*Flu*nomics Report

From vaccination to protection – Understanding the influenza protection gap in older adults



Portugal

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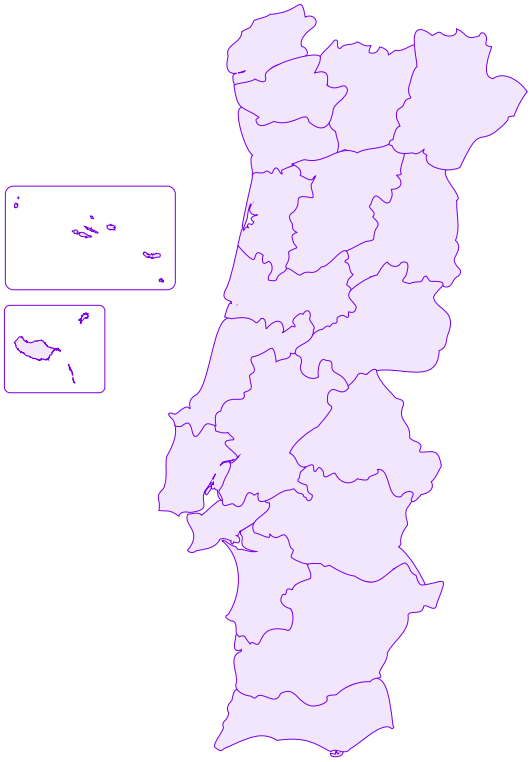
Portugal

Portugal has historically achieved high influenza vaccination coverage among older adults, supported by free vaccination, broad access through primary care and community pharmacies, and regular monitoring of uptake.[1-4] However, vaccination coverage among adults aged 65+ has declined in recent seasons, highlighting the importance of sustaining protection as the population ages.[5-11]

Portugal at a glance

Total population (2025):
11.4 million[12]

Population aged 65+ years:
23.3% (approx. 2.6 million)[12]



National influenza policy

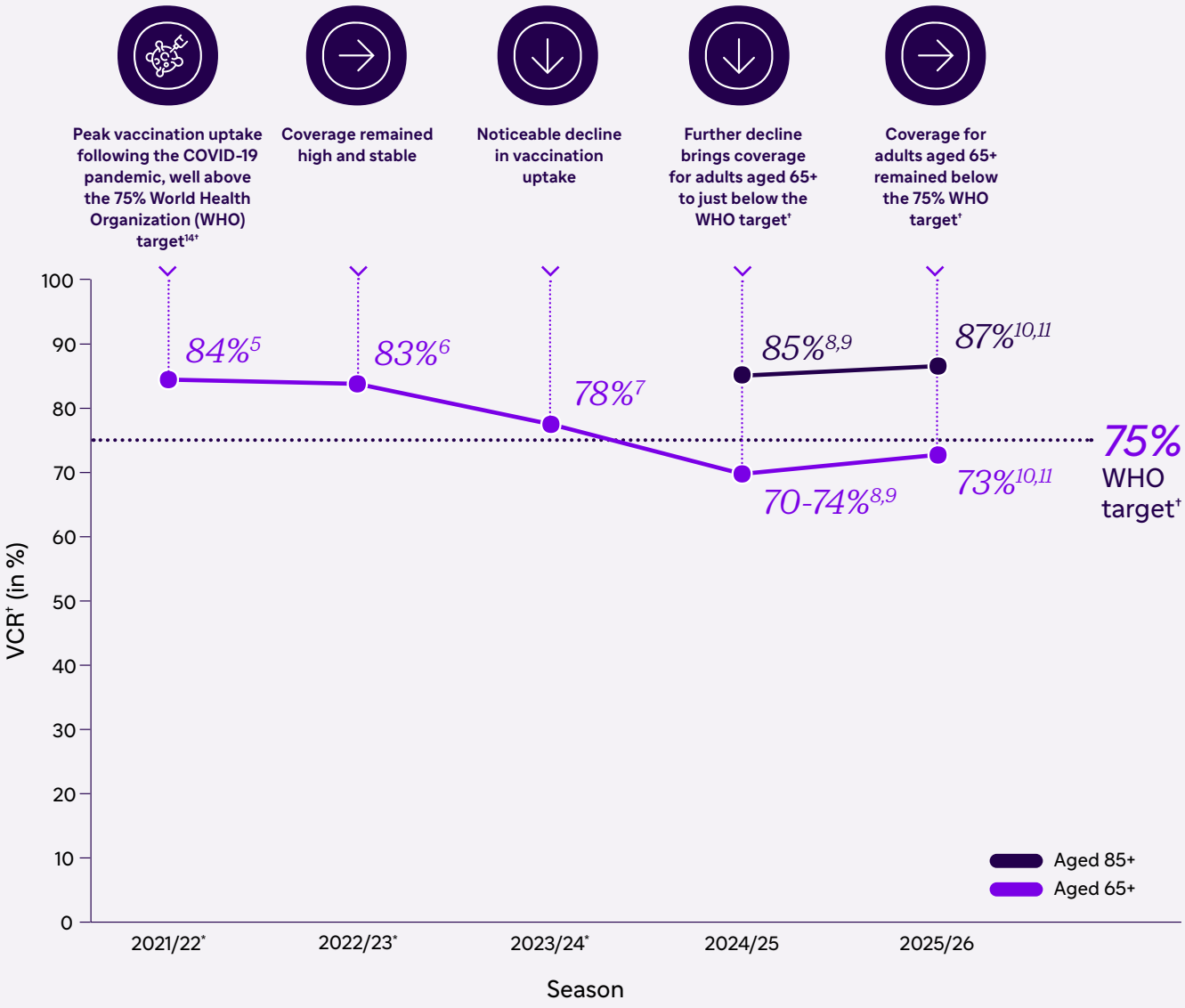
Portugal's influenza vaccination program provides **free seasonal vaccination to adults aged 60+**, with delivery through primary care and community pharmacies and public-facing monitoring through **Vacinometro® and DGS**.[1-4]

