

## Hiv And Aids

Careful pre- travel planning and preparation is required for people who are living with HIV

### Key Messages

**Travel plans for people living with HIV should be made in conjunction with the traveller's HIV specialist.**

**Many travel related infections, including malaria, can be much more severe in people who are HIV positive particularly if they are immunosuppressed. Good pre-travel planning is essential.**

**Interruption of HIV medication due to travel plans is dangerous and should be avoided.**

**In adults, the CD4 count is the key blood test that gives a measure of the level of immunosuppression and helps quantify risk of infection and guides vaccination.**

**Inactivated vaccines are safe to administer, but may be less effective - especially at lower CD4 counts.**

**Certain live vaccines are contraindicated for people living with HIV, and some can only be administered if the patient's CD4 count is greater than 200cells/ml (or a CD4 proportion of > 15 percent in children).**

**Antiretroviral (ART) medication has the potential for multiple drug-drug interactions. Before prescribing any additional medication be sure to check for drug-drug interactions.**

### Overview

Untreated HIV infection causes progressive loss of immunity. Antiretroviral therapy (ART), is now standard treatment for HIV infection. ART aims to reduce viral load and the progression of the disease, resulting in improved life expectancy for people who are living with HIV (PLWH) [1]. For PLWH careful pre-travel planning and preparation is required. These travellers should be encouraged to read information provided by HIV-specific sources (see Resources below).

Risk management advice should follow that of the general traveller and be tailored as described below.

- Destination-specific risk management advice can be found on the [Country Information](#)

[pages.](#)

- Comprehensive travel insurance is essential for all travellers. A full declaration of medical conditions should be made to the insurers. All equipment and planned activities should be covered.

Standard travel insurance policies may decline people living with HIV or AIDS (PLWHA); the Terrence Higgins Trust provides information on available specialist policies (see Resources below).

## Pre-travel preparation

Travel plans should be discussed with an HIV specialist and travel health professional; PLWHA should check each country's entry restrictions (including the transport of medicines) and allow time to complete regulatory procedures. Check [www.hivtravel.org](http://www.hivtravel.org).

PLWH with a CD4 count < 200/μl are susceptible to certain infections that can have severe consequences [2]. A current CD4 cell count, with clinical judgement, should be used to determine the level of immune suppression of HIV-positive adults. Asymptomatic **adults** who are HIV-positive with CD4 counts of:

- ≥ 500 cells/μl are considered to have no suppression.
- 200 to 499 cells/μl are considered to have moderate suppression
- < 200 cells/μl are considered to have severe suppression [3].

CD4 counts of children as indicators of level of immunosuppression differ from adults. Children with a CD4 proportion of less than 15 percent are severely immunocompromised [3, 4].

Ideally, a newly commenced ART regimen should be known to be effective and well tolerated before travelling. The following points should be discussed prior to travel:

- anti-retroviral drugs may not be available in some areas; adequate supplies of all medications must be carried. See our [medicines abroad factsheet](#).
- Interruptions to ART are dangerous and should be avoided.
- PLWHA who plan to travel should know how to seek medical advice for HIV-related illness occurring during or after travel.
- Expertise in HIV medicine may not be available during travel (see [Global Database](#) on HIV specific travel and residence restrictions in resources).

## Food and water-borne risks

Travellers with HIV are at increased risk of some gastrointestinal infections, such as salmonellosis, *Campylobacter*, *Cystoisospora belli*, *Cryptosporidium sp.* and their complications such as chronic infection, bacteraemia and relapse [2].

Principles of [food, water and personal hygiene](#) should be emphasised. Travellers should be advised, and receive written instructions, on the use of medication for self-treatment of travellers' diarrhoea. They should know when and how to seek medical assistance. Prompt treatment of gastrointestinal infections is essential.

Individuals with HIV infection may wish to discuss with their HIV specialist whether or not it is appropriate to consider the prophylactic use of ciprofloxacin or azithromycin during travel. Potential drug interactions should be carefully checked prior to prescribing any medication.

## Vector-borne risks

Strict [bite avoidance measures](#) must be emphasised to reduce the risk of vector-borne risks.

Travellers with HIV with a CD4 count < 200 cells/ $\mu$ l have a higher risk of visceral leishmaniasis [2].

## Malaria

Travellers with HIV can have a higher risk of severe malaria [2]. Travel to malaria endemic areas should be considered carefully. Strict bite avoidance measures and compliance with malaria chemoprophylaxis (antimalarial tablets) is necessary.

