

# The Impact of Influenza in Older Age Groups in Portugal, 2015-2018

Filipe Froes<sup>1</sup>, Mafalda Carmo<sup>2\*</sup>, Carlos Robalo Cordeiro<sup>3</sup>

1. ICU, Thorax Department, Centro Hospitalar Universitário Lisboa Norte, Lisbon, Portugal. 2. IQVIA, Barcelona, Spain.  
3. Pulmonology Department, Coimbra University Hospital, University of Coimbra, Portugal

Presenting Author: Mafalda Carmo. Email ID: mafalda.carmo@iqvia.com

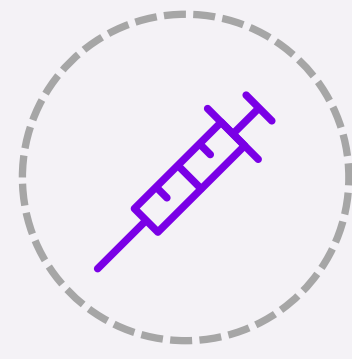


Scan to Access Poster

## INTRODUCTION



Older adults face higher infection risks due to physiological vulnerabilities and living conditions. Diagnosing influenza without lab tests also tends to be more challenging.<sup>[1]</sup>



Scientific associations recommend immunization with enhanced high-dose inactivated vaccines for those aged ≥65 years, prioritizing those >75 due to their higher risk of complications.<sup>[1]</sup>



Since 2019/2020, Portugal has surpassed the EU's 75% target vaccination rate for those aged ≥65 years. Despite this, the influenza burden among the older population remains high.<sup>[2]</sup>



The Burden of Acute Respiratory Infections (BARI) study revealed a significant and under-estimated burden of influenza in Portugal, which increased with age. However, it did not assess how this burden escalated among the elderly, as the cut-off was at ≥65 years old.<sup>[3]</sup>

## OBJECTIVE



To quantify the impact of influenza on people aged 75 and above, and compare it with those aged 65-74, using data from the Burden of Acute Respiratory Infections (BARI) study for Portugal.

## METHODS

### Case definition

- Two methods were used to estimate influenza hospitalizations and deaths:
  - Direct** | Episodes coded with ICD10 J09, J10 or J11 or ICD9 487 and 488, as primary or secondary diagnoses, were considered as hospitalizations coded as due to influenza.
  - Indirect** | Influenza-associated excess hospitalizations and deaths were estimated for respiratory or cardiovascular diagnoses (R&C, ICD-9: 390–459, 460–519; ICD-10: I00–I99, J00–J99), and all-cause.



Age Group  
65-74 and ≥75



Study Period  
2015-2018



Study Location  
Portugal

### Statistical analysis

- Excess hospitalization and mortality attributable to influenza were estimated based on time series ecological models for population of all age, aged 65-74, and ≥75, with the primary predictor of influenza excess hospitalizations and deaths being the weekly incidence rate of influenza-like-illness (ILI).

### Data collection

- Hospitalization data was extracted from the Portuguese National Health Service hospitals database, which contains all public discharge records in mainland Portugal; death certificates per cause, regardless of place of death, and age-specific annual population estimates from the National Institute of Statistics; and ILI rate from the national surveillance system.

