Global Coalition on Aging

Adult Immunization and the Pillars of Prevention: Reimagining Public Policy for Healthy Aging and Sustainable Economic Growth in an Aging World

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Introduction

"The success of the UN Decade of Healthy Ageing hinges on our ability to prioritize disease prevention and maximize each individual's ability to live life on their own terms."

- Dr. John Beard, Director, International Longevity Center-USA, Columbia University, and former Director, Ageing and Life Course, World Health Organization

"In a context marked by an aging population and slow economic growth, the value of prevention is immeasurable...By reducing the prevalence of diseases and avoiding costly treatments, prevention plays a crucial role in maintaining the long-term sustainability of healthcare, social care, and welfare systems."[1]

- Professor Walter Ricciardi, Chair of the Mission Board on Vaccination in Europe, and President of the European Commission's Mission Board on Cancer

Executive Summary

As our societies grow older, preventing disease and promoting healthy aging are more essential than ever to sustaining economies, health systems, public finances, and communities. Governments must now navigate two powerful, long-term trends: a shifting balance in the age-demographic structure, with an unprecedented share of adults over 65; and the miracle of longevity, where more people are living longer than at any time in human history.

This demographic shift – made possible in large part by tremendous biomedical innovation and advances in hygiene and sanitation – has profound consequences for every aspect of economic and social life. A growing number of societies have increasing proportions of people over 65, and those like Japan, Hong Kong, and South Korea will soon have 40%.[2] Yet, we continue to rely on models constructed in the mid-20th century, when there were more young than old and life spans were roughly 30 years shorter. In the U.S., Medicare spending, which encompasses direct healthcare expenses for adults aged 65 and older, currently represents 3.2% of GDP. It is expected to balloon past 5% of GDP over the next two decades. [3] Similarly, in the UK, the Office for Budget Responsibility forecast that government health spending will rise from 7.2% of GDP in 2018-19 to 13.8% of GDP in 2067-78 as the population ages and healthcare costs rise.[4]

A large swath of these costs could be avoided. In the United States alone, there is an estimated $27 billion annual cost burden from vaccine-preventable diseases (VPDs) in adults, and the net economic benefits of vaccination are estimated at $69 billion.[5] [6] Unvaccinated individuals are estimated to make up nearly 80 percent of this financial burden.[7] As people age, their immune systems become less resilient, leading to increased susceptibility to infection. Looking at influenza, pneumococcal disease, herpes zoster (shingles), and pertussis (whooping cough), the annual cost for each within the United States are significant. Among adults 50 and older, the four VPDs cost $16.0B (60 % influenza), $5.1B (19 % pneumoccocal), $5.0B (19 % shingles), and $0.4B (2 %, pertussis). Among those 65 and older, they made up $8.3B (54 %), $3.8B (25 %), $3.0B (20 %), and 0.2B (1 %) of the cost, respectively.[8]

Vaccines are effective in preventing the cascade of costs relating to these illnesses – in the US, during the 2022-2023 flu season, immunization prevented an estimated 5.9 million illnesses, 3,600 deaths, 2.9 million medical visits, and 64,000 hospitalizations – the majority of which occur in adults 50 and older.[9] Other vaccines could also deliver significant savings – pneumococcal vaccination has been associated with a 22% decrease in all-cause mortality, and if shingles immunization coverage were to reach 65% of the population, an estimated 4.6 million cases, 1.3 million physician visits, and 14,400 hospitalizations will be averted by 2032. [10] RSV has been estimated to be associated with 778,000 hospitalizations and $2.8B in hospitalization costs in 2023 in select high-income APEC countries (China, Japan, South Korea, Canada, Singapore, New Zealand, Australia, Hong Kong, Taiwan) according to research from IQVIA.[11]

Further, one-third of the global population currently lives with a non-communicable disease (NCD), which puts them at a higher risk for infectious diseases, more severe infections, and poorer outcomes. An individual with certain chronic conditions unvaccinated against COVID-19 would be 7 times more likely to be hospitalized, 18 times more likely to require intensive care, and 8 times more likely to succumb to the infection compared to those who have received immunization. Despite the substantial benefits of vaccination for this patient group, there remains a concerning gap in immunization rates. In China, for example, a systematic review revealed that only 1.46% of individuals with diabetes had received the influenza vaccine, with the percentage rising to less than 10% for elderly individuals with diabetes. An aging global population means that more individuals will be facing the increased risks of both NCDs and infection, underscoring the critical need for immunization to prevent disease and reduce the burden on global healthcare systems.[12]

