

National Vaccine Preventable Diseases Recommendation for Older Adults

Malaysian Society of Geriatric Medicine



ISBN

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WELCOME

MESSAGE

As Chairperson of the Writing Group for this pivotal document, it is with great honour and humility that I present the Vaccine-Preventable Diseases Recommendations for Older Persons in Malaysia 2025. This document is the culmination of months of collaborative effort, rigorous evidence review, and heartfelt dedication by a multidisciplinary team, all driven by a shared commitment to the health and dignity of Malaysia's older population.

Malaysia, like many nations, is experiencing a demographic transition towards an ageing society. With this shift comes the responsibility to reimagine healthcare systems to ensure that our older citizens not only live longer lives but also enjoy them in good health. Vaccine-preventable diseases (VPDs) continue to pose a significant threat to this age group, leading to avoidable morbidity, loss of independence, and increased healthcare burden. Yet, we know that the science is clear—vaccination remains one of the most cost-effective and life-saving interventions in modern medicine.

These recommendations are grounded in robust scientific evidence, adapted to our national context, and guided by a life-course immunisation approach. They aim to serve as a practical and forward-looking framework for clinicians, healthcare planners, and community advocates alike.

Beyond the technical guidance, this document is also a call to action—to strengthen adult immunisation policies, enhance public awareness, and build systems that ensure equitable access for all older persons, regardless of background or geography.

On behalf of the writing group, I extend my deepest gratitude to the Malaysian Society of Geriatric Medicine, Ministry of Health Malaysia, and all contributors who lent their expertise and passion to this work. May these recommendations serve as a catalyst for a healthier, more resilient ageing population—and remind us that protecting the vulnerable among us is not only a medical imperative but a reflection of our collective values.

Dr Kejal Hasmukharay

Chairperson, Writing Group

National Vaccine Preventable Diseases Recommendation
for Older Adults in Malaysia 2025

RECOMMENDATIONS

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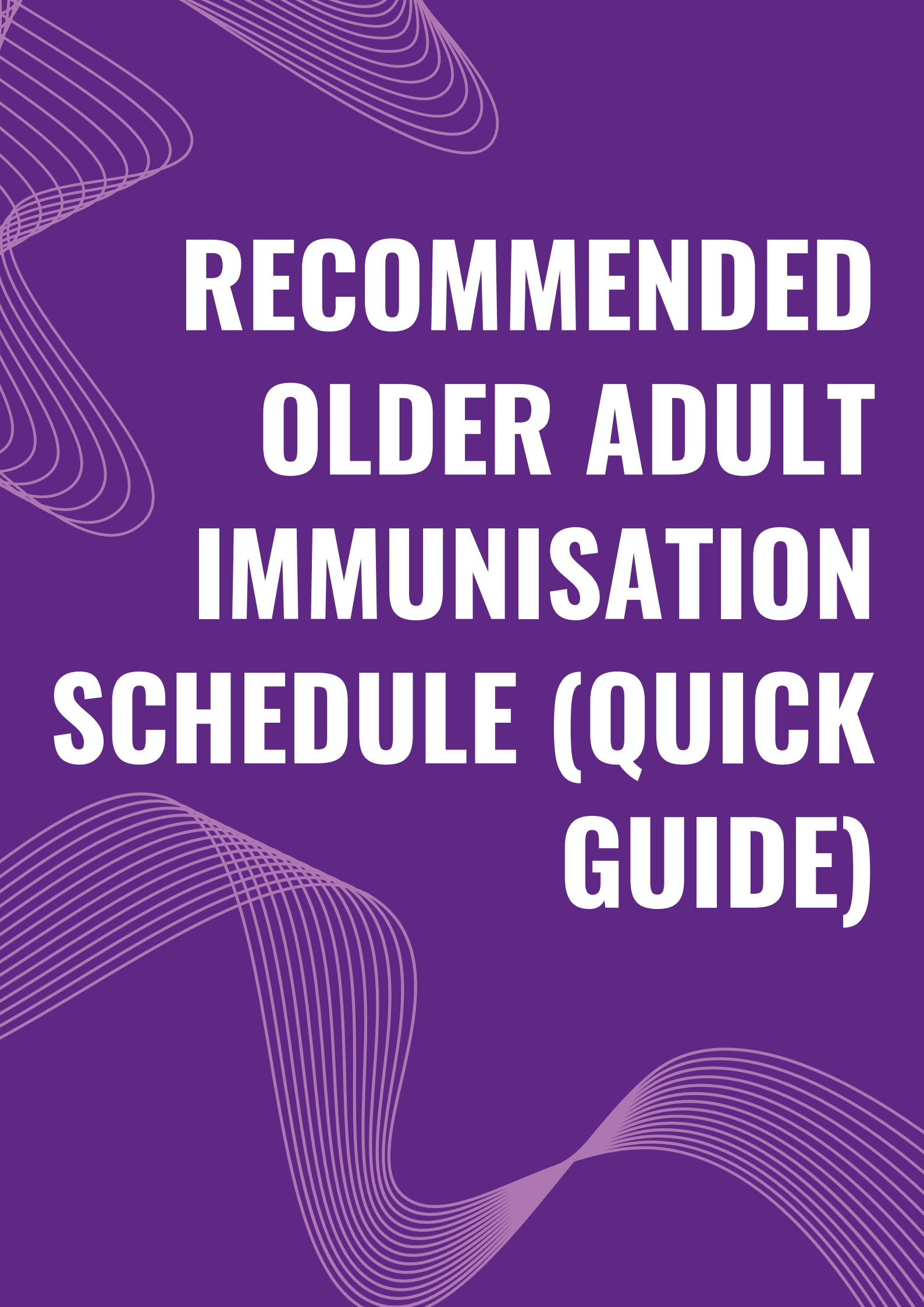
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ABBREVIATIONS

ALT	Alanine Aminotransferase
ARDS	Acute Respiratory Distress Syndrome
ARI	Acute Respiratory Illness
AST	Aspartate Aminotransferase
CAP	Community-Acquired Pneumonia
CDC	Centers For Disease Control And Prevention
CKD	Chronic Kidney Disease
DHF	Dengue Haemorrhagic Fever
ESRF	End-Stage Renal Failure
FHbp	Factor H-Binding Protein
GBS	Guillain-Barré Syndrome
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HZ	Herpes Zoster
HZO	Herpes Zoster Ophthalmicus
IM	Intramuscular
IMD	Invasive Meningococcal Disease
IPD	Invasive Pneumococcal Disease
LRTD	Lower Respiratory Tract Disease
mRNA	Messenger RNA
Non-IPD	Non-Invasive Pneumococcal Disease
PCV	Conjugate Vaccine
PD	Pneumococcal Disease
PPSV	Polysaccharide Vaccine
PHN	Post Herpetic Neuralgia
RSV	Respiratory Syncytial Virus
RSV-ARI	RSV-Associated Acute Respiratory Infection
SAEs	Serious Adverse Effects
Tdap	Diphtheria, Tetanus, Pertussis
TTS	Thrombosis With Thrombocytopenia Syndrome
VZV	Varicella Zoster Virus
VCD	Virologically Confirmed Dengue
WHO	World Health Organization

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RECOMMENDED OLDER ADULT IMMUNISATION SCHEDULE (QUICK GUIDE)

RECOMMENDED (QUICK GUIDE) OLDER ADULT IMMUNISATION SCHEDULE

Vaccines	Age Group				
	50 - 59	60 - 64	65 - 69	70 - 74	≥75
COVID-19	1 or more doses		2 doses		
Dengue	2 doses	Ongoing studies, no evidence yet in adults ≥60			
Hepatitis A (Hep A)	2 doses*				
Hepatitis B (Hep B)	3 doses	3 doses*			
Influenza	1 dose annually				
Meningococcal	1-2 doses*				
Pneumococcal	1 or 2 doses* PCV 13 -> PPSV23 (1 year, unless immunocompromised group – 8 weeks) PCV15 → PPSV 23 (1 year, unless immunocompromised group – 8 weeks) PPSV 23 – as sequential therapy, with additional booster after 5 years (if received PCV 13/15 earlier)				
	PCV 20 – 1 dose				
Respiratory Syncytial Virus	1 dose every 2 yearly (studies of protection beyond 2 years still ongoing)				
Tetanus, diphtheria, pertussis (Tdap/Td)	1 dose Tdap, then Td booster dose every 10 years				
Shingles	1 dose				

	Recommended vaccination for adults who meet age requirement, lack documentation of vaccination or lack evidence of immunity
	Recommended vaccination based on shared clinical decision-making and risk factors
	Recommended vaccination for adults with an additional risk factor or another indication
*	See notes below (Please refer to the relevant sections for more details)

COVID-19

Adults 50–64 with comorbidities and all ≥ 65 :

- Receive additional dose of 2024–2025 Formula COVID-19 vaccine.

Hepatitis A

- a) Any person who is not fully vaccinated and requests vaccination.
- b) Any person who is not fully vaccinated and who is at risk for hepatitis A virus infection such as:
 - Chronic liver disease (e.g., Hep B/C, cirrhosis, fatty/alcoholic liver, autoimmune hepatitis, or ALT/AST $>2 \times$ ULN)
 - HIV infection, men who have sex with men
 - persons experiencing homelessness
- c) Any person who is travelling to countries with high or intermediate endemic hepatitis A

Zoster/Shingles

Age ≥ 50 :

- 2-dose series, 2–6 months apart (regardless of previous varicella, shingles infection).

Hepatitis B

- a) Age ≥ 60 with hepatitis B risk factors should get a Hep B vaccine. Risk factors include:
 - chronic liver disease
 - HIV infection
 - sexual exposure risk
 - On maintenance dialysis (in centre/home/peritoneal) or pre-dialysis
 - travel in countries with high or intermediate endemic hepatitis B
- b) Any adult age ≥ 60 , who requests Hep B vaccination should receive a Hep B vaccine series.

Meningococcal

Older adults with high risk factors are recommended to receive meningococcal vaccination. Risk factors include:

- anatomical or functional asplenia (including sickle cell disease)
- HIV infection
- persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use
- post-haematopoietic stem cell transplantation
- travel in countries with hyperendemic or epidemic meningococcal disease
- Hajj/Umrah pilgrims (vaccine required for Saudi entry, within 2–3 years)

Respiratory Syncytial Virus (RSV)

- a) Adults aged 60–74 at increased risk of severe RSV should receive 1 dose. Risk groups include:
 - Lung disease (e.g., COPD, asthma)
 - cardiovascular diseases (e.g., congestive heart failure, coronary artery disease)
 - neurologic or neuromuscular conditions
 - kidney, liver, haematological disorders
 - diabetes mellitus
 - Moderate/severe immunocompromise (medical or drug-induced)
 - frailty; advanced age; reside in nursing homes or long-term care facilities
 - Other conditions identified by a healthcare provider as increasing risk of severe respiratory disease
- b) Adults ≥ 75 should receive 1 dose of RSV vaccine, regardless of risk factors.

Till date, RSV vaccine is recommended as a single lifetime dose only. Persons who have already received RSV vaccination are **NOT** recommended to receive another dose.

Pneumococcal

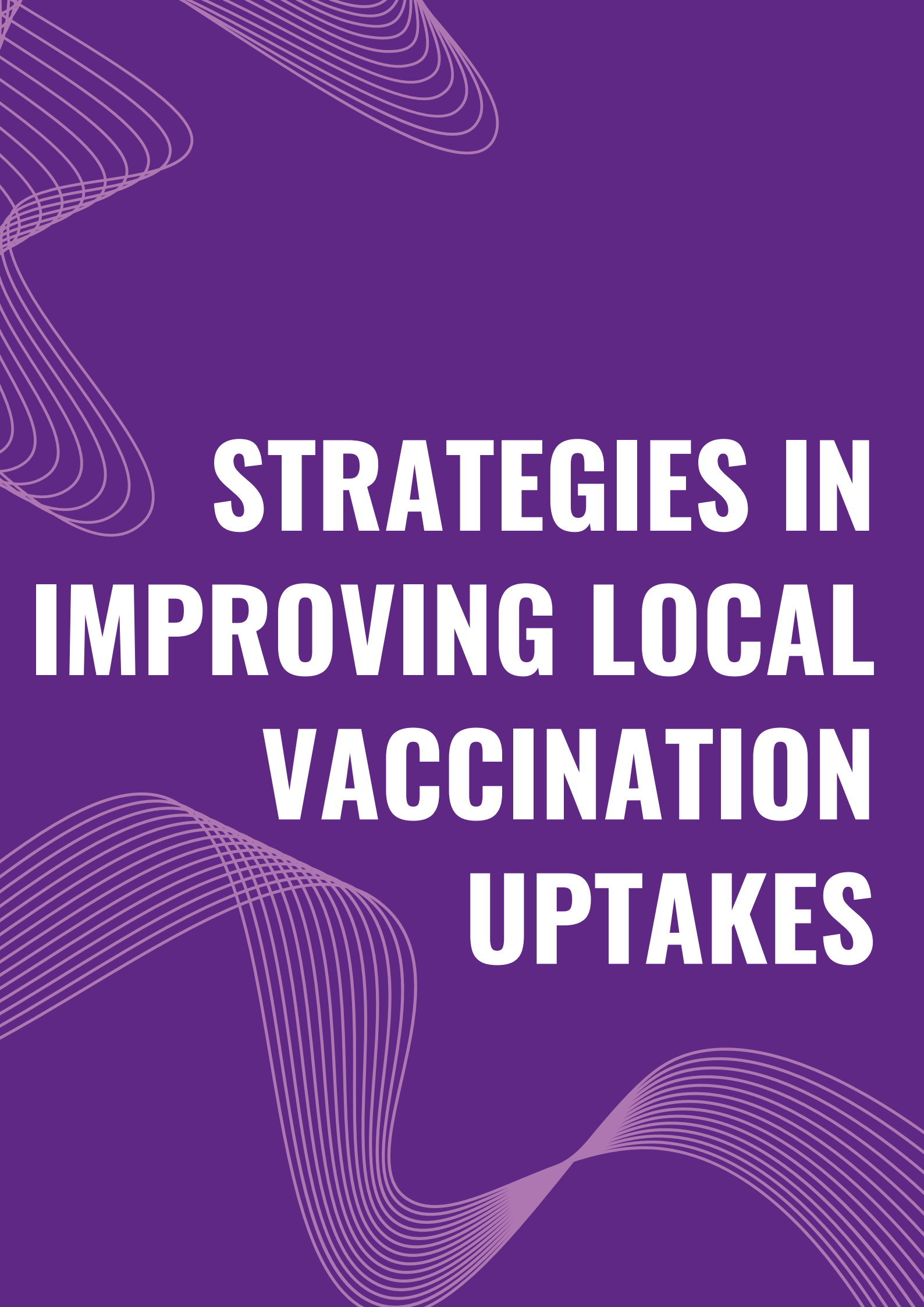
This includes older adults age ≥ 60 both healthy and those with pre-existing medical conditions.

