*ABC of Healthy Travel*ERIC WALKER
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IMMUNISATION — II

Occasionally recommended: rabiesRabies vaccine

Available from:

PHLS Laboratories in Birmingham, Cardiff, Colindale, Exeter, Leeds, Liverpool and Newcastle

Hospital pharmacies in Aberdeen (Royal Infirmary), Dundee (King's Cross), Edinburgh (Western General), Glasgow (Ruchill), and Inverness (Raigmore).

Public Health Laboratory, Belfast City Hospital

Human diploid cell vaccine is effective against rabies and has few side effects. Pre-exposure prophylaxis should be recommended to high risk groups, such as veterinarians working in areas enzootic for rabies.

Postexposure prophylaxis with human diploid cell vaccine is also effective. There have, however, been recent reports of two deaths from probable rabies after multiple dog bites when this vaccine was used. In one case the timing of the course of injections was optimal but in the other there was a two-day delay before the first injection. Neither patient received rabies immunoglobulin. Despite these first failures, postexposure use of the vaccine is still highly effective and the chance of receiving a rabid bite is slim.

Therefore, we do not think it necessary to immunise the ordinary traveller going to areas where rabies is endemic, although it may be advisable for those who would be many days away from a source of vaccine and rabies immunoglobulin.

Occasionally recommended: BCG

In Britain BCG proved effective in reducing both the incidence and severity of tuberculosis in schoolchildren. National policy is to recommend immunisation to all Mantoux-negative 11-13 year olds.

If children are to live in areas of increased risk, essentially the less industrialised countries—immunisation of Mantoux-negative children should be brought forward. It can be given from birth.

Occasionally recommended: diphtheriaUS policy for diphtheria immunisation

Primary course starting in infancy with booster at school entry using standard dose of toxoid (7 IU-25 IU)

Subsequent boosters every 10 years using lower dosage (2 IU) without prior Schick testing.

A combined preparation of tetanus toxoid and low dose diphtheria toxoid is widely used.

If primary course is being given after the seventh birthday the low dose preparation is recommended

Diphtheria is endemic worldwide. From 1974 to 1980 25 cases were reported in Great Britain. At least half of these were traced to an imported source, usually an asymptomatic carrier. When the organism circulated freely most adults would have been immune but with routine immunisation interrupting transmission of the organism, increasing numbers of adults are susceptible. Most morbidity and mortality are in children and they should be immunised as nationally recommended (initial primary course and booster on school entry). Adult travellers at high risk of infection are those in contact with children in poorer areas—for example, health workers and teachers. Their immunity should be checked by Schick testing before immunisation because of adverse vaccine reactions that may occur in immune adults. Schick testing would be unnecessary if a low-dose (2 IU) preparation of the vaccine was readily available for boosters, as it is in the United States.

Occasionally recommended: tick-borne encephalitis

Tick-borne encephalitis is caused by an arbovirus transmitted by the bite of an infected tick. Its distribution is confined to warm and low forested areas in parts of central Europe and Scandinavia, particularly Austria, Czechoslovakia, West Germany, and Yugoslavia. The forests are usually deciduous with heavy undergrowth. Those normally at risk are foresters and those clearing such areas, but increasing contact will occur with increased recreational use, such as camping and walking. Most human illness occurs in late spring and early summer. Tick bites are best avoided by limiting contact with such areas, wearing clothing to cover most of the skin surface and using insect repellents on outer clothes and socks. Where prolonged contact is necessary a killed vaccine is available from Immuno Ltd on a named patient basis (telephone 0732-458101). Two doses are necessary two to 12 weeks apart with a booster at 12 months if exposure continues. Hyperimmune globulin is available on the Continent (Immuno AG, Vienna) for use within four days of a tick bite.

Occasionally recommended: plague

Plague is an infection of wild rodents and is transmitted by fleas. It exists in many areas of Africa, Asia, and the Americas. The risk to the traveller is from the bite of an infected flea and is low. Routine immunisation is not recommended. In enzootic areas, usually rural and hilly, contact with rodents should be discouraged by preventing their access to food and waste, avoiding dead rodents and rodent burrows. Fleas can be discouraged by insect repellents. When prolonged stay in a rural enzootic area is expected and avoidance of rodents impracticable—for example, during wars or after disasters—an inactivated vaccine is available from Cutter Laboratories (telephone 02814 5151). Two doses are necessary four to 12 weeks apart with boosters necessary every six months.

Occasionally recommended: hepatitis B

A vaccine has recently become commercially available (Thomas Morson Pharmaceuticals; telephone 09924 45252). The recommended regimen consists of three doses, the boosters being given one month and six months after the initial dose. Immunity is predicted to last about five years. Two doses induced protective antibodies in over 80% of recipients in one trial but the antibody concentrations waned more rapidly than in those receiving three doses.

The vaccine is expensive (£63.50 for a full course) but should be considered for groups such as medical, nursing, and laboratory staff planning to work among populations with high HBsAg carriage rates.

Typhus

This vaccine is no longer available in the United Kingdom and is not recommended for travellers.

Schedule of immunisation

Compulsory

Yellow fever
Cholera

Commonly recommended

Typhoid fever
Hepatitis A
Poliomyelitis
Tetanus

Occasionally recommended

Rabies
BCG
Diphtheria
Tick borne encephalitis
Plague
Hepatitis B

In practice two consultations, four to six weeks apart, cater for most travellers' needs. Extra visits are required if a primary course of oral poliomyelitis vaccine is needed or specific risk factors are identified.

Oral poliomyelitis vaccine should not be given at the same time as immunoglobulin. Live virus vaccines should be given either simultaneously or at least three weeks apart.

Consultation 1

- (1) *Find out:* all countries to be visited and in what order, length of stay, mode of travel and life style, immunisation history.
- (2) *All travellers:* initiate primary course of *tetanus toxoid* and *oral poliomyelitis vaccine* if necessary or boost if no booster within 10 years.
- (3) *If traveller is going only to Europe, USA, Canada, Australia, New Zealand, or Japan:* no other immunisations are needed unless there is a specific risk factor—for example, related to occupation.
- (4) Check countries' entry requirements and map of yellow fever endemic zone. Give *cholera vaccine* if obligatory. Arrange visit to *Yellow Fever Vaccination Clinic* for 2-3 weeks' time if travelling within endemic zone.
- (5) Estimate risk of increased faecal-oral transmission (rural living, travelling or living rough, eating out). If present, give *typhoid vaccine*, arrange *immunoglobulin* for next visit (or check hepatitis A antibody), and give *cholera vaccine* if travelling to cholera-infected areas (at present sub-Saharan Africa, Iran, and tropical Asia).

Consultation 2

(4-6 weeks later)

- (1) Confirm that *yellow fever vaccination* has been given.
- (2) Boost *cholera vaccine* if not given just for certification.
- (3) Boost *typhoid vaccine* if primary course.
- (4) Give *immunoglobulin* (or advise hepatitis A antibody positive).

If time is short single doses are better than none at all, and boosters to cholera and typhoid can be given after seven days.

Children should also have all routine immunisations up to date and, if appropriate, BCG should be given.

The map of HBsAg carriage rates was reproduced, by permission, from Vyas GN, Cohen SN, Schmid R, *Viral Hepatitis: Etiology, Epidemiology, Pathogenesis, and Prevention*, published by the Franklin Institute Press, 1978.

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