FUNDING MODELS, ECONOMIC AND SOCIETAL IMPACT OF PHARMACY-BASED VACCINATION

Sustainable funding models are essential for integrating pharmacy-based vaccination (PBV) services into healthcare systems worldwide. Building on this, the infographic highlights the societal impact of vaccines, health systems financing models and their relevance to PBV, global PBV funding models, key barriers to PBV expansion, vaccine procurement strategies, and the direct/indirect economic impact of PBV.

1. BROADER SOCIETAL IMPACT OF VACCINATION: EQUITY, ACCESS AND EMPOWERMENT

Vaccination has a broader societal impact by promoting healthcare equity, improving access to vaccines, and enhancing public health outcomes:

Supporting health equity and access
PBV services offer walk-in services, extended hours, and lower-cost options.[1]

Protecting school attainment and cognition
Vaccination reduces school absenteeism and long-term developmental impact.[2]

Empowering women's health
Pharmacists promote maternal vaccination and dispel safety misconceptions, boosting uptake in pregnant women.[3,4]

Preventing the development of antimicrobial resistance (AMR)
Pharmacists prevent infections and reduce antibiotic overuse by educating patients, and providing routine immunisations.[5-7]

Strengthening public health infrastructure
Pharmacist-led vaccination initiatives have been shown to increase vaccine adherence by **24%**, particularly when pharmacists engage in one-to-one patient counselling.[8]

2. HEALTH SYSTEM FINANCING MODELS AND THEIR RELEVANCE TO PBV

Five health system models according to different provision and financing structures:

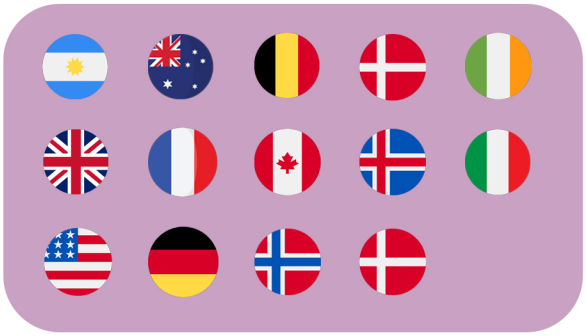
Health system model	Primary funding	Service provision	PBV implication	Country examples
Beveridge model[9,10] Tax-Funded Model National Health Service (NHS) Model	General taxation	Healthcare services are primarily provided by government-owned facilities; many healthcare professionals are government employees	Pharmacists administering vaccinations are typically reimbursed directly by government health programmes	UK, Spain, Cuba, New Zealand, and Nordic countries
Bismarck model [9-11] Social Health Insurance (SHI) Statutory Health Insurance Multi-Payer Insurance System	Funded through mandatory payroll contributions from both employers and employees Insurance operates through multiple non-profit insurance funds or "sickness funds"	Services are delivered by a mix of public and private providers (mostly private, publicly regulated)	Pharmacist-administered vaccinations are reimbursed by insurance funds, contingent upon insurer policies. PBV accessibility depends heavily on regulatory frameworks and fund negotiations, which may create variability in service availability	Germany, France, Belgium, and Japan
National Health Insurance (NHI) [9,10] Single-Payer System Public Insurance with Private Providers	General taxation or mandatory insurance premiums A single, government-run insurance programme covers all residents	Services are typically provided by private providers	Pharmacies are reimbursed directly by the government or public insurance scheme, enabling widespread participation in vaccination programmes. This ensures consistent funding for pharmacist-delivered vaccines and supports broader immunisation goals	Canada, South Korea, Taiwan
Out-of-Pocket model [9,10] Fee-for-Service Model	Individuals pay directly for healthcare services at the time of use	Services are typically provided by private providers	PBV services are limited and primarily available on a fee-for-service basis, restricting access to those who can afford them. Pharmacists may not be formally integrated into national immunisation efforts	Rural areas in India, parts of Africa and parts of South America
Hybrid model [9,10] Mixed Financing Model Multi-tier Health System	Combines elements from various models, including taxation, social insurance, private insurance, and out-of-pocket payments May include multiple insurance schemes catering to different population segments	Services are provided by a mix of public and private providers	The availability and structure of PBV services depend on insurance coverage specifics, regulatory frameworks, and public-private collaboration. Pharmacies may be reimbursed through multiple channels, leading to inconsistencies in access	USA

3. FUNDING MODELS FOR PBV SERVICES

Drawing from FIP intelligence surveys,[12,13] four distinct financing mechanisms have been identified, based on who ultimately pays for the services:

