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A qualitative exploration of stakeholders' views on vaccines for the elderly in South Africa

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ABSTRACT

Background and objectives: Advancements in healthcare and living standards have led to increased life expectancy globally, including in South Africa. Despite considerable evidence from high-income countries that vaccination is a cost-effective strategy for healthy ageing, South Africa currently does not have a formal policy for vaccination of the elderly. This study explored the opinions, experiences and recommendations of South African stakeholders (experts and key opinion leaders) in the field of vaccines and healthy ageing.

Methodology: Online qualitative in-depth interviews with 16 stakeholders (vaccinologists, infectious disease specialists, policymakers, geriatricians and epidemiologists) were conducted. Interviews were recorded, transcribed, coded and analysed thematically using NVivo 12.0™ software.

Results: The overarching unanimous theme was that a national immunisation programme for the elderly (NIPE) is warranted. Aligned to this were the themes: (i) Immunisation schedule for the elderly; (ii) Health system NIPE readiness; and (iii) Strategies ensuring adequate vaccine uptake by the elderly. Participants recommended a coordinated NIPE, which could build on the successes of the Expanded Programme on Immunisation of South Africa (EPI-SA) and the recent COVID-19 vaccination programme. The NIPE should ideally be integrated into the existing primary healthcare (PHC) system programmes for the elderly. Concurrently, interventions to increase access to vaccines and reduce vaccine hesitancy among the elderly and their healthcare providers must be implemented.

Conclusion: A NIPE needs to be prioritised, understood, communicated, and implemented within EPI-SA and integrated into the PHC system. This should be accompanied by the requisite logistical and financial support for such a programme. The NIPE should build on the success and achievements of EPI-SA and the COVID-19 vaccination programme. Interventions that increase vaccine access and address vaccine hesitancy should also be implemented to enhance uptake by the elderly.

1. Background

The World Health Organization's (WHO) Immunization Agenda 2030 (IA2030) is a global strategy envisioning a world where everyone, everywhere, at every age fully benefits from vaccines for good health and well-being [1]. Vaccines are cost-effective, and their impact on global population health is considerable, including reducing antimicrobial resistance (AMR) and AMR-related morbidity and mortality [2,3]. Except for safe drinking water, no other intervention has had such an appreciable impact on reducing morbidity and mortality [4,5]. However, despite adults experiencing more severe outcomes than children from several vaccine preventable diseases (VPDs), including hospitalisation, disability and death, most immunisation programmes focus on childhood vaccinations, especially in low- and middle-income countries (LMICs) [4–7].

The United Nations (UN) Department of Economic and Social Affairs

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(UNDESA), predicts the world's population to reach 9.7 billion by 2050, with a corresponding increase in the proportion of the elderly, defined as persons aged ≥65 years [8–10]. This demographic transition presents several healthcare and socio-economic challenges. Population ageing is generally accompanied by increased disease burden and treatment expenses, raising concerns about healthcare service adequacy to effectively treat elderly patients [11]. If not addressed, the high burden of VPDs among the elderly is likely to increase further due to population ageing [12].

The impact of population ageing can be mitigated through promoting healthy ageing and adopting a life-course approach to health [5,10,13,14]. Accordingly, the UN's Decade of Healthy Ageing aims to foster longer, healthier lives for the elderly, aligning with IA2030 Strategic Priority 4, and encourages member states to enhance the availability of safe, effective, cost-effective vaccines and medicines, to maximise the intrinsic and functional capacity of the elderly [1,5,10].

Life-course immunisation is a crucial health strategy prioritising vaccination from birth to old age [1,15], providing cost-effective protection against illnesses for both vaccinees and their communities [1]. However, WHO recommendations for the elderly are limited to COVID-19, seasonal influenza, and pneumococcal disease [16]. Moreover, the global implementation and acceptability of life-course immunisation as outlined in IA2030 has been poorly adopted by most countries [5,17], with only 65% having implemented a seasonal influenza national immunisation programme for the elderly (NIPE) by 2021, while only 25% had a pneumococcal NIPE [18].

