Challenge of Healthy Ageing – Preventing Infection

- *"Adding life to years"*

Rónán Collins

Consultant Physician in Geriatric and Stroke Medicine

Trinity College Dublin

The University of Dublin











.....and don’t ask...

What is Positive ageing ?

Positive ageing refers to a holistic individual, community and 'whole-of-government' approach to changing attitudes towards ageing.

Particular emphasis is based on the **life course approach**, highlighting that ageing policy and practice is an **issue for all ages** and sectors of society.

Irish National Positive Ageing Strategy 2013

- Ireland will be a society for all ages ……
- ….. celebrates and prepares properly for individual and population ageing
- **…..will enable and support all ages and older people to enjoy physical and mental health and wellbeing to their full potential.**
- ….will promote and respect older people's engagement in economic, social, cultural, community and family life, and foster better solidarity between generations.
- ……will be a society in which the equality, independence, participation, care, self-fulfilment and dignity of older people are pursued at all times."

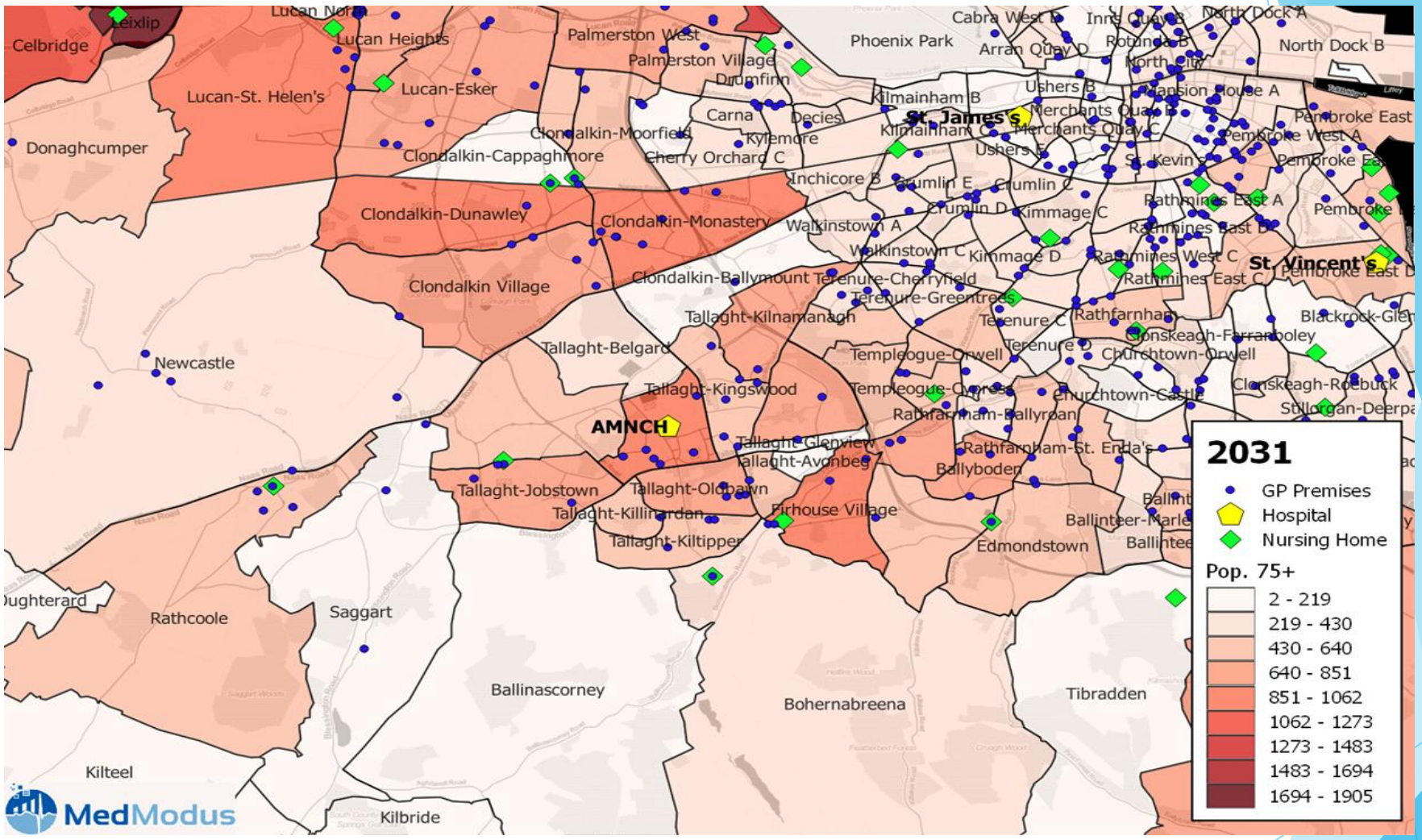
(Department of Health. 2013, p. 3)

Table 1 Projected increase in population aged 65 years and older living in Ireland 2020 - 2040

Age Group	2011	2016	2020 [iii]	2025 [iii]	2040 [iii]	2020–2040 [iii]
	n (% total population)	n (% total population)	n (% total population)	n (% total population)	n (% total population)	% change
Aged 65 years and over	535,393 (11.7)	637,567 (13.4)	719,912 (14.6)	840,805 (16.3)	1,253,099 (21.9)	174.1
Aged 85 years and over	58,416 (1.3)	67,555 (1.4)	78,855 (1.6)	97,822 (1.9)	206,437 (3.6)	261.8

Source: CSO

2031

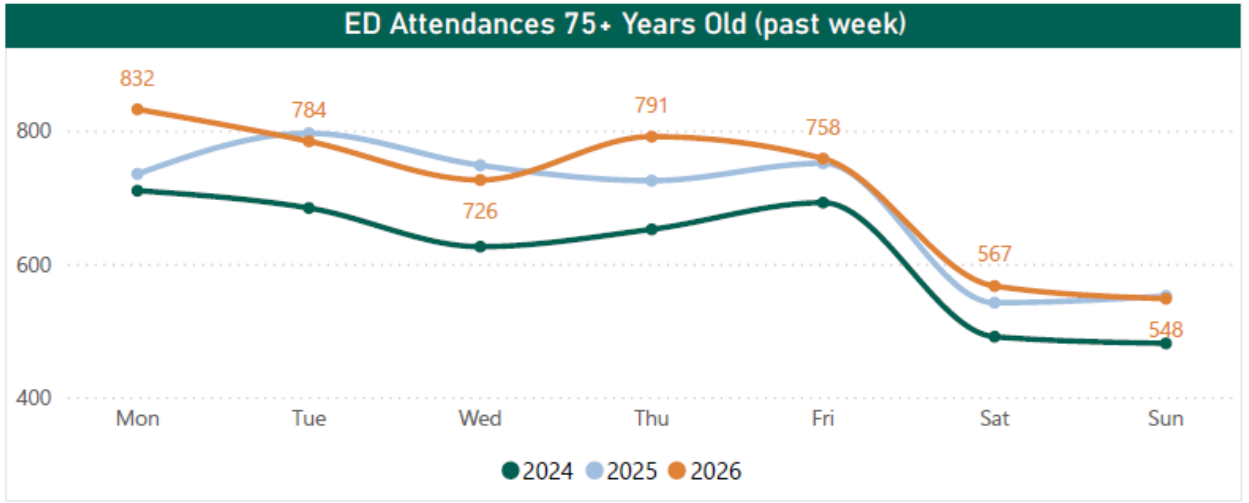


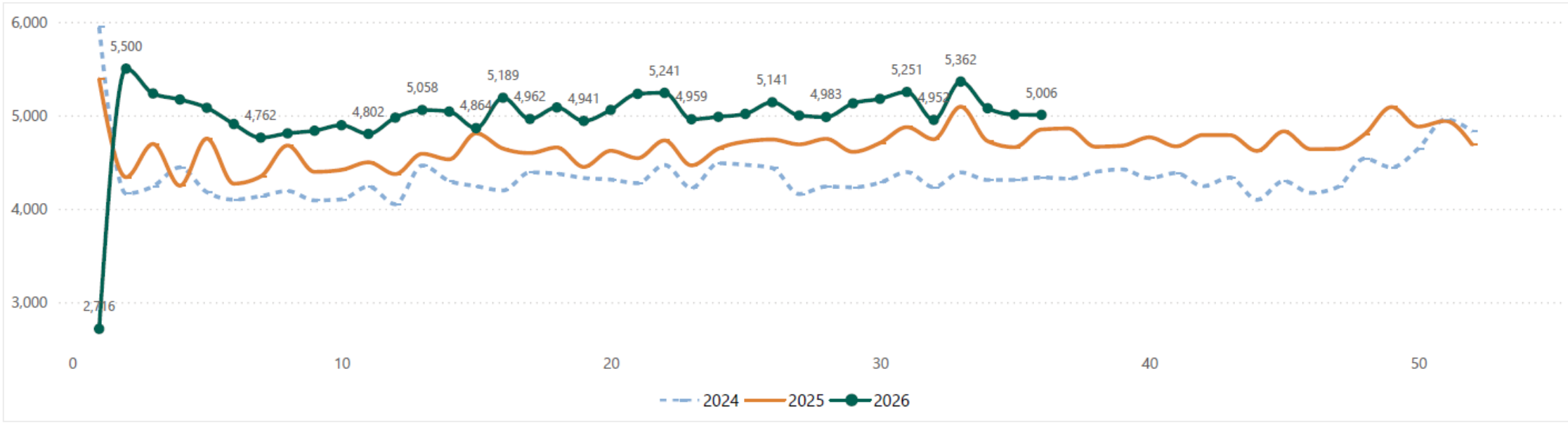
2031
GP Premises
Hospital
Nursing Home
Pop. 75+
2 - 219
219 - 430
430 - 640
640 - 851
851 - 1062
1062 - 1273
1273 - 1483
1483 - 1694
1694 - 1905
AMNCH
St. James's
St. Vincent's
Celbridge
Leixlip
Lucan Heights
Lucan-St. Helen's
Lucan-Esker
Palmerston West
Palmerston Village
Drumfinn
Phoenix Park
Cabra West B
Arran Quay D
North Dock A
North Dock B
Donaghcumper
Clondalkin-Moorfield
Clondalkin-Cappaghmore
Carna
Decies
Kylemore
Cherry Orchard C
Kilmainham B
Kilmainham C
Ushers B
Ushers E
Merchants Quay B
Merchants Quay C
Mansion House A
Pembroke East
Pembroke West A
Pembroke East
St. Kevin's
Inchicore B
Crumlin E
Crumlin C
Crumlin D
Kimmage C
Kimmage D
Rathmines East A
Rathmines East B
Rathmines West C
Rathmines East C
Pembroke East D
Clondalkin-Dunawley
Clondalkin-Monastery
Walkinstown A
Walkinstown C
Clondalkin Village
Clondalkin-Ballymount
Terenure-Cherryfield
Terenure-Greentrees
Terenure C
Terenure D
Rathfarnham
Blackrock-Glen
Clonskeagh-Farranboley
Churchtown-Orwell
Clonskeagh-Roebuck
Stillorgan-Deerpa
Newcastle
Tallaght-Kilnamanagh
Tallaght-Belgard
Templeogue-Orwell
Templeogue-Cypress
Churchtown-Castle
Rathfarnham-Ballyroan
Tallaght-Kingswood
Tallaght-Glenview
Tallaght-Avonbeg
Rathfarnham-St. Enda's
Ballyboden
Tallaght-Jobstown
Tallaght-Oldbawn
Tallaght-Killinardan
Firhouse Village
Tallaght-Kiltipper
Edmondstown
Ballinteer-Marle
Ballintee
Rathcoole
Saggart
Ballinascorney
Bohernabreena
Tibradden
Kilteel
Kilbride
MedModus

