	Trained pharmacists	Trained pharmacy support staff , such as pharmacy technicians	Other healthcare professionals	None of these options
Tdap (Tetanus, diphtheria, and acellular pertussis) booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.2.1 If you answered 'None of these options', please provide more detail. []

1.2.2 If you answered 'Other vaccines', what are the other vaccines? []

2.1 Which of the following apply regarding **pharmacist** administration of vaccines for your country/territory?

Administration authority across the country/territory for pharmacists

	Consistent across the country/territory	Varies by jurisdiction/locality	Not applicable
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.1.1 How was this authority achieved for pharmacists? []

2.1.2 Which of the following apply regarding **pharmacy support staff** administration of vaccines for your country/territory?

Administration authority across the country/territory for pharmacy support staff

	Consistent across the country/territory	Varies by jurisdiction/locality	Not applicable
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.2.1 How was this authority achieved for pharmacy support staff? []

3. Apart from administering the vaccine product, are pharmacists authorised to **prescribe** any of the following vaccines for administration?
Select all that apply.

- Yes, for Tdap booster vaccines
- Yes, for COVID-19 vaccines
- Yes, for meningococcal meningitis vaccines
- Yes, for other vaccines
- No

3.1 Is pharmacist prescribing authority consistent across your country/territory?

Prescribing authority across the country/territory for pharmacy support staff

	Consistent across the country/territory	Varies by jurisdiction/locality	Not applicable
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.1 Is your country/territory (or any jurisdiction/locality in your country/territory) currently proposing or undergoing the **development of policy/legislation/regulations** allowing any of the following? If yes, please tick the appropriate box. If no, please leave blank.

	Tdap booster vaccines	COVID-19 vaccines	Meningococcal meningitis	Other vaccines
Pharmacist prescribing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacist administering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy technician administering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other policy/legislation/regulations development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.2 If you selected "other policy/legislation/regulations development" for any of the vaccines above, please provide more detail. []

5.1 Do pharmacists and/or pharmacies have access (reading rights) to any of the following vaccination records?

	Yes, for all records	Yes, for some records	No
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.2 Are pharmacists and/or pharmacies authorised to record (write) vaccination details in a vaccination record (electronic and/or paper-based) for the following vaccinations?

	Yes, and it is mandatory to record <u>both</u> the patient's details and the vaccination details	Yes, and it is mandatory to record the vaccination details but <u>not</u> the patient's details	Yes, but it is not mandatory	No
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.3 Are vaccination records required to be shared or the information reported to the health authorities by pharmacists and/or pharmacies?

	Yes, vaccination records required to be reported	Yes, but requirement varies by jurisdiction/locality	No, reporting is optional	Other
Tdap booster vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19 vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.3.1 If you answered 'Other' for any of the above, please provide more detail. []

6. What other role(s) do pharmacy team members play in the vaccination process? []

7.1 Which of the following **Tdap booster** target population groups can pharmacists and/or pharmacy technicians vaccinate?

- Adolescents/young persons (Individual protection of adolescents 11- 12 years old; important reservoir of the disease)
- Pregnant women
- Relatives of infants/children
- Healthy adults
- Professional groups (Individual protection of sensitive professional groups [set by c country]; or for health care professionals, indirect protection of patients)
- Vulnerable adults
- Other: []

7.2 Which of the following **COVID-19** target population groups can pharmacists and/or pharmacy technicians vaccinate?

- Adolescents/young persons
- Adults
- Vulnerable adults
- Other: []

7.3 Which of the following **meningococcal meningitis** target population groups can pharmacists and/or pharmacy technicians vaccinate?

- Infants (Younger children [down to 2 months old])
- Children
- Adolescents (11 to 12 years old with a booster dose at 16 years old; first-year college students living in a residence hall and are not up to date with this vaccine)
- Travelers to endemic areas (including Hajj, Umrah pilgrims, etc)
- People with certain medical conditions or taking specific medications (Complement component deficiency; functional or anatomic asplenia; complement inhibitor)
- Professional groups (Individual routinely exposed to the causal pathogen)
- People who live in closed communities (Being a part of a community experiencing a serogroup A, C, W or Y meningococcal disease outbreak)
- Other: []

8. You may use this space to provide any additional information or links to documents related to vaccination authority. []

Remuneration for vaccination services

9. How are pharmacists or pharmacies reimbursed for the following vaccination services?
Please answer as it relates to the service provided, not for the vaccine product dispensed.

