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TRAVEL MEDICINE

A Pocket Guide for International Delegates and Expatriates

MedPrä GmbH

Dr. med. Wolfgang Weiß

Dr. med. Wolfgang Weiß is a general practitioner (GP) and a specialist in occupational medicine with additional qualifications in sports and environmental medicine.

As company medical officer for Siemens AG since 1989, he takes care of employees travelling and working abroad and – among other things – organizes medical care on construction sites worldwide. He is experienced in crisis management in case of disease outbreaks as well as in the organization and execution of medical repatriation in the event of emergencies. As a representative on multiple tropical a and occupational medicine boards, he is concerned with the key questions of travel medicine as well.

On his job-related and private journeys, e.g. as a ship's doctor, companion of high mountain tours or "medical care"[1] projects, he was able to gather valuable experiences which he conveys in the present book.

His family ties to South East Asia support his interest in travel medicine and create a reference to health problems in tropical countries.

[1] e.g. medical care of mountain tribes in a remote jungle region in Vietnam.

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Specialist in Internal Medicine, additional qualifications in Tropical Medicine and Infectious Diseases.

After working several years in a small rural hospital in West Africa, he joined different units for Tropical Medicine in German hospitals and then opened a Doctor´s Office for Travel Medicine including a Yellow Fever Vaccination Centre in Düsseldorf some 15 years ago. During visits to projects and hospitals in a wide range of countries and settings, as a course facilitator in Tropical Medicine for health care professionals in Germany and abroad, as a counsellor to organizations working in developing countries, as a textbook author and as a lecturer in Tropical and Travel Medicine at Aachen University he is in constant touch with medical practice and health problems of travellers and expatriates in many countries of the world, especially the tropical and underprivileged ones. Since many years he serves on the Board of the German Association of Travel Medicine, currently in the position of Vice President.

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Vaccinations

General remarks

Vaccinations belong to the most important and the most efficient preventive measures available in medicine today. Depending on the properties of the germ, the mode of transmission and the mechanism of disease vaccinations may serve different purposes:

- nearly complete protection of the vaccinee against the disease.
- prevention of infectiousness (measles, hepatitis A and B, oral polio vaccine) and thereby protection of a limited number of unvaccinated people in a society.
- eradication of a disease (achieved with smallpox, underway with polio and measles, possible with hepatitis A and B).

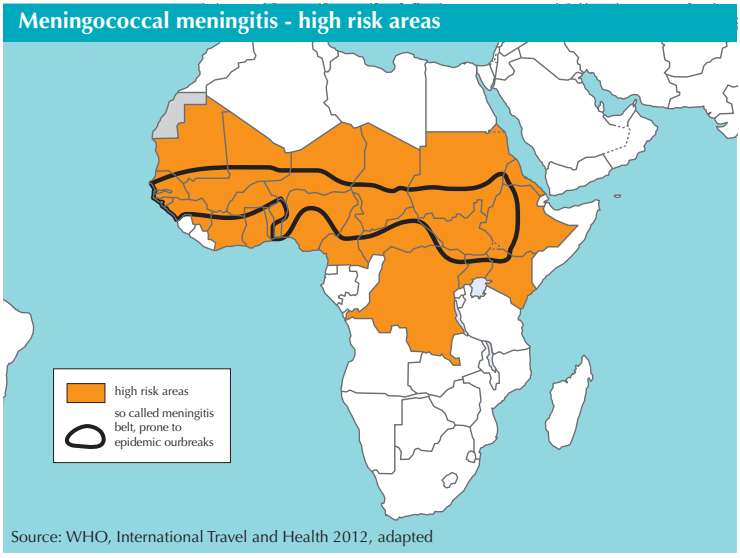
If the pathogen exists in nature independently of humans (tetanus, TBE, yellow fever), elimination is not possible with a vaccination strategy alone. In such cases individual protection is the main aspect.

At times we forget that large smallpox epidemics killed a third of the whole population in many parts of the world. As late as 1961 in Germany alone more than 4000 people fell ill with poliomyelitis, of whom more than 300 died. Since the introduction of the oral polio vaccine, case counts decreased and since 1990 no more cases have occurred in Germany.

It is due to vaccinations that many infectious diseases fell into total oblivion. This is why even minor side-effects of a vaccine are sometimes feared more than the diseases themselves, which many people don't know any more. At times, people opposed to vaccinations exploit this for their point. However, once you have seen a patient with permanent paralysis after a polio or come to know parents who have lost their child to Haemophilus influenzae meningitis you will hold the benefits of vaccinations in high esteem.

In countries with a warmer climate, poorer living conditions, inferior health infrastructure or a combination of those, infectious diseases typically have a bigger share in the causes of death than in industrialised countries. The risk of contracting an infection (and of falling victim to an accident) is clearly higher during a stay abroad, which is why an adequate set of vaccines is so important.