National ED Attendances 75+ Years Old - to week ending 06 September

5,006 patients aged 75+ years **attended** ED last week

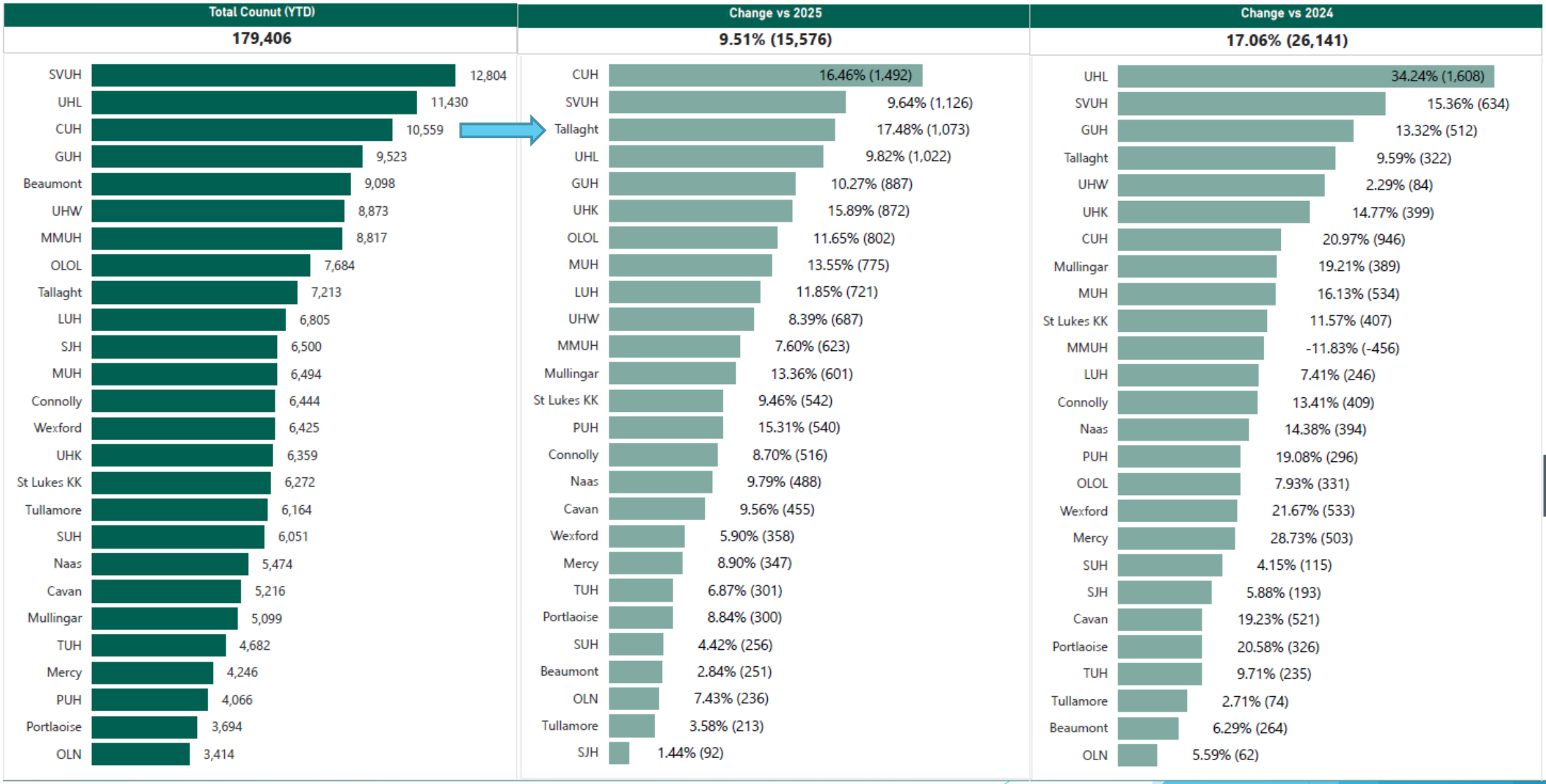
on the previous week	on the same week in 2025	on the same week in 2024
-3	+157	+670
-0.06%	+3.24%	+15.45%





Source: Acute BIU PET Extract

Attendances 75+ Years Old YTD & Site Level % Change vs Previous Years - to week ending 06 September



Influenza places greatest demand on health resources and outcomes compared to other ARIs

The 2025/26 early, peaked wks 50–51.
A(H3N2) - subtype often associated with disproportionate burden in older people.

24,948
laboratory-confirmed cases

5,935
hospitalised cases

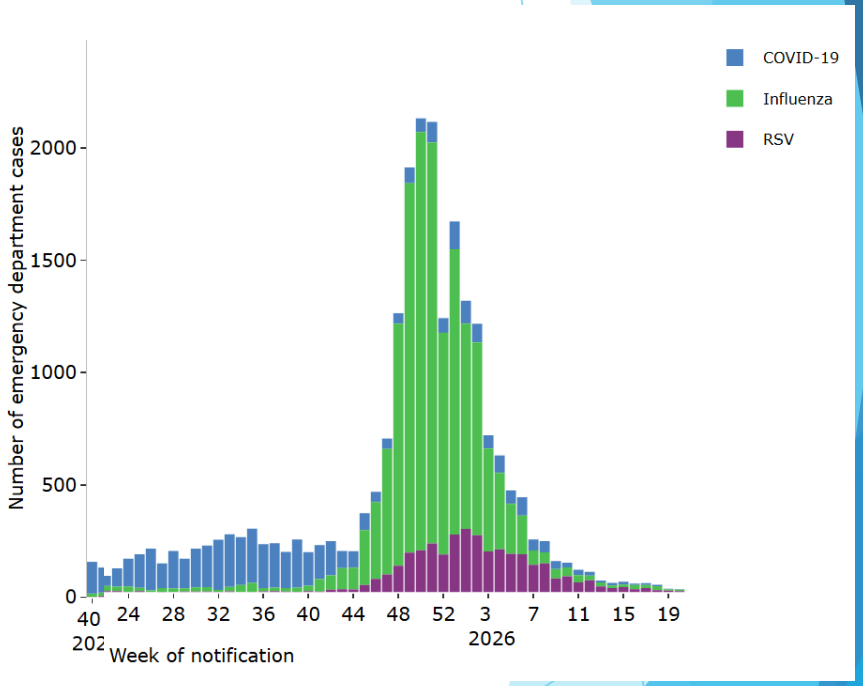
183
ICU admissions

301
deaths among confirmed cases

≈24%
of confirmed cases were hospitalised*

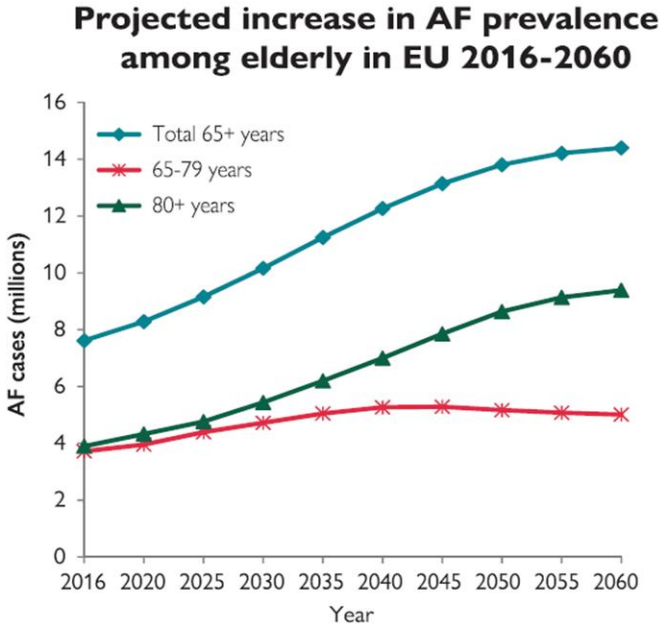
*Crude proportion, not an adjusted risk estimate.

