

# Knowledge, attitudes, and practices towards occupational vaccinations in a private hospital setting in Tshwane, South Africa

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## ABSTRACT

### Introduction

Vaccines have prevented more morbidity and mortality over the past century than any other medical advancement. However, many healthcare workers (HCWs) in South Africa (SA) have been affected by occupational exposure to vaccine-preventable diseases (VPDs).

### Purpose

This study aimed to investigate the knowledge, attitudes, and practices (KAP) of selected HCWs towards occupational vaccination.

### Methods

An observational, cross-sectional survey design was employed. Participants completed an online questionnaire consisting solely of close-ended questions. A non-probability voluntary response sampling method was used due to the low response rates observed in previous studies involving this population. A subset of participants representing Region 6 of Tshwane in the private sector was selected. Data were coded and analysed using the Statistical Package for Social Sciences (SPSS), version 28.

### Results

A total of 149 responses were obtained. The majority of participants were female (95.7%), aged 30–49 years (63.2%), and of Black ethnicity (70.9%). Just over half held a diploma (52.1%), and most were nurses (87.2%). The HCWs demonstrated an overall knowledge level of 68.9% regarding occupational vaccinations. They also showed an above-average positive attitude (64.3%) and just over half (52.1%) reported engaging in positive practices related to occupational vaccination.

### Conclusion

The overall findings indicated generally positive knowledge, attitudes, and practices among these HCWs regarding occupational vaccination. A comprehensive occupational vaccination guide is recommended to better inform HCWs about VPDs and improve vaccination practices. Furthermore, the National Department of Health's Electronic Vaccination Data System (EVDS), initially developed to track COVID-19 vaccinations, could be expanded to collect and analyse more comprehensive data on HCWs' vaccination status, as well as morbidity and mortality related to VPDs.

## INTRODUCTION

Healthcare workers (HCWs) are more likely to contract vaccine-preventable diseases (VPDs); therefore, immunising them against occupational exposure is essential to prevent the spread of VPDs that could endanger vulnerable patients (Maltezou & Poland, 2014). Since vaccines prevent disease, they differ from most conventional medical treatments, which typically treat or cure illnesses (Centers for Disease Control and Prevention [CDC], 2012). One of the Sustainable Development Goals (SDGs) of the United Nations—Goal 3—emphasises lifelong immunisation. However, unlike well-established childhood immunisation programmes, adult vaccination programmes remain relatively uncommon (United Nations, 2015).

“Life-course vaccination” is one of the nine target areas of the World Health Organization’s (WHO) Global Routine Immunisation Strategies and Practices (GRISP) initiative, which aims to strengthen immunisation programmes globally (WHO, 2016). Adult vaccination schedules are influenced by risk factors such as travel, lifestyle, underlying health conditions, and occupational exposure (CDC, 2019a; Tate et al., 2019). Occupations with increased risk of exposure to infectious diseases include healthcare, farming, oil drilling, and food processing (Passport Health, 2020).

Due to their frequent exposure to contaminated blood and/or bodily fluids, HCWs are particularly vulnerable to acquiring VPDs in the workplace (Barchitta et al., 2019). Barchitta et al. (2019) also highlighted that HCWs are involved in vaccination in three key ways: (1) preventing the spread of VPDs by being vaccinated themselves; (2) administering vaccines to patients; and (3) impacting the healthcare system’s infrastructure when absent due to preventable illnesses. Therefore, assessing HCWs’ knowledge, attitudes, and practices (KAP) concerning vaccinations is critical. Moreover, the authors emphasised the need to foster high levels of vaccine confidence among HCWs and to design interventions suited to the specific political, social, cultural, and economic contexts in order to positively influence both HCW and patient vaccination behaviours.

HCWs’ knowledge about vaccines—particularly their safety and efficacy—can enhance their confidence in vaccinations and increase their likelihood of recommending them to patients (Paterson et al., 2016). According to Paterson et al. (2016), HCWs “still remain the most trusted advisor(s) and influencer(s) of vaccination decisions” (p. 6460). In addition, HCWs are more likely to recommend vaccines when they have received them personally (Makwe & Anorlu, 2011; Zhang et al., 2011). Their knowledge about vaccine safety and effectiveness further reinforces their confidence and commitment to vaccine advocacy (Paterson et al., 2016).

