Regional challenges and enablers to leveraging pharmacists as vaccinators

Outcomes from a series of regional roundtables

2022

fip International Pharmaceutical Federation

Colophon

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Foreword

Vaccination is one of the most fundamental elements of universal health coverage. It saves millions of lives around the world and contributes to more resilient and sustainable health systems. Yet, in many countries, vaccination coverage rates are suboptimal and, generally, vaccination services are focused on childhood and not the life course. The World Health Organization's Immunization Agenda 2030 highlights the need to adopt a life-course approach in vaccination strategies.

FIP's work on vaccination started way before the recent COVID-19 pandemic, with a focus on disease prevention strategies and pharmacy-based vaccination. Disease prevention through vaccination is an enabler of healthier lives and a cost-effective approach to the management of health systems. This is key to the sustainability of health systems in all countries, regardless of income level, and it should be a high priority on the health policy agenda of every country. Globally, increased vaccination coverage may be achieved by expanding vaccination pathways and diversifying the health workforce that can provide such services.

Vaccination is linked to 17 of the 21 FIP Development Goals, highlighting the importance of this topic for FIP and for health policy across regions. In particular, Development Goal 16, focusing on communicable diseases, is overtly linked to the role of pharmacists in vaccine-preventable diseases. FIP's work on vaccination is based on the conviction that improving vaccination coverage and promoting a life-course approach to vaccination are global imperatives to which pharmacists can greatly contribute.

With adequate training, pharmacists are competent to perform a series of roles that can significantly contribute to improving vaccination coverage, from providing evidence-based advice on vaccines and addressing vaccine hesitancy and complacency, to administering vaccines and managing vaccination records. Although pharmacists have administered vaccines in several countries for years, this role is still new or even unknown to the profession in many parts of the world. Importantly, when supported by appropriate regulatory frameworks, protocols and training, pharmacists may also prescribe the vaccines that are suitable for given individuals, thus making the vaccination pathway simpler and more convenient, particularly for adults and older persons.

From a professional regulation perspective, it is essential to ensure that the pharmacy workforce is adequately trained to face these new challenges and that the appropriate structures and conditions are in place to ensure the delivery of safe and quality vaccination services to patients and the community.

A series of regional online roundtable events entitled "Enabling multiprofessional vaccine prescribing and administration for improved uptake rates", organised by FIP in February and March 2022, provided a platform to discuss possible enablers and barriers for the involvement of pharmacists in vaccine-related roles and explore the differences and similarities that exist across the regions.

By exploring these barriers, we can also unveil possible pathways for interprofessional collaboration and task sharing when it comes to vaccination services. By doing so, we may achieve higher vaccination uptake and provide better accessibility and convenience to the people that most need being vaccinated, leaving no one behind.

I hope this publication can serve as a starting point for more vaccine-related discussions around the world and that we can enable multiprofessional vaccine prescribing and administration as a patient-centred approach.

Ronald Guse
Chair of the FIP Forum of Professional Regulators

1 Introduction

Vaccination is a major contributor to the prevention of disease and the reduction of healthcare costs. It is estimated that immunisation prevents four to five million deaths every year.[1] Across the globe, access to vaccines throughout the life-course is suboptimal and this is reflected in low coverage rates among adults in many countries,[2] with national vaccination strategies mostly focusing on childhood.[3] Access to full immunisation at all ages is an indisputable human right. Vaccines are effective not only from a public health perspective, but also from an economic perspective: they are one of the most cost-effective health investments.[4]

Vaccination uptake has been facing additional challenges in recent years, including increased hesitancy, complacency or lack of access in different countries. As an example of the critical need for expanded vaccination strategies and investments in prevention, global vaccine coverage against diphtheria, tetanus and pertussis has plateaued at around 86% since 2010,[5] and in most countries influenza vaccination coverage rates remain far from the 75% goal established by the World Health Organization years ago.[6] Goals to expand vaccination pathways include having more and more easily accessible vaccination points, and more professionals who can deliver the service to more people and offer evidence-based advice on vaccines.

Pharmacists are available and accessible to safely support various population groups in achieving higher vaccination coverage rates — especially those who may be at higher risk of vaccine-preventable diseases, including the elderly and people living with non-communicable diseases, or hard-to-reach groups who often have fewer interactions with the healthcare systems. In recent years, the number of countries that have introduced vaccination by pharmacists or at community pharmacies has steadily increased.[7, 8] However, barriers and opposition to this expansion of pharmacists' scope of practice exist in several countries.[9]

Pharmacists have an essential public health role to play by being educators and advisers, facilitating and participating in national and global routine immunisation strategies and delivering pharmacy-based vaccinations. All these roles have been safely and successfully implemented in many countries around the world and there is a wealth of evidence of the impact of pharmacists' vaccination-related roles.[8]

There are a number of essential requirements that allow pharmacists to develop vaccination-related roles in community pharmacy:[8]

- Legal, educational and technical frameworks
- Requirements for the supportive pharmaceutical workforce
- Infrastructure
- Supply chain management: vaccine orders and procurement
- Storage conditions and equipment
- Timely access to patients' vaccination records and ability to add data
- Equipment for vaccine administration and disposal
- Equipment and medicines for anaphylaxis management
- Information, policies, and procedures
- Material and supplies
- Economic sustainability of vaccination services at the pharmacy

Considering these requirements, FIP organised in February and March 2022 a series of six regional roundtables with some of its member organisations and other key stakeholders from each region. These events were co-developed and led by the FIP Forum of Professional Regulators and identified the drivers and barriers to the implementation of pharmacist-led vaccination in each region. In particular, they discussed the existing challenges to interprofessional understanding, cooperation and task sharing in the area of vaccination. Discussion topics included the regulatory authority granted to different healthcare professionals to prescribe and administer vaccines and the plans for the management of anti-COVID-19 vaccination in a post-pandemic scenario.

The objectives for this series of events were to:

- Identify drivers and barriers related to the regulatory landscape of vaccination in the region;
- Learn about examples of best practices in terms of interprofessional cooperation and task-sharing involving pharmacists in the area of vaccination;
- Explore the plans for switching from a pandemic to an endemic response in the region, including the role of pharmacists in vaccination, and in patient care and treatment; and
- Identify ways in which FIP may further support its member organisations in achieving or expanding pharmacy-based vaccination in their countries.

More information on different topics related to vaccination can be found on the Transforming Vaccination website. The second series of this programme focused on the sustainable and equitable access to vaccines, through a series of discussions aiming at identifying priorities and suitable policy models for each region. Details about this programme and its outcomes can be found at the 2021 Transforming Vaccination collection page, under "Understanding common regional issues, needs and priorities".

2 Western Pacific region

2.1 Event description

The regional event for the Western Pacific region took place on 28 February 2022. The composition of the panel is described below and presented in Figure 1. A recording of the event is available online through the following link: Western Pacific region.

Moderators:

- Parisa Aslani, FIP vice president, Australia
- Ronald Guse, chair of FIP Regulators Forum, Canada

Roundtable panellists:

- Amrahi Buang, president, Malaysian Pharmacists Society, Malaysia
- John Jackson, president, Western Pacific Pharmaceutical Forum, Australia
- Dr Michael Moore, chair of the World Federation of Public Health Associations' Global Taskforce on Immunization, and adjunct professor at the University of Canberra, Australia
- Prof. Tony Nelson, chair of the steering committee, Immunisation Partnership Asia Pacific, Hong Kong
- Andi Shirtcliffe, clinical chief advisor pharmacy, Allied Health and National Immunisation Programme Office of the Chief Clinical Officers, Ministry of Health, New Zealand
- Stephanie Tay, senior manager, Chief Pharmacist's Office, Ministry of Health, Singapore

Figure 1. Roundtable participants for the Western Pacific region

2.2 Event outcomes

2.2.1 Vaccination needs

In the Western Pacific region, the diversity between countries' income level and health system development is immense, and this is reflected in the differences in vaccination coverage rates. In countries with advanced healthcare systems, childhood immunisation is well managed, readily available and coverage rates are usually high. Still, in such countries, reimmunisation against rubella (e.g., when becoming a grandparent), travel-related immunisation, immunisation against pneumococcus at a later age and immunisation against seasonal influenza are not as optimal. These often depend on specific public health programmes, individual awareness, geographic access or affordability. This includes countries like Australia, Hong Kong (China), New Zealand, Singapore, South Korea and others.

On the other hand, in countries with less developed healthcare systems, regardless of the age or type of immunisation, two factors dominate: economics (access to funded programmes or the capacity to afford out-of-pocket costs) and engagement with the healthcare system (geographic or social isolation). Countries such as the Philippines have had challenges, particularly after concerns about the safety of the dengue vaccine, and witnessed significant declines in vaccine uptake.

In New Zealand, childhood immunisation targets have been historically set at 95% and most district health boards have not achieved these rates. The country has an equity gap for Māori and Pacific Islanders although the equity gap for Pacific Islanders seems to be narrowing. There are concerns about the measles, mumps and rubella (MMR) vaccination rates, which seem to be Increasing but are still significantly lower for Māori populations.

In Malaysia the need to increase vaccination coverage is especially alarming in adult populations. For children, the Malaysian National Immunisation Programme involving 13 types of vaccines is running well. Private healthcare facilities (hospitals and primary care general practitioners) offer patient-paid adult vaccination for influenza, pneumococcal and meningococcal and other travel vaccines. COVID-19 has created a whole new dynamic with different countries responding differently and vaccination rates varying significantly for many reasons, including supply issues and hesitancy about safety and effectiveness.

2.2.2 Main providers of vaccination services

Across the region, country dimensions is an important factor to consider when it comes to health system distribution and access to vaccination services. Most countries have a separated system, where there is a group of vaccines that is funded by the government and another group that is available in the private sector and paid out-of-pocket by the individual. Overall, in the region, the main providers of vaccination are:

- Government-operated childhood vaccination programmes;
- Medical practitioner programmes;
- WHO and donor agency vaccination programmes;
- Emergency response vaccination programmes including for pandemics, mass displaced populations, floods and other natural disaster responses; and
- Pharmacy-based programmes in a small number of countries: Australia, Hong Kong (China), Malaysia, New Zealand and Philippines.[10]

Across the region, John Jackson highlighted the existence of occupational health nurses that have provided privately funded influenza vaccinations in workplaces, as a successful experience for both employers and employees. There have also been examples of school-based programmes run by school nurses for vaccines such as human papilloma virus. Residential care facilities tend to vaccinate their own staff and residents.