A health prevention strategy stands at the intersection of sustainable health and economic systems — the strategy that will be at the center of 21st century age demographic value creation. Ground-breaking advances like new, innovative vaccines for adults can make healthy longevity commonplace if they are accessible in communities and supported across sectors. Already, we are now seeing novel vaccines come to market to protect against infections that were previously not preventable, like respiratory syncytial virus (RSV). The importance of prevention has been recognized by the UN's Decade of Healthy Ageing and the Sustainable Development Goals, part of a growing, global focus on the 2 billion people already

over 55 today and 4 billion by mid-century.[13] Adult immunization is one tool within the preventative health toolbox, that if implemented optimally, can empower older adults to stay healthy, engaged, and serve as the cornerstone of healthy workforces, intergenerational communities, resilient health systems, and overall economic growth and development.

Outdated policy approaches are not holding up to today's demographic realities. In response, we need fundamentally new approaches to how we think about, invest in, and design public policy – for example, shifting from a focus on childhood immunization alone (a trend which enabled today's longevity revolution) to encompassing a life course approach that also prioritizes adult immunization to sustain economic growth and the healthy aging of our societies.

This is the prevention path as societies age—one that aims to rethink our assumptions, shift our trajectory, and expand our prosperity amid profound age demographic change – and it begins with adult immunization.

Three pillars are essential to this new prevention paradigm centered around adult immunization:

1. Innovative Medicines, Vaccines and Models: Scaling Breakthroughs to Unlock Prevention
2. Resilient Health Systems: Creating Readiness for a Super-Aging Society
3. Smart Aging Investments: Maximizing the Full Value of Longevity for Workforces and Communities

We need bold thinking joined with common-sense measures, to transform how we deliver care: preventing illness, disease and complications of disease by using the tools we already have in addition to pursuing innovations and investment in technologies of the future. Promoting healthy aging and prioritizing prevention requires intervention and investment by policymakers to unlock funding, enable equitable access, and build belief and trust in adult immunization and other preventive health measures.

The Global Coalition on Aging calls on policymakers, employer decisionmakers, and patient and caregiver advocates to embrace the shift to this new prevention paradigm, anchored by the health, economic, and social value of adult immunization.

1. Innovative Medicines, Vaccines, and Models: Scaling Breakthroughs to Unlock Prevention

Shift from acute treatments to prevention first, harnessing innovative medicines, vaccines, and healthcare models that will transform how people at all stages of life approach healthy aging. Smart interventions can help people strengthen underlying biological systems and protect against viruses through immunization, reduce the risk for compounding health issues, avoid the most serious consequences of disease, and enjoy more years of healthy life, societal engagement, and economic contribution.

New innovations for our next grand challenge: healthy longevity. As life spans increase, we must ensure those extra years of life are spent in good health. The answer lies with increasing funding, access and belief in a new wave of preventive health innovations, including vaccination throughout the life course and screening and earlier detection of disease.

Looking deeper to achieve broader prevention and prevent cascading costs and impacts of disease. Proactive interventions can help to address underlying pathways related to aging, such as lowering inflammation or strengthening the immune system – reducing risk for noncommunicable diseases, infectious diseases, and related complications. For example, preventing flu, RSV, or pneumococcal pneumonia can reduce the risk for heart attack and stroke, and the resulting cascade of hospitalization, costs, and life-threatening impacts.[14] We must begin to elevate the idea of spending on prevention as an investment in healthy aging rather than a cost to be managed.

The missing piece – widespread policy support, uptake, access, and scale. We already have many of the needed tools and scientific knowledge, and our arsenal grows every day. What's missing is uptake at the same level that made 20th-century advances in childhood immunization so successful. Taking action to make access to innovation like adult immunization easier, earlier, and more equitable for people across the globe, at every stage of life, is the key to reaping the health, economic, and social benefits of healthy longevity. Increased funding, access, and belief in the full value of innovation can become the cornerstone of incentives to continued innovation.

2.Resilient Health Systems: Creating Readiness for a Super-Aging Society

Shift from centralized and reactive to distributed, proactive, and commonplace, pioneering a forward-looking care model that makes it easy, simple, and fast for people to access prevention, especially as we age. We must revise our care model to build health system readiness and expand care into the community, meeting people where they are – in their pharmacies, community centers, and places of work and worship. By shifting responsibility and focus on prevention into the community, and widespread use of tools we do have such as adult vaccines, we can ease the strain for physicians, hospitals, and ERs, while supporting healthier lives, better quality of life, and lower risk of serious health events.