A 2013–2014 study assessing HCWs’ KAP regarding influenza and the influenza vaccine in South Africa found that only one-third of respondents had received the vaccine (Duque et al., 2017). The study also found that vaccination rates were higher among HCWs when vaccines were readily available and provided free of charge at their workplace or residence.

Several studies have been conducted in South Africa to determine vaccination coverage among HCWs. A 2009 study in Gauteng found that 68% of HCWs had received at least one dose of the hepatitis B (HepB) vaccine, but only 20% had completed the recommended three-dose series (Burnett et al., 2011). Similarly, a 2014 study at Chris Hani Baragwanath Hospital found that only 15% of HCWs were fully vaccinated with the three-dose HepB vaccine, although 56% had received at least one dose (Makwakwa et al., 2014).

This is significantly lower than the 90.1% vaccine acceptance rate recorded in the Eastern Cape by Adeniyi et al. (2021), suggesting that their findings may not be generalisable to all HCWs in South Africa. In another study, 41% of HCWs in Cape Town expressed hesitancy towards receiving the SARS-CoV-2 vaccine (Wiysonge et al., 2022). Currently, there is no national policy or unified standard regulating occupational vaccination for HCWs in South Africa. Employers are permitted to develop their own policies and are typically responsible for providing or subsidising vaccines for their employees. Nonetheless, the South African National Department of Health (SA NDoH, 2019) recommends that HCWs be vaccinated against HepB.

Furthermore, the SA NDoH advises that HCWs at high risk—such as those who are pregnant or have underlying conditions, HIV, or tuberculosis—receive the seasonal influenza vaccine through government-funded programmes. Those not considered high risk are expected to obtain the vaccine through private providers at their own cost (SA NDoH, 2017a). In a more recent guideline, the National Institute for Communicable Diseases (NICD, 2020) recommended that all HCWs receive the influenza vaccine. Although some data exist regarding recommended occupational vaccines—such as the influenza and COVID-19 vaccines (Moodley et al., 2021)—there has not been a comprehensive study on HCW immunisation for occupational purposes. HCWs, who are at high risk of contracting infectious diseases through contact with bodily fluids, infectious materials, and patients, constitute a critical public health group. Many of these diseases can be prevented through immunisation. However, the KAP of primary healthcare workers regarding occupational vaccination remains largely unknown.

## METHODS

### *Study Design*

This was a cross-sectional observational study that utilised an online questionnaire to assess healthcare workers' knowledge, attitudes, and practices (KAP) regarding occupational vaccination.

### *Setting*

The study was conducted in primary healthcare facilities located in Region 6 of Tshwane—namely Mamelodi, Silver Lakes, and Moreleta Park—in Gauteng, South Africa. The focus was specifically on the private healthcare sector.

### *Population and Sampling*

The target population comprised healthcare workers employed in private healthcare facilities within Region 6 of Tshwane. A non-probability convenience sampling method was employed. Participants were recruited through voluntary response to questionnaires distributed via email links and QR codes included on survey fliers. Consequently, the sample consisted of self-selected respondents. The researcher acknowledges that this is a biased sample, likely to include individuals with strong opinions on the subject, which may affect the generalisability of the findings.

### *Data Collection*

A self-administered questionnaire containing only closed-ended questions was used to collect data. The questionnaire consisted of five sections; four of these—demographics, knowledge, attitudes, and practices—were analysed in this article. It was designed with pre-coded response options to collect data aligned with the study's objectives. Respondents could access the questionnaire using a QR code on the survey flier or through a link sent via email.

### *Statistical Analysis*

Data were entered and analysed using the Statistical Package for Social Sciences (SPSS), version 28. Data quality was ensured through double entry, and discrepancies between the two datasets were corrected by cross-referencing the raw data. Frequency distributions were generated to quantify HCWs' knowledge. Chi-square tests were used to assess significant associations between categorical variables, with p-values less than 0.05 considered statistically significant. For overall knowledge scores, the percentage of correct responses for each question was calculated and averaged. Likert-scale responses were scored, dichotomised, and analysed using frequency distributions. A 95% confidence level was applied.

