

The Role of Pharmacists & Pharmacy Technician in Immunization: Strategies to Improve Vaccine Uptake

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ABSTRACT

Introduction: Immunization remains one of the most effective public health strategies that have had remarkable impacts in decreasing incidence of infectious diseases and subsequently, mortality rate in worldwide. Consequently, the uptake of vaccines has remained low due to factors such as skepticism, difficult access to health services, and myths about vaccination. However, in fighting these problems, there is a growing role of the pharmacists and the pharmacy technicians.

Aim of work: To the pivotal role of pharmacists and pharmacy technicians in immunization and the strategies they employ to improve vaccine uptake.

Methods: We conducted a comprehensive search in the MEDLINE database's electronic literature using the following search terms: Role, Pharmacists, Pharmacy Technician, Immunization, Strategies, and Vaccine Uptake. The search was restricted to publications from 2016 to 2024 in order to locate relevant content. We performed a search on Google Scholar to locate and examine academic papers that pertain to my subject matter. The selection of articles was impacted by certain criteria for inclusion.

Results: The publications analyzed in this study encompassed from 2016 to 2024. The study was structured into various sections with specific headings in the discussion section.

Conclusion: Immunization programs could not function without the support of pharmacists and pharmacy technicians, who are able to contribute a highly accessible, skilled and credible point of contact. In this manner, pharmacy professionals can play active roles in eliminating barriers to receiving vaccines and promoting population health literacy about vaccination, as well as engage in innovating approaches to enable those at risk of vaccine hesitancy to receive those vaccines they need. In the dynamic world of healthcare, the immunization activities of pharmacists and pharmacy technicians will therefore continue to grow. It is recommended that society begins to cultivate, train, and support them; and to include them in public health efforts in order to attain better coverage percentages within immunization and curb the infectious diseases from spreading. Pharmacy professionals have acknowledged roles in establishing a healthier and stronger world.

Keywords: Role, Pharmacists, Pharmacy Technician, Immunization, Strategies, Vaccine Uptake

INTRODUCTION

Vaccination is one of the overall essential preventive measures as a public health intervention and remains a key driver of tackling communicable diseases and the rates of morbidity and mortality in the modern world (Al-Worafi, 2023). Nevertheless, due to different barriers including hesitancy in using vaccines, poor access to healthcare facilities, and misleading information, the use of vaccines has always posed a challenge (Galagali et al., 2022). Concerning these challenges, the involvement of pharmacists and pharmacy technicians has become more central. Pharmacists and pharmacy technicians, therefore, have the responsibility and the opportunity to promote and enhance knowledge about vaccines, immunizations, and related care services while also integrating into the health care system (Romero-Mancilla et al., 2023).

The pharmacy profession has stepped forward from merely being the drug dispenser and the technical expert involved in patient counselling. They are now permitted in various areas to give vaccines, and are therefore, playing a huge role in the immunization human resources. Pharmacists have considerable knowledge of

pharmacology and they regularly interact with patients working in community settings, thus they can effectively advise patients. They are well suited to recognize patients requiring immunizations, develop individualized suggestions and counter misinformation about vaccines (Urlick and Meggs, 2019). Besides, the knowledge and skills possessed by pharmacists are also useful in general accountability concerning vaccines by overseeing storage, handling, and reporting adverse outcomes of immunization programs (Ayenew et al., 2024).

Traditionally, pharmacy technicians whose responsibilities are helping pharmacists dispense medication are assuming more responsibilities that are directly related to immunizations. Currently, pharmacy technicians in many jurisdictions can be trained to give vaccines and are supervised by pharmacists. This expanded role means that pharmacists are capable of performing most of the tasks that have been considered time-consuming with the intention of providing them with more time for clinical and patient consultation. In addition, the work of pharmacy technicians can be considered particularly important for the organization of immunizations, including appointment scheduling, stock management, and reminder calls, which are critical to increase vaccine coverage. Not only does their engagement in immunization programs contribute to the strengthening of the capacity of the pharmacy teams, but it also improves vaccine availability for populations in need (Alshehri et al. 2022).

