Immunisation for adults with HIV infection

The Immunisation Advisory Centre

Human immunodeficiency virus (HIV) infects CD4+ T cells leading to a progressive decline in CD4 cell count, increasing immunodeficiency and vulnerability to infection, and suboptimal responses to vaccines. Use of antiretroviral therapy (ART) to reduce virus replication and improve CD4 counts to 200 cells/mm^3 or higher, preferably above 400 cells/mm^3, is recommended to improve the response to all vaccines.

For children aged under 18 years, please refer to the current *Immunisation Handbook*.

Vaccine	Notes	Additional notes	Recommended schedule	Eligibility
Influenza	• Increased risk of complications	**Administration notes** • Annually, during the Influenza Immunisation Programme	• Administer one dose annually	FUNDED
SARS-CoV-2 (COVID-19)	• Increased risk of complications	**Administration notes** • The COVID-19 vaccine being administered determines the number of doses and minimum interval between multiple doses • The vaccination schedule for individuals with HIV infection is the same as the schedule for those who are immunocompetent	• Administer vaccine doses following the recommended schedule for the available COVID-19 vaccine	FUNDED

Hepatitis B (Engerix-B)	• Increased risk of chronic disease
	• Reduced vaccine seroconversion rates, particularly in individuals who are aged over 45 years, smoke tobacco products or who are not on ART
		Recommended for
		• Hepatitis B non-immune individuals
		Evidence of immunity
		• Check serology 4–6 weeks after final dose
		  • If antiHBs <10 IU/L, seek advice from HIV specialist
		Non-responders
		  • A course of double-dose adult strength Engerix-B or Twinrix may be considered
			If aged under 46 years and a non-smoker and on ART
			• Administer three doses at 0, 1 and 6 months
			OR
			If aged 46 years or older or a smoker or not on ART
			• Administer four doses at 0, 1, 2 and 6 months
				FUNDED Engerix-B
				NOT funded Twinrix

Pneumococcal PCV13 (Prevenar 13)	• Protection lasts longer than that from Pneumovax 23 • Generates long term memory cells that can produce additional protection following disease exposure	**Administration notes** • Administer Prevenar 13 **before** Pneumovax 23 • A minimum of 4 weeks is required between administration of Prevenar 13 and Menactra • If Pneumovax 23 has been administered before Prevenar 13, wait one year to give Prevenar 13	• Administer one dose of Prevenar 13	FUNDED
Pneumococcal 23PPV (Pneumovax 23)	• Broadens protection against an additional 12 pneumococcal serotypes not covered by Prevenar 13 • Protection is shorter than that from Prevenar 13 • Does not generate memory cells • Blunts/reduces the immune response to subsequent pneumococcal vaccinations	**Administration notes** • Administer Pneumovax 23 minimum of 8 weeks **after** Prevenar 13	**If aged 18 years to under 60 years** • Administer one dose • Schedule a precall for the second dose in 5 years • Schedule a precall for the third/final dose 5 years after second dose or at age 65 years, whichever is later **If aged 60 years or older** • Administer one dose • Schedule a precall for the second/final dose in 5 years	FUNDED

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Use of antiretroviral therapy (ART) to reduce virus replication and improve CD4 counts to 200 cells/mm^3 or higher, preferably above 400 cells/mm^3, is recommended to improve the response to all vaccines.