Potential drug interactions with ART should be determined when prescribing antimalarials. Drug information should be checked in the British National Formulary (BNF) and at <http://www.hiv-druginteractions.org>, and with the traveller's HIV clinician.

Public Health England (PHE) guidelines on the prevention of malaria suggest doxycycline as probably the simplest malarial chemoprophylaxis for most HIV positive adults taking ART; but each case should be considered individually and the options for chemoprophylaxis discussed with the traveller's HIV clinician [5].

Treatment of malaria in travellers with HIV should be carried out in a specialist setting.

## Vaccination

The [British HIV Association \(BHIVA\)](#) has produced guidelines for immunisation of people living with HIV which should be consulted before vaccination [1]; the [Children's HIV Association \(CHIVA\)](#) also provides guidance [4]. Health professionals should also refer to the relevant chapter of

[Immunisation against infectious disease](#) [3]. Specialist travel advice should be sought, and liaison with an HIV specialist may be necessary.

Response to vaccination, particularly in those with immune deficiency, is often sub-optimal; post-vaccination serology can help guide booster frequency. Consideration can be given to delaying immunisation until the CD4 cell count has recovered with ART; this may not always be possible or practical.

Due to the potential for a reduced response to vaccination, vaccine schedules are sometimes different from those recommended for people who are HIV negative; important differences are given below and health professionals are recommended to refer to [BHIVA](#) and [CHIVA Guidelines](#) for detailed information:

- All travellers should be up to date with inactivated vaccines in the UK schedule.
  
- Inactivated vaccines are safe to administer to HIV positive adults and children and should be offered where appropriate; sub-optimal immune response to vaccines may occur, so the importance of e.g. insect bite precautions and personal and food and water hygiene should be stressed.
  
- The following replicating (live) vaccines are CONTRAINDICATED in all HIV positive adults and children: BCG, influenza (live intranasal), polio (oral), smallpox, typhoid Ty21a (oral).
  
- Live (replicating vaccines) should be avoided where possible.
  - Adults with CD4 cell counts - Adults with a CD4 cell count of 200–350 cells/μL have moderate immunodeficiency. Some live vaccines may be considered ([see BHIVA Guidelines](#)). Clinical judgment should be used to guide the use of live (replicating) vaccines in these patients. Where exposure is likely, natural infection often carries a greater risk of adverse outcomes than vaccination; a suppressed plasma HIV1 RNA (viral load) on ART increases the safety and immunogenicity of vaccination in this group [1].
  
  - [Specific advice on the vaccination of children living with HIV infection can be found here.](#)

## Hepatitis A

Hepatitis A does not appear to be worse in HIV positive individuals but the disease may be prolonged, so all adults who are HIV positive should be vaccinated against hepatitis A following HIV diagnosis, if non-immune [1]. Response to the vaccine may be impaired in people who are HIV

positive particularly those with low CD4 count [1, 6]; an extra dose of vaccine may improve the immune response [7, 8].

Standard hepatitis A vaccine schedule should be used for adults with CD4 count > 350 cells/ml (with the second dose given six months after the first); those with CD4 count < 350cells/ $\mu$ l should receive three doses of vaccine over 0, 1 and 6 months to increase antibody levels and longevity [1].

For individuals with CD4 count of

Individuals at continued risk of exposure are recommended to receive a boosting dose every 10 years [1].

## Hepatitis B

It is recommended that all adults who are HIV positive are screened for evidence of hepatitis B virus (HBV) infection or immunity, and non-immune individuals should be vaccinated as soon as possible following HIV diagnosis [10]. People who are HIV positive are less likely to respond to vaccination than people who are HIV negative; response rates can be improved by increasing the vaccine dose [11].

BHIVA recommends a preferred vaccination schedule for adults using one of the following vaccine products:

- Engerix B® 40mcg (i.e. double dose)
- HBvaxPRO® 40mcg
- Fendrix

Regardless of vaccine type four doses should be given at 0, 1, 2 and 6 months [1].

It is not recommended to use the high dose vaccination in an ultra-rapid schedule due to the lack of safety data [1].

An accelerated vaccination schedule (3 standard (20mcg) doses at 0, 1 and 3 weeks) can be considered in adults with CD4 count > 500 cells/ $\mu$ l when there is a need to ensure rapid completion of vaccination and/or compliance with a full course is doubtful. It is less likely to produce a response than the preferred schedule of 0, 1, 2 and 6 months for travellers with a CD4 count < 500cells/ $\mu$ l [1].