Health system readiness. Improving access to prevention tools like adult immunization is essential to equip health systems for not only the steadily increasing pressures of an aging population but also pandemic preparedness. Greater access to adult immunization reduces risk for severe health events that burden clinicians and healthcare systems, increase costs, and lead to long-term comorbidity and care needs. In addition, a more distributed model enlists a wider set of professionals and organizations in prevention, expanding overall capacity.

Health system innovation. One innovative approach to increase capacity, access, and efficiencies in delivering care is leveraging community pharmacies to meet individuals where they are. Broadening the scope of pharmacy vaccination will increase adult immunization coverage rates within communities. Pharmacists as vaccinators have demonstrated positive impact on immunization rates in COVID-19, influenza, and pneumococcal vaccination across multiple countries, but regulatory limitations and limited data infrastructure present barriers in many others. Pharmacists and pharmacy staff (e.g., technicians, interns) should be empowered to recommend, prescribe, and administer vaccines to adults across a broad range of available and recommended vaccines.

Addressing the growing global crises of AMR and climate change. Adult immunization has a crucial role to play in the rising and interrelated challenges of antimicrobial resistance (AMR) and climate change. Vaccines can significantly reduce AMR by limiting the spread of resistant infections and reducing the use of antibiotics that often accompanies infection. With climate change increasing the spread of infectious diseases and potentially releasing ancient pathogens from melting permafrost, and the increased risk of infection among older adults, the role of adult immunization in combating AMR becomes even more critical.[15] [16]

3. Smart Aging Investments: Maximizing the Full Value of Longevity for Workforces and Communities

Shift from spending more to spending smarter to realize the ROI of immunization. A narrow budgetary lens and zero-sum thinking are not sufficient to meet the profound changes of an inverted age population structure. The full benefits of prevention have long been underestimated, as they don't fit neatly into a single disease area, budget, or agency remit. However, prioritizing prevention is critical for the most efficient management of public budgets and national economies by agencies and policymakers. A recent study found that adult vaccines have a 19x return on investment, accounting for comorbidities and other complications avoided, productivity gains, and socio-economic benefits.[17]

Reimagining how we allocate public and private budgets. Widespread childhood immunization transformed life expectancy starting in the mid-20th century. This playbook should be applied throughout the life course to unlock further gains in healthy longevity. Investing in adult immunization can help to mitigate the billions of dollars that governments spend, every year, on acute medical care and hospitalizations for age-related diseases that could be prevented with proactive measures. Even more is spent on care in the wake of health emergencies, as older adults struggle with lower quality-of-life, comorbidities, and ongoing impacts.

The silver economy for sustainable growth. Healthier aging enabled through adult immunization bolsters the $20 trillion global silver economy, which grows as older people continue to contribute, save, invest, and spend for longer.[18] This also creates opportunities to keep caregivers in the workforce for longer. When governments invest in prevention, and employers play a supportive role, economies and businesses can realize more of this massive opportunity and reinvest in the healthy growth of our economies and societies.

Leading By Example: Country Snapshots

Australia

Australia has made significant strides in advancing RSV immunization for older adults.[19] [20] The country's RSV surveillance system stands out for its breadth of coverage across healthcare settings, integration with existing surveillance infrastructure, and timely public reporting. This positions Australia as a relative leader in RSV surveillance globally. While official figures are not yet available, there is significant impact on the older population, and an IQVIA study has estimated that 139 adults over 60 per 100,000 population are hospitalized relating to RSV each year.[21] The Australian Immunisation Handbook now recommends that adults aged 60-74 years can consider receiving a single dose of RSV vaccine, although neither is yet included in the National Immunization Program for older adults.[22] [23] [24] AusVaxSafety, the country's active vaccine safety surveillance program, is closely monitoring the safety profile of RSV vaccines, providing monthly updates on adverse events following immunization.[25] This commitment to safety and transparency has helped build public confidence in vaccines, with 2022 surveys indicating relatively high levels of vaccine acceptance among Australians (85% indicating belief in safety, 88% indicating belief they are effective).[26]