With **approximately 23% of the population aged 65+**, maintaining influenza protection among older adults is increasingly important for healthy aging and health system resilience.[12] Even modest decreases in vaccination coverage could leave more adults aged 65+ years at risk of severe influenza outcomes, especially as the population continues to age.[13]

While Portugal's national influenza vaccination program recommends seasonal influenza vaccination for adults aged 60+ years, **many surveillance and vaccination datasets are not reported** for adults aged 65+ years. Where possible, this report uses the age group reported by the original source and highlights this difference where it is relevant to interpretation.

Historically high vaccination coverage is beginning to weaken[5-11]

Five-year influenza vaccination coverage rate (VCR)



Influenza vaccination coverage among adults aged 65+ years in Portugal has **declined by 11 percentage points over the past five seasons**, falling from 84% in 2021/22 to 73% in 2025/26.[5,10] Coverage has therefore moved from above the WHO 75% target to just below it.[14]

The direction of travel highlights the importance of understanding which features of Portugal's vaccination system have historically supported uptake, and where implementation may now need strengthening.

** From 2021/22 - 2023/24, the national VCR for the 85+ population was not reported.*

† VCR: vaccination coverage rate; WHO: World Health Organization.

Why Portugal has historically performed well

Portugal's strong foundations for influenza prevention



Strong policy prioritization

Portugal has a **centrally coordinated influenza vaccination strategy**, with adults aged 60+ years and people living with chronic conditions clearly identified as priority groups.[1] Seasonal influenza vaccination is offered **free of charge** through the national health service to adults aged 60+ years, reflecting strong policy intent to protect populations at higher risk of severe outcomes.[1,15]

National recommendations currently provide free influenza vaccination for all adults aged 60+ years, while age-specific influenza vaccination programs have been introduced for adults aged 85+ years and residents of nursing homes and long-term care facilities.[15] More recently, several **Portuguese scientific societies have recommended broader use of age-specific vaccines** in adults aged 65 years+, reflecting the increased risk of severe influenza outcomes with advancing age.[1,15]



Accessible delivery channels

Influenza vaccination is delivered through both **primary care services and registered community pharmacies**.[1,2] This mixed delivery model supports convenient access for older adults and has improved geographic proximity to vaccination sites in recent seasons. However, **free access to the age-specific vaccination program is currently limited** to adults aged 85+ and residents of long-term care facilities.[1,2,16]



Public-facing uptake monitoring

Vacinometro® and DGS provide **regular public-facing monitoring of influenza vaccination uptake** during the season.[3,4] This helps maintain visibility of vaccination trends and enables public health stakeholders to identify changes in uptake over time.



