Pandemic preparedness, response and recovery

Lessons learnt for global pharmacy

2023

International Pharmaceutical Federation

Colophon

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About this report

The COVID-19 pandemic has taught the world to learn to adapt to circumstances, not only as an organisation, but also as a profession, both during the pandemic itself and in the learnings thereafter. How to continue to lead the profession globally and support our members during those uncertain times became a core priority for the International Pharmaceutical Federation (FIP). As we move on from responding directly to COVID-19 to responding to the aftermath and to readying ourselves for future pandemics and health emergencies, we sought to derive key lessons, recommendations and considerations for the future.

The key learnings for pharmacy are presented in this report in six sections focusing on lessons from country leadership, system transformation, science and innovation, pharmaceutical practice, workforce and education, and life-course immunisation.

This report is accompanied by a digital supplement on pandemic preparedness, response and recovery, which collates key resources from the global health community, other health professions and key research outputs. Our work on pandemic preparedness, which during the pandemic was a cornerstone of our sustainability portfolio, will be built on in the future and support FIP's humanitarian and disaster management programme.

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FIP Pandemic Preparedness Project Team

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1 Introduction: Building on lessons from COVID-19 for future preparedness and resilience

For the past few years, the COVID-19 pandemic has been an unprecedented global health crisis, profoundly impacting the lives of individuals and communities worldwide, exacerbating existing crises and humanitarian needs, and drawing all nations' frailties and inequities into sharp focus.[1] As frontline healthcare professionals, pharmacists play a vital role in pandemic response efforts, demonstrating their unwavering commitment to patient care and public health.[2] This report seeks to outline the valuable lessons learnt from the challenges posed by COVID-19, aiming to provide pharmacists worldwide with essential insights for enhancing future pandemic preparedness, response and delivery. By examining the experiences, innovations and collaborative approaches employed during this crisis, FIP can identify key strategies that can be adopted, refined and expanded upon to build a resilient healthcare system capable of effectively managing and mitigating the impact of future pandemics. This report serves as a critical resource to empower pharmacists with knowledge and guidance, ensuring they are at the forefront of safeguarding public health and bolstering global pandemic preparedness efforts.

FIP continues to play a pivotal role in advancing the pharmacy profession and promoting global health. As a leading global organisation representing pharmacy worldwide, FIP is committed to providing its members with timely and relevant information to navigate the evolving landscape of healthcare challenges. Since the start of the COVID-19 pandemic, FIP has responded swiftly and purposefully to support its members during those challenging times. Most notably, FIP established the "FIP pandemic preparedness programme", which was dedicated not only to reshaping its own member support and engagement strategy, but also to understanding members' own response through data and intelligence.[3]

FIP noted that the World Health Organization (WHO) declared the new coronavirus a Public Health Emergency of International Concern on January 2020.[4] One thousand days later, FIP published a comprehensive report detailing the response of the global pharmacy profession during the COVID-19 pandemic, taking the timelines as 10 blocks of 100 days.[5] FIP presented its effort by highlighting the actions taken by the federation since 30 January 2020. This involved gathering global expertise, promoting international solidarity among professionals and facilitating prompt actions at the national level. [5]

The report primarily focuses on two significant aspects: Firstly, it presents an overview of FIP provision of global support to the profession; secondly, it offers valuable insights by sharing data, best practices and lessons learnt from pharmacy professionals worldwide, focusing on their responses at the national level. FIP's response strategy encompassed supporting international solidarity, advocating and showcasing the impact of the pharmacy profession in the pandemic response, gathering evidence of impact and fostering innovation, and adapting business operations and work methods. Notable initiatives included establishing a comprehensive COVID-19 Hub, implementing a pandemic preparedness programme, advocating pharmacy-based vaccination delivery, strengthening partnerships and collaborations, and delivering digital programmes to address the challenges posed by COVID-19. Figure 1 highlights 10 themes across four response areas of FIP's response to the COVID-19 pandemic.[5]

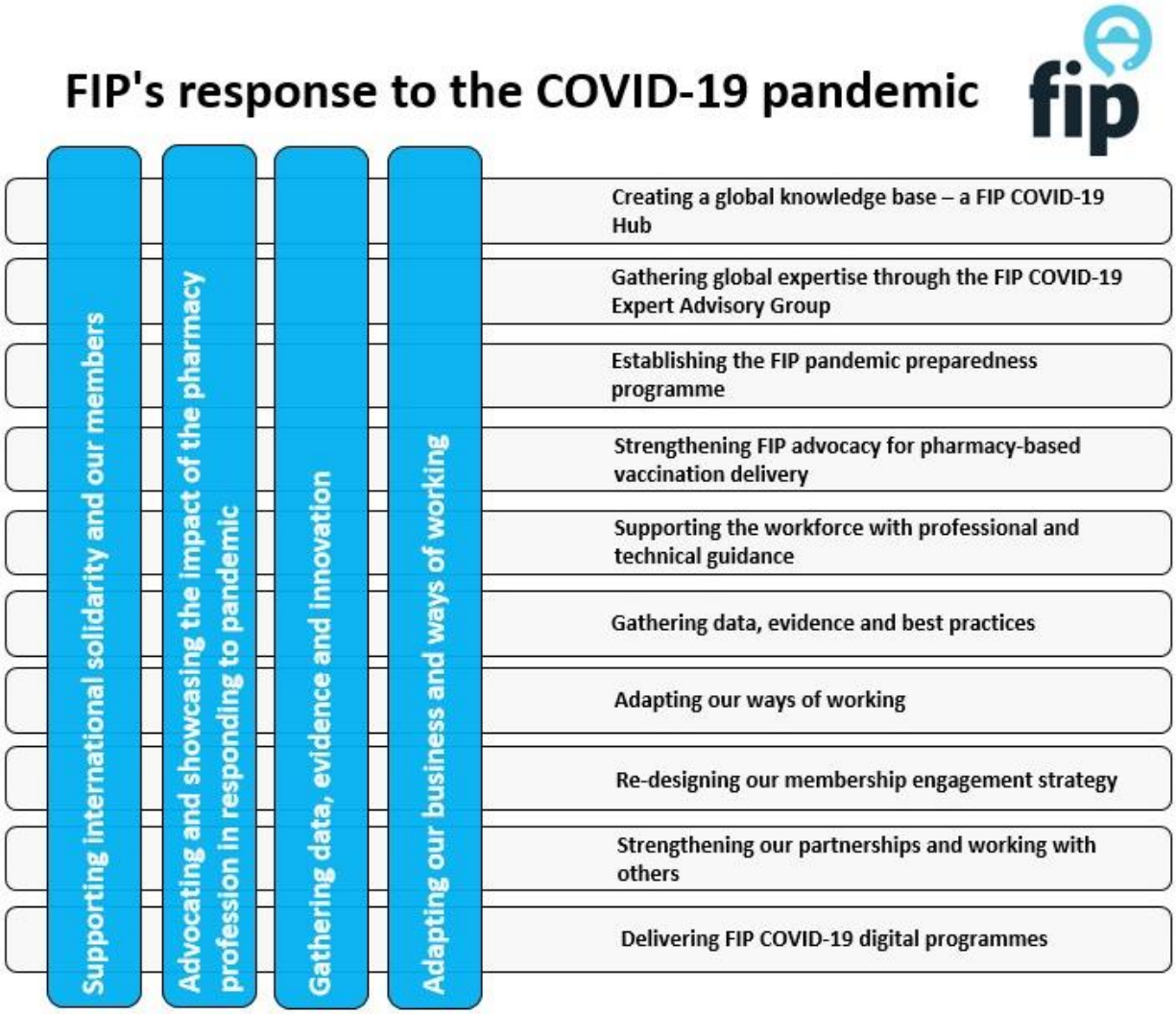

Figure 1: FIP's response to COVID-19: 10 themes across four response areas[5]

The report also provides insightful findings from a sample of FIP member organisations regarding their pandemic activities up until February 2022. Information was gathered from 42 countries and territories, highlighting the diverse responses of these national professional organisations. Their initiatives encompassed a wide range of areas, such as developing and updating clinical guidance, implementing public education programmes, providing education for healthcare professionals, ensuring the availability of essential medicines and personal protective equipment, supporting diagnostic testing and vaccinations within pharmacies, promoting scientific research, and advocating legal changes to facilitate pandemic response.[5]

Producing a report on lessons learnt from COVID-19 for better future pandemic preparedness, response and delivery aligns with FIP's strategic objectives, and this builds on previous work. This forward-looking document looks back on pharmacy's global experiences and the impact of the pandemic to derive key lessons, recommendations and considerations for the future. It is also accompanied by a new digital supplement, a live and continuously updating "reference list" that links to key resources on pandemic preparedness from the global health community, other health professions and key research outputs.