Flu dominates presentation to ED cases and hospitalised cases (compared to COVID-19 and RSV)[1]



1. Adapted from **Figure 16 – Number of ED cases of lab-confirmed COVID. Flu and RSV by week of notification from W40 2024 to W20 2026** . See also **Fig 17/18 for incidence of hospitalised cases** of lab-confirmed infections IRV bulletin Ireland Accessed Oct 2026

As it stands I in 4 of us will get a stroke



Krijthe BP et al. European Heart Journal (2013) 34, 2746–2751

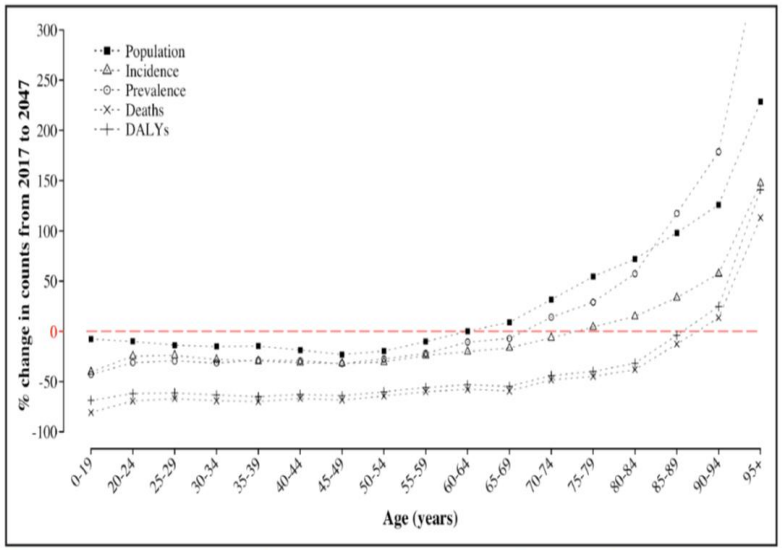
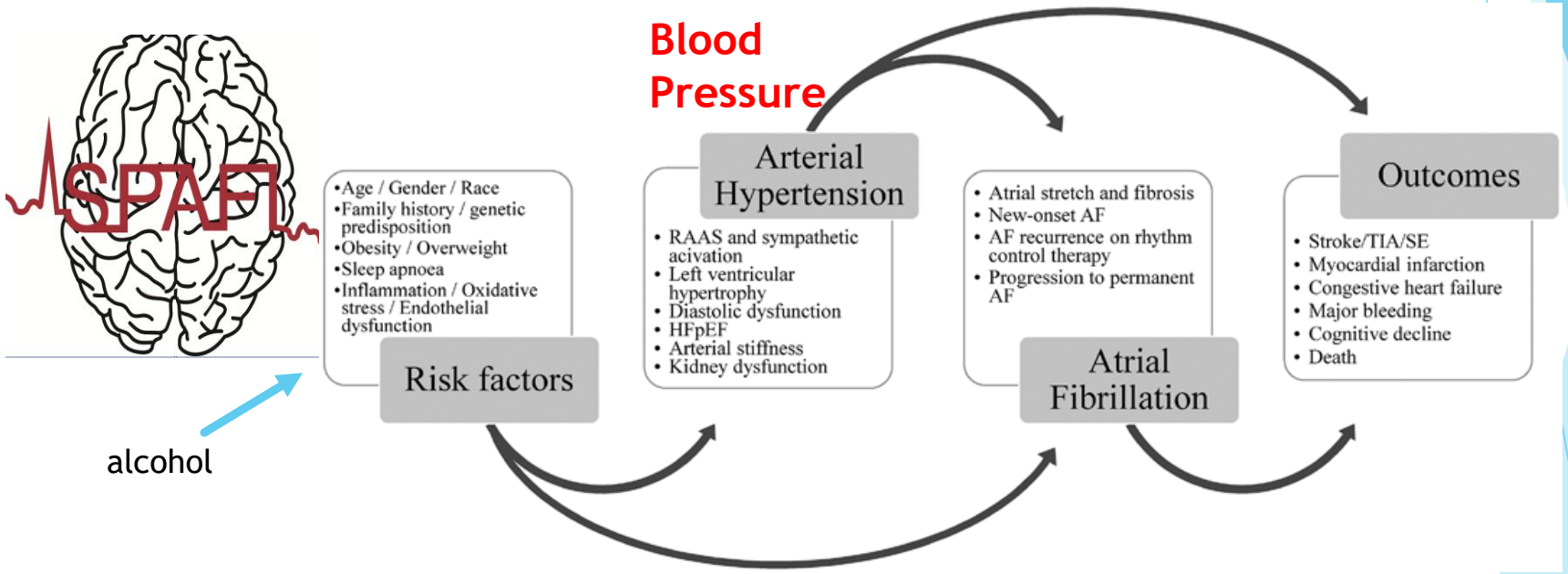


Figure 2. Projected change in population, incidence, prevalence, deaths, and disability-adjusted life years disability-adjusted life years (DALYs) count by age group in the European Union (2047 vs 2017).

Wafa et al. Stroke. 2020;51:2418–2427

Breaking the cycle between hypertension and AFIb – key goal in stroke prevention



Dzeshka et al. 2017

I in 4 of us will get Dementia

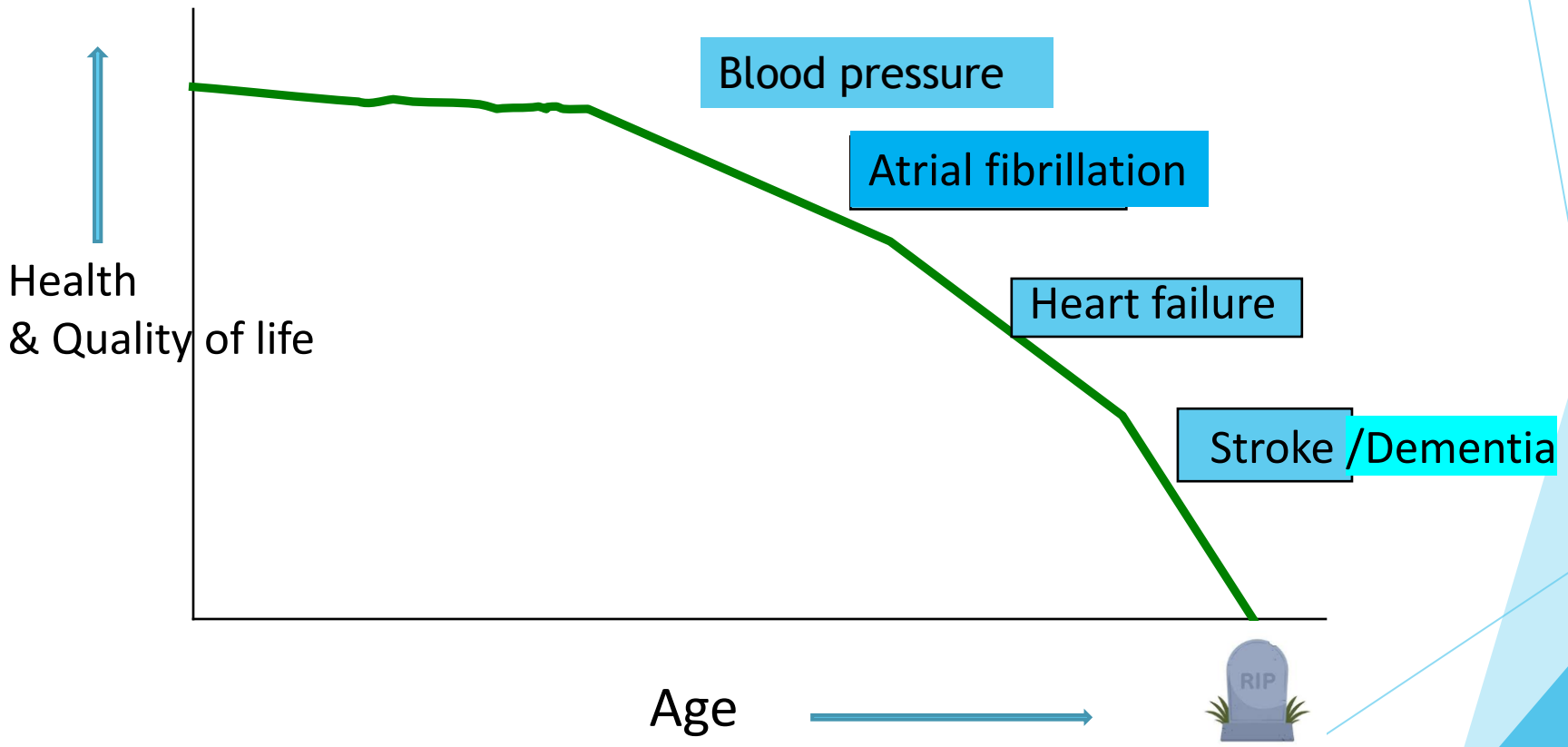


Table 3. Projected increase in number of people aged ≥50 years living with ≥1 of CVD, diabetes, COPD and/or asthma, 2016-2030

	One or more of the four chronic diseases	**2016** Population ≥50 years = 1,446,460	**2019** Population ≥50 years = 1,543,662*	**2024** Population ≥50 years = 1,753,951*	**2030** Population ≥50 years = 2,025,828*
	% (95% CI)	**n**	**n**	**n**	**n**
Number affected	**53.8 (52.6, 55.0)****	**778,196**	**830,490**	**943,626**	**1,089,895**