There are a number of ways in which the engagement of pharmacists and pharmacy technicians in immunization can be optimized. Raising the level of awareness of the public concerning the availability of vaccines at pharmacies is vital in addressing barriers. To raise awareness about vaccines and convenient pharmacy locations, Pharmacies can engage in targeted advertising campaigns and use social media and educational tools. Furthermore, delivering immunizations through the pharmacy setting in conjunction with EHRs and local public health departments will help optimise communication and ensure that patients are receiving prompt and appropriate vaccinations. Incorporating immunization into compounding pharmacy operations enhances competency as it establishes the role of pharmacists and technicians in vaccine communication and addressing vaccine hesitancy (Rosado & Bates, 2016).

Therefore, pharmacists and pharmacy technicians are responsible for the promotion of vaccines in actual, community-based practice environments, where patients are and they provide tailored immunization services within clinical and community contexts. Thus, these professionals can deal with essential problems of immunization and contribute to the general aim of improving the health of people by using the opportunities they have got in communities, following innovative models, and cooperating with other members of healthcare systems. They play a crucial role in ensuring that disparities in vaccination are closed; confidence built; and therefore increased immunization.

AIM OF WORK

This review focuses on the amplification of immunization processes by pharmacists and pharmacy technicians plus the strategies they use in enhancing vaccination crusade. Pharmacists therefore immunize, counsel as well as counteract misinformation or myths surrounding the vaccine. These goals are supported by pharmacy technicians by handling stocks, vaccination schedules and sometimes patients. While stakeholders have to overcome barriers including vaccine hesitancy and access, pharmacies give solutions in form of extended operating hours that can be fixed and in conveniently located sites that can reach more density of the community.

METHODS

A thorough search was carried out on well-known scientific platforms like Google Scholar and Pubmed, utilizing targeted keywords such as Role, Pharmacists, Pharmacy Technician, Immunization, Strategies, and Vaccine Uptake. The goal was to collect all pertinent research papers. Articles were chosen according to certain criteria. Upon conducting a comprehensive analysis of the abstracts and notable titles of each publication, we eliminated case reports, duplicate articles, and publications without full information. The reviews included in this research were published from 2016 to 2024.

RESULTS

The current investigation concentrated on the pivotal role of pharmacists and pharmacy technicians in immunization and the strategies they employ to improve vaccine uptake between 2016 and 2024. As a result, the review was published under many headlines in the discussion area, including: Nutritional Deficiencies: The Expanding Role of Pharmacists in Immunization, Pharmacy Technicians: Supporting Immunization Efforts, Barriers to Vaccine Uptake: The Role of Pharmacists and Pharmacy Technicians, Strategies to Improve Vaccine Uptake Through Pharmacy Involvement, Case Studies: Success Stories in Pharmacy-Led Immunization, Future Directions and Policy Recommendations

DISCUSSION

Vaccination is one the most effective and crucial tools in eliminating diseases, that affect millions of people and decrease global health care contribution of communicable diseases. Nevertheless, gaps remain to be solved, with

vaccine hesitancy, misinformation, and difficulties with delivery hampering the best use of available vaccines. These are good opportunities for both pharmacists and pharmacy technicians as they are easily approachable, credible and have profound understanding of healthcare system (Poudel et al., 2019). This review looks at the practice of immunization by pharmacists and pharmacy technicians as well as the stamp places in increasing vaccine utilization.

The Expanding Role of Pharmacists in Immunization

Physicians and public health organizations used to be the only centers implementing immunization programs. However, through effective availability of vaccination services they have become key actors in vaccination centres due to their ability to reach communities and offer healthcare services without prior appointments. Across the nations, there has been policy reforms that enable the pharmacist to conduct immunization therefore expanding the reach of the media to the other end of the population DeMaagd & Pugh, 2023.