- a) Preferred: 1 dose of PCV 20 vaccine
- b) Alternative:
 - PCV 13(1 year) —PPSV 23—(5 years) — PPSV 23
 - PCV 15(1 year) —PPSV 23—(5 years) — PPSV 23

The minimum interval between any 2 doses of PPSV 23 is 5 years. It is recommended for older adults to receive no more than 3 doses of PPSV 23

A shorter duration of 8 weeks in the sequential therapy is recommended for older adults with :

- An immunocompromising condition (Congenital or acquired asplenia, or splenic dysfunction, Congenital or acquired immunodeficiency)
- Diseases or conditions treated with immunosuppressive drugs or radiation therapy, HIV infection, Sickle cell disease or other hemoglobinopathy)
- A cochlear implant
- A cerebrospinal fluid leak

The background is a solid purple color. It features several abstract, white, wavy line patterns. One pattern in the top left corner consists of concentric, curved lines that resemble a stylized 'S' or a series of overlapping loops. Another pattern in the bottom left corner is a more complex, grid-like structure of intersecting wavy lines. A third pattern in the bottom right corner is a series of parallel, curved lines that flow towards the right edge. The text is centered in the middle of the page, written in a bold, white, sans-serif font.

STRATEGIES IN IMPROVING LOCAL VACCINATION UPTAKES

STRATEGIES IN IMPROVING LOCAL VACCINATION UPTAKES



01 Educate About the Benefits and Risks

Provide clear information: Emphasize importance of vaccines in preventing severe illness, hospitalization, and death from diseases.

Use credible sources: Share information from trusted organizations such as Ministry Of Health Malaysia, [MSIDC](#), [CDC](#)

Tailor messaging: Address misconceptions directly and emphasize that vaccines are generally safe and effective, especially for older adults who may have weaker immune systems.



02 Leverage Trusted Messengers

Healthcare providers: Encourage your team doctors, nurses, and pharmacists to initiate conversations about vaccination during regular visits.

Community leaders: Engage religious leaders, senior center coordinators, and local influencers who older adults respect.

Family involvement: Empower family members to advocate for vaccinations during discussions with their older relatives.



03 Make Vaccines Accessible

Convenient locations: Offer vaccinations in familiar, easily accessible places such as community health clinics, community centres like PAWE.

Flexible scheduling: Provide extended hours, including weekends, to accommodate different schedules.

Mobile clinics: Deploy mobile units to reach rural or underserved areas.

STRATEGIES IN IMPROVING LOCAL VACCINATION UPTAKES

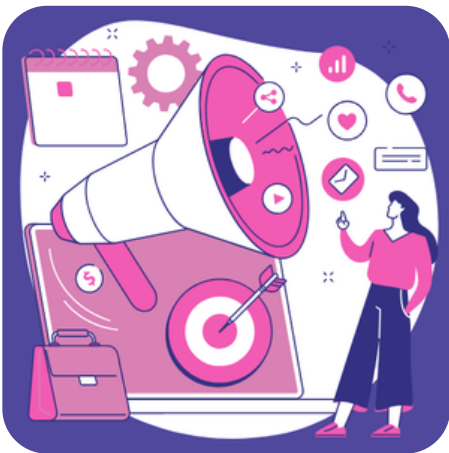


04 Offer Incentives and Address Barriers

Cost reduction: Offer discounted prices for subsequent doses, remind public that vaccinations is tax-deductible.

Transportation assistance: Provide free rides or partner with local organizations to ensure transportation isn't a barrier.

Social incentives: Promote the idea of vaccination as a way to protect loved ones and remain active in social settings.



05 Engage Through Targeted Campaigns

Culturally sensitive materials: Use language and imagery that resonate with our local Malaysian older adults with multilingual ie Malay, Chinese, Tamil, English.

Personalized outreach: Send reminders via phone calls, text messages, specifically targeting older adults.

Digital campaigns: Use social media platforms or email campaigns tailored to older adults who are tech-savvy, and broadcast via popular radio channels and air during prime time in local TV channels.



06 Host Community Events

Organize vaccination drives combined with social events like health fairs or wellness workshops, and even during festivities eg Raya, Chinese New Year, Christmas and Deepavali.

Involve peer networks where older adults can hear testimonials from others who've benefited from vaccination.

STRATEGIES IN IMPROVING LOCAL VACCINATION UPTAKES



07 Address Concerns About Side Effects

Be transparent about possible mild side effects (e.g., soreness, fatigue) while explaining that these are temporary and normal.

Reassure them about monitoring for rare adverse events and the availability of care if needed.



08 Highlight Disease Risk

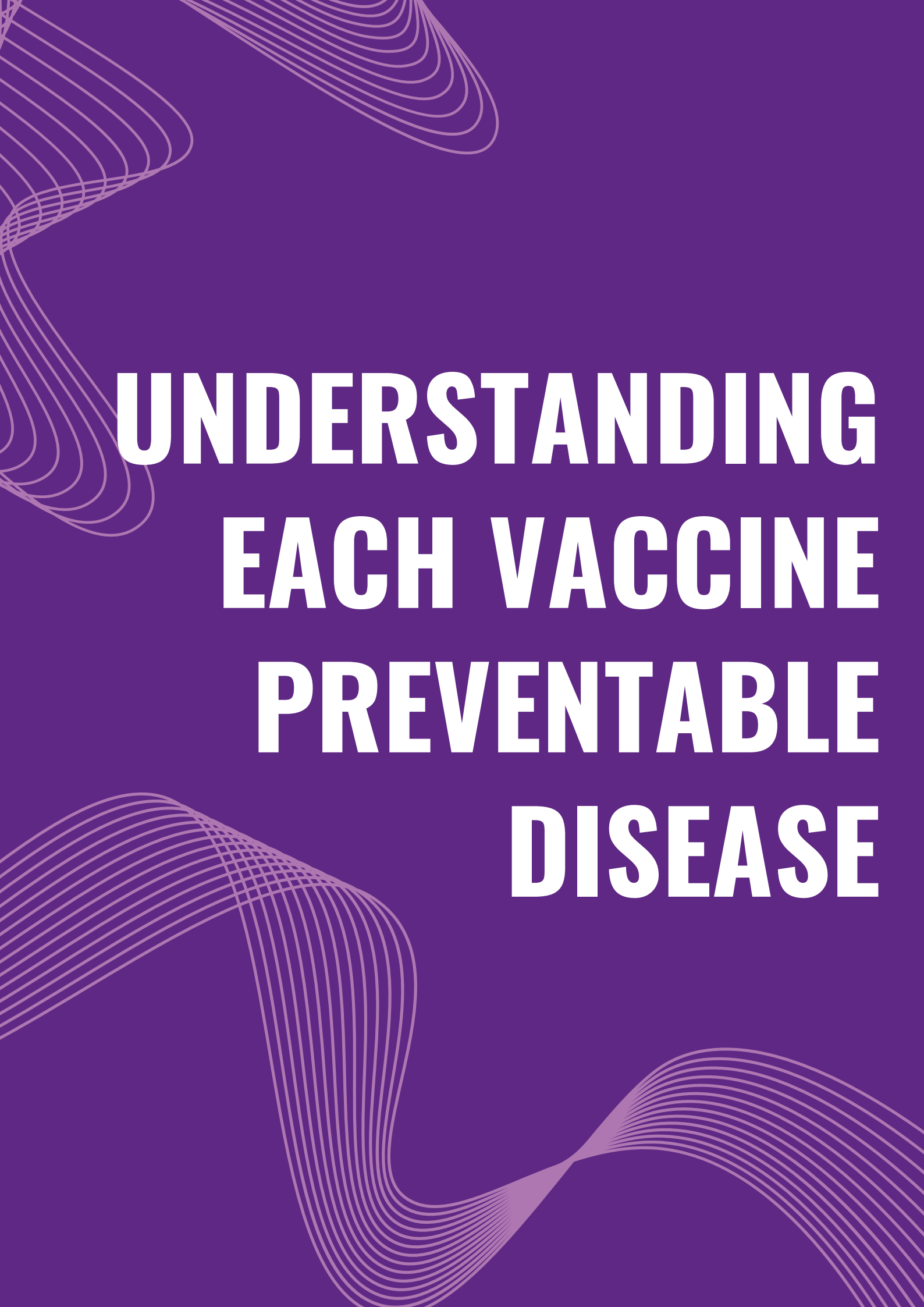
Use statistics and stories to show how older adults are at higher risk for complications from diseases that vaccines prevent.

Compare the risks of disease with the relatively low risk of vaccination. These should also be part of informative ads in TV / radio.



09 Policy and Systematic Approach

Development of national immunisation programme for older adults similarly like in the paediatrics group. Wide usage of recommendation like this and policy papers to drive vaccinations.

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UNDERSTANDING EACH VACCINE PREVENTABLE DISEASE

UNDERSTANDING EACH VACCINE PREVENTABLE DISEASE

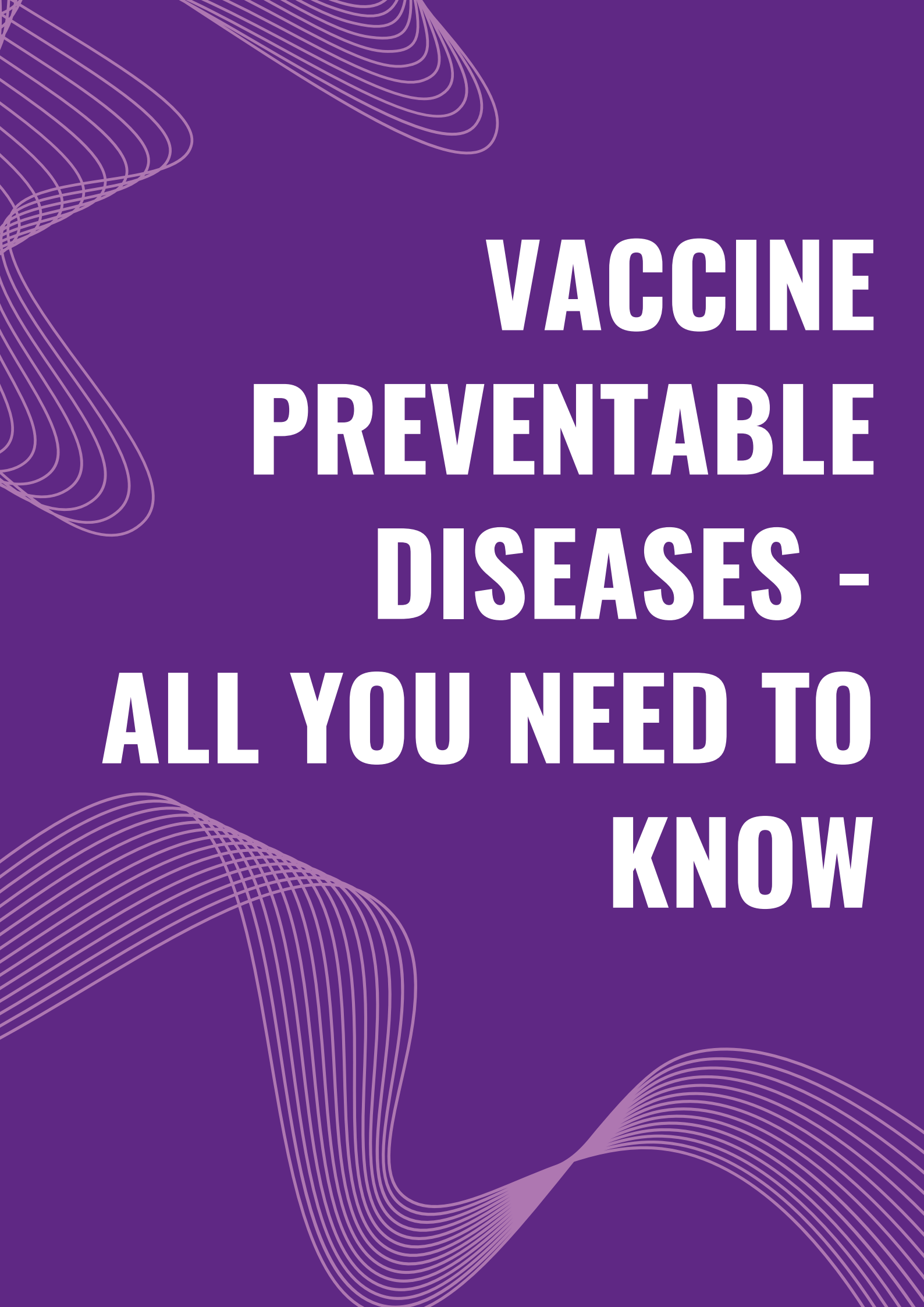
	 Brands available in Malaysia	 Vaccine Type	 Dosing schedule	 Storage	 Contraindication
Influenza A&B	- Fluarix Tetra - Influvac - Vaxigrip Tetra - SKYCellFlu Trivalent/Quadrivalent	Inactivated, whole viral or fractional (protein-based)	Single dose repeated annually with the most updated vaccine	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients (The vaccine contains egg or chicken protein).
Herpes zoster (shingles)	Shingrix	Recombinant, adjuvanted	2 doses, with second dose administered 2 to 6 months after the first dose	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.
Respiratory Syncytial Virus (RSV)	- Arexvy - Abrysvo	Recombinant, adjuvanted	Single dose	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.
Pneumococcal pneumonia	- Prevenar 13 (PCV-13) - Vaxneuvance (PCV-15) - Prevenar 20 (PCV-20) - Pneumovax (PPSV-23)	Inactivated, fractional (polysaccharide or conjugate)	No prior vaccine: 1 dose PCV-13 or PCV-15, then PPSV-23 after ≥1 year. 1 dose of PCV-20. Revaccination with PCV-20 has not been established. Prior PPSV-23 only: 1 dose PCV-13 or PCV-15 ≥1 year after last PPSV-23.	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.
Diphtheria, tetanus, pertussis (Tdap)	- Boostrix - Adacel	Combined vaccine (bacterial toxoids)	Primary: 3 doses — Tdap, then tetanus and diphtheria toxoid (Td) ≥4 weeks later, 3rd Td at 6–12 months later. Booster: Td every 10 years.	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to active ingredient or any of the excipients.
Meningococcal	- Menactra - Menveo - Nimenrix - MenQuadfi	Polysaccharides conjugate vaccine	- Single dose; booster every 5 years if risk persists. - For asplenia, complement deficiencies, or HIV: 2 doses 2 months apart as primary series.	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.