Italy

Italy has emerged as a leader in adult vaccination within Europe, with a strong commitment to adopting a comprehensive life-course approach that extends beyond childhood immunization.[27] Italy was the first European country to propose a lifelong immunization schedule. The country's National Immunization Plan (PNPV, Piano Nazionale Prevenzione Vaccinale 2023–25) sets clear coverage targets, immunization priorities, and actions to reduce disparities.[28] A key strength of Italy's program is its commitment to accessibility, with all vaccines included in the national immunization schedule available free of charge to residents, including EU citizens and migrants.[29] Vaccinations currently recommended for adults under the PNPV include pneumococcal, shingles, TDAP, COVID-19, and influenza, and recent surveys have shown 85% and 90% of Italians think vaccines are safe and effective, respectively.[30] [31] Italy's funding approach is supported by strong central funding through the National Health Fund, with an estimated 5% of regional health budgets dedicated to prevention.[32]

While Italy has demonstrated strong commitment to comprehensive adult immunization, work continues toward full implementation of the PNPV. Specific challenges include the fragmentation of the National Health System following a 2001 constitutional reform, which has led to regional inequalities in organization and coverage rates, and a declining number of general practitioners who can administer vaccines.[33] [34] To address these issues, Italy has focused on improving data collection, targeting underserved populations, and fostering public trust through transparent communication and engagement with healthcare providers and policymakers.[35]

Japan

In Japan, influenza poses a serious risk to its aging population. A database study spanning September 2017 to August 2020 found that among 111 million insured Japanese people, 31 million influenza cases required visits to a general practitioner, 512,000 required hospitalization, and 28,000 cases were fatal. More than 60% of the hospitalized individuals were over the age of 65.[36] Despite this risk, Japan has among the lowest rates of adult vaccine uptake across OECD countries, despite policy efforts to make provide free or partially subsidized vaccines. The influenza vaccine coverage rate is 50.2%, about half of all elderly, and the pneumococcal vaccine coverage rate is even lower at 37.8%, despite government recommendations and support for both.[37] Despite challenges ranging from relatively low spending on immunization as a proportion of its health budget, access limitations due to strict administration requirements, and widespread public concerns about vaccine safety, the country's success with Covid-19 vaccination among older adults suggests that a pathway to more widespread uptake of vaccines is possible, with a more comprehensive and whole-of-society approach that addresses the barriers of funding, access, and trust in vaccines. During the pandemic emergency, Japan ranked among the top G7 countries for Covid vaccination, with over 90% of those age 65 and older fully vaccinated.[38] [39]

Portugal

In Portugal, the aggregate economic cost each year for a group of vaccine-preventable infections – pneumococcal, influenza, human papilloma virus (HPV), shingles, and RSV – is estimated to total €245.4M.[40] But the country has made significant progress in vaccinating adults, particularly in recent years. The country's success is largely attributed to high public trust in vaccines and a strong vaccination culture.[41] Portugal boasts one of the highest vaccination rates in Europe, with more than 95% of children receiving recommended vaccines. The country's COVID-19 vaccination campaign was particularly successful, achieving 99% coverage of adults with their first dose and 95% for people aged over 60.[42] This success reinforced public confidence in vaccination. A 2022 report for the European Commission showed that the Portuguese public was the most pro-vaccination in the EU.[43] This high level of trust is reflected in the public's proactive approach to vaccination and their belief in its benefits.

Despite the overall success, Portugal faces challenges in adult vaccination, including lower awareness of adult vaccines: uptake of shingles and pneumococcal vaccines in older people is generally lower than childhood vaccination rates.[44] [45] This follows with general perception issues, where the public continues to associate vaccination primarily as part of infant healthcare. Finally, there are access barriers to adult immunization. Older individuals, especially those with reduced mobility or living in rural areas, face challenges in accessing vaccination services.[46]

To address these challenges, Portugal has implemented several strategies, including pharmacy-based vaccination. In the 2023-2024 Seasonal Vaccination Campaign, 2,491 pharmacies participated, administering 2.5 million flu doses in six months. Additionally, since 2012, flu vaccination has been free for all people over 65, leading to increased vaccination rates. Portugal has also introduced the "+Longevidade initiative," a new multi-stakeholder project aiming to support healthy ageing, with vaccination as a central component.[47] While challenges remain, particularly in reaching certain adult populations, the country's overall approach to vaccination serves as a model for other nations seeking to improve their adult immunization programs.