### *Ethical Considerations*

Ethical principles adhered to in this study included obtaining permission to conduct the study, informed consent, confidentiality and anonymity, the right to privacy, beneficence, and non-maleficence. The study received ethical approval from the University of Johannesburg's Departmental Research Committee (DRC), Faculty Higher Degrees Committee (FHDC), and Research Ethics Committee (REC) (Reference: REC-1388-2022). Additional permission was obtained from the Gauteng Province Tshwane Research Committee (Reference: GP\_202108\_048) and the Research Operations Committee of the Netcare private hospital group (Reference: UNIV-2022-0019).

### *Instrument Validity*

Beyond the reliability indicated by Cronbach's alpha (0.764), the questionnaire was pre-tested with a small group of healthcare workers to ensure clarity and comprehensiveness of the questions. Content validity was further established through expert review by infectious disease specialists and occupational health professionals.

## RESULTS

A total of 149 responses were received for the main survey, of which 117 were included in this sub-study that exclusively addressed the private sector in Tshwane's Region 6. An overall Cronbach's alpha of 0.764 was observed. **Table 1** presents the demographic characteristics of the study population. The sample was predominantly female and middle-aged, with nurses representing the largest occupational group. The participants displayed diversity in educational backgrounds and clinical roles.

**Table 1:**  
Demographic Characteristics of Study Participants (N = 117)

Variable	Category	n	%
Gender	Male	4	3.4
	Female	112	95.7
	Prefer not to say	1	0.9
Age (years)	18–29	10	8.5
	30–49	74	63.2
	50–65	29	24.8
	>65	2	1.7
	Prefer not to say	2	1.7
Ethnicity	Black	83	70.9
	Indian	2	1.7
	White	26	22.2
	Prefer not to say	6	5.1
Education	High school	12	10.3
	Diploma	61	52.1
	Bachelor's degree	14	12.0
	Postgraduate	17	14.5
	Other	13	11.1
Clinical Role	Midwife	3	2.6
	Nurse	102	87.2
	Doctor	1	0.9
	Specialist	2	1.7
	Counsellor	1	0.9
	Other	8	6.8

The predominance of female participants (95.7%) is consistent with the gender distribution typically observed in the nursing profession. The largest age group was 30–49 years (63.2%), suggesting a workforce with considerable professional experience. Ethnic representation was predominantly Black (70.9%), which may enhance the generalisability of the findings to the broader South African

population. Regarding educational background, a small proportion (10.3%) of participants had only completed high school, potentially indicating a gap in foundational health knowledge. The overwhelming majority (87.2%) of participants were nurses, underscoring the importance of their perspectives in shaping vaccination strategies.

To assess healthcare workers' (HCWs) knowledge regarding occupational vaccinations, five structured questions were administered. **Table 2** presents the distribution of responses.

**Table 2:**  
Healthcare Workers' Knowledge of Occupational Vaccinations

Knowledge Question	Answered (n)	Correct (%)	n	Incorrect (%)
HCWs can infect patients	116	68 (58.6)	48	41.4
Vaccines are needed even when diseases are no longer prevalent	108	81 (75.0)	27	25.0
HCWs should receive more vaccines than the general population	117	69 (59.0)	48	41.0
South Africa has a policy for occupational vaccination of HCWs	117	62 (53.0)	55	47.0
Vaccines HCWs should receive (selection of 3 or more correct options out of 5 options)	117	116 (99.1)	1	0.9

Most HCWs (58.6%) recognised that they could transmit infections to patients, though 41.4% did not, indicating a potential knowledge gap. Awareness was higher regarding the continued need for vaccines even when diseases are less prevalent (75.0%). A majority also understood the need for broader immunisation coverage among HCWs compared to the general population (59.0%). However, only 53.0% were aware of a national occupational vaccination policy, reflecting a gap in knowledge of official guidelines. Most respondents (99.1%) correctly identified the vaccines HCWs should receive.

Chi-square tests were used to explore correlations between knowledge variables. Significant associations were found (see **Table 3**).

**Table 3:**  
Correlations Between Knowledge Categories (p-values)

Variable	A HCW can infect patients	Vaccines needed even if disease is rare	HCWs should receive more vaccines	SA policy on occupational vaccines	Additional vaccines for HCWs
A HCW can infect patients	—	.007*	<.001*	.907	.534
Vaccines needed even if disease is rare	.007*	—	<.001*	.130	.557
HCWs should receive more vaccines	<.001*	<.001*	—	.929	.177
SA policy on occupational vaccines	.907	.130	.929	—	.643
Additional vaccines for HCWs	.534	.557	.177	.643	—

\*p < .05 indicates statistical significance.