UNDERSTANDING EACH VACCINE PREVENTABLE DISEASE

	 Brands available in Malaysia	 Vaccine Type	 Dosing schedule	 Storage	 Contraindication
Dengue	Qdenga	Live, attenuated	2 doses, 3 months apart	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	- Hypersensitivity to the active ingredient or any excipients. - Immunodeficiency (congenital, acquired, or on immunosuppressive therapy within 4 weeks, e.g., chemotherapy or corticosteroids ≥20 mg/day or ≥2 mg/kg/day for ≥2 weeks). - Symptomatic or asymptomatic HIV with evidence of impaired immune function.
Hepatitis A	- Avaxim (Hepatitis A) - Havrix (Hepatitis A) - Twinrix (Hepatitis A + B)	Inactivated Hepatitis A virus (or with Hepatitis B surface antigen)	2 doses at 6 to 12 months intervals For combined hepatitis A and B vaccine, a 3-dose series is required at 0, 1 and 6 months.	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.
Hepatitis B	- Euvax-B - Engerix-B - SII Hepatitis-B - Twinrix (Hepatitis A + B)	Recombinant vaccine using hepatitis B surface antigen	20mg per dose, administer as 3-dose series at 0, 1 and 6 months.	Keep refrigerated. Between 2°C to 8°C. Do not freeze. Protect from light.	Hypersensitivity to the active substance or any of the excipients.
Covid	Comirnaty Omicron JN.1 30mcg/dose Dispersion for Injection (mRNA vaccine)	mRNA vaccine	Comirnaty Omicron JN.1 Single dose, at least 3 months after the most recent dose (if any, regardless of covid 19 vaccination history)	Comirnaty Omicron JN.1 Store in a freezer at -90°C to -60°C	- Hypersensitivity to active ingredient or any of the excipients. - For detailed contraindication, consult specific product information.

References

1. Product Information of each vaccine.
2. Guideline for Adult Immunisation, Malaysian Society of Infectious Disease and Chemotherapy.
3. Quest3 System, National Pharmaceutical Regulatory Agency (NPRA), Ministry of Health Malaysia.

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VACCINE PREVENTABLE DISEASES - ALL YOU NEED TO KNOW

ALL YOU NEED TO KNOW: COVID-19



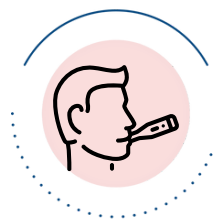
Disease Overview

Aetiology: COVID-19 is caused by the SARS-CoV-2 virus, a novel coronavirus first identified in December 2019.

Mode of Transmission: Primarily via respiratory droplets from **coughing, sneezing, or talking**; also through contact with **contaminated surfaces**. Asymptomatic individuals can transmit the virus.

Clinical Presentation:

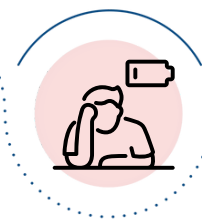
Common symptoms



Fever



Cough



Fatigue



Shortness of breath

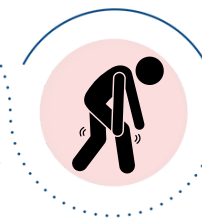
In older adults (atypical symptoms)



Confusion



Delirium



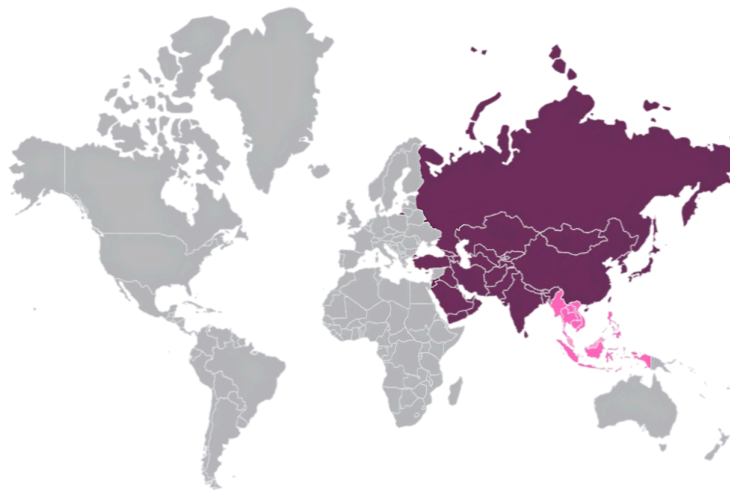
General weakness

Complications: Elderly individuals are at higher risk for severe outcomes, including **pneumonia, acute respiratory distress syndrome (ARDS), multiorgan failure, and increased mortality**.

Peak Season: Spikes occur with seasonal patterns, especially during colder months. In Malaysia, notable peaks were observed in May 2023 and December 2023.



Burden of Disease: Total Cumulative Cases & Mortality Cases



Global:

Cumulative Cases¹: 778 million cases

Mortality Cases²: 7.1 million cases

Asia:

Cumulative Cases³: 202.35 million cases

Mortality Cases⁴: 1.64 million cases

Southeast Asia:

Cumulative Cases¹: 61.5 million cases

Mortality Cases²: 809,000 cases

Malaysia :

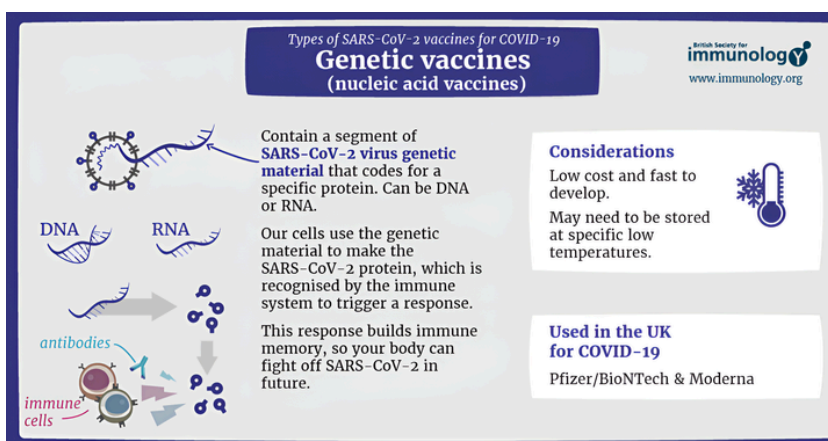
Cumulative Cases¹: 5.3 million cases

Mortality Cases⁵: 37,000 cases



About the Vaccine

Type 1: Messenger RNA (mRNA) vaccines



Benefits:

High efficacy, rapid development, adaptable to new variants.

Examples:

Pfizer-BioNTech, Moderna



Vaccine Efficacy

Vaccine effectiveness (VE) of the 2024–2025 COVID-19 vaccine compared with NOT receiving a 2024–2025 vaccine dose:

Population Group	Outcome	Vaccine Effectiveness (VE)
Adults aged ≥18 years	ED or urgent care (UC) visits	33%
Immunocompetent adults aged ≥65 years	Hospitalizations	45%–46%
Immunocompromised adults aged ≥65 years	Hospitalizations	40%



Safety of Vaccine

The most common reported side effects of these vaccines include:

Local Reaction:
(at the injection site)



Pain

Swelling

Red

Systemic Effect:
(general body responses)



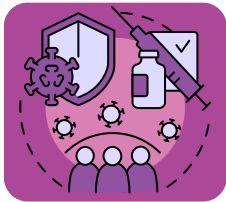
Fatigue

Fever

Headache

Rare but serious events:

- **mRNA vaccines:** **Myocarditis** and **pericarditis**, mainly in younger males (about 40 cases per million second doses); risk is much lower in older adults and cases are generally mild and recoverable.



Benefits of vaccination in older adults

Vaccinated older adults have a **75% reduction in hospitalizations** and over **80% reduction in mortality** compared to unvaccinated peers.

Booster doses further reduce severe outcomes, especially during variant surges and in high-risk subgroups.

Benefits are consistent across older adults, including those with comorbidities (e.g., cardiovascular disease, diabetes).

Vaccinated older adults are less likely to develop long COVID

In the U.S., vaccination in older adults is projected to prevent 7.2 million cases, 690,000 hospitalizations, and 117,000 deaths, saving \$63 billion in direct medical costs. These estimates may differ in Malaysia due to healthcare system differences.



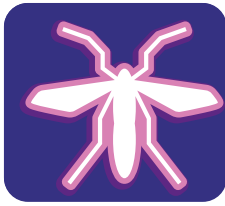
Recommendations

Age Group	Vaccination Status	Recommended Schedule
50–64 years old	Unvaccinated	1 dose of 2024–25 Pfizer-BioNTech
	Previously vaccinated	1 dose of 2024–25 Pfizer-BioNTech (at least 8 weeks after the most recent dose)
65 years and older	Unvaccinated	1 dose of 2024–25 Pfizer-BioNTech, then 2nd dose 6 months later (minimum interval 2 months)
	Previously vaccinated	1 dose of 2024–25 Pfizer-BioNTech, then 2nd dose 6 months later (minimum interval 2 months)

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ALL YOU NEED TO KNOW: DENGUE



Disease Overview

Dengue infection is caused by the **dengue virus**, a **mosquito-borne flavivirus**.

It is primarily transmitted by **Aedes aegypti** and **Aedes albopictus** mosquitoes.

There are four distinct serotypes of the virus: **DENV-1, DENV-2, DENV-3, and DENV-4**.

In Malaysia, all four serotypes co-circulate and can be isolated at any time. A single serotype may predominate for at least two years before shifting.

Clinical Presentation:

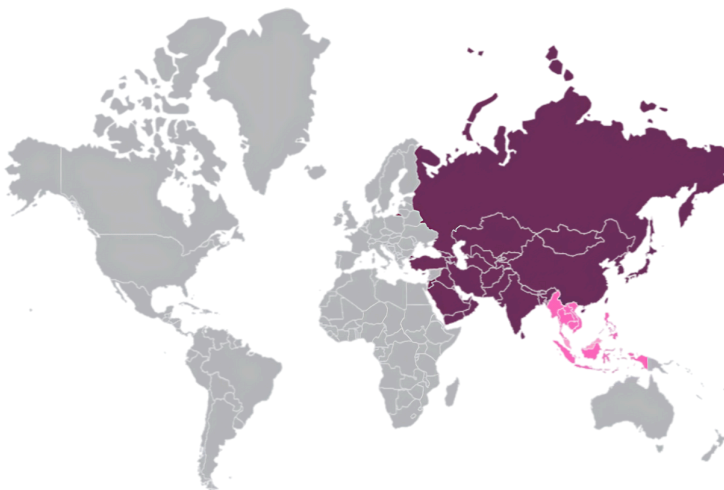
- Incubation period: Typically 4–7 days after mosquito bite.
- Spectrum of illness: Ranges from **asymptomatic infection** to **severe disease**, with or without **plasma leakage** or **organ impairment**.