South Korea

South Korea has made great progress in adult immunization, particularly in influenza vaccination for older adults, who are disproportionately affected by the disease, with an excess mortality rate nearly eight times higher among those aged 65 and older versus the rest of the population.[48] [49] The country has consistently maintained high vaccination rates among the elderly population, with 85.8% of adults aged 65 and older receiving influenza vaccines in 2019.[50] Much of this success can be attributed to South Korea's National Immunization Program (NIP), which provides free influenza vaccinations to target groups, including older adults.[51]

South Korea has implemented a web-based national immunization registry that manages vaccination records and sends timely reminders to individuals via text messages.[52] Additionally, the Ministry of Health and Welfare and the Korea Centers for Disease Control and Prevention (KCDC) jointly publish an adult immunization schedule, recommending influenza vaccination for all adults aged 19 years and over, with priority given to those aged 50 and older.[53] The country's success in adult immunization serves as a model for other nations seeking to improve their vaccination programs.

United States

The burden of VPDs is high among older adults in the United States, with adults over 50 accounting for roughly 70% of influenza-related hospitalizations and over 90% of the deaths.[54] The United States is making strides in improving adult vaccination rates, particularly through the implementation of the Inflation Reduction Act (IRA). This legislation is a major step forward, increasing access to life-saving vaccines for millions of Americans.[55] IRA, effective January 1, 2023, eliminated cost-sharing for all adult vaccines covered under Medicare Part D that are recommended by the Advisory Committee on Immunization Practices (ACIP). This has resulted in a significant increase in vaccine uptake:

- In 2023, over 10 million people with Medicare Part D received a free vaccine, up from just 3.4 million in 2021.
- Shingles vaccine uptake among Medicare enrollees increased by over 42% (approximately 3.9 million people received the vaccine in 2023, compared to about 2.7 million in 2021).
- Tdap vaccine uptake increased by over 112% (nearly 1.5 million Medicare enrollees received the vaccine in 2023, compared to about 700,000 in 2021).
- 5 million Medicare Part D enrollees accessed an RSV vaccine free of charge in 2023.[56]

Despite this positive momentum, challenges remain in achieving optimal adult vaccination rates across the U.S. These include ongoing vaccine hesitancy and misinformation, complexities in the adult vaccine schedule, and disparities in access and coverage among different populations.[57]

To further improve adult vaccination, ongoing efforts are needed to enhance public education and outreach, streamline vaccine administration processes, and address vaccine hesitancy through trusted sources.[58] By addressing remaining challenges and building on recent successes, the U.S. can further improve the health and well-being of its adult population through increased vaccination rates.

References

1 Vaccines Europe. (2024). Only an urgent shift towards prevention-based healthcare can secure economic stability for EU health systems, experts say. Vaccines Europe. https://www.vaccineseurope.eu/media-hub/press-releases/only-an-urgent-shift-towards-prevention-based-healthcare-can-secure-economic-stability-for-eu-health-systems-experts-say/

2 World Economic Forum. (2023). The world's oldest populations. World Economic Forum. https://www.weforum.org/stories/2023/02/world-oldest-populations-asia-health/

3 Peter G. Peterson Foundation. (2024). How Does the Aging of the Population Affect Our Fiscal Health? https://www.pgpf.org/article/how-does-the-aging-of-the-population-affect-our-fiscal-health/

4 Warner, M. (2022). The economic consequences of the UK's ageing population. Economic Review. https://ifs.org.uk/articles/economic-consequences-uks-ageing-population

5 Kolobova, I., Nyaku, M. K., Karakusevic, A., Bridge, D., Fotheringham, I., & O'Brien, M. (2022). Burden of vaccine-preventable diseases among at-risk adult populations in the US. Human vaccines & immunotherapeutics, 18(5), 2054602. https://doi.org/10.1080/21645515.2022.2054602

6 Orenstein, W. A., & Ahmed, R. (2017). Simply put: Vaccination saves lives. Proceedings of the National Academy of Sciences of the United States of America, 114(16), 4031–4033. https://doi.org/10.1073/pnas.1704507114

7 Ozawa, S., Portnoy, A., Getaneh, H., Clark, S., Knoll, M., Bishai, D., Yang, H. K., & Patwardhan, P. D. (2016). Modeling the economic burden of adult vaccine-preventable diseases in the United States. Health Affairs, 35(11), 2124-2132. https://doi.org/10.1377/hlthaff.2016.0462

8 McLaughlin, J. M., McGinnis, J. J., Tan, L., Mercatante, A., & Fortuna, J. (2015). Estimated Human and Economic Burden of Four Major Adult Vaccine-Preventable Diseases in the United States, 2013. The journal of primary prevention, 36(4), 259–273. https://doi.org/10.1007/s10935-015-0394-3

9 National Foundation for Infectious Disease. (2024). Call to ActionL Strategies to Improve Adult Immunization in the US. https://www.nfid.org/resource/call-to-action-strategies-to-improve-adult-immunization-in-the-us/