Immunization services encompass direct vaccination by the pharmacists and also outreach in the form of education and lobbying. Vaccination campaigns are favoured by pharmacologists since they undertake adequate training in pharmacology and immunology as well as treating patients. Here, immunization services afforded by pharmacists do more than extend the outreach of such programs, but also lighten the workload of other care givers, thus optimally using up the available health care resources (Yemeke, et al., 2021).

A key benefit of pharmacist driven immunisation programs that cannot be achieved by other means is the consideration of vaccine access barriers. This is because most pharmacy stores operate past usual clinic standards; this means that people can get vaccines whenever they want to. Additionally, pharmacies have placed their outlets especially in urban and rural areas and this has ensured that every group of people gets accesses vaccines whenever they need to.

Pharmacy Technicians: Supporting Immunization Efforts

Many pharmacy technicians work in supporting positions; however, they are essential for the success of immunization programs. These consist of stock management of vaccines, appointment booking for patients, entering data into the computer, and at some level, educating the patient on vaccination. In some regions, pharmacy technicians are now allowed to give vaccines under the supervision of a licensed pharmacist, which improves the ability of pharmacies to provide immunization services (DeMarco et al., 2022).

Therefore, the roles of pharmacy technicians in immunization programs liberate the pharmacists to engage in clinical tasks like counseling of the patients, and handling of vaccines. Such an arrangement enhances efficiency in vaccination services, reducing waiting times among other advantages. Furthermore, pharmacy technicians are most of the time the first to reply to patients' questions regarding the vaccines which makes their communication and information about immunization vital in easing patients' worries and encouraging them to get vaccinated (Atkinson & van Schravendijk, 2023).

Barriers to Vaccine Uptake: The Role of Pharmacists and Pharmacy Technicians

Nevertheless, many barriers prevent individuals from receiving the vaccine even though vaccines have been developed. These barriers comprise of misinformation, transport issues, and differential health care accessibility to vaccination. Accordingly, pharmacists and pharmacy technicians are well poised through specific interventions, which are described below (DeMarco et al., 2022); however, several barriers hinder vaccine uptake. These barriers include vaccine hesitancy fueled by misinformation, logistical challenges, and disparities in access to healthcare services. Pharmacists and pharmacy technicians can play a pivotal role in addressing these challenges through targeted strategies (DeMarco et al., 2022).

• Addressing Vaccine Hesitancy

There are significant vaccine hesitancy challenges in ensuring comprehensive vaccine coverage. It is based on false information, cultural beliefs, and mistrust in health systems, leading to outbreaks of highly preventable diseases due to the absence of balancing immunization with vaccine-preventable diseases. Pharmacists and pharmacy technicians are in the best place to turn people's attitudes towards vaccines by educating patients and countering misinformation (Cassidey et al., 2021).

Pharmacists should understand that their role as professionals will allow them to give evidence-based information about the safety, efficacy, and importance of immunization. By talking one-on-one with pharmacists, it provides the opportunity to individualize the conversation with this specific patient and bring trust into the discussion. This is where pharmacy technicians would come in by distributing printed material and directing patients to trustworthy sources of information (Cassidey et al., 2021).

• Overcoming Logistical Challenges

Including unfavorable distribution patterns of vaccine supply and inconvenient venues of vaccination, there are structural variables affecting vaccination uptake in the country. Pharmacies being major players in the supply of medicines with established distribution networks and wide operating hours are in an interesting position to

respond to all such needs. Pharmacists and pharmacy technicians are to be involved in delivering vaccines on time and ensuring adequate stock supply and flow of the vaccines (Gernant et al., 2018).

There are possibilities of appointment-based and walk-in services at pharmacies, given the patients' preferences and profiles. To that end, mobile clinics need to expand the options for vaccination, which significantly differs from traditional methods of administration in terms of inconvenience (Gernant et al., 2018).

