



## International travel and health

# Brazil - Health Advice for Travellers to the 2016 Summer Olympic and Paralympic Games

21 June 2016

The XXXI Summer Olympic and Paralympic Games Rio de Janeiro 2016, Brazil, will take place from 5 to 21 August 2016 and from 7 to 18 September 2016 respectively. Five additional cities will be hosting matches of the Olympic football tournament - Belo Horizonte, Brasilia, Manaus, Salvador, and São Paulo.

The following recommendations are intended to advise national health authorities and health care providers about practices and measures for travellers visiting Brazil to stay safe and healthy.

**Before departure**, travellers should be advised about health risks in the areas they plan to visit and related preventive practices and measures to minimize the probability of acquiring diseases and of having accidents.

Travellers to Brazil should consult the travel advice issued by their national authorities.

Health authorities of Brazil provide health advice for visitors to Brazil on their website in portuguese (see list of websites below). Health services affiliated to the public Unified Health System of Brazil (Sistema Único de Saúde, SUS) are free of charge for all individuals, including visitors.

## Vaccine preventable diseases

A medical consultation should be scheduled as early as possible before travel but at least 4–8 weeks before departure in order to allow sufficient time for immunization schedules to be completed for both routine vaccines and vaccines indicated according to the specific destinations. Even when departure is imminent, there is still time to provide both advice and some vaccines.

## Routine vaccines

Travellers should be vaccinated according to their national immunization

schedule, which will vary from one country to another. Routine immunization schedules, established by national authorities, include vaccination against diphtheria, pertussis, tetanus, polio, measles, hepatitis B, *Haemophilus influenzae* type b and, in many countries, additional diseases such as rubella, mumps, flu, yellow fever, human papillomavirus, and rotavirus and pneumococcal diseases.

Since July 2015, Brazil has interrupted **measles** transmission, following an outbreak associated with an imported case. As measles is still endemic or circulating in many countries, measles vaccinations should be up to date to prevent importation of the virus to Brazil. Similar considerations apply for **rubella**, which was eliminated from Brazil in 2009.

**Wild poliovirus** has been eliminated from Brazil since 1989. To prevent the re-introduction of polio into Brazil, travellers from countries where polio cases have recently occurred should be fully immunized.

For travellers at risk of serious complications of **influenza**, vaccination should be considered. WHO recommends seasonal influenza vaccination for pregnant women, the elderly, individuals with specific chronic medical conditions, children aged 6-59 months, and healthcare workers. Note that WHO advises pregnant women not to travel to the Olympics or any area where Zika virus is circulating. The influenza strain currently circulating in Brazil, A(H1N1)pdm09, is included in both the northern hemisphere 2015-2016 and the southern hemisphere 2016 vaccines. The Olympic and Paralympic Games will take place after the influenza season in Rio de Janeiro is expected to have peaked in June and July; however, there are regional variations and cases occur throughout the year in Brazil. At-risk travellers should ideally receive influenza vaccine at least two weeks prior to departure.

## Travel-related vaccines

Depending on the specific travel itinerary, additional vaccines might be considered for some travellers. Unvaccinated travellers should be offered such vaccines in accordance to their national recommendations.:

- **Hepatitis A:** Brazil is an intermediate endemicity country and prone to hepatitis A outbreaks;
- **Hepatitis B:** The risk of contracting hepatitis B is likely to be low, except for travellers engaging in high risk behaviours such as tattoos and injecting drug use. Hepatitis B vaccine was introduced into the national immunization schedule in Brazil in 1998;
- **Typhoid fever:** The incidence of typhoid fever in Brazil is highest in the North and North-East, including Amazonas and Manaus which is hosting the Olympic football tournament;
- **Rabies:** The risk of rabies infection in Rio de Janeiro and the

remaining five cities hosting the Olympic football tournament is negligible;

- **Yellow fever:** A single, lifetime dose of Yellow Fever vaccine is recommended for all travellers older than 9 months visiting areas at risk of yellow fever transmission. The vaccination should be conducted at least 10 days before departure. The vaccine confers lifelong protection. Vaccination is not recommended for travellers limiting their stay to the following cities hosting Olympic and Paralympic Games' events: Rio de Janeiro, Salvador, São Paulo. Further international spread of the ongoing yellow fever outbreak in Angola could potentially require WHO to adjust these recommendations (see list of websites below for more information).