*Projected by CSO **Based on analysis of TILDA data, 2018

The morbidity trajectory



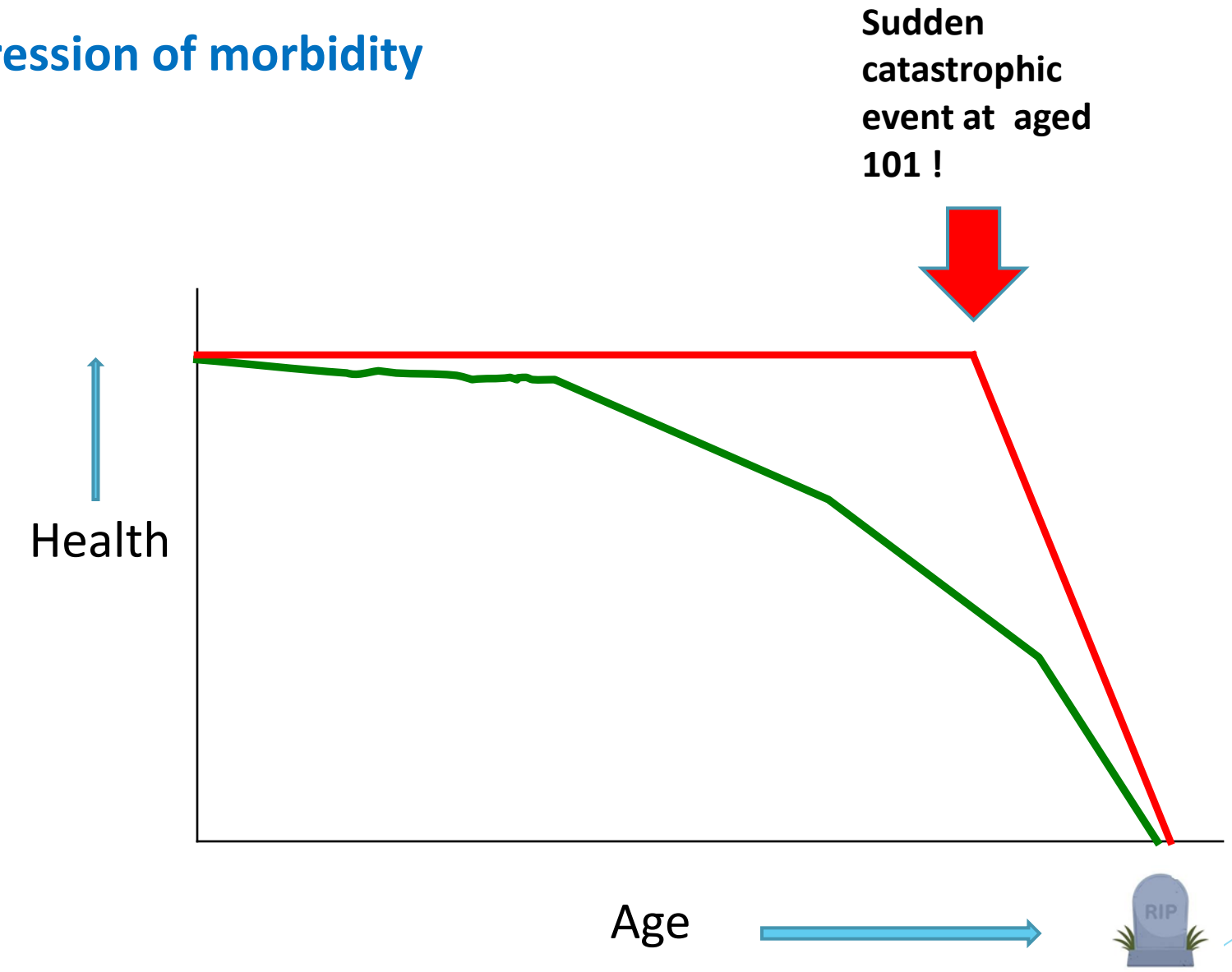
A pastoral view of ageing

Felix Randal the farrier, O is he
dead then? my duty all ended,
Who have watched his mould of
man, bigboned and
hardy-handsome

Pining, pining, till time when
reason
rambled in it, and some
Fatal four disorders, fleshed
there, all contended?



