



The Pre-Travel Consultation: More Than Just Shots



With guidance, health-care providers can assist travellers by providing up-to-date and preventive travel medicine advice, based on an individual risk assessment, using readily available resources.

By Anne McCarthy, MD, FRCPC, DTM&H

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Each year, one million Canadians travel to exotic or tropical locations. Their reasons for travel are varied, as are the health risks each traveller encounters. Physicians providing pre-travel counselling are concerned about maintaining health while travelling, and preparing travellers involves significantly more than providing them with vaccines.

In Canada, travel medicine is developing into an area of expertise practised by individual health-care providers and within clinics specifically designed to meet the needs of travellers. Health Canada's Committee to Advise on Tropical Medicine and Travel (CATMAT) recently published consensus guidelines on what

is expected of a health-care provider who chooses to deliver travel medicine advice.¹

Unfortunately, each year in Canada, we continue to see the adverse results of travel, such as imported cases of malaria (including deaths), typhoid, and hepatitis A — all of which are preventable diseases.²⁻⁷ It is most disturbing when



Dr. McCarthy is an assistant professor at the University of Ottawa, and director of the Tropical Medicine and International Health Clinic, division of infectious diseases, Ottawa Hospital General Campus. She is also a major in the Canadian Forces infectious diseases and tropical medicine consultation to Force Health Protection, Department of National Defence, Ottawa, Ontario.

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these maladies occur in travellers who took the initiative to seek and heed pretravel advice, but were misinformed by a well-intending health-care provider who lacked the necessary information.^{2,3,5}

Providing appropriate pre-travel advice can be accomplished using 10 basic guidelines or “commandments” of travel health. This article is not intended to offer a comprehensive review of pre-travel care, but instead will provide a brief outline of what should be considered in a pre-travel consultation, with the emphasis on vaccines.

Effective and appropriate pre-travel counselling requires health-care providers have up-to-date information or references, which should include information on the geographic distribution of endemic diseases, including vaccine-preventable diseases and the constantly changing global malaria situation. There are very good sources of information concerning travel health available on the Internet, by fax and in text. (See the list of resources at the end of this article).

1. Consult With Thy Health-Care Provider

Ideally, this consultation should be carried out four to six weeks prior to departure to allow sufficient time for appropriate counselling and to complete a planned schedule of immunizations. It is important to appreciate there is no standard immunization recommendation for any destination. What is required is an individual risk assessment based on many factors. What is the reason for travel and the travel itinerary? Specific details are needed about the location of travel within the country (*i.e.*, urban or rural), the style of travel (*i.e.*, first class or adventure travel), the anticipated travel activities (*i.e.*, animal contact, sexual contact) and the duration of travel.

What is the underlying health status of the traveller? This should include the patient’s vaccination history and medical history, including chronic diseases, immunodeficiency and medications. As an example, while visiting the same country, the adventure traveller who is going to backpack and camp off-the-beaten-track is at a significantly higher risk than the business traveller who is going to stay in four-star hotels.

Summary

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- It is important to appreciate there is no standard immunization recommendation for any destination. What is required is an individual risk assessment based on many factors. Vaccinations can be recommended based on the individual traveller’s itinerary and health situation, with strict attention paid to the possible risks (adverse effects) and benefits (efficacy) of each vaccine.
- For adult travellers, routine immunizations refer to booster doses of childhood vaccines commonly recommended for use in Canada.
- The only vaccine required under the International Health Regulation is yellow fever. In Canada, the vaccine is available at Health Canada’s designated yellow fever centres.
- The World Health Organization (WHO) reports that since 1992, no country or territory has required a certificate of vaccination against cholera.

Vaccinations. Vaccinations can be recommended based on the individual traveller's risks, with strict attention to the possible risks (adverse effects) and benefits (efficacy) of each vaccine. Such information is available from individual product monographs and the Canadian Immunization Guide.⁸ Vaccines to be considered can be divided into three groups: those that are routine or part of the primary series of immunization; those required by international law; and those recommended for maintenance of health while travelling.

Routine vaccines. In general, for adult travellers, routine immunizations refer to booster doses of childhood vaccines commonly recommended for use in Canada.