Dengue is a systemic and dynamic illness:

- **Haematological, serological, and clinical features** change day by day.
- Clinical deterioration can occur **rapidly**, sometimes within **hours or minutes**, especially during the **critical phase** of the illness.



Burden of Disease: Age-Adjusted Mortality Rates



Global ¹:

2021: 376.50 deaths / 100,000 persons-year

Asia-Pacific:

No data available

Southeast Asia ¹:

2021: 10 -20 deaths / 100,000 persons-year

Malaysia ²:

Aged over 74 years: 1.64 deaths / 100,000 persons-year



About the Vaccine: Qdenga



The dengue vaccination registered in Malaysia is called **TAK – 003** or its brand name **Qdenga**.

It is a tetravalent, live-attenuated vaccine.

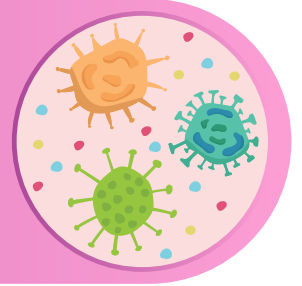
The vaccine is **based on a DENV-2 backbone**.

TAK-003 (Qdenga), is recommended for individuals aged 4-60, there's limited data on its use and safety in older adults (over 60). Studies involving adults aged 60 and above are still ongoing. Hence, the group currently **does not recommend routine vaccination for older adults aged >60**, concurring with recommendations from WHO.

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ALL YOU NEED TO KNOW: DIPHTHERIA, TETANUS, PERTUSSIS



Disease Overview: Diphtheria

Contagious respiratory illness caused by *Corynebacterium diphtheriae*.

Transmitted through **respiratory droplets** or close person-to-person contact.

It is usually mild. However, older adults and immunocompromised individuals may experience severe complications, including **myocarditis** and **polyneuritis**.

Pharyngeal diphtheria can cause **acute severe respiratory obstruction**.

Untreated diphtheria can be severe and fatal.

While there is no specific seasonal peak in Malaysia, the **risk of transmission is higher in overcrowded and impoverished communities**.



Disease Overview: Tetanus

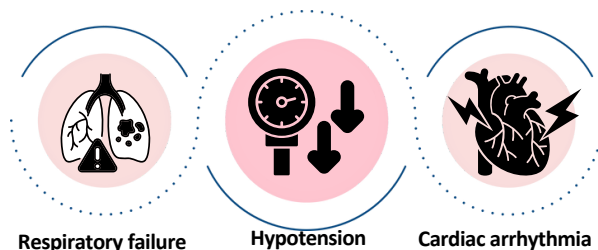
Severe infectious disease caused by a toxin produced by *Clostridium tetani*.

Acquired through **contaminated wounds**, where it thrives in areas of low oxygen tension. Tetanus is **not transmitted person-to-person**.

Usually manifests as skeletal muscle rigidity & painful spasms. It starts in the jaw (lockjaw) and neck, then becoming generalized.

Severe cases may lead to:

(potentially resulting
in death)



Those unvaccinated or inadequately vaccinated, especially older adults are at highest risk.

Although there is no seasonal peak for tetanus in Malaysia, the risk of infection is higher in agricultural regions, areas with frequent contact with animal excreta, during natural disasters and accidents.



Disease Overview: Pertussis

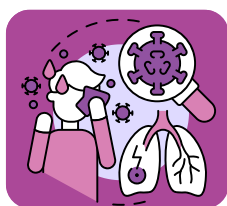
It is caused by *Bordetella pertussis*.

Transmission occurs via direct contact with **respiratory secretions** or by **aerosolised droplets** from the infected persons.

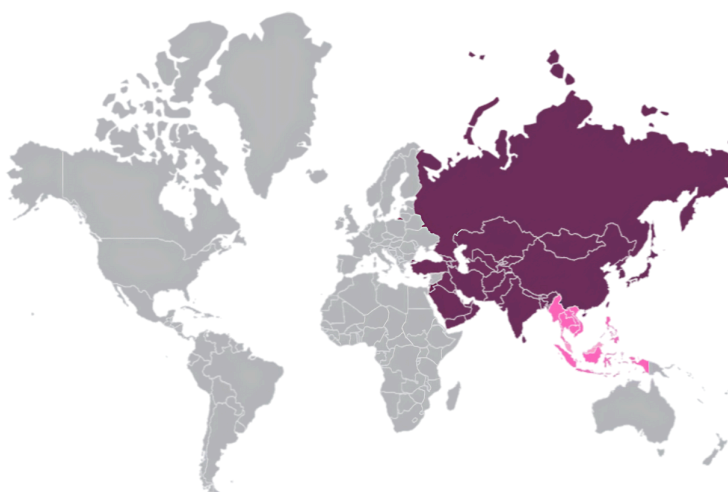
Characterised by **paroxysmal cough with inspiratory whoop**. In adults, the **symptoms may be milder** due to partial immunity from childhood vaccination or previous infection.

It can cause severe complications in older adults, including **encephalopathy** and a **persistent cough**, often misdiagnosed as **bronchitis**.

Although there is no seasonal peak for pertussis in Malaysia, the **risk of infection is increased in overcrowded and impoverished communities**.



Burden of Disease: Incidence Rate among Older Adults



Global:

Diphtheria¹: No global data available

Tetanus²: 3 cases / 100,000 person-years

Pertussis³: No global data available

East Asia:

Diphtheria¹: No region data available

Tetanus²: 0.5 cases / 100,000 person-years

Pertussis³: No region data available

Southeast Asia:

Diphtheria¹: No region data available

Tetanus²: 1.5 cases / 100,000 person-years

Pertussis³: No region data available

Malaysia:

Diphtheria⁴: 0.05 cases / 100,000 person-years

Tetanus²: 0.2 - 0.5 cases / 100,000 person-years

Pertussis⁴: 0.94 to 3.08 cases / 100,000 person-years



About the Vaccine

Feature	Diphtheria Vaccine	Tetanus Vaccine	Pertussis Vaccine
Type	Toxoid (modified diphtheria toxin)	Toxoid (inactivated tetanus toxin)	Acellular (purified bacterial components)
Adjuvant	Aluminium salt ⁴	Aluminium phosphate	Varies by formulation
Common Combinations	DT, Td, DTaP/Tdap, DTaP-HepB-Hib-IPV		DTaP/Tdap, DTaP-HepB-Hib-IPV
Dose & Route	0.5 mL intramuscular injection		
Main Antibody Response	IgG antibodies against diphtheria toxin	IgG antibodies to neutralize tetanus toxin	IgG antibodies to multiple pertussis components
Effectiveness Evidence	Strong real-world support (e.g., outbreaks) ⁵	Strong real-world support (post-WWII decline) ⁶	Supported by real-world and component studies
Immunity Duration	Wanes by middle age (>50% have low immunity)	Wanes over time in adults	Waning antibodies, but clinical protection ~10 years ⁴
Booster Needed?	Single booster restores protection within 6 weeks ⁴		Yes – Tdap booster enhances immunity
Protection Threshold	>0.1 IU/mL for long-term protection	Protective levels maintained post-booster	Clinical protection despite declining antibodies
Special Notes	First developed early 1900s	Does not prevent bacterial growth, only toxin	Multicomponent vaccines offer best protection

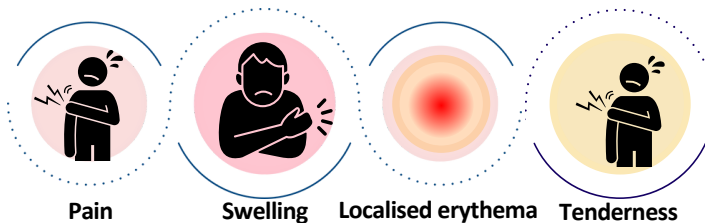


Safety of Vaccine

Diphtheria-containing Vaccines & Acellular pertussis Vaccines :

Common side effects

(at injection site)



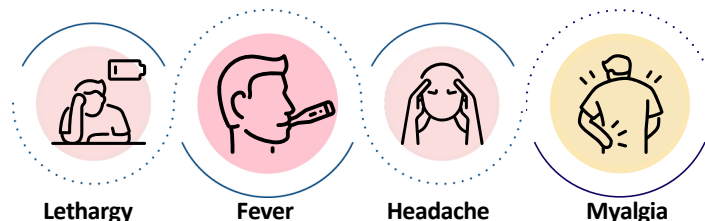
Pain

Swelling

Localised erythema

Tenderness

Less common side effects



Lethargy

Fever

Headache

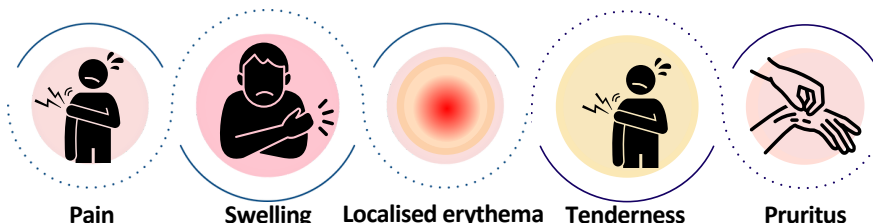
Myalgia

The only absolute contraindication to diphtheria containing vaccine and acellular pertussis-containing vaccines are anaphylaxis reaction after the previous dose or to any component of the vaccine.

Tetanus toxoid Vaccines:

Common side effects

(at injection site)



Pain

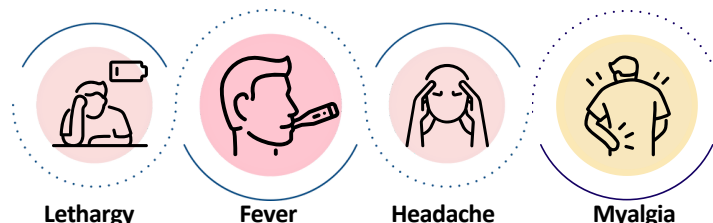
Swelling

Localised erythema

Tenderness

Pruritus

Less common side effects



Lethargy

Fever

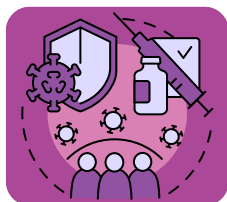
Headache

Myalgia

Anaphylaxis, urticaria and peripheral neuropathy occur very rarely.

The only absolute contraindication to tetanus containing vaccines is anaphylaxis reaction after the previous dose or to any component of the vaccine.

Do **NOT** administer DTaP to adults as the higher doses of the diphtheria and pertussis components may result in greater adverse effects. The reduced antigen content of the adult formulations of Tdap vaccines are safe and well tolerated in adults. Booster doses of Tdap given within 10 years are safe, well tolerated in adults and limb swelling reactions following booster doses rarely occur.



Benefits of vaccination in older adults

Diphtheria-containing Vaccines:

- Adult immunity wanes with age, with **>50% lacking protective levels** by middle age
- Booster doses **restore protective antibody levels within 6 weeks**
- Historical models show **substantial case and death reduction**, suggesting **high protective benefit** if adult boosters are maintained.

Tetanus toxoid Vaccines:

- Contributed to a **>98% reduction in tetanus cases** in the US across all age groups (1947–2016) ⁷
- Case-fatality rate in the US declined from **18% to 8%** (1998–2016) ⁷
- Though specific older adult data is limited, this indicates **strong protection** and **mortality reduction**.

Acellular pertussis Vaccines :

- Prevents an estimated **11,889** pertussis cases annually, including ⁸:
 - **1,427 severe cases**
 - **12.2 deaths**
 - **20.2 cases of encephalopathy**
 - **8,798 moderate cases**
 - **1,664 mild cases**
- Saves approximately USD 49.5 million in direct medical costs annually.
- Another analysis showed that a Tdap booster strategy could ⁹:
 - Prevent **114,046 pertussis cases**, including **150 hospitalizations**
 - Save **1,374 QALYs**, mostly by preventing outpatient cases



Recommendations

All older adults, regardless of age group category should receive the recommended Tdap/Td vaccine regimen.

Category 1:	Previously unvaccinated, unknown vaccination status or incomplete primary series of Tdap vaccination
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Should complete a 3-dose primary series of Tdap/Td vaccinations. The initial dose should be Tdap, followed by two doses of Td. The recommended interval between the first and second doses is 4-6 weeks, and the interval between the second and third doses is 6-12 months.

Category 2:	Booster vaccination if their last vaccination (including primary series or previous booster dose) was at least 10 years ago
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Should receive a booster dose of Tdap. Thereafter, a booster dose of Td should be administered every 10 years throughout life.

Category 3:	Older adults in close contact with an infant aged less than 12 months
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Tdap as the 1st dose may be more appropriate to prevent the transmission of pertussis. Subsequent booster doses of Td every 10 years can then be given throughout life.

Category 4:	Older adults who have recovered from diphtheria
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Should complete the full immunisation schedule as the disease does not confer immunity.

Category 5:	Older adults who have recovered from tetanus
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Should complete the full immunisation schedule as the disease does not confer immunity.