The South African National Department of Health (NDoH) has mostly prioritised infant and childhood immunisation through the Expanded Programme on Immunisation of South Africa (EPI-SA) [19]. The NDoH Standard Treatment Guidelines (STGs) recommend free annual seasonal influenza vaccination for the elderly, and additional vaccines specifically for those suffering from certain chronic conditions listed in the guidelines [20–22]. Additionally, South Africa has disease-specific guidelines provided by national health agencies and infectious disease specialist organisations, which recommend vaccines other than the influenza vaccine for the elderly. These include the pneumococcal vaccines, herpes zoster vaccine, and a vaccine combining tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis [13,23,24]. Thus, the elderly without any of the STG-listed chronic conditions, can only access these additional vaccines through the private sector, which is unaffordable for the majority of elderly South Africans [20,22]. Despite these guidelines, there is no coordinated South African NIPE and as a result, vaccine uptake among the elderly is low [22,25].

Given South Africa's increasing elderly population, it is important to explore the feasibility of a fully government-funded NIPE. Consequently, this study explored the opinions, experiences and recommendations of stakeholders (experts and key opinion leaders), on vaccines for elderly South Africans.

2. Methods

2.1. Study design and target population

This qualitative exploratory study collected data through in-depth interviews, targeting South African stakeholders in the field of vaccines for the elderly and/or healthy ageing.

2.2. Participant selection and recruitment

The research team identified South African healthcare professionals (HCPs) with experience, specific expertise and knowledge in the field of vaccination and healthy ageing (i.e. infectious disease epidemiology in the elderly; vaccines for the elderly; interventions to increase vaccine uptake among the elderly; vaccine adoption and economic evaluation before adoption; and HCP vaccination practices related to the elderly), who would be able to provide rich information to meet the study objectives [26]. The final list ($n = 40$) included 11 geriatricians, 10 field-related academics, 5 infectious disease specialists, 4 National Advisory Group on Immunisation (NAGI, a committee appointed by the National Minister of Health to advise and guide the NDoH on matters related to vaccines and the immunisation programmes through which they are administered, in keeping with current scientific evidence) members, 2 vaccine policy specialists (one working for the NDoH EPI-SA), and 8 other stakeholders (independent consultants; vaccine industry representatives).

An invitation letter detailing the interview's purpose, study objectives and ethical aspects, including informed consent for participation, was emailed to 40 stakeholders. Stakeholders who agreed to participate in the study were contacted to arrange an interview scheduled using Doodle (https://doodle.com/). Calendar invitations were created on Microsoft Teams®, followed by a reminder a day before each interview. Non-responders were reminded via bi-weekly e-mails.

2.3. Interview guide and interviews

Interviews were conducted using a semi-structured interview guide, developed specifically for this study based on selected findings from a previous survey conducted among the elderly and HCPs caring for the elderly at South African community healthcare centres and old-age homes [25,27].

The interview guide was pre-tested by two South African Immunisation and Vaccination Centre academics who were not part of the main study. Pre-test outcomes informed necessary amendments to the interview guide (removing repetitive questions and rephrasing ambiguous questions). Some questions varied according to participants' expertise and roles. Probing was used to clarify responses, to seek further information and to encourage participants to elaborate on their responses [26].

All interviews were conducted by the first author (MS) in English (the South African workplace communication language), between November 2022 and January 2023 using Microsoft Teams®. Each interview took a maximum of one hour.

2.4. Data management and analysis

After each interview, the auto-generated Microsoft Word® transcript was downloaded from Microsoft Teams®; checked for correctness by listening to the actual interview audio recording; and edited where discrepancies were noted by MS. This data validation process also facilitated familiarisation with the data. Thereafter, the transcript was imported to NVivo12™ for data analysis. This allowed for identification of any 'gaps' or areas needing further exploration in subsequent interviews, and the point of data saturation. A well-established step-wise thematic data analysis approach was followed [28,29]. Two coders (primary: MS; secondary: JCM) coded the first three transcripts to develop a coding framework. MS coded the remaining transcripts, while continuous discussions took place with JCM to reach consensus on the coding, including any new codes. Themes and sub-themes were identified, reviewed and agreed upon by the two coders.

