

Integrating Pharmacies into National Immunization Strategies and Public Health Initiatives

Maria Lampasona^{1*}, Luca Pantaleo²

¹Department of Health Promotion, Maternal-Infant, Internal Medicine and Specialization of Excellence “G. D’Alessandro” (PROMISE), University of Palermo, Palermo, Italy.

²Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Messina, Italy.

*E-mail ✉ marialampasona@hotmail.it

Abstract

The participation of pharmacists and community pharmacies in vaccination initiatives presents a significant opportunity to reinforce their professional identity and role as integral components of local healthcare systems. Pharmacies, as high-access healthcare facilities, are widely distributed across national territories and act as frequent points of contact for the public. Due to their accessibility and professional expertise, pharmacists are well-positioned to contribute—both currently and increasingly in the future—to public health networks focused on disease prevention and health protection. The SARS-CoV-2 pandemic highlighted the urgent need for integrated collaboration among healthcare professionals to provide an effective response. It also highlighted the crucial role of prevention in healthcare and social systems, highlighting the importance of embedding preventive practices into both organizational frameworks and everyday interactions with health services. This article draws on a review of the scientific literature to examine and articulate the potential benefits of involving community pharmacists more actively in health promotion and immunization efforts.

Keywords: Health promotion, Pharmacists, Community pharmacy, Immunization

Introduction

Vaccination remains one of the most effective public health measures for reducing morbidity and mortality associated with vaccine-preventable diseases worldwide. Nonetheless, immunization rates continue to fall short in many countries due to factors such as insufficient data, concerns about adverse effects, misinformation, and widespread vaccine hesitancy [1, 2].

This hesitancy poses a substantial threat to the successful implementation of immunization programs [3]. Public

anxiety, misconceptions, and misinformation surrounding vaccination efforts can lead to behaviors such as delaying, postponing, or even refusing vaccination altogether. Inadequate immunization coverage heightens the risk of disease outbreaks and the resurgence of preventable illnesses.

To better understand the factors influencing vaccination uptake, the Strategic Advisory Group of Experts (SAGE) has proposed frameworks such as the “5A taxonomy”—comprising access (availability of services), affordability (both financial and non-financial costs), awareness (knowledge about vaccination), acceptance (willingness to be vaccinated), and activation (motivation to act) [4]. An alternative model, the “3C model,” emphasizes complacency, convenience, and confidence as key determinants of vaccination behavior [5].

Traditionally, vaccination initiatives have been led by public health physicians, pediatricians, and nurses. However, in several countries, including the United

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<https://smerpub.com/>

Received: 18 March 2022; Accepted: 21 June 2022

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How to cite this article: Lampasona M, Pantaleo L. Integrating Pharmacies into National Immunization Strategies and Public Health Initiatives. Ann Pharm Educ Saf Public Health Advocacy Spec. 2022;2:24-8. <https://doi.org/10.51847/X5qNLSaql>

States, the integration of additional healthcare professionals such as community pharmacists into immunization strategies has proven effective in boosting coverage rates. Since the mid-1980s, pharmacists in the U.S. have been engaged in pharmacy-based immunization services (PBIS), playing an increasingly important role in public health delivery [6].

In contrast to several other countries, pharmacies in Italy had not been authorized to administer vaccines until recently. This was despite the emphasis in the most recent National Vaccination Prevention Plan on the need for coordinated and collaborative approaches among different healthcare professionals to improve immunization outcomes [7]. The COVID-19 pandemic further underscored the urgency of interprofessional collaboration to ensure a timely and effective vaccination response. In this context, involving pharmacists in vaccination efforts represents a significant step toward reorganizing community-based healthcare, emphasizing proximity, integration, and the synergy of local health actors.

This shift reflects a broader transformation in the role of the pharmacy—reframing it as a multifunctional healthcare facility at the community level. Community pharmacists occupy a unique position of accessibility and trust, often maintaining ongoing relationships with patients that facilitate open communication. This enables pharmacists not only to engage the public in meaningful dialogue but also to identify individuals with specific risk factors or unhealthy behaviors. In doing so, pharmacists can contribute to health education, dispel vaccination myths, and encourage informed decision-making [8].

Based on these considerations and a review of the current scientific literature, this study aims to explore and articulate the benefits of integrating community pharmacists into preventive health networks.

Results and Discussion

Community Pharmacists as Immunizers

Community pharmacies are well-positioned to support the rollout of vaccination campaigns with relatively low startup and operational costs. Their capacity to manage the logistical aspects of vaccine distribution and administration—such as maintaining cold chains and handling injection supplies—makes them efficient partners in immunization programs. Furthermore, pharmacies often offer walk-in services without requiring

prior appointments, thus enhancing convenience and improving vaccination adherence rates [9, 10].

Community pharmacists also play a pivotal role in addressing vaccine hesitancy by actively combating misinformation, delivering clear and effective communication, and assessing patients' understanding to foster informed decision-making [11, 12].

Beyond improving individual vaccine uptake, pharmacists can contribute to broader public health resilience. According to a recent global survey conducted by the International Pharmaceutical Federation (FIP), pharmacy-based vaccination services were operational in at least 36 countries and under development or consideration in an additional 16 [13, 14]. Among the most commonly administered vaccines in pharmacy settings were those for influenza, followed by hepatitis B, tetanus, diphtheria, measles, malaria, and herpes zoster.