Medical counselling prior to travelling will always need to check the vaccination status. Try to get an appointment in time (2 to 3 months prior to leaving the country), especially if you have no vaccination document or previous vaccinations are unclear,



Counter indications: as for meningococcal vaccine type ACWY.

Pregnancy and lactation: as for meningococcal vaccine type ACWY.

Side effects: as for meningococcal vaccine type ACWY.

Primary vaccination: two injections, four weeks apart. Four different schedules apply for children from 2 months to 10 years of age.

Meningococcal Meningitis type C

Vaccine: inactivated vaccine. To be injected into the muscle.

Application: conjugate vaccine conferring long-lasting protection. Incorporated into routine vaccine schedules of many Western European countries to be given in the second year of life. Type C meningococci play an important role in Western Europe, North America, Australia and elsewhere. Especially for African destinations, a broader spectrum like in ACWY vaccine is desirable. Vaccines may also be indicated for people with certain immune disorders, after removal of the spleen, with health personnel working in laboratories, paediatric or isolation wards.

Counter indications: acute illness, known severe allergy to vaccine components, complications after earlier doses of the vaccine.

"Stand by"-medication for self administration in an emergency

In areas with little medical infrastructure a reliable work-up of a febrile illness that might be a malaria may not be available all the time, especially during nights or weekends. Under such circumstances an emergency self treatment for malaria, sometimes called "standby therapy", should be available to the traveller. Taking the drug amounts to treatment without diagnosis, which obviously is a compromise. Everyone who is on chemoprophylaxis should not treat a suspected malaria in this way, as unforeseeable combination effects of the different drugs might occur. Only if doxycycline is used for chemoprophylaxis, any emergency self treatment may be taken. If malaria risk is low or moderate in the destination area, the only antimalarial taken along will be such an emergency self treatment. In such cases the full range of measures to reduce mosquito bites should be employed.

The standby treatment concept in some travellers leads to the assumption, that any malaria can be easily treated out of the pocket. This is not true. Within an hour, a severe malaria can critically affect the patient's ability to decide, to swallow or even to seek help. This is why in case of suspected malaria a physician should be seen within 24 hours, whether emergency self treatment is at hand or not. Only if this is not possible, self treatment should be started at once (i.e. as soon as it is clear no physician can be seen in time). Still, it is wise to get examined as soon as possible after that, as other diseases may mimic malaria initially and may be worth being found out. In this way, emergency self treatment is a concept to bridge the gap until a reliable health care institution can be visited.

When to suspect malaria

The minimum delay between entry into malarious areas and a possible malaria is five days (minimum incubation period). Any unexplained fever as from the sixth day since first entry into a malarious area and until four weeks after leaving it must be considered a suspected malaria until proven otherwise. Falciparum malaria may even occur until one year since leaving the malarious area, other types of malaria may show up several years later only.

The three prerequisites for emergency self treatment of malaria

1. There is a fever of 38.5°C. ☐

2. Since entry into the malarious area, five days or more have elapsed. ☐

3. In the 24 hours to come, no hospital, physician or laboratory offering reliable malaria diagnosis and treatment can be reached. ☐

If all prerequisites are met, start malaria treatment as soon as possible with the drug brought along.

Ventilation

The ventilation is executed either from mouth to nose or from mouth to mouth.

- Use the "head-tilt-chin-lift manoeuvre".
- **Mouth-to-nose ventilation:** Close the patient's mouth with the thumb of your hand touching the lower jaw.
  Mouth-to-mouth ventilation: Close the patient's nose with the thumb and forefinger of your hand touching the forehead.
- Breathe in yourself, place your mouth closely to the patient's nose or mouth and blow in the air with increasing pressure for about one second. The time taken to give two breaths should not exceed 5 s.
- After each breath, lift off your mouth and check the person's breathing. The patient's chest has to visibly move up and down during ventilation.

Please keep in mind:

If the chest does not visibly move after the first artificial breath (as it would do in normal breathing), please start the following measures:

- Remove possible obstructions from the oral/pharyngeal cavity.
- Possibly check the patient's head position: Has the head-tilt-chin-lift manoeuvre been applied properly?