Recommendations from healthcare professionals are trusted by the public

Recommendations from HCPs have been identified as an **important driver of influenza vaccination uptake** in Portugal.[1]

Together, these features provide a strong foundation for influenza prevention in Portugal. However, the recent decline in vaccination coverage raises an important question: **why may historically high uptake be becoming harder to sustain?**

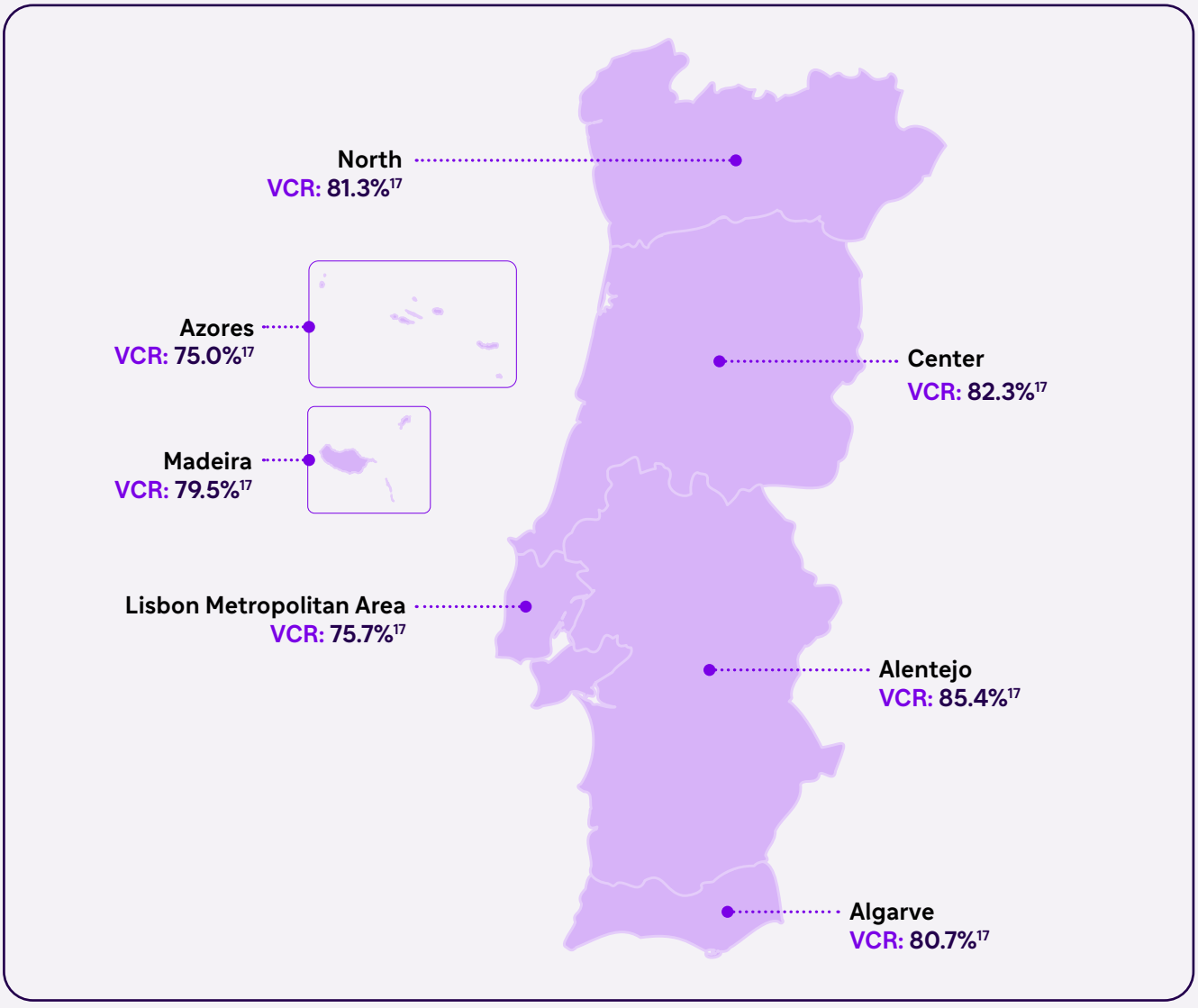
Why high uptake may be becoming harder to sustain

Several factors may help explain why historically high influenza vaccination uptake is becoming harder to sustain. Available evidence points to variation in local uptake, incomplete awareness of age-specific protection, the continued importance of HCP recommendation, and differences in access gains across the country.