10 Ibid.

11 Kumar, A., Trikha, S., Mehta, M., Sreedharan, S., Chatterjee, M. (2024). Economic Burden of Respiratory Syncytial Virus (RSV) Infection Among Older Adults in Select Asia-Pacific Economic Cooperation (APEC) Countries. IQVIA. https://www.iqvia.com/-/media/iqvia/pdfs/asia-pacific/white-papers/economic-burden-of-respiratory-syncytial-virus-infection-among-older-adults.pdf

12 Palacios-Pedrero, M. Á., Osterhaus, A. D. M. E., Becker, T., Elbahesh, H., Rimmelzwaan, G. F., & Saletti, G. (2021). Aging and Options to Halt Declining Immunity to Virus Infections. Frontiers in immunology, 12, 681449. https://doi.org/10.3389/fimmu.2021.681449

13 Ibid.

14 Curhan, S. G., Kawai, K., Yawn, B., Rexrode, K. M., Rimm, E. B., & Curhan, G. C. (2022). Herpes Zoster and Long-Term Risk of Cardiovascular Disease. Journal of the American Heart Association, 11(23), e027451. https://doi.org/10.1161/JAHA.122.027451

15 Magnano San Lio, R., Favara, G., Maugeri, A., Barchitta, M., & Agodi, A. (2023). How Antimicrobial Resistance Is Linked to Climate Change: An Overview of Two Intertwined Global Challenges. International journal of environmental research and public health, 20(3), 1681. https://doi.org/10.3390/ijerph20031681

References

16 Global Leaders Group on Antimicrobial Resistance. (2021). Antimicrobial Resistance and the Climate Crisis: Information Note of the Global Leaders Group on Antimicrobial Resistance.

17 El Banhawi H., Chowdhury S., Neri M., Radu P., Besley S., Bell E., Brassel S., Steuten L., (2024) Socio-Economic Value of Adult Immunisation Programmes. OHE Contract Research. Available from https://www.ohe.org/publications/the-socio-economic-value-of-adult-immunisation-programmes/

18 The Global Coalition on Aging. (2024). High-Level Forum on the Silver Economy 2024
Defining Leadership in an Aging World. https://www.silvereconomyforum.com/events/shifting-perspectives-whos-investing-in-the-silver-economy-and-why

19 Laemmle-Ruff, I., Crawford, NW. (2024). Respiratory syncytial virus prevention is finally here: An overview of safety. Australian Journal of General Practice, 53-10. https://www1.racgp.org.au/ajgp/2024/october/respiratory-syncytial-virus-prevention-is-finally

20 Ison, M. G., Papi, A., Athan, E., Feldman, R. G., Langley, J. M., Lee, D. G., Leroux-Roels, I., Martinon-Torres, F., Schwarz, T. F., van Zyl-Smit, R. N., Verheust, C., Dezutter, N., Gruselle, O., Fissette, L., David, M. P., Kostanyan, L., Hulstrøm, V., Olivier, A., Van der Wielen, M., Descamps, D., ... AReSVi-006 Study Group (2024). Efficacy and Safety of Respiratory Syncytial Virus (RSV) Prefusion F Protein Vaccine (RSVPreF3 OA) in Older Adults Over 2 RSV Seasons. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America, 78(6), 1732–1744. https://doi.org/10.1093/cid/ciae010

22 Ibid.

23 Laemmle-Ruff, I., Crawford, NW. (2024). Respiratory syncytial virus prevention is finally here: An overview of safety. Australian Journal of General Practice, 53-10. https://www1.racgp.org.au/ajgp/2024/october/respiratory-syncytial-virus-prevention-is-finally

24 Australian Government Department of Health and Aged Care. (2025). Australian Immunisation Handbook, Respiratory Syncytial virus (RSV). Commonwealth of Australia. https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/respiratory-syncytial-virus-rsv

25 Australian Government Department of Health and Aged Care. (2025). Australian Immunisation Handbook, Adults aged 60-74 years can consider RSV vaccination. Commonwealth of Australia. https://immunisationhandbook.health.gov.au/recommendations/adults-aged-60-74-years-can-consider-rsv-vaccination

26 Vaccine Confidence Project. (2022). Australia. Vaccine Confidence Project. https://www.vaccineconfidence.org/vci/country/au/

27 Istituto Superiore di Sanità. (n.d.). Italian immunization schedule. Retrieved January 27, 2025, from https://www.epicentro.iss.it/en/vaccines/immunization-schedule-italy

