COST-EFFECTIVENESS ANALYSIS OF SEASONAL INFLUENZA VACCINATION IN UAE AND IRAQ

Sara Aldallal[1,2,] Sinan Ghazi[5,] Mohamed Farghaly[1,] Ahmad Nader Fasseeh[3,4,] Nada Korra[4,] Youssef Ahmed[4,] Ahmed Shalaby[4,] Mashhour Arraj[5,] Mohamed Badr[6,] Sameh Elgouhari[7,] Sherif Elgarhy[8,] Waleed Fahim[10,] Zaid Hamandi[5,] Mohamed Tahoun[11,] Sherif Abaza[4,] Gabor Kovacs[12]

1. Dubai Health Authority, Dubai, United Arab Emirates
2. Emirates Health Economics Society
3. Faculty of Pharmacy Alexandria University, Alexandria, Egypt
4. Syreon Middle East, Alexandria, Egypt
5. Ministry of Health, Baghdad, Iraq
6. Next care insurance, Dubai, United Arab Emirates
7. Prime Health Care Dubai, Dubai, United Arab Emirates
8. Sheikh Khalifa Hospital, Fujairah, United Arab Emirates
9. Directorate of Public Health, Ministry of Health, Baghdad, Iraq
10. Mednet Health Insurance, Bahrain, Bahrain
11. Abbott Laboratories, Dubai, United Arab Emirates
12. Syreon Research Institute, Budapest, Hungary

INTRODUCTION

Influenza is frequently viewed as a trivial illness due to its typically mild symptoms. However, this overlooks the extensive scale of patients affected each year, with a considerable number of cases escalating to severe complications and requiring hospitalization[1].

Globally, influenza causes an estimated 650,000 deaths annually. To date, vaccination remains the most effective strategy for mitigating the impact of influenza [2,3].

OBJECTIVE

This study examines the cost-effectiveness of influenza vaccination within the United Arab Emirates and Iraq, offering insights into their potential to improve public health outcomes in the region.

METHOD

Our study employs a static individual patient simulation decision tree model linked to a survival model to capture short-term and long-term benefits and to simulate two scenarios for each patient: one with influenza vaccination and one without, shown in the figure 1.
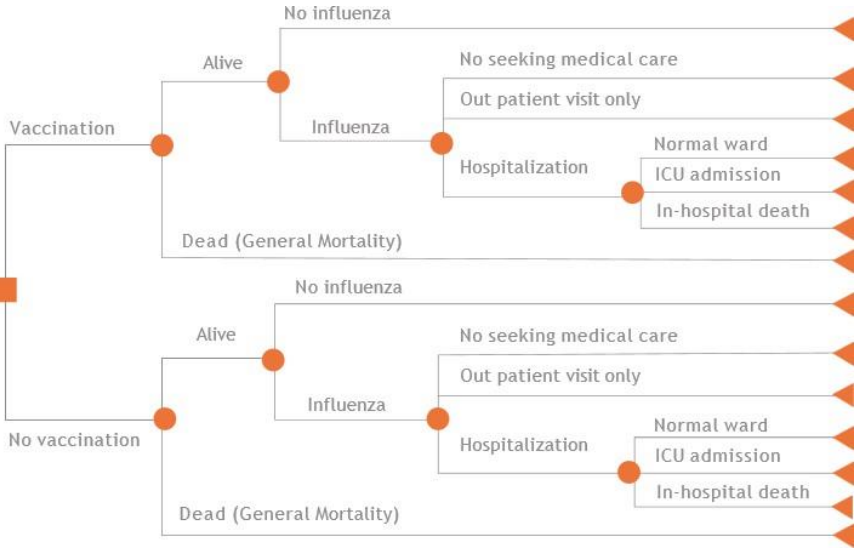