Recommendations

Category 6: Patients with tetanus prone wounds requiring post-exposure prophylaxis

History of tetanus vaccination	Time since last dose	Type of wound	Tdap or Td [†]	Tetanus immunoglobulin (TIG)
>3 doses	< 5 years	Minor clean wound	No	No
		All other wounds [^]	No	No [*]
>3 doses	5-10 years	Minor clean wound	No	No
		All other wounds [^]	Yes	No [*]
>3 doses	>10 years	Minor clean wound	Yes	No
		All other wounds [^]	Yes	No [*]
<3 doses or uncertain [#]	Uncertain	Minor clean wound	Yes	No
		All other wounds [^]	Yes	Yes

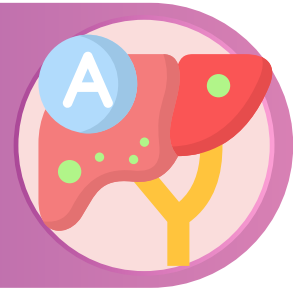
Adapted from Table 3.1 in Malaysian Society of Infectious Diseases & Chemotherapy, Guidelines for adult immunisation, 3rd edition

- [^] Wounds contaminated with dirt, faeces, soil, saliva, or resulting from punctures, avulsions, missiles, crushing, burns, or frostbite should be considered “tetanus-prone”.
- ^{*} Adults with humoral immune deficiency (including HIV-infected persons who have immunodeficiency) should be given TIG if they have suffered a tetanus-prone injury, regardless of the time since their last dose of tetanus-containing vaccine.
- [#] Adults who have no documented history of a primary vaccination course (3 doses) with a tetanus toxoid-containing vaccine should receive all missing doses and must receive TIG.

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ALL YOU NEED TO KNOW: HEPATITIS A



Disease Overview

Hepatitis A virus is a member of the **Picornaviridae** family.

Hepatitis A virus causes **acute hepatitis** which can progress to **fulminant liver failure**.

The main mode of transmission is **faecal-oral route** through contaminated food/water or from direct contact with an infectious person.

Recovery occurs in **>99%** of cases and immunity is assumed to persist for life.



Burden of Disease: Incidence Rate

Global:

General¹: 2,272.08 cases / 100,000 person-years

Older adults: No incidence data available

East Asia:

General¹: 1,955.43 cases / 100,000 person-years

Older adults: No incidence data available

Southeast Asia:

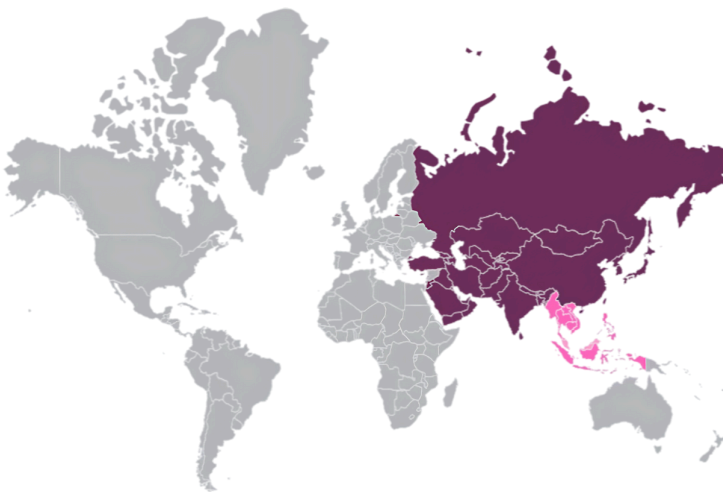
General²: < 1 cases / 1,000 person-years

Older adults: No incidence data available

Malaysia :

General³: 0.46 cases / 100,000 person-years

Older adults: No incidence data available





About the Vaccine

Effective and safe vaccines have been available since 1990s.

Inactivated Vaccine:

- Requires 2 doses, with an inter-dose interval of 6–12 months.
- Off-label single-dose use is not recommended in older adults:
 - Only **65% of individuals aged 50+** developed adequate antibodies after one dose.
 - This increased to **97%** after the second dose.
 - In comparison, **100% of young adults** developed adequate antibodies after a **single dose**.



Safety of Vaccine

Overall safety profile of all inactivated hepatitis A vaccine has been “excellent”, based on experience gained from administering several hundred million doses globally with no serious adverse event reported.

Safety studies involving the inactivated hepatitis vaccine have reported that the adult patients experienced:



56% experienced soreness at injection site
53% experienced tenderness



14 - 16% experienced headache

No serious adverse event was reported with the use the live-attenuated vaccine but it is not recommended for use in immunocompromised individuals as with other live-attenuated vaccines.



Benefits of vaccination in older adults

Data on hepatitis A vaccine efficacy specifically in the elderly is limited.

Decreasing exposure to HAV over time may result in increased susceptibility among older adults.

Clinical hepatitis A is observed more frequently in older age groups, who are also at higher risk of severe disease.

Therefore, vaccinating elderly patients may help prevent clinical infection and reduce morbidity and mortality.



Recommendations

Although older adults are more susceptible to more severe infection, in view of reducing incidence of hepatitis A, the benefit of vaccination on morbidity and mortality among the elderly in Malaysia needs to be ascertained before widespread use can be recommended.

Pre-screening for anti-HAV would be cost effective prior to offering hepatitis A vaccine among the elderly.

However, through shared clinical decision making with older adults who may be at higher risk, vaccination is recommended.

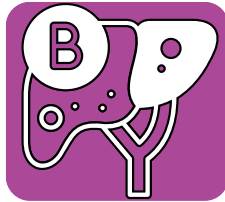
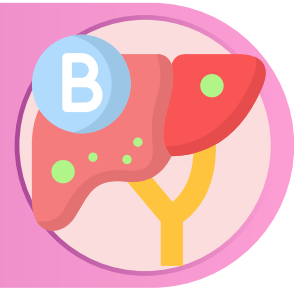
The risk factors include :

- Chronic liver disease including persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate aminotransferase (AST) level greater than twice the upper limit of normal.
- HIV infection
- Men who have sex with men
- Injection or non injection drug use
- Persons experiencing homelessness
- Travel to countries with high or intermediate endemic hepatitis A (see list of countries/region [here](#))

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ALL YOU NEED TO KNOW: HEPATITIS B



Disease Overview

Hepatitis B virus (HBV) is a partially double stranded DNA virus that belongs to the **Hepadnaviridae** family.

Chronic infection is associated with development of **liver cirrhosis** and **hepatocellular carcinoma (HCC)** while **acute infection** may lead to **fulminant hepatitis**.

In some cases, **spontaneous resolution of infection may occur** which is characterised by:

- serological loss of HBsAg
- emergence of anti-HBs antibody.

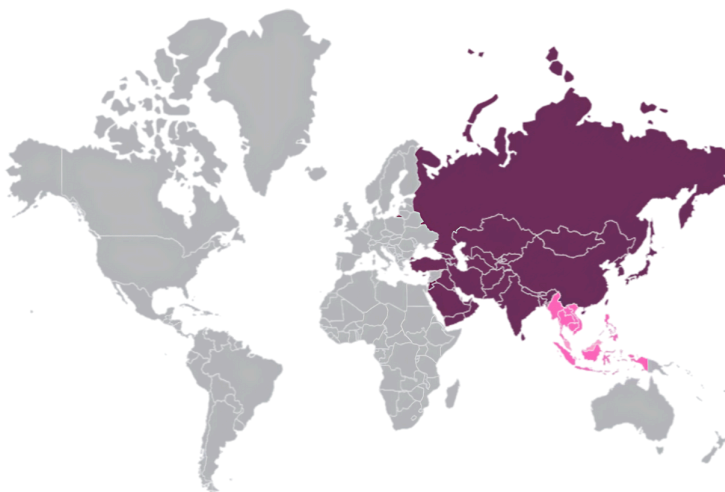
Presence of anti-HBc antibody denotes prior exposure to HBV.

Most of the burden of HBV related disease is a consequent of infection acquired through vertical transmission from mother to child as it more likely to become chronic as compared to when acquired later in life.

Childhood vaccination for HBV in Malaysia was started in 1989.



Burden of Disease: Incidence Rate among Older Adults



Global:

General¹: 65 cases / 100,000 person-years

Older adults: No incidence data available

East Asia:

General¹: 15 cases / 100,000 person-years

Older adults: No incidence data available

Southeast Asia:

General¹: 42 cases / 1,000 person-years

Older adults: No incidence data available

Malaysia :

General²: 22.47 cases / 100,000 person-years

Older adults: No incidence data available



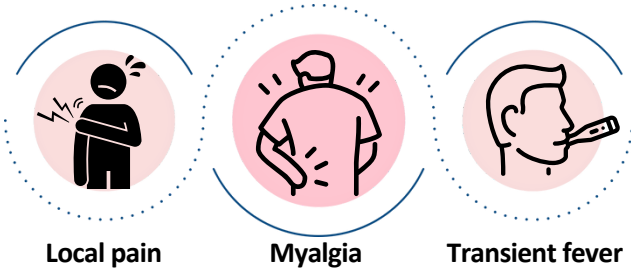
About the Vaccine

Category	Details
Vaccine Availability	Safe and effective vaccines used since 1982; recombinant vaccines since 1986
Dosing Schedule	Three-dose regimen: • 2nd dose: 1 month after 1st • 3rd dose: 6 months after 1st
Serological Marker	Anti-HBs >10 mIU/mL (1–2 months after final dose) indicates long-term protection
Post-Vaccination Testing	Routine anti-HBs testing is not recommended



Safety of Vaccine

Hepatitis B vaccine has been reported to have an “excellent safety profile”. Most adverse reactions are minimal such as:



It occurs usually within 24 hours and more frequently in adults compared to children (30% vs <10%).

The estimated incidence of **severe anaphylaxis** was **1.1 per million vaccine doses**.

No long term evidence of serious adverse event have been found.



Benefits of vaccination in older adults

Hepatitis B vaccines have been found to **decrease the incidence of HCC**, mortality due to **fulminant liver failure** and mortality due to **chronic liver disease** as observed among vaccinated individuals in Taiwan over 30 years.

Data on benefit is mostly derived from studies involving individuals who received primary vaccination during childhood.

Most elderly individuals in Malaysia would not have been vaccinated as the childhood vaccination program was only commenced in 1989.

Older age was found to have a lower seroprotection rate;

- Older adults aged >65 years were found to have rates of 64.8% after completing 3 doses of the vaccine as compared to younger adults aged 20-24 years at 98.6%.

Data is scarce on strategies to increase the seroprotection rates among individuals receiving the vaccine later in life and more studies are needed.



Recommendations

Older adults in Malaysia can be considered for HBV vaccination on a case- by-case basis as they would not have received childhood vaccination.

Given the level of endemicity of HBV and higher lifetime risk of exposure among older patients, it may be cost-effective to conduct pre-vaccination screening.

In the absence of evidence of chronic or prior infection, patients can be considered for vaccination. However, it may confer a lower rate of protection as compared to individuals vaccinated at a younger age.

Based on shared clinical decision making with older adults, hepatitis B vaccination is recommended for those at risk.

Risk factors include :

- Chronic liver disease, including hepatitis C, cirrhosis, fatty liver, alcoholic liver disease, autoimmune hepatitis, or ALT/AST levels >2× upper limit of normal.
- Percutaneous or mucosal risk for blood exposure (e.g., dialysis patients [in-center, home, or peritoneal], predialysis, diabetes, household contacts of HBsAg-positive persons, residents and staff of developmental disability facilities, and health or public safety personnel with expected blood exposure)
- HIV infection
- Sexual exposure risk
- Current or recent injection drug use
- Incarceration
- Travel in countries with high or intermediate endemic hepatitis B



Recommendations

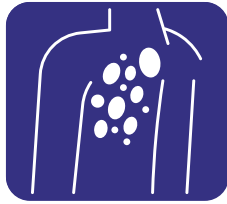
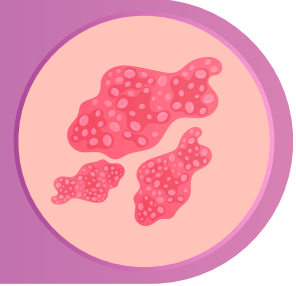
Risk factors include :

- Chronic liver disease including persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate amino transferase (AST) level greater than twice the upper limit of normal.
- Percutaneous or mucosal risk for exposure to blood e.g., persons on maintenance dialysis (including in–center or home hemodialysis and peritoneal dialysis), persons who are predialysis, and patients with diabetes, household contacts of HBsAg–positive persons, residents and staff of facilities for developmentally disabled persons, health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood–contaminated body fluids
- HIV infection
- Sexual exposure risk
- Current or recent injection drug use
- Incarceration
- Travel in countries with high or intermediate endemic hepatitis B

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ALL YOU NEED TO KNOW: HERPES ZOSTER



Disease Overview

Herpes zoster (HZ) is caused by **reactivation of the varicella zoster virus (VZV)**, which initially causes chickenpox in childhood. VZV is:

- **Highly contagious**
- **Transmitted** by direct contact with a vesicle or ulcerated skin or airborne aerosols

After primary infection, **VZV remains dormant for years** in nerve cells of the cranial, dorsal root, and autonomic ganglia throughout the nervous system.

VZV reactivation:

- Viruses **travel via the sensory neurons** to cause the typical vesicular rash ^{1,2}.
- **Prodromal phase:** 1-5 days characterized by fever, headache, myalgia and malaise
- **Acute phase:** painful unilateral vesicular rash in a dermatomal distribution. May last between 2-4 weeks; generally self-limiting.

Post Herpetic Neuralgia (PHN) : Neuropathic pain that persists for ≥ 90 days after the onset of HZ rash⁶. Affects up to 30% of patients with shingles²⁰. The pain can be very severe and debilitating, with no cure.

