

# Travel vaccination update

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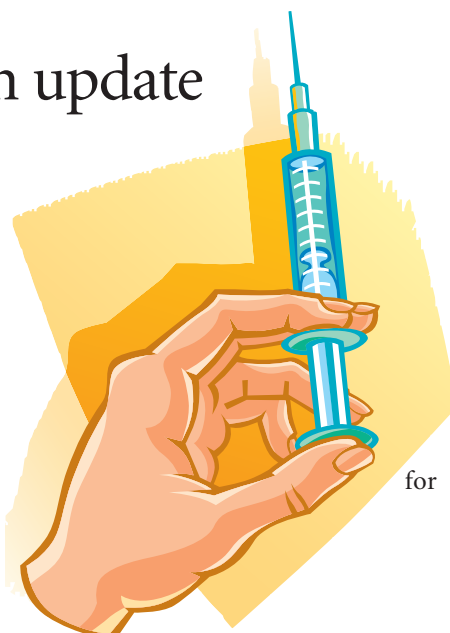
This short update discusses current thinking on vaccine indications and contraindications for intending travellers.

The range of vaccines available for Australian travellers is rapidly expanding and will continue to do so. It is therefore even more important for general practitioners to keep fully up to date with recent changes in vaccine indications, precautions, contraindications, interactions and management of adverse reactions. When the practitioner is unsure of the appropriate advice to give, I strongly recommend that for all areas of risk, the patient should be referred to a travel or vaccination clinic. The following brief summary emphasises the more important points to keep in mind.

The handout on page 80, which compares the adverse effects of some diseases and their vaccines, can be given to patients as a basis for discussing the risks and benefits of vaccination. Further information of this sort can be found in the NHMRC's *Australian immunisation handbook*.<sup>1</sup>

## Tetanus and diphtheria

Recent alterations to the current NHMRC schedule have advised that, providing there is documented evidence of five doses of tetanus vaccination from childhood to 15 years of age, there is no need



a booster dose until age 50. However, it is important for doctors and their patients to note that a booster is still required for tetanus-prone wounds.

Therefore, if it is more than five years since a tetanus vaccination and the destination is an area where tetanus boosters are unlikely to be available or to be given with a hygienic technique, travellers are advised to have a booster prior to travel. This booster should ideally be given with diphtheria vaccine (as ADT Vaccine or Boostrix) in all cases. Diphtheria vaccination is advised if travelling to eastern Europe and the Russian states.

## Polio

The Sabin oral polio vaccine has been a constant in Australia for as long as most of us can remember. It has higher efficacy in development of gut immunity than the Salk injectable vaccine; however, because of a small risk of vaccine-induced paralysis (1 in 2.3 million doses; higher in those with lowered immunity) serious consideration is now being given to the Salk vaccine (Ipol). The latter is currently recommended for those with lowered immunity or requiring a primary vaccination course. Protection against polio is

advised for travellers to areas at risk if not vaccinated within the previous 10 years.

## Measles, mumps, rubella and varicella

The need for measles vaccination (M-M-R II, Priorix) for all nonimmune adult Australians has been emphasised because it appears that the measles vaccine component given to children in the 1970s and 1980s gave inadequate cover. Ensuring immunity is even more important for intending travellers and applies also to the other childhood infections, including varicella. These common diseases can have serious outcomes, including deaths, particularly in adults.

## Pneumonia and influenza

Pneumonia remains one of the more common reasons for travel health insurance claims, and a recent article confirmed this significant incidence of a largely vaccine-preventable illness.<sup>2</sup> Vaccination (with Pneumovax 23, or Prevenar in young children) is advised for all travellers with chronic medical conditions, especially cardiorespiratory disease and diabetes, and for the older age groups. Influenza vaccination (Fluarix, Fluvax, Fluvirin, Vaxigrip) is advised for visitors to the Northern Hemisphere over its winter.

## Cholera

Although the prevalence of cholera in Australian travellers has previously been estimated as extremely low (1 in 300,000), Japanese and US studies suggest a higher prevalence equivalent to that of typhoid. The only cholera vaccine currently available in Australia is Orochol, containing a live attenuated strain and providing protection against *Vibrio cholerae* 01. The WHO does not recommend vaccination in place of food and water hygiene precautions; however, because cholera is a potentially fatal disease, vaccination is likely to be increasingly considered for people at high risk (such as those with decreased gastric acidity) and for longer

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## Comparison of effects of diseases and vaccines

It is important to note that the side effects of vaccinations are rare and are far outweighed by the benefits. For further information, discuss the following with your doctor.