Vaccine	Notes	Additional notes	Recommended schedule	Eligibility
Human papillomavirus HPV (Gardasil 9)	• Increased risk of HPV related malignancy but less frequently serotypes 16 & 18	**Recommended for:** • Males and females 18–45 years of age inclusively **Administration notes** • Gardasil 9 is prescribed off-label for males aged 27–45 years inclusively. No safety concerns are expected. Vaccine efficacy is not expected to be significantly different to efficacy in females in the same age group.	• Administer three doses at 0, 2 and 6 months	FUNDED up to 27 years of age Recommended NOT funded 27 years or older
Meningococcal MenACYW-D (Menactra)	• Increased risk of infection but not as high as for pneumococcal disease • Disease may be more severe	**Administration notes** • No NeisVac-C (MenCCV) required • A minimum of 4 weeks is required between administration of Prevenar 13 and Menactra	• Administer two doses 8 weeks apart • Schedule a precall for a booster dose every 5 years	FUNDED
Meningococcal B 4CMenB (Bexsero)	• Increased risk of infection but not as high as for pneumococcal disease • Disease may be more severe	**Administration notes** • Can be coadministered with any other vaccine	• Administer two doses 4 weeks apart • Schedule a precall for a booster dose every 5 years	FUNDED
Hepatitis A (Havrix)	• Disease is not worse unless the individual also has hepatitis B or hepatitis C infection	**Highest risk groups** • MSM • Those travelling to hepatitis A risk countries • Illicit injection drug users • Coinfection with hepatitis B or hepatitis C	• Administer two doses 6 months apart • Administer a booster dose every 10 years	Recommended NOT funded
Polio IPV (Ipol)		• Check immunisation history for a primary course of three polio containing vaccines	**If unsure of polio immunisation history** • Administer three doses with a minimum of 4 weeks between each dose	FUNDED
Tetanus/diphtheria/ pertussis Tdap (Boostrix)	• Duration of protection against tetanus/diphtheria and/ or pertussis may be shorter compared with healthy vaccinees	• Check immunisation history for a primary course of three tetanus/diphtheria containing vaccines	**If unsure of tetanus/diphtheria immunisation history** • Administer three doses with a minimum of 4 weeks between each dose **If confident recollection of completed tetanus/ diphtheria immunisation** • Administer one Tdap at age 45 years if less than four documented tetanus containing vaccine doses • Administer one Tdap at age 65 years	FUNDED

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Use of antiretroviral therapy (ART) to reduce virus replication and improve CD4 counts to 200 cells/mm^3 or higher, live viral vaccines are contraindicated with a CD4+ lymphocyte count under 200 cells/mm^3.

Vaccine	Notes	Additional notes	Recommended schedule	Eligibility
Measles/mumps/ rubella MMR (Priorix)	• Disease may be more severe	**Highest risk group** • Individuals born in 1969 or later who do not have two documented doses of MMR vaccine	**If CD4+ lymphocyte count is ≥200cells/mm^3 (a,b,c,d)**, and • If less than two documented doses • Complete a documented course of two MMR doses • Administer up to two doses at least 4 weeks apart	FUNDED for individuals who meet the eligibility criteria CONTRAINDICATED if CD4 count is <200 cells/mm^3
Varicella (chickenpox) VV (Varivax)	• Disease may be more severe	**Highest risk groups** • Individual who do not have a reliable history of chickenpox disease • Individuals raised overseas, especially in subtropical countries **Evidence of immunity** • Individuals with a positive past history of chickenpox disease are considered immune to varicella zoster virus • If no reliable history of chickenpox disease • Check varicella zoster virus serology • If varicella zoster virus serology is negative (i.e. non-immune) administer funded varicella vaccine	**If CD4+ lymphocyte count is ≥200cells/mm^3 (a,b,c,d,e)** and • The individual is varicella zoster virus seronegative (i.e. non-immune) • Administer two doses at least 4 weeks apart	
Herpes zoster HZV (Zostavax)	• Increased risk of shingles and complications	**Administration notes** • Individuals aged 50 years or older with a positive past history of chickenpox disease or laboratory confirmation of immunity • If the individual does not have a reliable history of chickenpox disease, check varicella zoster virus serology	**If CD4+ lymphocyte count is ≥200 cells/mm^3 (a)**, and • The individual has a reliable history of chickenpox disease, or laboratory confirmation of varicella zoster virus immunity • Administer one dose of herpes zoster vaccine (HZV) **OR** **If CD4+ lymphocyte count is ≥200 cells/mm^3 (a)**, and • The individual is varicella zoster virus seronegative (i.e. non-immune) • Administer two doses of funded varicella vaccine (VV) at least 4 weeks apart • One dose of herpes zoster vaccine (HZV) can be administered a minimum of 4 weeks after last varicella vaccine (VV) dose	

Foot notes

a. Live viral vaccines are contraindicated with a CD4+ lymphocyte count under 200 cells/mm^3.
b. Patients who have received immunoglobulin or other blood products may require time for passive antibodies to decrease prior to administration of live varicella and MMR vaccines. Refer to Table A6.1: Suggested intervals between immunoglobulin product administration or blood transfusion and MMR or varicella vaccination in the current *Immunisation Handbook*.
c. Only a single live vaccine is recommended at each visit for individuals with HIV infection. A minimum interval of 4 weeks is required between live vaccine doses administered at different visits.
d. Consider normal immunoglobulin or zoster immunoglobulin for post-exposure measles or varicella prophylaxis respectively in non-immune individuals.
e. Two doses of varicella vaccine are funded for a household contact of an individual who is not immune to varicella and is severely immunocompromised, where the household contact has no clinical history of varicella infection or immunisation.