Immune response should be tested four to eight weeks after the last vaccine dose of the primary course. Further advice on how to proceed once test results are available is available from the [BHIVA guidelines](#)

## Influenza

Increased rates of complications from influenza, including mortality can occur in people with HIV [12]. Annual vaccination is recommended for adults and children [1, 4, 13]. Live, intranasal influenza vaccine is contraindicated [1].

## Japanese encephalitis

There are no published studies on the safety, immunogenicity and clinical efficacy of Japanese encephalitis (JE) vaccination in HIV positive adults [1]. There is limited data on the safety and efficacy of JE vaccination in children; studies have found efficacy is improved where children are taking ART [14, 15].

HIV positive individuals who are at risk of exposure to JE vaccination should be offered an inactivated Vero cell-derived vaccine with two doses given 24-28 days apart [1]. The use of the rapid schedule (doses on day 0 and day 7) is not recommended, unless there is an urgent need to complete primary vaccination prior to exposure [1].

Boosters should be offered according to standard recommendations [1].

## Measles

### Adults

Although there is no evidence that measles is more severe in adults with HIV infection, it can be life threatening for those with advanced HIV infection [1, 15]. MMR is a live vaccine and should not be given to adults with a CD4 count < 200 cells/ $\mu$ l or children with severe immune suppression (i.e. CD4 proportion of < 15%). Vaccination should be considered as soon as the immune response has recovered on ART [1, 4]. Specialist advice is advised.

Screening for immunity to measles by testing for measles antibodies is recommended by BHIVA for all HIV positive **adults** at the time of diagnosis, regardless of their childhood vaccination history; all those that are non-immune should be offered vaccination if CD4 count is > 200 cells/ $\mu$ l with 2 doses of MMR a month apart [1].

Where MMR is contraindicated, those patients who are seronegative for measles and at significant risk of exposure, can be considered for pre-exposure immunoglobulin (HNIG). HNIG gives short term protection only (~ 3 weeks). Specialist advice should be sought [1].

If seroconversion following measles vaccine is in doubt, following a potential exposure to measles, immunoglobulin treatment as post exposure prophylaxis can be considered with specialist advice [1].

### Children

HIV positive children are vulnerable to serious measles infection and should, after consideration of

their clinical condition, be offered vaccination [16, 17].

MMR is a live vaccine and should not be given to children with severe immune suppression (i.e. CD4 proportion of < 15%). Vaccination should be considered as soon as the immune response has recovered on ART [4, 17].

Further information on the vaccination of HIV infected children in [UK: CHIVA](#) and [European Guidelines](#). Specialist advice is advised.

## **Pneumococcus**

People with HIV are at greater risk of pneumococcal disease compared to those who are HIV negative individuals [1]. Pneumococcal vaccine should be offered to all HIV positive adults and children [1, 4].

## **Polio**

There is no specific data on poliomyelitis in people with HIV [1].

Inactivated poliovirus vaccine is given in combination with tetanus and diphtheria toxoid (Td/IPV) in the UK schedule. Inactivated polio vaccine (with tetanus and diphtheria) should be given to adults and children according to the UK schedule, regardless of CD4 count, viral load or ART therapy [1, 4].

Live oral polio vaccine (OPV) is contraindicated in travellers with HIV (regardless of CD4 cell count) and their close contacts [1]. Live OPV is no longer available in the UK and is in the process of being withdrawn from global vaccination programmes) [18].

## **Rabies**

It is not known if the natural progression of the disease is modified by HIV infection [1].

Three doses of vaccine are recommended on days 0, 7 and 28. Advancing the third dose to day 21 is not recommended due to the possibility of a reduced immune response [1].

Reduced response to pre-exposure vaccination can occur in persons with lower CD4 counts, though data are very limited [19]. Travellers at increased risk of vaccine failure (based on CD4 cell count, ART use, and viral load) are recommended to undergo rabies serology testing 2-4 weeks after the last vaccine dose. For those with an antibody response <0.5IU/ml a booster dose should be offered, this may be given at double the standard dose, followed by repeat serology testing [1].

Travellers who are at risk of exposure should be offered a further booster at one year and subsequently at 3-5 yearly intervals or based on the results of serology testing where indicated [1]. Urgent post-exposure treatment in the event of rabies exposure should be emphasised, regardless of prior vaccination status, and expert advice sought. Specific advice for rabies post-exposure

management of people with HIV is available from the [BHIVA guidelines](#).

## Tuberculosis (TB)

HIV increases risk of acquisition of TB [1]. Globally TB is the most prevalent HIV-associated opportunistic infection [19]. Where possible, people living with HIV should avoid high-risk environments such as prisons or homeless shelters due to this risk. BCG vaccination is contraindicated in HIV positive persons regardless of CD4 count, ART, viral load and clinical status [1].

