Influenza vaccination: a practical update for pharmacists

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Abstract

Worldwide, seasonal influenza epidemics and sporadic influenza pandemics result in high morbidity and mortality rates. The immunocompromised, individuals with chronic health conditions, older adults, infants and pregnant women are most at risk of severe morbidity and mortality from influenza. Annual vaccination remains the most cost-effective strategy for preventing influenza and reducing influenza-related complications, hospitalisations and deaths. Despite clear public health benefits, vaccine uptake remains suboptimal due to limited awareness, misconceptions about vaccine safety and effectiveness, low perceived influenza risk, and logistical access barriers. Pharmacists are well-positioned to improve vaccine uptake through targeted interventions such as advocacy and patient education, and directly through vaccine administration, stock management, cold-chain management and adverse event following immunisation monitoring.

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Introduction

Influenza remains a major global public health concern, with a high disease burden and significant economic impact. Approximately 3–5 million cases of severe influenza resulting in an estimated 290 000–650 000 respiratory deaths, occur annually.[1-3] Influenza (along with pneumonia) is one of the top 10 underlying natural causes of death in South Africa, ranked 6th for the period 2021–2023.[4] A modelling study based on 2013–2015 South African data, estimated that 10.7 million influenza-related illnesses and 11 536 deaths from influenza occurred annually.[5]

Influenza is a highly contagious acute respiratory illness caused by influenza viruses. Both influenza types A and B cause seasonal epidemics; however, influenza A is also responsible for most global influenza pandemics.[3,6] In South Africa, the influenza season typically occurs during the winter months. However, the National Institute for Communicable Diseases (NICD) reported that in 2025, the season started as early as March and ended in July, while out-of-season smaller increases were observed in September/October and again in November/December.[6] Similarly, the 2026 influenza season started in early March.[7] The influenza virus genome allows rapid evolution via gene exchange/reassortment (antigenic shift) and mutations (antigenic drift), which determine its virulence and circulation.[6,8]

Respiratory droplets released during coughing or sneezing is the primary mode of transmission, and infection typically occurs from close contact (within 1 to 2 meters) with an infected person or touching contaminated fomites.[6,9,10] The upper respiratory tract, which includes the nose, throat, bronchi, and occasionally the lungs, is the primary site of influenza infection, although it can also affect the heart, brain, and muscles.[6,8] The symptoms vary in severity and include fever, chills, headaches, myalgia, arthralgia, pharyngitis, coughing and rhinitis/coryza. Viral shedding commonly occurs from a few days before to a week after symptom onset, but may persist for >10 days in infants and adults with severe disease, and even longer in severely immunocompromised patients.[6,8]

Most people recover from influenza within a few days; however, it can cause complications resulting in hospitalisation and/or death, particularly among high-risk populations including pregnant women, infants, older adults (≥ 65 years) and individuals who have chronic health conditions or are immunocompromised.[6] In adults, influenza is the main viral cause of community-acquired pneumonia (CAP) and increases the risk of secondary bacterial infections, including pneumococcal pneumonia, the primary cause of bacterial CAP.[11] Influenza illness may result in absenteeism, or hospitalisation and/or death which has a significant negative impact on both the economy and the healthcare system.[12-14] With the rise of antimicrobial resistance (AMR), influenza vaccines are a critical, yet underutilised tool to mitigate AMR through preventing infections, reducing antibiotic use, and curbing the spread of resistant bacteria.[15]

Prevention of influenza

Primary prevention remains the cornerstone of reducing the spread and impact of influenza, particularly among vulnerable populations at increased risk of severe disease and complications.[6,10] Although vaccination is the most effective strategy for preventing influenza and its associated outcomes, a comprehensive primary prevention approach should also include non-pharmaceutical interventions.[6,16] These include regular hand hygiene, respiratory etiquette such as covering coughs and sneezes, appropriate use of face masks in high-risk settings, staying home when symptomatic, and ensuring adequate ventilation in indoor environments.[6]

