

FLU ELDERLY BURDEN

Adv Ther. 2024 Jan 23;41(3):945-966. doi: 10.1007/s12325-023-02770-0

The Cost of Seasonal Influenza: A Systematic Literature Review on the Humanistic and Economic Burden of Influenza in Older (≥ 65 Years Old) Adults

Jakob Langer^{1,5,6*}, Verna L. Welch², Mary M. Moran², Alejandro Cane², Santiago M.C. Lopez², Amit Srivastava², Ashley Eastone², Amy Sears⁴, Kristen Markus⁴, Maria Heuser⁴, Rachel Bewley⁴, Isabelle Whittle⁴

38 Studies: economic and humanistic burden of influenza in ≥ 65 years

▪ Mean patient **out-of-pocket/co-pay** by age group in 2018:

- 65–74 years = \$1065 (SD 807)
- 75–84 years = \$1000 (SD 790)
- ≥ 85 years = \$896 (SD 813)

▪ Mean patient **out-of-pocket/co-pay** by sex (2018 USD):

- Male = \$971 (SD 790)
- Female = \$999 (SD 806)



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38 Studies

Economic and humanistic burden of flu ≥ 65 years

The median overall costs (USD) for patients at

- High risk of severe influenza were \$2340 ($n = 23,080$) vs
- Low risk patients median cost of \$1295 ($n = 2553$)



FLU VACCINATION

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Global influenza vaccination rates and factors associated with influenza vaccination

[Can Chen](#)^{1,*} · [Xiaoxiao Liu](#)^{1,*} · [Danying Yan](#)^{1,*} · ... · [Jie Wu](#)^{1,5} · [Lanjuan Li](#)^{1,5}



Global influenza vaccination rates:

- 25% in the general population,
 - 42% in persons with chronic diseases,
 - 37% in healthcare workers, and
 - 26% in pregnant women

Geographic differences were highlighted, with relatively

- High influenza vaccination rates in the American region,
- Low rates in the European and Western Pacific regions, and even
- Lower rates in the Eastern Mediterranean, Southeast Asian, and African regions

Absence of cross-regional comparisons of influenza disease burden limits our understanding of the global variability in influenza impact hinders the development of targeted and effective public health strategies (e.g., vaccine programs) that cater to the specific needs of different regions

522 studies from 68 countries/regions

European region (247 studies),
Western Pacific (135 studies),
American regions (100 studies)

ASIA=<50 papers



FLU VACCINATION

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countries/regions



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Strategic Advisory Group of Experts on Immunization (SAGE):

- Healthcare workers and
- Older adults



FLU WORLD GENERAL POPULATION VACCINE

Global influenza vaccination rates and factors associated with influenza vaccination

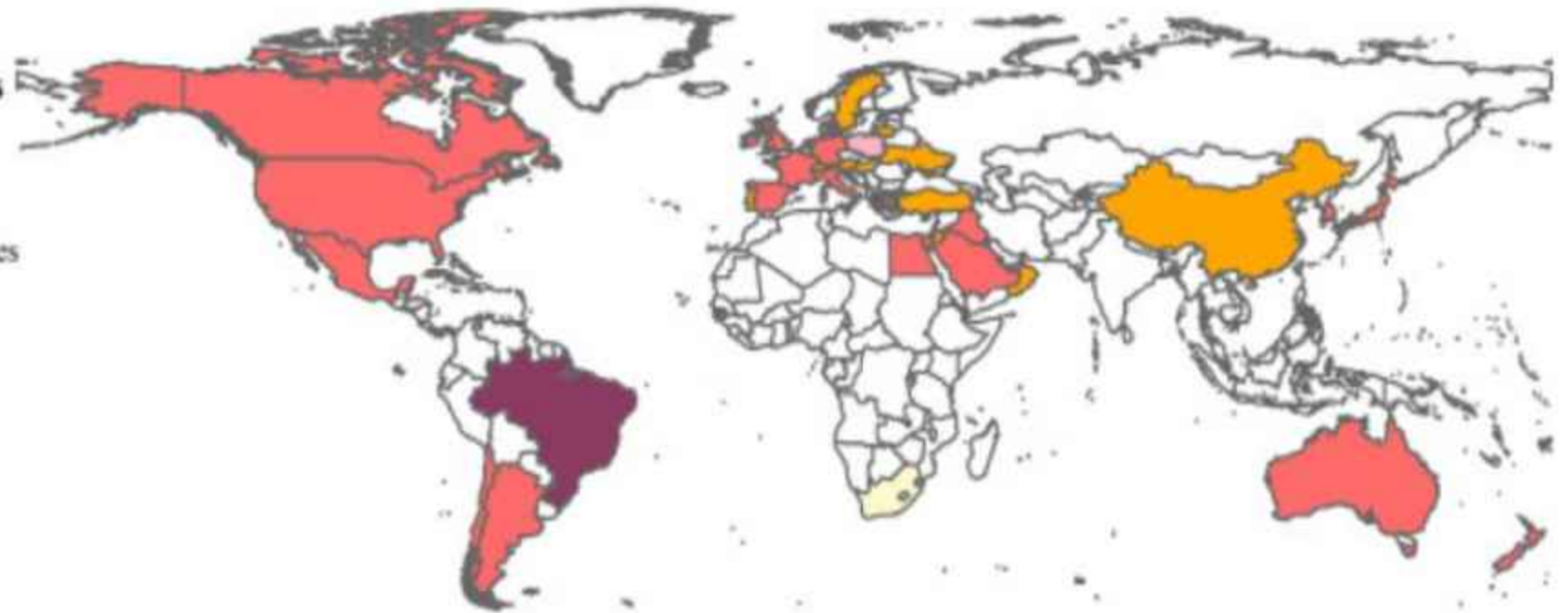
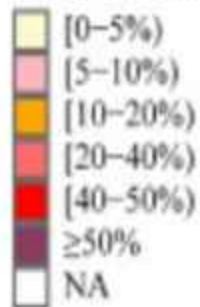
[Can Chen](#)^{1,#} · [Xiaoxiao Liu](#)^{1,#} · [Danying Yan](#)^{1,#} · ... · [Jie Wu](#)^{1,S} · [Lanjuan Li](#)^{1,S}