	Effects of disease	Side effects of vaccination
<b>Tetanus</b>	Painful muscle spasms (lockjaw) and convulsions. About one in 10 people die. Risk is greatest for the very young and very old.	Up to 50% of people vaccinated have injection site pain, redness, swelling or fever.
<b>Diphtheria</b>	Severe sore throat with swollen glands. Swallowing and breathing may become difficult.	Up to 50% of people have injection site pain, redness, swelling or fever.
<b>Polio</b>	One in 20 who are hospitalised will die, and 50% of survivors will have permanent paralysis.	Less than 1% develop diarrhoea, headache and/or muscle pains. One in 2.5 million close contacts develop paralysis.
<b>Cholera</b>	Severe diarrhoea with dehydration and hypotension. About 50% of severe cases result in death.	With the oral vaccine, side effects of headache and gastrointestinal symptoms are similar to that of placebo.
<b>Hepatitis A</b>	Death rate up to 3%. Up to one in 50 travellers are affected with jaundice, abdominal pain, fever and malaise for up to three months. The severity is worse with age.	No serious adverse reactions reported to date. Side effects are rare, generally mild and of short duration. They include local soreness, redness, swelling at injection site, fever, malaise, headache, nausea and loss of appetite.
<b>Hepatitis B</b>	Death rate of up to 50% from cancer of the liver later in life or liver failure. Acute infection with jaundice, abdominal pain, fever and malaise for up to six months.	Injection site soreness in 5 to 15%. Fever, nausea, dizziness, malaise, muscle or joint aches in 2 to 3%. Anaphylaxis* occurs extremely rarely in adults.
<b>Typhoid</b>	Abdominal cramps, nausea, diarrhoea, rash and fever. Death rate up to 20% if untreated.	Side effects are rare and mild with newer vaccines. They include abdominal cramps, nausea, diarrhoea and rash.
<b>Meningitis</b>	Fever, headache, stiff neck and vomiting. Death rate about 10%.	Significant general reactions are rare. Fever and local injection site redness and tenderness in 2% of children.
<b>Rabies</b>	Irritation or pain at wound. Disease progresses to muscle spasms and death. No known survivors of rabies once clinical symptoms are present.	In 74%, local reactions of pain, redness, swelling and itching. In 5 to 40%, mild headache, nausea, abdominal pain, muscle aches and dizziness. Intradermal administration has much less reaction.
<b>Japanese encephalitis</b>	Fitting or reduced conscious state. Death rate of 25%, with up to 30% having long term neurological or psychiatric damage. The risk is about one in 5000 cases per month of travel.	Injection site tenderness, redness and swelling. In 10%, fever, headache, malaise, rash, dizziness, muscle aches, nausea and vomiting. In one in 1000, severe generalised reactions, including anaphylaxis within 14 days.
<b>Yellow fever</b>	Fever, vomiting, jaundice, severe malaise and bleeding. Death rate up to 50%.	In 2 to 5%, mild headaches, muscle pains, fever within 10 days. Severe reactions, including anaphylaxis and death, in less than 0.2%.

\*Anaphylaxis is a severe allergic reaction of rapid onset. It can present with any combination of itchy skin rashes, hoarse voice, shortness of breath, abdominal cramps, diarrhoea, vomiting, severe weakness or collapse.

trips through developing countries. A single dose is 55 to 99% effective from eight days after vaccination for six months. The vaccine can be used from the age of 2 years and is not contraindicated with other live vaccines. It should not be given with antibiotics or chloroquine or within eight hours of oral typhoid vaccine. Orochol is not effective against the 0139 strain that is increasingly reported in Asia and South America.

A new oral vaccine with efficacy against both *V. cholerae* and *E. coli* is expected to be available in Australia in the future.

## Hepatitis A and B

Several hepatitis vaccines are now available in Australia. For hepatitis A, Vaqta and Havrix are available in both adult and paediatric formulations, and Avaxim may be used for all ages from 2 years upwards. Hepatitis B vaccines are Engerix-B and H-B-Vax II, and Twinrix is a combined vaccine against both hepatitis A and B. Immunoglobulin is no longer recommended because of an international shortage resulting from concerns about unknown biological contaminants in this human-derived product and because it provides only partial protection for up to six months.

Active vaccination against hepatitis A has been available since 1993, so travellers claiming vaccination prior to this time are likely to have been given immunoglobulin. The two-dose schedule for hepatitis A has been available since 1996 and there is often much confusion in travellers as to whether they were given hepatitis A vaccine, the three-dose hepatitis B or the combined hepatitis A and B vaccine, making further recommendations quite a challenge.