Regional variation suggests local implementation matters

The final 2025/26 Vacinometro® survey continued to show **regional variation** in influenza vaccination uptake among adults aged 65+ years, ranging from 85.4% in Alentejo to 75.0% in Azores, with coverage also varying across the Center, North, Algarve, Madeira, and the Lisbon Metropolitan Area.[17]

While uptake remained relatively high across the regions reported, this variation indicates that **national coverage can mask differences in uptake within Portugal**.[17]



Notably, all reported regional VCR estimates were higher than the national Vacinometro estimate of 73.5% among adults aged 65+ years.[10,11,17] As these figures are derived from survey data, regional estimates should be interpreted alongside, rather than as direct components of, the national estimate.[17]



Awareness of age-specific protection appears incomplete

Portugal has introduced **age-specific influenza vaccination for some of its oldest populations**, including adults aged 85+, while Portuguese scientific societies have recommended broader age-specific approaches for adults aged 65+.[15,16] However, **awareness of this change appears incomplete**: only 52.9% of the total sample from the final 2025/26 Vacinometro® wave were aware that an age-specific influenza vaccine was available free of charge to adults aged 85+ years.[17]

While this does not establish that awareness of age-specific vaccination is contributing to the overall decline in VCR among adults aged 65+, it identifies a **potential information gap around the vaccination options available to the oldest adults**.



Uptake remains highly dependent on prompting from HCPs

In the **final 2025/26 Vacinometro® wave**, 33.1% of vaccinated individuals in the total sample reported receiving **vaccination following a medical recommendation**. Among adults aged 60+ who reported receiving a medical recommendation, 99.1% identified General and Family Medicine as the source. Physician recommendation was also the most commonly reported reason for vaccination across the total vaccinated population.[17]

This reinforces the **value of trusted HCP engagement**, but also suggests that **coverage may be fragile where proactive recommendations are missed** during routine care, chronic disease management, pharmacy encounters, or other healthcare interactions.



Access gains may not be evenly distributed

Expanding vaccination delivery through community pharmacies has improved proximity to vaccination for many people in Portugal. A geospatial modeling study estimated that, in 2023/24, **including community pharmacies as vaccination sites reduced the average modeled distance to the nearest vaccination site** from 2.4 km to 1.2 km compared with a scenario using national health service vaccination sites alone.[2]

However, municipalities with the smallest improvements in proximity also experienced declines in influenza vaccination coverage.[2] This suggests that the **access gains associated with pharmacy expansion were not uniform across municipalities**.

HCP perspectives

Primary care HCPs describe a range of patient-related barriers to influenza vaccination among older adults*

Surveyed primary care HCPs reported a range of patient-related barriers to influenza vaccination among adults aged 65+, **spanning previous vaccination experiences**, **perceptions of influenza risk**, **misinformation and concerns about vaccination**.

76%



Previous negative experiences with influenza vaccination*

76%



Perception of good health and low risk of influenza*

74%



Misinformation about vaccines in general*

70%



Lack of perceived need for influenza vaccination*

66%



Tolerability concerns (side effects or adverse reactions)*

What HCPs said†

Open-ended responses provide further insight into the challenges primary care HCPs encounter when seeking to optimize influenza protection among older adults. **Misconceptions and misinformation**, **vaccine hesitancy**, **concerns about side effects**, **low health literacy and perceived lack of vaccine efficacy** were among the most frequently identified themes.



PCP, Portugal

"Patients believe that, because they caught a cold in the year they were vaccinated, the vaccine did not work (it is difficult for them to understand its true role in preventing mortality and morbidity)."