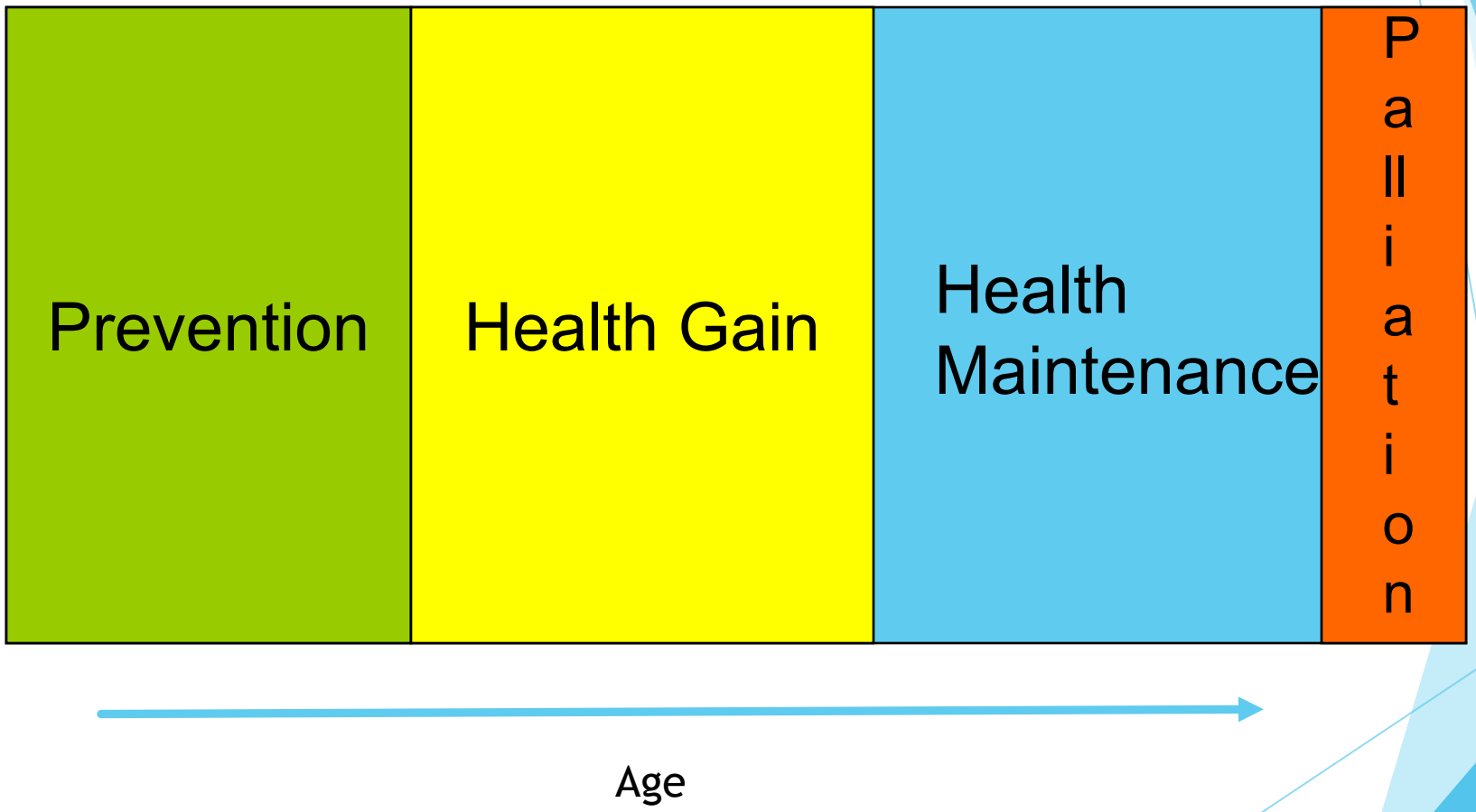
Compression of morbidity



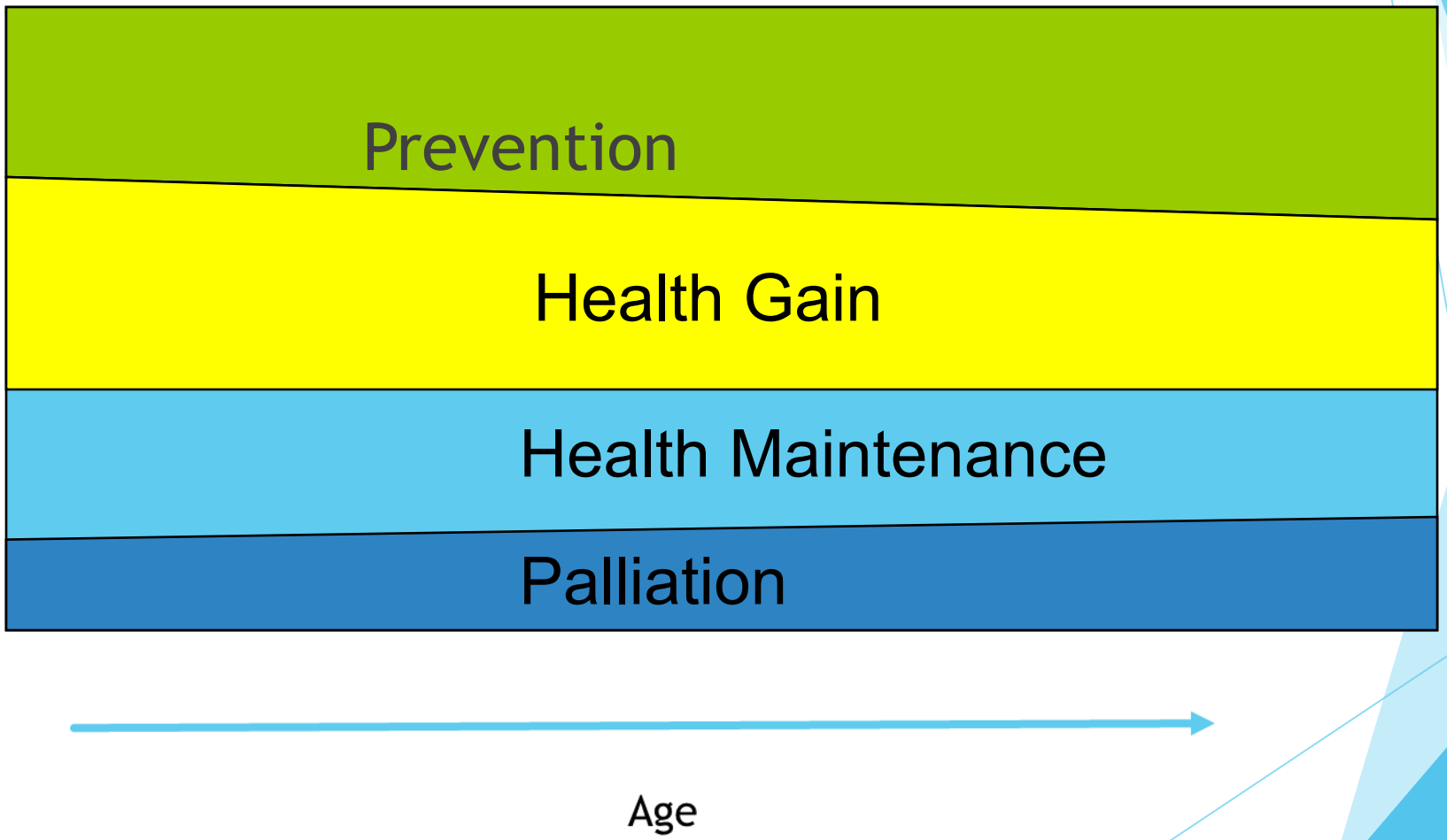
The Possible Futures of Older Age



Changing paradigms



Not either/or….



The Role of Medicine in healthy Ageing

"*By delaying the onset of disabling diseases to later ages ……the average duration of disability before death will be shortened. In brief,* ***we will spend a longer time living and a shorter time dying"***

- Sir J Grimley Evans 1997



How do we achieve the ‘Utopia’ of long life with short period of illness ?

Life-long approach to ageing – Invest in your future from adulthood

Prevention: Identify and modify

- Bad lifestyle habits
- Environmental factors
- Socioeconomic factors
- Health Risk Factors
- Targeted Vaccination



Modify Chronic Disease when develops

Condition	Stroke Risk Association	Dementia Risk Association
Influenza	Increased risk (up to double) in the 2 weeks following infection [1], [2].	Associated with potential increased risk; vaccination linked to reduced incidence [3], [4], [5].
RSV	Significantly increased risk of cardiovascular events, including ischemic stroke, post-infection [6], [7].	Emerging evidence links infection to cognitive decline; vaccination potentially protective [8], [9].
Shingles (VZV)	Markedly increased risk (up to 50%) within the first 2 weeks of infection [10].	Associated with increased risk; vaccination tied to significant reductions (up to 50%) in dementia [11], [12], [13].

Why?

- Myocardial stress & Arrhythmia
- Prothrombotic Cytokine storm
- Oxidative stress of arterial plaques
- Increased blood-brain permeability
- Small vessel arteriopathy

- **Reference**[1] CIDRAP. (n.d.). Even mild flu tied to double risk of heart attack, stroke in older patients. cidrap.umn.edu [2] Falsey, A. R. (2025). Neurologic Complications of Influenza and Potential... PMC. pmc.ncbi.nlm.nih.gov [3] Sun, H. (2023). Association of Influenza Vaccination and Dementia Risk. PubMed. pubmed.ncbi.nlm.nih.gov [4] Zhao, H. (2024). Prospective cohort study evaluating the association... Nature. nature.com [5] Bukhbinder, A. S. (2026). Risk of Alzheimer Dementia After High-Dose vs Standard... Neurology. neurology.org [6] US Pharmacist. (n.d.). RSV Infection Significantly Increases Cardiovascular Risk. uspharmacist.com [7] MedPage Today. (n.d.). Heart Attack, Stroke Risk Rises After Serious RSV, Study... medpagetoday.com [8] CIDRAP. (n.d.). Shingles, RSV vaccines may protect older adults from dementia. cidrap.umn.edu [9] Farrer, T. J. (2024). Infectious Disease as a Modifiable Risk Factor for Dementia. MDPI. mdpi.com [10] Parameswaran, G. I. (2023). Increased Stroke Risk Following Herpes Zoster Infection... Clinical Infectious Diseases. academic.oup.com [11] IDSA. (2025). Shingles Vaccine Lowers Risk of Dementia, Major Cardiovascular Events. idsociety.org [12] CIDRAP. (n.d.). Shingles vaccine tied to significant reductions in risk of dementia, heart disease, and... cidrap.umn.edu [13] Polisky, V. (2025). Varicella-zoster virus reactivation and the risk of dementia. Nature. nature.com

Age and Ageing 2025; **54:** afaf169
https://doi.org/10.1093/ageing/afaf169

© The Author(s) 2025. Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

SYSTEMATIC REVIEW

Influenza vaccination and risk of dementia: a systematic review and meta-analysis

Wen-Kang Yang[1,2], Shih-Chieh Shao[3,4], Chia-Chao Liu[3], and Ching-Chi Chi[5,6]

[1]Department of Education, Keelung Chang Gung Memorial Hospital, Keelung, Taiwan
[2]Department of Physical Medicine and Rehabilitation, Keelung Chang Gung Memorial Hospital, Keelung, Taiwan
[3]Department of Pharmacy, Keelung Chang Gung Memorial Hospital, 222, Maijin Rd, Anle District, Keelung 204201, Taiwan
[4]School of Pharmacy, Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan
[5]Department of Dermatology, Chang Gung Memorial Hospital, Linkou Main Branch, Taoyuan, Taiwan
[6]School of Medicine, College of Medicine, Chang Gung University, Taoyuan, Taiwan

Address correspondence to: Ching-Chi Chi, Department of Dermatology, Chang Gung Memorial Hospital, Linkou Main Branch, 5, Fuxing St, Guishan Dist, Taoyuan 333423, Taiwan. Tel: +886-3-328-1200 extn 3556.
Email: chingchi@cgmh.org.tw, Prof.Chi.work@gmail.com

Abstract

Background: The association between influenza vaccination and a reduction in dementia was unclear with inconsistent evidence. We aimed to evaluate the association between influenza vaccination and dementia risk in the overall population and the high-risk populations for dementia, such as patients with chronic kidney syndrome (CKD), chronic obstruction pulmonary disease (COPD) and vascular disease.
Methods: We performed a systematic review and searched PubMed, Embase and CENTRAL from inception to 6 April 2025. The risk of bias was assessed using the Newcastle–Ottawa Scale. A random-effects model meta-analysis was executed.
Results: We included eight cohort studies with 9,938,696 subjects. Except for one study, the risk of bias of all other included studies was low. Influenza vaccination was associated with a reduced risk of incident dementia in high-risk populations for dementia, but not in the overall population (HR 0.93; 95% CI: 0.86–1.01). For high-risk populations, more than one dose of influenza vaccination showed an association with a lower risk of incident dementia (2–3 doses: HR 0.84; 95% CI: 0.76–0.92; ≥ 4 doses: HR 0.43; 95% CI: 0.38–0.48).
Conclusion: Influenza vaccination was associated with a decreasing risk of incident dementia in a dose–response manner.

Association between influenza vaccination and risk of stroke in Alberta, Canada: a population-based study

Jessalyn K Holodinsky, Charlotte Zerna, Shaun Malo, Lawrence W Svenson, Michael D Hill

Summary

Background Respiratory infection can be an immediate precursor to stroke and myocardial infarction. Influenza vaccination is associated with reduced risk of myocardial infarction and hospitalisation for cardiac disease, and influenza vaccination is strongly recommended for patients with heart disease. Evidence on whether the same protective association exists for stroke, and whether this potential effect is consistent across age and risk groups, is conflicting. We aimed to assess the risk of stroke after influenza vaccination in adults.

Methods We obtained administrative data from the Alberta Health Care Insurance Plan (which covers all residents of Alberta, Canada) beginning on Sept 30, 2009, or May 15 of the year in which residents were recorded as being 18 years of age. Individuals were censored at the earliest of three events: death, recorded outmigration, or Dec 31, 2018. The outcome of interest was any stroke event, comprising acute ischaemic stroke, intracerebral haemorrhage, subarachnoid haemorrhage, and transient ischaemic attack. We used Andersen-Gill Cox models to analyse the hazard of any stroke event for individuals with recent (<182 days) influenza vaccination compared with those without recent influenza vaccination, with adjustment for age, sex, anticoagulant use, atrial fibrillation, chronic obstructive pulmonary disease, diabetes, hypertension, income quintile, and rural or urban home location. Two-way interaction terms between each individual covariate and vaccination status were used to assess for effect modification by risk factor. The association between vaccination and risk of each type of stroke was also modelled, adjusting for baseline covariates.

Findings The study sample consisted of 4 141 209 adults (29 687 899 person-years of observation time) registered under the provincial health-care system between Sept 30, 2009, and Dec 31, 2018. 1 769 565 (42·73%) individuals received at least one vaccination during the study period, and 38 126 stroke events were recorded. Adjusted for demographics and comorbidities, recent influenza vaccination significantly reduced the hazard of stroke (hazard ratio 0·775 [95% CI 0·757–0·793]). This association persisted across all stroke types. We found effect modification by each covariate examined except for home location; however, vaccination was associated with a reduced risk of stroke overall across all ages and risk profiles with the exception of individuals without hypertension.