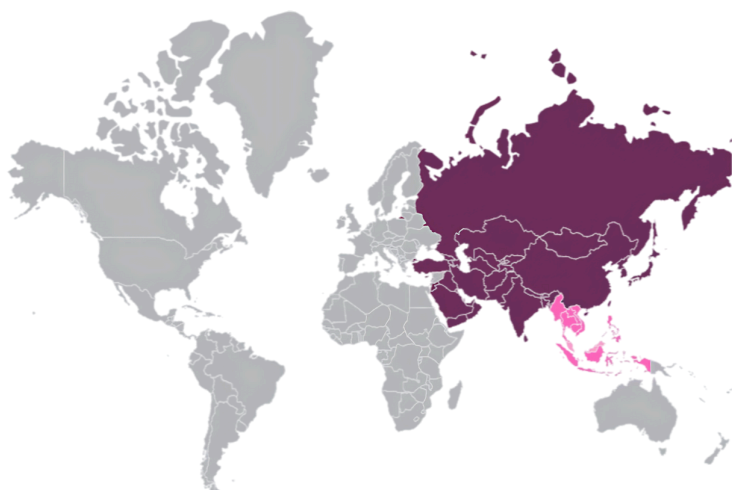
HZ can affect critical nerves causing:

- **Herpes Zoster Ophthalmicus (HZO):** affects the ipsilateral first branch of the trigeminal nerve (V1), causing ocular involvement which may lead to long term ocular sequelae such as keratitis, uveitis, chorioretinitis, glaucoma, cataract and iridocyclitis. This occurs in 10-25% of zoster episodes ³.
- **Ramsay Hunt Syndrome:** affects the ipsilateral facial (7th cranial nerve) and auditory (8th cranial nerve) nerves, causing facial nerve palsy, hearing impairment, and vertigo (0.3–18% incidence) ⁴.
- **Disseminated Zoster:** Defined as ≥ 20 skin lesions in multiple dermatomal distribution. It is more frequently seen in immunocompromised (15–30%) and immunocompetent adults (median age 65.4 years) ⁵.

Risk increases with decline in immunity. This is seen in both immunosenescence (patients aged ≥ 50 years) and immunocompromised (patients with an immunodeficient conditions or on immunosuppressant drugs) ⁶.



Burden of Disease: Incidence Rate



Global ⁷ :

General: 4.3 - 12.8 cases / 1,000 person-years

Older adults: 6.05 - 12.8 cases / 1,000 person-years

Asia-Pacific ⁸ :

General: 3 - 10 cases / 1,000 person-years

Older adults: 4 - 9.7 cases / 1,000 person-years

Southeast Asia ⁹ :

General: 3 - 10 cases / 1,000 person-years

Older adults: 10–12 cases / 1000 person-years

Malaysia :

General: No incidence data available

Older adults: No incidence data available



About the Vaccine: Shingrix

Vial 1 of 2

AS01_B Adjuvant
Suspension
Component (liquid)



Vial 2 of 2

Lyophilized
gE Antigen
Component
(powder)



Shingrix is a **recombinant vaccine** containing the VZV glycoprotein E antigen and the AS01_B adjuvant system ^{10,11}.

Glycoprotein E : essential for viral replication and cell-to-cell spread ; primary target of VZV-specific immune responses ^{10,11}.

AS01_B adjuvant suspension : Promotes strong and lasting CD4+ T-cell and humoral immune responses to recombinant proteins ^{10,11}.



Vaccine Efficacy

Pivotal trials (ZOE-50 and ZOE-70) evaluated efficacy in adults aged ≥ 50 and ≥ 70 years. ZOE-50 had 16160 subjects ; ZOE-70 had 14816 subjects ^{10,11}.

Study	Population	Vaccine Efficacy (HZ)	Vaccine Efficacy (PHN)
ZOE-50	Adults ≥ 50 years old	97.2%	91.2%
ZOE-70	Adults ≥ 70 years old	89.8	88.8%

The extension study to assess the **long-term protection of Shingrix (ZOE-LTFU)** demonstrated **82% VE against HZ** at 11 years post-vaccination in adults ≥ 50 years old ¹². Real-world overall VE of recombinant zoster vaccine against HZ has been reported between 70.1-87.6% ¹³⁻¹⁶.



Safety of Vaccine

Both ZOE-50/70 reported injection-site and systemic reactions more frequently in the vaccine group (**84.4% vs 37.8%** and **79.0% vs 29.5%** respectively)^{10,11}.

Below adverse reactions were mostly **transient** and of **mild-to-moderate intensity**, with a median duration of **1-3 days**^{10,11}.

Reaction Type	Reported Symptoms
Injection site	Pain, redness and swelling
Systemic	Fatigue, fever, gastrointestinal symptoms, headache, myalgia, shivering

The overall incidences of serious adverse effects (SAEs), deaths and potential immune-mediated disease were similar between the vaccine and placebo ¹⁷.

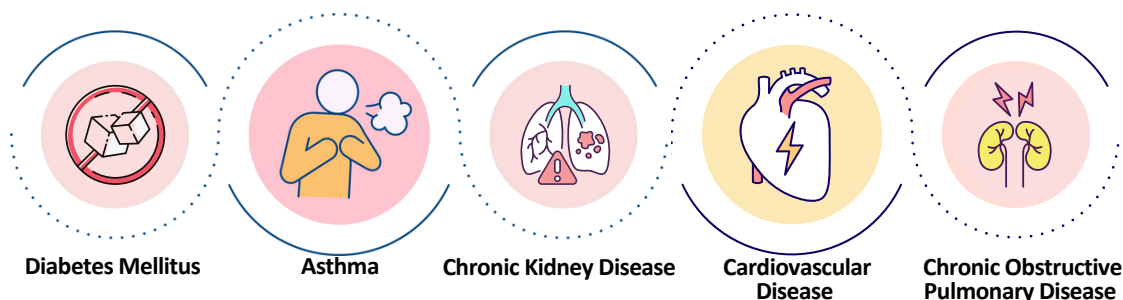
There were also no SAEs that were considered related to Shingrix or any new concerns regarding long-term safety ¹².



Benefits of vaccination in older adults

HZ predominantly **affects elderly and immunocompromised individuals**, and vaccination helps to **reduce risk of HZ and its complications** in these groups.

Elderly patients having below co-morbidities as well as having multiple of them increase risk of HZ ^{18,19}:



Recent emerging evidence also showed strong correlation of a protective effect against dementia by demonstrating that zoster vaccine reduced the probability of a new dementia diagnosis by approximately 17% over a six-year follow-up period ²¹.

Shingles and PHN can cause severe debilitating pain, loss of independence, mood disorder – anxiety, depression, and reduced mobility and function in older persons, which can lead to risk of institutionalisation.

Vaccination can prevent costly hospitalizations due to pain and other complications that may arise in frail older persons.



Recommendations

Shingrix is indicated for the prevention of Herpes zoster (HZ) in **adults ≥ 50 years of age**, whereby it is administered as **2 doses, intramuscularly, 2-6 months apart**.

Shingrix is indicated for **adults aged ≥ 18 years of age** who are or will be at **increased risk of HZ due to immunodeficiency or immunosuppression** caused by known disease or therapy, whereby it is administered as **2 doses, intramuscularly, 1-2 months apart**.

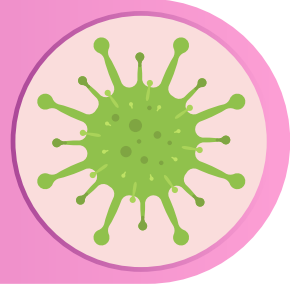
Shingrix may be administered to people who previously received varicella (chickenpox) vaccine.

Patients with a history of shingles should receive RZV as shingles can recur. There is no specific interval between administering Shingrix to a patient who have had HZ. **However, it should not be given during the acute phase of HZ.**

References

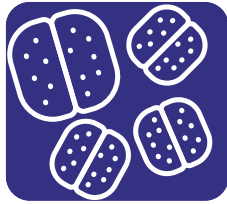
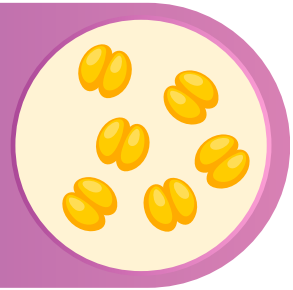
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ALL YOU NEED TO KNOW: INFLUENZA A & B



For further information of Influenza in Older Adults, please refer to the Malaysian Society of Geriatric Medicine Position Statement for Influenza Vaccination In the Elderly or click [here](#).

ALL YOU NEED TO KNOW: MENINGOCOCCAL

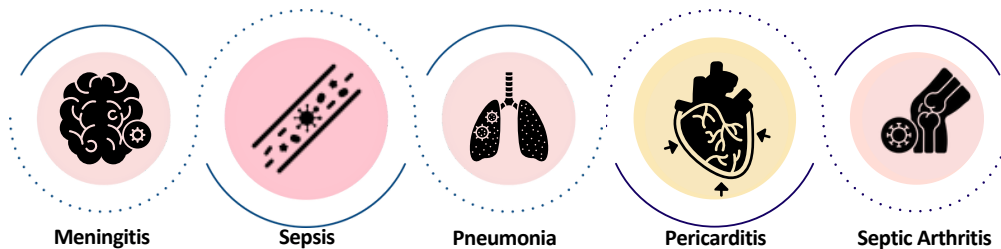


Disease Overview

Meningococcal disease is a severe infection caused by *Neisseria meningitidis*.

Affects predominantly healthy children, adolescents, and young adults.

The bacterium is a significant contributor to :



Can progress rapidly and lead to death within hours.

Survivors may face complications such as:

- Limb loss
- Hearing loss
- Neurocognitive deficits

Disease **typically presents** as meningitis or sepsis but can also manifest as septic arthritis or pneumonia.

N. meningitidis colonizes the nasopharynx of **5–11% of adults** and up to 25% of adolescents. Carriage rates are lower among infants and young children, but close living conditions can increase transmission risk.

13 identified serogroups of *N. meningitidis*

- Invasive meningococcal disease (IMD) - Serogroups A, B, C, W, X, and Y. Typically presents as:
 - Meningitis (**50%**), bacteremia (**30%**), pneumonia (**15%**).
- Serogroups A and C: **responsible for epidemic meningococcal meningitis.**
- Serogroup B: **sporadic, but may cause regional outbreaks.**
- Serogroup W135: **linked to international Hajj-related outbreaks.**



About the Vaccine: Quadrivalent

Quadrivalent Vaccines:

- The quadrivalent meningococcal vaccine (MenACWY) protects against **four serogroups of *Neisseria meningitidis*—A, C, W, and Y**
- Licensed for individuals aged 11–55 years, revaccination considered for >55 years.



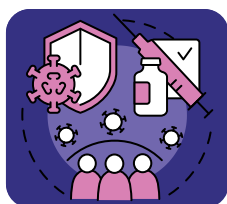
Safety of Vaccine

Contraindications:

Vaccination should be **postponed during acute febrile illness**. It is also contraindicated in individuals with a **history of severe reactions to the vaccine** or any of its components.

Adverse Effects:

Adverse reactions to conjugate meningococcal vaccines are generally **mild** and may include **pain and redness at the injection site, fever, headache, anorexia, and nausea**.



Benefits of vaccination in older adults

High-Risk Medical Conditions

Older adults with the following conditions are at elevated risk and benefit significantly from vaccination:

- Functional or anatomical asplenia (e.g., sickle cell disease).
- HIV infection.
- Complement component deficiencies (C5–C9, properdin, factor D/H).
- Patients on C5 inhibitors (e.g., Eculizumab, Ravulizumab)

Risk of Exposure

Meningococcal vaccination protects individuals with increased exposure risks:

- Hajj or Umrah pilgrims (vaccination certificate required)



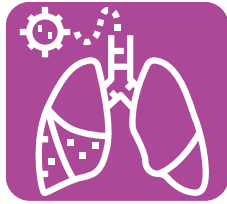
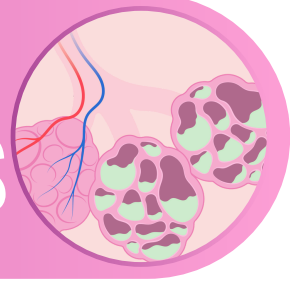
Recommendations

Category	Vaccine Schedule	Additional Notes
High-risk individuals (e.g., asplenia, HIV, complement deficiency, on C5 inhibitors)	• 2-dose primary series, 8 weeks apart • Booster every 5 years	Use conjugate vaccine (MenACWY)
Individuals at risk of exposure (e.g., lab personnel, travellers, Hajj/Umrah pilgrims)	• Single dose of MenACWY • Repeat every 5 years if risk remains	MenACWY certificate required for Hajj/Umrah
Interchangeability	Different MenACWY vaccines can be used interchangeably	Applies to both primary and booster doses

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ALL YOU NEED TO KNOW: RESPIRATORY SYNCYTIAL VIRUS



Disease Overview

Respiratory syncytial virus (RSV) is a negative-sense, single-stranded RNA virus from the Pneumoviridae family, Orthopneumovirus genus ¹.

RSV is a leading cause of **acute respiratory illness (ARI)** in older adults globally, with clinical presentations ranging from mild, cold-like symptoms, to severe **lower respiratory tract disease (LRTD)** ².

It contributes to a high burden of disease, including **elevated** rates of **hospitalization, mortality, and ICU admissions**, particularly in vulnerable populations ¹.

Older adults with **cardiorespiratory, endocrine, or metabolic conditions** are at **increased risk** of RSV-associated acute respiratory infection (RSV-ARI) ².