2.5. Ethics

The Sefako Makgatho University Research Ethics Committee provided ethics clearance prior to commencement (SMUREC/P/36/2018: PG). All participants were provided with study details enabling them to make an informed decision regarding participation, which was voluntary with no compensation. Verbal consent to participate in a recorded interview was obtained from participants immediately prior to commencement of each interview. To ensure confidentiality, participants were assigned numbers, and securely stored data were accessed only by the research team. All raw data including interview recordings will be destroyed five years after publication.

3. Results

By the third round of reminder emails, data saturation was reached from 16 interviews.

The results are presented according to themes identified from the data. Verbatim quotations presented in italics, enclosed in quotation marks, illustrate the findings. To enhance readability, words added to correct grammar or provide meaning implied from preceding statements or circumstances unknown to the reader, appear in square brackets. Removed phrases or words are replaced with ellipses. Participant identifiers, enclosed in round brackets, follow each quotation and include the participant number (P#).

3.1. Participant characteristics

Participants had 16 years' relevant experience on average and were aged 32 to 67 years. See Table 1 for further details.

3.2. Overarching theme: National immunisation programme for the elderly

'NIPE' was an overarching theme, with the following associated themes: (i) Immunisation schedule for the elderly; (ii) Health system NIPE readiness; and (iii) Strategies ensuring adequate uptake of vaccines by the elderly. Table 2 presents a summary of themes and associated sub-themes.

3.3. Theme 1: Immunisation schedule for the elderly

An immunisation schedule for the elderly was unanimously supported, with most participants identifying a broad range of benefits and impacts of a life-course approach to immunisation.

3.3.1. Sub-theme: Rationale for immunisation schedule for the elderly

Participants noted the increasing size of the general South African population accompanied by increased life expectancy and proportion of the elderly. They further noted the high VPD burden with increased age, necessitating a NIPE. Several participants emphasised the importance of EPI-SA and a NIPE, supporting life-course immunisation as espoused by IA2030:

> *"Traditionally we've talked about childhood immunisation. If you look at the routine immunisation programme, it's pretty much childhood-driven and rightly so, because the public health problem is mainly in that population. But with the [IA2030], there is a commitment from all governments to make vaccines accessible to all, at any time and everywhere. There is then a big push for vaccines to be accessible to all population groups including the elderly."* (P9)

Table 1
Profile of participants ($n = 16$).

Demographic characteristic	Number (%)
Sex	
Male	6 (37.5)
Female	10 (62.5)
Age (years)	
30–40	3 (18.8)
41–50	8 (50.0)
51–60	3 (18.8)
>60	2 (12.5)
Main speciality or organisation	
Infectious disease specialists	3 (18.8)
Scientist (microbiologist, virologist, immunologist)	3 (18.8)
Vaccine manufacturer / Pharmaceutical company	3 (18.8)
Member of the National Advisory Group on Immunisation	2 (12.5)
Vaccinologist and researcher	1 (6.3)
Epidemiologists	1 (6.3)
International agency staff (e.g. UNICEF, WHO)	1 (6.3)
Policy specialist	1 (6.3)
Specialist geriatrician	1 (6.3)
Number of years relevant experience	
1–10	3 (18.8)
11–20	5 (31.3)
21–25	4 (25.0)
>25	4 (25.0)

3.3.2. Sub-theme: Vaccination strategies

Unlike EPI-SA vaccines, scheduled as a single dose or in a series of doses over a limited period, a potential challenge highlighted by some participants, is the need for frequent administration of some NIPE vaccines. While free annual influenza vaccination is currently offered to elderly public sector clients, uptake is low. Interventions to increase uptake may pose significant financial and logistical burdens on the healthcare system.