The concept of "pharmacy-based vaccination" is still generally new for the region and needs more clarification. It could be envisaged primarily through private pharmacies and depends on the structure of different health care services in different countries and how these services are funded.

In Australia, vaccination is historically connected to general practice and childhood vaccines. This landscape is changing, and pharmacists are being included as vaccine providers, especially for flu vaccines. This inclusion had started before the pandemic, but this role was consolidated during the COVID-19 vaccination campaign.

In Singapore, the main providers of vaccinations are general practitioners' clinics and Community Health Assist Schemes for adults. For children, there are designated private medical practitioners, polyclinics or services by the Health Promotion Board. For recommended vaccinations under the National Childhood Immunisation Schedule, full subsidies are provided by the government. For recommended vaccinations under the National Adult Immunisation Schedule, varying levels of subsidies are provided by the government.

2.2.3 Interprofessional collaboration and challenges

In the region, there are still some challenges around collaboration with the medical profession. Some concerns to pharmacists' involvement in vaccination include:

- Pharmacist's lack of clinical skills especially in relation to resuscitation;
- Conflict of interest of pharmacists as initiators, providers, and administrators of vaccines;
- Lack of integration of pharmacists' records of vaccinations with the medical practitioner's records of the patient's management;
- The pharmacy environment not being appropriate because of the lack of a waiting space separated from retail activities; and
- General hesitancy, lack of awareness and lack of trust in vaccines that prevent people from getting their vaccines overall.

Although there are still concerns to be addressed about vaccination, some enablers for increased interprofessional collaboration may include:

- Training of pharmacist-vaccinators to the same standard as nurse vaccinators;
- The pharmacist registration authority including the administration of vaccines and injections (with training) in pharmacists' scope of practice;
- Pharmacy-based administration recorded in the patient's on-line immunisation record;
- Evidence that pharmacy-based vaccination increases the pool of people who are vaccinated rather than just taking patients from those likely to be vaccinated by the medical profession; and
- Record keeping introduced by the COVID-19 passports and declarations. These are useful for interprofessional access to patient data but there needs to be a structured approach to infrastructure and privacy of these data.

In Singapore, there is no known opposition for pharmacists to provide vaccinations, although the regulations currently do not allow for pharmacists to offer this service. There is currently collaborative prescribing, whereby the pharmacist can assess a patient and recommend appropriate vaccinations to be done by a nurse or doctor. This is usually performed with the support of the medical department in the pharmacist's place of practice, under a collaborative prescribing agreement.

In Australia, initial opposition from family doctors seems to be waning. There is some resistance from parts of government that is being softened by the COVID-19 related changes. There has been strong co-operation between the Public Health Association of Australia and Medicines Australia — representing the pharmaceutical industry. Collaborative efforts are focused on the health outcomes for the population, especially in vaccines delivered for the elderly.

In Hong Kong (China), it is possible that there is opposition as pharmacies are in the private sector. Vaccines given through the public system at maternal and child health services and general outpatient clinics will be primarily administered by nurses under the supervision of a doctor. The question arises whether pharmacists would anticipate giving vaccines in the public or the private sector, or both.

The question around vaccination records can make it difficult to navigate between providers and between the public and private sectors. When physical paper copies of vaccine records were available it was easier for patients to keep this information accessible to different healthcare providers, which still happens in some territories or jurisdictions in the region. For digital records, a unified system that is accessible to different providers could be a huge enabler of collaboration in this area.

Interprofessional collaboration to increase trust in vaccines and increase coverage needs to be put in practice across in the region. This is especially important in areas of indigenous communities or rural areas with low

access to healthcare facilities. Pharmacies can play an important role as a gateway to the health system, as the first contact for many of those individuals to get their vaccines up to date.

2.2.4 Regulatory frameworks and enablers for vaccine delivery

Pharmacists have a solid role in the supply of vaccines and as registered professionals with legal responsibilities in the management of vaccines. John Jackson pointed out that "these roles are important to be established and consolidated across the region before having pharmacists as administrators of vaccines". Regulations have been changing during the pandemic and new developments for the role of healthcare professionals and vaccine delivery have been discussed across the region. In the region, funding of pharmacy-based vaccination has included a range of models:

- Totally private market (no government funding or insurance cover);
- Government supply of vaccine free of charge to the pharmacy or patient, with the patient charged for administration by the pharmacy;
- Government supply of vaccine free of charge and government payment to the pharmacy for administration of a fee-for-service basis; and
- Insurance payment of a set reimbursement fee for vaccination.

The evolution of vaccination in pharmacies in Australia began by establishing nurse-vaccinator programmes in pharmacies for influenza followed by achieving approval for trained pharmacists to administer one vaccine (influenza) to adults in pharmacies in one state, territory or province. This led to subsequent expansion to include other vaccines and administration to wider age groups in that state and, based on the first state, approval in other states along similarly staged timelines. This should be done ensuring administration of vaccines is within the scope of practice of pharmacists according to the pharmacist registration authority.

In Singapore, besides the subsidies accorded for the recommended vaccines, people may use funds from their national medical savings accounts. Contributions to this fund from personal income are mandated. Singapore called for former and current healthcare professionals to support the healthcare workforce in the fight against COVID-19, by helping in COVID-19 operations or with community care.

In New Zealand, the classification system for medicines as pharmacist-only allowed the inclusion of some vaccines in this class, shifting resources to pharmacy. This included certification of pharmacist vaccination training and the pharmacist getting official regulatory validation for a limited number of vaccines. The new legislation for support vaccinator role enabled COVID-19 vaccinators to work under supervision which enables non health professionals to train to work with pharmacist vaccinators under supervision.

In Malaysia, pharmacists were involved in the National Immunisation Plan and the National COVID-19 Immunisation Programme in regulations, logistics, screening, monitoring and AEFI (adverse events following immunisation) reporting.

2.2.5 Education and training needs

The essential elements of education and workforce development must support pharmacists attaining their full scope of practice, of which vaccination may be just one part. Pharmacists are qualified healthcare professionals who can build on their training to support vaccination services:

- Community pharmacies are a perfect location for the delivery of immunisation services.
- An immuniser requires training in some basic injection and resuscitation techniques and should work under the supervision of an expert with the necessary clinical knowledge.
- Pharmacists are medicines experts who should be able to supervise immunisation programmes in their community pharmacies.
- If pharmacists wish, they should be able to train as immunisers.

In New Zealand the provision of training can be done through online, free, accessible training that provides both training for new people and refreshers for existing practitioners. Undergraduate students can be enabled to train to support with some of these roles. Consistent standards and training across all provider types is critical.

Michael Moore reflected that "the most important element is understanding how to influence government". This requires a multifaceted approach by public health organisations working together. It is already clear that pharmacy can look after appropriate education and scope of practice to manage a range of vaccinations.

In Singapore, pharmacists should be allowed in the future to perform vaccinations. For that, it would be essential for a vaccination training programme to be in place. Continuing education in all other aspects would be critical to ensure that pharmacists are up to date and able to educate and inform patients as well as other healthcare professionals while caring for the population.

2.2.6 Shifting vaccination strategies from a pandemic to an endemic state

The role of pharmacists as vaccinators will continue to develop in those countries where such a role existed before or has been initiated due to the pandemic. However, maintaining pandemic-vaccination-related funding will be challenging as it has been established under exceptional or emergency regulation rather than being established as part of existing funding programmes. When the emergency regulations lapse, the profession will need to argue for inclusion of pharmacists in existing programmes.

Those countries that were initially successful in managing the pandemic and had relatively few deaths, often had less success in achieving high vaccination coverage rates. Those that managed the initial phase poorly and had lots of deaths had a frightened population who were more enthusiastic to get vaccinated. These poor early performers have therefore found it easier to move to the stage when restrictions are being removed and people (and COVID-19) allowed to circulate freely. This is now a dilemma for the good early performers who are more reluctant to open up and remove restrictions, particularly in those settings were vaccination rates are suboptimal.

The main question after the pandemic should be how to get the most vaccines to most people, from a cost-effectiveness perspective. Pharmacies should proactively be part of research that produces clear cost-effectiveness outcomes to demonstrate the added value of the inclusion of pharmacies in increasing the uptake of different vaccines throughout the life course.

In Malaysia, current roles include registration and checking of vaccine stocks and quality in batches, screening before administrations and monitoring after vaccine administration. Involvement of pharmacists in the ongoing government vaccination centres as administrators can develop to future roles of community pharmacies in ongoing (if required) annual vaccination.

In New Zealand, moving to a new health system structure signals a shift from funding for services to commissioning for outcomes. There is tremendous scope for the role of the pharmacist to be expanded due to the community reach the profession has. This must be balanced with a readiness of the profession to take on a potential larger role.

2.2.7 How can FIP support the region?

According to John Jackson, while all pharmacists commit to the safe and accurate supply and appropriate use of medicines, the regulation and funding of pharmacists' practice influence the nature, scope and physical setting of community pharmacy. Gaining approval for pharmacists to vaccinate cannot be isolated from a wider evolution of practice and achieving change in regulations must be the first step to enhanced practice. Achieving vaccination rights within the existing practice framework will not be as beneficial as achieving a better regulatory framework under which vaccination and a lot of other enhanced services could emerge.

FIP can also support its members to be matched with others and build conversations according to their language and culture. This can allow members to discuss the same problems and walk together in the transformation and development of the pharmacy profession. FIP has developed a pharmacy based pandemic vaccination regulatory self-assessment tool that supports countries in the assessment of their needs regarding vaccination. It is available in English, French, Spanish and Portuguese.

FIP can assist its member in the region through:

- Adoption of the philosophy of pharmaceutical care within each countries' regulatory framework;
- Adoption of clinical pharmacy within education and practice; and
- Inclusion of pharmacists in remuneration schemes for individual health care practitioners.

For Singapore, the FIP Vaccination Advocacy Toolkit as well as the FIP Vaccination Handbook for pharmacists were useful resources. It would be beneficial if there could be a universal programme to be adopted or adapted from such that countries could run those programmes, should regulations allow, to ensure vaccination-ready pharmacists.

For New Zealand, more support can be done to engage with the WHO and set a global health position on vaccination roles across all professions. FIP can also engage with ministries and departments of health across the globe setting the expectation that the pharmacy workforce is enabled to assist and contribute to sharing of online training and vignettes of different practice models.