2 Learnings from WHO, other health professions and the world

2.1 A digital supplement on pandemic preparedness

One of the FIP key response areas to the COVID-19 pandemic described in detail in FIP's 2022 report "The global response of pharmacy to the pandemic: The contribution of the profession to COVID-19" centred around gathering data, evidence and innovation.[5] FIP created a repository of global resources to obtain information related to COVID-19: The FIP COVID-19 Hub.[6] The hub included initiatives shared by FIP's member organisations and other pharmaceutical professionals and scientific bodies to support patients, health systems and society during the pandemic. This repository also contained information from the WHO and other organisations and relevant articles that may inspire and enlighten local action. The hub also contains technical and professional guidance (in the form of guidelines and summary guidance sheets) to support FIP's members and the workforce during the pandemic.[6]

COVID-19 has become a real-world laboratory where countries, organisations and individuals have learnt and adapted to new circumstances, experimenting with various strategies, policies and practices to combat the pandemic. The global response to COVID-19 has also led to an unprecedented exchange of information, ideas and best practices across borders, fostering collaboration and learning among nations. The pandemic serves as a crucial lesson for future pandemics, highlighting the need for preparedness, global cooperation and robust healthcare systems to effectively mitigate and manage such crises.[7] As the world transitions from responding to COVID-19 to preparing for upcoming pandemics and health emergencies, the focus shifts towards enhancing pandemic preparedness and response. It remains crucial to recognise that the journey to recovery from COVID-19 remains lengthy for numerous nations and communities.

Whether the focus is on response, recovery or preparedness, FIP always prioritises gathering data, evidence and innovation with the primary aims of learning from others and benefiting our members. The COVID-19 Hub focused on the pandemic itself.[6] Now it is time to collate data and evidence on pandemic preparedness. With this report, FIP launches a live digital supplement on pandemic preparedness, which collates data, evidence and examples in the forms of reports, toolkits, frameworks, policy documents and media from around the world. Key sources include the WHO, pharmacy, other health professions and the research community. The digital supplement will continuously be updated to include emerging data and lessons — and will expand to include more examples from FIP members as the world continues to recover and learn from COVID-19. FIP's work on pandemic preparedness — which was a cornerstone of FIP "sustainability" portfolio[8] — will continue into the future to support FIP's humanitarian and disaster and emergency management programme.[9]

2.2 Priorities for the WHO and the global health community

As the leading global organisation that stewarded the health profession during the pandemic, the WHO played a crucial role during COVID-19. Not surprisingly, resources from the WHO are core to the FIP digital supplement. Together with the WHO and the global health community, the FIP focus is on preparedness and response to managing health emergencies.

FIP has attended the World Health Assembly (WHA) since the beginning of the collaboration with the WHO. The WHA is the decision-making body of the WHO and is held annually in Geneva, Switzerland.[10] This changed during the COVID-19 pandemic, when the WHO, like other global organisations, held the first ever virtual meeting of its governing bodies. In 2020, the WHA focused primarily on the fight against the COVID-19 pandemic.[11] It adopted a landmark resolution to bring the world together to control the pandemic and for equitable access to and fair distribution of all essential health technologies and products to combat the virus. It also called for an independent and comprehensive evaluation of the global response, including, but not limited to, the WHO's performance. These efforts continued throughout 2021 when the WHA focused on equitable access to vaccines, the accuracy of information, the fight against disinformation spreading, and infection prevention and control strategies. In 2022, in-person meetings were resumed and the agenda

broadened to include the wide and pertinent topics of interest, such as patient safety, antimicrobial resistance and non-communicable diseases, and FIP represented pharmacy's voice on these matters. It was also the year of the healthcare professional, and FIP, together with World Health Professions Alliance (WHPA), signed a memorandum of understanding, strengthening the collaboration between the organisations.[12]

The 76th WHA in 2023 saw active and impactful engagement from the FIP delegation, consisting of 21 members, including the Bureau, CEO, member organisations, Early Career Pharmacy Group representatives and FIP staff. Throughout the WHA, FIP made significant contributions by presenting three constituency statements on the WHO's preparedness and response to health emergencies, as well as on universal health coverage agenda items. Additionally, FIP delivered five individual statements covering crucial topics such as public health emergencies, medical products, infection prevention and control, well-being and health promotion, social determinants of health, patient safety, and women's, children's and adolescents' health.[13]

Apart from delivering statements, the FIP delegation actively participated in over 50 side events that addressed critical issues affecting global health. Furthermore, FIP hosted a networking reception, fostering collaboration among FIP delegates, colleagues from allied organisations, and WHO officers. This gathering provided an invaluable platform for knowledge exchange and relationship building. The WHA76 featured strategic roundtables that brought together global health stakeholders to address critical issues and shape the future of global health. These roundtables covered a range of topics, including pandemic preparedness, health workforce investment, climate action, tuberculosis eradication, immunisation and tobacco control. One of the roundtables attended was "The world together: Member state-led processes to strengthen pandemic prevention, preparedness and response, today and for generations to come".[13] Annex 2 provides the details of the roundtable conducted in the WHA76.

During a pre-WHA meeting, it was highlighted that countries were experiencing disruptions in essential services due to the COVID-19 pandemic. The main barriers faced by countries included issues with the health workforce, financing, supplies and equipment shortages, public engagement, affordability, inadequate data, and the broader contexts of climate change, crisis conflicts and economic constraints. Urgent collective action was called for, and a pandemic fund was established to provide additional dedicated financing for preparedness, given that the estimated cost of preparedness is USD 30bn per year with a USD 8bn gap.[14]

During WHA76, several resolutions were adopted, including one focused on pandemic prevention, preparedness, and response.[15] The resolution endorsed the report of the Working Group on Strengthening WHO Preparedness and Response to Health Emergencies (WGPR), which was established by the Executive Board at its 148th session in January 2023. The resolution welcomed the WGPR's recommendations on strengthening the global architecture for health emergency preparedness, response and resilience, as well as on enhancing the WHO's capacities, functions, governance, financing, accountability and partnerships in this area. The resolution also requested the WHO director-general to implement the recommendations within his mandate and authority and to report on progress to the governing bodies.

WHA76 adopted a landmark accord that aims to strengthen the global architecture for health emergency preparedness, response and resilience.[16,17] The accord outlines the principles, commitments and actions that member states, the WHO and other stakeholders will take to prevent, prepare for and respond to future pandemics. The accord also calls for the establishment of a special session of the WHA in November 2023 to consider the development of a convention, agreement or other international instrument on pandemic prevention, preparedness and response. WHA76 also adopted the proposed programme budget for 2024–25, which outlined strategic priorities and resource requirements for the WHO's work in the next two years. Aligned with the WHO General Programme of Work 2019–2023 and reflecting lessons learnt from the COVID-19 pandemic, the proposed programme budget included a new financing dialogue mechanism aimed at increasing the predictability, alignment and flexibility of the WHO's funding.

Additionally, WHA76 also adopted a resolution on the multisectoral preparedness coordination framework.[18] The resolution recognised the importance of multisectoral coordination for effective health emergency preparedness and response at national and subnational levels. The resolution urged member states to establish or strengthen multisectoral coordination mechanisms for health emergency preparedness and response, involving all relevant sectors and stakeholders. The resolution also requested the WHO director-general to provide technical guidance and support to member states in developing or updating their multisectoral preparedness coordination frameworks, as well as to facilitate regional and global collaboration and information sharing on this topic.

Under the agenda of "Strengthening WHO preparedness for and response to health emergencies", FIP co-developed a constituency statement[19] led by the WHPA focused on the impact of COVID-19 on the health workforce and its contribution to pandemic response. The statement highlighted the occupational risks and workload challenges faced by health professionals, especially women, during the COVID-19 pandemic and emphasised the need for the WHO to protect and support them, strengthen mental health services, improve working conditions, invest in training, address violence in healthcare settings, and include health professionals in decision-making for the benefit of patients and health systems.

Additionally, the Pharmaceutical Society of Taiwan organised a forum on "Leveraging the expanded role of pharmacists for resilient health systems: Contributions to pandemic response and medicine shortages". The event discussed topics such as the expanded role of pharmacists during and beyond the pandemic, minimising the impact of medicine shortages, and the contributions of hospital pharmacists during the COVID-19 pandemic.

2.2.1 Notable resources from the WHO

The COVID-19 pandemic has highlighted the need for strengthening the global architecture and capacity for health emergency prevention, preparedness, response and recovery. Several global reports have been published to analyse the current situation, identify gaps and challenges, and propose recommendations for improvement. Some of the key findings from these reports are summarised below.

The WHO published a report on the current global architecture for health emergency prevention, preparedness, response and resilience.[20] The report found that the global architecture is fragmented, underfunded and unaccountable, and that it lacks coherence, coordination and collaboration among different actors and sectors. The report also found that the global architecture is not aligned with other relevant frameworks and initiatives, such as the International Health Regulations (2005), the Sendai Framework for Disaster Risk Reduction 2015–2030, the Health Security Preparedness Index, and the One Health approach. The report recommended strengthening the global architecture by establishing a new high-level political body, a new financing mechanism, a new coordination platform and a new accountability system.

