

2 Chapter 2 Preparing International Travelers

◀ Chapter 1 - *Perspectives: Why Guidelines Differ*

Chapter 2 - *Perspectives: Travelers' Perception of Risk* ▶

The Pretravel Consultation

Lin H. Chen, Natasha S. Hochberg

The pretravel consultation offers a dedicated time to prepare travelers for the health concerns that might arise during their trips. The objectives of the pretravel consultation are to:

1. Perform an individual risk assessment.
2. Communicate to the traveler anticipated health risks.
3. Provide risk management measures, including immunizations, malaria prophylaxis, and other medications as indicated.

THE TRAVEL MEDICINE SPECIALIST

Travel medicine specialists have in-depth knowledge of immunizations, risks associated with specific destinations, and the implications of traveling with underlying conditions. Therefore, a comprehensive consultation with a travel medicine expert is indicated for all travelers, and is particularly important for those with a complicated health history, special risks (such as traveling at high altitudes or working in refugee camps), or exotic or complicated itineraries. Clinicians who wish to be travel medicine providers are encouraged to join the International Society of Travel Medicine (ISTM) and consider specialty training and certification.

COMPONENTS OF A PRETRAVEL CONSULTATION

Effective pretravel consultations require attention to the health background of the traveler and incorporate the itinerary, trip duration, travel purpose, and activities, all of which determine health risks (Table 2-01). The pretravel consultation is the major opportunity to educate the traveler about health risks at the destination and how to mitigate them. The typical pretravel consultation does not include a physical examination; a separate appointment with the same or a different provider may be necessary to assess a person's fitness to travel. Because travel medicine clinics are not available in some communities, primary care physicians should seek guidance (by phone or other communication, if available) from travel medicine specialists to address areas of uncertainty.

Travel health advice should be personalized, highlighting the likely exposures and also reminding the traveler of ubiquitous risks, such as injury, foodborne and waterborne infections, vectorborne disease, respiratory tract infections, and bloodborne and sexually transmitted infections. Balancing the cautions with an appreciation of the positive aspects of the journey leads to a more meaningful pretravel consultation. Attention to the cost of recommended interventions may be critical. Some travelers may not be able to afford all of the recommended immunizations and medications, a situation that requires prioritizing interventions. (See [Prioritizing Care for the Resource-Limited Traveler](#) later in this chapter.)

Table 2-01. Information necessary for a risk assessment during pretravel consultations

Health Background

Past medical history	<ul style="list-style-type: none"> • Age • Sex • Underlying conditions • Allergies (especially any pertaining to vaccines, eggs, or latex) • Medications
Special conditions	<ul style="list-style-type: none"> • Pregnancy (including trimester) • Breastfeeding • Disability or handicap • Immunocompromising conditions or medications • Older age • Psychiatric condition • Seizure disorder • Recent surgery • Recent cardiopulmonary event • Recent cerebrovascular event • History of Guillain-Barré syndrome • Severe allergies
Immunization history	<ul style="list-style-type: none"> • Routine vaccines • Travel vaccines
Prior travel experience	<ul style="list-style-type: none"> • Experience with malaria chemoprophylaxis • Experience with altitude • Illnesses related to prior travel
Trip Details	
Itinerary	<ul style="list-style-type: none"> • Countries and specific regions, including order of countries if >1 country • Rural or urban
Timing	<ul style="list-style-type: none"> • Trip duration • Season of travel • Time to departure
Reason for travel	<ul style="list-style-type: none"> • Tourism • Business • Visiting friends and relatives • Volunteer, missionary, or aid work • Research or education • Adventure • Pilgrimage • Adoption • Seeking health care (medical tourism)

Travel style	<ul style="list-style-type: none"> • Independent travel or package tour • Propensity for "adventurous" eating • Traveler risk tolerance • General hygiene standards at destination • Modes of transportation • Accommodations (such as tourist or luxury hotel, guest house, hostel or budget hotel, dormitory, local home or host family, or tent)
Special activities	<ul style="list-style-type: none"> • Disaster relief • Medical care (providing or receiving) • High altitude • Diving • Cruise ship • Rafting or other water exposure • Cycling • Extreme sports • Spelunking • Anticipated interactions with animals • Anticipated sexual encounters

Assess Individual Risk

Many elements merit consideration in assessing a traveler's health risks ([Table 2-01](#)). Certain travelers may confront special risks. Recent hospitalization for serious problems may lead the travel health provider to recommend delaying travel. Air travel is contraindicated for certain conditions, such as <3 weeks after an uncomplicated myocardial infarction and <10 days after thoracic or abdominal surgery. The travel health provider and traveler should consult with the relevant health care providers most familiar with the underlying illnesses. Other travelers with specific risks include travelers who are visiting friends and relatives, long-term travelers, travelers with small children, travelers with chronic illnesses, immunocompromised travelers, and pregnant travelers. More comprehensive discussion on advising travelers who have additional health considerations is available in [Chapter 5](#). Providers should determine whether recent outbreaks or other safety notices have been posted for the traveler's destination; information is available on the CDC and US Department of State websites, and in various other resources.