Figure 1: Decision Tree

Patients' characteristics can significantly affect patient prognosis. Patient characteristics in our model were based on four categories as shown in Figure 2.
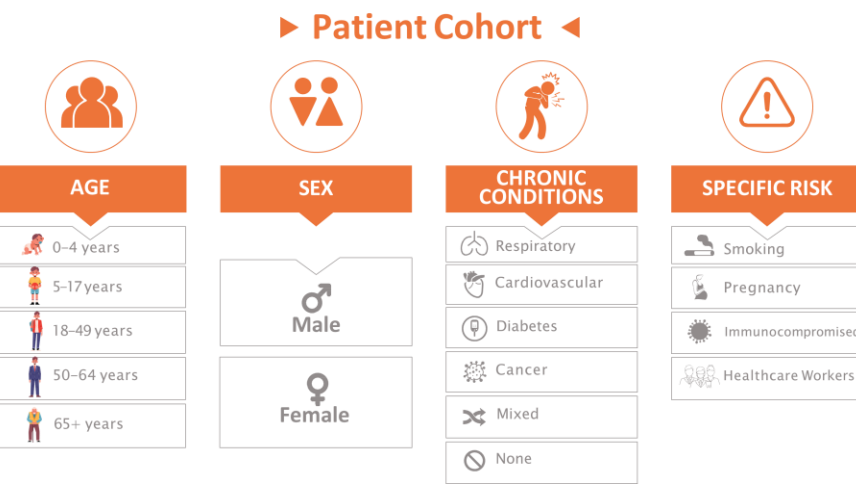

Figure 2: Individual characteristics

Study population

A patient cohort of around 150-200 thousand unique individuals was generated to represent the whole population adhering to the national distribution of chronic conditions and risk groups among each age group.

Study perspective

Healthcare payer perspective.

RESULTS

The outcomes of our model for each country represent the ICER, NMB, and the reductions in influenza-related outcomes including influenza infection, not seeking medical care, outpatient visits, normal ward admission, ICU admission, and in-hospital mortality.

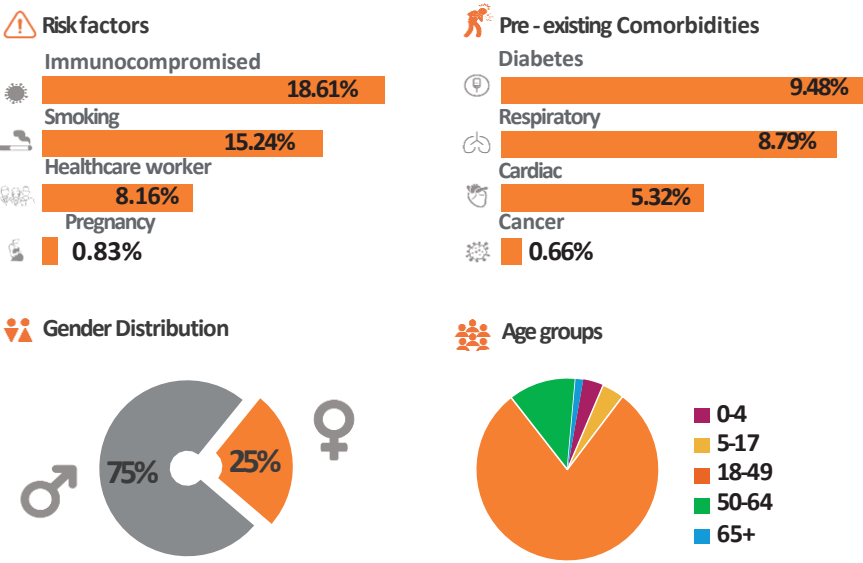## UNITED ARAB EMIRATES

Baseline characteristics

Figure 3: Baseline characteristics of UAE patients
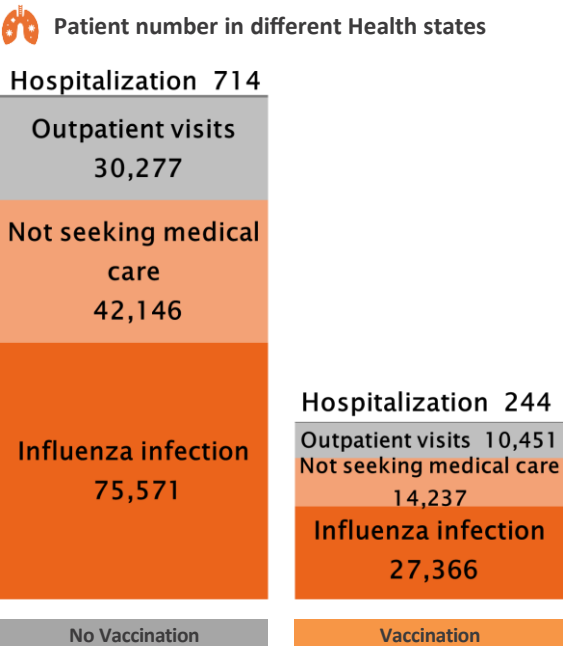
Clinical Outcome