The WHO published a guidance document on how to develop or update national plans for health emergency preparedness and response. The document outlined the key components and steps of a planning process, as well as the roles and responsibilities of different stakeholders. It also provided examples of good practices and lessons learnt from previous health emergencies.[21] The document is based on the principles and standards of the International Health Regulations (2005), the Sendai Framework for Disaster Risk Reduction 2015–2030 and the Health Security Preparedness Index. The document aims to help countries to:

- Assess their current level of preparedness and identify gaps and priorities;
- Establish a clear vision, goal, objectives and scope for their national plan;
- Engage and coordinate with relevant stakeholders and partners;
- Define the roles and responsibilities of different sectors and actors;
- Develop a comprehensive and integrated plan that covers all hazards, phases and functions of emergency management; and
- Implement, monitor, evaluate and update the plan regularly.

The document also emphasises that planning is not a one-time activity but rather a continuous cycle of improvement that requires regular monitoring, evaluation, feedback, learning and adaptation.

The WHO also published a framework for enhancing the capacity of cities and urban settings to prevent, prepare for, respond to and recover from health emergencies. The framework identified six core functions and 12 essential elements of urban health emergency preparedness, as well as indicators for measuring progress. It also provided guidance on how to implement the framework in different contexts and scenarios.[22]

The WHO also conducted a global analysis of intra-action reviews (IARs) conducted by countries during the COVID-19 pandemic. IARs are rapid assessments that aim to identify strengths and weaknesses of the ongoing response and recommend actions for improvement. The analysis summarised the main findings, challenges, best practices and lessons learnt from 64 IARs conducted in 2020. [23]

As multisectoral preparedness activities are imperative, the WHO published a framework for coordinating activities at national and subnational levels. The framework defined multisectoral preparedness as "the process of ensuring that all relevant sectors are ready to prevent or respond effectively to public health threats". The framework described the roles and responsibilities of different actors involved in multisectoral preparedness coordination, such as national authorities, the health sector, other sectors, civil society, the private sector and international partners. The framework also described the key functions and processes of coordination mechanisms, such as leadership, governance, planning, implementation, monitoring, evaluation and learning. [24]

The WHO also published a framework for applying a risk management approach to health emergencies and disasters. The framework defined health emergency and disaster risk management (health EDRM) as "the systematic analysis and management of health risks posed by emergencies and disasters". The framework described the core components and principles of health EDRM, such as risk identification, risk reduction, risk transfer, risk retention, risk communication, risk governance, risk monitoring and risk evaluation. The framework also described its linkages with other relevant frameworks and initiatives, such as the International Health Regulations (2005), the Sendai Framework for Disaster Risk Reduction 2015–2030, the Health Security Preparedness Index and the One Health approach.[25]

For more information on WHO reports and related content, we invite you to explore the digital supplement available at here.

3 Key learnings for pharmacy

Chapter 3 highlights six areas that group key learnings for pharmacy: lessons from country leadership, system transformation, science and innovation, pharmaceutical practice, workforce and education, and life-course immunisation. These areas are by no means exhaustive. Lessons learnt from the pandemic span many topics and touch many aspects of the profession that cannot be captured in one report. However, the challenges presented here are supported by data that FIP has gathered and programmes that FIP has delivered, and these can be considered priority learnings for pharmacy. The digital supplement will be continuously updated into the future and will offer a timeless resource to support this document and future publications on the issue.

The six themes highlighted above map to many of the FIP Development Goals (DGs).[26] The DGs, launched in September 2020, are a key resource for transforming the pharmacy profession over the next decade globally, regionally and nationally. They align with FIP's mission to support global health by enabling the advancement of pharmaceutical practice, sciences and education[27] and are set to transform pharmacy in alignment with wider global imperatives underpinning the UN Sustainable Development Goals (SDGs). To demonstrate thematic alignment with the six areas and the relevance of the DGs as a framework, relevant DG graphics are highlighted in each section.

3.1 Leading by example: Governments, nations and members organisations

This section draws on 11 country case studies that each focus on a strategic initiative the member organisation implemented in the wake of the pandemic, focusing specifically on the lessons learnt from these initiatives as the countries have reported them.[5]

3.1.1 Costa Rica: College of Pharmacists of Costa Rica

The College of Pharmacists of Costa Rica initiated a project on pharmaceutical services in immunisation in January 2020 which was subsequently adapted to respond to the COVID-19 pandemic. Its efforts included addressing vaccine-related issues, conducting information campaigns, and providing training on COVID-19. The college plans to continue working on educational programmes and action guides for pharmaceutical services in immunisation. Although impact measurement tools are currently lacking, the college has observed positive outcomes from the information campaigns and the training of pharmacists on COVID-19-related matters. The challenges the college faced included finding spaces in the national media to provide reliable information about vaccines and the pharmacist's role, and establishing a partnership with the ministry of health. Based on this experience, the college recognises the potential to undertake more public health projects, focusing on expanding stakeholder involvement and engaging pharmacists in a broader range of activities to enhance pharmaceutical services continuously.

3.1.2 Denmark: The Association of Danish Pharmacies

The Association of Danish Pharmacies established a COVID-19 task force and hotline comprising 13 employees, including pharmacists, economists and lawyers, to provide round-the-clock support for pharmacy owners and staff. It created an online platform that was continuously updated with the latest COVID-19 information, ensuring easy access for members and staff. Direct communication of relevant COVID-19 information was ensured for pharmacy owners and staff while the task force team were consistently updated. However, initial challenges arose due to frequent changes in regulations and the implementation of rules that posed practical difficulties for pharmacies. Lessons learnt from this initiative include the importance of establishing a dedicated support system during a crisis, such as a task force and hotline, to provide timely assistance and information. Maintaining an updated online platform with relevant and reliable

information is crucial for easy accessibility. Flexibility and adaptability are necessary to navigate changing regulations and address practical challenges faced by pharmacies.

3.1.3 India: Indian Pharmaceutical Association

Pharmacists in India took part in awareness programmes to ensure proper stocking, distribution and dispensing of medicines for COVID patients, following national and WHO guidelines. Despite the risks, pharmacists embraced their role as the first point of contact for patients, providing crucial advice and information. This led to greater recognition and highlighted the importance of pharmacists in the healthcare system. Hospital, community, regulatory, manufacturing and testing pharmacists all contributed significantly to controlling the pandemic, with vaccine manufacturers working tirelessly to provide over two billion vaccinations. However, challenges included ensuring a timely supply of medicines, disruptions in the supply chain, and ensuring pharmacies remained open and staffed. Lessons learnt emphasised the need for proper awareness programmes, maintaining drug supplies, promoting proper drug usage, combating misinformation, and implementing disaster management and infection prevention training for pharmacists to better handle future crises. The Indian Pharmaceutical Association aims to continue these initiatives to establish the pharmacy profession as a key healthcare provider in India.

3.1.4 Ireland: Irish Pharmacy Union

Community pharmacies in Ireland played a vital role in the provision and administration of COVID-19 vaccines, aiming to protect the public and support the country's recovery. The initiative capitalised on the existing skilled and trusted vaccination workforce within community pharmacies and leveraged their extensive network, and extended opening hours for efficient vaccine delivery. The collaboration between the Irish Pharmacy Union (IPU) and the Health Services Executive (HSE) resulted in the development of HSE PharmaVax, a fit-for-purpose vaccination platform integrated with a central database for recording COVID-19 vaccinations. Pharmacists administered various COVID-19 vaccines while developing new skills and effectively reaching vaccine-hesitant populations. Lessons learnt included the need for interoperability and accurate data within pharmacy systems to enable effective vaccination programmes. The challenge of limited vaccine supply initially delayed pharmacist involvement, and efforts were required to overcome logistical obstacles. The IPU provided extensive support to community pharmacists through resource development, webinars and dedicated vaccination hubs, strengthening relationships with stakeholders and building public trust. Challenges also highlighted the importance of data categorisation and system compatibility, leading to ongoing work with stakeholders to address these issues. This initiative elevated the profile of community pharmacy as a primary healthcare resource and fostered collaborative relationships for future advancements in pharmacy clinical services.

3.1.5 Japan: Japan Pharmaceutical Association

The initiatives conducted by Japan Pharmaceutical Association included the provision of guidance over the phone and delivering medicines to patients' homes during the COVID-19 pandemic. Its objectives included ensuring continuous medication therapy, reducing infection risks for the public, and supporting patients with COVID-19 receiving treatment at home. The initiative is ongoing, with some financial support from the national government to pharmacies. Pharmacists have taken on additional out-of-hours deliveries, risking their own safety while contributing to maintaining medication therapy. However, challenges persist regarding the adequacy of financial coverage and support for pharmacies. The key lesson learnt is the importance of local governments developing advanced plans for medicine provision and supply in preparation for future disasters and pandemics.

