EVIDENCE BRIEF

Flu vaccination &
Pneumococcal vaccine
(DCP4 ID: RESPD01)
Cluster: Respiratory disorders

FairChoices
DCP Analytic Tool

Chronic respiratory diseases, vaccination

Authors: Kaur G, Ahmed S, Coates MM, Johansson KA, Watkins D, Økland JM, Haaland ØA.

Date: September 7, 2021

Date updated: November 15, 2021

Description of condition and intervention

Seasonal influenza may be caused influenza type A or type B viruses, leading to seasonal outbreaks in winter months in temperate climates and throughout the year in case of tropical regions. Severity of illness ranges from mild to severe, at times leading to even mortality. High risk groups like those with chronic respiratory diseases like asthma and chronic obstructive pulmonary disease are more at risk than healthier populations to develop disease, requiring hospitalizations and poorer outcomes. Thus, in order to prevent this disease flu vaccination is recommended annually especially in people chronic respiratory diseases. Because immunity from vaccines decreases over time, so yearly vaccination against influenza is suggested. Source: WHO accessed on 15 November 2021. In this evidence brief, we present the effect and cost of the following intervention being analysed in FairChoices:DCP Analytical tool:

Chronic respiratory diseases, vaccination

Intervention attributes

Type of interventions

Preventive

EVIDENCE BRIEF

Flu vaccination &

Pneumococcal vaccine
(DCP4 ID: RESPD01)
Cluster: Respiratory disorders

FairChoices
DCP Analytic Tool

Delivery platform

This intervention may be delivered at primary health centre level.

Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

Low level of urgency. Treatment outcomes not highly affected by some days of delay.

Population in need of interventions

Treated population: Population in need are the prevalent cases of chronic respiratory diseases in the age group of 50 to 69 years, both genders. The treated fraction is assumed 100% for this intervention.

Affected population: The affected population and fraction is same as treated population and fraction.

Disease state addressed

This intervention targets chronic respiratory diseases.

Intervention effect and safety

Table 1: Effect and safety of treatment for flu vaccination

Effect of intervention	Certainty of evidence
Mortality In a meta-analysis by Kopsaftis et al 2018 for influenza vaccine in COPD population compared against placebo, a relative risk of 0.88 (67/76) was estimated based on the absolute effects reported.	See appendix

Model assumptions

Table 2: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Model parameter	Notes
Intervention	Flu vaccination and pneumococcal vaccine for people with chronic respiratory disease	
Cost parameters		
Treated population	Prevalence of chronic respiratory diseases	Global Burden of Disease Study 2019
Gender	Both male & female	
Age	50-69 years	
Treated fraction	1	
Effect parameters		
Affected population	Those with condition	
Affected gender	Both male & female	
Affected fraction age	50 to 69 years	
Affected fraction	Those with condition	
Comparison	placebo	
Mortality Reduction (RRR)	0.12	Kopsaftis et al 2018

Intervention cost

The cost of annual flu vaccination and pneumococcal vaccine every five years for individuals with underlying lung disease is estimated at 4.72 USD in 2016 in low-income countries (LIC). The cost is calculated as a weighted average price of influenza ($4.55 per dose) and pneumococcal vaccine ($3.53 per dose) per WHO-EURO and GAVI price lists.

EVIDENCE BRIEF

Flu vaccination &

Pneumococcal vaccine
(DCP4 ID: RESPD01)
Cluster: Respiratory disorders

FairChoices
DCP Analytic Tool

References

WHO 2021: Health topics seasonal influenza accessed on November 15,2021

Johansson KA, Coates MM, Økland JM, Tsuchiya A, Bukhman G, Norheim OF, Haaland Ø. Health by disease categories. Distributional Cost-Effectiveness Analysis: Quantifying Health Equity Impacts and Trade-Offs. 2020 Sep 30:105.

Kopsaftis Z, Wood-Baker R, Poole P. Influenza vaccine for chronic obstructive pulmonary disease (COPD). Cochrane Database Syst Rev. 2018 Jun 26;6(6):CD002733. doi: 10.1002/14651858.CD002733.pub3. PMID: 29943802; PMCID: PMC6513384.

WHO-EURO and GAVI price lists: World Health Organization. Review of vaccine price data: submitted by WHO European Region Member States through the WHO/UNICEF Joint Reporting Form for 2013.

Appendix

Literature Review for effectiveness & safety

This literature search is an example of Level 1 search for intervention inputs taken from DCP3 or generated in an ad hoc manner (e.g., quick google search found one study of cervical cancer screening cost-effectiveness that was used to create an effectiveness parameter for that intervention).

Level of evidence of efficacy studies:

1. low (expert opinions, case series, reports, low-quality case control studies)

2. moderate (high quality case control studies, low quality cohort studies)

3. high (high quality cohort studies, individual RCTs)

4. very high (multiple RCTs, metaanalysis, systematic review, clinical practice guidelines).