In addition to recognizing the traveler's characteristics, health background, and destination-specific risks, the exposures related to special activities also merit discussion. For example, river rafting could expose a traveler to schistosomiasis or leptospirosis, and spelunking in Central America could put the traveler at risk of histoplasmosis. Flying from lowlands to high-altitude areas and trekking or climbing in mountainous regions introduces the risk of altitude illness. Therefore, the provider should inquire about plans for specific leisure, business, and health care-seeking activities.

Communicate Risk

Once destination-specific risks for a particular itinerary have been assessed by the provider, they should be clearly communicated to the traveler. The process of risk communication is a 2-way exchange of information between the clinician and traveler, in which they discuss potential health hazards at the destination and the effectiveness of preventive measures, with the goal of improving understanding of risk and promoting more informed decision making. Risk communication is among the most challenging aspects of a pretravel consultation, because travelers' perception of and tolerance for risk can vary widely. For a more detailed discussion, see [Perspectives: Travelers' Perception of Risk](#) in this chapter.

Manage Risk

Immunizations are a crucial component of pretravel consultations, and the risk assessment forms the basis of recommendations for travel vaccines. For example, providers should consider whether there is sufficient time before travel to complete a vaccine series; the purpose of travel and specific destination within a country will inform the need for particular vaccinations. At the same time, the pretravel consultation presents an opportunity to update routine vaccines (Table 2-02). Particular attention should be paid to vaccines for which immunity may have waned over time or following a recent immunocompromising condition (such as after a hematopoietic stem cell transplant). Asking the question, “Do you have any plans to travel again in the next 1–2 years?” may help the traveler justify an immunization for travel over a number of years rather than only the upcoming trip, such as rabies preexposure or Japanese encephalitis. Travelers should receive a record of immunizations administered and instructions to follow up as needed to complete a vaccine series.

Another major focus of pretravel consultations for many destinations is the prevention of malaria. Malaria continues to cause substantial morbidity and mortality in travelers. Since 1973, the annual number of US malaria cases reported to CDC has shown an increasing trend; therefore, pretravel consultation must carefully assess travelers' risk for malaria and recommend preventive measures. For travelers going to malaria-endemic countries, it is imperative to discuss malaria transmission, ways to reduce risk, recommendations for prophylaxis, and symptoms of malaria.

Travelers with underlying health conditions require attention to their health issues as they relate to the destination and activities. For example, a traveler with a history of cardiac disease should carry medical reports, including a recent electrocardiogram. Asthma may flare in a traveler visiting a polluted city or from physical exertion during a hike; travelers should be encouraged to discuss with their primary care provider how to plan for treatment and bring necessary medication in case of asthma exacerbation. Travelers should be counseled on how to obtain travel medical insurance and how they can find reputable medical facilities at their destination, such as using the ISTM website (www.istm.org), the American Society of Tropical Medicine and Hygiene website (www.astmh.org), or the State Department Travel website (<https://travel.state.gov/content/travel/en/international-travel/before-you-go/your-health-abroad.html>). Any allergies or serious medical conditions should be identified on a bracelet or a card to expedite medical care in emergency situations.

The pretravel consultation also provides another setting to remind travelers of basic health practices during travel, including frequent handwashing, wearing seatbelts, using car seats for infants and children, and safe sexual practices. Topics to be explored are numerous and could be organized into a checklist, placing priority on the most serious and frequently encountered issues (Table 2-03, Box 2-01). General issues such as preventing injury and sunburn also deserve mention. Written information is essential to supplement oral advice and enable travelers to review the instructions from their clinic visits; educational material is available on the CDC Travelers Health webpage (www.cdc.gov/travel). Advice on self-treatable conditions may minimize the need for travelers to seek medical care while abroad and possibly lead to faster return to good health.

Table 2–02. Vaccines to update or consider during pretravel consultations

VACCINE	TRAVEL-RELATED OCCURRENCES AND RECOMMENDATIONS
Routine Vaccines (Vaccination considerations should be based on ACIP guidelines.)	
<i>Haemophilus influenzae</i> type b	No report of travel-related infection, although organism is ubiquitous.
Hepatitis B	Recommended for travelers visiting countries where HBsAg prevalence is $\geq 2\%$. Vaccination may be considered for all international travelers, regardless of destination, depending upon the traveler's behavioral risk and potential for exposure as determined by the provider and traveler.