3.1.6 Lebanon: National Institute of Public Health, Clinical Epidemiology and Toxicology

The initiative in Lebanon aimed to understand the impact of COVID-19 and the economic crisis, generating evidence and promoting strategic thinking in health care. Despite the absence of national disaster and research guidelines, academic and hospital institutions conducted independent research projects. Limited access to COVID-19 surveillance data heightened the urgency, especially considering the socioeconomic deterioration, drug shortages and healthcare system strain. Ongoing research covers various areas, including chronic diseases, obesity, pregnancy, drug shortages' impact on treatment adherence, psychological aspects, vaccine interactions and predictors of long COVID symptoms. The resulting publications provide valuable evidence for policymakers, leading to the development of a national pharmaceutical strategy and other relevant strategies for pharmacy education, workforce and research. The initiative faced challenges such as collaboration difficulties, conflicting interests among healthcare professionals, and constrained access to data and implementation due to political and institutional obstacles. The lesson learnt highlights the critical need for strategic thinking and disaster preparedness by pharmaceutical authorities, emphasising the importance of

formulating pharmaceutical research strategies and other related strategies, even in the absence of robust public institutions.

3.1.7 Malaysia: Malaysian Pharmacists Society

The initiative by the Malaysian Pharmacists Society focuses on pharmacists as vaccine administrators and certified training on immunisation for pharmacists (CTPIP). The motivation behind the initiative is to leverage pharmacists' role in public health by empowering them to administer vaccines and contribute to safeguarding the public from communicable diseases. The ongoing progress includes training pharmacists under CTPIP and similar programmes, with the number of pharmacists capable of administering vaccines increasing. However, there is a need to advocate the administration of vaccines beyond COVID-19 and make it a standard part of pharmacists' public health responsibilities. The impact of the initiative expands the role of pharmacists in public health, provides a valuable resource in combating COVID-19, and enhances access to vaccines through hospital and community pharmacists. Challenges include limitations to COVID-19 vaccines and the classification of vaccines as prescription-only medicines, which necessitates obtaining a doctor's prescription for administration. Lessons learnt highlight the importance of improving the practice environment, recognising pharmacists' rights, expediting training and advocacy efforts, and seeking collaboration with international organisations and neighbouring countries with pharmacist vaccinators.

3.1.8 Malta: Malta Chamber of Pharmacists

The initiative of the Malta Chamber of Pharmacists focuses on implementing paperless collaborative repeat prescribing and dispensing within the "Pharmacy of Your Choice" national scheme in response to the COVID-19 pandemic. Pharmacists were granted authority to dispense repeat medicines without a doctor's prescription, reducing document handling and streamlining the dispensing service. The initiative aimed to ensure seamless access to medicines, continuity of treatment, and compensation for the deficit in family doctor and consultant services during the pandemic. It has demonstrated the resilience and adaptability of the pharmacy profession and highlighted the value and expertise of pharmacists. The initiative is ongoing, with directives, protocols and standard operating procedures in place. Challenges include acceptance by some pharmacists, compliance with referral notes, computerisation issues, and the need for increased collaboration between doctors and consultants. The lesson learnt is the importance of pharmacist adaptability and the need for ongoing collaboration and data collection to optimise implementation and outcomes. The initiative is considered a work in progress, with plans for workshops and integration with other services for optimal implementation.

3.1.9 Portugal: National Association of Pharmacies

The initiative of the National Association of Pharmacists focuses on the implementation of rapid antigen testing for SARS-CoV-2 in community pharmacies with NHS referral in Portugal. The aim was to increase testing capacity, detect cases early and respond to outbreaks effectively. Community pharmacies were authorised to perform testing and communicate the results to public health authorities. The initiative is ongoing, with over 12 million tests performed by half of the pharmacies in the country. It has improved access to testing, reduced distances to testing locations and decreased inequality in access. Challenges included pharmacy registration in the Regulatory Health Agency, and lack of logistical means and low remuneration. The initiative highlights the importance of pharmacies in filling geographic and socioeconomic gaps and the need for structured communication channels between pharmacies and the NHS. The results demonstrate the positive impact on patient health outcomes and the sustainability of the healthcare system. Lessons learnt include the value of pharmacy involvement, the necessity of integrated approaches and the importance of adequate remuneration for services provided by pharmacies.

3.1.10 Portugal: Portuguese Pharmaceutical Society

The initiative involved the creation of a help desk by the Portuguese Pharmaceutical Society in partnership with various sectorial associations to support pharmacists during the COVID-19 pandemic. This included a free helpline and a volunteers database to provide technical support and answer questions. The help desk also provided information materials, guidelines, and updates on COVID-19-related topics to increase health literacy. The initiative improved communication and access to reliable information for pharmacists, leading to its success. Challenges initially arose due to the limited information available about COVID-19, but as more knowledge emerged, the associations and specialty boards involved focused on their expertise, resulting in a robust support structure for pharmacists. The lesson learnt was the importance of monitoring and evaluating the outcomes of such initiatives. The Portuguese Pharmaceutical Society acknowledged the need to conduct a project report to assess the impact and effectiveness of the help desk.

Overall, the initiative demonstrated the value of collaboration among different entities to support pharmacists, enhance communication and provide accurate information during a public health crisis.

3.1.11 South Africa: Pharmaceutical Society of South Africa

During the early stages of the COVID-19 pandemic, healthcare professionals in South Africa faced a lack of information and slow updates from the national department of health. To address this, the Pharmaceutical Society of South Africa (PSSA) organised webinars that covered essential topics such as the virus, its transmission, personal protective equipment, treatments and vaccination. These webinars served as a convenient and effective way for members, including those in rural areas or with time constraints, to access continuing professional development events. The PSSA's existing webinar platform, established in 2017, played a crucial role in providing online tools to members. Over a period of 30 months, the PSSA hosted 60 webinars that attracted over 7,000 participants and garnered nearly 4,000 views of the recorded sessions. Coordinating the timing of webinars presented challenges, as they often took place in the evenings after working hours. Staff dedication was necessary to prepare for the events, conduct practice sessions with speakers and ensure the successful hosting of the webinars. Key lessons learnt from this initiative include the importance of creating a standardised template for webinar information and streamlining the collection of necessary details. Additionally, offering speakers a dry run session proved valuable in familiarising them with the platform and enhancing the overall presentation experience.

3.2 Enabling system transformation: Remuneration, regulations and data infrastructure for vaccination services

3.2.1 Accelerating transformation for pharmacy-based vaccination post-COVID-19

FIP is committed to transforming vaccination by accelerating vaccine equity, access and sustainability through life-course immunisation.[28] It is critical to both recognise and understand the impact of pharmacy-based vaccination delivery on disease prevention throughout life's ages and stages, from childhood (including utero) to late adulthood. This is key to supporting countries to develop policies that enable pharmacies and pharmacists to deliver integrated vaccination services throughout the life course and as part of wider national immunisation policies. By advocating the integration of pharmacy-based vaccination services throughout the life course, FIP aims to contribute to the broader goal of improving global immunisation coverage, ensuring that individuals of all ages receive timely and appropriate vaccinations to protect their health and well-being.[28]

Pharmacists have played a critical and indispensable role in COVID-19 vaccination efforts, contributing significantly to successful immunisation campaigns worldwide. Their involvement has improved access to life-course immunisation in several ways and serves as a transformational accelerator to expanding pharmacy-based vaccination services. Here is an overview of their crucial role and the resulting benefits:

- **Vaccine distribution and counselling** — Pharmacists have been instrumental in the distribution and administration of COVID-19 vaccines. They have worked in collaboration with healthcare providers, governments and public health agencies to ensure the efficient delivery of vaccines to communities. Many pharmacies have served as vaccination centres, providing convenient access to vaccines for individuals of all ages.
- **Vaccine education and counselling** — Pharmacists have been at the forefront of vaccine education and counselling. They have played a vital role in disseminating accurate information about COVID-19 vaccines, addressing concerns, and combating vaccine hesitancy. Their expertise in medication management and patient

counselling has helped alleviate fears and increase confidence in the vaccines, thereby promoting widespread immunisation.

- **Expanded scope of practice** — In response to the pandemic, many jurisdictions expanded the scope of practice for pharmacists. This allowed them to administer vaccines independently, including COVID-19 vaccines, without requiring a prescription. This flexibility empowered pharmacists to contribute directly to vaccination campaigns, reaching more people and expanding access to immunisation services.
- **Outreach to underserved communities** — Pharmacists have been actively involved in reaching underserved communities, including rural areas and marginalised populations. By establishing mobile vaccination clinics and participating in community outreach programmes, they have bridged the gaps in vaccine access and ensured equitable distribution. Their presence in local pharmacies has made it easier for individuals who may face barriers to healthcare access to receive their vaccines.
- **Vaccine monitoring and adverse event reporting** — Pharmacists have played a crucial role in monitoring vaccine safety and reporting adverse events. They have been involved in post-vaccination surveillance, tracking and reporting any potential side effects or adverse reactions. This real-time data collection has been essential for ongoing safety assessments and maintaining public trust in the vaccination process.
- **Collaboration and interprofessional communication** — Pharmacists have collaborated with other healthcare professionals, such as physicians, nurses and public health officials, to ensure coordinated and comprehensive immunisation efforts. Through effective interprofessional communication, they have facilitated seamless vaccine distribution, addressed logistical challenges, and provided valuable input on vaccination strategies.