	Third party pays	Patient pays	Not paid	Other
Tdap booster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9.1 If you selected 'Third party pays', which third-party payers reimburse for the following vaccination services?
Select all that apply. If this question does not apply, please skip the question.

	Public (state-run) health systems or insurers	Private health systems or insurers
Tdap booster	<input type="checkbox"/>	<input type="checkbox"/>
COVID-19	<input type="checkbox"/>	<input type="checkbox"/>
Meningococcal meningitis	<input type="checkbox"/>	<input type="checkbox"/>
Other vaccines	<input type="checkbox"/>	<input type="checkbox"/>

9.2 If you selected 'Other' for how pharmacists or pharmacies are reimbursed for vaccination services in your country/territory, please provide more detail. []

9.3 If reimbursement policy varies depending on jurisdiction/locality and/or varies between vaccine types, please provide additional detail. []

10. How does pharmacist and/or pharmacy remuneration for vaccination services compare to remuneration for other healthcare professionals? []

11. You may use this space to provide any additional information or links to documents related to remuneration for vaccination services. []

Drivers for vaccination services

12.1 Which of the following are **drivers/incentives** for pharmacists and/or pharmacies providing **Tdap booster vaccines** in your country/territory?

- Patient demand/lack of access
- Low vaccine coverage rate/uptake of vaccine
- Lower cost of pharmacist-provided service compared to other healthcare professionals
- Insufficient workforce capacity of other healthcare professionals
- Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role
- Remuneration available to provide vaccination services
- Education and training has already been made available or organised for pharmacists to administer vaccines
- Other (please elaborate): []
- No significant drivers

12.2 Please **rank** your selected drivers/incentives (1 is highest, 9 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **Tdap booster vaccines**.
If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.

Choose an item. Patient demand/lack of access

Choose an item. Low vaccine coverage rate/uptake of vaccine

Choose an item. Lower cost of pharmacist-provided service compared to other healthcare professionals

Choose an item. Insufficient workforce capacity of other healthcare professionals

Choose an item. Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role

Choose an item. Remuneration available to provide vaccination services

Choose an item. Education and training has already been made available or organised for pharmacists to administer vaccines

Choose an item. Other (please elaborate): []

Choose an item. No significant drivers

13.1 Which of the following are **drivers/incentives** for pharmacists and/or pharmacies providing **COVID-19 vaccines** in your country/territory?

- Patient demand/lack of access
- Low vaccine coverage rate/uptake of vaccine
- Lower cost of pharmacist-provided service compared to other healthcare professionals
- Insufficient workforce capacity of other healthcare professionals
- Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role
- Remuneration available to provide vaccination services

- Education and training has already been made available or organised for pharmacists to administer vaccines
- Other (please elaborate): []
- No significant drivers

12.3 Please **rank** your selected drivers/incentives (1 is highest, 9 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **COVID-19**.

If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.

Choose an item. Patient demand/lack of access

Choose an item. Low vaccine coverage rate/uptake of vaccine

Choose an item. Lower cost of pharmacist-provided service compared to other healthcare professionals

Choose an item. Insufficient workforce capacity of other healthcare professionals

Choose an item. Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role

Choose an item. Remuneration available to provide vaccination services

Choose an item. Education and training has already been made available or organised for pharmacists to administer vaccines

Choose an item. Other (please elaborate): []

Choose an item. No significant drivers

14.1 Which of the following are **drivers/incentives** for pharmacists and/or pharmacies providing **Meningococcal meningitis** vaccines in your country/territory?

Patient demand/lack of access

Low vaccine coverage rate/uptake of vaccine

Lower cost of pharmacist-provided service compared to other healthcare professionals

Insufficient workforce capacity of other healthcare professionals

Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role

Remuneration available to provide vaccination services

Education and training has already been made available or organised for pharmacists to administer vaccines

Other (please elaborate): []

No significant drivers

14.2 Please **rank** your selected drivers/incentives (1 is highest, 9 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **Meningococcal meningitis**.