Influenza vaccine composition and recommendations

Influenza vaccine effectiveness and safety

Vaccination against influenza is considered the most cost-effective infection control and prevention strategy, averting up to 59% of infections in healthy adults while causing mostly minor adverse events following immunisation (AEFI).[10,17] Serious AEFI with the influenza vaccine are rare and include severe allergic reactions which usually occur shortly after immunisation. Typical AEFI include short-lived self-limiting systemic side-effects such as transient fever, body aches, headaches and fatigue, and local reactions such as pain and swelling at the injection site.[10,17]

Types and composition of influenza vaccines

The vaccines available in South Africa are egg-based; either a split-virion or a sub-unit inactivated influenza vaccine (IIV). These vaccines are updated annually with the strain composition recommendations of the World Health Organization (WHO) for the southern hemisphere, which are based on global influenza surveillance data, antigenic analysis and expert review to maximise vaccine effectiveness.[18] Based on the WHO recommendations for the 2026 influenza season, the influenza vaccine should contain three strains, referred to as a trivalent vaccine.[18]

Egg-based vaccines should contain the following strains:

- A/Missouri/11/2025(H1N1)pdm09-like virus
- A/Singapore/GP20238/2024(H3N2)-like virus
- B/Austria/1359417/2021(B/Victoria lineage)-like virus.[18]

In the past, quadrivalent influenza vaccines protected against an additional B/Yamagata lineage virus. However, based on the absence of confirmed detection of naturally occurring B/Yamagata lineage viruses after March 2020, WHO considers the risk of infection by this lineage as low.[18] As a result, WHO no longer updates recommendations for the B/Yamagata lineage.[18]

Due to antigenic drifts and shifts which result in changes in the circulating virus strains, the influenza vaccine must be administered annually.[6,10,17] Additionally, vaccine effectiveness gradually wanes over time which further necessitates annual vaccination.[6,8,17] The vaccine is suitable for persons aged ≥ 6 months and should ideally be administered very early, before the start of the influenza season, to allow sufficient time for adequate development of protective antibodies.[17] The recommended influenza vaccine dosages and administration schedules are shown in Table I.

Priority groups and recommendations for influenza vaccination

Certain population groups such as older adults (≥ 65 years), infants, pregnant women, immunosuppressed individuals (e.g. living with HIV; receiving chemotherapy or steroid treatment) and individuals with long-term chronic medical conditions (e.g. chronic cardiac, pulmonary, renal, metabolic, neurodevelopmental, liver or haematological diseases), are most vulnerable to severe influenza outcomes and should therefore be prioritised for annual vaccination.[3,5,6,21] Persons at increased risk of occupational exposure or transmission, particularly healthcare professionals and caregivers, should also be prioritised to protect both themselves and vulnerable patients.[22] See Figure 1 for further details.

The recipient's age, immunological status, and the match between the vaccination strain and the circulating strain may all potentially affect influenza vaccine effectiveness.[17] Influenza vaccine effectiveness is lower amongst older adults due to increasing age and impaired immune function.[6,10] However, influenza vaccination is highly recommended for older adults as it significantly lowers hospitalisation and death rates.[6,23] Furthermore, influenza vaccination has been shown to protect against influenza cardiovascular complications (e.g. myocardial infarction, myocarditis and stroke) and may protect against dementia.[24-26]

High influenza vaccine coverage is essential to ensure individual and community protection, known as herd immunity.[27,28] Herd immunity is a form of indirect immunity that occurs when a substantial proportion of the population is vaccinated, thereby reducing the likelihood of the unprotected being exposed to infected individuals.[28] The unprotected includes the unvaccinated (i.e. babies < 6 months of age and anyone who is allergic to the vaccine or a vaccine component) and those who have been vaccinated but are unable to mount an immune response (i.e. the immunocompromised); those exposed to a different strain of the influenza virus not targeted by the vaccine they received; and those who received a vaccine that had lost potency because of incorrect storage.[28]

Table I: Recommended dosage and dosage administration for IIV[6,19,20]