## Mosquito-borne diseases

### Personal protective measures

Although the risk of mosquito borne disease is lower during winter, travellers should still take personal protective measures to prevent mosquito bites. These include:

- Whenever possible, wearing clothes (preferably light-coloured) that cover as much of the body as possible during the day;
- Using repellents that contain DEET (diethyltoluamide), or IR 3535, or icaridin and are applied to exposed skin or to clothing and used in strict accordance with the label instructions, especially regarding the duration of protection and timing of re-application. If repellents and sunscreen are used together, sunscreen should be applied first and the repellent thereafter;
- Choosing sanitary accommodations with piped water and physical barriers such as proper window and door screens to prevent mosquitoes from entering rooms;
- Avoiding areas in cities and towns with no piped water and poor sanitation, which constitute ideal breeding grounds for mosquitoes.

### Arboviruses transmitted by *Aedes* mosquitoes

In addition to yellow fever (see above vaccination requirements), mosquito-borne diseases transmitted by *Aedes* species mosquitoes include chikungunya, and dengue and Zika virus disease.

### Dengue and chikungunya

Detailed information about dengue and chikungunya is available on the websites of Brazil's Ministry of Health, WHO and PAHO/AMRO (see list of websites below). There is no vaccination for chikungunya. Dengue vaccination is not recommended for travellers.

### Zika virus disease

Zika virus infection usually causes a mild disease, and many cases of Zika virus infection are asymptomatic. However, following an outbreak of Zika virus in Brazil in 2015 and its subsequent spread in the Americas,

an unusual increase in serious neurological disorders was seen in the off-springs of pregnant women who had been infected, including cases of microcephaly and congenital neurological malformations. Cases of Guillain-Barré Syndrome (GBS), a rare but serious form of muscle weakness, were observed among adults. Based on a growing body of research, there is scientific consensus that Zika virus is a cause of microcephaly and Guillain-Barré syndrome. Zika virus is primarily spread by mosquitoes, though sexual transmission has increasingly been documented.

On the basis of current knowledge about Zika virus disease and its complications, the following is recommended to national health authorities and health care practitioners:

- To provide travellers to areas of ongoing Zika virus transmission, including Brazil, with up-to-date advice on appropriate measures to reduce the risk of becoming infected, including by preventing mosquito bites and practicing safe sex (e.g. use condoms correctly and consistently); and on the potential consequences and complications of infection, especially for women who are pregnant or planning a pregnancy; non-barrier forms of birth control will not protect against sexual transmission of Zika virus infection;
- To advise pregnant women not to travel to areas of ongoing Zika virus outbreaks, including Brazil;
- To advise women who inadvertently become pregnant or discover they are pregnant in or shortly after returning from Brazil, and/or other areas with ongoing Zika virus transmission, to contact their health care providers;
- To advise pregnant women whose sexual partners live in or travel to areas with Zika virus outbreaks to ensure safe sexual practices or abstain from sex for the duration of their pregnancy;
- To advise travellers to practice safe sex or abstain from sex during their stay in Brazil, and/or other areas with ongoing Zika virus transmission, and for at least eight weeks after their return. If men experience symptoms of Zika virus disease, they should adopt safer sex practices or abstain from sex for at least six months;
- To advise travellers returning from Brazil, and/or other areas with ongoing Zika virus transmission, not to donate blood for at least four weeks after departure from the area<sup>1</sup>;
- To advise health care practitioners to be on alert for Zika virus disease in travellers returning from Brazil and/or other areas with ongoing Zika virus transmission;
- National authorities should provide health care practitioners with clear guidance on how to refer travellers with suspected Zika virus infection for suitable clinical management and testing where appropriate.

### **Malaria (transmitted by Anopheles mosquito)**

The risk of malaria transmission is negligible or non-existent except in the administrative region of Amazonas, corresponding to the Northern states of Brazil. This includes the city of Manaus which is hosting some

of the Olympic football matches.

*Plasmodium falciparum* infections account for approximately 15% of malaria cases in Brazil. In malaria-affected areas, in addition to mosquito bite prevention (including use of repellents and sleeping under an insecticide treated mosquito net), chemoprophylaxis with atovaquone–proguanil, or doxycycline, or mefloquine should be considered and selected according to reported side-effects and contraindications. Alternatively, for travel to rural areas with low risk of malaria infection, mosquito bite prevention can be combined with stand-by emergency treatment (SBET).