(A) General population

292 studies from 43 countries/regions

- Region of the Americas: 48 studies
- European Region: 146 studies
- Western Pacific Region: 64 studies
- Eastern Mediterranean Region: 33 studies
- African Region: 1 study

Influenza vaccination rate



FLU CHRONIC DIS. VACCINATION

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(B) individuals with chronic diseases

351 studies from 41 countries/regions

Region of the Americas: 75 studies

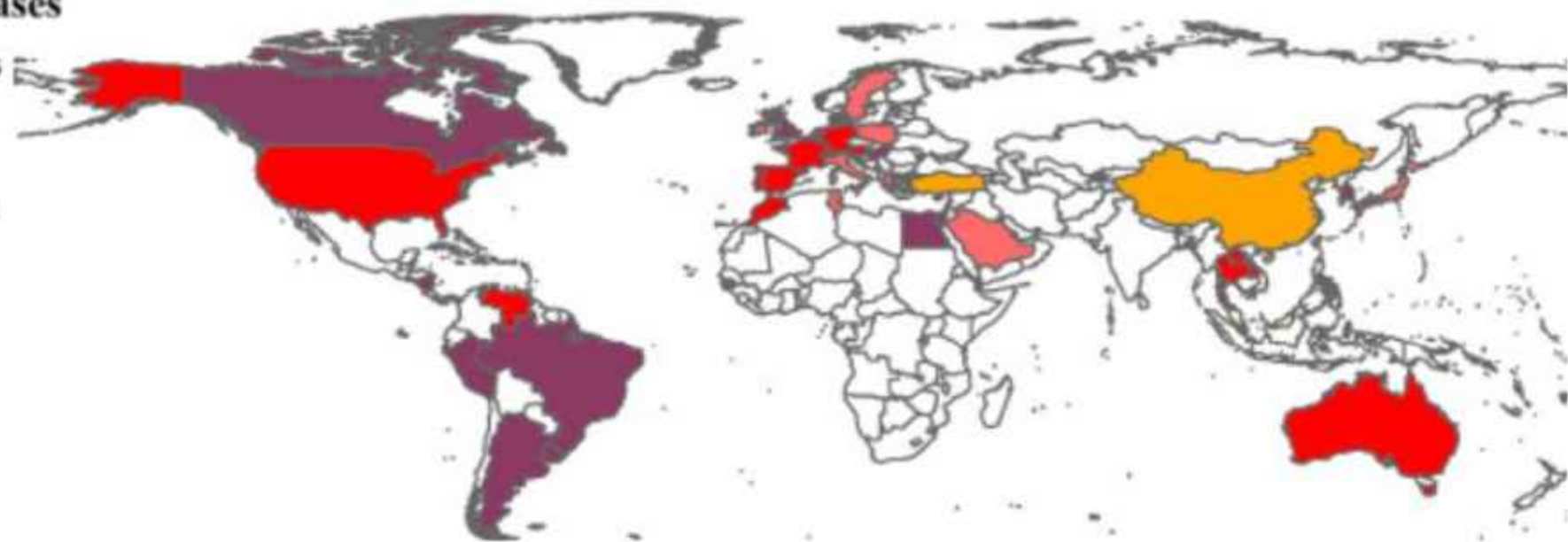
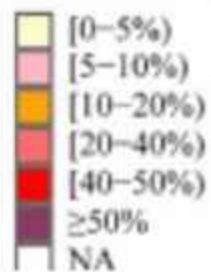
European Region: 183 studies