Participants also highlighted potential complexities in the vaccine introduction decision-making process, and how South Africa's NIPE should be benchmarked against established programmes in high-income countries (HICs). The inclusion of NIPE vaccines should be informed by evidence-based decision-making principles, most likely following the current recommendation process for childhood vaccines carried out by NAGI. NAGI considers the disease burden and public health priority; vaccine safety and effectiveness; feasibility; acceptability; cost and fiscal impact; and the nett impact on public health of a new vaccine [30].

While all participants supported a NIPE, three highlighted the need to rationalise by including only high priority vaccines:

> *"…having all these vaccines in the NIPE is also about competing priorities. If we have a lot of things happening within the country, then I think we have to prioritise in order to be efficient."* (P3)

> *"Depending on where COVID-19 goes next, I would see the COVID-19 vaccine as the first priority, followed by influenza but you can combine and administer the two concurrently. I'd put pneumococcal and zoster next on the list … and perhaps place the pertussis vaccine last."* (P4)

> *"It could be better to invest more and strengthen the influenza immunisation programme rather than … introduce new vaccines… If you spread everything so thin, then nothing gets done. If we were to upscale the influenza immunisation programme, which is completely suboptimal, that would not be without cost, but to add new vaccines to the programme would be even more costly."* (P10)

One participant recommended a risk-based rather than universal approach, considering South Africa's limited resources.

> *"We need to use our energy and our efforts wisely and targeted vaccination in the elderly may be much more useful… than a whole general approach where every adult over the age of 65 must have these vaccines. In an environment with limited resources such as ours, it might be better to limit vaccination to the elderly who have risk factors for severe disease and… death due to… infections"* (P2)

3.4. Theme 2: Health system NIPE readiness

Several participants highlighted programmatic considerations of a NIPE, with general consensus being that it would be best administered under EPI-SA and/or integrated into existing primary healthcare (PHC) services. Furthermore, some recommended developing a NIPE funding model, conducting a budget-impact analysis, and basing NIPE implementation on equity principles to ensure that everyone who needs vaccines has access to them.

Table 2
Themes and sub-themes identified.

Overarching theme: National immunisation programme for the elderly (NIPE)			
Themes	Immunisation schedule for the elderly	Health system NIPE readiness	Strategies ensuring adequate vaccine uptake by the elderly
Sub-themes	• *Rationale for immunisation schedule for the elderly* • *Vaccination strategies*	• *Programmatic considerations and strategies for vaccine introduction* • *Feasibility and funding an NIPE* • *Lessons learnt from EPI-SA and influenza immunisation programme* • *Achievements of the COVID-19 vaccination programme*	• *Communication, public awareness campaigns and education* • *Role of HCPs in promoting vaccines for the elderly* • *Addressing vaccine hesitancy* • *Increase access to vaccines*

3.4.1. Sub-theme: Programmatic considerations and strategies for vaccine introduction

One participant questioned the NIPE vaccine adoption process, and where a NIPE would reside within the existing health system:

> *"Adoption of a new vaccine… would have to go through a formal medicine review. When it comes to the adoption of childhood immunisation, that falls with NAGI… With vaccines for adults, it's an unresolved policy process. And nobody quite knows who's in charge. Is it [the National Essential Medicines List Committee] NEMLC? Or is it NAGI? And if it's adult vaccines, has NAGI got a role at all, does it have the right people on the committee who can make the appropriate recommendations*?" *(P4)*

3.4.2. Sub-theme: NIPE feasibility and funding

Most participants maintained that a NIPE requires adequate financing and investments in human and other resources. However, one participant strongly differed, maintaining that the NIPE would be economically feasible and would not have a major impact on the country's health budget:

> *"I think it is economically feasible; I definitely think it is. Remember that after ARVs, the single biggest group of medicines in terms of expense, is vaccines, so we already are investing an enormous amount in vaccines. I don't think that a NIPE would markedly alter the current expenditure. We'd have to look at what the cost projections look like… but uptake is never going to be 100%. It's a difficult population to get to and I think slowly increasing uptake over time could also help in terms of the budget impact of the programme."* (P4)