The most significant correlation existed between belief in HCW infectivity and belief in vaccine necessity (p < .001). Awareness of the need for additional vaccines was also significantly related to belief in HCW infectivity (p = .007). These relationships highlight how basic knowledge influences broader perceptions of occupational vaccination practices.

The attitudes of HCWs towards occupational vaccination were measured using five Likert-scale questions (Table 4).

**Table 4:**  
HCWs' Attitudes Towards Occupational Vaccinations

Attitude Statement	Answered (n)	Positive Attitude n (%)	Negative Attitude n (%)
Several diseases can be prevented with vaccines	116	79 (68.1)	37 (31.9)
Being a health professional increases infection risk	116	85 (73.3)	31 (26.7)
Following infection control guidelines protects from workplace infection	116	78 (67.2)	38 (32.8)
Vaccines should be mandatory for HCWs	116	57 (49.1)	59 (50.9)
I go to work even when I am sick	116	82 (70.7)	34 (29.3)

Most respondents demonstrated positive attitudes toward vaccinations and infection control. However, opinions were divided on whether vaccines should be mandatory, suggesting hesitation about compulsory policies.

**Table 5:**  
Healthcare Workers' Practices Regarding Vaccination

Practice Statement	Answered (n)	Positive Practice n (%)	Negative Practice n (%)
I try to convince parents to vaccinate their children if they are hesitant	72	38 (52.8)	34 (47.2)
I try to convince patients to get vaccinated if they are hesitant	68	35 (51.5)	33 (48.5)
I feel that I need more training/information on occupational vaccines	78	40 (51.3)	38 (48.7)

Approximately 58.2% of respondents reported actively encouraging parents to vaccinate their children, while 51.5% reported similar efforts with patients. Among these, 51.3% expressed a need or desire for additional training regarding occupational vaccinations.

Chi-square tests revealed significant associations between key practice variables (Table 6).

**Table 6:**  
Associations Between Practice-Related Variables (p-values)

Variable	Convince Parents	Convince Patients	Need More Training	NDoH Provides Information
Convince Parents	—	<.001*	.003*	<.001*
Convince Patients	<.001*	—	.052	.052*
Need More Training	.003*	.052	—	.037*
NDoH Provides Information on Vaccine-Preventable Diseases	<.001*	.052*	.037*	—

\*p < .05 indicates statistical significance.

The results suggest strong associations between advocacy practices and perceptions of informational support and training needs. For instance, those who frequently advocated for vaccination were also more likely to seek further training.