The positive impact of pharmacists' involvement in COVID-19 vaccination extends beyond the immediate response to the pandemic. By demonstrating their capability to contribute to large-scale vaccination campaigns, pharmacists have strengthened the overall infrastructure for life-course immunisation. Their experience, expertise and expanded role can serve as a foundation for future vaccination programmes, enhancing access to a wide range of vaccines across various age groups and health conditions.

3.2.2 Enabling system transformation across remuneration, regulations and data infrastructure

One of FIP's recent post-pandemic programmes focused on "Enabling equity, access, and sustainability of life-course immunisation through pharmacy-based vaccination", which delivered a series of digital events mainly focused on three key policy enablement areas identified by FIP: (i) vaccination services remuneration models; (ii) regulations and prescribing authorities; and (iii) access to data and patient vaccination records. A policy "enabler toolkit" has been developed to capture the outcomes of these digital events and builds on the FIP advocacy toolkit.[29] The comprehensive enabler toolkit provided examples, details and guidance on all aspects necessary for delivering life course immunisation but particularly focuses on policy enablement around vaccination services remuneration models, regulations and prescribing authorities, and access to data and patient vaccination records.

Table 1 outlines the key enablers and barriers as identified by the programme and featured in the toolkit.

Table 1. Summary of enablers of pharmacy-based life course immunisation [29]

Vaccine regulation and prescribing	Leveraging public acceptance of pharmacy-based vaccination as a convenient and accessible way to receive vaccines and to increase immunisation rates
	Recognising the role of pharmacists in advocating vaccination and addressing vaccine hesitancy
	Enhancing pharmacy education curricula to include education and training on vaccination while supporting trained pharmacists to stay up to date with the latest advancements in vaccination
	Advocating pharmacists becoming key stakeholders in national vaccination policies
	Granting pharmacists access to patient vaccination records
	Collaborating with policymakers and healthcare professionals to update Acts and guidelines and to set clear policies in place to support pharmacy-based vaccination
Service remuneration models	Developing an electronic registry for immunisation to help monitor the impact of pharmacy-based vaccination on immunisation rates and demonstrate why pharmacists should be remunerated for their highly impactful participation in these services
	Expanding the role of pharmacists in delivering various services, including medication therapy management and smoking cessation, which empowers pharmacists and allows them to take a load off other health professionals
	Incorporating vaccination education and training into pharmacy undergraduate curricula to prepare pharmacists to vaccinate and to expand the number of pharmacists and pharmacies that can offer vaccination services
	Advocating regulatory reforms and fair compensation for pharmacy-based immunisation
	Emphasising the importance of skill sharing and a collaborative approach among healthcare professionals, particularly regarding vaccination, to improve health coverage and, eventually, health equity
Access to data and vaccination records	Collaborating and communicating effectively with health authorities to improve current systems
	Using surveys to gather feedback on the contribution of pharmacists to immunisation efforts and using it as evidence for why it is beneficial for pharmacists to have access to patient information
	Learning from other countries' experiences of implementing similar systems
	Considering pharmacists' ability to adapt to digital transformation and to provide more health services

3.3 Investing in science and innovation: Vaccine development, misinformation and hesitancy

Investments in science and innovation will strengthen the overall response to future pandemics and help ensure more effective and equitable distribution of vaccines to protect public health. By incorporating lessons learnt into future pandemic preparedness strategies, policymakers, healthcare systems and pharmacy professionals can better equip themselves to navigate the challenges associated with vaccine development, misinformation and hesitancy.

3.3.1 Lessons learnt on vaccine development

3.3.1.1 Accelerated vaccine development

The COVID-19 pandemic demonstrated the significance of investing in scientific research and innovation to expedite vaccine development. The development of multiple effective vaccines within a remarkably short timeframe was made possible due to advancements in technology, global collaboration, and increased funding. This highlights the need to continue investing in research and development to ensure rapid responses to future pandemics. This also highlights the importance of investing in pharmaceutical scientists' research and training. [30]

3.3.1.2 Vaccine manufacturing capacity

High demand for COVID-19 vaccines led to supply shortages and delays as well as highlighting inequities and access issues. Investing in vaccine manufacturing infrastructure, both in terms of facilities and technology, can help enhance production capabilities, reduce dependency on a few manufacturers, and enable faster distribution of vaccines during future crises.[31] This will also reduce vaccine inequities which are witnessed during COVID-19, unfortunately affecting the most vulnerable nations and communities. FIP needs to address these challenges with proactive strategies, advocating global cooperation and investment in vaccine manufacturing capacity.

3.3.1.3 Collaborative research networks

The COVID-19 pandemic demonstrated the power of collaborative research networks. Investing in global research collaborations, data-sharing platforms and coordinated efforts among scientists, healthcare professionals and policymakers can facilitate rapid knowledge exchange, foster innovation and accelerate the development of effective vaccines and treatments during future pandemics.[30,31]

3.3.2 Lessons learnt on misinformation and patient hesitancy

3.3.2.1 Addressing vaccine misinformation

The proliferation of vaccine misinformation during the pandemic created significant challenges in achieving widespread vaccine acceptance. This emphasises the importance of investing in public health campaigns, educational initiatives, and communication strategies that effectively combat misinformation, promote accurate information about vaccines and build trust in the healthcare system.

3.3.2.2 Community engagement and trust-building

The pandemic underscored the need for engaging communities, including marginalised and vulnerable populations, in vaccine development and distribution processes. Investing in community partnerships, culturally sensitive outreach programmes and targeted communication efforts can help build trust, address vaccine hesitancy and ensure equitable access to vaccines for all. FIP is committed to supporting the important role of pharmacists in overcoming vaccine hesitancy, complacency, misinformation and disinformation around the world. Vaccine hesitancy must be addressed in order for vaccination strategies to be universal and fully successful.[32]

3.3.2.3 Surveillance systems for vaccine safety

Robust surveillance systems for monitoring vaccine safety are essential to address concerns and maintain public confidence. Investing in improved adverse event monitoring, reporting mechanisms, and real-time data analysis can help quickly identify and address any potential safety issues associated with vaccines, thereby enhancing transparency and maintaining trust in vaccination programmes.

3.3.2.4 The pandemic and antimicrobial resistance

The pandemic has not only overwhelmed healthcare systems, but has also, unfortunately, resulted in increased antimicrobial resistance (AMR), primarily due to the misconception that antimicrobial treatments can be used to treat COVID-19.[33] Increasing patient understanding and literacy on appropriate antibiotic usage would be instrumental in preventing the occurrence of AMR in future pandemics.

3.3.2.5 Training and education

Strengthening the education and training of pharmacy professionals in vaccine-related (and AMR-related) topics is crucial. Investing in continuing professional development programmes that equip pharmacists with the knowledge and skills to address vaccine hesitancy, provide accurate information and engage with patients effectively is key. The 2022 "FIP vaccination reference guide: Knowledge and skills to support professional development and inform pharmacy education in vaccination" is intended to support educators and academic institutions, practitioners and professional organisations, and policymakers.[34]

3.3.2.6 Digital health solutions

The pandemic highlighted the importance of leveraging digital health solutions to facilitate vaccine distribution, monitor vaccine coverage and counter misinformation. Investing in digital platforms, vaccine registries and digital communication tools can enhance the efficiency and effectiveness of vaccination campaigns while addressing vaccine hesitancy in the digital realm.[35]

3.4 Reshaping pharmaceutical practice: New trends for the profession post-pandemic

In 2021–22, the FIP Board of Pharmaceutical Practice (BPP) published a "Trend analysis report amid the COVID-19 pandemic". [36] The report offers insight into the main trends that will impact the future of pharmacy in all its practice settings. It, therefore, provides a roadmap to the leaders of FIP member organisations and a valuable strategic tool to drive change at a local level. The sections below provide a list of trends for each area of pharmaceutical practice (represented by the sections [areas of practice] of the board). It is important to note that, since the pandemic, some of these trends have either accelerated, halted, reshaped into a new trend or even exacerbated (in some cases where trends are considered a negative effect). The report provides thorough descriptions explaining the rationale behind each trend, possible consequences on practice and how the trends have changed since the COVID-19 pandemic.

3.4.1 Main trends by pharmaceutical practice area

3.4.1.1 Academic pharmacy

The BPP Academic Pharmacy Section identified the following main trends:

- International migration to online provision of education and global virtual pharmaceutical education.
- Expansion of the number of pharmaceutical education institutions globally.
- Movement towards integration of science and practice in pharmaceutical education.
- Governmental funding for pharmaceutical research.
- Increased importance of pharmaceutical support personnel.
- Wide development of point-of-care testing or auto-testing devices, outside clinical laboratories.
- Talented clinical biology pharmacists are willing to give up practising.

- Big data and e-health systems.

3.4.1.2 Clinical biology

The BPP Clinical Biology Section identified the following main trends:

- Wide development of point-of-care testing or auto-testing devices, outside clinical laboratories.
- Talented clinical biology pharmacists are willing to give up practising.
- Big data and e-health systems.