Interpretation The risk of stroke is reduced among people who have recently been vaccinated against influenza compared with those who have not. This association extended to the entire adult population and was not limited to individuals with a baseline high risk of stroke. Further studies in a variety of settings are needed to evaluate whether influenza vaccination could be used as a public health strategy to prevent stroke.

Lancet Public Health 2022; 7: e914–22

This online publication has been corrected. The corrected version first appeared at thelancet.com/public-health on November 30, 2022

See Comment page e888

Department of Clinical Neurosciences (J K Holodinsky PhD, Prof M D Hill MD), Hotchkiss Brain Institute (J K Holodinsky, Prof M D Hill), Department of Community Health Sciences (L W Svenson PhD*, Prof M D Hill), Department of Medicine (Prof M D Hill), and Department of Radiology (Prof M D Hill), Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada; Department of Neurology, Städtisches Klinikum Dresden, Dresden, Germany (C Zerna PhD); Analytics and Performance Reporting Branch, Alberta Health, Edmonton, Canada (S Malo MSc, L W Svenson); Division of Preventive Medicine, Faculty of Medicine & Dentistry, School of Public Health, University of Alberta, Edmonton, Canada (L W Svenson)

*Dr Svenson died in March, 2022

npj | vaccines

Brief communication

Published in partnership with the Sealy Institute for Vaccine Sciences

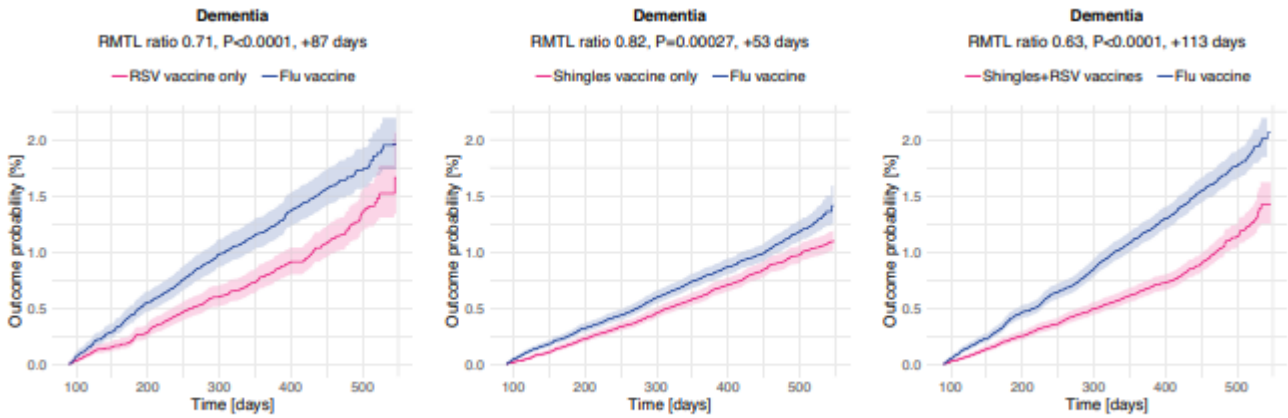
https://doi.org/10.1038/s41541-025-01172-3

Lower risk of dementia with AS01-adjuvanted vaccination against shingles and respiratory syncytial virus infections

Check for updates

Maxime Taquet[1,2] ✉, John A. Todd[3] & Paul J. Harrison[1,2] ✉

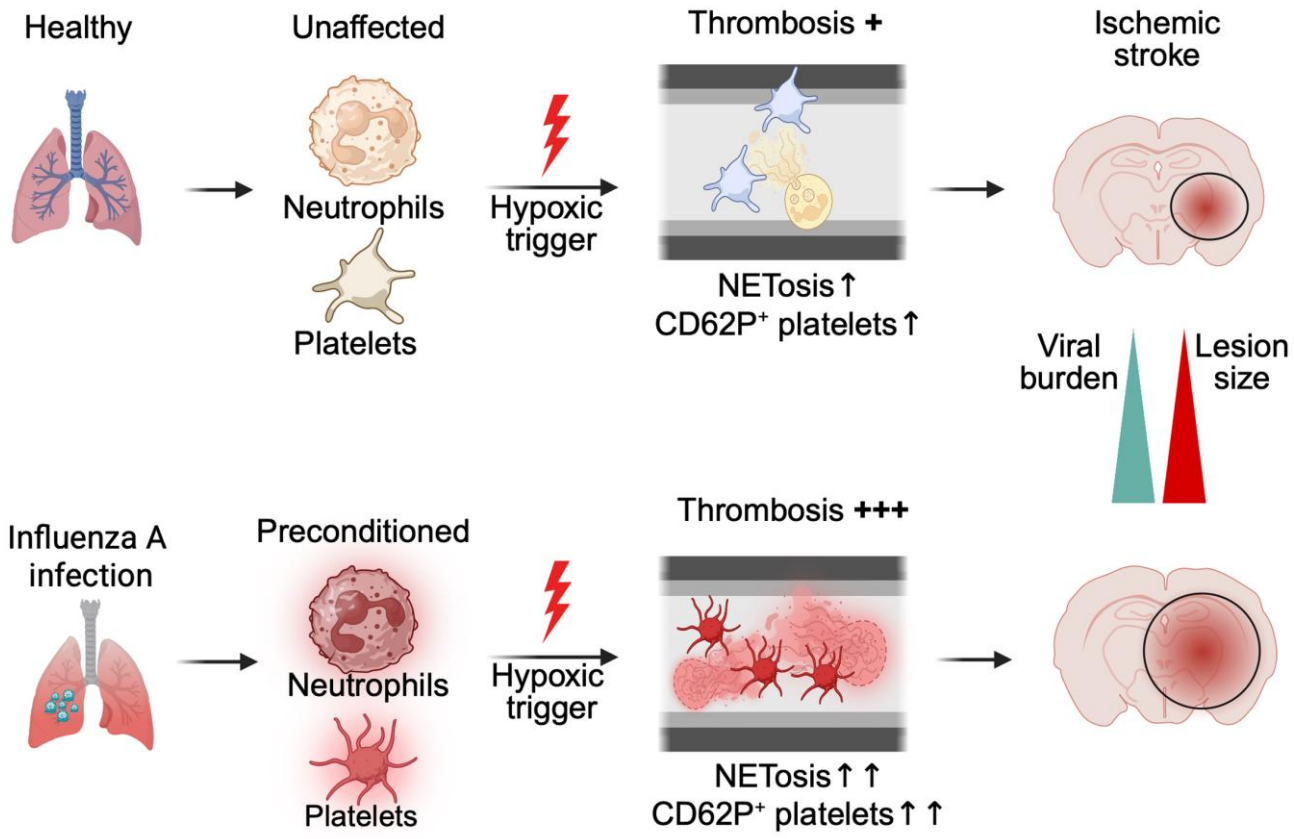
AS01-adjuvanted shingles (herpes zoster) vaccination is associated with a lower risk of dementia, but the underlying mechanisms are unclear. In propensity-score matched cohort studies with 436,788 individuals, both the AS01-adjuvanted shingles and respiratory syncytial virus (RSV) vaccines, individually or combined, were associated with reduced 18-month risk of dementia. No difference was observed between the two AS01-adjuvanted vaccines, suggesting that the AS01 adjuvant itself plays a direct role in lowering dementia risk.



Vaccination	Dementia outcome vs influenza vaccine
RSV (AS01) alone	**29% greater dementia-diagnosis-free time**; RMTL ratio **0.71 (95% 0.83)**
Shingles (AS01) alone	18% greater diagnosis-free time; ratio 0.82
RSV + shingles	**37% greater diagnosis-free time**; ratio 0.63

Taquet et al. npj Vaccines.2025;10:130

Flu Infection Worsens Stroke



Haupeltshofer et al. 2025

Unvaccinated patients are at increased risk of severe outcomes

Unvaccinated compared with vaccinated patients:[1]

Pneumonia

23% increased risk

ICU admission

18% increased risk

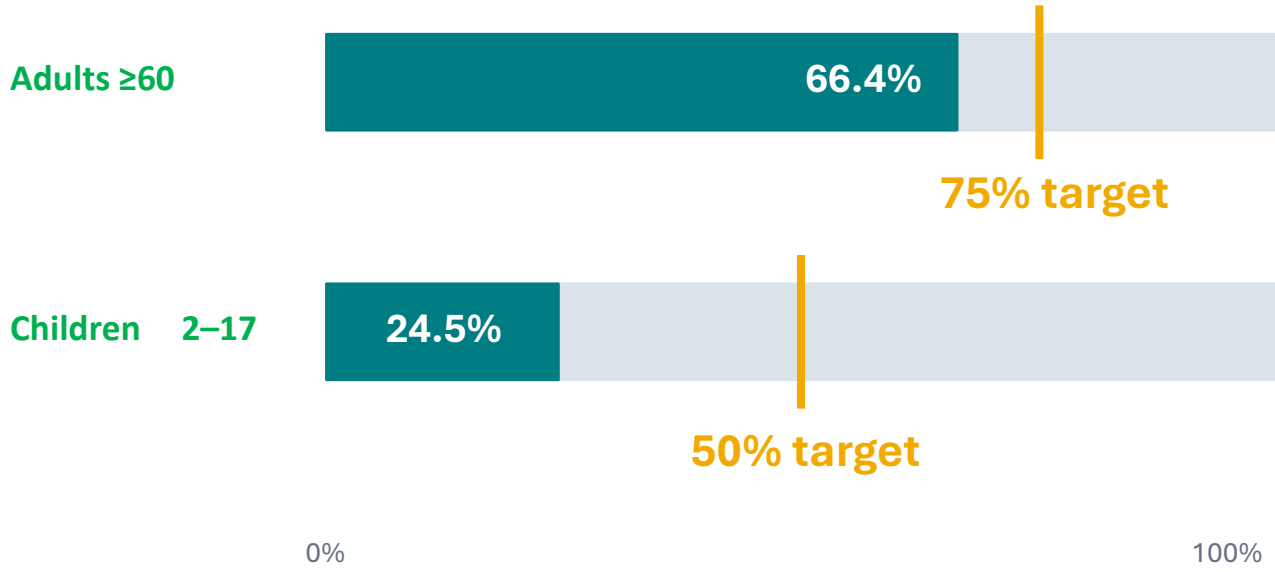
Ventilator usage

25% increased risk

In-hospital death

48% increased risk

Uptake ≥60 years was 66.4% (HSE target of 75%[2])