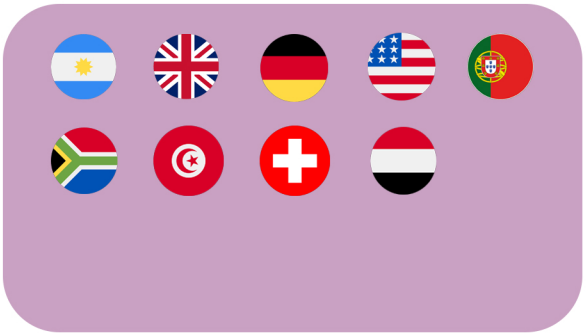
PUBLIC REIMBURSEMENT

Vaccination costs, including administration fees, are covered by the government or a national health insurance scheme.



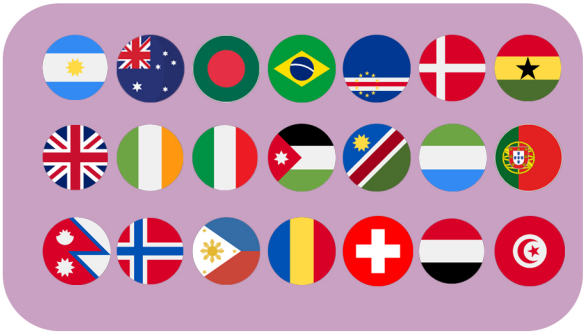
PRIVATE REIMBURSEMENT

Private insurers or healthcare systems reimburse vaccination services, either partially or fully, as part of their coverage plans.



OUT-OF-POCKET PAYMENT (OOP)

Patients pay the full cost of the vaccine and its administration at the point of service, without reimbursement.



PHARMACY-FUNDED

(free of charge)

Pharmacies offer vaccines at no cost to patients, absorbing the associated costs themselves.

4. BARRIERS TO ACHIEVING SUSTAINABLE PBV FUNDING[14,15,16]

PBV faces financial, regulatory, and systemic barriers that hinder sustainable funding for these services:

Inconsistent funding and payment mechanisms	→	Varied approaches to funding and payment create uncertainty for pharmacies
Regulatory and systemic issues	→	Inconsistent regulations and lack of unified policy frameworks create disparities
Financial and budgetary constraints	→	Limited funds and competing healthcare priorities hinder the expansion of PBV
Workforce challenges such as: Inadequate training, staffing shortages, limited consultation time, and resistance from other healthcare providers	→	Limit pharmacists' ability to expand vaccination services

5. PROCUREMENT STRATEGIES TO ENSURE TIMELY AND ADEQUATE SUPPLY OF VACCINES

Vaccine procurement depends on each country's income level, health system structure, and market context. Approaches include:

Public procurement	→	Government-led tenders/bulk purchasing[17]
Private procurement	→	Private insurers reimburse vaccines in benefit packages[18]
Individual purchase	→	Patients pay for optional vaccines directly[19]
Donor-supported procurement	→	Pooled mechanisms via UNICEF, GAVI, and PAHO[20]

WHO also distinguishes between direct (self) procurement, centralised or decentralised purchasing, and international pooled procurement initiatives.[21,22] These strategies aim to reduce costs, ensure adequate supply, and address equitable distribution, particularly in low-resource settings.

6. ECONOMIC IMPACT OF PBV: SAVING HEALTHCARE COSTS AND ENHANCING EFFICIENCY

The economic impact of PBV includes both direct cost savings, such as reduced hospitalisations and lower healthcare costs, and indirect cost savings, such as preventing productivity loss, absenteeism, and the burden of chronic diseases:

PBV - DIRECT COST SAVINGS

1. **Reduced hospitalisation and emergency visits**

Expanding flu vaccine access through pharmacies prevented **717,000 hospital** visits, saving **CAD 457,854 (EUR 290,346) per year.**[23]

Pharmacist-administered flu vaccines prevented **17.6** primary care visits, **0.33** hospitalisations, and 1.1 hospital days per **100,000** people per season, leading to **CHF 143,021 (EUR 148,930)** in savings.[24]

Pharmacy-based flu vaccinations prevented **11.9 million** influenza cases per epidemic season, saving over **USD 1 billion (EUR 918 million)** in hospitalisation costs.[25]

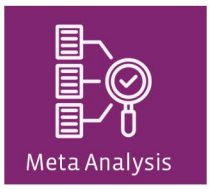
2. **Fewer medical consultations and outpatient visits**

Pharmacist-led flu vaccinations saved **CAD 763,158 (EUR 487,375)** annually by reducing unnecessary doctor visits.[23]