Figure 4: Patients in each health state by vaccination status

Figure 5: Hospitalized patients by health state and length of stay

Economic Outcome

REPUBLIC OF IRAQ

Baseline characteristics

Figure 7: Baseline characteristics of Iraq patients

Clinical Outcome

Figure 8: Patients in each health state by vaccination status
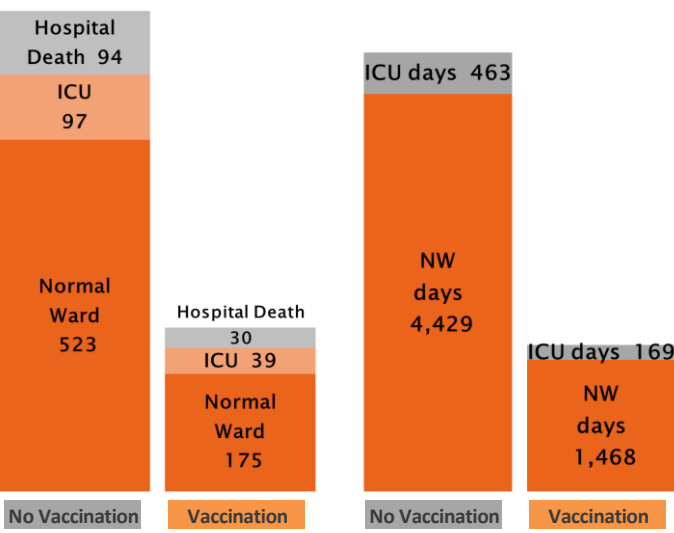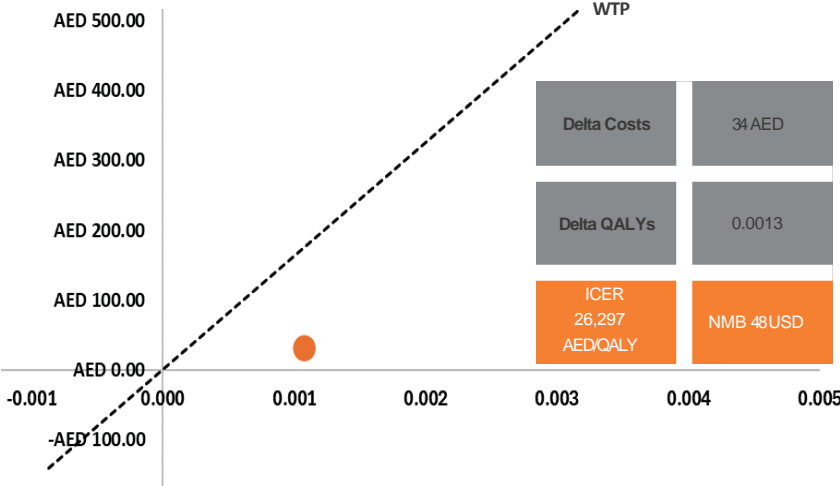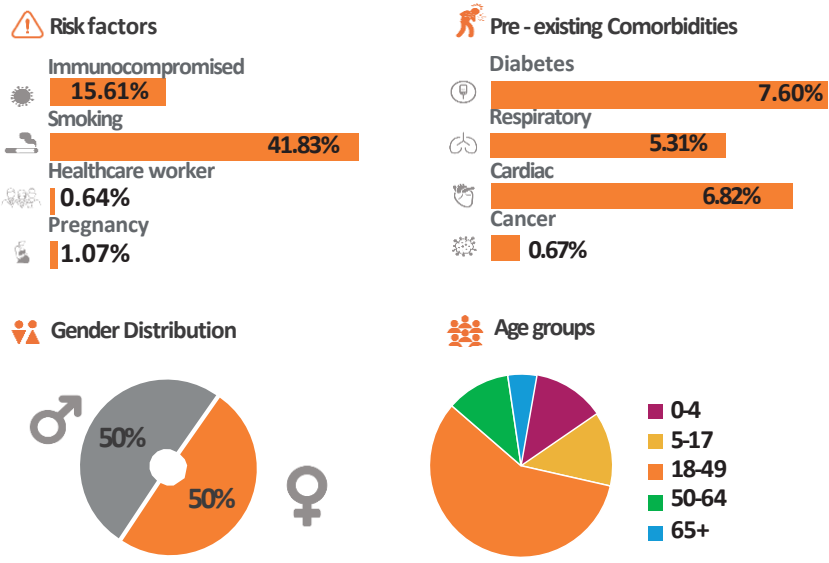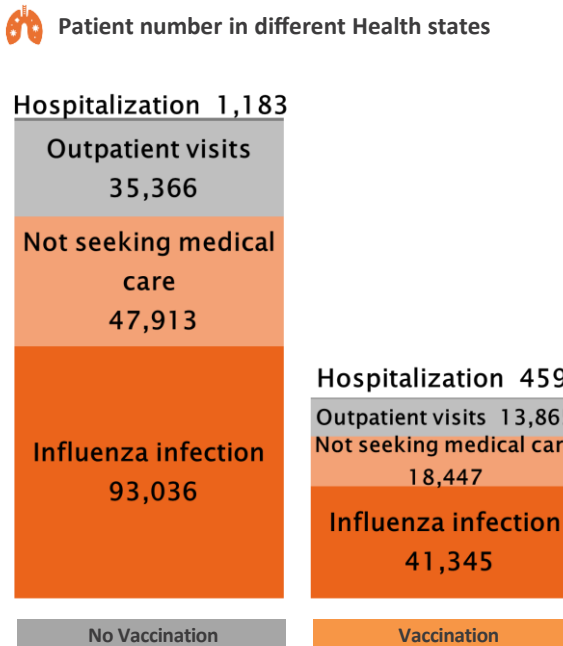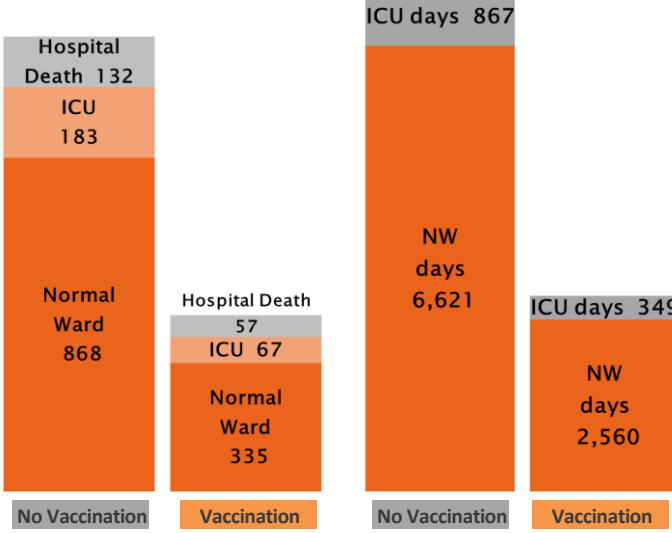

Figure 9: Hospitalized patients by health state and length of stay

Economic Outcome

Conclusion

This study underscores the importance of expanding vaccination strategies. Through a detailed analysis of the vaccine's cost-effectiveness, local insights for policymakers are provided to optimize vaccination strategies more effectively in the region.

References:

1. Who.int. History of influenza vaccination: https://www.who.int/news-room/spotlight/history-of-vaccination/
history- of-influenza-vaccination#:~:text=With %20support%20 from%20the%20US,for%20wider%20use%20in%201945
2. Giacchetta I, Primieri C, Cavalieri R, Domnich A, de Waure C. The burden of seasonal influenza in Italy: A systematic review of influenza-related complications, hospitalizations, and mortality. Influ and Other Respir Viruses. 2022;16(2):351-65 https://doi.org/10.1111/irv. 12925
3. Dilokthornsakul P, Lan LM, Thakkinstian A, Hutubessy R, Lambach P, Chaiyakunapruk N. Economic evaluation of seasonal influenza vaccination in elderly and health workers: A systematic review and meta-analysis. EClinicalMedicine. 2022;47 https://doi.org/10.1016/j.eclinm.2022.101410