1. Famati EA, *et al. Open Forum Infect Dis.* 2023;10(12):ofad599.. **2.** HPSC. Seasonal Influenza Vaccine Uptake in Ireland, 2025/26 (15 Sep 2025–28 Jun 2026)

Influenza prevention protects more than the lungs

Pneumonia / respiratory failure

May require admission, oxygen or ICU

Stroke and Cardiovascular events

- Infection assoc x 2 risk of stroke
- Can destabilise coronary disease
- Exacerbate heart failure

Exacerbation of chronic disease

COPD, asthma, diabetes and renal disease may worsen

Frailty and functional decline

- Falls, deconditioning
- Cognitive Decline
- Loss of independence

Secondary healthcare use

- GP contacts
- out-of-hours care
- ED and hospital beds

Mortality

301 deaths occurred among confirmed cases in 2025/26

Healthy Ageing includes prevention of infection with Flu, COVID-19, RSV & Shingles.



Why ageing changes your infection risk

The immune system doesn't switch off with age — it slows down - “immunosenescence,” .

* Flu, Shingles, COVID & RZV hit older adults harder.



A slower immune response

New infections are recognised and fought off less quickly, so illness can take hold and last longer.



More chronic conditions

Heart disease, diabetes, and lung conditions become more common with age — and each raises the risk of serious complications.



Vaccines still work

Protection may need a boost (higher-dose or adjuvanted vaccines), but immunisation remains one of the most powerful tools available.

Many factors can impact vaccine effectiveness [1]

Patient Factors

Reduced immune response[2]

e.g. immunosenescence in older adults, compromised immune response

Viral Factors

Vaccine-virus mismatch[3]

e.g. antigenic drift (natural mutation in circulating flu strains)

Vaccine Factors

Vaccine-virus mismatch[4]

e.g. egg-adaptation (changes during egg-based manufacturing)

Flu Vaccine Uptake Factors[5,6]

1. ATAGI. Australian Immunisation Handbook, Australian Government Department of Health, Canberra, 2018, immunisationhandbook.health.gov.au. Accessed Sept 2020. 2. McElhaney JE. Aging Health. 2008;4(6):603-13. 3. Ansaldi et al. Vaccine. 2010;s8:4123-29. 4. Skowronski DM et al. PLoS One. 2014;9(3):e92153. 5. Menzies RI et al. Med J Aust. 2017;206(6):238-239. 6. Rao S et al. Hosp Pediatr. 2016;6(9):513-519.

Age-related changes and the consequences of influenza

Immunosenescence and inflammageing weaken protection and recovery.

Immune response

Reduced naïve T-cell reserve

Less flexible response to new antigens

B-cell dysfunction

Lower antibody quantity, quality and persistence

Chronic inflammation

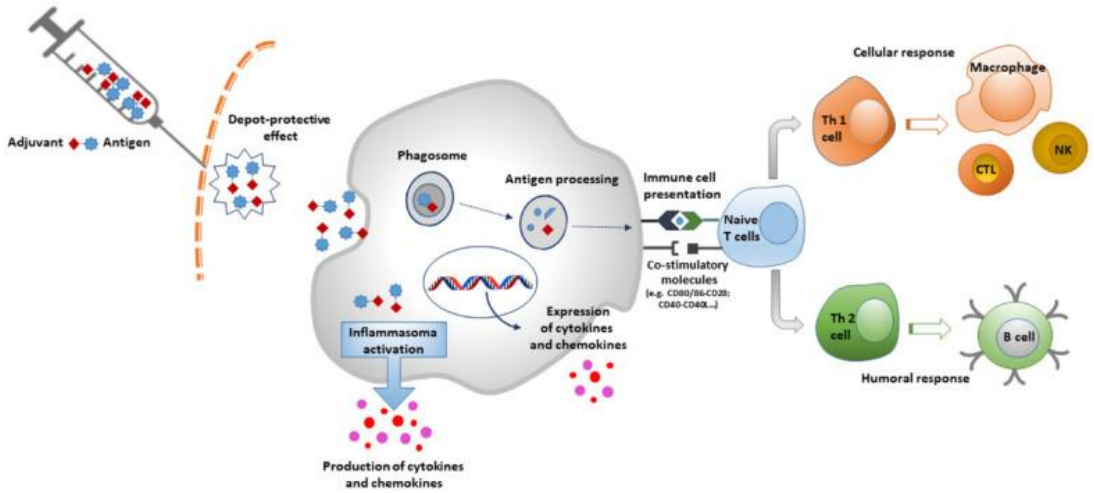
Greater risk of dysregulated response and decompensation

Frailty + comorbidity

Less reserve to tolerate fever, hypoxia and immobility

Clinical result: infection more likely to trigger severe illness, prolonged recovery and loss of function in older adults

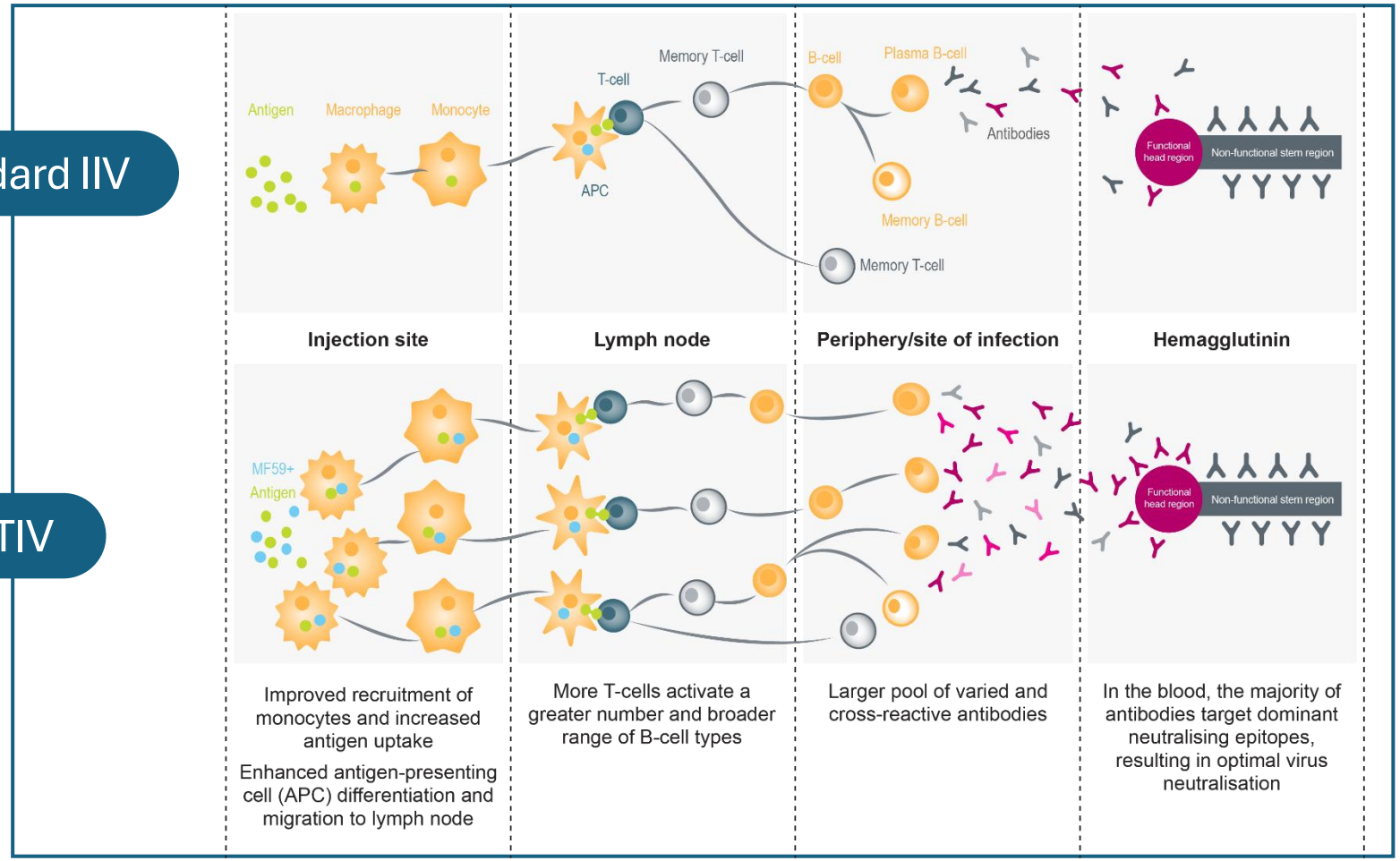
Adjuvant strategies



Adjuvant Groups	Types of Adjuvants
Delivery systems	
Mineral Salts	Aluminium salts
Emulsions	Freund's adjuvants
	MF59
	AS03
Microparticles	Virus-like particles
	Virosomes
	PLA/PLGA
Immune Potentiators	
TLR1/2 agonists	L-pampo, MALP-2, Pam2CSK4 and Pam3CSK4
TLR3 agonists	Poly(I:C) (polyinosinic:polycytidylic acid)
	Poly-ICLC
TLR4 agonists	Monophosphoryl lipid A (MPL)
TLR5 agonists	Flagellin
TLR7/8 agonists	Imiquimod (R837; 1-(2-methylpropyl)-1H-imidazo [4,5-c]quinolin-4-amine) and resiquimod (R848, 4-amino-2-(etoximetil)-a,a-dimethyl-1H-imidazo [4,5-c]quinoline-1-ethanol)
TLR9 agonists	CpG ODNs
Combined adjuvants	AS01 and AS02
	AS04
Mucosal adjuvants	Cholera toxin (CT)
	Heat-labile enterotoxin (LTK3 and LTR72)
	Chitosan