28 Bechini, A., Boccalini, S., Del Riccio, M., Pattyn, J., Hendrickx, G., Wyndham-Thomas, C., Gabutti, G., Maggi, S., Ricciardi, W., Rizzo, C., Costantino, C., Vezzosi, L., Guida, A., Morittu, C., Van Damme, P., & Bonanni, P. (2024). Overview of adult immunization in Italy: Successes, lessons learned and the way forward. Human vaccines & immunotherapeutics, 20(1), 2411821. https://doi.org/10.1080/21645515.2024.2411821

29 Bechini, A., Boccalini, S., Del Riccio, M., Pattyn, J., Hendrickx, G., Wyndham-Thomas, C., Gabutti, G., Maggi, S., Ricciardi, W., Rizzo, C., Costantino, C., Vezzosi, L., Guida, A., Morittu, C., Van Damme, P., & Bonanni, P. (2024). Overview of adult immunization in Italy: Successes, lessons learned and the way forward. Human vaccines & immunotherapeutics, 20(1), 2411821. https://doi.org/10.1080/21645515.2024.2411821

References

30 Barratt, J., Bouzanis, K. (2021). Adult vaccination in Italy: Pneumococcal disease. International Federation on Ageing, ,Vaccines4Life. https://www.vaccines4life.com/wp-content/uploads/2021/05/IAPVP-Report-Italy.pdf

31 Vaccine Confidence Project. (2022). Italy. The Vaccine Confidence Project. https://www.vaccineconfidence.org/vci/country/it/

32 Bechini, A., Boccalini, S., Del Riccio, M., Pattyn, J., Hendrickx, G., Wyndham-Thomas, C., Gabutti, G., Maggi, S., Ricciardi, W., Rizzo, C., Costantino, C., Vezzosi, L., Guida, A., Morittu, C., Van Damme, P., & Bonanni, P. (2024). Overview of adult immunization in Italy: Successes, lessons learned and the way forward. Human vaccines & immunotherapeutics, 20(1), 2411821. https://doi.org/10.1080/21645515.2024.2411821

33 Bechini, A., Boccalini, S., Del Riccio, M., Pattyn, J., Hendrickx, G., Wyndham-Thomas, C., Gabutti, G., Maggi, S., Ricciardi, W., Rizzo, C., Costantino, C., Vezzosi, L., Guida, A., Morittu, C., Van Damme, P., & Bonanni, P. (2024). Overview of adult immunization in Italy: Successes, lessons learned and the way forward. Human vaccines & immunotherapeutics, 20(1), 2411821. https://doi.org/10.1080/21645515.2024.2411821

34 Domnich, A., Lapi, F., Orsi, A., Grattagliano, I., Rossi, A., Cricelli, C., & Icardi, G. (2024). Declining number of general practitioners can impair influenza vaccination uptake among Italian older adults: Results from a panel analysis. BMC health services research, 24(1), 950. https://doi.org/10.1186/s12913-024-11443-9

35 Bechini, A., Boccalini, S., Del Riccio, M., Pattyn, J., Hendrickx, G., Wyndham-Thomas, C., Gabutti, G., Maggi, S., Ricciardi, W., Rizzo, C., Costantino, C., Vezzosi, L., Guida, A., Morittu, C., Van Damme, P., & Bonanni, P. (2024). Overview of adult immunization in Italy: Successes, lessons learned and the way forward. Human vaccines & immunotherapeutics, 20(1), 2411821. https://doi.org/10.1080/21645515.2024.2411821

36 Arashiro, T., Tajima, Y., Ban, Y., Loiacono, M. M., Ideguchi, M., & de Courville, C. (2024). The Burden of Seasonal Influenza and Its Potential Complications Among Older Japanese Adults: A Real-World Database Study. Influenza and other respiratory viruses, 18(11), e70032. https://doi.org/10.1111/irv.70032

37 Japan Health Policy NOW. (2021). Vaccinations: Background and Challenges. HGPI. https://japanhpn.org/en/vaccinations-2/#:~:text=Vaccination%20coverage%20among%20the%20elderly,their%20efficacy%20and%20forcing%20vaccination.