Age group	Children 6 months – 2 years	Children 3 years – 8 years	Adults and children ≥ 9 years
Vaccine	Trivalent IIV e.g. Influvac®		
Dose	Consult package insert 0.25 ml	0.5 ml	0.5 ml
Number of doses per annum	First year of vaccination: Two doses administered ≥ 1 month apart Subsequent seasons: Single dose	First year of vaccination: Two doses administered ≥ 1 month apart Subsequent seasons: Single dose	Single dose annually
Route of administration	Intramuscular		
Site of administration	Left anterolateral thigh or upper arm (deltoid muscle if muscle mass is adequate)	Left upper arm (deltoid muscle)	
Precautions	Do NOT administer by intravascular injection and ensure that the needle does not penetrate a blood vessel		

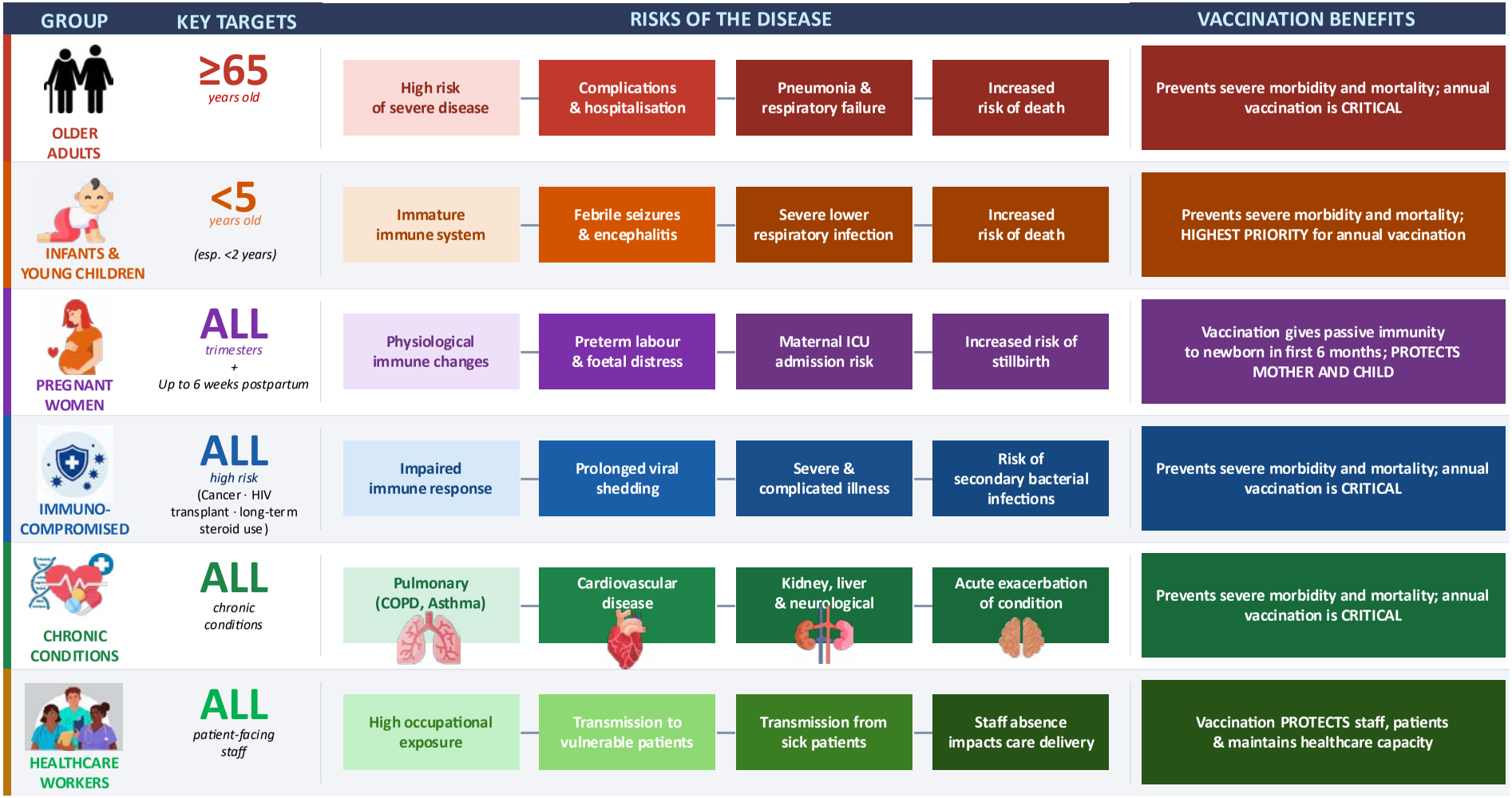

Figure 1: High-risk and priority groups for influenza vaccination[3,5,6,21]

Role of the pharmacist

Pharmacists as vaccine advocates

Pharmacists are among the most accessible healthcare professionals and are often the first point of contact within the health system for most people, particularly where other primary health services are inaccessible or too expensive.[29,30] In addition, pharmacies can reach more patients since they are usually conveniently located, have longer operating hours and patients can access pharmacy services without the need for making appointments.[29,30]

Pharmacists' easy accessibility positions them as ideal vaccine advocates, with the ability to reinforce preventive behaviours during patient interactions and to promote a broader culture of infection prevention within communities and healthcare settings.[29-31] In addition, pharmacists are key, accessible change agents in improving life-course immunisation (vaccination coverage across all life stages).[30,31] Through advocacy, education on the importance of vaccines in disease prevention and reducing AMR, and by direct administration of vaccines, pharmacists are well-positioned to help close vaccination gaps for children, adolescents and adults, by building vaccine confidence and improving vaccine access.[30]