3.4.1.3 Community pharmacy

The BPP Community Pharmacy Section identified the following main trends:

- Talented pharmacists are leaving and going to other pharmacy sectors.
- Digitalisation of community pharmacies.
- Pharmacists in general practice.
- Increased use of tele-medicine, tele-pharmacy and home deliveries (including online services).
- Increased role and recognition of community pharmacy as a resource and information centre.
- Medicines shortages.
- Consolidation of the pharmacy sector (vertical integration).
- Integration of the community pharmacy sector within large healthcare corporations.
- Automation in the dispensing process.
- Big corporations becoming healthcare providers.
- Hospital pharmacists providing services outside the hospital.
- High-tech medicines cannot be copyrighted (e.g., blood therapy).

3.4.1.4 Health and medicines information

The BPP Health and Medicines Information Section identified the following main trends:

- Increased awareness globally of the importance of health literacy as an asset and risk in healthcare. This also includes e-health literacy.
- Increased (and global) standardisation in product labelling and written medicines information of non-prescription medicines.
- Global access to quality and credible healthcare information for healthcare professionals (online).
- Global access to quality healthcare information: Increased credible and free health information available online for consumers.
- Development of health information technology and delivery:
    - Development of commercially owned personal health records.
    - Increased emphasis on patient information governance.
    - Increased availability of apps for health and well-being.
- Writing and publishing health information resources:
    - Publicly available websites rating health services.
    - Use of social networking sites to promote public health and pharmacy.
- Drug and poisons information services:
    - Medicines information services servicing both patients and health professionals with the establishment of walk-in centres for patients and healthcare professionals.
    - Reduction in financial resources for drug information and poison centres.
- Drug use experience data collection: Increased use of computerised prescribing, dispensing and clinical alerts.

- Adverse drug event reporting: Awareness strategies and use of computerised systems to enable healthcare professionals and consumers to report adverse drug events (ADEs).

3.4.1.5 Hospital pharmacy

The BPP Hospital Pharmacy Section identified the following main trends:

- Transitions of care services, such as medication reconciliation.
- New stewardship roles for pharmacists in pain and infection.
- Expanding roles of technicians.
- Advancing technologies and data management.
- Pharmacist and pharmacy staff well-being.

3.4.1.6 Industrial pharmacy

The BPP Industrial Pharmacy Section identified the following main trends:

- Increase in mail order of medicines.
- Increased interest in patient-reported outcomes.
- Increase in harm-aversion in the general public.
- Increase in orphan drugs, and with that higher medication costs per patient.
- Healthy lifestyle.
- Increase in shortage of active pharmaceutical ingredients and finished dosage forms.

3.4.1.7 Military and emergency pharmacy

The BPP Military and Emergency Pharmacy Section identified the following main trends:

- Significantly increasing number and severity of natural disasters and disease outbreaks.
- Increased focus on the controlled management of medical devices.
- Increasing effect of drug shortages, compounded by restricted number and location of active pharmaceutical ingredient manufacturers.
- Increasing focus on oxygen delivery and management.
- Increasing focus on personal protective equipment.
- Increasing focus on epidemic preparedness.
- Plasma shortages.
- Increasing recognition of the effect of extreme (high and low) temperatures.
- Increasing development of technological advances for pharmacologistics management in austere environments.
- Increasing awareness of need for environmentally responsible destruction of pharmaceutical waste.
- Increasing recognition of the importance of pharmacovigilance-style activities to collect, detect, assess, monitor and prevent adverse effect of products.
- Requirement for adoption of good distribution practice as a basis for pharmacologistics in austere environments.
- Recognition that pharmacists in the humanitarian sector need to be able to undertake medicine recalls.
- Increasing requirement for pharmacists in emergency management to collaborate with other professions.
- Increasing recognition of need for all pharmacists to prepare for coping in an emergency.
- Increasing recognition that pharmacists are part of a national/local emergency response team.
- More pharmacists are wanting to help in emergency situations.
- Increasing requirement for pharmacists skilled in emergency management.
- Increasing recognition of the need for cultural considerations in the provision of care.

3.4.1.8 Social and administrative pharmacy

The BPP Social and Administrative Pharmacy Section identified the following main trends:

- Big data and e-health systems.
- Expanded scope of practice, specialisation and credentialing of pharmacists.
- Tele-pharmacy.
- Planning for pandemics and natural disasters — the role of pharmacists as essential health hubs.

3.4.2 Major challenges and opportunities for pharmacy practice

The BPP report also describes in detail what it identified as six "major trends" across the profession which represent major challenges and opportunities. This report provides a high-level summary of each of these trend areas. The BPP's report provides a detailed analysis. [36]

3.4.2.1 Transformation in pharmaceutical education

During the ongoing global COVID-19 pandemic, the need to address concerns with remote and virtual learning techniques has become increasingly evident. Educational systems worldwide have adopted mixed approaches, combining asynchronous and synchronous internet-based education. Positive outcomes include improved faculty skills and enhanced distance learning infrastructures. However, challenges remain, such as limitations in teaching strategies, student competency development and the lack of practical skills.

Some countries faced obstacles due to limited internet access while the demand for digital health education rose. Pharmacy institutions must prepare future pharmacists for a digitally enabled workforce. Additionally, there are concerns about the differences in learning technologies and competencies between high- and low-income countries, as well as a decrease in student applications to pharmacy schools in high-income countries during the pandemic.

3.4.2.2 Expanding pharmaceutical workforce scope of practice

Amid the ongoing global pandemic, there was a growing trend to expand pharmacist and technician roles to enhance patient access to professional services and medication adherence. These expanded roles included independent prescribing, health promotion via non-traditional platforms, treatment of minor ailments and specialised training. The goal is to offer better access to specialised pharmaceutical care for complex patients. New stewardship roles in antimicrobial and opioid management have also emerged, particularly in severely affected countries.

Pharmacists and pharmacy technicians have played a crucial role during the pandemic, contributing to vaccine distribution, and disease prevention and management. The pharmacy support workforce has transformed to support extended clinical services, but challenges remain. To enable pharmacists to focus on clinical services, the support workforce needs further development in education, leadership skills and regulation. This expansion recognises the importance of integrated collaboration among healthcare professionals to optimise patient health outcomes.

3.4.2.3 Increased efforts in preparing for pandemic and natural disasters

The ongoing pandemic emphasised the need for better emergency preparedness and education in health care. Concerns for frontline workers' well-being and the retention of skilled pharmacists are evident. The lack of updated information sources and protocols hampers patient care, calling for increased epidemic and disaster preparedness to minimise risks, contain disease spread and ensure essential resources.

Maintaining sufficient medicine stocks and supplies is vital, and action plans and frameworks to support emergency preparedness are essential. Initiatives in the United States propose expanding the roles of pharmacists in public health emergency response.

Guidelines and protocols for pharmacists' roles in disasters and pandemics are crucial. Communication, staff flexibility, teamwork and collaboration are key elements in navigating crises effectively. FIP acknowledges the need for comprehensive guidelines to aid pharmacists in providing safe and effective care during emergencies.

As COVID-19 data emerge, these guidelines may require adjustments for future events. Prioritising preparedness and collaboration is crucial in managing uncertainties posed by the pandemic and potential natural disasters.

3.4.2.4 Cultural and environmental concerns

The COVID-19 pandemic emphasised the significance of modifiable risk factors to avoid complications, such as smoking, alcohol consumption, narcotics use, diet and exercise. Health literacy plays a crucial role in seeking preventive therapy and managing health outcomes, but disparities arise due to limited multilingual resources and digital access.

Minorities who are disproportionately affected by comorbidities face obstacles like limited access to testing and transportation, exacerbating health disparities. Culturally and linguistically appropriate resources are essential to provide equitable care. Concerns also emerge for the environment, as surface transmission of the virus is not a significant risk, yet public demand for extra sanitisation persists.

Pharmacists play a vital role in promoting vaccine acceptance and cultural competency in pandemic communication, dispelling myths and educating the public on health behaviours. FIP's EquityRx programme aims to address health disparities and foster inclusivity in society.

3.4.2.5 Increased investment in data systems and automation

The adoption of e-health, which involves using electronic means like computers and mobile phones to communicate healthcare information, has seen significant progress in the European Union. Pharmacists now utilise e-health tools daily, improving patient care through electronic prescriptions, medication record checks, adherence support via mobile apps or calls, and acting as entry points into the health system. The reliance on text-based resources is decreasing, with healthcare professionals seeking information online from established internet health resources.

The COVID-19 pandemic accelerated the utilisation of e-health systems, facilitating efficient patient screening, continued care for chronic diseases during social distancing, and electronic health record monitoring. Pharmacists can leverage technology to enhance patient safety, report adverse drug events (ADEs), and educate patients about ADE reporting. While there is still room for improvement in accessibility, the pandemic highlighted the necessity and effectiveness of digital health in pharmacy practice and education, prompting FIP to focus on developing a digitally enabled pharmaceutical workforce.