Michael Moore highlighted that FIP needs to continue building relationships with international public health organisations while seeing that national affiliates are doing the same at the local and national levels.

3 Americas region

3.1 Event description

The regional event for the Americas region took place on 1 March 2022. The composition of the panel is described below and presented in Figure 2. A recording of the event is available online through the following link: Americas region. A recording in Spanish is also available here.

Moderators:

- Magaly Rodríguez de Bittner, vice president, American Pharmacists Association; vice president, Pharmaceutical Forum of the Americas, USA
- Anastasia Shiamptanis, registrar, New Brunswick College of Pharmacists, Canada

Roundtable panellists:

- Bertrand Bolduc, president, Order of Pharmacists of Quebec, Canada
- Josélia da Silva Frade, advisor on professional affairs to the president of the Federal Council of Pharmacy, Brazil
- Eduardo Savio, president, Pharmaceutical Forum of the Americas, Uruguay
- Sofía Segura, professor, University of Costa Rica, Costa Rica
- L. J. Tan, chief policy and partnerships officer, Immunize.org, USA
- Abraham S. Weekes, senior technical specialist, Pharmaceutical Procurement Service, Saint Lucia; council member, Caribbean Association of Pharmacists

Figure 2. Roundtable participants for the Americas region

3.2 Event outcomes

3.2.1 Vaccination needs

For over four decades the region of the Americas has been a world leader in routine vaccination and mass vaccination campaigns against infectious diseases.[11] By 23 February 2022, there were eight countries in the region of the Americas where the percentage of the population who had received all vaccine doses prescribed by the initial COVID-19 vaccination protocol was higher than 75% (Cayman Islands, Chile, Cuba, Canada, Argentina, Uruguay, Aruba and Ecuador). Further, 18 of the 35 countries in the region were above the world average of 55% by this date. Within countries, there is persistent heterogeneity of coverage between areas, despite high national coverage.

However, awareness about vaccine-preventable diseases among the general population remains low, which may be attributed to the limited epidemiological surveillance systems in the region. While some countries of the Americas allow pharmacists to administer vaccines, in most countries their roles are mainly limited to logistics, reconstitution prior to vaccine administration and patient education. Determinants of vaccine hesitancy are present in the region and vary from contextual to social influence, environment issues and questions about the vaccine itself.

In Brazil, there are challenges in terms of vaccine uptake in some population and social groups, mostly due to the anti-vaccines movement in the country. This is happening despite the strongly rooted vaccination programmes in the country. An example is COVID-19 vaccination, which, as of February 2022, had achieved a good coverage rates in adults but not in children.

In the Caribbean, the general vaccination coverage rate is good, but some hesitancy can be seen in relation to COVID-19 vaccines. This happens as some healthcare professionals themselves have been hesitant to get the vaccine. This information was confirmed by an online survey conducted by the Caribbean public health agency.

3.2.2 Main providers of vaccination services

In Quebec, Canada, before the pandemic, vaccination was mainly available from medical and travel clinics and a good proportion of pharmacies who employed nurses. For the COVID-19 vaccination campaign, large vaccination centres were set up, most pharmacies offered vaccination (by nurses and pharmacists) and some vaccination clinics were set up in some larger enterprises. Many vaccines for the young are given by paediatricians and by nurses at school. Since a recent change in the Canadian law (Bill Project 31) was passed at the beginning of the pandemic (17 March 2020), pharmacists can now vaccinate people aged six years and older for any vaccine, and children aged between two and six years for travel vaccines. More than 80% of pharmacies now offer vaccination services. This is supported by the provincial government, pharmacy chains and banners, and the pharmacy owner association. Before the bill was passed, the College of Physicians and the Order of Nurses showed support.

In the USA, the National Adult and Influenza Immunization Summit (NAIIS) represents a large national coalition that has supported pharmacy immunisation for more than 20 years. The American Pharmacists Association and the National Association of Chain Drug Stores are strong supporters and are partners in the NAIIS. Several medical associations are also moving to supporting pharmacist immunisations and the Centres for Disease Control and Prevention are also a proponent. Pharmacies are a well-established provider of vaccines across the country.

Although Costa Rica has good vaccination coverage rates, it is necessary to improve them, especially among adults and in vaccination against COVID-19. The main provider of vaccination services is the Social Security system, or *Caja Costarricense de Seguro Social*. Additionally, vaccination services are also provided in the private sector in hospitals, vaccination centres and community pharmacies. In the private sector, the administration of injectables in the community pharmacy has been traditionally available, which includes vaccines. In the public sector, pharmacists are responsible for vaccines procurement, distribution and storage, but administration is performed by nurses and primary care technicians. The National Vaccination Standard enables pharmacists to administer vaccines and notify them via the vaccination system SINOVAC.

In the region of the Caribbean the main providers of vaccinations are the ministries of health, various wellness centres and health centres and also private pharmacies for flu vaccines in some locations. Pharmacists can have a bigger role in vaccination by being involved in policy discussions and advocating the delivery of pharmacy services focusing on prevention.

Brazil has had a publicly funded national immunisation programme since 1973, which is a great source of pride for Brazilians. Vaccination takes place in primary care centres linked to the country's Unified Health System. The population receives vaccines included in this programme's schedule free of charge. During the COVID-19 pandemic, Brazil was able to administer more than two million doses of vaccines per day, despite the vast size of the country and the huge disparity between regions. In recent years, there has been an increase in vaccination in private services, such as vaccination clinics, pharmacies and clinical analysis laboratories.

3.2.3 Interprofessional collaboration and challenges

In the Caribbean, challenges related to interprofessional collaboration in vaccination happen due to the lack of familiarity and understanding by other healthcare professionals of the role that pharmacists can play in contributing to public health. Examples in this area include a pharmacist-led vaccination drive in the Cayman Islands and a nurse-led vaccination drive in a private pharmacy collaboration to make vaccines available and accessible to the community. Pharmacists in Jamaica are trained to deliver vaccinations although this has not yet been regulated. There are some efforts being made with the Organization of Eastern Caribbean States to make vaccination training available to pharmacists.

In Quebec, Canada, the initial opposition for other healthcare professionals to vaccinate was resolved quite quickly as there is now a clear consensus across the population that more services need to be offered by other professionals than physicians, including vaccination by pharmacists, midwives and inhalotherapists. The opposition was centred around the need to evaluate patients before vaccination, an act that was technically reserved to nurses and physicians. It is now recognised that all healthcare professionals evaluate patients according to their competencies and pharmacists can complement very well other healthcare professionals' work. Vaccination training has been made available to other healthcare professionals, who can now participate in the vaccination campaign, including travel vaccination for both adults and children.

In the USA, access has become the most important reason for the success of pharmacist immunisation. The American Pharmacists Association and the National Adult and Influenza Immunization Summit promote the term "Immunisation neighbourhood" to support a collaborative environment among all providers to ensure that people get vaccinated.

In Costa Rica, due to the historical background on the administration of injectables and vaccines in private community pharmacies, there is no evidence of opposition from other professionals. Moreover, interdisciplinary initiatives have been developed in this sector. In the country there are examples of vaccination campaigns in companies where the administration of the vaccines is carried out by the pharmacist with the support of the company physician or nurse. Further activities include training and updating activities on vaccines, in collaboration with physicians, and information campaigns aimed at the population that include the participation of physicians and pharmacists.

3.2.4 Regulatory frameworks and enablers for vaccine delivery

In case a country does not have any regulatory models or services in the pharmacy, starting with the introduction of influenza vaccine rather than some more complex ones may be a more manageable project and may show results to help the later development of more services that include more vaccines.

In Brazil, vaccines are publicly funded, the population has the right to free access to vaccines that are included in the official vaccination schedule. Some vaccines available in the public system are also delivered in the private sector. The national regulatory framework is the driver to develop education and resolutions by the professional regulatory organisations. It was a challenge for 80,000 pharmacies to start providing vaccination services as there were already 2,000 clinics providing those services.

The USA has multiple payment models ranging from Medicare for those 65 years of age and older, to commercial insurance for those under 65 years of age. Medicaid remains the poorest payer but the National Adult and Influenza Immunization Summit and its partner the Adult Vaccine Access Coalition are working on that issue. The NAIIS has been a large success driver, promoting collaboration and understanding between

partners, along with the engagement of the American Pharmacists Association. Ensuring payment to all providers, and the education of all medical providers has been important. The concept of the "Immunisation neighbourhood" mentioned above is also a driver.

In Costa Rica, from a public sector perspective, vaccines and other medicines are provided by social security at no cost to the user. Vaccination of children is mandatory and vaccination campaigns are carried out for specific vaccines (e.g., vaccination against influenza and pneumococcal disease). In the private sector, specifically in community pharmacies, there is no funding model for the administration of vaccines. The user pays for the product and the administration service is provided free of charge by the pharmacy. This also applies to campaigns carried out in companies.

In Quebec, Canada, most vaccines are fully covered by the state, but some (travel vaccines, shingles, etc.) are not and must be paid for by the patient. Some vaccines are free for some vulnerable patients (influenza, pneumonia) but not for other people. There was an initial lobby by different political parties during the last electoral campaign to increase vaccination in pharmacies. All of them were in favour of pharmacists becoming vaccinators. When the new Minister of Health was nominated, the process to convince them to expand the pharmacist scope of practice to improve patient's access to care followed through. A lot of meetings with all stakeholders were held to develop consensus around the project.

In the Caribbean, influenza vaccines are paid for by the patient out of pocket, but COVID-19 vaccination was provided free of charge. Throughout the region there has not been any regulatory framework for pharmacists providing vaccinations. However, in Jamaica, pharmacists got permission from the Ministry of Health to be involved in the immunisation campaign against COVID-19 and had the opportunity to vaccinate. Jamaica is leading efforts to enable regulations, but pharmacists cannot move faster than the culture and politics of the country.

3.2.5 Education and training needs

An important goal for the region of the Americas would be that every pharmacist, from any country, could receive similar training through a specialised course to be certified for immunisation services. The Pharmaceutical Forum of the Americas has developed with the American Pharmacists' Association a mechanism to facilitate this training, and to obtain this certification in immunisation services based in community pharmacies.

The Pharmaceutical Forum of the Americas also developed a publication in three languages (Spanish, Portuguese and English) entitled "Pharmaceutical services in immunisation: contributions, experiences and implementation in the Americas Region".