The WHO Strategic Advisory Group of Experts on Immunization (SAGE) also emphasises the importance of healthcare professionals, including pharmacists, in building public vaccine confidence.[32] Studies show that healthcare professionals recommendation is one of the key factors driving vaccine acceptance.[22,33] Conversely, it has also been shown that a lack of healthcare professionals recommendation may result in public complacency towards vaccination.[34] In 2022, the NICD launched CoughWatchSA, a digital participatory surveillance platform for influenza-like illness in South Africa.[35] CoughWatchSA aims to provide an early warning system for influenza-like illness outbreaks, enabling the early detection of the onset of the influenza season and supporting the public health community to implement timely interventions and mitigation strategies.[35] Pharmacists can contribute to this initiative by promoting it to their patients and by directly reporting the number of cases presenting at pharmacies with influenza-like illnesses and number of clients vaccinated against influenza using the online portal: https://coughwatchsa.org.za/.

Vaccine supply chain and cold chain management

Pharmacists play a critical role in ensuring the continuous availability, quality, and integrity of influenza vaccines throughout the supply chain.[30,36] Their responsibilities include appropriate procurement, stock management, and ensuring that vaccines are transported, received, and stored in accordance with Good Pharmacy Practice (GPP) standards.[36,37] Influenza vaccines should be stored in a dedicated vaccine refrigerator maintained between 2 °C and 8 °C, equipped with a continuous temperature monitoring device, and packed correctly to allow adequate cold air circulation.[36]

The South African National Department of Health (NDoH) has established public-private sector service level agreements (SLAs) for selected Expanded Programme on Immunisation of South Africa (EPI-SA) vaccines, whereby immunisation coverage is increased through supplying these vaccines to participating private pharmacies at no cost.[36,38] Although influenza vaccines are currently not included in the SLAs, this noteworthy model has been an effective mechanism for expanding access to EPI-SA vaccines.[36] The NDoH is currently reviewing this model with the aim of implementing a policy to improve access to all vaccines available in the public sector, including influenza vaccines.