**Figure 1:**  
HCWs' Vaccination of Children and Adults

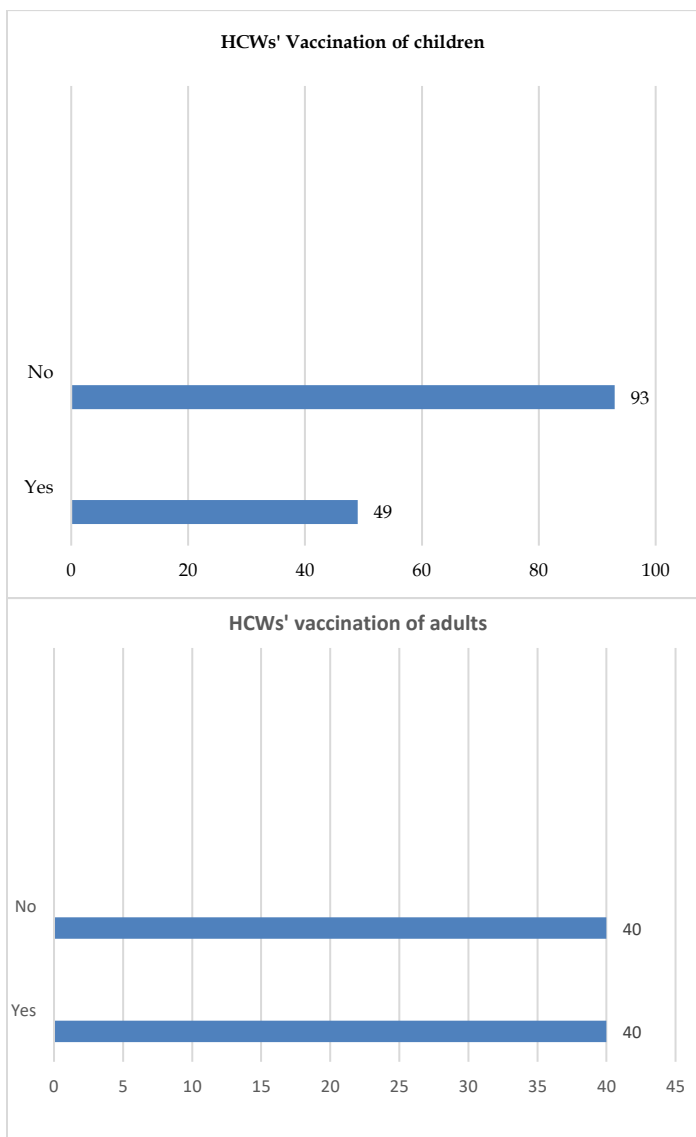


Figure 1 illustrates that while 94.9% of HCWs reported vaccinating children, only 49.6% reported vaccinating adults. Specifically, 29.7% said they vaccinate adults, and 48.3% said they vaccinate children, suggesting a stronger focus on paediatric immunisation.

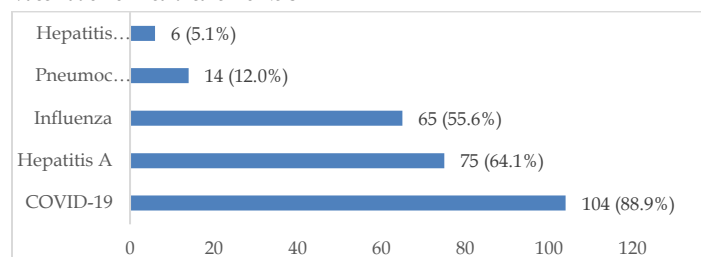
**Table 7:**  
HCWs' Knowledge of Appropriate Vaccines

Vaccine Type	Selected (n = 149)	Percentage (%)
COVID-19	104	69.8
Hepatitis A	118	79.2
Influenza	90	60.4
Pneumococcus	74	49.7
Other	6	4.0

Vaccine Type	Selected (n = 149)	Percentage (%)
None	5	3.4

Awareness was highest for the Hepatitis A vaccine (79.2%) followed by COVID-19 (69.8%). Fewer respondents recognised the need for pneumococcal vaccination (49.7%). Regarding vaccination history, most HCWs had received COVID-19 (88.9%), followed by Hepatitis A (64.1%), Influenza (55.6%), Pneumococcus (12.0%), and Hepatitis B (5.1%). The average vaccination coverage from workplaces was 52.1%.

**Figure 2:**  
Vaccination of Healthcare workers



Overall, 62.9% of vaccinated participants expressed a positive attitude toward vaccination. Attitude scores averaged 64.3%, while knowledge scores were slightly higher at 68.9%, indicating general favourability toward occupational vaccinations among HCWs.

## DISCUSSION

### Critical Reflection on Sub-optimal Practices

The sub-optimal practice score of 52.1% in this study highlights several areas that require urgent attention. That only about half of HCWs attempted to persuade hesitant patients or parents to vaccinate represents a missed opportunity to positively influence public health. This low engagement rate may be attributed to a lack of training in vaccine counselling techniques, limited self-confidence in addressing vaccine hesitancy, or insufficient time during patient consultations. These deficiencies are directly linked to the finding that 38.5% of participants had not received training on occupational vaccination.

To address these issues, targeted and agile training programmes should be implemented. These programmes should include: (1) validated vaccine counselling techniques; (2) strategies to address common concerns and misconceptions; (3) communication skills for discussing

vaccine risks and benefits; and (4) up-to-date information on vaccination guidelines. Such training should be made mandatory for all HCWs, with regular refresher courses to ensure ongoing competence.

As primary healthcare providers often encounter diseased individuals, bodily fluids, and infectious materials, they are at heightened risk for contracting vaccine-preventable diseases (VPDs), many of which can be prevented through immunisation. This study found that HCWs in private healthcare settings in Tshwane demonstrated generally good knowledge, attitudes, and practices (KAP) regarding occupational vaccination.