The forum is also advocating to the Pan American Conference on Pharmacy Education, through its executive committee, the introduction to the undergraduate pharmacy curriculum of the knowledge, competences and abilities for the provision of vaccination services, as mandatory subjects across the region.

From the Pharmaceutical Forum of the Americas' perspective, one of the essential elements of education and workforce development is having a vaccination programme structure, including the following elements:

- A comprehensive training programme;
- Infrastructure requirements;
- Written policies and procedures;
- Appropriate storage and handling;
- Patient screening and education;
- Documentation;
- Vaccine disposal;
- A continuing education programme to stay abreast of evolving guidelines and recommendations
- Training of all pharmacy staff, e.g., pharmacy technicians, who could collaborate with immunisation services.

In Quebec, Canada, training for vaccination is essential to perform the different roles, including administration of injectables. This is in place for pharmacists and included in the pharmacy curricula. The Order of

Pharmacists envisions that pharmacy technicians will be soon authorised to vaccinate as well (the pharmacist remaining in charge of patient evaluation).

In the USA, priorities include continued outreach during implementation of Advisory Committee on Immunization Practices recommendations and identifying the roles of pharmacists in providing immunisations to meet patients' needs; ensuring continuity of documentation of immunisations across all providers; and continued support of the pharmacist immunisation certification programme, which is now firmly entrenched. Indeed, the USA is now working to improving access further by engaging providers such as medical assistants.

In the Caribbean, the main needs are on training in immunisation and vaccine administration in pharmacy schools. It is also important to include some parts of continuing professional development among pharmacists and further training for pharmacists in public health.

In Brazil, education is perceived as a transforming action that makes professionals aware of their social role and integrates theory and practice. It should be focused on the implementation and provision of a new service and not only on the act of applying an injectable, including how to host and assess a patient. It was following this logic that the Federal Council of Pharmacy (CFF) developed a 60-hour course (40 theoretical + 20 practical) that is being delivered to pharmacists across the country. The CFF began offering courses to certify the pharmacist as vaccinator, achieving the figure of 10,304 pharmacists enrolled in the course.

3.2.6 Shifting vaccination strategies from a pandemic to an endemic state

FIP has accumulated a vast experience in vaccination in recent years, and this has increased exponentially during the pandemic. So, developing a model for change management in pharmacist vaccination could be a valuable resource for the region to support training. Advocacy and a plan to develop the confidence of the health system and the population in a new service could be other key elements to develop.

In Costa Rica the transition to managing COVID-19 as an endemic disease will likely be through social security funding schemes. In this, the pharmacist supervises everything related to the procurement, distribution and storage of vaccines up to their delivery to the nurse or primary care technician.

In Brazil, the CFF believes in the potential of the pharmacist in facing this challenge and will continue to contribute to the training and certification of the profession. Several protocols were also developed to stimulate a high-quality professional performance. Pharmacists led the vaccination of 22% of healthcare professionals in the country, when they were a priority group in vaccination strategies against COVID-19.

In Quebec, Canada, the pharmacist's role in vaccination is there to stay. Pharmacists will continue to play a leading role in all vaccination seasonal campaigns, like COVID-19 or influenza, as well as travel and other vaccines.

3.2.7 How can FIP support the region?

The Pharmaceutical Forum of the Americas identified four main issues to be developed in future years by FIP:

- Advocacy to health authorities;
- Training programmes;
- A suitable legal framework for the development of pharmacy immunisation services; and
- Public campaigns to promote vaccine uptake and to influence people's perception of the pharmacist's role as a vaccinator.

FIP can further support the recognition of the pharmacist's role in vaccination. By organising events and sharing best practices from around the world, we can envision a world where more and more people are adequately protected from many diseases. FIP can help with the development of legislation to enable pharmacists to deliver immunisation and vaccine administration and support with local professional organisations to approach ministries of health in various jurisdictions. Some awards could also be attributed to best vaccination strategies and campaigns.

The federation can support with a standardised training programme on vaccination, to make documentation available, promote events and provide a platform to exchange experiences between countries that are at the

same level. Further actions include getting support from world leaders for the education projects being developed in various countries, creating a way to reward and highlight the work being developed in countries that can serve as a model. The creation of videos that present the global situation of the role of the pharmacist in vaccination is another area in which to invest. Such videos could be used in events and courses promoted by national entities. These are actions aimed at benchmarking and maintaining the motivation of leaders in support of this agenda.

4 European region

4.1 Event description

The regional event for the European region took place on 3 March 2022. The composition of the panel is described below and presented in Figure 3. A recording of the event is available online through the following link: European region.

Moderators:

- Lars-Åke Söderlund, FIP vice president, Sweden
- Ronald Guse, chair of FIP Regulators Forum, Canada

Roundtable panellists:

- Michał Byliniak, vice president, Polish Pharmaceutical Chamber, Poland
- Alain Delgutte, national board member, French Chamber of Pharmacists, France
- Inga Lilý Gunnarsdóttir, president, Pharmaceutical Society of Iceland, Iceland
- Jean-Pierre Michel, member, European Union of Geriatric Medicine Society and European Interprofessional Council on Ageing, Switzerland
- Ema Paulino, president, National Association of Pharmacies, and member of the National Vaccine Advisory Committee, Portugal
- Jan de Belie, professional affairs advisor, Pharmaceutical Group of the European Union on behalf of Roberto Tobia, president, Pharmaceutical Group of the European Union, Belgium
- Mariano Votta, director, Active Citizenship Network, Italy

Figure 3. Roundtable participants for the European region

4.2 Event outcomes

4.2.1 Vaccination needs

In the European region, lifelong vaccination is a challenge. The vaccination of adults, especially older adults, is below the recommended rates in the majority of countries.[12] Another challenging aspect is for healthcare professionals to receive all their vaccines and be fully covered when interacting with the population. Jean-Pierre Michel noted: "Pharmacists can support the increase of vaccination coverage rates by 5 to 10%."

In Portugal, national vaccination coverage rates are commendable. In 2020, regarding universal vaccination, at all ages and vaccines, coverage ranged from 80 to 99%. In terms of COVID-19 vaccination, Portugal had the highest share of the population fully vaccinated (COVID-19 vaccination rate 85.2%; data from October 2021). In 2019, 61% of the population aged 65 or over was vaccinated for influenza in Portugal.

In Poland, there is a need to expand vaccination coverage, especially in the field of non-compulsory vaccinations. There were recently some cases of measles — probably imported from other neighbour countries that do not cover this vaccine as compulsory in their national plans. For flu vaccination the coverage is around 10% and for COVID-19 around 50%.

The vaccination coverage rate in Iceland is quite high. In terms of COVID-19 vaccination, every eligible person has an option to be vaccinated and the coverage for over-12-year-olds is around 90% and for 5–11-year-olds is around 50%. All other vaccination programmes are available to the entire population.

In France, there is a huge need to increase coverage rates in rural areas and in areas without support of general practitioner clinics that pharmacists can quickly refer patients to. For younger children the coverage is quite high as the vaccines are free, unlike for adolescents and adults. For the flu vaccination, in 2019, only 45% of the population received the vaccine for the flu season. It increased to 55% in the 2021 season, with the percentage of vaccinated older adults increasing as well.

4.2.2 Main providers of vaccination services

In France, the coverage rate for COVID-19 was over 90% at the time of the roundtable event. This was achieved with the contribution community pharmacies made to vaccinating the general population, starting from children over five years old. The involvement of pharmacies in vaccination is growing and their role as COVID-19 vaccinators will be important to ensure high coverage rates.

In Italy, a survey published in January 2022 that interviewed 2,990 chronic patients showed that 63% of them were in favour of continuing the COVID-19 vaccination service in pharmacies beyond the pilot phase, and 65% of them agreed to extend the involvement of pharmacists to routine vaccinations (influenza, herpes zoster and pneumococcal vaccinations). This is further supported because 34% of the respondents reported difficulty in accessing routine vaccinations during the first wave of the pandemic, and 19% of them also in the second wave. In Italy, between March 2020 and the end of 2021, over 40% of vaccination centres suffered a reduction in staff and opening hours; one in 10 has even been closed. At the end of 2021 all the centres were reopened. In 80% of cases the opening times were restored, while the staffing level returned to the pre-pandemic level in only 47% of the centres.

In Poland, pharmacists are allowed to provide influenza vaccines and the government is currently working on the process to expand this role and the number of vaccines to be administered at pharmacies. The vaccines from the national immunisation schedule are provided through the national health system and administered by nurses and general practitioners.

In Iceland, general practitioner clinics are the main providers of vaccination services. During the pandemic, a sports stadium and schools were used for mass vaccinations and both nurses and emergency medical technicians performed the vaccinations. Currently, the Pharmaceutical Society of Iceland is working with the Ministry of Health and the department of health sciences at a university in Iceland to set up a programme to educate pharmacists in practical vaccination. The aim is to offer vaccination services in retail pharmacies in Iceland.

In Portugal, the national health system is the main provider of vaccination services, in local healthcare centres (delivered by a nurse or a physician). The mandatory national health service vaccination schedule applies, free of charge, to all citizens. In pharmacies, pharmacists can administer vaccines outside the scope of the national health system vaccination schedule, such as influenza, pneumococcal, human papilloma virus, and hepatitis B.

4.2.3 Interprofessional collaboration and challenges

Pharmacists can play a variety of roles in interprofessional collaboration in vaccination. They can identify and remind patients about their vaccines, clarify questions about vaccines that can lead to vaccine hesitancy and provide supply chain management. In a few countries, they can also administer vaccines.

In Europe, the European Coalition for Vaccination, an initiative of the European Commission, brings together different healthcare professionals associations that are active in the field of vaccination. This coalition also provides documents and guidance on how to increase interprofessional collaboration across the different healthcare professions.

In Poland, opportunities to collaborate are at the beginning of the implementation process and, due to the pandemic situation, there was limited possibility to expand protocols. From the first half of 2021, the number of pharmacists employed in mass vaccination centres with other healthcare professionals increased. This role was accepted, and no opposition is visible.

In Italy, there is a need to increase cooperation among all healthcare professionals and to build a new governance and models, starting from the need to recognise and never forget the professional and social value of health workers. Trust is a fundamental value that should allow patients to not question who is delivering the vaccination service but trust that all professionals are qualified to deliver the available services.