38 Mathieu, E., Ritchie, H., Ortiz-Ospina, E., Roser, M., Hasell, J., Appel, C., Giattino, C., & Rodés-Guirao, L. (2021). A global database of COVID-19 vaccinations. Nature human behaviour, 5(7), 947-953. https://doi.org/10.1038/s41562-021-01122-8

39 Japan Times (2021) With over 70% fully vaccinated, Japan ranks in top three among G7. https://japantoday.com/category/national/over-70-fully-vaccinated-in-japan-among-top-3-in-g-7

40 Lopes, H. (2024). +Longevity: A Think Tank initiative dedicated to adult vaccination: final report. Instituto Superior de Estatística e Gestão de Informação da Universidade Nova de Lisboa. NOVA Information Management School (NOVA IMS). https://doi.org/10.34619/roeb-bmrb

41 Finnegan, G. (2024). Portugal in focus: public trust drives vaccine uptake at all ages. Vaccines Today. https://www.vaccinestoday.eu/stories/portugal-in-focus-public-trust-drives-vaccine-uptake-at-all-ages/

42 Ibid.

43 European Commission. (2022). Portugal Vaccine confidence factsheet, 2022. Health Europa. https://health.ec.europa.eu/document/download/33360676-e0a8-4f30-a433-b4b95d85b911_en?filename=2022_confidence_factsheet_portugal_en.pdf

References

44 Ibid.

45 Barratt, J., Bouzanis, K. (2021). Portugal Country Report 2022: Influencing Adult Pneumonia Vaccination Policy. Vaccines4Life. https://www.vaccines4life.com/wp-content/uploads/2021/05/IAPVP-Report-Portugal.pdf

46 Ibid.

47 Ibid.

48 Cha, S. H., Paik, J. H., Lee, M. R., Yang, H., Park, S. G., Jeon, Y. J., & Yoo, S. (2016). Influenza Vaccination Coverage Rate according to the Pulmonary Function of Korean Adults Aged 40 Years and Over: Analysis of the Fifth Korean National Health and Nutrition Examination Survey. Journal of Korean medical science, 31(5), 709–714. https://doi.org/10.3346/jkms.2016.31.5.709

49 Choi, M. J., Yun, J. W., Song, J. Y., Ko, K., Mould, J. F., & Cheong, H. J. (2022). A Comparative Analysis of Influenza-Associated Disease Burden with Different Influenza Vaccination Strategies for the Elderly Population in South Korea. Vaccines, 10(9), 1387. https://doi.org/10.3390/vaccines10091387

50 Seo, J., & Lim, J. (2022). The impact of free vaccination policies under the Korean Influenza National Immunization Program: Trends in influenza vaccination rates in South Korea from 2010 to 2019. PloS one, 17(1), e0262594. https://doi.org/10.1371/journal.pone.0262594

51 Hwang, J. H., Park, S. (2023). Changes of influenza vaccination coverage rates due to the expanded free influenza vaccination program before and during the COVID-19 pandemic in Korea. Population Medicine, 5(Supplement), A496. https://doi.org/10.18332/popmed/165030

52 Zheng, Y, Barratt, J. (2020). Changing the Conversation on Adult Influenza Vaccination – Campaign Overview: South Korea. Vaccines 4 Life. https://www.vaccines4life.com/wp-content/uploads/2020/09/Korea-Report-Design-Final.pdf

53 Zheng, Y, Barratt, J. (2020). Changing the Conversation on Adult Influenza Vaccination – Campaign Overview: South Korea. Vaccines 4 Life. https://www.vaccines4life.com/wp-content/uploads/2020/09/Korea-Report-Design-Final.pdf

54 Ibid.

55 Centers for Medicare & Medicaid Services. (2024) HHS Releases New Data Showing Over 10 million People with Medicare Received a Free Vaccine Because of the President's Inflation Reduction Act; Releases Draft Guidance for the Second Cycle of Medicare Drug Price Negotiation Program. CMS.gov. https://www.cms.gov/newsroom/press-releases/hhs-releases-new-data-showing-over-10-million-people-medicare-received-free-vaccine-because#:~:text=Today%2C%20the%20U.S.%20Department%20of%20Health%20and%20Human,law%20%E2%80%93%20an%20increase%20from%20just%203.4%20mil

56 Ibid.

57 Kolobova, I., Nyaku, M. K., Karakusevic, A., Bridge, D., Fotheringham, I., & O'Brien, M. (2022). Vaccine uptake and barriers to vaccination among at-risk adult populations in the US. Human vaccines & immunotherapeutics, 18(5), 2055422. https://doi.org/10.1080/21645515.2022.2055422

58 National Foundation for Infectious Diseases. (2024). Call to Action: Strategies to Improve Adult Immunization in the US. NFID. https://www.nfid.org/resource/call-to-action-strategies-to-improve-adult-immunization-in-the-us/