- Tetanus and diphtheria (Td) vaccines should be updated every 10 years, irrespective of travel plans;
- A booster of the polio vaccine, using the inactivated polio vaccine (IPV), is recommended once in adulthood prior to travel to countries with endemic or epidemic polio. Although polio has been eradicated from the Western Hemisphere there was a recent outbreak of vaccine-strain polio in Haiti and the Dominican Republic. This led to a re-evaluation of the National Advisory Committee on Immunization (NACI) recommendation. Some individuals (*i.e.*, health-care workers) now are advised to receive a single lifetime adult booster if travelling to areas where children receive the live, oral vaccine, if they are at risk of exposure to children excreting vaccine-strain polio.
- A measles-mumps-rubella (MMR) booster should be considered for those born after 1970 who are travelling to a measles endemic area, if a two-dose series has not been received previously and there is no history of natural measles.
- Influenza vaccine traditionally has been given to those at risk of adverse consequences of dis-

ease. The vaccine, however, is currently recommended routinely for those without underlying medical problems in many Canadian provinces. Influenza occurs year round in the tropics and there have been numerous influenza outbreaks on cruise ships. Influenza vaccine, therefore, should be considered for all travellers.⁹

Required vaccine. The only vaccine required under the International Health Regulation is yellow fever. In Canada, the vaccine is available at Health Canada designated yellow fever centres (a list of these centres is available from Health Canada's Travel Medicine Program, see resources). A country may legally demand proof of yellow fever vaccination before allowing entry. It is imperative to know the requirements for each country of planned travel or transit to prevent the traveller from being detained at the airport and given a dose of yellow fever vaccine, particularly in countries where health-care practices may be substandard. Yellow fever vaccine is a live vaccine and consideration of host factors, including age and immune status, must be weighed when assessing the appropriateness of vaccination.^{10,11}

Although not strictly required under the international health regulations, meningococcal vaccine may be required for entry into Saudi Arabia during the religious gathering, the Hajj.

The World Health Organization (WHO) reports that since 1992, no country or territory has required a certificate of vaccination against cholera.

Recommended vaccines. The recommended vaccines for travel are determined using an individual risk assessment.

- Hepatitis A vaccine is very effective and can be given right up until the time of departure, and is expected to provide protection for at least 10 years. It should be considered in all travellers to areas where hepatitis A is endemic. Multiple preparations are available in Canada, alone or in combination with hepati-

Quick Facts

VACCINATIONS

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- A measles-mumps-rubella (MMR) booster should be considered for those born after 1970 who are travelling to a measles endemic area.
- Influenza occurs year round in the tropics and there have been numerous influenza outbreaks on cruise ships. Influenza vaccine, therefore, should be considered for all travellers.

tis B vaccine. Immune serum globulin is no longer routinely recommended for travellers.

- Hepatitis B vaccine is now recommended universally in Canadian children and should be considered in every traveller, particularly for those at risk of blood or body fluid exposure and for those who will be in an endemic area for six months or longer. Multiple preparations are available in Canada, with some in combination with hepatitis A vaccine.
- Two types of typhoid vaccine preparations are currently available in Canada — a parenteral and an oral preparation. Both are 50% to 70% effective and do not negate the need for food and water precautions. Vaccination is recommended for those staying in endemic areas for prolonged periods, as well as for those eating adventurously or venturing off the usual tourist routes into small towns, villages or rural areas. According to American Centres for Disease Control and Prevention (CDC) 1998 surveillance data, 80% of typhoid cases reported in the U.S. occurred in travellers. In 80% of these cases, typhoid occurred following visits to six countries — India, Pakistan, Bangladesh, Haiti, Mexico, and the Philippines. Forty per cent of these individuals were travellers returning to visit family and friends, 26% were recent immigrants or foreign visitors and 33% were U.S.-born student and adventure travellers.¹²
- Cholera vaccine is an effective single-dose, live oral vaccine, however, it is not routinely used, since travellers are usually at very low risk of infection. Prevention relies on careful choice of food and water supply and in using good hygienic measures, rather than on vaccination. Vaccine may be considered in health-care or relief workers employed in areas with cholera outbreaks.
- Japanese encephalitis vaccine is recommended for rural stays of more than 30 days in endemic areas during the transmission season, or for shorter periods in areas of intense transmission. Due to the risk of delayed hypersensitivity reaction following vaccine, all recipients should defer international travel and remain in areas with ready access to medical care for 10 days after receiving any dose of the vaccine.
- Tick-borne encephalitis vaccine is recommended for very specific geographical areas in Europe. The vaccine currently is not licenced in Canada, but is available, on request, through Health Canada's Special Access Program (Tel. 613-941-2108).
- Rabies vaccine refers to pre-exposure vaccination with three doses of vaccine prior to travel. Medical care is still required following possible exposure, since two further booster doses of vaccine are necessary to provide full protection. The advantage of pre-exposure vaccination is an exposed traveller will not require rabies immune globulin (RIG), which may be unavailable or unsafe in many countries where rabies is endemic. Pre-exposure rabies vaccination should be considered, particularly for long-term travellers, joggers, spelunkers and young children.