Symptom, disease	Substance group	International name (selection)
Sport injuries, joint pain, bruises	Sport ointments	Diclofenac, heparin, combination drugs, herbal preparations
Stomach pain	Antihistamines	Dimetindene, terfenadine, loratadine, mizolastine, clemastine, fexofenadine, cetirizine, cinnarizine
	Antacids (acid-binding substances)	Aluminium hydroxide, magnesium hydroxide, magaldrate, hydrotalcite, combination drugs, herbal substances
	Spasmolytics	Butyl scopolamine, trospium chloride
	Analgesics	Paracetamol, metamizole
	Antiemetics (to treat nausea and vomiting)	Metoclopramide, dimenhydrinate, domperidone
Travel sickness		Dimenhydrinate, cinnarizine
Urinary tract infection	Antibiotics	Fosfomycin-Trometamol Cotrimoxazole, ofloxacin, ciprofloxacin
Vomiting, nausea	Antiemetics (to treat nausea and vomiting)	Metoclopramide, dimenhydrinate, domperidone
Wounds, burns, skin lesions	Disinfectant, burn ointments	Povidone-iodide, fusidine acid, combination drugs

Notes:

Transmission: The protozoa usually will be transmitted by ingesting contaminated water and food.

Disease: Incubation period ranges from 5 to 40 days. Usually, the infection goes unnoticed. Only in massive infections, diarrhoea develops with stools looking foamy and yellowish, coming up explosively and smelling like rotten eggs. Stools may contain mucus and half digested food. Sickness, hiccuping and vomiting may join in. After 2 to 3 weeks complaints may subside and heal without sequelae. On the other hand, more segments of the small bowel may be affected, leading to impaired absorption, weight loss and vitamin deficiencies.

Diagnosis: Trophozoites or their cysts may be found in the stool by antigen detection tests or by microscopy. During gastroscopy, Giardia can also be found in secretions and biopsies from the duodenum.

Treatment: Symptomatic cases will be treated with *metronidazole, tinidazole* or *ornidazole*.

Prevention: Remember general hygiene concerning food and drinking water.

Hepatitis A

viral infection of the liver

Distribution: Worldwide distribution except for industrialised countries, very common under bad hygienic conditions, especially in developing countries, where the infection may be considered a standard childhood disease.

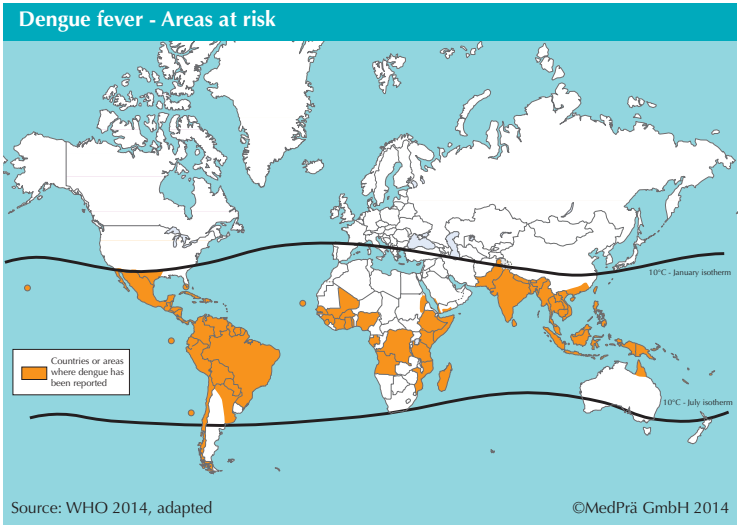
Transmission: Infected people excrete the virus with their stools. It will be distributed through contaminated food and water. Shells, oysters and crustaceans play a major part in this. The disease may also be acquired from contact to patients.

Disease: 2 to 6 weeks elapse between infection and first symptoms. These are flu-like with fever, loss of appetite, sickness and vomiting. The liver area under the right costal arch is painful. After these initial symptoms the urine turns very dark, like Coke or black tea, while the stool turns bright to whitish. The white part of the eyes becomes intensely yellow. Symptoms may either subside, as will usually happen with children. However, the disease may run a more dramatic or even life-threatening course with adults. It can last for several months. Chronic infections and sequelae will not occur.

Diagnosis: Some 10 days before and during the occurrence of symptoms, the virus may be found in the stool. There are also specific antibodies in the blood.

Treatment: There is no specific treatment. Only in severe cases, inpatient treatment will be necessary.

Prevention: Pay attention to hygiene (refer to pages 109, 111 ff, 113). Active vaccination offers a virtually complete protection and is recommended to all travellers (refer to page 44).



Treatment: Dengue can only be treated symptomatically, which means giving pain killers or, if needed, blood transfusions. Avoid *ASS* or *aspirin®* as it may increase the tendency to bleed. There is no specific treatment for dengue fever.

Prevention: Protect from mosquito bites all day round. With day biting Aedes mosquitoes, this requires attention and a repellent at hand (refer to pages 91 and 117). Avoid mosquito breeding sites suitable for Aedes. These are clean water collections like discarded plastic containers, rainwater collections or worn tyres. The average flight range of Aedes rarely exceeds 400 m. Currently, there is no vaccine yet against dengue.