In Iceland, there is some opposition from nurses that pharmacists will be able to vaccinate. As the country's programme is still being developed and has not been publicised yet, it has not met a lot of opposition (only when seeking help to educate the pharmacists). The opposition can be addressed by explaining that this is to support the general practitioner clinics and help free time and space for other more urgent patient care events in the clinic. The scope of community pharmacists is growing to give room for more urgent cases at the clinics. To date there is minimal interprofessional cooperation involving pharmacists when it comes to vaccination. Pharmacists are involved in vaccine reconstitution and a few pharmacists have played an integral part in COVID-19 vaccination, in terms of supply chain management.

The Portuguese Nurses Society was opposed to vaccination by pharmacists in community pharmacies, arguing potential side effects and safety risks for patients. Despite that opposition, since 2008 around 78% of pharmacies have been providing vaccination services without any safety problems or health problems. This is one of the most widely implemented pharmacy services at national level, and it enjoys great social acceptance due to the professional qualification (specific training), technical competence (certification by the Portuguese Pharmaceutical Society) and people's high level of satisfaction with the service. Pharmacists are qualified to vaccinate as they complete a specific training and comply with requirements defined by the Portuguese Pharmaceutical Society and the National Authority of Medicines and Health Products. After a specific training, the Portuguese Pharmaceutical Society issues a certificate of pharmaceutical competency in administration of vaccines and injectable medicines, valid for five years, which must be paired with a certification for basic life support. All vaccines administered in pharmacies are recorded in the e-bulletin of vaccines of the Electronic Health Record, ensuring the integration of data between pharmacies and the national health system.

4.2.4 Regulatory frameworks and enablers for vaccine delivery

Across the region, the implementation of pharmacy-based vaccination services started around 10 years ago with countries like Portugal, the United Kingdom and Switzerland. Since 2018, the number of countries that enabled pharmacy-based services almost tripled and this number keeps growing. Important aspects to support vaccination services include the training of the workforce, legal rights for service delivery, the need for a prescription for the administration of the vaccine by the pharmacist and adequate remuneration for this service.

In France, the vaccination model started from only a pilot in two of the country's regions for one year and then it was expanded to other regions. After vaccinating one million people in the pilot study, evidence and impact of this service was presented to policy makers, which enabled further work in this area. Public opinion is also a strong factor that can influence policy making, as a strong majority of the population in favour can be a leverage to advance vaccination services.

In Iceland, the government funds COVID-19 vaccination. There is a national immunisation programme for children's vaccinations, which is covered by the national health insurance. Other vaccinations (e.g., travel vaccines) are funded by individuals. The current pharmaceutical legislation allows pharmacists to vaccinate; there is no need to amend or create new legislation. At the moment, pharmacists do not have prescribing rights, so vaccinations handled by pharmacists will need a prescription from a physician. The Pharmaceutical Society of Iceland is working on getting prescribing rights for pharmacists because that will make vaccination in community pharmacies more straightforward.

In Portugal, for most vaccines administered in pharmacies, there is an out-of-pocket payment model. Patients pay for vaccines (reimbursement rates apply) and for the pharmacy service of administering the vaccine. Since 2020, there have been local funding programmes in place through the establishment of protocols with municipalities that complement the national health system framework. Vaccines administrated in pharmacies under the scope of this programme are distributed from the national health system stock. The pharmacy service is funded at local level in some municipalities with a fee of EUR 2.50 per vaccine administered or co-funded by a private insurance that citizens can get on an optional basis. Pharmacists can register the vaccine in the national electronic bulletin that is accessible to other healthcare professionals.

In Poland, from 2021, both COVID-19 and flu vaccinations (vaccines and service) are covered by the national health system (with an approximate cost of EUR 30 per vaccine). A change is expected in the 2022 flu vaccination season, adding a coverage of cost for out-of-pocket patient expenses. Implementation of pharmacy-based vaccinations was possible because of the pandemic situation and the huge need to support the national COVID-19 vaccinations programme. Those needs and expectations supported the regulatory proposals and the momentum for change needs to be now. From April 2021 pharmacists were entitled to provide COVID-19 vaccinations and from June 2021 pharmacies were approved as a place of COVID vaccinations. Since January 2022, flu vaccinations have been allowed to be delivered by pharmacists in pharmacies.

In 2021, in Italy, the active involvement of pharmacies in the COVID-19 vaccination campaign was authorised after an agreement signed in March 2021 between the government, the regions and the national associations of pharmacists Federfarma and Assofarm. This allowed for the administration of COVID-19 vaccines in pharmacies by pharmacists after the implementation of the new law. Apart from the new regulatory framework, the state of emergency has been the main enabling strategy.

4.2.5 Education and training needs

In Portugal, the vaccine administration service in pharmacies was launched in 2008. Nowadays, more than 78% of pharmacies provide the service and more than 5,000 pharmacists are certified to vaccinate. So, pharmacy teams are very well prepared to respond to population immunisation needs. For the successful implementation of this service, adequate training for pharmacists is crucial. Other tools and support materials are important for the practical implementation. The implementation of this service was positively received by pharmacists in Portugal, thanks to the appropriate training provided by the National Association of Pharmacies, as well as all the support for practical implementation to pharmacies, with regard to regulatory aspects, facilities and best practices.

In Italy, it is important to restart the implementation of pharmacy services, beginning from training courses necessary to allow pharmacies to provide additional services of considerable social and health importance. This is especially important for vulnerable patients and with the aim of overcoming the inequalities heightened by the pandemic. Telemedicine services, that include virtual monitoring and support activities directed towards chronic patients and teleconsultations, must still be guaranteed to ensure an adequate level of protection of collective health. These are, therefore, services that cannot be separated from the implementation of the electronic health record and, more generally, from investments in digital health development.

In Iceland it is essential to train community pharmacists in vaccination, as this is not a part of the current training at the university. They will need to take a course, both theoretical and practical and receive a certificate that they are allowed to vaccinate. The plan is then to implement this training into one of the university pharmacy programmes so new pharmacists have already had the necessary training and will be able to vaccinate from day one.

In Poland, there are plans to establish a model based on both undergraduate and postgraduate education (qualification course) levels. Both models' effects will be verified through an examination that approves the learning contents.

4.2.6 Shifting vaccination strategies from a pandemic to an endemic state

Pharmacists can play a crucial role in the shift towards an endemic state through patient education and supporting populations with regard to health literacy. By increasing knowledge their about vaccine-preventable diseases, populations can increase their vaccine uptake and place less burden on healthcare systems.

In Italy, the pandemic has particularly highlighted the fragility of an unbalanced system in the hospital field compared with community care, whose strengthening can no longer be postponed, starting with new organisational models to which we are all called to contribute. Cittadinanzattiva's recommendations focus on expanding the services provided by pharmacies to enable them to act as a point of reference for the community and to improve their relationship with citizens. These are in line with the general recommendations put forward by the Pharmaceutical Group of the European Union in its "Position Paper on the Role of Community Pharmacists in COVID-19". The paper highlights the need to call on governments to make health systems stronger and more responsive to patients' needs by:

- Expanding the role of pharmacies to ensure continuity of care and treatments;
- Defining new models of care delivery with the support of integrated digital technology to treat patients as close to their homes as possible;
- Recognising the value of pharmacies, which have been often the first line of advice, treatment and referral during the COVID-19 emergency for many people both at the national and European levels; and
- Increasing investments in primary care.

In Poland, after the end of pandemic, flu vaccinations were still provided in pharmacies. This created an opportunity and the Ministry of Health communicated that all vaccinations for adults would be provided by pharmacists.

In Iceland, there are no public plans for switching from a pandemic to an endemic response. One of the objectives from the Ministry of Health is for pharmacists to be able to vaccinate to support endemic vaccination (both COVID-19 and influenza). To enable it, access to patient vaccination records would need to be available for pharmacists.

In Portugal, there is no information currently about the potential role of pharmacies in COVID-19 vaccination during an endemic response. Until now, pharmacists have not been directly involved in COVID-19 vaccine administration but they are important agents in counselling and providing advice on the safety of vaccines and benefits of COVID-19 vaccination.

4.2.7 How can FIP support the region?

FIP is an important support for the expansion of vaccination services by community pharmacies. It advocates funding and enhancing the services, and is also crucial in the dissemination of good practices and the production of evidence of the contribution of pharmacies to vaccination. FIP recommendations can help strengthen and support national associations in the expansion and implementation of vaccination programmes.

FIP can also deliver detailed guidelines and standard operation procedures to support regulation creation at the national level. FIP can assist by sharing pharmacy-based vaccination programmes from other countries, especially within Europe.

In addition, it is crucial to have a better understanding of the stakeholder engagement strategy of FIP, of the Pharmaceutical Group of the European Union and their national members in front of intermediate bodies or civil society organisations, including patient advisory groups and all those actors who consider health as a public good to be safeguarded.

5 African region

5.1 Event description

The event for the African region took place on 7 March 2022. The composition of the panel is described below and presented in Figure 4. A recording of the event is available online through the following link: African region. A recording in French is also available here.

Moderators:

- Jocelyn Chaibva, vice president, African Pharmaceutical Forum, Zimbabwe
- Ronald Guse, chair of FIP Regulators Forum, Canada

Roundtable panellists:

- Ezinne Onwuekwe, coordinator of the vaccination programme, Africa Centre for Disease Control and Prevention, Ethiopia
- Redouane Soualmi, chair of external relations, Algerian Pharmacy Federation, Algeria
- Djamila Reis, chief executive officer, Association of Pharmacists from Portuguese-Speaking Countries, Cape Verde
- Portifa Mwendera, president, Pharmaceutical Society of Zimbabwe, Zimbabwe
- Samuel Adekola, immediate past national chairman, Association of Community Pharmacists of Nigeria (ACPN) and executive secretary/programme director, ACPN Foundation, Nigeria
- Lucas Nyabero, interim chief executive officer, Pharmaceutical Society of Kenya, Kenya
- Amath Niang, president, Ordre des Pharmaciens du Sénégal; vice president (West Africa), International Conference of French-Speaking Chambers of Pharmacists, Senegal
- Imoiboho Williams, senior programme officer, AEFI surveillance, Institute of Human Virology, Nigeria

Figure 4. Roundtable participants for the African region

5.2 Event outcomes

5.2.1 Vaccination needs

From a regional perspective, data analysis for most countries in Africa need to increase the target age range to include young children in order to hit the global 70% fully vaccinated target. Only six countries are vaccinating the right age bracket (South Africa, Morocco, Mauritius, Seychelles, Tunisia, Libya). Only 16 countries are achieving the recommended coverage rate for children over five years old.