Previous research shows that HCWs' knowledge and risk perception are predictors of their willingness to vaccinate (Lipovetsky et al., 2018; Riccò et al., 2017). Di Pietro et al. (2017) also emphasised that HCWs require sound expertise to make informed immunisation decisions. In our study, HCWs in Tshwane demonstrated an above-average knowledge score (68.9%). This level of understanding may have been influenced by the heightened awareness brought about by the COVID-19 pandemic.

However, the finding that 41.4% of HCWs believed they could not infect patients is concerning, indicating a lack of knowledge or training on infection prevention and control strategies. HCWs are known vectors of nosocomial transmission of VPDs and should refrain from patient contact when ill (Centers for Disease Control and Prevention [CDC], 2019a; Haviari et al., 2015).

About 62.9% of participants reported being vaccinated against at least one VPD before the COVID-19 pandemic. During the 2018–2022 period, nearly 90% of HCWs received the COVID-19 vaccine. In contrast, a public sector study found that only 60% of HCWs had received COVID-19 vaccination (Government Communication and Information System [GCIS], c2021). Our findings align with the study by Adeniyi et al. (2021), which found a 90.1% acceptance rate of COVID-19 vaccines among HCWs in the Eastern Cape. Only slightly more than half of participants reported receiving the influenza vaccine. This is concerning, as international bodies such as the CDC, WHO, and NICD recommend routine influenza vaccination for all HCWs (CDC, 2013; NICD, 2020; World Health Organization [WHO], 2012). However, the South African National

Department of Health (NDoH) only recommends free influenza vaccination for HCWs at high risk—those who are pregnant, immunocompromised, or living with HIV or tuberculosis. Others must pay for the vaccine privately (SA NDoH, 2017a).

The combined hepatitis vaccination rate in this study exceeded 70% (Hepatitis A – 64.1%; Hepatitis B – 5.1%). This is relatively high. In a previous study among HCWs in Gauteng, only 20% had completed the full three-dose hepatitis B vaccine series, although 67.9% had received at least one dose (Burnett et al., 2011). While our study did not measure full-course vaccination coverage, our findings are consistent with the earlier report. Despite HCWs' known occupational risks for acquiring hepatitis A, B, C, and E, existing NDoH guidelines do not provide targeted recommendations for HCWs (SA NDoH, 2019).

Over half of the participants in our study were unsure whether South Africa had an occupational vaccination policy for HCWs. In fact, no single national strategy or unified set of recommendations exists. Only two policies explicitly recommend vaccines for HCWs: one advising hepatitis B vaccination (SA NDoH, 2019), and another advising seasonal influenza vaccination for high-risk HCWs (SA NDoH, 2017a). During the COVID-19 rollout, HCWs were prioritised for vaccination, but it was not mandated (Whyte, 2021).

Additionally, the 1993 Occupational Health and Safety Act No. 85 aligns with the International Labour Organization's Occupational Safety and Health Convention (No. 155), which broadly protects workers' health but does not specify vaccination guidelines (International Labour Organization [ILO], 1981; South African Department of Labour [SA DoL], 1993). This Act calls for the prevention of occupational hazards and the promotion of health education and services.

In our study, only 67.2% of HCWs agreed that following infection control guidelines would protect them from infection at work, while 41.4% incorrectly believed they could not infect patients—highlighting a critical disconnect in understanding infection transmission.

Just over half of the participants reported attempting to persuade hesitant patients or parents to vaccinate. Studies

have shown that HCWs' knowledge about vaccine efficacy and safety fosters confidence in recommending vaccines (Herzog et al., 2013; Paterson et al., 2016). In particular, HCWs who are informed about vaccine safety are more likely to advocate for patient immunisation (Paterson et al., 2016).

It is recommended that HCWs' immunity status be documented through serological testing or verified vaccination records, especially for measles, mumps, rubella (MMR), hepatitis A and B, and tuberculosis (SA NDoH, 2017b, 2019; Immunization Action Coalition [IAC], 2017). In this study, 31% of HCWs could not recall which VPDs they were vaccinated against. This increases the cost of pre-employment testing when HCWs change employers or wards with different exposure risks.

South Africa's Electronic Vaccination Data System (EVDS), originally developed to track COVID-19 vaccines, could be adapted to monitor all HCW vaccinations and immunity statuses. Such a system could also track morbidity and mortality from VPDs among HCWs, supporting more effective training and reducing preventable deaths among this essential workforce.