Filariases (elephantiasis, onchcerciasis, loa loa)

worm infections

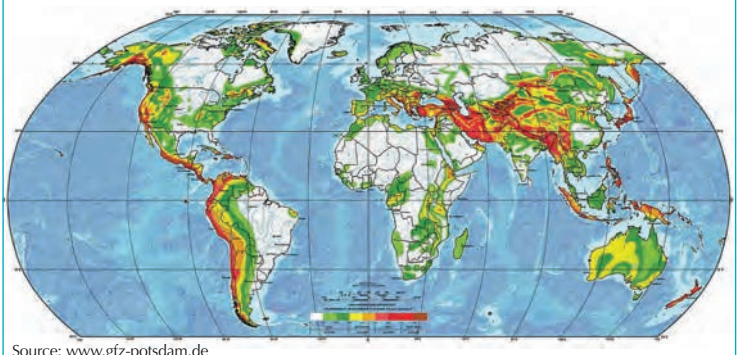
Distribution: Lymphatic filariasis, which can lead to **elephantiasis**, largely exists in Central Africa, South East Asia and Polynesia. **Onchocerciasis**, also called River blindness, mainly exists in tropical Africa, Central and South America. **Loiasis** is limited to the Western and Central African rainforest area.

Transmission: Bloodsucking insects specific to the respective diseases transmit the larvae, which dwell in the blood or, in the case of lymphatic filariasis, also in the lymph vessels. With lymphatic filariasis, vectors are night biting mosquitoes which breed in sewers and latrines (Culex mosquitoes). With River blindness, small bloodsucking

Behaviour in earth quake and tsunami prone areas

Earthquakes and tsunamis are nature-related risks which can significantly increase as you move to another country. Both phenomena result from the friction of the individual tectonic plates with each other. This is not a continuous movement. In fact, the plates "get stuck" which leads to tension and its sudden release – an earth quake. Worldwide, there are around 200 earthquakes per year with an intensity of 6 or more on the Richter scale of magnitude.
It is a well-known fact that the border areas of the Pacific and South Asia are especially

Global seismic hazard map



Source: www.gfz-potsdam.de

affected. It is impossible to determine the event of an earthquake. Thus, one can only try and be "earthquake-conscious" in these regions which means to be prepared for a severe earthquake. For this purpose, the German Research Center for Geosciences (**www.gfz-potsdam.de**) has released leaflets which we will summarise in the following paragraphs.

Long before the earthquake

If choosing residential or commercial buildings, one should pay attention to the question whether they are firmly founded and do not stand on loose grounds. Wood or steel / ferroconcrete frame constructions are considered to be especially favourable. In contrast to that, houses made of badly joint quarry stone or heavy roofs are considered unfavourable. The surrounding area is important as well. At the foot of escarpments, landslides might occur; on shallow shores, tsunamis can be caused after an earthquake (see below). In quarters with narrow alleys, the possibility to escape might be blocked and a fire might spread rapidly.

endemic infection: permanent circulation of an infection among human beings

enzymes: proteins regulating and accelerating the metabolism of an organism

epidemic: unexpectedly frequent occurrence of a disease in a certain area and time

epilepsy: nervous disorder with mild or severe convulsions with or without loss of consciousness

erythrocyte: red blood cell (transporting oxygen)

expectoration: mucous material from the airways that reaches the mouth while coughing

extremity: limb

fever: increase of the body temperature above 38°C, in case of temperatures between 37,5°C and 38°C, the term "elevated temperature" is used

flora: entity of the natural occurrence of bacteria in an organ (e.g. skin, intestines)

fracture: broken bone

furuncle: purulent inflammation of a hair follicle and its surroundings

gastritis: inflammation of the stomach mucosa

genitals: sexual organs

gravidity: pregnancy

haematoma: tissue swelling containing blood from torn vessels

heart attack: destruction of heart muscle tissue for lack of blood supply

heart failure: output deficiency of the heart

hepatitis: inflammation of the liver

hernia: displacement of intestinal loops into neighbouring compartments

hormones: messenger substances produced by endocrine glands (e.g. thyroid gland, adrenal gland) that regulate processes of the body (e.g. growth, menstrual cycle)

hyper-: excessive, exceeding the standard

hypertension: high blood pressure

hypo-: below the standard

i.m. (intramuscular): injection into the muscle

ileus: obstruction of parts of the intestine

immune system: defence system, entity of all structures (cells, antibodies) in the body that are responsible for the defence against exogenous substances (antigens)

immunisation: provocation of an immune response (on purpose) against a certain infection

immunity: insensitivity to certain pathogenic germs following an immune response

immunoglobulin: antibody

incubation time: time period between infection and first symptoms

indication: justification for the use of medication or treatment

infarction: dying-off of tissue caused by the lack of blood supply

infection: transmission, uptake and multiplication of pathogenic germs in the body

infusion: incorporation of larger amounts of fluids (e.g. into a vein)

inhalation: incorporation while breathing