If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.

Choose an item. Patient demand/lack of access

Choose an item. Low vaccine coverage rate/uptake of vaccine

Choose an item. Lower cost of pharmacist-provided service compared to other healthcare professionals

Choose an item. Insufficient workforce capacity of other healthcare professionals

Choose an item. Pharmacist/pharmacy desire to provide vaccination services and/or evolve their role

Choose an item. Remuneration available to provide vaccination services

Choose an item. Education and training has already been made available or organised for pharmacists to administer vaccines

Choose an item. Other (please elaborate): []

Choose an item. No significant drivers

15. You may use this space to provide any additional information or links to documents related to drivers/incentives for vaccination services: []

Barriers to vaccination services

16.1 Which of the following are barriers for pharmacists and/or pharmacies providing **Tdap booster vaccines** in your country/territory?

- Limited acceptance and/or support by government/health system
- Lack of regulatory support
- Limited acceptance and/or support by other healthcare professionals
- Inadequate and/or lack of remuneration models
- Logistical supply chain issues, such as cold-chain compliance
- Lack of access to get vaccine products in pharmacies
- Insufficient pharmacy workforce capacity
- Lack of patient demand/acceptance
- Lack of confidence by pharmacists to administer vaccinations
- Lack of interest by pharmacists and/or pharmacies to administer vaccinations
- Limited access to training opportunities for pharmacists
- Other (please elaborate): []
- No significant barriers

16.2 Please **rank** your selected barriers (1 is highest, 12 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **Tdap boosters**.
If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.

Choose an item. Limited acceptance and/or support by government/health system

Choose an item. Lack of regulatory support

Choose an item. Limited acceptance and/or support by other healthcare professionals

Choose an item. Inadequate and/or lack of remuneration models

Choose an item. Logistical supply chain issues, such as cold-chain compliance

Choose an item. Lack of access to get vaccine products in pharmacies

Choose an item. Insufficient pharmacy workforce capacity

Choose an item. Lack of patient demand/acceptance

Choose an item. Lack of confidence by pharmacists to administer vaccinations

Choose an item. Lack of interest by pharmacists and/or pharmacies to administer vaccinations

Choose an item. Limited access to training opportunities for pharmacists

Choose an item. Other (please elaborate): []

Choose an item. No significant barriers

17.1 Which of the following are barriers for pharmacists and/or pharmacies providing **COVID-19 vaccines** in your country/territory?

- Limited acceptance and/or support by government/health system
- Lack of regulatory support
- Limited acceptance and/or support by other healthcare professionals
- Inadequate and/or lack of remuneration models
- Logistical supply chain issues, such as cold-chain compliance
- Lack of access to get vaccine products in pharmacies
- Insufficient pharmacy workforce capacity
- Lack of patient demand/acceptance
- Lack of confidence by pharmacists to administer vaccinations
- Lack of interest by pharmacists and/or pharmacies to administer vaccinations