VACCINE	TRAVEL-RELATED OCCURRENCES AND RECOMMENDATIONS
Human papillomavirus (HPV)	No report of travel-acquired infection; however, sexual activity during travel may lead to HPV and other sexually transmitted infections.
Influenza	Year-round transmission may occur in tropical areas. Outbreaks have occurred on cruise ships, and 2009 influenza A (H1N1) illustrated the rapidity of spread via travel. Novel influenza viruses such as avian influenza H5N1 and H7N9 can be transmitted to travelers visiting areas with circulation of these viruses.
Measles, mumps, rubella	Infections are common in countries and communities that do not immunize children routinely, including Europe. Outbreaks have occurred in the United States as a result of infection in returning travelers.
Meningococcal	Outbreaks occur regularly in sub-Saharan Africa in the "meningitis belt" during the dry season, generally December through June, although transmission may occur at other times for those with close contact with local populations. Outbreaks have occurred with Hajj pilgrimage, and the Kingdom of Saudi Arabia requires the quadrivalent vaccine for pilgrims.
Pneumococcal	Organism is ubiquitous and causal relationship to travel is difficult to establish.
Polio	Unimmunized or underimmunized travelers can become infected with either wild poliovirus or vaccine-derived poliovirus. Because the international spread of wild poliovirus in 2014 was declared a Public Health Emergency of International Concern under the International Health Regulations, temporary recommendations for polio vaccination are in place for countries with wild poliovirus circulation for their residents, long-term visitors, and international travelers.
Rotavirus	Common in developing countries, although not a common cause of travelers' diarrhea in adults. The vaccine is only recommended in young children.
Tetanus, diphtheria, pertussis	Rare cases of diphtheria have been attributed to travel. Pertussis has occurred in travelers, recently in adults whose immunity has waned.
Varicella	Infections are common in countries that do not immunize children routinely, as in most developing countries. Naturally occurring disease tends to affect adults.
Zoster	Travel (a form of stress) may trigger varicella zoster reactivation, but causal relationship is difficult to establish.
Travel Vaccines	

VACCINE	TRAVEL-RELATED OCCURRENCES AND RECOMMENDATIONS
Cholera	Cases in travelers have occurred recently in association with travel to Haiti.
Hepatitis A	Prevalence of hepatitis A virus infection may vary among regions within a country. Serologic testing may be considered in travelers from highly endemic countries since they may be immune. Some travel health providers advise people traveling outside the United States to consider hepatitis A vaccination regardless of their country of destination.
Japanese encephalitis	Rare cases have occurred, estimated at <1 case/1 million travelers to endemic countries. However, the severe neurologic sequelae and high fatality rate warrant detailed review of trip plans to assess the level of risk.
Rabies	Rabies preexposure immunization simplifies postexposure immunoprophylaxis, as adequately screened immunoglobulin may be difficult to obtain in many destinations.
Tickborne encephalitis [vaccine not available in the United States]	Cases have been identified in travelers with an estimated risk of 1/10,000 person-months in travelers. Endemic areas are expanding in Europe.
Typhoid	UK surveillance found the highest risk to be travel to India (6 cases/100,000 visits), Pakistan (9 cases/100,000 visits), and Bangladesh (21 cases/100,000 visits), although risk is substantial in many destinations.
Yellow fever	Risk occurs mainly in defined areas of sub-Saharan Africa and the Amazonian regions of South America. Some countries require proof of vaccination for entry. For travelers visiting multiple countries, order of travel may make a difference in the requirements.

Abbreviation: HBsAg, hepatitis B surface antigen.

Table 2-03. Major topics for discussion during pretravel consultations

Immunizations	<ul style="list-style-type: none"> Review routine immunizations and those travel immunizations indicated for the specific itinerary and based on the traveler's medical history. Discuss utility of titers when records are unavailable or unreliable, particularly for measles, mumps, rubella, hepatitis A, and varicella. Screen for chronic hepatitis B for people born in countries with HBsAg prevalence $\geq 2\%$ (see Map 4-04). Discuss indications for, effectiveness of, and adverse reactions to immunizations.
---------------	---