Chemoprophylaxis and pre and post travel screening for tuberculosis may be an option in some circumstances. Specialist advice must be sought.

## Typhoid

HIV positive patients are at increased risk of infection with Salmonella [1].

Typhoid immunisation with inactivated vaccine should be considered for travellers with HIV going to endemic areas. The vaccine does not provide 100% protection and may be less effective in HIV positive people; the standard vaccination schedule should be followed. Travellers should be advised to follow strict food and drink precautions [1].

Live oral typhoid vaccine is contraindicated in travellers with HIV, regardless of CD4 count [1].

## Varicella

### Adults

HIV positive individuals are at increased risk of developing severe or fulminant chickenpox [1]

Varicella vaccine is a live vaccine and should not be administered to adults with CD4 < 200cells/ml [1]. BHIVA recommends that all adults who are HIV positive be tested for varicella antibodies and vaccinated if non-immune and CD4 > 400 cells/ml (or CD4 > 200 cells/ml and stable on ART) [1].

### Children

Varicella vaccine and should not be given to children with severe immune suppression (i.e. CD4 proportion of < 15%). Vaccination should be considered as soon as the immune response has recovered on ART [4, 16].

Varicella vaccine is not currently part of the UK childhood vaccine schedule but can be considered if indicated in varicella sero-negative children aged one year and older who are HIV positive and have a CD4 proportion of > 15% [4]. Further information on the vaccination of HIV infected children in

[UK: CHIVA](#) and [European Guidelines](#). Specialist advice is advised.

## Yellow fever (YF)

Travel to areas at risk of YF should be considered carefully. YF vaccine can be considered, following specialist advice, in most adults\* who are clinically well, with a suppressed viral load, and a CD4 count > 200 cells/ $\mu$ l if risk of YF exposure is high and unavoidable.

\*BHIVA recommends that HIV positive pregnant women or those aged 60 years and over, should not receive YF vaccine until further data on vaccine safety is available [1]. Specialist advice should be sought.

As with other vaccines, a reduced immune response may occur. Revaccination at 10 years should be offered for those who fit the criteria for vaccination and who are at continued risk [1]

If there is a substantial risk of exposure, travellers unable to receive YF vaccine should be advised against travel. If travel to a risk country cannot be avoided, scrupulous mosquito bite avoidance is advised.

Where proof of YF vaccination is required as a condition of entry by a receiving country, and where the vaccine is contraindicated on medical grounds, a medical letter of exemption from vaccination can be offered.

Additional guidance on the use of YF vaccine in HIV positive individuals is provided by [BHIVA](#).

## Other health risks

### Environmental risks

Respiratory fungal infections (mycoses) are uncommon in travellers, but can cause life-threatening opportunistic infections in travellers with HIV, often several years after exposure [2].

Exposure to dust, soil, and bird and bat droppings should be avoided. Care should be taken during eco/adventure/cave trips or during excavation/construction/agricultural work. Masks and gloves can help reduce exposure to fungal spores when working with plants, hay or peat moss.

### Sexual health and blood-borne viruses (BBVs)

Travellers with HIV should use condoms for vaginal and anal intercourse. This will reduce risk of onward HIV transmission, and protects against acquisition of a different HIV strain and other sexually transmitted infections (STIs) and BBVs. They should also avoid body piercing/tattoos which carry a risk of blood-borne virus acquisition. HIV-positive injecting-drug users (IDU) must be made aware of potential legal and health consequences of this activity, especially overseas. Needles and

other paraphernalia used by IDU should not be shared.

## Psychological health

Stigma and discrimination relating to HIV/AIDS is still a problem in many areas of the world and may be encountered.

## Resources

- [British HIV Association \(BHIVA\) Guidelines on the use of vaccine in HIV-positive adults 2015](#)
- [BHIVA Guidance on vaccination of HIV infected children in Europe 2012](#)
- [Children's HIV Association \(CHIVA\) Immunization of HIV-infected children](#)
- [Guidance on Vaccination of HIV infected children in Europe 2012](#)
- [Terence Higgins Trust](#)
- [National AIDS trust](#)
- [The Global database on HIV-specific travel and residence restrictions](#)
- [Rubin LG, Levin MJ, Ljungman P, Davies EG, Avery R, et al. 2013 IDSA Clinical Practice Guideline for Vaccination of the Immunocompromised Host. Clinical Infectious Diseases 2014 58: e44-e100](#)

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