- For the prevention of tuberculosis (TB), bacille Camette-Guérin (BCG) is not routinely recommended for travellers. Instead, TB skin testing, using two-step testing if appropriate, should be carried out prior to departure. If pretravel testing is negative, skin testing should be repeated 10 to 12 weeks following return from travel.

2. Acclimatize Thyself

To take full advantage of the opportunity to travel, particularly if the travel is only of short duration, it is important to try to prevent jet lag. Melatonin and its effect on jet lag has received much press coverage lately, however, it is not available in Canada. Getting plenty of rest, maintaining hydration, minimizing alcohol intake and exercising in flight will help. Travellers should try to maintain social clues to keep in sync with the time zone at the destination and eat meals according to the destination time. Short-acting hypnotics can help travellers adjust the sleep schedule to that of the destination. It is important to remember it can take five to 15 days to adapt completely to a new destination.

3. Protect Thyself From Insects

There are many vector-borne diseases in the tropics. Fortunately, many of these diseases are not high risk for the routine traveller. Prevention is the key and several preventative measures can effectively reduce the risk of travellers' being bitten. Personal protection measures (PPM) include remaining in well-screened or completely enclosed air-conditioned areas, sleeping under insecticide-impregnated bed nets, wearing clothing (ideally insecticide-impregnated) that reduces the amount of exposed skin and using insect repellent containing diethyltoluamide (DEET).



Health-care providers must ensure the traveller understands his/her individual risk of malaria and should discuss strategies to prevent the disease.

The use of insect repellent on exposed skin is strongly recommended and those containing DEET are the most effective. The concentration of DEET varies from product to product. Regardless of the concentration, repellency rates are largely equivalent. There is no added advantage in the duration of repellency with more than 50% DEET, however, there may be additional risk of toxicity in higher concentrations. In rare instances, the application of insect repellents with DEET has been associated with seizures in young children and care must be taken with the use of higher concentration products in this age group. Products that have 33% DEET (microencapsulated) are registered in Canada and these should provide six to eight hours of protection.

The PPM should be tailored by the risk of exposure for the individual traveller, keeping in

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mind the anopheline mosquito (malaria) and culex mosquito (Japanese encephalitis virus) bite from dusk to dawn, while the Aedes mosquito (dengue virus and yellow fever virus) bites during the daytime.

Flies are pests and should be kept away from food where they can spread diarrheal diseases. Clothing should be dried inside in a screened area or ironed before wear to prevent/kill eggs laid, which can lead to an unpleasant condition called myiasis (fly larvae infestation of the skin).

4. Thou Shalt Not Walk Barefoot

Minor foot injuries can turn into major problems in the tropics, therefore, it is best to be careful with your feet. Walking barefoot allows the opportunity to pick up uninvited guests such as hookworms, strongyloides and tunga penetrans.

It has been said that travel “broadens the mind and loosens the bowels.” Commandments 5 to 7 cover food and water precautions, probably the most important interventions for preventing illness during travel. Many people remember the phrase: “Boil it, cook it, peel it or forget it.”

5. Thou Shalt Purify Water That Thou Drinketh

This applies to ice cubes, as well. Purification of water can be carried out by many means, such as boiling, chemical treatment, filtration, or portable purifiers. Filtration will not kill all organisms and a combination of filtration plus chemical treatment is optimal if boiling is not practical. If you are going to use a combination method, filtration should be used initially to

remove particulate matter prior to chemical treatment. Five drops of 2% iodine per litre left to stand for one hour, or two drops of chlorine bleach per litre left to stand for 30 minutes, should provide clean water for consumption. Bringing water to a boil is another alternative. Be aware that ice made from untreated water and added to drinks also can contain a number of microbes.