Malaria chemoprophylaxis	<ul style="list-style-type: none"> • Determine if there is a risk of malaria. • Discuss personal protective measures. • Discuss risks and benefits of chemoprophylaxis and recommended choices of chemoprophylaxis for the itinerary.
Other vectorborne diseases	<ul style="list-style-type: none"> • Define risk of disease in specific itinerary and insect precautions needed.
Respiratory illnesses	<ul style="list-style-type: none"> • Discuss areas of particular concern (such as avian influenza in Asia or MERS in the Arabian Peninsula). • Consider influenza treatment for high-risk travelers.
Travelers' diarrhea	<ul style="list-style-type: none"> • Recommend strategies to decrease risk of diarrhea. • Discuss antibiotics for self-treatment, adjunct medications such as loperamide, and staying hydrated.
Altitude illness	<ul style="list-style-type: none"> • Determine if the itinerary puts the traveler at risk of altitude illness. • Discuss preventive measures such as gradual ascent, adequate hydration, and medications to prevent and treat.
Other environmental hazards	<ul style="list-style-type: none"> • Caution travelers to avoid contact with animals to reduce the potential for bites and scratches that can transmit rabies. • Advise travelers to avoid walking barefoot to avoid certain parasitic infections. • Advise travelers to avoid wading or swimming in freshwater where there is risk for schistosomiasis or leptospirosis. • Remind travelers to apply sunscreen to skin exposed to the sun.
Personal safety	<ul style="list-style-type: none"> • Discuss precautions travelers can take to minimize risks, such as traffic accidents, alcohol excess, personal assault, robbery, or drowning. • Provide information on travel health and medical evacuation insurance. • Advise travelers to look for security bulletins related to their destination and consider areas to avoid.
Bloodborne pathogens	<ul style="list-style-type: none"> • Inform travelers who will provide health care overseas what to do in case of needlestick or bloodborne pathogen exposure. • Discuss use of postexposure prophylaxis for HIV. • See Box 2-01 for summary on sexual health recommendations for travelers.
Disease-specific counseling	<ul style="list-style-type: none"> • Remind travelers to keep medications and supplies in carry-on luggage. • Advise travelers to prepare for exacerbations or complications from underlying disease.

Abbreviation: HBsAg, hepatitis B surface antigen; MERS, Middle East respiratory syndrome.

Box 2-01. Summary of sexual health recommendations for travelers**BEFORE TRAVEL**

- Obtain recommended vaccinations, including those that protect against sexually transmitted infections.
- Get recommended tests for HIV and treatable STDs. Be aware of STD symptoms in case any develop.
- Check condom packaging and expiration dates.
- Review local laws about sexual practices and obtain contact information for medical and law enforcement services.
- If pregnant or considering pregnancy, review whether Zika virus infection is a risk at destination.

DURING TRAVEL

- Use good judgment in choosing consensual adult sex partners.
- Use condoms consistently and correctly to decrease the risk of HIV and STDs.
- If indicated, be prepared to start taking medications for HIV postexposure prophylaxis or unintended pregnancy within 72 hours after a high-risk sexual encounter.
- Never engage in sex with a minor (<18 years old), child pornography, or trafficking activities in any country.
- Report suspicious activity to US and local authorities as soon as it occurs.

AFTER TRAVEL

- To avoid exposing sex partners at home, see a clinician to get recommended tests for HIV and treatable STDs.

BIBLIOGRAPHY

Self-Treatable Conditions

Despite providers' best efforts, some travelers will become ill. Obtaining reliable and timely medical care during travel can be problematic in many destinations. As a result, prescribing certain medications in advance can empower the traveler to self-diagnose and treat common health problems. With some activities in remote settings, such as trekking, the only alternative to self-treatment would be no treatment. Pretravel counseling may result in a more accurate self-diagnosis and treatment than relying on local medical care in some areas. In addition, the increasing awareness of substandard and counterfeit drugs in pharmacies in the developing world makes it more important for travelers to bring quality manufactured drugs with them from a reliable supplier in their own country (see [Chapter 6, Perspectives: Avoiding Poorly Regulated Medicines and Medical Products during Travel](#)).

Travel health providers need to recognize the conditions for which the traveler may be at risk, and educate the traveler about the diagnosis and treatment of those conditions. The keys to successful self-treatment strategies are providing a simple disease or condition definition, providing a treatment, and educating the traveler about the expected outcome of treatment. Using travelers' diarrhea as an example, a practitioner could provide the following advice:

- "Travelers' diarrhea" is the sudden onset of abnormally loose, frequent stools.
- Most cases will resolve within 2–5 days, and symptoms can be managed with loperamide or bismuth subsalicylate.
- For diarrhea severe enough to interrupt travel plans, an antibiotic can be prescribed that travelers can carry with them (see [Travelers' Diarrhea](#) section in this chapter).
- The traveler should feel better within 6–24 hours.
- If symptoms persist for 24–36 hours despite self-treatment, it may be necessary to seek medical attention.