- Limited access to training opportunities for pharmacists
- Other (please elaborate): []
- No significant barriers
- 17.2 Please **rank** your selected barriers (1 is highest, 12 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **COVID-19**.
If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.
- Choose an item. Limited acceptance and/or support by government/health system
- Choose an item. Lack of regulatory support
- Choose an item. Limited acceptance and/or support by other healthcare professionals
- Choose an item. Inadequate and/or lack of remuneration models
- Choose an item. Logistical supply chain issues, such as cold-chain compliance
- Choose an item. Lack of access to get vaccine products in pharmacies
- Choose an item. Insufficient pharmacy workforce capacity
- Choose an item. Lack of patient demand/acceptance
- Choose an item. Lack of confidence by pharmacists to administer vaccinations
- Choose an item. Lack of interest by pharmacists and/or pharmacies to administer vaccinations
- Choose an item. Limited access to training opportunities for pharmacists
- Choose an item. Other (please elaborate): []
- Choose an item. No significant barriers
- 18.1 Which of the following are barriers for pharmacists and/or pharmacies providing **meningococcal meningitis vaccines** in your country/territory?
- Limited acceptance and/or support by government/health system
- Lack of regulatory support
- Limited acceptance and/or support by other healthcare professionals
- Inadequate and/or lack of remuneration models
- Logistical supply chain issues, such as cold-chain compliance
- Lack of access to get vaccine products in pharmacies
- Insufficient pharmacy workforce capacity
- Lack of patient demand/acceptance
- Lack of confidence by pharmacists to administer vaccinations
- Lack of interest by pharmacists and/or pharmacies to administer vaccinations
- Limited access to training opportunities for pharmacists
- Other (please elaborate): []
- No significant barriers
- 18.2 Please **rank** your selected barriers (1 is highest, 12 is lowest) that have the most significant impact on pharmacists and/or pharmacy technicians vaccination administration capabilities for **COVID-19**.
If you did not select a particular driver/incentive in the question above, select 'N' from the drop down menu.
- Choose an item. Limited acceptance and/or support by government/health system
- Choose an item. Lack of regulatory support
- Choose an item. Limited acceptance and/or support by other healthcare professionals
- Choose an item. Inadequate and/or lack of remuneration models
- Choose an item. Logistical supply chain issues, such as cold-chain compliance
- Choose an item. Lack of access to get vaccine products in pharmacies
- Choose an item. Insufficient pharmacy workforce capacity
- Choose an item. Lack of patient demand/acceptance

Choose an item. Lack of confidence by pharmacists to administer vaccinations

Choose an item. Lack of interest by pharmacists and/or pharmacies to administer vaccinations

Choose an item. Limited access to training opportunities for pharmacists

Choose an item. Other (please elaborate): []

Choose an item. No significant barriers

19. You may use this space to provide any additional information or links to documents related to this barriers to vaccination services. []

Additional information

20. In your opinion, what support is needed to leverage the role of pharmacists and/or pharmacies in increasing the vaccine coverage rate and uptake of vaccines in your country/territory?

Please provide information from a policy perspective if applicable. []

21. Has delivering covid 19 vaccines and boosters has had an impact on the delivery of flu vaccinations? If yes, how? []

22. How can FIP support you in expanding pharmacists and/or pharmacies role in vaccination? []

23. We may also invite you for a follow-up interview or for focus group participation in February to April 2022 to clarify the information provided. Would you be willing to participate in a follow-up interview or focus group?
If you do not wish to participate in a follow-up interview, you will be able to decline the request while still remaining a survey participant.

Yes, please provide details for any other individuals you would like to be included in the interview. []

No

24. Recommendation for additional subject matter expert to consult regarding vaccination services in your country/territory

- Title (Ms/Mr/Other): []
- First name: []
- Last name: []
- Email address: []
- Affiliation: []

25. You may use this space to provide any additional information or links to documents related to any section of the survey. []

Appendix 2: Countries with vaccination services at community pharmacies and vaccines that can be administered by pharmacists

Country or territory	WHO region	Income group	Vaccination services at community pharmacies	Vaccines that can be administered by pharmacists		
				Diphtheria-tetanus-pertussis booster	COVID-19	Meningococcal meningitis
Argentina	Americas	Upper middle	✓	✓	✓*	✓
Australia	Western Pacific	High	✓	✓*	✓*	✓*
Belgium	European	High	✓		✓	
Bolivia	Americas	Lower middle	✗			
Canada	Americas	High	✓	✓*	✓*	✓*
Costa Rica	Americas	Upper middle	✓	✓		✓
Denmark	European	High	✓		✓	
Estonia	European	High	✓			
Finland	European	High	✓			
France	European	High	✓		✓	
Germany	European	High	✓		✓	
Greece	European	High	✓	✓	✓	
Iceland	European	High	✗			
Indonesia	South East Asian	Lower middle	✗			
Ireland	European	High	✓		✓	
Israel	European	High	✓	✓	✓	✓
Italy	European	High	✓		✓	
Jordan	Eastern Mediterranean	Upper middle	✓		✓	
Lebanon	Eastern Mediterranean	Upper middle	✓			
Malaysia	Western Pacific	Upper middle	✗		✓	
Malta	European	High	✗			
Nepal	South East Asian	Lower middle	✗			
Netherlands	European	High	✗			