#### *Study Limitations*

Several limitations should be acknowledged. This study was conducted in a single private sector setting, limiting the generalisability of results to other provinces or the public sector. Additionally, the reliance on self-reported data may have introduced social desirability bias. Non-response bias is also possible; those who did not participate may have lower levels of knowledge or higher vaccine hesitancy compared to respondents.

#### *Policy Implications*

The findings of this research have significant implications for health policy development in South Africa. The absence of a unified national strategy for occupational vaccination among healthcare workers (HCWs) has resulted in inconsistencies in practice, potentially exposing both the healthcare workforce and patients to vaccine-preventable diseases (VPDs) such as influenza, measles, and hepatitis. These exposures are preventable through a structured, evidence-based vaccination programme supported by policy.

#### *Practical Steps for Hospital Management*

To address the identified gaps in practice, hospital and facility-level management should consider the following actions:

1. **Formulate Institutional Vaccination Policies**  
Develop policies that mandate specific vaccinations for HCWs based on occupational exposure risks.
2. **Establish Regular Training Programmes**  
Provide continuous education on vaccination, VPDs, and infection control to reinforce knowledge and improve attitudes.
3. **Develop Vaccination Tracking Systems**  
Implement systems to monitor vaccine uptake among HCWs, identify coverage gaps, and track compliance.
4. **Offer Free or Subsidised Vaccines**  
Remove financial barriers by providing vaccines at no cost or at reduced cost to all HCWs, regardless of risk category.
5. **Appoint Vaccine Champions**  
Identify senior staff as 'vaccine champions' to advocate for immunisation and foster a positive institutional culture around vaccination.

#### *Policy-Level Recommendations*

At the national level, relevant health authorities and policy bodies should consider the following recommendations:

1. **Develop a Harmonised National Standard**  
Establish a uniform occupational vaccination framework for HCWs, covering all recommended vaccines and aligned with global best practices.
2. **Mandate Reporting of HCW Vaccination and Immunity Status**  
Require healthcare facilities to track and report HCWs' vaccination status as part of regulatory compliance.
3. **Link Licensing to Vaccination Requirements**  
Make occupational vaccination requirements part of the criteria for licensing and renewing healthcare facility licences.
4. **Implement Equitable Funding Mechanisms**  
Design funding or incentive programmes to ensure that HCWs in underserved or underfunded settings receive adequate access to occupational vaccinations.

5. **Upgrade the EVDS for HCWs**  
Expand the Electronic Vaccination Data System (EVDS) to include a dedicated module for HCWs. This should enable tracking of vaccination history, immunity status, and related morbidity and mortality data to support ongoing education and policy refinement.

## CONCLUSION

This study demonstrated that knowledge regarding VPDs and their occupational relevance among HCWs in Tshwane's private sector was relatively high. A generally positive attitude towards occupational vaccination was also observed, likely influenced by heightened awareness during the COVID-19 pandemic. However, actual vaccination practices were suboptimal, which may be attributed to inadequate training and the absence of formalised guidelines. Broadening the scope of this research to include a more representative sample of HCWs across both public and private sectors in South Africa would strengthen the evidence base for policy reform on occupational vaccination.

### Key Messages

- A comprehensive **national guideline or policy** should be developed for HCWs that specifies recommended vaccinations for all relevant VPDs and outlines the timing and conditions under which these vaccines should be administered.
- This guideline should be **integrated into pre-service and in-service training** programmes for HCWs to raise awareness of occupational risks and relevant preventative strategies.
- For already practising HCWs, **periodic refresher training** sessions should be provided to ensure up-to-date knowledge and practice.
- The **EVDS** should be adapted to include a module dedicated to HCWs, enabling systematic tracking of all vaccinations, immunity testing, and health outcomes related to VPDs.
- This system could also support the collection of data on **HCW morbidity and mortality** due to VPDs, which would inform policy makers and educators in designing **evidence-based training and intervention strategies**, thereby reducing avoidable HCW fatalities.

**Ethical Approval:** The study received ethical approval from the University of Johannesburg's Departmental Research Committee (DRC), Faculty Higher Degrees Committee (FHDC), and Research Ethics Committee (REC) (Reference: REC-1388-2022). Additional permission was obtained from the Gauteng Province Tshwane Research Committee (Reference: GP\_202108\_048) and the Research Operations Committee of the Netcare private hospital group (Reference: UNIV-2022-0019).

**Conflicts of Interest:** None declared.

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