Source: *Ipsos online survey conducted on behalf of Sanofi among HCPs in Portugal; fieldwork conducted 8 June – 1 July 2026. Results reflect the views and practices of the surveyed sample.*
Bases: *Primary care HCPs (n=50: 50 General practitioner (GPs)/Family practitioners (FPs)).*
**** Question PC4:*** *Primary care HCPs were asked to consider patient-driven barriers to flu vaccination in their older adults (aged 65+) and select all the barriers you encounter in your practice; respondents could select multiple responses from a list of potential response options. The figures shown were not necessarily the most frequently selected answer options by surveyed HCPs.*
† Question PA5: *Primary care HCPs were asked in their own words to summarize the main challenges to optimizing influenza protection among adults aged 65+ seen in their practice/pharmacy. Unprompted open-ended responses were collected with GenAI-supported probing and analyzed using GenAI-assisted thematic analysis of verbatim free-text responses to identify key themes. Themes shown represent mentions from open-ended responses and should not be interpreted as majority consensus. Quote reproduced from an individual PCP response.*

Portugal can see influenza pressure – but there is very little data on burden in adults aged 65+ years

Portugal has a relatively **mature influenza surveillance system**, providing regular reporting on influenza circulation, laboratory-confirmed cases, intensive care unit (ICU) admissions, and excess mortality.[18,19] These systems show that influenza continues to create **measurable seasonal pressure**. However, **routine reporting of age-specific severe outcomes is largely absent**, making it difficult to understand how much of the burden falls on adults aged 65+ years.

2024/2025 Influenza burden metrics[18]	Total population	Adults aged 65+ years
Lab-confirmed influenza cases	20,140	NR‡
Influenza-related ICU admissions‡	125*	44.8%* (n=56/125)
ICU mortality rate‡	21.3% (approx. 26 deaths)	NR‡
Influenza-attributable excess mortality	1,609†	NR‡
Influenza-attributable excess mortality rate	15 per 100,000	NR‡

While national surveillance provides visibility of overall influenza activity and severe disease, age-stratified influenza cases, hospitalization, ICU, and mortality outcomes are not routinely reported.[18] This limits visibility of where severe influenza burden is concentrated within the older population.

** Based on sentinel surveillance data from 23 ICUs across 18 hospitals; these data do not represent complete national ICU coverage.[18]*

† Based on data between weeks 52/2024 and 04/2025.[18]

‡ ICU = intensive care unit; NR = not reported.

Portugal's influenza surveillance system provides a population-level view of seasonal influenza activity, including:


Influenza circulation


Laboratory-confirmed cases


Total ICU admissions


Total ICU mortality


Total influenza-attributable excess mortality

However, the impact of influenza on adults 65+ years remains harder to assess, as surveillance data does not routinely capture:


Age-stratified influenza hospitalizations


Age-stratified influenza-attributable mortality


Association between vaccination status and severe outcomes


Influenza-related complications not coded as influenza

Severe influenza creates concentrated hospital and economic pressure

Recent hospital data show that severe influenza continues to place **substantial pressure on Portuguese hospitals**, particularly among older adults.

Across **11 Portuguese hospitals**, influenza hospitalizations in adults aged 60+ years accounted for more than 53,000 bed-days and €18.8 million in hospital costs over three post-pandemic seasons, from 2022/23 to 2024/25.[20] The burden was particularly **concentrated in the oldest adults**: adults aged 85+ years represented approximately one-third of hospitalizations but around half of in-hospital deaths.[20]

Hospital burden in adults aged 60+ years

Hospital costs



€18.8 million

Total hospital costs associated with influenza in adults aged 60+ years[20]

Hospital utilization



53,000 bed-days

Hospital bed-days associated with influenza in adults aged 60+ years[20]

In-hospital deaths



Approx. 50% of deaths

In-hospital deaths occurred in adults aged 85+ years, despite only accounting for 1/3 of hospitalizations[20]

Earlier Portuguese evidence also demonstrates the concentration of hospital burden among people living with underlying conditions. In an analysis covering 2008–2018, **patients with comorbidities accounted for 65.5% of influenza-related hospitalizations but generated nearly 80% of hospitalization costs**, with an average hospital stay of 12.4 days.[21] These studies illustrate how severe influenza-related hospital burden can be concentrated among older adults and people living with underlying conditions, although the estimates derive from different study periods and populations.