Western Pacific Region: 82 studies

Eastern Mediterranean Region: 7 studies

South-East Asia Region: 4 studies

Influenza vaccination rate



FLU HEALTH WORKERS VACCINATION

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(C) Healthcare workers

337 studies from 49 countries/regions

Region of the Americas: 36 studies

European Region: 229 studies

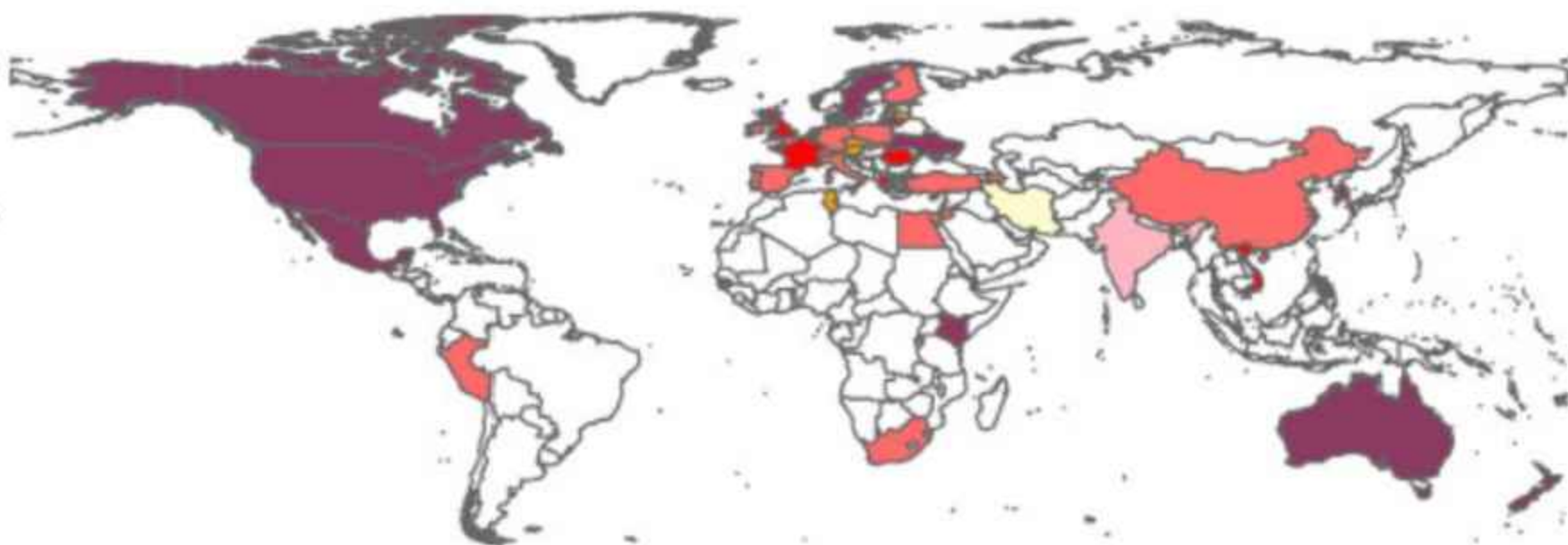
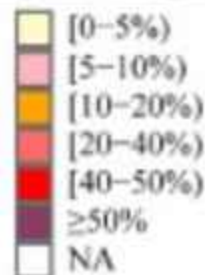
Western Pacific Region: 62 studies