From Facciola et al. Vaccines (Basel) 2022

Emulsion- MF59 adjuvanted vaccine addresses age-related immunosenescence



- **MF59 strengthens the immune response by stimulating more antibodies compared to non-adjuvanted, standard dose influenza vaccines**

2026/27 – 60+ adult Flu vaccination program changes

Enhanced flu vaccination increases the immune response compared to standard vaccines[1] - addressing reduced immune response seen in older adults

Standard IIV

Antigen presentation without an adjuvant

For all adults aged 60–64 years in the 2026/27 HSE programme

Adjuvanted IIV (Fluad, aTIV)

Includes the MF59C.1 adjuvant designed to enhance (strengthen, broaden and prolong) immune response in older adults[1]

HSE recommended for all adults > 65 years 2026/27 season[2]

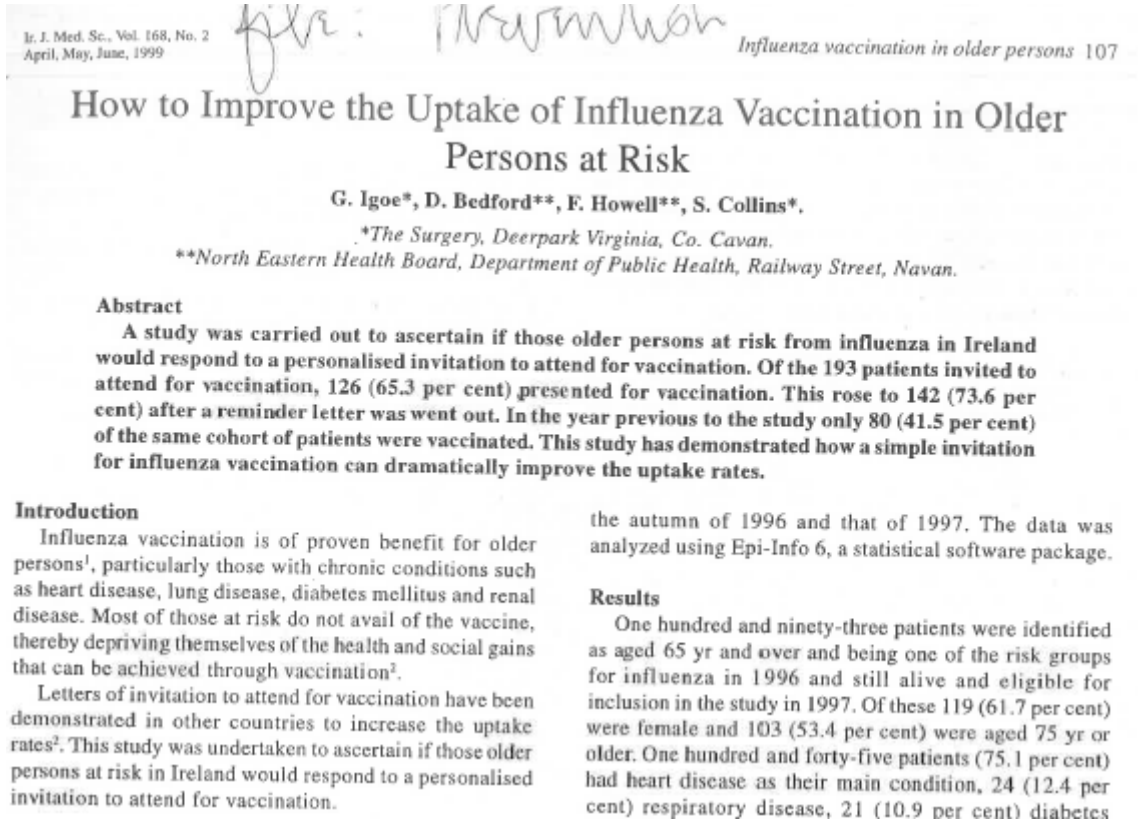
IIV also eligible for other age groups as advised by HSE. 1. HSE Flu vaccine for older people. Accessed Nov 2026

1. Ko E-J, Kang S-M. Hum Vaccin Immunother. 2018

2. about.hse.ie/api/v2/download-file/healthcare_professional_publications/NCO-33-2026_GP_Circular_Autumn_Winter_Vaccination_n_6X2kv5a.pdf/

Barriers

- Education
- Access
- Reimbursement
- Manpower



Ir. J. Med. Sc., Vol. 168, No. 2
April, May, June, 1999

How to Improve the Uptake of Influenza Vaccination in Older Persons at Risk

G. Igoe*, D. Bedford, F. Howell**, S. Collins*.**

**The Surgery, Deerpark Virginia, Co. Cavan.*
***North Eastern Health Board, Department of Public Health, Railway Street, Navan.*

Abstract

A study was carried out to ascertain if those older persons at risk from influenza in Ireland would respond to a personalised invitation to attend for vaccination. Of the 193 patients invited to attend for vaccination, 126 (65.3 per cent) presented for vaccination. This rose to 142 (73.6 per cent) after a reminder letter was went out. In the year previous to the study only 80 (41.5 per cent) of the same cohort of patients were vaccinated. This study has demonstrated how a simple invitation for influenza vaccination can dramatically improve the uptake rates.

Introduction

Influenza vaccination is of proven benefit for older persons[1], particularly those with chronic conditions such as heart disease, lung disease, diabetes mellitus and renal disease. Most of those at risk do not avail of the vaccine, thereby depriving themselves of the health and social gains that can be achieved through vaccination[2].

Letters of invitation to attend for vaccination have been demonstrated in other countries to increase the uptake rates[2]. This study was undertaken to ascertain if those older persons at risk in Ireland would respond to a personalised invitation to attend for vaccination.

the autumn of 1996 and that of 1997. The data was analyzed using Epi-Info 6, a statistical software package.

Results

One hundred and ninety-three patients were identified as aged 65 yr and over and being one of the risk groups for influenza in 1996 and still alive and eligible for inclusion in the study in 1997. Of these 119 (61.7 per cent) were female and 103 (53.4 per cent) were aged 75 yr or older. One hundred and forty-five patients (75.1 per cent) had heart disease as their main condition, 24 (12.4 per cent) respiratory disease, 21 (10.9 per cent) diabetes

BEYOND VACCINATION

Everyday habits that support your immune resilience

Vaccines are the single biggest lever — but daily habits help your immune system respond as well as it can.

Eat enough protein & nutrients

Protein, vitamin D and zinc all support immune cell production and repair.

Stay physically active

Regular movement, even gentle walking, improves circulation of immune cells.

Prioritise sleep

7-8 hours of sleep helps the body build a stronger response to vaccination and infection.

Practice good hygiene

Handwashing and staying home when unwell reduce exposure during peak season.

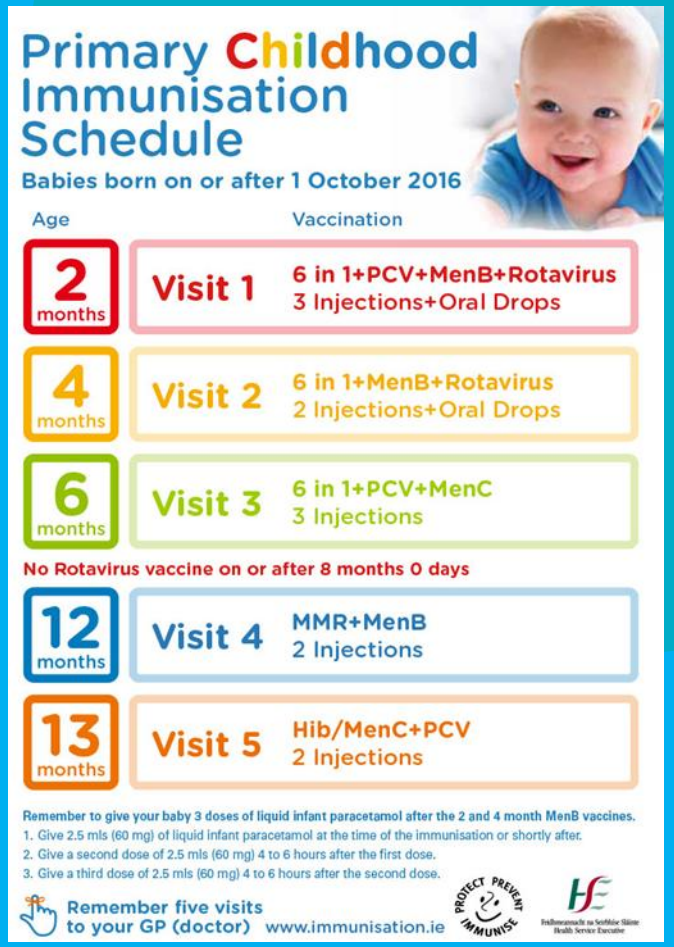


Plus, stay up to date on vaccines

KEY TAKEAWAYS

Ageing well also means staying ahead of infection

1. Immune changes with age make Flu, RSV and shingles more likely to cause serious illness.
2. Viral infections are associated with increased hospitalization, CV events, risk of stroke and dementia
3. Vaccines are effective in later life and should be part of healthy ageing
   Type matters Adjuvant vaccines for older, higher risk patient groups .
4. Daily habits (nutrition, movement, sleep, hygiene) support your body's overall response to infection.







“Try to do what you enjoy in Life and always have a project” - David Whitren