Rabies is a viral infection primarily affecting animals. The virus is present in the saliva of an infected animal and is usually transmitted by an animal bite or scratch. The virus then travels from the site of entry through the nervous system to the brain and spinal cord where it causes progressive inflammation. Initial symptoms include fever, headache, fatigue and an unusual tingling, pricking or burning sensation at the wound site. Neurological symptoms may then develop; anxiety and agitation, spasm of the muscles used for swallowing, delirium and convulsions, followed by coma and death. In humans, by the time symptoms appear, the disease is invariably fatal.

Rabies is found on all continents, except Antarctica. Of the estimated 55,000 human rabies deaths annually, the majority occur in rural areas of Africa and Asia. As rabies is not a notifiable disease in many countries, this is regarded to be an underestimate. India reports 18,000 to 20,000 cases of human rabies each year which amounts to approximately 36% of annual worldwide deaths.

Children are at particular risk from rabies; they are less likely to avoid animals, more likely to have bites to the face or neck and they may not report to their parents that they have been bitten or scratched.

How do you catch rabies?
Dog bites are the most common cause of human infection in developing countries, however a number of carnivores and bat species are natural reservoirs for the virus. More unusual routes of infection have been documented; aerosol transmission has been reported in a bat infested cave in South America and rare cases following corneal/organ transplants taken from undiagnosed rabies sufferers have also been reported.

Incubation period
The incubation period is usually 1 to 3 months but may vary from less than 4 days to more than a year. Wound size and location, the viral load of the animal, proximity of the wound to the brain and richness of the nerve supply are factors that affect the incubation period.

Prevention
Travellers should avoid contact with wild or domestic animals during travel:

- Never approach, handle or feed animals
- Avoid carrying food if visiting temples where monkeys freely roam.
- Be aware that certain activities can attract dogs (e.g. running, cycling).
- Know what to do if you are bitten or scratched (see treatment section).

Pre-exposure rabies vaccination is recommended for long-stay travellers or residents, those who work with animals and those who intend to travel to rural and remote areas and are more than 24 hours from medical help. The primary vaccine course consists of 3 doses on days 0, 7 and 21-28; a booster dose can be considered at 10 years for those travelling again to high risk areas. The vaccination record card should be carried to assist those providing post exposure treatment.

Treatment
Thoroughly cleanse all bites with soap and water for several minutes, apply an antiseptic (40-70% alcohol or iodine solution) and cover with a light dressing. Limited bleeding should be encouraged. If possible, get the dog owners name; if the dog has been vaccinated, ask to see the certificate and also ask to be contacted if the animal gets sick. Seek urgent medical advice for post exposure advice. Do not allow the wound to be stitched.

All travellers who have a possible exposure to the rabies virus should seek medical advice without delay even if pre-exposure vaccine was received. Rabies can almost always be prevented, even after exposure, if the correct post exposure vaccine is administered without delay.

Travellers should seek one of the modern cell culture vaccines. Some countries are using less effective locally produced vaccines that have to be administered into the abdomen, these are best avoided if possible; the British Embassy or consulate may be able to direct you to a local clinic that has supplies.

Post exposure vaccination advice
Travellers who have received a full course of pre exposure vaccines require two post exposure vaccines on days 0 and 3 after exposure. They will generally not need the human rabies immunoglobulin (HRIG) injection which is in short supply in many developing countries.

Travellers who have not had any pre exposure vaccines or an incomplete vaccine course require five post exposure vaccines over a month. HRIG should also be administered, particularly for bites around the face and neck.

The antibody response to the first post exposure vaccine is expected to be rapid in those who have been 'primed' with any rabies vaccines before they travel (even if they have not had a full 3 dose course). As the incubation period of the disease can, in rare circumstances, be as short as 4 days the post exposure vaccines should always be sought as soon as possible.