3.4.2.6 Health security, economic and distribution concerns

Amid global health security and economic concerns, the pharmaceutical industry faces challenges in supply chain disruptions, drug shortages, and increased costs due to offshoring manufacturing. The COVID-19 pandemic exacerbated these issues, causing shortages of drugs, personal protective equipment (PPE) and testing kits. Drug shortages not only impact COVID-19 treatment but also hinder patients' access to vital medicines for other conditions. Additionally, shortages of PPE pose risks to healthcare professionals' health and well-being, leading to high levels of stress, anxiety and burnout. FIP's efforts in addressing medicine shortages through multi-stakeholder approaches and reporting systems offer valuable resources.

The pandemic's economic implications, along with increased demand for orphan drugs, have raised concerns about medication costs per patient. Developing medicines for smaller patient populations can result in high prices, posing challenges to access and affordability. The pharmaceutical industry faces the delicate balance of setting prices to recover investments while ensuring patient access to essential medicines. Addressing these issues requires global cooperation and innovative strategies to ensure a stable and sustainable pharmaceutical supply chain while safeguarding patients' well-being.

3.5 Accelerating universal health coverage: Equity, access and sustainability of vaccines, medicines and services

3.5.1 Lessons learnt to reduce inequities

During the COVID-19 pandemic, several key issues highlighted the importance of equity and equality in the pharmacy profession. These issues included disparities in vaccine distribution, access to medicines and healthcare services, and the unequal burden of the pandemic on marginalised communities.

First, vaccine distribution highlighted disparities in access, with certain populations and regions experiencing unequal access to COVID-19 vaccines. Marginalised communities, including low-income populations, racial and ethnic minorities and people in rural areas, faced barriers such as limited vaccine supply, lack of information and inadequate healthcare infrastructure. To ensure equity in future vaccine distribution, it is crucial to prioritise vulnerable populations, establish mobile vaccination clinics in underserved areas, and implement targeted outreach and education programmes to address vaccine hesitancy and provide accurate information.

Secondly, access to medicines and healthcare services became a concern during the pandemic. Lockdowns, disruptions in supply chains, and overwhelmed healthcare systems limited access to essential medicines for both COVID-19 and other health conditions. Marginalised populations, including those with limited resources or living in remote areas, faced additional challenges in accessing medicines and healthcare services. To enhance access and equality, future pandemic preparedness should focus on strengthening supply chains, improving digital health infrastructure, and developing contingency plans to ensure uninterrupted access to essential medicines and services, especially for vulnerable populations.

Thirdly, the pandemic underscored the unequal impact on marginalised communities, exacerbating existing health disparities. Factors such as socioeconomic status, race, ethnicity and geographic location influenced the likelihood of exposure to the virus, severity of illness and access to health care. To promote equity and resilience in future pandemics, it is essential to address these underlying health disparities by investing in social determinants of health, such as education, housing and income support. Additionally, fostering diversity and inclusion in the pharmacy profession can improve cultural competency, facilitate better patient-provider communication and ensure equitable healthcare delivery.

3.5.2 Lessons learnt on widening access to vaccines and services

The pandemic revealed significant challenges regarding access to vaccines and healthcare services. Issues included limited vaccine supply, distribution inefficiencies and overwhelmed healthcare systems.

Building on what was mentioned in chapter 3.3, enhancing vaccine production and distribution infrastructure is crucial. Investing in manufacturing capabilities, establishing robust supply chains and strengthening international collaborations can ensure an adequate and timely supply of vaccines.[31] Additionally, implementing efficient distribution strategies, such as prioritising high-risk populations and leveraging partnerships with community pharmacies and primary care clinics, can improve access to vaccines, particularly for underserved areas.

Leveraging technology can enhance access to healthcare services. Telehealth emerged as a valuable tool during the pandemic, enabling remote consultations, prescription refills, and medicines delivery. Future preparedness efforts

should focus on expanding telehealth infrastructure, improving digital literacy among healthcare providers and patients, and addressing the digital divide to ensure equitable access to virtual healthcare services. [37]

Community engagement is also vital for improving access to vaccines and services. Building trust and partnerships with community leaders, organisations and patient advocacy groups can help identify barriers and develop tailored solutions. This is especially pertinent to pharmacists, who are considered the most accessible point of care for most communities. Establishing vaccination centres in pharmacies or community hubs, organising mobile clinics and providing language and culturally appropriate information can enhance access for diverse populations.

3.5.3 Lesson learnt on the sustainability of services

Ensuring the sustainability of pharmacy services during the COVID-19 pandemic faced multiple challenges, including workforce shortages, increased workload and financial strain. These challenges emphasised the need for long-term planning and resilience in the pharmacy profession.

Workforce preparedness is crucial for sustaining pharmacy services. Strengthening the pipeline of pharmacy professionals, expanding training programmes, and promoting career development opportunities can ensure an adequate workforce during a pandemic. Additionally, supporting pharmacists' well-being, including mental health support and work-life balance, is essential for sustaining services during times of crisis.

In addition, adopting innovative models of care can enhance service sustainability. Pharmacists (and the wider pharmacy workforce) can play a broader role in public health, such as participating in immunisation campaigns, chronic disease management and medication therapy management. Expanding the scope of practice and optimising pharmacist-led services can enhance the sustainability of pharmacy services and improve patient outcomes during pandemics and other emergencies.

Financial sustainability is crucial for the pharmacy profession. Addressing reimbursement and remuneration challenges, advocating fair compensation for services and exploring alternative funding models can ensure the viability of pharmacy services. Collaboration with policymakers, payers and professional organisations can help navigate financial hurdles and promote sustainable pharmacy practice.

In conclusion, by prioritising vulnerable populations, strengthening supply chains, leveraging technology, fostering community engagement and adopting innovative models of care, the pharmacy profession can contribute to equitable, accessible and sustainable healthcare delivery during future pandemics.

3.6 Transforming the workforce: workforce preparedness and resilience

3.6.1 Lessons learnt on workforce capacity and utilising the pharmacy support workforce

During the COVID-19 pandemic, health workforce capacity became a critical issue as pharmacies faced increased demands for services, including vaccine administration. The increased demand for pharmacy services, such as medicines dispensing, counselling and vaccine administration, put a strain on the existing workforce. Ensuring an adequate number of pharmacy professionals was essential to meet patient needs effectively and maintain the resilience of healthcare systems. This is especially important as the world grapples with a shortage of health professionals. The 2016 "WHO global strategy on human resources for health: Workforce 2030" projected a global shortage of 18 million health

workers by 2030.[38] Alarmingly, this estimate recently fell to 10 million health workers by 2030, mostly in low- and lower-middle-income countries without a contextual description of the gap reduction. [39]

The World Health Professions Alliance conducted a survey among five health professions: dentists, nurses, pharmacists, physical therapists and physicians. The survey found that the COVID-19 pandemic has exposed the gaps and weaknesses in the health systems, such as inadequate staffing, training, equipment, protection and support for the health workforce. It also found that health professionals have demonstrated resilience, adaptability, innovation and leadership in coping with the crisis. The survey recommended strengthening the health workforce capacity, safety, recognition and involvement in decision-making processes.[40]

Future pandemic preparedness efforts should prioritise proactive workforce planning. This involves assessing the current workforce capacity, identifying potential gaps and developing strategies to address those gaps in a timely manner. It may include increasing the number of pharmacy professionals and expanding training programmes as needed. Strengthening collaboration between pharmacy professionals and other healthcare providers is essential for overall optimisation of workforce capacity. Additionally, future pandemic/ emergency preparedness should focus on utilising the skills and expertise of pharmacy technicians and the pharmacy support workforce to their full potential. Following the pandemic, pharmacy technicians emerged as a valuable resource to support the pharmacy workforce. Supporting the well-being and resilience of the workforce is another important factor for workforce retention and, therefore, capacity.

3.6.2 Investing in education and training of the workforce

The COVID-19 pandemic highlighted the importance of ongoing education and training for the pharmacy workforce to respond effectively to public health emergencies. Key issues included the need for up-to-date knowledge on COVID-19, vaccines and treatment protocols. Of course, the pandemic also highlighted the importance of patient education to address vaccine hesitancy and build confidence, as described earlier in this report.

Future pandemic and emergency preparedness efforts should prioritise continuous education and training programmes for the pharmacy workforce. This should involve providing timely information on emerging infectious diseases, vaccination strategies and patient care protocols. Access to online resources, webinars and collaborative platforms can facilitate knowledge dissemination and engagement. Fostering collaboration between pharmacy professionals and other healthcare providers is crucial for sharing expertise and aligning efforts. Collaborative training initiatives and interdisciplinary learning opportunities can enhance the capacity of the pharmacy workforce to contribute effectively to the pandemic response.

3.6.3 Understanding the links between gender in the workforce and the pandemic

The COVID-19 pandemic highlighted gender disparities within the pharmacy workforce. Women make up the majority (>70%) of the pharmacy profession,[41] and they faced unique challenges during the pandemic, including increased caregiving responsibilities and higher risks of exposure to the virus. Future pandemic preparedness efforts should consider gender-specific needs and challenges within the pharmacy workforce. Implementing policies that address work-life balance, provide support for caregiving responsibilities and ensure equal opportunities for career advancement can enhance gender equity and resilience in the profession. Collecting gender-disaggregated data on workforce composition, roles and experiences during the pandemic can inform evidence-based policies and strategies. Understanding the specific impact on the genders can help tailor support mechanisms and interventions accordingly. [42]

3.6.4 Prioritising workforce safety and well-being

During the pandemic, ensuring the safety of the pharmacy workforce was paramount. Key issues included personal protective equipment (PPE) availability, infection prevention measures and mental well-being.