3.4.3. Sub-theme: Lessons learned from EPI-SA and influenza immunisation programme

Four participants mentioned that NIPE implementation should not overshadow EPI-SA, and that, EPI-SA should always take precedence:

> *"You know, elderly people, they're moving on towards senescence and there's death which happens naturally, so I don't think you should equate the two programmes, the energy and resources that need to go into a national infant programme are much greater and much more important from a whole societal point of view than the energy that should go into a programme for the elderly."* (P2)

Furthermore, lessons learned from challenges experienced with influenza vaccination, which is provided at no cost to elderly public sector clients, were highlighted. A comprehensive NIPE must address low public demand for influenza vaccination and a lack of programme ownership within NDoH structures. Several participants highlighted the need for continuous NIPE services integrated into existing PHC programmes, e.g. the chronic disease management programme, instead of a campaign-based format:

> *"Currently the influenza immunisation programme is delivered in an opportunistic fashion, and in order to really upscale influenza vaccine uptake, you would need to go out there and actively campaign for its use."* (P10)

> *"…there is no sense of ownership of the influenza programme. You know, infant vaccinations sit with EPI-SA and the HPV sits with school health. The lack of ownership of the influenza programme is part of the cause of the under-utilisation of the vaccine. So … at the end of the flu season, a lot of vaccines [are] destroyed because they have not been used, which is such a shame and a waste."* (P11)

> *"The seasonal nature of the [influenza vaccination] programme, where you only have a few months of the year when you should be delivering those vaccines, is a challenge to the optimal utilisation of the vaccine… The elderly may not have any interaction with the health service during those months… If it is a programme that is integrated into the routine health services, it is less likely to take away resources of the health department. But if it's more of a campaign type thing, then it sort of ends up taking people from other parts of the health system, which … is problematic."* (P10)

3.4.4. Sub-theme: COVID-19 vaccination programme achievements

The COVID-19 vaccination programme was mentioned as an exemplar of an adult immunisation programme. Despite challenges, lessons can be derived from this programme:

> *"The COVID-19 [vaccination] programme was a silo programme … built from outside what was normal, where there was a special procurement and distribution channel for the vaccine. A NIPE would need to be integrated into the existing EPI-SA and other routine health services and cannot be a silo programme. The EPI-SA should therefore include all vaccines included in the STG as we move forward."* (P15)

The South African COVID-19 vaccination programme commenced in February 2021, and the NDoH invested heavily in increasing cold-chain capacity in the depots and facilities, and in surveillance of vaccine distribution and administration using the Electronic Vaccination Data System (EVDS) [20,31]. Throughout the pandemic, continuous collaboration among private, public and non-governmental organisations and other stakeholders ensured programme success [31,32]. Participants highlighted the need to leverage on this success:

> *"…the elderly, who had been quite neglected until COVID-19 came… were the first group to be prioritised together with HCPs. So, let's build on that momentum."* (P9)

> *"…the COVID-19 [vaccination] programme is an example that there is capacity to do it. The question whether the model we used for COVID-19 is sustainable is a different issue. But can we do it? Yes, we can! Vaccines were made available [during the COVID-19 pandemic], vaccination sites*

were designated and HCPs were trained on administration of the vaccines. So, there is potential to do the same for elderly vaccination." (P14)

"We have definitely made some significant investments in our cold-chain capacity throughout the provinces. We have strengthened temperature monitoring systems. We also procured [cold-chain] equipment with long holdover time… Adding vaccines for a [NIPE] would not impact the current cold-chain infrastructure much." (P15)

Furthermore, the Med Safety App facilitated public and HCP participation in addressing vaccine safety concerns and reporting any adverse events following immunisation [31,33]. One participant highlighted ensuring NIPE vaccine safety through an adverse event reporting system:

"So, as we are improving our adverse events reporting now for COVID-19 vaccination. That should be something so that people's concerns and adverse events can be reported very systematically and in a standardised fashion and evaluated so that we can make sure that these vaccines are safe for the elderly who are already physiologically vulnerable." (P2)

3.5. Theme 3: Strategies ensuring adequate vaccine uptake by the elderly

Participants observed the need for strategies ensuring adequate NIPE vaccine uptake. One key strategy was increasing knowledge on the risks of VPDs and vaccine benefits among the elderly and their HCPs. Another was enhancing vaccine demand creation by offering vaccination services any time the elderly access health facilities.