- **Reducing Disparities in Vaccine Access**

Primary care health discrepancies, distribution issue, socioeconomic factors and racial disparities might hinder vulnerable individuals from accessing their appropriate vaccines. This paper aims to establish that pharmacies, particularly those that are situated in the rural areas can help fill these gaps by delivering immunization services to the needy groups. Pharmacists and pharmacy technicians can go out in those populations to encourage people to get vaccinated (Pattin, 2017).

Besides, engaging substantial pharmacy partners and local and public health organizations can expand the immunization efforts. These entities should again collaborate because it enables them to track down the main causes of inequalities and establish plans to remove them with an aim of ensuring equal access to vaccines for all (Pattin, 2017).

Strategies to Improve Vaccine Uptake Through Pharmacy Involvement

Several recommendations are useful for pharmacists and pharmacy technicians to improve vaccine compliance, capitalizing on their existing position as approachable and credible members of the healthcare profession (Le et al., 2022). • Information, Education, and Communication Activities adopt various strategies to enhance vaccine uptake, leveraging their roles as accessible and trusted healthcare providers (Le et al., 2022).

- **Public Education and Awareness Campaigns**

Education and awareness methodology is perhaps one of the most successful approaches when it comes to increasing the consumption of vaccines. Through education, community programmers, practicing at health fairs, and partnering with local media to spread factual information about vaccines, pharmacists are able. These endeavors can be supported by pharmacy technicians who can dispense information and interact with patients as they attend the pharmacy (de Koning et al., 2024).

Another aspect of social media is that these websites are really helping in ensuring a pharmacy can reach wider clients. These forums may allow pharmacists to debunk myths regarding vaccines, share good news stories about vaccination successes, and inform consumers where and when vaccines are available. Because of this, pharmacy realizes that it can potentially shape the public opinion and increase the level of vaccination (de Koning et al., 2024).

- **Public Education and Awareness Campaigns**

Public education and awareness campaigns have to be one of the best interventions for the promotion of vaccines. Pharmacists can organize community activities, health fairs, and even work with local media to have accurate information on vaccines broadcasted to residents. Such efforts can be augmented with pharmacy technicians joining through the distribution of information materials and contact with patients during their visits (de Koning et al., 2024).

Social media also provide a marketplace for pharmacies to offer outreach to even a wider audience. Pharmacists can use these platforms to debunk commonly held vaccine falsehoods, to share success stories, and to update people on the state of vaccine availability. With a strong online presence, pharmacies could forum guidelines for public perception and acceptance of vaccines as well (de Koning et al., 2024).

- **Improving Convenience and Accessibility**

A strategy to offer immunizations through other ordinary visits to the pharmacy-services would include self-administration of the vaccine with other health services such as medication therapy management services and health screenings (Ecarnot et al., 2019)- therefore truly an all-purpose service offered by pharmacy practitioners. There should be maximum coverage of persons having vaccination from pharmacy services. The flexible vaccination services will include walk-in services, increased operational hours, and mobile vaccination clinics. It will also employ employers, pharmacists, and pharmacy technicians to facilitate workplace vaccinations at which workers can easily access immunization (Ecarnot et al., 2019).

- **Leveraging Technology for Patient Engagement**

It also makes life a bit easier as far as patient engagements and administration go in using technology to make it easier for the patients in order to enhance uptake of vaccinations Mobilizing an immunization reminds service by identifying patients due for immunization using EHR data by a length of time for a schedule as indicated in the communication. The preferred mode of reminder may be through text or email or even calling them by their phone numbers. This technician thinks so; hence, this system can help in the patient notification aspect (Abdul-Mutakabbir et al., 2022).

Actually, online appointment reservation followed by remote consultations fosters patient experience and also facilitates easy access to immunization services for many individuals. This will enact increased efficiency and satisfaction, both among patients and patrons of the pharmacy, with adoption of technology (Abdul-Mutakabbir

et al., 2022).• Moreover, these features of online appointment booking and telehealth consultations can improve patient experience and lower barriers to vaccination for individuals. Therapies that utilize technology in their operations will also make pharmacies more efficient and satisfy patients (Abdul-Mutakabbir et al., 2022).