Future preparedness efforts should prioritise maintaining a sufficient stockpile of PPE for pharmacy professionals and establishing protocols for infection prevention and control. Regular training on the proper use of PPE and adherence to infection control practices should be emphasised.

The COVID-19 pandemic took a toll on the mental health and well-being of pharmacy professionals. High workloads, increased stress, and exposure to challenging situations contributed to mental health challenges. Supporting the mental well-being of the pharmacy workforce is crucial for resilience. Future pandemic preparedness should incorporate mental health support mechanisms, such as counselling services, stress management resources and peer support programmes. Creating a supportive work environment is vital for maintaining the well-being of the pharmacy workforce. This can involve establishing systems for feedback and communication, encouraging work-life balance and providing access to support services.[40]

4 Concluding remarks: Commitments from FIP

The lessons learnt from the COVID-19 pandemic have laid the groundwork for FIP to drive future preparedness efforts for pandemics and other crises, and to further support its members in navigating health emergencies. FIP recognises the critical role of pharmacists and pharmacy professionals in pandemic response and pledges to continue advocating for the profession while providing comprehensive support, enablement, policy development, data surveillance and global guidance.

FIP makes the following commitments:

- **To advocate the role of pharmacists in pandemic preparedness** — FIP is committed to advocating for the pharmacy profession on the global stage. As the voice of pharmacy, FIP will actively engage with policymakers and stakeholders to ensure that pharmacy's role in pandemic preparedness is recognised and integrated into international healthcare regulations and pandemic response frameworks. Through strategic partnerships and effective advocacy, FIP will highlight the expertise and contributions of pharmacists in providing equitable and inclusive healthcare during health emergencies.
- **To support the profession during disasters and pandemics** — FIP understands the importance of supporting its members during challenging times. In future pandemics, FIP will provide its member organisations with resources, information, and tools to enhance workforce preparedness, resilience, and capacity. FIP will continue to promote collaboration and knowledge-sharing among its members, fostering a strong network of pharmacy professionals ready to respond to health crises effectively. The FIP Humanitarian programme includes support for members during disasters and emergencies and will also cover all aspects of future pandemic preparedness.[9]
- **To enable the workforce to deliver quality care during pandemics** — Recognising the significance of ongoing education and training, FIP is committed to providing continuous learning opportunities for the pharmacy workforce. By leveraging digital platforms, webinars, and collaborative initiatives, FIP will facilitate the dissemination of up-to-date knowledge on emerging infectious diseases, vaccination strategies, and patient care protocols. FIP will also encourage interdisciplinary learning to strengthen the capacity of pharmacy professionals to contribute effectively to pandemic response.
- **To call for policy development and transformation** — FIP aims to influence policy development in pandemic preparedness to ensure that pharmacy's role is fully integrated into global health strategies. FIP will continue to develop guidelines for pharmacists' roles in disaster and pandemic response, ensuring the safety and well-being of the pharmacy workforce. By advocating for remuneration for sustainable pharmacy services, FIP will address economic sustainability challenges within the pharmacy profession as part of its SustainabilityRx programme. [8]
- **To utilise data and surveillance** — FIP recognises the critical role of data surveillance in tracking and responding to health emergencies effectively. To support its members, FIP - through its Global Pharmaceutical Observatory (GPO) - will continue to collate and analyse data on pandemic preparedness, pharmacy services, and workforce capacity.[43] By promoting the use of data-driven approaches, FIP aims to strengthen surveillance and early warning systems, enhance stockpile management, and support evidence-based decision-making in pandemic response.
- **To provide global guidance to members worldwide** — FIP is committed to providing up-to-date global guidance to its members during health emergencies (pandemics, crises, disasters, wars). Through initiatives like the COVID-19 Hub[6] and the pandemic preparedness digital supplement, FIP will continue to disseminate relevant information, best practices, and evidence-based approaches for pharmacy professionals. FIP will also leverage its collaborative platforms to facilitate knowledge exchange, networking, and global cooperation among its members.

In conclusion, FIP's commitments to advocacy, support, enablement, policy development, data surveillance and global guidance demonstrate the organisation's dedication to equipping pharmacy professionals with the tools and knowledge needed to respond effectively to future health emergencies. By standing united and prioritising preparedness, the pharmacy profession, under the leadership of FIP, will continue to play a vital role in promoting equitable, accessible and sustainable healthcare delivery during pandemics. Together, the profession is prepared to face the challenges ahead and safeguard the health and well-being of communities worldwide.

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Annex 1: List of member organisations contributing case studies

Region	Country	Member organisation
Africa	South Africa	Pharmaceutical Society of South Africa
Americas	Costa Rica	Colegio de Farmacéuticos de Costa Rica
Eastern Mediterranean	Lebanon	Institut National de Santé Publique, d'Épidémiologie Clinique et de Toxicologie — Liban
Europe	Denmark	The Association of Danish Pharmacies
Europe	Ireland	Irish Pharmacy Union
Europe	Malta	Malta Chamber of Pharmacists
Europe	Portugal	National Association of Pharmacies
Europe	Portugal	Portuguese Pharmaceutical Society
South-East Asia	India	Indian Pharmaceutical Association
Western Pacific	Japan	Japan Pharmaceutical Association
Western Pacific	Malaysia	Malaysian Pharmacists Society

Annex 2: Strategic Roundtable during the 2023 World Health Assembly

The world together: Member state-led processes to strengthen pandemic prevention, preparedness, and response, today and for generations to come (May 2023)

This strategic roundtable, for the first time, has brought together the three key member state-led processes: the Intergovernmental Negotiating Body (INB) to draft and negotiate an international instrument on pandemic preparedness and response; the Working Group on Amendments to the International Health Regulations (2005) (WGIHR); and the high-level meeting of Pandemic Prevention, Preparedness and Response by the United Nations General Assembly.

The strategic roundtable was moderated by Dame Barbara Stocking and the panellists included Dr Tedros Adhanom Ghebreyesus, WHO Director-General, Mr Roland Driece, co-chair, Intergovernmental Negotiating Body (INB), Dr Abdullah Assiri, co-chair, Working Group on Amendments to the International Health Regulations (WGIHR), HHS Secretary Xavier Becerra, Department of Health and Human Services, United States of America, Minister Hon'ble Lyonpo, Minister of Health, Bhutan, Dr Ayoade Olatunbosun-Alakija, Co-Chair, African Vaccine Delivery Alliance, Amb Omar Hilale, co-facilitator, UNHL, Dr Ahmed Al-Mandhari, WHO Regional Director for the Eastern Mediterranean.

Key issues discussed:

1. The need for a comprehensive approach to pandemic prevention, preparedness and response that includes measures to strengthen surveillance and early warning systems, build up stockpiles of essential medical supplies, and develop and deploy effective vaccines and treatments.

2. The underlying drivers of pandemics, such as climate change, environmental degradation, and poverty, need to be addressed.
3. The need to ensure that pandemic prevention, preparedness and response efforts are equitable and inclusive and reach all populations, including those in marginalised and vulnerable communities.

Key recommendations that emerged:

1. Strengthen surveillance and early warning systems.
2. Build up stockpiles of essential medical supplies.
3. Develop and deploy effective vaccines and treatments.
4. Address the underlying drivers of pandemics.
5. Ensure that pandemic prevention, preparedness and response efforts are equitable and inclusive.

Key observations for FIP:

1. **Recognise the importance of international healthcare regulation:** FIP should actively engage in understanding and influencing the implications of the international healthcare regulation programme for pharmacy.
2. **Consider the value of simulation exercises:** There was a suggestion to conduct simulation exercises, and FIP should carefully consider the potential value of such exercises, even if they are simulated. Exploring this possibility can enhance preparedness and help identify areas for improvement in pharmacy's response to health emergencies.
3. **Advocate the inclusion of pharmacy in pandemic response frameworks**: FIP should emphasise the crucial role of pharmacy, particularly community pharmacy, within the future pandemic response framework developed by the WHO. By highlighting the expertise and contributions of pharmacists, FIP can ensure that pharmacy is recognised and integrated into global strategies for pandemic preparedness and response.
4. **Ensure FIP's accomplishments are acknowledged**: FIP should ensure that the valuable work already accomplished by the organisation is acknowledged and considered during the development of the pandemic response framework. This includes sharing best practices, evidence-based approaches and successful initiatives implemented by FIP and its member organisations.
5. **Proactively fill gaps in the framework**: After the pandemic response framework is published, FIP should assess whether there are any gaps or areas where pharmacy can contribute effectively. By identifying these gaps and proactively filling them, FIP can ensure that pharmacy's expertise and resources are maximised in addressing health emergencies and advancing global health priorities.

The strategic roundtable webcast recording can be accessed here.

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