Ensuring patient safety

Pharmacists can contribute to increasing public confidence in influenza vaccination through their involvement in vaccine safety monitoring. Influenza vaccines are safe and well-tolerated, with mild, self-limiting AEFI being common, while serious AEFI are extremely rare. The benefits of vaccination in preventing severe influenza, complications, hospitalisation and death far outweigh these risks.[17] Pharmacists are well-positioned to explain this benefit-risk balance to patients and to address misinformation that may contribute to loss of vaccine confidence.[36]

In South Africa, all vaccines are subject to strict regulatory oversight and must be registered by the South African Health Products Regulatory Authority (SAHPRA) before use. In addition, vaccine batches entering the country go through rigorous quality control processes before release by SAHPRA, providing further assurance of vaccine safety, quality, and effectiveness.[39,40]

The vaccine is contraindicated for persons with a history of severe anaphylaxis following influenza vaccination, and caution should be exercised in persons with a history of Guillain-Barré syndrome within six weeks of influenza vaccination.[6] The vaccine should preferably be withheld from persons with moderate or severe illness with or without fever, until the symptoms have resolved.[6] Within the pharmacy setting, pharmacists should assess patients for any contraindications and precautions before vaccination, including a history of severe allergic reactions to vaccine components or previous influenza vaccines.[16,40] Pharmacists should also ensure correct storage conditions and check expiry dates as part of vaccine safety assurance. Where pharmacists administer vaccines, they should follow recommended administration procedures and must be prepared to recognise and manage immediate AEFI, including anaphylaxis.[41]

Pharmacists, as part of their practice, should contribute to pharmacovigilance through the identification, documentation, and reporting of AEFI.[39] Timely reporting of suspected AEFI to SAHPRA through the VigiMobile App (available online at: https://vigiflow-eforms.who-umc.org/za/aefi) supports ongoing vaccine safety monitoring and helps detect rare or unexpected AEFI.

Pharmacists as vaccinators

As custodians of medicines, pharmacists are focussing on the provision of safe and effective medicines.[29,31] Lately, pharmacist-

led immunisation is expanding throughout the world, and pharmacists are now playing an even greater role in disease prevention by advocating for and administering vaccinations.[29,31] In South Africa, the COVID-19 pandemic accelerated this role, leading to the country's largest public-private-partnership to date, in which community pharmacies collaborated with the NDoH to support the national COVID-19 vaccine rollout.[41,42]

According to Regulation 18(6)(b) of the regulations relating to the practice of pharmacy and Rule 2.14 of the rules relating to GPP, pharmacists may participate in immunisation-related activities, including the actual administration of vaccines to members of the public, as a part of their scope of practice provided they are authorised to do so and possess a Section 22A (15) permit.[41,42] Furthermore, the South African Pharmacy Council has developed competency standards for pharmacists providing immunisation services, defined the scope of practice for pharmacists offering such services, and established criteria to accredit a generic short course for pharmacists in immunisation and injection techniques, and the delivery of immunisation services.[41,42] Currently, four universities offer a short course for pharmacists in immunisation and injection techniques, upon successful completion of which pharmacists are certified as vaccinators.[43]

Conclusion

Influenza vaccination remains the most effective influenza prevention strategy and should be included in vaccination across the life-course. Influenza vaccines are also key in combating AMR. Despite the availability of safe and effective vaccines, vaccine uptake is suboptimal due to many factors, including access barriers and low vaccine confidence. This has the effect of increasing morbidity and mortality, which in turn imposes a heavy socioeconomic burden on the country. Pharmacists and other healthcare professionals have a key role to play in increasing vaccine uptake by ensuring the availability and correct storage of vaccines, providing immunisation services and advocating for vaccines, and educating clients on the risks of the illness and the benefits of the vaccines, thereby building vaccine confidence. In addition, they should inform clients about vaccinations provided at no cost through public health programmes to reduce barriers to access and thus improve vaccine coverage. As South Africa has already entered the 2026 influenza season, pharmacists are urged to serve as vaccine "champions" by strengthening vaccine confidence, actively countering misinformation related to influenza and other vaccines, and providing high quality vaccination services.

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