- **Training and Certification Programs**

Finally, to enhance the delivery of immunization by pharmacists and pharmacy technicians, training and certification programs should be continuous. These programs should devote their time in expanding their understanding of vaccine-preventable diseases, immunization schedules, and injection. Therefore, immunization services provided by pharmacists and pharmacy technicians and handling patients' concerns should be up to date with the current guidelines and recommendations (Bertsch & McKeirnan, 2020).

Case Studies: Success Stories in Pharmacy-Led Immunization

Several studies present successful experiences of implementing immunization programs through pharmacy. For instance, in the course of the COVID-19 social distancing, the pharmacists took the prerogative to administer vaccines to millions of patients. The Federal Retail Pharmacy Program in the United States showed that pharmacies could increase vaccine uptake, especially among those at the peripheries (Pammal et al., 2022).

Likewise in Canada, it has become evident that simply providing access to pharmacists as well as allowing for the initiation of Immunization Programs by pharmacists has greatly expanded the vaccination rates for influenza immunization. These programs have worked to decrease the load of seasonal flu and enhance public health because patients get easy access to vaccines and are educated about their treatment.

The narratives encapsulated by these efforts all inspire the integration of pharmacists and pharmacy technicians into the national immunization strategies. Therefore, other nations can take a leaf from the narrative and tap into the knowledge delivery capacity of the pharmacy personnel.

Future Directions and Policy Recommendations

This will need additional measures that would deepen the role of pharmacists and pharmacy technicians in this service. Such actions include: expanded scope of practice for pharmacy professionals; more funding to training programs; and joint efforts by public health agencies and pharmacies (Isenor, & Bowles, 2019).

Moreover, steps should be taken to unify the immunization practices conducted in pharmacies. This would ensure that every client receives this service at a consistent and high-standard level of care. Policymakers should hence facilitate a conducive regulatory environment that will empower pharmacists and pharmacy technicians to have a greater say in the improving vaccine uptake (Isenor, & Bowles, 2019).

CONCLUSION

In fact, the pharmacists and the pharmacy technician play a significant role in enhancing vaccination rates and preventing vaccine-preventable diseases at the global level. Their functions do not stop at dispensing drugs, but extend to activities such as vaccine management, teaching, and addressing issues such as vaccine hesitancy, immunization access, and healthcare inequity. Pharmacists are therefore among the nearest accessible health providers who can fill this gap, and pharmacy technicians are a major supportive staff component that should not be forgotten as they work behind the scenes ensuring coherent and efficient dissemination of vaccines.

Pharmacy-based support to immunization programs has already shown about positive things from individual case studies. Pharmacy led initiatives like COVID 19 vaccine drive and Influenza immunization Program depict that the population indeed could reach out through different segment most efficiently and effectively. Ignoring misinformation, access, and scheduling then pivots the pharmacists and the pharmacy technician to the structure of healthcare delivery that puts the client's needs first.

From now onwards, their activities should change such that pharmacy professionals are involved in immunization as they have been in the past. This will require strengthening some key strategies to build on past successes with respect to their potential: broaden what they do; continue training; and technology engage patients. It is important that the relevant authorities draw enabling conditions for pharmacists and pharmacy technicians to help them achieve their full potential in public health initiatives. Additionally, other partner communities can engage in getting hold of marginalized populations and avoid certain communities being excluded from vaccination.

In conclusion, it is imperative that pharmacists and pharmacy technicians be actively involved in supporting immunization services across the world to address both routine and emerging diseases. They can be easily accessed, trained professionals, and most importantly client-centered making them very important in addressing vaccination challenges. Those are the agents through which society can transform into good immunization systems that foster the development of the individual and prepare for a better tomorrow.

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