

# Economic Burden due to Seasonal Influenza in Subjects Aged 50-64 in the USA

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## INTRODUCTION



- Seasonal influenza can cause significant strain on hospitals, healthcare systems and unsustainable demand for medical resources (HCP time, hospital beds, ventilators, etc.)
- Even though prevention measures exist, low risk perception, particularly in working age populations, remains one of the main drivers for low VCRs<sup>1</sup>
- Several studies have quantified in the past the economic burden caused by seasonal influenza in the USA<sup>2,3,4</sup>
- However, up-to-date economic data are currently needed, with a focus on working age populations



## OBJECTIVE

To estimate the economic burden caused by seasonal influenza in subjects aged 50-64 in the USA, from a societal perspective

## METHODS

- This retrospective analysis was conducted covering the seasons from 2012-13 through 2022-23, excluding the 2020-21 (SARS-CoV-2 pandemic)
- We have used CDC estimates for<sup>5</sup>

- Influenza illness rates
- Medical visit rates
- Hospitalization rates
- Mortality rates

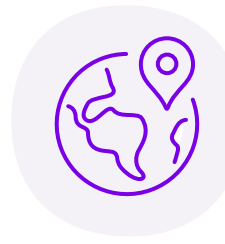
- Unitary costs were based on a published systematic literature review<sup>6</sup> and its later update
- Key parameters used for quantifying the economic burden in 2024 are:
  - Demographic profile: yr. 2024
  - Currency: 2024 US\$
  - Life expectancy: 79.9 yrs.
  - Discount rate: 3%



**Age Group**  
50 – 64 Years



**Study Period**  
10 influenza seasons, 2012-13 through 2022-23 *excluding* 2020-21



**Study Location**  
USA

## RESULTS

- We estimated the current seasonal influenza burden for subjects aged 50-64, in the USA, at

### Disease Burden



- 3.2 million outpatient visits/yr. [2.3, 5.2]
- 78 thousand hospitalizations/yr. [61, 126]
- 4.4 thousand fatal cases/yr. [3.0, 8.2]

### Economic Burden



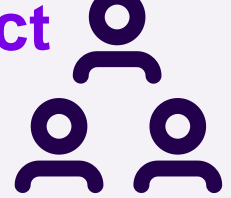
#### Direct Medical costs

- Total cost: US\$ 3.5 billion/yr. [0.2, 25.3]
- Highest contributor is hospitalization; US\$ 2.4 billion/yr. [0.16, 16.7]

#### Indirect Medical Costs

- US\$ 2.9 billion/yr. [2.2, 4.8] due to work absenteeism associated with influenza-related symptomatic illness cases, medical visits and hospitalizations