3.5.1. Sub-theme: Communication, public awareness campaigns and education

In order to create NIPE vaccine demand, participants suggested public health initiatives including vaccine communication programmes, public awareness campaigns and education, including on social media platforms:

"Information is power. If they have the right information, they can make good decisions. You've seen people making plans to buy a car because they know it's important for them. I've got a feeling with the right understanding, people will even pay for these vaccines once they know the benefit that they have." (P9)

"The COVID-19 [vaccination] programme had a really good communication strategy and addressed misinformation as it happened." (P15)

A few participants highlighted a COVID-19 pandemic 'silver-lining' and opportunity:

" …the impact of social media in fuelling vaccine hesitancy was [huge] and we should use this same platform to counter vaccine hesitancy." (P5)

Also, some participants felt that COVID-19 increased the general knowledge of vaccines:

"… the COVID-19 pandemic has highlighted … the benefits that the vaccines have to offer. I think it heightened the discussion about vaccines and the awareness about vaccines in the general population... some people may have become more hesitant about all vaccines, but I think, on the whole, people have become more accepting of the rigor of the scientific work that goes into vaccines and the safety of vaccines." (P12)

One participant recommended that health education and communication activities should be continuous and not limited to pandemics (as happened during the COVID-19 pandemic) or during disease outbreaks:

"The lesson here is to inform the public about vaccines before they actually need the vaccines and not during a pandemic. Because then it kind of seemed as if we were pushing an agenda, and the more we pushed, the more they thought we had some harmful intent." (P15)

3.5.2. Sub-theme: Role of HCPs in promoting vaccines for the elderly

Many participants mentioned the need for strengthening vaccination advocacy by HCPs. However, HCPs must be adequately trained on the burden of VPDs in the elderly and the importance of vaccination in this age group:

"It starts with health education. We can strengthen the training that we give our [HCPs]. I'm not sure if every nurse or doctor working in the clinic attending to an elderly patient knows that they can recommend the shingles vaccine or pneumococcal vaccine even though it's not available in the public sector… Even the influenza vaccine which is available in the public sector is not well utilised, why are we writing off doses when already, we are not buying enough doses for the at-risk population? In theory, there should be queues for people waiting for the influenza vaccine and yet every year, there are doses that go to waste." (P15)

Furthermore, ensuring that patients' vaccination status is assessed during every health service encounter was highlighted:

"HCPs don't routinely ask about the vaccination status of their elderly patients. If someone is coming for chronic treatment, you should address that, you ask what is wrong, you see that you see the person is controlled. You give two months repeats and then that's it. But do we ask about vaccination? No!" (P3)

An example was given of missed influenza and pneumococcal vaccines, which are indicated in some patients with chronic respiratory issues:

"… why doesn't the respiratory clinic have, in addition to the normal nurse or doctor, a person who is solely vaccinating patients with chronic respiratory issues?" (P1)

It was also suggested that HCPs should create influenza vaccine demand among the elderly during visits to optimise vaccine utilisation. This will in turn ensure that sufficient vaccines are ordered for the next influenza season:

"We don't vaccinate enough adults. Although the influenza vaccine is included in our STGs, we don't offer it as much as we should… and the demand is not created for the target population and therefore the demand doesn't feed into the procurement, …which results in the vaccine not being available at the time when there is someone who needs the vaccine. It's a kind of a vicious cycle." (P15)