Burden in adults with comorbidities

Hospital costs



Patients with comorbidities represented **65.5%** of influenza-related hospitalizations, but generated nearly **80%** of hospitalization costs[21]

Hospital utilization



12.4 days average hospital stay among patients with comorbidities[21]

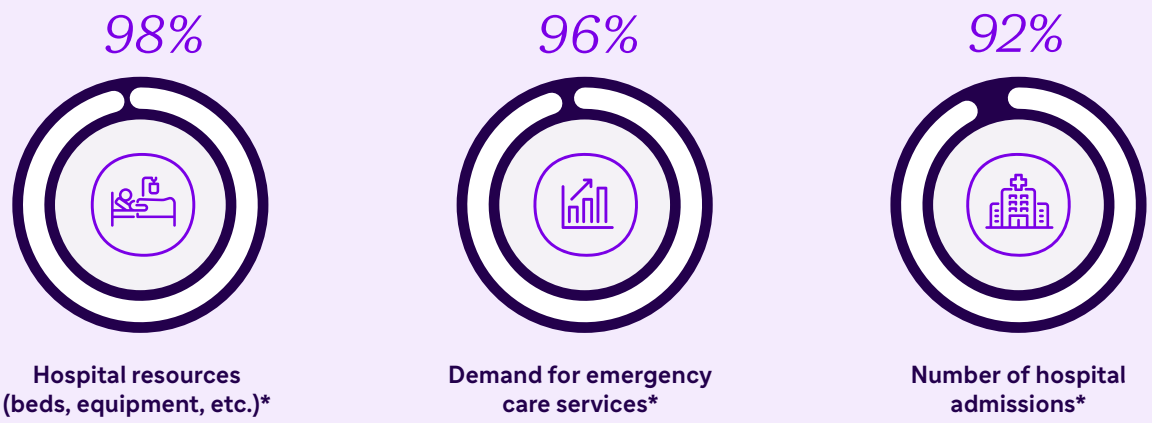
The **broader burden of influenza may also be underestimated** because influenza can exacerbate underlying cardiovascular and respiratory conditions, leading to complications that are not always identified or coded as influenza-related.[1,22] Portuguese expert consensus highlights that influenza infection has been associated with a **six- to ten-fold increased risk of acute myocardial infarction** during the first week after infection and a **three- to eight-fold increased risk of stroke**, illustrating how the burden of influenza extends well beyond acute respiratory illness.[1]

HCP perspectives

Cardiologists describe how influenza season can place additional pressure on secondary-care capacity

Surveyed cardiologists reported substantial impacts from influenza season and potential influenza complications among older adults across **hospital resources**, **emergency care and admissions**.

Secondary care impacts during influenza season



What HCPs said†

Open-ended responses provide further insight into how this pressure is experienced in practice. Cardiologists most frequently described **pressure on emergency departments**, **increased hospital admissions and constraints on bed capacity** at health-system level. In day-to-day practice, they also described **exacerbations of chronic cardiovascular disease**, pressure on healthcare resources and increased admissions or bed-capacity challenges.



Cardiologist, Portugal

"Emergency departments and hospital wards are full, making it more difficult to treat other conditions requiring medical care."

Source: *Ipsos online survey conducted on behalf of Sanofi among HCPs in Portugal; fieldwork conducted 8 June–1 July 2026. Results reflect the views and practices of the surveyed sample.*
Bases: *Cardiologists (n=50).*
**** Question SB5:*** *Cardiologists were asked to what extent different aspects of secondary care are impacted by influenza season and the potential for influenza complications in older adults; figures shown represent respondents selecting "very high" or "high impact" (other answer options were: "no impact", "very low impact", "low impact", "moderate impact", and "I don't know).*
† Question SB4: *Cardiologists were asked in their own words to summarize the main impact influenza and its complications among adults aged 65+ have on the secondary-care health system, considering firstly overall system-level impact and secondly the impact on their day-to-day practice. Unprompted open-ended responses were analyzed using GenAI-assisted thematic analysis of verbatim free-text responses to identify key themes. Themes shown represent mentions from open-ended responses and should not be interpreted as majority consensus. Quote reproduced from an individual cardiologist response.*

Closing the gap between risk and protection

Sustaining influenza protection in Portugal will require **action across three areas**: rebuilding annual vaccination uptake, strengthening implementation of age-specific protection for older adults, and improving visibility of severe influenza outcomes.