There is also a general need to increase awareness of the importance of vaccination and how it protects against many diseases. Overall, a better coverage is achieved for childhood vaccination compared with recommended adult vaccination. This happens because in the region it is common for mothers to ensure the best care possible for their children, and vaccination is seen as a protective factor for the child.

In Zimbabwe, there is a need to improve coverage rates across all age ranges. Across the country, access is one of the main limitations to improving vaccination rates through the national health system.

In Algeria, pharmacists were included in the COVID-19 vaccination process to increase vaccination coverage rates. Despite the pharmacists' inclusion in this effort, the rates of access to the service were low. This can be related to hesitancy factors surrounding the vaccine, the lack of more health promotion services in the country or even general access barriers due to the pandemic.

In Angola, Cape Verde, Guinea-Bissau, Mozambique and São Tomé e Príncipe, the same language is shared but the health indicators and country priorities are very different. The neonatal mortality rate varies approximately between 35 per 1,000 (Guinea-Bissau) to around 8 per 1,000 for Cape Verde and São Tomé e Príncipe. The mortality rate in under five-year-olds is higher than 70 per 1,000 for (Angola, Guinea-Bissau and Mozambique) and around 15 for 1,000 for Cape Verde and São Tomé e Príncipe. Vaccine coverage is different across those countries and across the vaccines. The coverage has good rates in some cases such as neonatal tetanus (from 70 per 1,000 in Angola to 99 per 1,000 in São Tomé e Príncipe) but needs improvement, for example, for measles (from 41 per 1,000 in Angola to 86 per 1,000 in Cape Verde).

Preliminary outcomes from the National Immunization Coverage Survey in Nigeria in 2022 indicate that only 43.4% of children aged 12–23 months have been fully vaccinated. The national vaccination record list includes the percentage of children fully vaccinated with the eight expanded programme immunization doses (BCG, OPV1-3, Penta 1-3, MCV) and 17.8% are not vaccinated.

5.2.2 Main providers of vaccination services

Across the region, vaccines are administered mostly through government vaccination centres and private healthcare facilities. Some programmes are successful, for example, the polio vaccination scheme. Others face challenges, such as the difficulty of reaching very remote areas in the vast African territory.

In Kenya, the main providers are Ministry of Health and other local and international health-related partners. Most of the vaccines from the national health plan are administered by nurses in health centres to younger children.

In the Portuguese-speaking countries, the main providers of vaccines are the ministries of health. Vaccination services at health centres and decentralised units of the ministries are working under the respective national health systems' General Health Directorates. Pharmacists are not included in decentralised vaccination services and vaccination in pharmacies is not yet allowed in practice due to a lack of general pharmacist workforce and also a shortage of certified and specialist pharmacists. The WHO recommends a ratio of one pharmacist per 2,000 population for optimal health care to be delivered. Angola has around 700 pharmacists (almost 30 times less than needed), Guinea Bissau has 17 (more than 50 times less than needed) and Mozambique has approximately 600 (25 times less than needed).

In Nigeria, the National Primary Health Care Development Agency (NPHCDA) is the main provider of vaccination services through primary healthcare centres. Other providers include tertiary and secondary healthcare facilities, private hospitals, health institutions and volunteer community healthcare workers in hard-to-reach areas. The interventions are classified as "routine immunisation" or "supplementary

immunisation activities". The NPHCDA oversees the delivery of immunisation services to the public in Nigeria and encourages participation of the private sector in providing immunisation services. The NPHCDA provides free vaccines and necessary supportive logistics to private health care providers, such as community pharmacies that are interested in immunisation services. Other governmental agencies and partners such as UNICEF and the WHO also provide some vaccines in certain regions.

In Zimbabwe, vaccination services are mainly provided through public sector facilities, which are government hospitals and local authority clinics. The services are decentralised and are concentrated mainly for childhood vaccines. Support is mainly through central government which has the support from multilateral international donors. Adult vaccinations are usually supported through out-of-pocket spending by the public.

5.2.3 Interprofessional collaboration and challenges

To expand access to vaccination in the African region, any potential actors should be welcomed. However, there should be a means of accountability and sensitivity in the manner of approaching the issue. Opposition to the approach used may arise: if the other healthcare professionals are not involved in the decision-making process, there may be opposition.

In Imoiboho Williams's opinion, interprofessional collaboration is so low that has not even been conceptualised to the extent of garnering opposition. In the case where opposition arises, the Joint Health Sector Unions and Assembly of Healthcare Professionals Associations can be leveraged to advocate pharmacy-inclusive immunisation activities. However, it is noteworthy that, in recent times, the Association of Community Pharmacists of Nigeria has collaborated with the NPHCDA to have community pharmacies provide COVID-19 vaccination services while trained community pharmacists will serve as vaccinators in the ongoing scale up of vaccination.

Samuel Adekola mentioned that there could be some barriers imposed by government officials for the development of policies in pharmacy-based vaccination. Opposition from physicians in particular is simply political. Deliberate, strong, strategic advocacy efforts by pharmacy bodies, and more importantly, promotion of policy change in favour of expanding pharmacists' scope of practice in public health and primary care by bodies such as the WHO regionally and nationally will go a long way in this. Currently, there is yet to exist a practical example of best practice of interprofessional cooperation in vaccination in Nigeria, since the decision to include community pharmacies and pharmacists in COVID-19 vaccination has just been made by the NPHCDA and it is still working round this novel development to evolve a model that could be promoted further in the future.

For the five Portuguese-speaking countries, the discussion does not exist because the pharmacists' society representatives consider that there is not enough available workforce. However, considering previous experiences in other fields, the representatives of the pharmacists' societies in Angola and Mozambique expect opposition from medical doctors and nurses. Pharmacists are not directly involved in the administration of vaccines but, depending on the countries, pharmacists are part of the teams at the ministries of health in charge of logistics, distribution and monitoring following immunisation.

In Zimbabwe, traditional role definitions do not allow pharmacists to administer any of the medicines they dispense. Training for pharmacists to provide vaccinations and to be confident to take up that service needs to be in place. The review of the funding structure and reimbursement model for pharmacy services also needs to be considered as does the need to educate all stakeholders of the roles of a pharmacist in administering vaccinations.

5.2.4 Regulatory and funding aspects

In some countries in the region a tax or levy system is used to raise government funds for vaccine procurement. Taxes on certain industries or products have been used effectively by governments to raise funding for social expenditures, including health. From 2007 to 2012, Unitaid raised more than USD 1 billion from the levy. Countries have also had success with "sin taxes", adding incremental costs to the purchase of consumer goods like tobacco and alcohol. A sin tax on tobacco could raise additional funding for programmes like vaccinations while improving the overall health of the country.

Successful examples of procurement facilities led by the public sector include COVAX (the COVID-19 Vaccines Global Access) and AVAT (the African Vaccine Acquisition Trust). Funds allows member countries to purchase

vaccines, medicines and medical supplies at a lower cost than would be paid if these were bought individually in the market. Donors, such as bilateral and multilateral agencies or foundations, could seed a pooled fund that would be matched by various companies through their corporate social responsibility programmes. Other options include microcredit facilities for individuals purchasing the vaccine at a private facility, or privately funded sponsors to allow patients to buy vaccines on a low-cost payment plan. Unlike a grant-support fund that would give away the capital at no cost, this kind of financing facility would charge a small amount of interest that would enable funds to be recycled into the main pool to make additional loans.

In Nigeria, there are multiple non-governmental funding sources that include personal and private sector donations, and other financing forms such as GAVI (the Global Alliance for Vaccination and Immunization). Nigeria has initiated several funding mechanisms such as the Public Health Fund, which was established by the National Health Law in February 2014 (to be financed by contributions from federal and state revenues) and the Nigerian National Immunization Financing Task Force established in 2015. As for now, patients need to pay the pharmacists or pharmacies directly out of pocket.

In Kenya, funding is done through the government and international bodies, such as the WHO and UNICEF. The current regulatory framework allows pharmacists to monitor training but not to legally administer vaccines. Pharmacists should have a bigger voice in advocating different services while showing the economic and social value of the interventions they perform in the community.

In the Portuguese-speaking countries, the ministries of health, with support from specialised agencies such as UNICEF, are responsible for most of the funding for vaccines. Citizens only must assume the costs for vaccines that do not belong to the national vaccination plan (e.g., HPV). For COVID-19, in the case of Mozambique, private enterprises also funded vaccination for their employees, adding 10% for the public service.

5.2.5 Education and training needs

Across the region more training is needed in the areas of epidemiology (collect, manage, analyse data), supply chain management in undergraduate school, finance and diplomacy, and post-marketing surveillance. There is also an urgent need to increase the workforce, to train more pharmacists and to upskill already qualified pharmacists (usually generalists).

In Senegal, pharmacists are currently involved in their role as health promotors but still have room to develop themselves in vaccination. Sharing best practices around education and training in the region can be an important step towards developing these roles in the country. Pharmacists are motivated, shown by how involved they were in getting their COVID-19 vaccines early in the pandemic. Despite their motivation, more training as part of continuous professional development is important to strengthen their position as promotors of vaccination.

In Kenya, the Pharmaceutical Society of Kenya ran an immunisation programme in collaboration with a local university, which provided to be useful to support pharmacists with knowledge in this area.

In Nigeria, pharmacists need to undergo a comprehensive training programme on immunisation, which could be included in annual mandatory continuous professional development by the Pharmacists Council of Nigeria for community pharmacists. Furthermore, there is a need for the pharmacy school's curriculum to be revised and competencies for immunisation incorporated.

5.2.6 Shifting vaccination strategies from a pandemic to an endemic state

During a pandemic, there is vaccine roll-out with speed and scale but, as we head towards endemic response there is engagement is lower and the focus is on increasing vaccination coverage. Pharmacists play key roles during a pandemic (procurement and supply chain), some of which they hold on to during the endemic response, like addressing cold chain issues, improving data for proper forecasting to reduce expiry and wastage, monitoring of adverse events following immunisation, and counselling. Pharmacists have been recognised as the entry point to health care. Their contribution during the pandemic has been noticed and there are plans to use them more across the region.