6. Thou Shalt Cook Thy Food Well

The reason for eating well-cooked and hot food is to avoid the common enterotoxogenic *Escherichia coli* (ETEC) (also known as Tourista, Delhi belly, Montezuma’s revenge, *etc.*), as well as other microbes, including bacteria, viruses and parasites.

7. Thou Shalt Wash and Peel Thy Fruit & Vegetables

Unfortunately, strict adherence to food and water precautions, as outlined in commandments 5 to 7, does not guarantee a diarrhea-free journey. Some things remain beyond the travellers’ control. It is imperative, therefore, to have a plan to manage diarrheal illness, which can occur in up to 50% to 60% of travellers to exotic destinations. Maintaining hydration is paramount and self-treatment with an antimotility agent, such as loperamide and/or an antibiotic (*i.e.*, ciprofloxacin or azithromycin) can significantly reduce the length of diarrheal illness. Bloody diarrhea or diarrhea with high fever require immediate medical attention, since they suggest an invasive pathogen or complicated course.

8. Thou Shalt Bring and Wear Prophylactics

Prophylactics include malaria prophylaxis, sunscreen to prevent sunburn and latex condoms to prevent sexually transmitted diseases (STDs) and human immunodeficiency virus (HIV).

A review of malaria prevention is beyond the scope of this article and readers are advised to consult the Canadian Guidelines for the Prevention and Treatment of Malaria to determine requirements for and optimal choice of malaria chemoprophylactic agents.¹³ Health-care providers must ensure the traveller understands his/her individual risk of malaria and should discuss strategies to prevent the disease. Travellers should be educated about the chemoprophylaxis to be taken, including the drug's risks and benefits. No malaria prevention strategy is 100% effective, therefore, any fever in a traveller who has visited a malaria-endemic area should be considered as malaria until proven otherwise. Specifically, any fever or flu-like illness, particularly while travelling or in the first three months after return, requires immediate medical evaluation, including blood films, to rule out malaria.

9. Thou Shalt Not Swim in Fresh Water

Fresh water swimming should be avoided in areas where schistosomiasis or *Bilharzia* is known to occur. In these areas, swimming should be limited to the ocean or chlorinated swimming pools. Exposure to water during times of flooding may put travellers at risk of leptospirosis.

10. Thou Shalt Be Wary of Thy Conveyance

Accidents account for 25% of deaths abroad. Common sense should prevail. One should be

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careful to wear seatbelts if available (in many countries seatbelts are unavailable or not usable), avoid alcohol when planning to use a motor vehicle, know the local laws of the road, and, if possible, avoid night driving. Motorbikes and bicycles account for many injuries, therefore, helmets should be worn.

It is prudent to discuss the requirements for a first aid kit and the possibility to carry needles and syringes for use by a health-care provider in the destination country, if medical care is required. This should decrease the chance of nosocomial bloodborne pathogen transmission. If travellers choose to carry needles and syringes, they should also carry an official disclaimer stating they are only intended for medical use.

Medical insurance coverage is something every traveller should have, but hope to never use. Travellers should ensure their policy covers previous underlying conditions and medical evacuation, if required.

Summary

In summary, with guidance, such as that outlined by the 10 commandments of travel, health-care providers can assist travellers by providing up-to-date preventive travel medicine advice based on an individual risk assessment using readily available resources. Alternatively, they can refer travellers to health-care providers or clinics with a special interest in travel medicine. A list of these clinics across Canada can be found at the Travel Medicine Program Web site (see resources). CME

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13. Canadian Recommendations for the Prevention and Treatment of Malaria Among International Travellers. CCDR Vol 26S2. March 2000.

Resources

1. Travel Medicine Program, Health Canada, www.travel-health.gc.ca or through the faxlink service via the headset of a fax 613-941-3900 (Includes all CATMAT statements).
2. International Society of Travel Medicine (ISTM) www.istm.org.
3. US Center for Disease Control and Prevention (CDC) www.cdc.gov/travel.
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5. World Health Organization International Travel and Health. 2001, WHO, Geneva.
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