## RESULTS

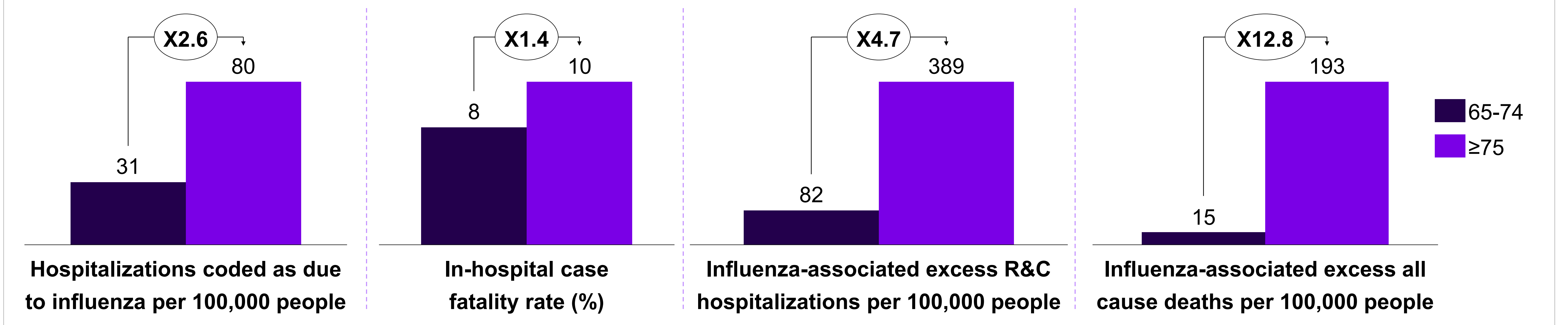
- The mean annual hospitalization rate for influenza was 2.6 times higher in people aged ≥75 years compared to those aged 65-74 years (Figure 1).
- The mean annual rate of influenza-associated excess hospitalization in people aged ≥75 years was 4.7 times higher than in those aged 65-74 (389.3 [95% CI: 328.4; 452]) versus 82.2 [95% CI: 61.5; 102.1]).
- For every hospitalization with a specific influenza diagnosis there were 2.7 additional hospitalizations associated to influenza in the 65-74 age group and 4.9 in the ≥75 years age group.
- The greatest difference across groups was observed in mortality, with a 12.8 times higher annual rate of influenza-associated all-cause death in population ≥75 years old (192.6 [95% CI: 90.8; 354.6] versus 15.0 [95% CI: 5.0; 25.6]).
- Across all outcomes, the difference between both age groups was the highest in season 2016/2017 (Table 1).

Table 1: Rates of influenza hospitalizations/deaths per 100,000 people, direct and indirect method, by age group and epidemic season

	Hospitalizations coded as due to influenza				Influenza-associated excess R&C hospitalizations				Influenza-associated excess all cause deaths			
	65-74	≥75	≥65	All age	65-74	≥75	≥65	All age	65-74	≥75	≥65	All age
2015/2016	21.5	25.8	23.6	15.7	63.1	216.2	137.8	56.6	-	-	-	-
2016/2017	28.2	91.6	58.9	18.8	81.4	585.9	330.8	85.2	21.4	365.6	187.3	44.5
2017/2018	42.5	121.4	80.7	29.3	102.1	365.7	238.4	71.9	23.7	212.3	118.9	29.4

R&C, Respiratory or Cardiovascular

Figure 1: Comparison of mean annual outcomes between individuals aged 65-74 and those 75 or older, from the 2015/2016 to 2017/2018 seasons



## CONCLUSIONS



- The BARI study emphasizes aging as a risk factor for influenza-related complications, with individuals aged 75 and above facing higher risks than those aged 65-74.
- Specific preventive strategies may be required to reduce the influenza burden in this more vulnerable group.

**REFERENCES**

1. Froes F, Timoteo A, Almeida B, et al. Influenza vaccination in older adults and patients with chronic disorders: A position paper from the Portuguese Society of Pulmonology, the Portuguese Society of Diabetology, the Portuguese Society of Cardiology, the Portuguese Society of Geriatrics and Gerontology, the Study Group of Geriatrics of the Portuguese Society of Internal Medicine, and the Portuguese Society of Infectious Diseases and Clinical Microbiology. Pulmonology 2024; 30 (5).

2. Froes F, Morais A, Hespanhol V, et al. The Vacinometro(R) initiative: an eleven-year monitorization of influenza vaccination coverage rates among risk groups in Portugal. Pulmonology. Nov-Dec 2022;28(6):427-430.

3. Froes F, Carmo M, Lopes H, et al. Excess hospitalizations and mortality associated with seasonal influenza in Portugal, 2008-2018. BMC Infect Dis. Sep 7 2022;22(1):726

**CONFLICTS OF INTEREST**

MC is an IQVIA employee. FF and CRC have received fees from Sanofi. FF reports Advisory Board and personal fees from Sanofi, MSD, Gilead and personal fees or non-financial support from Bial, AstraZeneca, GSK, and Tecnifar outside the submitted work.

**FUNDING**

The BARI study was funded by Sanofi.