This high-risk group often experiences more severe clinical presentations, with **increased likelihood of hospitalization, exacerbation of underlying conditions, or death** ².

RSV infection in hospitalized older adults can lead to **functional decline** lasting months after discharge, and may result in **loss of previous independence** ³.

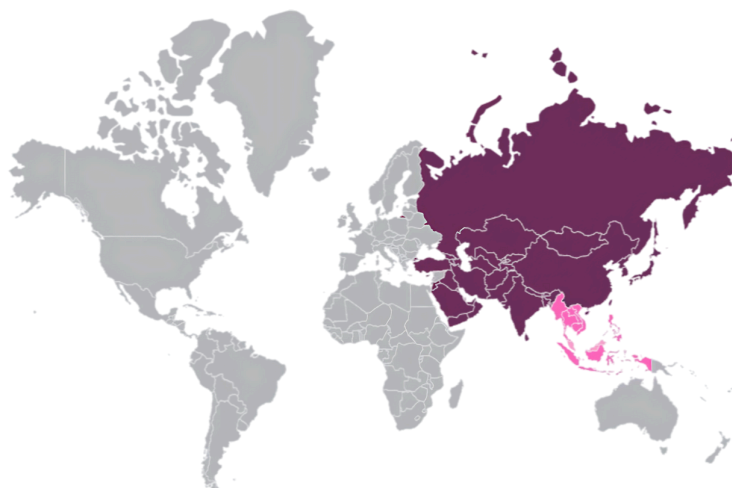
RSV has a distinct seasonal pattern, with highest infection rates typically occurring:

- During **winter months** in temperate climates
- During the **rainy season** in tropical regions

In addition to meteorological factors, human behavior and responses to weather changes may also **influence RSV transmission patterns**.



Burden of Disease: Hospitalization Rate in Older Adults



Global ⁴:

RSV-ARI: 336,000 hospitalizations annually;
range of 186,000 - 614,000 hospitalizations

Asia-Pacific ⁵:

approximately 778,000 cases in **2023**;
overall rate of 1 in 500 cases in older adults

Southeast Asia:

No local data available

Malaysia :

No local data available

Currently there are two vaccines approved in the prevention of RSV in older adults.

- i) Arexvy
- ii) Abrysvo



About the Vaccine: Arexvy

Vial 1 of 2

Lyophilized antigen
component (powder)



Vial 2 of 2

Adjuvant suspension
component (liquid)



Arexvy is the AS01E-adjuvanted respiratory syncytial virus (RSV) prefusion F protein–based vaccine for older adults – (RSVPreF3, Arexvy, GSK)

It is an FDA-approved vaccine for the prevention of lower respiratory tract disease (LRTD) caused by RSV in people 50 years of age and older.



Vaccine Efficacy: Arexvy

Clinical trial AReSVi-006 (randomized, placebo-controlled Phase 3) ⁶

- Evaluated a single dose of RSVPreF3 OA for RSV-LRTD prevention among adults ≥60 years.
- **Definitions:**
 - **ARI:** ≥2 respiratory symptoms/signs or ≥1 respiratory + 1 systemic symptom/sign for ≥24 hours.
 - **LRTD:** ≥2 lower respiratory symptoms/signs (including ≥1 sign), or ≥3 lower respiratory symptoms for ≥24 hours.

Vaccine Efficacy, % (CI)		
RSV-LRTD	Season 1 <i>Median Follow-up: 6.7 months</i>	Season 2 <i>Median follow-up: 18 months</i>
RSV-LRTD	82.6 (96.95% CI: 57.9, 94.1)	67.2 (97.5% CI: 48.2, 80.0)
Severe RSV-LRTD	94.1 (95% CI: 62.4, 99.9)	78.8 (95% CI: 52.6, 92.0)
RSV-LRTD in patients with ≥1 comorbidity of interest	94.6 (95% CI: 65.9, 99.9)	66.7 (95% CI: 41.8, 82.0)
RSV-LRTD in patients with ≥1 cardiorespiratory condition	92.1 (95% CI: 46.7, 99.8)	Not available

Vaccine Efficacy, % (CI)	
RSV-ARI	
RSV-ARI in patients with ≥1 comorbidity of interest	81.0%
RSV-ARI in patients with ≥2 comorbidity of interest	88.0%
RSV-ARI in patients with cardiorespiratory conditions	88.1%
RSV-ARI in patients with endocrine/metabolic conditions	79.4%



Safety of Vaccine: Arexvy

Arexvy has an acceptable safety profile, similar to other adult vaccines.

The most common side effects were **mild to moderate** and included **injection site pain**, **fatigue**, and **headache** and resolved within **1–3 days**.

Safe co-administration with **seasonal influenza vaccines**.



About the Vaccine: Abrysvo



Respiratory syncytial virus vaccine (bivalent, recombinant).

Pfizer RSV preF3 vaccine is a **recombinant protein subunit vaccine**, specifically targeting the pre-fusion form of the RSV F protein (preF3), and it is **non-adjuvanted**.

F protein's pre-F form is particularly adept at inducing a stronger and more effective immune response than the postfusion form.

Abrysvo is indicated for:

- Active immunisation of individuals 60 years of age and older for the prevention of lower respiratory tract disease caused by RSV.

An additional indication, not relevant for older adults :

- Passive protection against lower respiratory tract disease caused by respiratory syncytial virus (RSV) in infants from birth through 6 months of age following maternal immunisation during pregnancy (between 24 and 26 weeks of gestation)



Vaccine Efficacy: Arbsyvo

Ages	Vaccine Efficacy through 1st season (years), %	Vaccine Efficacy through 2 seasons (years), %
Overall	88.9(53.6, 98.7)	77.8(51.4, 91.1)
60-69 years old	81.8(16.7,98.0)	81.5(51.2,94.4)
70-79 years old	100(-51.1,100)	57.1(-81.7-92.8)
≥80 years old	100(-142,100)	100(-433,100)
Without high risk conditions	100(30.6,100)	92.3(48.8,99.8)
With≥1 high risk conditions	81.8(16.7,98)	69.6(26.7,89.0)



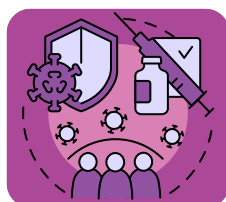
Safety of Vaccine: Arbsyvo

Abrysvo has an acceptable safety profile, similar to other adult vaccines.

The most common side effects were **mild to moderate** and included **injection site pain (11%)**, which resolves within **1–2 days**.

Can be co-administered with **seasonal quadrivalent influenza vaccine** (QIV, surface antigen, inactivated, adjuvanted).

However, numerically lower RSV A and B neutralising titres and numerically lower influenza A and B haemagglutination inhibition titres were observed when Abrysvo and inactivated adjuvanted seasonal influenza vaccine were co-administered than when they were administered separately. The clinical relevance of this finding is unknown.



Benefits of vaccination in older adults

RSV vaccination **reduces RSV-related morbidity and mortality.**

It helps prevent functional decline and supports the preservation of independence in older adults.

Especially effective for individuals with:

- Cardiorespiratory, endocrine/metabolic, renal, hepatic, neurologic, hematologic conditions
- Immunocompromised status
- Frailty or nursing home residence

It decreases both hospitalization rates and the duration of hospital stays.

Improves quality of life by reducing illness severity and long-term functional decline.



Recommendations

RSV vaccination should be **prioritized in older adults**, especially those with high-risk conditions.

AREXVY

Indicated for active immunization for the prevention of lower respiratory tract disease (LRTD) caused by respiratory syncytial virus (RSV) in:

- individuals 60 years of age and older
- individuals 50 through 59 years of age who are at increased risk for LRTD caused by RSV.

Duration of protection: single shot - evidence till date suggests up to 3 years with more studies ongoing, if repeat boosters are needed.

Abrysvo

Indicated for active immunisation of individuals 60 years of age and older for the prevention of lower respiratory tract disease caused by RSV.

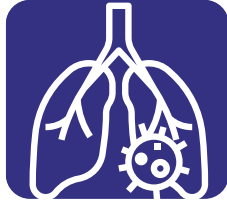
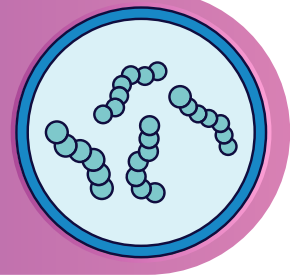
An additional indication, not relevant for older adults : Passive protection against lower respiratory tract disease caused by respiratory syncytial virus (RSV) in infants from birth through 6 months of age following maternal immunisation during pregnancy (between 24 and 26 weeks of gestation)

Duration of protection: single shot - evidence till date suggests up to 2 years with more studies ongoing, if repeat boosters are needed.

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ALL YOU NEED TO KNOW: STREPTOCOCCUS PNEUMONIAE



Disease Overview

Streptococcus pneumoniae bacteria is a **gram-positive bacillus** which is a common coloniser in the upper airway.

It remains to be one of the most important pathogens which causes significant morbidity and mortality worldwide ¹.

The disease is **transmitted** mainly via droplets and direct contact with body fluid ².

In adults, the most common pneumococcal disease (PD) is **pneumonia, the leading cause of death in Malaysia** ^{1,3}.

Streptococcus pneumoniae is the most common cause of **community-acquired pneumonia (CAP)**, confirmed by both local and international studies ⁴⁻⁶.

Pneumococcal disease (PD) can be divided into 2 categories:

- Non-invasive pneumococcal disease (**non-IPD**): includes conditions like otitis media and sinusitis.
- Invasive pneumococcal disease (**IPD**): includes serious infections such as pneumonia, meningitis, and bacteraemia.

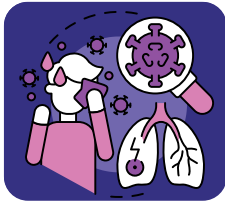
Age is a major risk factor for infection and mortality in non-IPD and IPD.

Presence of comorbidities as risk factors for PD ⁷:

- Chronic lung disease
- Diabetes mellitus
- Chronic kidney disease
- Cardiovascular disease
- Other immunocompromised states such as HIV infection

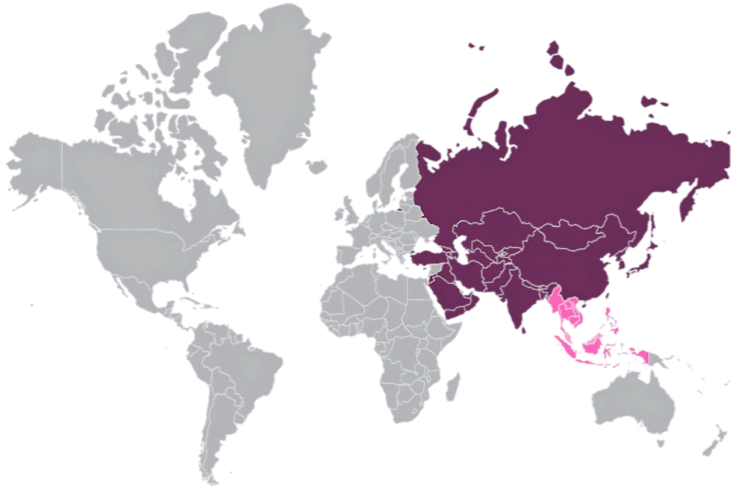
Serotype diversity:

- Although >90 serotypes of *S. pneumoniae* exist, only a subset is responsible for most disease burden.
- A systematic analysis of Malaysian data identified the most prevalent serotypes - **19F, 23F, 14, 6B, 19A, 6A, 1 and 3** ⁸.



Burden of Disease:

Hospitalization Rate among Older Adults due to Pneumonia



Global ⁹:

2015: approximately 6.8 episodes / 1000 persons-year

Asia-Pacific ⁹:

approximately 4.9 episodes / 1000 persons-year

Southeast Asia:

No local data available

Malaysia ¹⁰:

2013 - 2015:

13.6 episodes / 100,000 persons-year



About the Vaccine:

PPSV-23, PCV-13 & PCV-15

Pneumococcal vaccines are made using purified polysaccharide antigens to cover serotypes most commonly associated with pneumococcal disease (PD).

There are two types of Pneumococcal vaccines, which are both registered in Malaysia for adult use ¹¹:

Polysaccharide Vaccine (PPSV)	Characteristics	Conjugate Vaccine (PCV)
Contains only polysaccharide antigens.	Antigen type	Polysaccharide antigens are covalently linked to a protein carrier.
Induces a B-cell dependent immune response.	Immune response type	Induces both B-cell and T-cell dependent immune responses.
Does not produce a strong memory response or booster effect.	Booster effect	Leads to: • Memory B cell production • Longer-lasting immunity • Booster effect upon revaccination
Covers most common PD-related serotypes	Serotype Coverage	Covers most common serotypes causing IPD and some non-IPD
PPSV23	Examples	PCV 13, PCV 15 and PCV 20



Safety of Vaccine

The most common reported adverse effects of pneumococcal vaccines include ¹²:

Local Reaction:
(at the injection site)

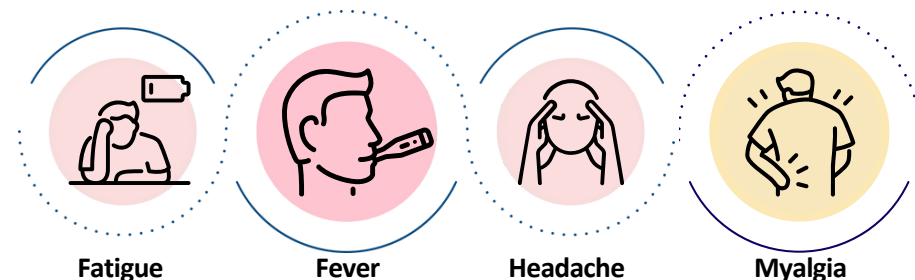


Pain

Swelling

Red

Systemic Effect:
(general body responses)

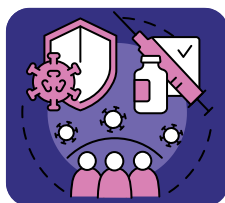


Fatigue

Fever

Headache

Myalgia



Benefits of vaccination in older adults

Pneumococcal vaccination is effective in preventing pneumococcal disease (PD) in older adults.