Based on the risk assessment by Brazilian health authorities, the national guidelines do not include recommendations on malaria chemoprophylaxis. Therefore, the access to these drugs while in Brazil will be limited and antimalarial drugs should be purchased before travelling. Travellers who become ill with a fever while traveling in a malaria-risk area within Brazil should seek immediate medical attention (see list of websites below for diagnostic and treatment health centres). Travellers who become ill with a fever for up to one year after their travel should inform their health care practitioners about their travel history. There is no vaccination recommended for malaria.

### **Sexually Transmitted Infections (other than Zika virus infection)**

The risk of infection with HIV, syphilis, gonorrhoea, chlamydia, herpes, Hepatitis B virus (HBV), and other sexually transmitted infections is primarily limited to travellers engaging in sexual risk behaviours, especially unprotected sex and particularly with sex workers and among men who have sex with men and injecting drug users. Therefore, the adoption of safe sex practices, and specifically consistent and correct condom use, is recommended. Brazilian authorities launched a health promotion and prevention campaign in relation with sexually transmitted diseases, AIDS and hepatitis (see list of websites below).

### **Food and water safety**

As gastrointestinal infections can be common in Brazil, health care practitioners should advise travellers to take precautions to avoid illnesses caused by unsafe food and drink. These precautions include: frequent hand washing and always before handling and consuming food; making sure that food has been thoroughly cooked and remains steaming hot; choosing safe water (e.g. bottled water or, if in doubt, water vigorously boiled); avoiding any uncooked food, apart from fruits and vegetables that can be peeled or shelled; avoiding foods at buffets, markets, restaurants and street vendors if they are not kept hot or refrigerated/on ice.

The quality of recreational water in Rio de Janeiro, including in the venues hosting Olympic and Paralympic Games events, has been suboptimal because of sewage contamination. While corrective actions are being taken, travellers should follow the advice issued by competent local authorities (see list of websites below).

### Other infectious disease risks

The risk for travellers of acquiring airborne infections, such as tuberculosis and meningitis is limited, unless they stay in overcrowded indoor spaces.

Travellers to the Belo Horizonte area should be aware of the risk of acquiring tickborne Brazilian spotted fever, caused by the bacterium *Rickettsia rickettsii*, and that might result from contact with an infected rodent called capybara.

Travellers to the Salvador area should be aware of the risk of acquiring leptospirosis, caused by the *Leptospira* bacterium, which might result from skin and mucosal exposure to water and soil contaminated with the urine of infected animals. A wide range of animals can carry the bacterium.

The risk of leishmaniasis (both cutaneous and visceral), schistosomiasis, lymphatic filariasis, and other neglected tropical diseases is mostly associated with rural areas of the north-eastern region of Brazil.

### Safety and security and other health risks

Crime, including theft and violent crime, does occur in Brazil. Travellers should be advised to exercise caution and only use authorized airport taxis or shuttle buses, not travel alone at night, avoid questionable areas, and travel with a companion.

Traffic accidents and injuries, mostly caused by motor vehicle crashes, are the leading causes of death among travellers under the age of 55 years. After heavy rainfall, flash floods and landslides, especially in urban areas, have been a frequent cause of injuries and other emergencies.

Travellers should be aware of the presence of poisonous animals, such as scorpions and snakes, and take precautions to avoid any contact with such animals. Local health authorities can provide more detailed information about specific areas of risk.

It is **good practice** for health care practitioners to systematically collect the **travel history** from their patients, taking into account that some travel associated infections have a long incubation period.