### Societal Impact

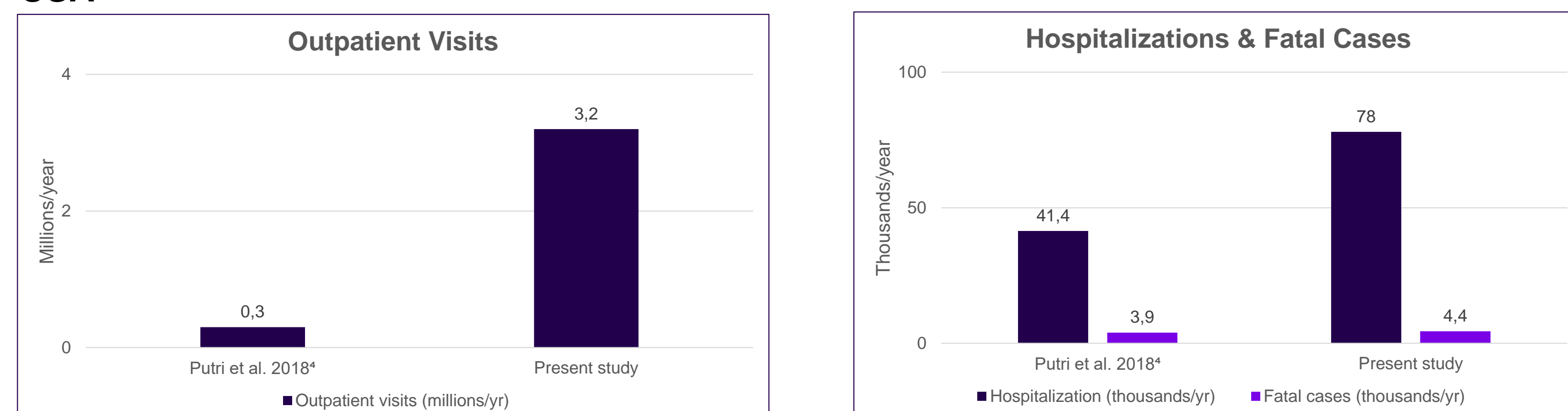


- 69 thousand [48, 129] discounted YLLs<sup>#</sup>
- US\$ 5.9 billion/yr. [4.1, 11.1] caused by influenza related mortality<sup>†</sup>

<sup>#</sup>By considering a life expectancy of 79.9 yr. and a discount rate of 3%

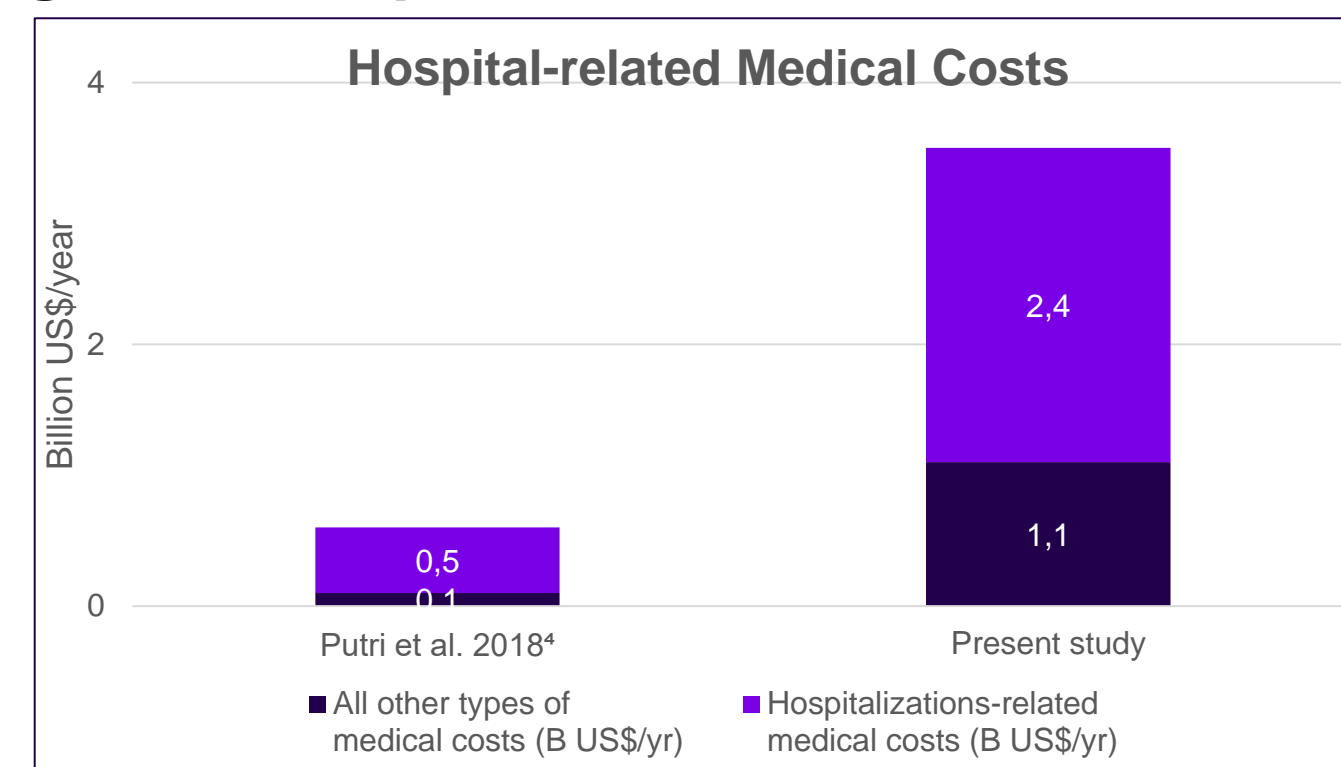
<sup>†</sup>By considering the aforementioned discounted YLLs and a GDP/capita at US\$ 85 thousand/yr