3.5.3. Sub-theme: Addressing vaccine hesitancy

Vaccine hesitancy, defined as *"a state of indecision and uncertainty about vaccination before a decision is made to act (or not act)"* [34], was noted by some participants as a threat to vaccine uptake by the elderly. Participants, informed by their COVID-19 pandemic experiences, had differing views on the extent of vaccine hesitancy among the elderly:

"I think vaccine hesitancy is more prevalent among younger adults. I think the problem with the elderly is that they are more likely to be group-minded as opposed to individually minded, which happens with the young people. So, the elderly are likely to be vaccine hesitant if, for example, they are told by the church leader that vaccines are suspicious." (P9)

"I think vaccine hesitancy was equally prevalent in all [adult] age groups as antivaxxers leveraged on the soft spots of the different groups. Misinformation linked to sexuality and fertility caused vaccine hesitancy in the younger population and misinformation [linked] to religion e.g. the 'mark of the beast', was more inclined to cause vaccine hesitancy in the elderly." (P7)

"The elderly, I think are probably more accepting of the value [of vaccines]. They know what VPDs look like. They know what it was like when polio was rife in the 1950s. And I think they are more accepting both of the value but also of the risks associated with vaccines." (P4)

One participant recommended addressing mistrust of the government due to COVID-19 conspiracy theories spread via social media:

"…the government remains the main custodian of immunisation programmes, and if the government is not trusted, then you need to do more work to make people trust vaccines provided by the government." (P9)

3.5.4. Sub-theme: Increasing vaccine access

Most participants recommended increasing access to NIPE vaccines and vaccine services as another strategy to increase uptake. Vaccines should be provided at the convenience of elderly clients, similar to the COVID-19 vaccination programme approach, to improve access to vaccines for the elderly:

"…*they don't necessarily want to go to a health facility to access the service."* (P15)

"Vaccine services should be brought to areas where the elderly are mostly found such as [South African Social Security Agency] SASSA queues, retirement villages and old age homes." (P13)

"…the pop-up sites and old age outreach programmes during COVID-19 vaccination were really effective. The elderly didn't have to go to health facilities, didn't have to queue or fill in a bunch of forms. It was a very simplified process that worked well." (P15)

The Medicines and Related Substances Act (Act 101 of 1965) controls medicines and scheduled substances, providing for their manufacture, registration and trade. A prescription medicine can only be obtained with a prescription issued by a doctor, dentist or other authorised prescriber [35]. All EPI-SA vaccines are Schedule 2 medicines and may be supplied without a prescription [35]. However, some adult vaccines are Schedule 4 medicines, requiring a prescription:

"… just doing something simple like removing the scheduling on the pneumococcal polysaccharide vaccine and COVID-19 vaccine making it accessible from a pharmacy without a doctor's prescription, would help to increase access." (P1)

Some participants suggested considering certain practices used in the private sector, such as reminders and incentives, that may provide opportunities for increasing NIPE vaccine uptake. One participant used annual influenza vaccination as an example:

"In the private sector, the medical aids do a fairly good job of reminding people and encouraging people to get their influenza vaccines and even incentivise their members to do so through their rewards programmes." (P4)

4. Discussion

Life-course immunisation is a global mandate, and participants favoured the establishment of a formal South African NIPE in line with IA2030. These findings support previous guidelines and 'calls to action' in South Africa and elsewhere, on the need for such a policy [23–25,36–38]. Guidelines for elderly vaccination exist mostly in HICs [13,36], with notable disparities between types of vaccines, intended recipients, coverage and regulatory implementation frameworks. The most common vaccine recommended for the elderly in HICs is the influenza vaccine [13], with coverage ranging from 5.9% in Türkiye to 85.8% in South Korea [39]. Where a comprehensive elderly vaccination policy exists in HICs, multiple vaccines targeting influenza, COVID-19, *Streptococcus pneumoniae* and herpes zoster are included in addition to other vaccines recommended for adults, including diphtheria, tetanus, and pertussis vaccines [13].