## List of websites for further information

1. National travel and health advice websites
  - [http://www.who.int/ith/links/national\\_links/en/](http://www.who.int/ith/links/national_links/en/)
2. Health advice for travellers to Brazil on Brazil's Ministry of Health website
  - [http://portalsaude.saude.gov.br/index.php?option=com\\_content&view=article&id=9643#preparando3](http://portalsaude.saude.gov.br/index.php?option=com_content&view=article&id=9643#preparando3)
3. Information on global polio vaccination requirements
  - <http://www.polioeradication.org/>
4. Information on influenza in Brazil (in Portuguese)
  - <http://portalsaude.saude.gov.br/index.php/situacao-epidemiologica-dados-influenza>
5. Information on rabies in Brazil
  - <http://saude.sp.gov.br/resources/instituto-pasteur/pdf/wrd2015/situacaodaraivanobrasil-eduardopachecodecaldas.pdf>
6. Information on yellow fever vaccination requirements
  - <http://who.int/emergencies/yellow-fever/en/>
  - <http://www.who.int/ith/2015-ith-county-list.pdf?ua=1>
  - [http://gamapserver.who.int/mapLibrary/Files/Maps/ITH\\_YF\\_vaccination\\_americas.png?ua=1](http://gamapserver.who.int/mapLibrary/Files/Maps/ITH_YF_vaccination_americas.png?ua=1)
7. Information on dengue fever
  - <http://www.who.int/mediacentre/factsheets/fs117/en/>
  - [http://www.paho.org/hq/index.php?option=com\\_topics&view=article&id=1&Itemid=40734&lang=en](http://www.paho.org/hq/index.php?option=com_topics&view=article&id=1&Itemid=40734&lang=en)
8. Information on Chikungunya
  - <http://www.who.int/mediacentre/factsheets/fs327/en/>
  - [http://www.paho.org/hq/index.php?option=com\\_topics&view=article&id=343&Itemid=40931&lang=en](http://www.paho.org/hq/index.php?option=com_topics&view=article&id=343&Itemid=40931&lang=en)
9. Information on Zika virus disease
  - <http://www.who.int/emergencies/zika-virus/en/>
  - [http://www.paho.org/hq/index.php?option=com\\_content&view=article&id=11585&Itemid=41688&lang=en](http://www.paho.org/hq/index.php?option=com_content&view=article&id=11585&Itemid=41688&lang=en)
  - [http://www.paho.org/hq/index.php?option=com\\_content&view=article&id=11603:countries-territories-zika-autochthonous-transmission-americas&Itemid=41696&lang=en](http://www.paho.org/hq/index.php?option=com_content&view=article&id=11603:countries-territories-zika-autochthonous-transmission-americas&Itemid=41696&lang=en)
  - <http://portalsaude.saude.gov.br/index.php/situacao-epidemiologica-dados-zika>
  - <http://combateaedes.saude.gov.br/> and • <http://portalsaude.saude.gov.br/index.php/o-ministerio/principal/secretarias/svs/zika>
  - [http://www.paho.org/hq/index.php?option=com\\_content&view=article&id=11585&Itemid=41688&lang=en](http://www.paho.org/hq/index.php?option=com_content&view=article&id=11585&Itemid=41688&lang=en) and at <http://www.who.int/emergencies/zika-virus/en/>
10. Information on Malaria
  - <http://portalsaude.saude.gov.br/images/jpg/2015/junho/24/Mapa-de-risco-2014.jpg>
  - [http://bvsms.saude.gov.br/bvs/publicacoes/guia\\_prevencao\\_malaria\\_viajantes.pdf](http://bvsms.saude.gov.br/bvs/publicacoes/guia_prevencao_malaria_viajantes.pdf)
  - <http://www.who.int/ith/2016-ith-county-list.pdf?ua=1>
  - <http://portalsaude.saude.gov.br/index.php/o-ministerio/principal/leia-mais-o-ministerio/662-secretaria-svs/vigilancia-de-a-a-z/malaria/12193-centros-para-diagnostico-e>

## tratamento

11. Information about the health promotion campaign launched by the Brazilian Government on the occasion of the Olympic and Paralympic Games
  - <http://www.aids.gov.br/noticia/2016/ddahv-e-unaidas-anunciam-campanha-em-parceria-para-os-jogos-rio-2016>
12. Information on water and sanitation
  - [http://www.who.int/water\\_sanitation\\_health/bathing/statement-rio-water-quality/en/](http://www.who.int/water_sanitation_health/bathing/statement-rio-water-quality/en/)

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<sup>1</sup> National health authorities/national blood services should put in place and implement appropriate procedures to reduce the risk of transmission of mosquito-borne infections through transfusion, including temporarily deferring donors who are at high risk of infection due to international travel.

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Q&A: What is WHO's role in mass gatherings?

WHO's work on mass gatherings

More on hepatitis

More on Typhoid fever

WHO's work on rabies

Fact sheet: Yellow fever

Dengue

Chikungunya

Zika virus

Malaria

Food safety

Sexually transmitted infections