

Title: WHO Economic Analysis Value Chain of Seasonal Flu Vaccination Programme

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INTRODUCTION

- The burden of seasonal influenza in South Africa is exacerbated by a high prevalence of HIV & TB
- The National Department of Health introduced an influenza vaccination programme in 2010
 - Coverage remains low among high-risk population groups due to budget constraints and competing priorities in other disease areas
- Study aimed to assess costs and health outcomes associated with the seasonal influenza vaccination programme to inform policy decisions regarding scale-up of the programme, and prioritisation of high-risk groups

METHODS

1. A cost-effectiveness analysis was conducted using a worksheet-based static decision analytic modelling tool, developed by researchers at Groningen University, supported by the WHO
2. South Africa-specific model inputs were derived from various sources, including 1° data collection, 2° data analysis and literature review
 - Seasonal Influenza Immunization Costing Tool, developed as part of the Seasonal Influenza Economic Value Chain Analysis Toolkit, supported by WHO, was used to calculate programme costs
3. A health system perspective was adopted, employing a 1-year time horizon
4. The intervention was compared to a no-vaccine scenario
5. Incremental cost-effectiveness ratios were calculated for the entire population at risk, as well as for each high-risk group

PRELIMINARY RESULTS

	Costs of vaccine programme (million USD)	Costs of no vaccine programme (million USD)	Incremental costs (million USD)	Incremental QALYs	Incremental cost effectiveness (USD/QALY)
Pregnant women	17.7	15.2	2.5	669	3,802
HIV+ population	40.9	38.6	2.3	485	4,839
Elderly (>65yrs)	10.0	9.4	0.7	108	6,610
Underlying medical conditions	44.9	43.1	1.8	368	5,028
Children (6-59months)	34.6	33.6	1.0	286	3,551
Total high-risk population	148.2	139.8	8.4	1,909	4,414

DISCUSSION

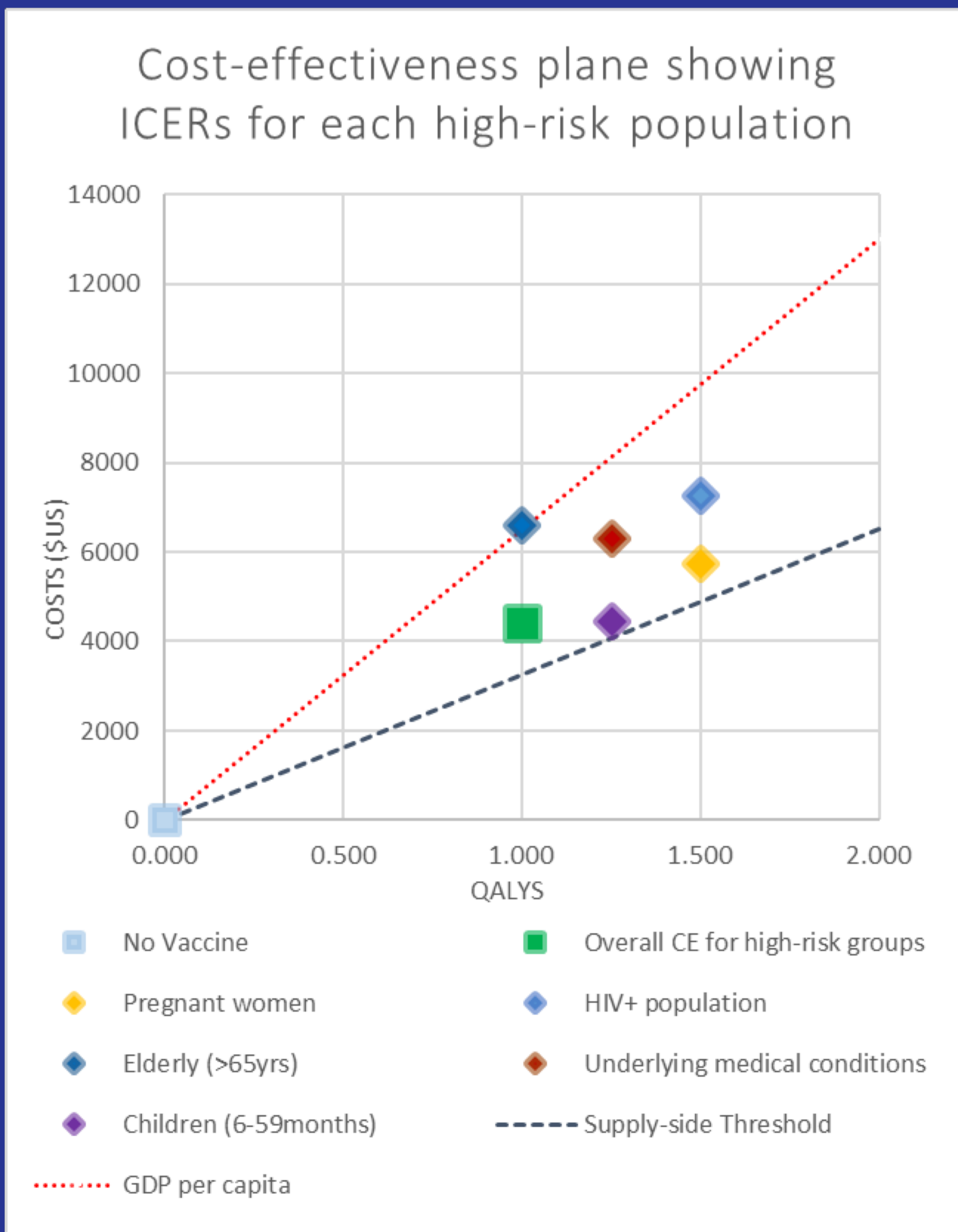
This study provides evidence on the cost-effectiveness of the seasonal influenza vaccination programme in South Africa, highlighting potential high-risk populations that can be targeted for scale-up.