To minimize the potential negative effects of a self-treatment strategy, the recommendations should follow a few key points:

- Drugs recommended must be safe, well tolerated, and effective for use as self-treatment.
- A drug's toxicity or potential for harm, if used incorrectly or in an overdose situation, should be minimal.
- Simple and clear directions are critical. Consider providing handouts describing how to use the drugs. Keeping the directions simple will increase the effectiveness of the strategy.

The following are some of the most common situations in which people would find self-treatment useful. The extent of self-treatment recommendations offered to the traveler should reflect the remoteness and difficulty of travel and the availability of reliable medical care at the destination. The recommended self-treatment options for each disease are provided in the designated section of the Yellow Book or discussed below.

- Travelers' diarrhea ([Chapter 2, Travelers' Diarrhea](#))
- Altitude illness ([Chapter 3, High-Altitude Travel & Altitude Illness](#))
- Jet lag ([Chapter 8, Jet Lag](#))
- Motion sickness ([Chapter 8, Motion Sickness](#))
- Respiratory infections ([Chapter 11, Respiratory Infections](#))
- Skin conditions such as allergic reactions or superficial fungal infections ([Chapter 11, Skin & Soft Tissue Infections](#))
- Urinary tract infections: common among many women; carrying an antibiotic for empiric treatment may be valuable
- Vaginal yeast infections: self-treatment course of patient's preferred antifungal medication can be prescribed for women who are prone to infections, sexually active, or who may be receiving antibiotics for other reasons (including doxycycline for malaria chemoprophylaxis)
- Occupational exposure to HIV ([Chapter 9, Health Care Workers, Including Public Health Researchers and Laboratorians](#))
- Malaria self-treatment (see [Chapter 4, Malaria](#))

In sum, travelers should be encouraged to carry a travel health kit with prescription and nonprescription medications. Providers should review medication lists for possible drug interactions. More detailed information for providers and travelers is given in [Chapter 6, Travel Health Kits](#); supplementary travel health kit information for travelers with specific needs is given in Chapter 5.

BIBLIOGRAPHY

1. Freedman DO, Chen LH, Kozarsky P. Medical considerations before travel. *N Engl J Med*. 2016 July 21;375:247–60.
2. Hatz CFR, Chen LH. Pre-travel consultation. In: Keystone JS, Freedman DO, Kozarsky PE, Connor BA, Nothdurft HD, editors. *Travel Medicine*. 3rd ed. Philadelphia: Saunders Elsevier; 2013. pp. 31–6.
3. Hill DR, Ericsson CD, Pearson RD, Keystone JS, Freedman DO, Kozarsky PE, et al. The practice of travel medicine: guidelines by the Infectious Diseases Society of America. *Clin Infect Dis*. 2006 Dec 15;43(12):1499–539.
4. International Society of Travel Medicine. Body of knowledge for the practice of travel medicine—2012. Atlanta: International Society of Travel Medicine; 2012 [cited 2018 Feb 18]. Available from: www.istm.org/bodyofknowledge.
5. Kozarsky PE, Steffen R. Travel medicine education—what are the needs? *J Travel Med*. 2016 Jul 4;23(5).
6. Leder K, Chen LH, Wilson ME. Aggregate travel vs. single trip assessment: arguments for cumulative risk analysis. *Vaccine*. 2012 Mar 28;30(15):2600–4.
7. Leder K, Torresi J, Libman MD, Cramer JP, Castelli F, Schlagenhauf P, et al. GeoSentinel surveillance of illness in returned travelers, 2007–2011. *Ann Intern Med*. 2013 Mar 19;158(6):456–68.
8. Schwartz BS, Larocque RC, Ryan ET. In the clinic: travel medicine. *Ann Intern Med*. 2012 Jun 5;156(11):ITC6:1–16.
9. Steffen R, Behrens RH, Hill RD, Greenaway C, Leder K. Vaccine-preventable travel health risks: what is the evidence—what are the gaps? *J Travel Med*. 2015;22(1):1–12.
10. Riddle MS, Connor BA, Beeching NJ, DuPont HL, Hamer DH, Kozarsky P, et al. Guidelines for the prevention and treatment of travelers' diarrhea: a graded expert panel report. *J Travel Med*. 2017 Apr 1;24(suppl_1):S57–S74.

◀ [Chapter 1 - Perspectives: Why Guidelines Differ](#)

[Chapter 2 - Perspectives: Travelers' Perception of Risk](#) ▶