Country or territory	WHO region	Income group	Vaccination services at community pharmacies	Vaccines that can be administered by pharmacists		
				Diphtheria-tetanus-pertussis booster	COVID-19	Meningococcal meningitis
New Zealand	Western Pacific	High	✓	✓	✓	✓
Norway	European	High	✓	✓	✓	✓
Philippines	Western Pacific	Lower middle	✓		✓	
Poland	European	High	✓		✓	
Portugal	European	High	✓			✓
Saudi Arabia	Eastern Mediterranean	High	✓		✓	
Sierra Leone	African	Low	✓			
South Africa	African	Upper middle	✓	✓	✓	✓
Sweden	European	High	✓			
Switzerland	European	High	✓	✓*	✓	
United Arab Emirates	Eastern Mediterranean	High	✗			
United Kingdom	European	High	✓	✓	✓	✓
United States	Americas	High	✓	✓*	✓	✓*

Key: *Administration authority varies depending on region/jurisdiction.

Appendix 3: Countries authorising access, recording and/or reporting in vaccination records by pharmacists and pharmacies

Country	Region	Access to		Recording		Reporting	
		All records	Some records	Mandatory	Optional	Required	Requirements vary
A. DTP booster							
Argentina	Americas		✓	✓			
Australia	Western Pacific	✓		✓		✓	
Canada	Americas			✓		✓	
Costa Rica	Americas		✓	✓		✓	
France	European	✓					
Germany	European	✓					
Greece	European	✓			✓		
Indonesia	South East Asian					✓	
Malta	European	✓					
New Zealand	Western Pacific	✓		✓		✓	
Norway	European			✓		✓	
Sierra Leone	African	✓			✓	✓	
South Africa	African		✓		✓		
Switzerland	European	✓		✓			
United Kingdom	European		✓				
United States	Americas	✓		✓			✓
Total		9	4	8	3	7	1
COVID-19							
Argentina	Americas		✓	✓		✓	
Australia	Western Pacific	✓		✓		✓	
Belgium	European	✓		✓		✓	
Canada	Americas		✓	✓		✓	
Denmark	European	✓		✓		✓	

Country	Region	Access to		Recording		Reporting	
		All records	Some records	Mandatory	Optional	Required	Requirements vary
France	European	✓		✓		✓	
Germany	European	✓		✓		✓	
Greece	European	✓		✓		✓	
Indonesia	South East Asian		✓		✓	✓	
Ireland	European	✓		✓		✓	
Italy	European		✓	✓		✓	
Jordan	Eastern Mediterranean			✓		✓	
Lebanon	Eastern Mediterranean		✓				
Malaysia	Western Pacific		✓	✓		✓	
Malta	European	✓				✓	
New Zealand	Western Pacific	✓		✓		✓	
Norway	European			✓		✓	
Philippines	Western Pacific		✓	✓		✓	
Poland	European	✓		✓		✓	
Saudi Arabia	Eastern Mediterranean		✓	✓		✓	
Sierra Leone	African	✓			✓	✓	
South Africa	African		✓	✓		✓	
Switzerland	European	✓		✓		✓	
The Netherlands	European		✓	✓		✓	
United Kingdom	European	✓		✓		✓	
United States	Americas	✓		✓			✓
Total		14	10	22	2	24	1
Meningococcal meningitis							
Argentina	Americas		✓	✓			
Australia	Western Pacific	✓		✓		✓	
Canada	Americas			✓		✓	
Costa Rica	Americas		✓	✓		✓	
France	European	✓					

Country	Region	Access to		Recording		Reporting	
		All records	Some records	Mandatory	Optional	Required	Requirements vary
Germany	European	✓					
Greece	European		✓		✓		
Indonesia	South East Asian					✓	
New Zealand	Western Pacific	✓		✓		✓	
Norway	European			✓		✓	
Portugal	European				✓	✓	
Sierra Leone	African	✓			✓	✓	
South Africa	African		✓		✓		
Switzerland	European	✓		✓			
United Kingdom	European		✓				
United States	Americas	✓		✓			✓
Total		7	5	8	4	8	1

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