5.2.7 How can FIP support the region?

FIP can assist by highlighting the contribution of pharmacists to vaccination and information on vaccines, and by advocating and providing guidance for the training of pharmacists for immunisation roles. Bridges can be sought together with:

- The World Health Organization offices for the African region;
- Professional pharmacy regulatory bodies;
- Central COVID-19 regulatory steering committeeso
- Some National Medicine Regulatory Authorities; and
- The Africa Medicine Agency.

For the Portuguese-speaking countries and countries where there is a need to strengthen education, more work can be done with existing universities to strengthen their capacities and adapt curricula, to promote or support continuous training in specific areas and to support innovative education as a response to new roles that pharmacists need to embrace. There is a strong need for further talks with advocacy agencies and with governments to recognise the role of pharmacists as healthcare professionals, the value added for the health systems and their contribution to several clinical activities, including vaccination.

For Nigeria, there is also a compelling need for professional bodies like FIP, the WHO, and local professional bodies like the Pharmaceutical Society of Nigeria to call upon governments to improve vaccine uptake by including pharmacies and pharmacists in vaccination and immunisation programmes as well as to lobby legislators and policymakers to provide appropriate legislation and policy in that regard. FIP can also liaise with the Federal Ministry of Health and the NPHCDA, which are the agencies of government in charge of health care delivery in Nigeria.

For Zimbabwe, there is a need to acquire best practices around pharmacy-based vaccination programmes and continued support for pharmacists to take up further clinical roles in their practice by increased sharing of such practices. There is also a need to lobby with multisectoral international bodies such as the WHO and UNICEF in increasing the awareness of pharmacy practitioners in vaccination programmes beyond just being the supply and logistic managers but clinical service providers. The key bodies to engage are the Health Practitioners Councils (which regulate the practice of different health practitioners), the Ministry of Health and Child Care, the Medicines and Control Authority of Zimbabwe (which regulates how medicines are distributed) and other professional associations.

6 South-East Asian region

6.1 Event description

The regional event for the South-East Asian region took place on 10 March 2022. The composition of the panel is described below and presented in Figure 5. A recording of the event is available online through the following link: South-East Asian region.

Moderators:

- Manjiri Gharat, FIP vice president, India
- Al Carter, executive director, National Association of Boards of Pharmacy, USA

Roundtable panellists:

- Prof. Keri Lestari, professor of pharmacology and clinical pharmacy, Universitas Padjadjaran, Indonesia
- Tisara De Silva, president, Pharmaceutical Society of Sri Lanka, Sri Lanka
- Dr Rao V. S. V. Vadlamudi, professional secretary, SEARPharm Forum, India

Figure 5. Roundtable participants for the South-East Asian region

6.2 Event outcomes

6.2.1 Vaccination needs

Across the region, infant and childhood vaccinations are well covered. However adult vaccination coverage for various bacterial and viral diseases is highly inadequate. The country diversity in the region is quite high, with countries like India with its massive population and other smaller countries that have very distinct healthcare systems. Some vaccines that are outside the national health plans are not routinely administered, in contrast to what happens, for example, with influenza, in other regions.

In Sri Lanka, vaccination coverage for children is fully covered by the national health system and from birth the acceptance of vaccines is quite high, starting with the BCG vaccine. This high vaccination coverage starts to reduce from the age of five and continues across adulthood.

In Indonesia, coverage is offered across the lifespan and includes different vaccines in the national immunisation programme. For COVID-19 the situation is similar, starting with six-year-olds, and around 50% of people had received a second dose at the time of the event.

6.2.2 Main providers of vaccination services

Across the region, doctors, nurses and other allied health professionals are the main vaccinators, and they belong to government and private or corporate hospitals. Vaccination centres are hospitals, primary health care facilities and health camps, and vaccination drives are organised by local and regional health authorities. For regular vaccines used in child and adult immunisations, pharmacists are involved in managing supply chain, storage and dispensing. In this region, pharmacy-based vaccinations are sparse.

During the pandemic in India, COVID-19 vaccines supply was maintained by government and not community pharmacies. For those vaccines, local community pharmacies and chain pharmacies procure vaccines, and stock is driven by demand. Often there is a place near the pharmacy that provides administration of the vaccine, usually by nurses, general practitioners or paediatricians. Pharmacists are involved to a much lesser extent in these initiatives, but do have legal rights to vaccinate through the efforts of FIP and the Indian Pharmaceutical Association. India has around 700,000 pharmacists who could expand the vaccination network and provide more vaccination points in its vast territory.

In Sri Lanka, the main provider of vaccination is the National Immunization Programme under the epidemiology unit of the Ministry of Health. There is no pharmacy-based vaccination in Sri Lanka yet. Pharmacists have no direct role in vaccines administration and are involved only in the vaccine procurement stage, including supply chain and storage.

In Indonesia, pharmacists are mainly involved in the distribution, reconstitution and storage of vaccines. Some trained pharmacists in Indonesia have the right to administer vaccines in pharmacies.

6.2.3 Interprofessional collaboration and challenges

In some countries in the region pharmacists are not approved for giving vaccinations while in others pharmacists are not trained adequately to be vaccinators. In some countries pharmacists are content with their role in the supply chain of vaccine. In the face of these two constraints, it is hard to gauge if there is opposition from other healthcare professionals to involving pharmacists.

Combined efforts to increase vaccination coverage would probably not pose a challenge as everyone is pulling together in this effort. As an example, the Indian Medical Association and the Indian Pharmaceutical Association work together in different initiatives, such as the “Fight the fakes” effort.

In India and Sri Lanka, pharmacists are involved in multidisciplinary teams in hospitals and are part of the vaccination process happening in those hospitals. In some parts of these countries, hospitals are the main vaccination centres, with less participation from primary care structures.

In some countries in the region doctor dispensing still exists and this could pose a barrier to pharmacists’ involvement in the administration of vaccines.

6.2.4 Regulatory frameworks and enablers for vaccine delivery

In India, the infant immunisation programme is mostly funded by the government, while adult vaccinations are paid for by patients. In this region the role of pharmacists in vaccination is evolving. Advocacy is strongly needed to make governments legislate the role of pharmacy and the pharmacist as a place and a person, respectively, from which vaccination can be received. Once these are in place, regulatory measures and enabling systems, like training the workforce, can be developed and implemented.

The Sri Lankan government funds all vaccines in its National Immunization Programme, although GAVI supports funding for some vaccines. The Ministry of Health has a separate dedicated budget line for vaccine

procurement. This is the national immunisation schedule of Sri Lanka. There are no frameworks or enabling strategies to support the role of pharmacists in vaccination so far.

6.2.5 Education and training needs

Two education and training elements are essential in this region. The first is to identify the pharmacist workforce at the front line and train them as vaccinators and vaccine providers. The second is to train those situated in areas with high patient numbers additionally in patient care and management of treatment.

Further education for pharmacists in health promotion aspects can be important to consolidate the concept that some vaccines should be given regularly. Currently, in India, the recent PharmD programme allows young pharmacists to work closely with physicians in their clinical rotations. Feedback from other healthcare professionals is very positive with regard to pharmacists' skills and knowledge in vaccination.

In Indonesia, training for pharmacists includes nurses and medical doctors in supporting and explaining the main areas to be developed as administrators of vaccines. Pharmacists are also involved in research and development of new vaccines in pharmaceutical industries inside the country.

6.2.6 Shifting vaccination strategies from a pandemic to an endemic state

Completely vaccinating all the eligible population as well as providing immunisation coverage for infants and children will lead to the conversion of the pandemic to an endemic situation, if eradication becomes near impossible. Pharmacists can play a tremendous role in this process by educating the public to reduce vaccine hesitancy, and training pharmacists in endemic regions in management of treatment improves patient care and well-being.

The change to an endemic state can take two different pathways. One is for pharmacies and the pharmacy association to advocate and increase their participation in the different stages of the vaccination process. Another way is for the government to recruit pharmacists and pharmacies to be part of the process, which can be harder than pharmacists proactively advocating their involvement.

The role of pharmacists in Sri Lanka can be particularly important for the prevention, control and management of high incidences of vaccine-preventable infections as well as during disease outbreaks and pandemics. Many countries provide significant evidence of the benefits of the various potential immunisation roles that can be assigned to pharmacists, including collaborative and multidisciplinary roles, from education, coordination and communication to prevention and containment, procurement, distribution and vaccination, as well as recording, monitoring and assessing vaccination strategies.

6.2.7 How can FIP support the region?

FIP can help in advocacy and providing training opportunities in collaboration with the regional forum and member organisations, following the FIP Development Goals for each country in the region. All these involved parties can have online or face-to-face meetings with ministries of health, drug regulatory bodies and medical research councils to emphasise the importance of involving pharmacists in immunisations. Further aspects involve patient care and management of treatment measures and to convince the government and regulatory bodies that these organisations would partner in the training workforce initiatives by providing training material and trainers, where necessary.

For Sri Lanka, more proximity with the National Medicines Regulatory Authority and the epidemiology unit of the Ministry of Health would be key to implementing these pharmacy-based services. Policy changes are required as well. At the same time, providing training sessions for pharmacists from both the hospital and community pharmacy sector will help the development of pharmacy-based vaccination programmes.

7 Eastern Mediterranean region

7.1 Event description

The regional event for the Easter Mediterranean region took place on 14 March 2022. The composition of the panel is described below and presented in Figure 6. A recording of the event is available online through the following link: Eastern Mediterranean region.

Moderators:

- Dr Samira Shammas Goussos, FIP vice president, Jordan
- Jorge Batista, international affairs, Portuguese Pharmaceutical Society, Portugal; member of the committee of the FIP Regulators Forum

Roundtable panellists:

- Dr Maha al Jaghbeer, head of drugs registration department, Jordan Food and Drug Administration, Jordan
- Dr Nadia Al Mazrouei, president, EMRO Pharm Forum, United Arab Emirates
- Dr Pascale Salameh, chair of the scientific committee, Lebanese Order of Pharmacists, Lebanon
- Dr Dixon Thomas, associate professor, department of pharmacy practice, College of Pharmacy, Gulf Medical University, United Arab Emirates

Figure 6. Roundtable participants for the Eastern Mediterranean region

7.2 Event outcomes

7.2.1 Vaccination needs

The United Arab Emirates (UAE) is one of the countries with highest vaccination rates for COVID-19 in the region. Examples of countries that successfully achieved high coverage rate include Saudi Arabia and Jordan.

Even some health professional students, pharmacists and other healthcare professionals were involved in this vaccination campaign. Children are given most of their vaccines for free in the country too, but adult or geriatric populations sometimes have limited access to vaccines.