Collaboration between the private sector, government, academia and other stakeholders is a key element for the success of immunisation programmes [31,32,40], as reiterated by our participants. One of several essential components of effective immunisation programmes is sustainable financing, which calls for sustainable and dedicated resource allocation [40,41], as highlighted by our study.

Our participants recommended integrating NIPE into the existing South African PHC system. This includes the integrated chronic disease management programme and EPI-SA. Previous studies have found that elderly vaccine uptake was positively associated with patient experience of PHC [42], endorsing this suggestion. Furthermore, their recommendation regarding leveraging COVID-19 vaccination programme achievements is echoed by South African vaccine safety experts, who highlighted that innovations such as the EVDS and the Med Safety App allowed for improved vaccine pharmacovigilance [31,33].

HCPs are the most trusted and crucial role players in immunisation programmes, with vaccine acceptance being associated with HCP recommendations [43–45]. Consequently, our participants recommended that a comprehensive strategy to enhance public knowledge about vaccination should include well trained, knowledgeable HCPs. Furthermore, they highly recommended that training on vaccines for the elderly should be reinforced in healthcare undergraduate training, with continuing professional development training on this topic being offered to in-service HCPs.

Our participants proposed several interventions to increase access to vaccines and vaccination services that are supported by the International Federation on Ageing (IFA) [38]. IFA recommendations include effective action plans that address specific demographic (e.g. rural versus urban) or community (e.g. elderly patients in long-term care facilities) requirements, and interventions such as expanding vaccination services to other non-traditional vaccinators such as pharmacists and dentists [38]. The International Pharmaceutical Federation and the South African Pharmacy Council support such approaches, following the requisite training for pharmacists to be vaccinators, with pharmacists potentially increasing vaccine coverage due to their accessibility [46]. However, this is moot for some vaccines that require patient-specific prescriptions by medical doctors or authorised prescribers. Previous research has shown that removing prescription requirements for these vaccines resulted in increased utilisation [47], which, as recommended by our participants, could be achieved through rescheduling these vaccines in South Africa.

Finally, our findings highlight the complexity of the vaccine introduction decision-making process, without resolving where the NIPE should reside.

5. Conclusions and recommendations

We believe the stakeholders' insights reported here can contribute considerably to the development and implementation of a NIPE, which we recommend should reside under EPI-SA and NAGI. While there was broad consensus that a South African NIPE is needed, wider consultation of multi-stakeholders including public health experts, health economists, policy specialists and patient groups is needed to help prevent potential obstacles to successful policy implementation. Any acceptable policy should be implemented as a coordinated NIPE, which can subsequently be integrated into the existing PHC system. Budgetary and personnel constraints may impede NIPE implementation, and this should be anticipated and appropriately planned for.

The NIPE should build on the success and achievements of EPI-SA and the COVID-19 vaccination programme. Interventions that increase vaccine access and address vaccine hesitancy should also be implemented to enhance uptake by the elderly.

Advocacy by experts such as those included in this study, patient groups, PHC clinicians and academics, is highly likely to generate adequate political will to ensure funding for a South African NIPE. The richness of the qualitative results, particularly the recommendations made by participants in this study, can guide future NIPE planning and implementation.

5.1. Study limitations

Purposive sampling was used to select invited stakeholders, thus the

views and experiences of non-participating stakeholders may have provided different viewpoints. Also, not including PHC clinicians, elderly persons and patient advocacy groups may have restricted the range of topic perspectives. Despite these limitations, we believe our findings provide robust key recommendations to the NDoH for establishing a NIPE.

CRediT authorship contribution statement

Mncengeli Sibanda: Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Data curation, Conceptualization. **Rosemary J. Burnett:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Data curation, Conceptualization. **Brian Godman:** Writing – review & editing, Validation, Supervision, Formal analysis, Data curation. **Edina Amponsah-Dacosta:** Writing – review & editing, Validation, Supervision, Formal analysis. **Johanna C. Meyer:** Writing – review & editing, Validation, Supervision, Methodology, Formal analysis, Data curation, Conceptualization.

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Declaration of competing interest

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Data availability

Data will be made available on request.

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