It is becoming increasingly clear that to achieve adequate long-acting immunity, provided all the doses of the hepatitis vaccine are given, the timing between doses does not need to be as precise as previously believed. Evidence of adequate antibody levels is probably not helpful,

unless it is required for those at significant risk, such as from occupational exposure.

## Japanese encephalitis

This severe and often fatal viral disease is spread by mosquitoes and is endemic throughout greater Asia, in both urban and rural areas, with higher risk in rice paddies and pig farms. Endemic areas have been reported in the Torres Strait Islands and East Timor, and annual outbreaks may occur seasonally (for example, in northern India).

Although the risk to Australian travellers is low, the complications of the disease necessitate discussion of the relevant risks and benefits with all travellers to Asia. Vaccination (Je-Vax) should be offered to all longer term travellers as well as all those who wish to be covered. The vaccine is relatively expensive and is associated with significant side effects. It should be noted that vaccination against this disease is part of the routine schedule in many of the endemic countries.

## Meningitis

Both meningitis polysaccharide vaccines available in Australia (Mencevax ACWY, Menomune) are effective against the A, C, W and Y strains of *Neisseria meningitidis*. The newer conjugate vaccine (Menigitec) will extend protection to children under two years of age; however, its usefulness to travellers will be limited because it is effective against only the C strain.

While outbreaks have occurred in many countries in the past, it is important not to vaccinate people unnecessarily. Areas at risk include countries in the African sub-Saharan belt, which are at highest risk in the dry season. Vaccination is also indicated for those over the age of 2 with asplenia and is a legal requirement for pilgrims attending the Hajj in Saudi Arabia.

## Rabies

Preventive advice about rabies, including pre-exposure vaccination, needs to be

considered more often for visitors to areas at risk. One 1994 study of tourists spending an average of 17 days in Thailand, where 6% of dogs are rabid, reported that dog bite and dog lick were experienced by 1.3 and 8.9% of travellers respectively. The WHO recommends

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pre-exposure vaccination for all persons living in or on lengthy visits (for more than 30 days) to countries with endemic rabies.

## Tuberculosis

Mantoux testing needs to be performed in anyone over the age of 6 months who is being considered for BCG vaccination. Ideally, this is best performed by the GP or at an authorised travel or BCG vaccination clinic. The indications for BCG vaccination are decreasing and in general it is considered only for children less than 5 years of age and for those individuals who will spend extended periods in situations at risk.

## Typhoid

Typhoid is an uncommon infection; however, it continues to present each year in significant numbers in returned Australian travellers. It is a serious illness and can affect large numbers of contacts. There are currently two injectable Vi polysaccharide vaccines (Typhim VI, Typherix) and one oral vaccine (Typh-Vax) available in Australia. The injectable vaccines can be used from the age of 2 years, and the oral vaccine from the age of 6. The oral vaccine is best used as a four-dose regimen to gain maximum length of effect. A combination typhoid

Vi-hepatitis A vaccine is expected to be available within the next year.

### Yellow fever

Earlier this year, yellow fever vaccination was reported in the literature as causing seven deaths, including one in Australia. The reasons have not yet been fully elucidated; however, there has been some

speculation that lowered immunity may have contributed because most of the cases occurred in the over 50 age group.

There are three main points to acknowledge. Firstly, patients need to be reassured that the vaccine used in Australia (Stamaril) remains one of the world's safest vaccines; hundreds of millions of doses have been given safely over

the last 60 years. Secondly, the WHO and CDC indications for vaccination remain unaltered and include travel to many countries in Africa and tropical South America. Yellow fever has a high case fatality and has decimated populations in the past. Travellers to areas at risk clearly require vaccination if they and their contacts are to be protected. Thirdly, the vaccine should not be given unless it is definitely required for travel to risk areas and then given only after a careful appraisal with the patient about need and possible contraindications.

Visitors to areas at risk should be advised that the International Certificate of Vaccination must be carried at all times to avoid possible vaccination at a border crossing and/or quarantine. The vaccination and the appropriate certification are available from authorised travel clinics, which will have access to current advice about risk and need for vaccination for health or legal purposes. **MT**

### References

1. The Australian immunisation handbook. 7th ed. Canberra: NHMRC, 2000.
2. O'Brien D, Tobin S, Brown GV, Torresi J. Fever in returned travellers: review of hospital admissions for a 3-year period. *Clin Infect Dis* 2001; 33: 603-609.

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