Pharmacist-led vaccination could play a critical role in reaching EU coverage targets for at-risk groups. Achieving full coverage could save up t**o EUR 39.45 million** in reduced primary care visits across five major EU countries.[26]

3. **Lower medication use and treatment costs**

Pharmacy-led vaccination programmes saved over **USD 3.5 million (EUR 3.21 million)** in avoided hospitalisations.[27]



A meta-analysis found that pharmacist interventions improved vaccination rates by up to **51%** compared to usual care.[28]

PBV - INDIRECT COST SAVINGS

USA: Pharmacist-led flu vaccinations could prevent up to **16 million** cases annually, reducing lost workdays and saving an estimated **USD 69.5 billion (EUR 63.89 billion)** in productivity losses.[25]

Canada: Increased PBV reduced flu incidence, thereby decreasing absenteeism by **USD 3.4 million (EUR 3.14 million).**[23]

PUBLIC HEALTH IMPACT: REDUCING DISEASE BURDEN AND ENHANCING COVERAGE

Preventing non-communicable diseases (NCDs)

Denmark: An annual flu vaccination lowers cardiovascular-related deaths by up to **18%,** with even greater benefits for those consistently vaccinated over the years.[29]

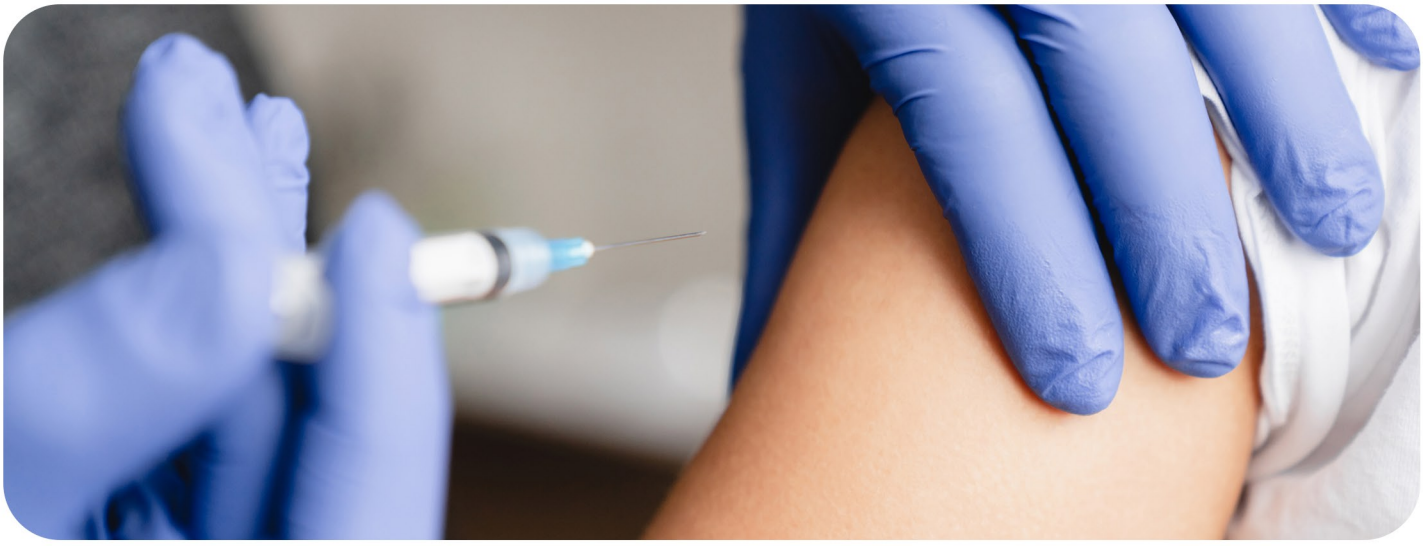
Hong Kong: The administration of sequential pneumococcal vaccination reduced the risk of cardiovascular disease by **25%** compared to receiving a single pneumococcal vaccine.[30]

Expanded coverage and trust

Pharmacist-led vaccination increases vaccine uptake, improves access, and reduces disparities for low-income and medically disadvantaged populations:

Research found that pharmacist-led vaccine education interventions were effective in increasing vaccine trust and acceptance, and were more cost-effective than peer-led interventions, with an average cost of **USD 34.72 (EUR 31.87)** per participant compared to **USD 81.51 (EUR 74.83)** for alternative programmes.[31]

Utilising pharmacies as vaccination sites during an influenza epidemic improved accessibility, increasing vaccination coverage to **33.7%** compared to **23.8%** when only traditional locations were used.[25]



7. COMPARATIVE ANALYSIS OF PBV FUNDING MODELS IN SELECTED COUNTRIES

An overview of funding models adopted in seven countries, highlighting best practices and strategies to optimise PBV services:

Questions	Australia 	Canada 	Costa Rica 	Portugal 	South Africa 	UK (England, Scotland, Wales, Northern Ireland) 	USA 
When was PBV introduced?	2014	2007	Authorised in 2009	2007	No data	2012 - 2020	1994 by the Washington State Pharmacists Association
What types of vaccines are pharmacists authorised to administer?	COVID-19, diphtheria, hepatitis A and B, herpes zoster (shingles), human papillomavirus (HPV), influenza, measles, mumps, rubella (MMR), meningococcal, pertussis, pneumococcal, poliomyelitis, respiratory syncytial virus (RSV), tetanus, varicella (chickenpox), among others. Authority varies between jurisdiction and an individual pharmacist's scope of practice	Influenza, COVID-19, hepatitis A and B vaccines, herpes zoster (shingles), human papillomavirus (HPV), meningococcal disease, pneumococcal disease, respiratory syncytial virus (RSV), Tdap booster, rabies, typhoid, varicella (chickenpox), yellow fever, Haemophilus influenzae type b (Hib), Japanese encephalitis, and Bacille Calmette-Guérin (BCG), among others. The list varies from province to province	Tuberculosis (BCG), hepatitis B (HBV), oral polio vaccine (OPV), inactivated polio vaccine (IPV), Tdap, measles, mumps, rubella (MMR), chickenpox, quadrivalent influenza vaccine, hepatitis A, rabies, yellow fever, human papillomavirus (HPV), meningococcal, typhoid fever, COVID-19 vaccine, among others	Influenza, COVID-19, hepatitis B, human papillomavirus (HPV), meningococcal, pneumococcal, respiratory syncytial virus (RSV), herpes zoster (shingles), Tdap booster, among others	All vaccines for children and adults, including Influenza, COVID-19, hepatitis B, meningococcal, respiratory syncytial virus (RSV), herpes zoster (shingles), oral polio vaccine (OPV), rotavirus (RV), pneumococcal conjugate (PVC), hexavalent (DTap-IPV-HepB-Hib), measles/rubella (MR), Tdap, and human papilloma virus (HPV)	Influenza, COVID-19, hepatitis B, human papillomavirus (HPV), meningococcal, pneumococcal, respiratory syncytial virus (RSV), herpes zoster (shingles), and Tdap booster. Additional vaccines include free NHS travel vaccines (hepatitis A, typhoid, cholera, polio)	COVID-19, influenza, hepatitis B, human papillomavirus (HPV), meningococcal, pneumococcal, respiratory syncytial virus (RSV), herpes zoster (shingles), and Tetanus diphtheria pertussis (Tdap) booster, among others. State laws and regulations vary regarding the scope of vaccines a pharmacist can administer, depending on the state in which the pharmacist is practicing
Who funds PBV?	Public and private reimbursement	Public and private reimbursement	Public reimbursement, private reimbursement, and out-of-pocket payment	Public and private reimbursement	Primarily private health insurers	Public reimbursement, private sector reimbursement, out of pocket payment, and occupational health schemes paid by employers	Public reimbursement, private reimbursement, and out of pocket payment
How are remuneration rates determined?	COVID-19 vaccination in community pharmacy (CVCP) programme provides reimbursement for COVID-19 administration. The fee payable varies based on the rural or urban location of the pharmacy. For other vaccines, the National immunisation programme vaccinations in pharmacy (NIPVIP) provides a fixed fee at AUD 19.32 (EUR 11.23) per vaccines administered	Reimbursement is negotiated or set per vaccine type by provincial governments (Ministry of Health or public health authority) in consultation with pharmacy associations. Most publicly funded vaccines have standard fees across the province, however there are exceptions	Vaccine administration under the basic vaccination schedule is handled through the public social security system. At private community pharmacies, there are no reimbursement systems, though some private health insurance may cover part of the cost if the patient pays upfront	Reimbursement rates are standardised and apply equally to all population groups regardless of age or risk. These rates are reviewed and updated regularly by national health authorities	The ministry of health sets a single exit price (SEP) annually. However, actual reimbursement can vary based on private insurer rules and contracted pharmacy networks	The NHS provides a fixed payment that includes both the cost of the vaccine and a service administration fee. Private vaccine prices are determined by each pharmacy or by local agreements	Payment structures differ widely between private insurance plans. Public programmes also vary by state, with some programmes negotiated by pharmacy associations and others defined at the insurer level

These case studies were submitted by FIP Member Organisations

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This report is supported by unrestricted funding from Pfizer.

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