Cost-effectiveness of the seasonal influenza vaccination programme in South Africa varies between high-risk target groups, and decisions for implementation may depend on the threshold used



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Model inputs and sources

Table 1. Data categories and sources for the cost-effectiveness model

Data Categories	Methods
Programme costs	- Primary data collection (key informant interviews & surveys) - Seasonal Influenza Immunization Costing Tool (developed by WHO) to analyse data
Direct medical costs	- Associated with vaccine administration and adverse events - Associated with treating seasonal influenza
Health-related Quality of Life	Literature review
South African life expectancy	Inbuilt data in the WHO CETS, originally sourced from the Global Health Observatory data Repository (GHODR) Life Tables
Vaccine efficacy per risk group	Literature review
Epidemiology parameters (Disease incidence/attack rate per risk group, hospitalization & case fatality rates)	- Secondary data analysis of NICD Surveillance data & Health Utilisation Survey
Vaccine Coverage	- Current coverage data from the provincial departments of health, compiled by the National Department of Health
Population demographic estimates	Statistics South Africa mid-year population estimates, Thembisa model outputs (HIV positive population)

Table 2. High-risk population size and influenza vaccine coverage rate for 2018 programme

High-risk target group	Population estimate	Number Vaccinated	Coverage (%)
Pregnant women	1,200,436	1,60,148	13
HIV+ population	7,520,000	354,324	5
Elderly (>65 years)	3,224,216	93,766	3
Underlying medical Conditions	14,134,769	282,438	2
Children (6-59 months)	Not included as a target population for 2018 seasonal influenza vaccination programme		
Total high-risk populations	26,079,421	890,676	3

Table 3. Incidence of influenza and vaccine efficacy

High-risk target group	Incidence of mild influenza*	Incidence of severe influenza*	Influenza mortality rate***	Vaccine Effectiveness***
Pregnant women	4,676	425	7	50%
HIV+ population	5,290	296	34	41%
Elderly (>65yrs)	653	329	60	58%
Underlying medical conditions	5,290	147	12	58%
Children (6-59 months)	5,279	234	8	64%

*Medically-attended illness, per 100 000 population
** Per 100 000 population
***Trivalent Inactivated vaccine effectiveness against lab-confirmed ILI