**Figure 1: Outpatient Visits and Hospitalizations & Fatal Cases in the 50-64 Population in the USA**



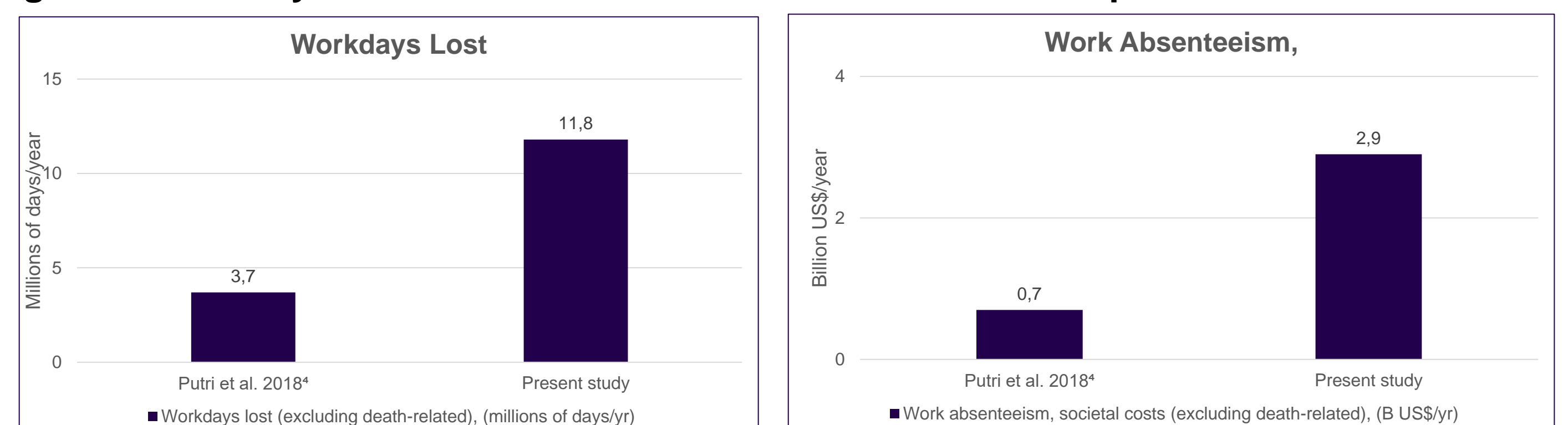
- The present study estimates **3.2 million outpatient visits, 78,000 hospitalizations, and 4,400 fatal** cases per year for the 50-64 population in the USA which was 10.67, 1.88 and 1.13 times higher respectively, compared to the Putri *et al.* study

**Figure 2: Hospital-related Medical Costs in the 50-64 Population in the USA**



**Hospitalization-related medical costs and all other types of medical expenses are higher in the present study compared to the Putri *et al.* study (\$2.4 vs \$0.5 billion/yr and (\$0.1 vs \$0.1 billion/yr) respectively**

**Figure 3: Workdays Lost and Work Absenteeism in the 50-64 Population in the USA**



- The present study estimates are approximately **3.19 and 4.14 times higher** for work absenteeism (days lost) and societal costs, respectively, compared to the Putri *et al.* study

This shows that the **economic burden** caused by seasonal influenza in the **USA is heavily underestimated** in the **literature**, and the **present study is providing the data/evidence to demonstrate it**

### Strengths



- Comprehensive and up-to-date analysis of economic burden
- Fully calibrated using CDC data
- Based on a systematic review of the literature for unitary costs
- Utilizes straightforward annotated calculations for traceability and comparability

### Limitations



- Natural levels of uncertainty remain, as CDC data rely on in-hospital surveillance systems that cover 9% of the total population in the USA

## CONCLUSIONS



- The total economic burden of seasonal influenza for individuals aged 50-64 in the USA is estimated to be **\$6.4 billion per year**, with significant contributions from both hospitalization-related direct medical costs and absenteeism-related indirect costs
- Burden is currently underestimated in the literature
- Wider and stronger prevention measures are required

### ABBREVIATIONS

CDC: USA centers for disease control and prevention; GDP: gross domestic product; HCP: healthcare professional; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2; USA: United States of America; VCR: vaccination coverage rate; YLL: years of life lost; yr: year.

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### CONFLICTS OF INTEREST

AD, JBH, GO and MT are Sanofi employees and may hold shares in the company

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