1 Rebuild annual influenza vaccination uptake

Challenge

Influenza vaccination coverage among adults aged 65+ declined from 84% in 2021/22 to 73% in 2025/26, moving from above to just below the WHO 75% target.[5,10,11,14] Some unvaccinated adults report that they are **"not in the habit" of annual vaccination**, while physicians' recommendation continues to be the main reason that leads people to get vaccinated, suggesting that opportunities to reinforce vaccination behavior may be missed.

Opportunity

Rebuild annual vaccination uptake by reinforcing influenza vaccination as a routine part of healthy aging and maintaining consistent engagement with older adults throughout the vaccination season.

How this could be achieved

- **Reinforce public health communication** on influenza risk and the importance of annual vaccination for older adults.
- **Embed proactive vaccination discussions** within routine primary care, pharmacy encounters and chronic disease management.
- **Use Vacinometro® and DGS data** to identify changes in uptake and inform targeted communication and engagement.

2 Strengthen implementation of age-specific influenza protection for adults aged 60+ years

Challenge

Portugal has introduced age-specific influenza vaccination for adults aged 85+ and residents of nursing homes and long-term care facilities, while Portuguese scientific societies have recommended broader age-specific approaches for adults aged 65+.[1,15] However, **awareness of current eligibility remains incomplete**: in the final 2025/26 Vacinometro® wave, 52.9% of the total sample were aware that an age-specific influenza vaccine was available free of charge to adults aged 85+.[17]

Opportunity

Strengthen awareness and implementation of age-specific influenza vaccination in line with national policy and expert recommendations, helping ensure that older adults receive vaccination appropriate to their age and eligibility.

How this could be achieved

- **Improve communication around eligibility** for age-specific influenza vaccination approaches among adults aged 60+ years, caregivers, HCPs, and policymakers.
- **Support consistent implementation and monitor uptake** of age-specific vaccination programs to ensure eligible older adults are receiving protection aligned with age-related risk.
- **Monitor uptake among eligible older adults** to understand whether age-specific vaccination strategies are reaching the populations they are intended to protect.

3

Improve visibility of severe influenza burden in older adults

65+

Challenge

Portugal has established influenza surveillance, but routine age-specific reporting of severe outcomes remains limited. **Influenza-associated hospitalizations, ICU admissions and mortality are not consistently reported by age**, while vaccination status is not routinely linked to severe outcomes which limits the understanding of where severe influenza burden is concentrated among older adults.[18,19]

Opportunity

Strengthen age-specific surveillance and data linkage to provide greater visibility of severe influenza outcomes among older adults and support assessment of how prevention strategies are performing in practice.

How this could be achieved

- **Expand routine age-stratified reporting** of influenza-associated hospitalizations, ICU admissions, mortality and other severe outcomes.
- **Explore greater alignment between surveillance age bands** and the populations covered by national vaccination recommendations.
- **Strengthen linkage between vaccination,** hospitalization and outcome datasets to improve understanding of vaccination status in relation to severe influenza outcomes.

Methodology

Flunomics brings together **publicly available epidemiological**, **vaccination**, **economic and policy evidence** to examine **how influenza affects older adults** across **nine countries**:



Together, these data provide a broader understanding of how influenza burden, protection, and health system performance interact in aging populations.

The report incorporates **the most recent evidence available for each country at the time of analysis**, including data from the **2025/26 influenza season where published**. Where newer surveillance data were not yet available, the latest validated national datasets and longer-term trends were used to provide context. As reporting schedules differ between countries, the reference period varies by market.

The evidence framework

Flunomics examines five interconnected dimensions of protection:

Dimension	Focus
Epidemiological impact	Influenza burden, including cases, hospitalizations, ICU admissions and mortality, with a focus on older adults.
Vaccination coverage	Influenza vaccination coverage trends among older adults, including the most recent publicly available national estimates.
Economic impact	Published evidence describing the direct and indirect costs of influenza to individuals, health systems and society.
Policy & system impact	How vaccination recommendations are implemented in practice, including delivery, access, surveillance and system performance.
Opportunity	Evidence-informed opportunities to strengthen protection for older adults based on observed burden and implementation gaps.