The inclusion of community pharmacists in preventive health campaigns necessitates appropriate training. This training typically covers core topics such as vaccine epidemiology and immunology, the use of personal protective equipment, proper storage and handling protocols, and ongoing monitoring of individuals eligible for vaccination [15].

With such training, pharmacists are equipped to fulfill various roles within immunization programs, including that of distributors (supplying vaccines and immunization-related products), educators (enhancing public knowledge and awareness), and administrators (directly delivering vaccines to patients) [16, 17].

Cross-sectional research conducted in Québec identified several factors associated with the successful administration of vaccines in community pharmacies. These included the presence of one more healthcare professional within the pharmacy (such as a nurse), extended operating hours (exceeding 60 hours per week), geographical distance from a medical clinic (greater than 1 km), and the existence of a formal collaboration agreement with the local public health authority. Each of these factors was positively correlated with the likelihood of vaccine administration within the pharmacy setting. Additional studies support the notion that enhancing pharmacy accessibility—particularly through extended hours of operation—can significantly improve vaccination coverage rates [18].

Another critical consideration is the maintenance of the vaccine cold chain, which is essential to preserving vaccine efficacy. Vaccines are often dispensed for off-

site administration, which increases the risk of suboptimal storage conditions and potential degradation of vaccine effectiveness. This issue was highlighted in a survey of vaccination services in physicians' offices across Québec, which recommended that vaccines be administered at the point of sale to ensure proper handling, efficacy, and enhanced patient experience [19]. As both vaccine administrators and health educators, pharmacists have demonstrated a substantial impact on immunization campaign outcomes. Meta-analyses report that pharmacist involvement as vaccine administrators is associated with a relative risk (RR) of 2.96 (95% CI: 1.02–8.59; k = 22 studies), while their role as educators yields an RR of 2.64 (95% CI: 1.81–3.85; k = 14 studies). Overall, pharmacist participation—whether in administration or education—has been shown to positively influence vaccination coverage, with a combined RR of 2.74 (95% CI: 1.58–4.74) [20, 21].

A 2017 study revealed that adolescents in the United States often expressed interest in engaging with pharmacists on various health-related topics, particularly regarding vaccines. Teens indicated a desire to learn more about how medications affect the body, their production and interactions, emerging scientific research, and evidence-based health practices [22]. This finding is especially significant given that adolescents represent a population at risk of under-vaccination. During this developmental stage, they typically transition away from pediatric care and are less likely to engage with healthcare services unless acutely ill, resulting in missed vaccination opportunities [23].

Persistent barriers to achieving recommended vaccination rates include a lack of tailored interventions that address patient-specific needs, limited access to consistent healthcare providers, and inadequate collaboration between physicians and other healthcare professionals in promoting preventive care. One promising solution to overcome these challenges is the provision of vaccination services through community pharmacies. Pharmacists and pharmacy staff offer a highly accessible and cost-effective alternative, particularly in underserved and rural areas where healthcare professionals may be scarce. Pharmacists are widely recognized as trusted healthcare providers and are well-positioned to meet the preventive care needs of the general population [24].

A recent systematic review published in the *International Journal of Clinical Pharmacy* sought to identify key factors contributing to the successful design and

implementation of pharmacy-based vaccination programs, with a particular focus on influenza immunization. The findings demonstrated an increase in vaccine acceptance of up to 27% compared to usual care and up to 117% among individuals who had not received a flu vaccine in the previous year. The review further highlighted that pharmacist-led vaccination initiatives significantly enhance patient care and acceptance. Notably, the ability of pharmacists to engage in immediate and direct communication with patients was identified as a critical factor in improving immunization uptake [25].

Conclusion

The growing decline in public trust toward vaccinations and the consequent decrease in adherence to immunization protocols underscore the urgent need for comprehensive public health strategies and interventions. Incorporating community pharmacies into national vaccination frameworks represents a valuable opportunity to increase public awareness—particularly among high-risk and vulnerable populations—and to combat the spread of misinformation and vaccine skepticism.

Crucially, such integration must foster collaboration among all healthcare providers involved in immunization, including general practitioners and pediatricians. This public health vision should be grounded in complementarity rather than competition, recognizing that all professionals ultimately share a common objective: the protection and promotion of public health.

Community pharmacies, characterized by their widespread presence and high accessibility, are uniquely positioned to contribute to the success of vaccination campaigns. Their established rapport with local populations, coupled with their organizational and interpersonal capabilities, enables them to effectively support both the administration and promotion of immunizations. Furthermore, extended opening hours make pharmacies particularly well-suited to serve populations that may face logistical barriers to accessing traditional healthcare settings—such as working individuals or residents of rural and underserved areas.

The COVID-19 pandemic has further emphasized the necessity of interprofessional collaboration to ensure a robust and agile public health response. It has reinforced the centrality of preventive care within healthcare

systems and highlighted the importance of translating organizational planning into concrete, everyday actions. Indeed, COVID-19 has acted as a catalyst for systemic transformation—accelerating digital infrastructure for vaccine tracking and prompting the engagement of new stakeholders, such as pharmacists, in vaccine administration. While pharmacists have long contributed to public health initiatives, their direct involvement in immunization efforts during the pandemic marks a pivotal shift toward a more integrated and community-focused model of healthcare delivery.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

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