Eastern Mediterranean Region: 7 studies

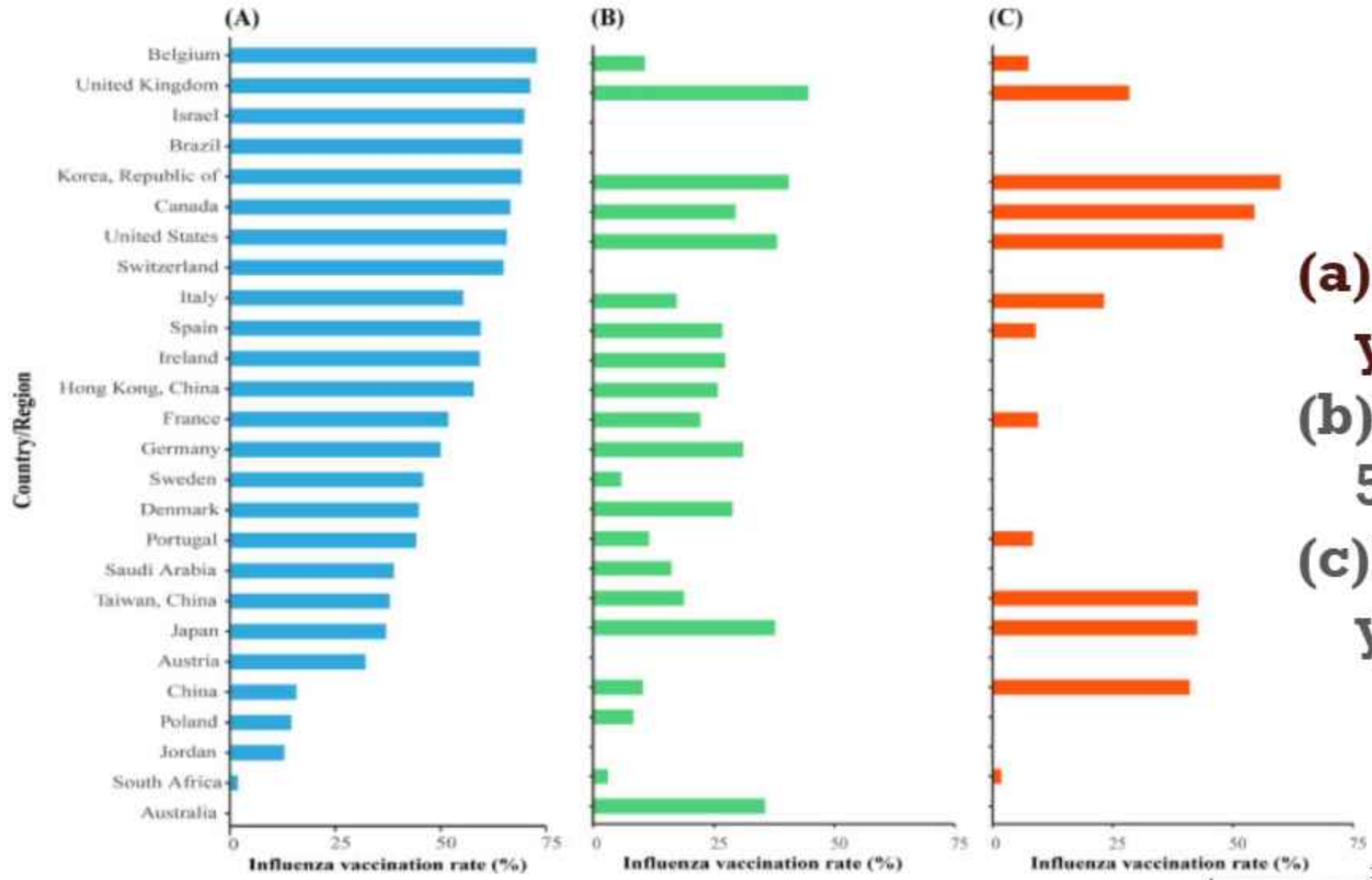
South-East Asia Region: 1 study

African Region: 2 studies

Influenza vaccination rate



FLU EPI VACCINE BY AGE



(a) Pooled IVRs in ≥ 60 yrs- 25 countries

(b) Pooled IVRs in 15-59 yrs- 21 countries

(c) Pooled IVRs in ≤ 14 yrs- 13 countries



FLU VACCINATION COVERAGE WHO DATABASE: DEC. 2024- RAN



World Health Organization		Health Topics	Countries	Newsroom	Emergencies	Data	About us	
All Data		Dashboard	Compare					
Table		Chart	Map	Compare	Reference			
DOWNLOAD								
Country / Region	Antigen	Data source	2023	2022	2021	2020	2019	2018
Iran (Islamic Republic of)	Influenza all persons above >5 months (universal recommendation)	ADMIN						
	Influenza child age group 1	ADMIN				0%		
	Influenza child age group 2	ADMIN						
	Influenza chronic adult	ADMIN	11%			11%		
	Influenza chronic children and adults	ADMIN				11%		
	Influenza chronic pediatric	ADMIN						
	Influenza health care workers	ADMIN	81%			81.25%		
	Influenza older persons	ADMIN	2.5%			2.5%		
	Influenza pregnant women	ADMIN				37.5%		
	Influenza residents living in long term care facilities	ADMIN	63%			62.5%		
Influenza travellers (incl. Hajj pilgrimage)	ADMIN				0%			

Percentage in the target population who receives flu vaccines/ in a given year.





THE EFFICACY OF INFLUENZA VACCINE IN ELDERLY PERSONS: A META-ANALYSIS AND REVIEW OF THE LITERATURE

The pooled estimates vaccine efficacy >65 years:

- ❑ 56% prevent respiratory illness,
- ❑ 53% prevent pneumonia,
- ❑ 50% prevent hospitalization and length,
- ❑ 30% prevent ICU admission,
- ❑ 50% prevent mechanical ventilation,
- ❑ 36- 68% prevent death

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