Studies have shown vaccine effectiveness in:

- Preventing pneumonia and invasive pneumococcal disease (IPD) caused by vaccine-type strains ^{13,14}.
- Reducing risk of hospital admissions ¹⁵, which leads to lower healthcare costs.

PCV (conjugate vaccine) produces a better immune response compared to PPSV (polysaccharide vaccine) ¹⁶.

Sequential vaccination (PCV followed by PPSV or PCV) provides stronger immunogenic response than a single dose ^{17,18}.



Recommendations

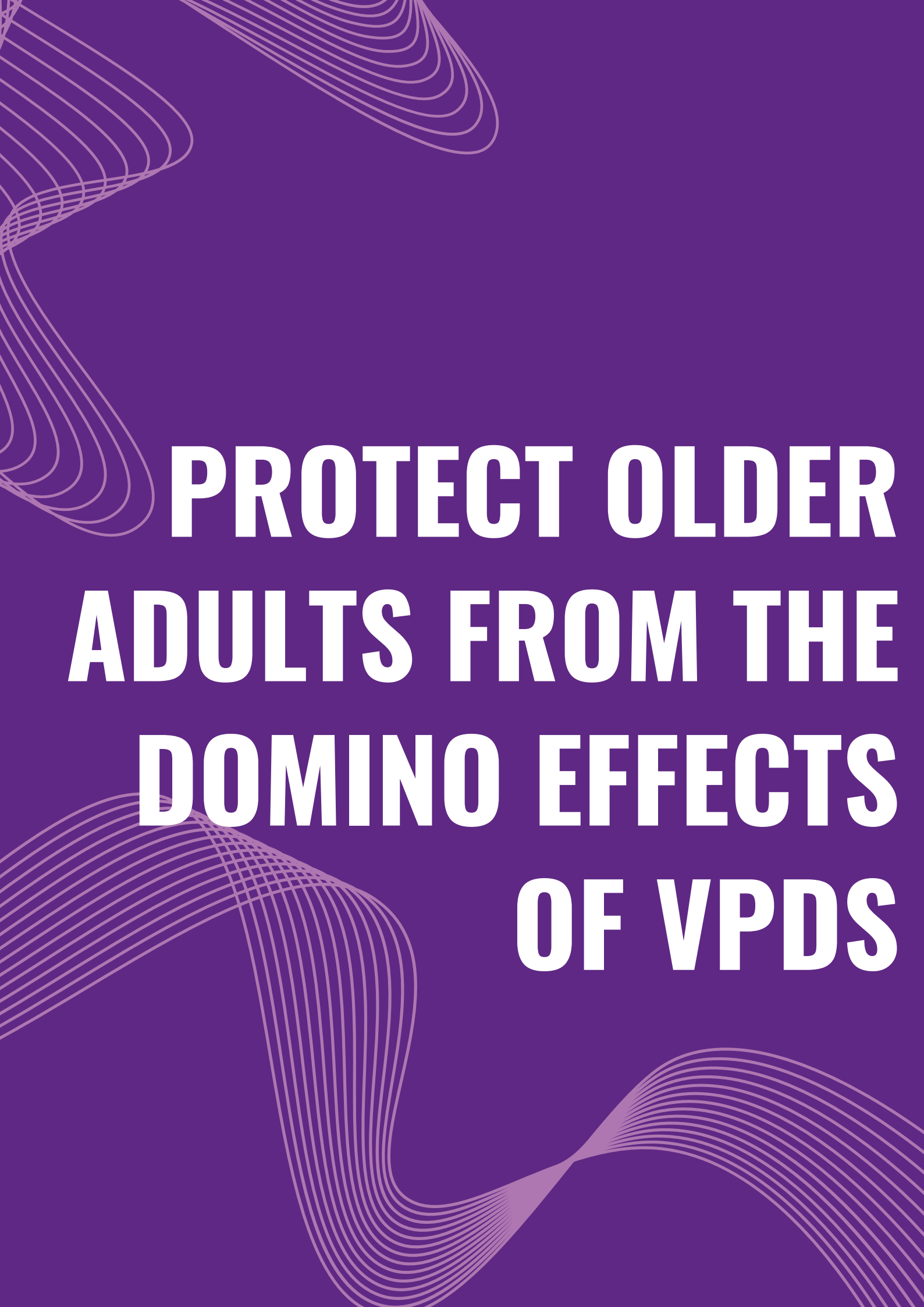
Preferred vaccine regime		PCV 20 1 dose – with no further doses needed
Age Group	Vaccine received previously	Options for vaccination
Older Adults aged ≥60 years	None / unsure	A single dose of PCV20 or PCV15 or PCV13. If PCV15/13 is administered, a single dose of PPSV23* should be administered ≥1 year after the PCV15/13 dose. A minimum interval of 8 weeks can be considered if PCV15/13 is used in older adults with an immunocompromising condition, † cochlear implant, or CSF leak.
	PPSV23 only	A single dose of PCV20 or PCV15 or PCV 13 ≥1 year after the last PPSV23 dose.
	PCV13 only	A single dose of PCV20 ≥1 year after the PCV13 dose.
	PCV13 at any age and PPSV23 at age <65 years	A single dose of PCV20 ≥5 years after the last pneumococcal vaccine dose.
	PCV13 at any age and PPSV23 at age ≥65 years	Shared clinical decision-making is recommended regarding administration of either a single dose of PCV20 for any adult aged ≥65 years who has completed the recommended vaccination series with both PCV13 and PPSV23 (i.e., PPSV23 administered at age ≥65 years) but PCV20, or PCV15 not yet received. If a decision to administer PCV21 or PCV20 is made, a single dose is recommended ≥5 years after the last pneumococcal vaccine dose.

Co-administration with influenza (can be given with influenza) – as per current table in the vaccine document

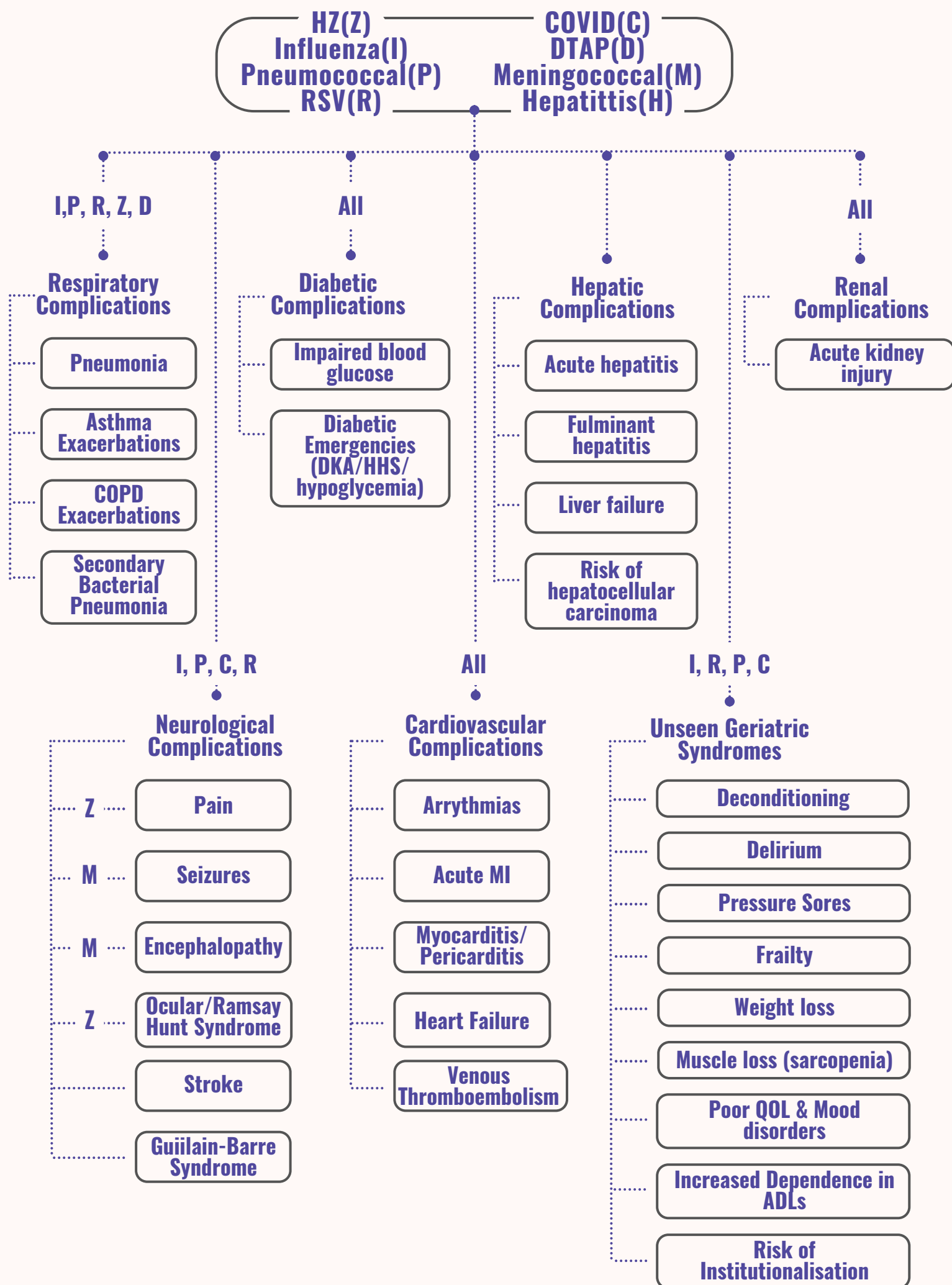
† Chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, HIV infection, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplant, congenital or acquired asplenia, or sickle cell disease or other hemoglobinopathies.

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PROTECT OLDER ADULTS FROM THE DOMINO EFFECTS OF VPDS





VACCINE RECORD



Vaccine Record

Personal Information

Name: _____

Date of Birth: _____ Age: _____ Sex: _____

Medical Conditions: _____

Known Allergies: _____

Vaccination Type	Dose	Date	Vaccine Batch No.	Vaccinator
RSV				
Shingles				
PCV				
Hepatitis A				
Hepatitis B				
Meningococcal				
Influenza				
COVID-19				

ARE YOU OVER 60 YEARS OLD?

Did you know that vaccines can..



Speak to your doctor today about:

- Reactivation of latent varicella zoster virus (VZV).
- Common symptoms: Fever, headache, body ache, feeling tired.
- Painful rash with blisters on one side of the body.

Shingles



- A virus that spreads easily and affects the lungs.
- It causes fever, cough, sore throat, and body aches.
- Can lead to serious problems like pneumonia, heart attack, or stroke—especially in older adults.



Influenza

- Caused by Streptococcus pneumoniae bacteria.
- Can lead to ear, sinus, lung, brain, or blood infections.
- Pneumonia is the most serious, especially in older adults.



Pneumococcal

- Respiratory syncytial virus (RSV)
- Mild, cold-like symptoms, to severe lower respiratory tract disease
- Can lead to hospitalization, ICU admission, and long-term functional decline



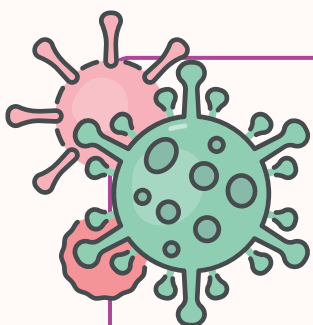
04

Respiratory Syncytial Virus

COVID

05

- COVID-19 is caused by a new coronavirus found in Dec 2019.
- Common symptoms: fever, cough, tiredness, breathlessness.
- In older adults, it can cause confusion, severe lung infection, and even death.



"Other vaccines may be recommended through shared clinical decision-making, depending on your risk factors and existing health conditions."

DO YOU HAVE AN OLDER FAMILY MEMBER RESIDING IN A LONG-TERM CARE FACILITIES (LTCFS)?



DID YOU KNOW ?

LTCF residents are among the most vulnerable to severe complications from vaccine-preventable diseases.



Vaccinations play a critical role in protecting the health and well-being of the community at the LTCFs.



WHAT CAN YOU DO?

Ensure your loved ones are staying up-to-date on vaccinations



Wash your hands regularly before and after meeting them



Unwell? Avoid visits or wear a mask



WHICH VACCINES TO CONSIDER?

- 1 Influenza
- 2 Pneumococcal
- 3 COVID
- 4 Shingles
- 5 Respiratory Syncytial Virus

**DISCUSS
WITH YOUR
DOCTORS
TODAY!**



"Other vaccines may be recommended through shared clinical decision-making, depending on your risk factors and existing health conditions."

