British HIV Association guidelines on the use of vaccines in HIV-positive adults: summary of recommendations

British HIV Association BHIVA

Infection/disease	Vaccine	Replicating	Primary course	Indication	Notes
Vaccines with broad indications					
Hepatitis A	Inactivated	No	2 or 3 doses	Non-immune, at risk	3 doses if CD4 count <350 cells/µL
Hepatitis B	Subunit	No	4 doses	All non-immune	Dose: Engerix B 2x20µg; HBvaxPRO 40µg; Fendrix 20µg
Human papilloma virus	VLP	No	3 doses	Age and gender related	4vHPV or 9vHPV preferred; see BHIVA guidance
Influenza	Inactivated	No	1 dose	All, yearly	Quadrivalent vaccine preferred
Meningococcus	Conjugated	No	2 doses	Age related, at risk	MenACWY; combined as Hib/MenC; follow national guidance
Meningococcus	Recombinant protein + OMV	No	2 doses	Age related, at risk	MenB; follow national guidance
Pneumococcus	Conjugated	No	1 dose	All, once	PCV-13
Pneumococcus	Polysaccharide	No	1 dose	At risk, once	PPV-23; follow national guidance
Pertussis	Acellular multicomponent	No	1 dose	Pregnant women	Combined as dTaP/IPV; follow national guidance
Measles, mumps, rubella	Live attenuated	Yes	2 doses	All non-immune	Combined as MMR; CD4 count >200 cells/µL
Varicella (chickenpox)	Live attenuated	Yes	2 doses	All non-immune	CD4 count >200 cells/µL
Herpes zoster (shingles)	Live attenuated	Yes	1 dose	Age related	CD4 count >200 cells/µL; VZV IgG +; follow national guidance
Vaccines with predominantly travel-related indications					
Cholera	Inactivated + subunit	No	2 doses	Selective use	WC/rBs; oral administration
Japanese encephalitis	Vero cell-derived inactivated	No	2 doses		
Tick-borne encephalitis	Inactivated	No	3–4 doses		
Tetanus	Toxoid	No	1 dose		Combined as Td/IPV vaccine
Diphtheria	Toxoid	No	1 dose		Combined as Td/IPV vaccine
Poliovirus	Inactivated	No	1 dose		Combined as Td/IPV vaccine
Rabies	Cell-culture derived	No	3 doses		5 doses for post-exposure prophylaxis
Typhoid	Polysaccharide	No	1 dose		ViCPS; parenteral
Yellow Fever	Live attenuated	Yes	1 dose		<60 years only; CD4 count >200 cells/µL
Vaccines with selected indications					
Anthrax	Filtrate of bacterial proteins	No	4 doses	Occupational	AVP
Haemophilus influenzae B	Conjugated	No	1 dose	At risk	Combined as Hib/MenC
Not preferred and contraindicated vaccines					
Hepatitis A/B combined		No		Not preferred	Reduced immunogenicity
Hepatitis A/typhoid combined		No		Not preferred	Reduced HAV immunogenicity
Influenza	Live attenuated	Yes		Not preferred	Intranasal
Tuberculosis	BCG	Yes		Contraindicated	
Typhoid	Live attenuated	Yes		Contraindicated	Oral administration

VLP: virus-like particle; OVM: outer membrane vesicles; Hib: Haemophilus influenzae B; Td/IPV: tetanus/diphtheria/inactivated poliovirus; dTaP/IPV: diphtheria/tetanus/acellular pertussis/inactivated poliovirus; VZV: varicella zoster virus; AVP: anthrax vaccine precipitated; ViCPS: Vi capsular polysaccharide vaccine

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Notes:

- In 2015, BHIVA (British HIV Association) issued guidelines on the use of vaccines in HIV-positive adults [1]. The guidelines were graded to indicate the strength of the recommendation and the quality of the supporting evidence using the GRADE system [2], and development followed the standards set by NICE (National Institute for Health and Care Excellence).
- Protection against vaccine-preventable infections is important to ensure HIV-positive people enjoy long and healthy lives. The success of antiretroviral therapy means that HIV-positive people enjoy much improved immune function and life span, and are increasingly likely to engage in activities, travel, or occupations that carry a risk of exposure to infectious agents. These individuals should not be denied protection if evidence indicates vaccination is safe and immunogenic.
- Responses to vaccination are often suboptimal in untreated HIV-positive patients. While responses improve with antiretroviral therapy, they may remain lower and decline more rapidly than in HIV-negative individuals. However, it is often possible to improve vaccine immunogenicity by offering modified vaccine schedules, with higher or more frequent doses, without compromising safety. This approach is reflected in the BHIVA guidelines.
- In April 2016, the MHRA (Medicines & Healthcare Products Regulatory Agency) highlighted the importance of avoiding live (replicating) vaccines in people who are immunocompromised [3]. It is often perfectly safe to use replicating vaccines in HIV-positive patients, as they are not necessarily immunocompromised. BHIVA provides evidence-based guidance on the safe use of replicating vaccines in this patient group. Specifically:
  - HIV-positive adults with CD4 cell counts below 200 cells/µL must not be given replicating vaccines due to a potential risk of vaccine-associated disease; when indicated, vaccination should be postponed until the CD4 cell count has improved on antiretroviral therapy.
  - HIV-positive adults with a CD4 cell count of 200–350 cells/µL have moderate immunodeficiency. Clinical judgement should guide the use of replicating vaccines in these patients. Where exposure is likely, natural infection often carries a greater risk of adverse outcomes than vaccination (e.g. measles, chickenpox), making the offer of vaccination the preferred option. Antiretroviral therapy improves the safety and immunogenicity of vaccination in this group.
  - With the exception of the MMR (measles, mumps, rubella) vaccine, co-administration of multiple replicating vaccines is not recommended due to uncertainties over safety and efficacy. An interval of at least 4 weeks between vaccinations is recommended.
  - Regardless of the CD4 cell count, contraindications to the use of replicating vaccines that apply to the general population (e.g. in relation to the use of immunosuppressive therapy) also apply to HIV-positive patients. Please refer to the Green Book for details [4].
  - Case-specific guidance reflective of individual circumstances should be sought from the responsible HIV clinician.

References

1. www.bhiva.org/vaccination-guidelines.aspx
2. www.gradeworkinggroup.org/
3. www.gov.uk/drug-safety-update/live-attenuated-vaccines-avoid-use-in-those-who-are-clinically-immunosuppressed
4. www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

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