Country approach

Each country chapter follows a consistent analytical framework comprising five sections:



Epidemiological impact



Vaccination coverage



Economic impact



Policy & system impact



What needs to change

Recognizing that **health systems are organized differently across countries**, policy and system analyses are undertaken either at national level or through selected regional case studies, depending on how influenza vaccination programs are delivered. This approach allows the report to assess how policy translates into real-world protection while respecting **differences in governance**, **implementation and data availability**.

Interpreting the findings

Flunomics is intended to **support informed discussion rather than direct comparison between countries**. Surveillance systems, case definitions, reporting practices, age thresholds and data availability differ substantially across markets. As a result, vaccination coverage is the only indicator presented comparatively across all countries; all other findings are interpreted within their national context.

Where evidence gaps exist – particularly in age-specific hospitalization, mortality or economic data – they are explicitly identified throughout the report. These **gaps are treated as important findings**, highlighting **opportunities to strengthen surveillance**, **improve visibility of influenza burden and better inform future policy and implementation**.

Dr Marco Del Riccio contributed the foreword and provided scientific advice on the identification, interpretation, and presentation of evidence included in this report.

Survey research element

To support the findings of this report and further explore the burden of influenza in each of the countries covered by this report, **Sanofi sponsored an independent survey of frontline HCPs** to understand real-world perspectives on optimizing influenza protection among older adults, the extent and challenges of annual flu burden, and how well existing guidelines translate into successful implementation.

Ipsos, a market research agency based in the UK, conducted the research on behalf of Sanofi. The following table summarizes the key aspects of survey design.

Survey parameters	
Data collection:	Computer-Assisted Web Interviewing (CAWI). A semi-structured questionnaire designed to collect both quantitative metrics (closed list, option select, rating scale, numeric responses) and qualitative feedback (open-ended free-text response), rendered for online self-completion by respondent. All respondents were self-selecting, all data shown is therefore based on those healthcare professionals who chose to take part in the survey
Sample type:	Non-probability, unstratified, therefore not designed to be statistically representative of the respective HCP universes in each country. Instead, specific minimum numerical targets for subgroups (region, years in practice, practice type) were applied to ensure a good level of sample diversity and geographical coverage
Sample source:	Online panels of relevant HCPs who have opted-in to receive invitations to participate in market research surveys
Sample size:	n=1353 across 8 countries and 5 HCP classifications (countries/HCP types per table below)
Sample quotas:	Applied to country and HCP type within country (see quota table below)
Data analysis:	• Responses aggregated into simple descriptive statistics (e.g. percentage of sample selecting response option/range of response or mean score for numeric responses) • Open-ended/free-text questions were analyzed by generative AI and organized into response themes (percentage of sample where all or part of response attributed to derived theme) • No weighting or calibration applied to dataset
Eligibility and screening criteria:	• Must have spent between 3-40 years working within current role • Must spend 70% of professional time in clinical setting (seeing patients/customers) • General practitioners (GPs)/Family practitioners (FPs)/Nurses working in clinic/office-based practices; Pharmacists working in retail pharmacies (single location or with multiple branches under same ownership); Specialists working in clinic/medical centers or in hospital settings; Cardiologists must not be working in specialized fields only • Minimum 150 (primary care HCPs) and 100 patients (secondary care HCPs) seen in a typical month and at least 20% within defined older age category • No pharmaceutical company work as consultant or researcher
Fieldwork dates:	28th May to 13th July 2026 inclusive

Survey sample size by country and HCP type									
HCP type*	England	France	Germany	Italy	Spain	Portugal	Canada	USA	Total
Primary care									
GP/FP*	100	101	100	101	54	50	51	155†	**712**
Retail Pharmacist	-	50	51	-	-	-	31	54	**186**
Nurse	-	-	-	-	51	-	-	-	**51**
Secondary care									
Pulmonologist	50	50	-	-	-	-	-	-	**100**
Cardiologist	-	50	50	-	53	50	51	50	**304**
Total	**150**	**251**	**201**	**101**	**158**	**100**	**133**	**259**	**1353**

** HCP = healthcare professional; GP = general practitioner; FP = family practitioner.*
† 50 working in health systems/large clinics and included internal medicine working in primary care.

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