For Jordan, there is a special need to increase coverage for COVID-19 vaccines, for vaccines not covered by the National Immunisation Programme (mostly for children), and for adult vaccines — especially for high-risk groups. The involvement of pharmacists could be especially important to increase adult vaccination coverage as they can increase convenience and access to a high number of vaccines.

The situation in Lebanon is not very different from the rest of the countries in the region, except for the contribution of the recent crisis from 2019. Before this incident the situation was good, mostly for children and for some vaccines recommended for adults. The Lebanese Order of Pharmacists invested some effort in understanding the coverage rates of adult vaccination and the barriers for such low levels.

There are some countries where pharmacists are not yet as involved and, among those, some have limited physical space in the pharmacy and a lack of private consultation rooms as a barrier to vaccination implementation. Despite not being vaccinators, pharmacists can promote vaccines as a preventive medicine and use community pharmacies to display this information.

7.2.2 Main providers of vaccination services

In Lebanon, pharmacists have not been involved in the administration of influenza vaccines in community pharmacies. On top of the national health vaccination system, some international organisations are also supporting the supply of vaccines.

In Jordan, providers can be from the public sector (e.g., Ministry of Health, university hospitals) and from the private sector (e.g., private hospitals and clinics). There is also support from non-governmental organisations such as the WHO and UNICEF, the Ministry of Health and the Jordanian Pharmacists Association.

Vaccination is delivered in the UAE mostly through hospitals or clinics. Community pharmacies are not approved for administering vaccines. Research is ongoing on seeking pharmacist and patient support for pharmacy-based vaccination. Investigations on pharmacists' willingness to start this service, and on what the obstacles might be, are being conducted. Health insurance policies could support this notion as pharmacy-based vaccinations could decrease cost, increase vaccination rates and decrease hospitalisations.

In Saudi Arabia, pharmacists are part of multiprofessional teams and work mostly in the management of supply chains for the different vaccines.

7.2.3 Interprofessional collaboration and challenges

In Jordan, there is a need for increasing awareness for the importance and benefits of the involvement of pharmacists and how they should have adequate training and qualifications in this regard. During the COVID-19 pandemic, there was good collaboration between healthcare providers, including physicians, nurses and pharmacists, in the vaccination process at Ministry of Health vaccination sites. This was in addition to pharmacists' participation in pharmacovigilance and active adverse events surveillance following COVID-19 vaccination.

In the UAE, in some hospitals, clinical pharmacists are already administering vaccines, and other healthcare professionals are not resisting this change. Hospitals may consider their reduction in income when community pharmacists start vaccinating, as some hospitals waive the consultation fee in this regard and try to provide vaccination at a much cheaper rate. Clinical pharmacists in the UAE are administering vaccines in some of hospitals. Doctors and nurses provide support if any patient needs follow-up on care or in case of emergency.

In Lebanon, in the light of recent political disagreements with medical doctors, there was a discussion on which vaccines should be administered by which healthcare professionals. The situation got worse with the economic crisis and a huge shortage of vaccines is seen throughout community pharmacies in the country.

7.2.4 Regulatory frameworks and enablers for vaccine delivery

Despite advancements in regulatory frameworks, there is also a need to ensure the supply and quality of vaccines. There are still some countries in the region that have shortage issues in some vaccines, and that can be a barrier for service implementation. Another aspect is the use of private consultation rooms for vaccination, which are not available in some pharmacies.

In the UAE, most funds come through the government and others through health insurances that cover some vaccinations. For the remaining vaccines, consumers pay out-of-pocket. The recent regulation on drug law mentions that clinical pharmacists can administer vaccines. Extending this service is a great opportunity for community pharmacists. Many other countries in the region have started vaccination services by community pharmacists.

In Jordan, most vaccines come through governmental funding for public sectors vaccines, such as the COVID-19 vaccines. There are also donations from non-governmental organisations, especially for refugees. A new set of guidelines was issued (Jordan Community Pharmacist Immunization Guidelines) to support pharmacist-based vaccination. This directive got approval from the Ministry of Health for giving seasonal influenza vaccine by pharmacists after fulfilling certain requirements. There is still a need for approvals from the Jordanian Food and Drug Administration to assure suitability of the site, and good storage and distribution practices. Other than that, there is also a need for approval from the Jordanian Pharmacists Association to assure the qualifications of pharmacists. A survey for pharmacists and patients was carried in Jordan to understand the acceptability of vaccination services, and results were generally positive.

7.2.5 Education and training needs

Training needs are similar across the region, both at undergraduate and postgraduate levels. This should include training on the management of side effects following vaccine administration, administration techniques and vaccine promotion in the community. Ideally, pharmacy students should leave university as certified providers of vaccination services. In Jordan, there is a need for training, especially in the fields of cold chain management and vaccine records.

It is essential to train pharmacists to provide vaccination services. In the UAE there was a pilot project that successfully trained a group of pharmacists. It was confirmed that they could achieve the required knowledge and skills for flu vaccination after a short training. Fourth-year students in the pharmacy university have contact with different practical skills on vaccination, using mannequins, and theoretical courses on vaccine safety and management.

7.2.6 Shifting vaccination strategies from a pandemic to an endemic state

In Lebanon, stakeholders are motivated to find solutions to move on from the current crisis and find a place for pharmacists as immunisers. Despite this motivation, better communication channels need to exist for the interprofessional collaboration to flow without a misunderstanding of each other's roles.

In the UAE, the government emergency system for mass vaccination is slowly decreasing its capacity as the majority of the public gets vaccinated. COVID-19 vaccination is now gradually becoming a responsibility of care providers (with or without government funding). Multiple vaccinations now need to be offered through community pharmacies in the country.

7.2.7 How can FIP support the region?

FIP has been playing a key role in enhancing pharmacy-based vaccination programme globally. Prof. Dixon Thomas stated that FIP documents and guidance available on the FIP website were useful. At Gulf Medical University, there are official partnership with Emirates Health Services allowing a position to create and implement training courses for pharmacists to enable them to vaccinate.

FIP can assist by sharing experiences and success stories from other countries to see how to increase awareness and can facilitate real implementation by sharing best practices. From the Lebanese perspective, FIP could engage with the WHO regional office and other authorities to advance legislative efforts and population awareness, and support capacity building.

8 Conclusions

Vaccination needs across and within the different world regions are varied. While high vaccination coverage rates are generally found in childhood (with some exceptions) and for vaccines included in national vaccination schedules, the vaccination of adults and older adults is far less established in many countries, with suboptimal or low coverage rates for vaccines such as influenza, pneumococcal disease and others. It is essential to ensure equity of access to the vaccines that are appropriate for each age or population group, and particularly for special-risk groups who are particularly vulnerable to the consequences of vaccine-preventable diseases, such as the elderly, people living with non-communicable diseases and pregnant persons.

In addition, it is important to enhance vaccine access among healthcare professionals in order to maintain their health status and ability to provide care to others. The adoption of a life-course approach to vaccination strategies at country level is an ethical and a health imperative that will certainly contribute to longer and healthier lives, retained functional ability, increased productivity and less pressure on health systems.

In order to achieve higher vaccination coverage rates across the life-course and in the above-mentioned population groups, it is critical to increase investment in prevention, and particularly in vaccines and vaccination services, to improve the accessibility and convenience of vaccination points and to diversify vaccination pathways and providers — including pharmacists. Pharmacists and community pharmacy-based vaccination can bring equity to vaccine access and patient care.

Across the various regions and countries, the roles that pharmacists play in relation to the vaccination process range from logistical roles in the distribution and dispensing of vaccines, to patient education, and to the administration of a variety of vaccines and their registration in shared vaccination records. In some countries, pharmacists are also able to prescribe vaccines.

The COVID-19 pandemic enabled pharmacists to actively support the administration of vaccines in some countries. Although this was an important step to promote the role of pharmacists in vaccination, regulatory, policy, educational and advocacy, efforts should be made to ensure these temporary measures are sustained in the future.

Pharmacists are key players in health systems. Their role in communicating the value of vaccines to patients and addressing vaccine hesitancy and complacency is fundamental to drive vaccine uptake.

To unlock possible pathways for the collaboration of pharmacists in vaccination strategies, regulatory frameworks need to support the development of pharmacy services in vaccination. Recognition by governments and policy makers of the roles that pharmacists can play is a key step towards including more pharmacists in vaccination policies. In addition to policy and regulatory reforms, appropriate funding models need to be in place to support and ensure the sustainability of vaccines administration in pharmacies, either by pharmacists or other healthcare professionals. Being a cost-effective intervention that delivers value to individuals and societies alike, vaccines and vaccination services should be funded by health systems, including the remuneration of administration services.

To enable the involvement of pharmacists in vaccination, it is fundamental to have structured training and certification programmes that support the development of the necessary knowledge and skills. In order to ensure that these competences are acquired at an early stage of the career and become an integral part of pharmacists' foundational training, it is important that they are included in undergraduate pharmacy education. This should be complemented by opportunities for continuing professional development to ensure that the pharmacy workforce can develop or upskill their competence in this area throughout their professional careers. FIP has developed resources outlining the knowledge and skills required for vaccination-related roles that may assist not only individual pharmacists in mapping their individual competencies against such recommendations, but also academic institutions and providers of CPD courses in developing their educational programmes.

As the world transitions from a pandemic state to management of endemic COVID-19, vaccination strategies for this new disease will need to evolve from urgent mass immunisations to the ongoing periodical

vaccination of the population, and particularly those groups that are most vulnerable to more severe forms of the disease. This change means that pharmacists can play an important role in future COVID-19 and pandemic vaccination, as they do with influenza and other diseases. As such, they may either need to advocate taking on a new role as vaccinators, or retaining the roles that were entrusted to them as vaccinators during the pandemic. In some countries, they may only be involved in the delivery of one specific vaccine, but that can offer the opportunity to demonstrate their value and contribution towards improving vaccination coverage rates more widely.

FIP is a platform that can provide its members with opportunities to share best practices and data to advocate the role of pharmacists in vaccination. With the support of tools and resources to support this advocacy work, available through the FIP vaccination website, pharmacists and pharmacy associations can expand their scope of practice and contribute to local and global health by delivering vaccines across the life course. Finally, the FIP self-assessment regulatory tool helps to identify strengths and areas for improvement in order to inform pandemic planning and wider vaccination strategies during the current as well as for future pandemics.

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