Travel Clinic Operations Guide

Edition 5

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Malaria

Extremely high transmission occurs throughout the year, predominantly *P. falciparum*.

- Evening and nighttime insect precautions are essential.
- Provide Rx for mefloquine, atovaquone/proguanil (A/P), or doxycycline for malaria prophylaxis; encourage traveler to carry enough antimalarials for entire trip, as effective drugs may not be available.
- Because this traveler is staying longer than 3 weeks, consider providing a treatment dose of co-artemether or atovaquone/proguanil (if A/P is not chosen for prophylaxis), in case the prophylactic drug fails; instruct traveler that treatment dose should be administered under the supervision of a qualified local health care provider.

Traveler's diarrhea

High risk exists throughout the country.

- Food and beverage precautions are essential.
- Traveler should carry loperamide and/or be given Rx for ciprofloxacin for presumptive self-treatment.

Other recommendations

Tuberculosis: Ethiopia has a high incidence of TB. Since this traveler is staying for > 1 month, he should receive a pre-departure PPD skin test and be instructed to avoid crowded public places and public transportation, if possible.

Dengue: Low risk. Daytime insect precautions are recommended.

Leishmaniasis occurs. Evening and nighttime insect precautions are recommended.

Schistosomiasis presents significant risk. Avoid freshwater exposure.

Medical evacuation: Adequate evacuation insurance coverage is a high priority. In the event of a serious medical condition, medical evacuation to Nairobi, Kenya, is likely to be necessary.

Traveler education

Education of the traveler returning to his home country is especially important, because he is at extremely high risk for health problems.

- Family in his home country will not be taking antimalarial medication, so it is important to explain that any immunity he may have developed while growing up will have been lost during the years in the U.S. He should be advised not to stop the medication, even if family and/or friends try to pressure him.
- Mosquito precautions are essential. The importance of using insect repellents, mosquito nets (if available), and protective clothing should be stressed.
- Great care should be taken with food and water concerns. The patient should be reminded that his immunity to the local bacteria has also waned while he has been away. He should drink only safe beverages (such as boiled, treated, or pre-bottled, carbonated water) and stick to hot, cooked foods. Tactfully discuss the difficulties in choosing foods while eating with friends and family.
- Explain how to deal with illness abroad, what to do if he is ill or if bitten by a dog, and review self-treatment for diarrhea and malaria.

Conclusion

- Methodically work through the patient's history, gathering any data possible and deciding on the best solution given the patient's desires and financial capability.
- Remember that many people who grew up in an area endemic for hepatitis A or B may have positive antibody tests and may not need immunization.
- Education of the traveler returning home to a developing country is one of the biggest challenges of the travel health advisor. It is often not possible for the traveler to adhere to the usual guidelines given to the typical tourist. Giving too much information, especially in the form of impossible "do's and don'ts" will overwhelm the traveler and make him far less likely to adhere to the more important recommendations. Stress the most crucial items and the fact that a febrile illness acquired while traveling or on return to the U.S. requires immediate medical evaluation.

CASE 2: THE TRAVELER WHO DOESN'T KNOW WHERE HE IS GOING

Dave is a 25-year-old male with plans to travel for "as long and as far as my savings account will get me." He just graduated from law school and wants to "see the world before I settle down and work 80 hours a week." He thinks he needs "some shots and some antibiotics" and plans to leave next week.

All travel health professionals eventually encounter the challenge of the traveler with no set itinerary. Travelers such as Dave seek care in many different travel health settings. College health clinics often see students with open-ended travel plans. Certain well-recognized

occupational groups, including the international press, disaster relief workers, and global couriers, often travel without definitive itineraries. The newly married and the newly retired are others who may travel with some spontaneity built into their trip plans.

How can the clinician best prepare these travelers for safe and healthy, yet not-fully-defined, journeys?

At the outset, the clinician may be somewhat overwhelmed by the challenge of seemingly preparing a patient for travel to potentially anywhere or everywhere. In reality, this is rarely the case. Begin by helping this client better define his clinical expectations and needs and clarify his travel plans.

1. Does the traveler really understand the potential hazards of travel and the scope of travel health preparation? Does he understand that health and safety risks increase with trip duration? Dave had read a little about hepatitis but knew nothing about vector-borne disease, food and water sanitation, sexually transmitted diseases, the high incidence of accidents in travel, or freshwater hazards.
2. Goals and limitations of pre-trip care: Does the client seek maximum preparation without consideration for time or cost? Or does he have specific goals and/or limitations for the intervention, no matter where he finally chooses to travel? Can he delay the trip? Dave thought 4 days of preparation time would be plenty and was visibly shocked to learn the cost of some common travel vaccines.
3. Does this client have any special travel health needs or issues? Disabilities? Chronic or unstable medical or dental problems that may have an impact on travel? Allergies to travel health medications? Special at-risk travel plans, such as scuba diving, mountain climbing, etc.? Dave was healthy and took no regular medications. He did have questions about preventing AIDS while traveling. He planned to try lots of new things while traveling, including bungee jumping and parasailing.
4. What previous travel health care has this client received? What is his immunization history? What experience does he have with travel health medications? What is his level of self-care knowledge, including first aid and accessing medical resources abroad?
5. By now, the client should be able to better define his trip. Is it still as open-ended as first described? As part of the consultation service, he has already learned more about travel hazards and travel health preparation. He most likely recognizes the importance of better defining his journey. If not, it may be necessary to continue to ask questions. For example, employees who say they need to leave on a moment's notice to "fly anywhere" actually may work for companies only serving the Western Hemisphere. Or retirees who want to "see the world" may hate the cold and have no plans to set foot in the northern latitudes. Even reporters who cover the world's "hot spots" usually can predict their next few assignments.

With the history complete, it is necessary to know answers to these classic assessment questions to best prepare the client:

- What is the final itinerary?
- In terms of priority, what are the highest health risk destinations and activities of this trip?
- Will any "required" vaccines be necessary, such as yellow fever or meningitis?
- Can the risk of malaria be eliminated? Which type and how much malaria medication will he need?
- What is the general and potential risk level of accommodations and types of transport?
- Is the client a risk-taker?
- Will he travel solo or with others?
- Do the clinic and the client have the resources (time, funds, vaccine supply, etc.) to fully prepare before departure?
- What other services will he need before departure (lab work, dental care, etc.)?
- What health resources may he need during his trip: services, insurance, Internet resources?
- What will be the contents of his travel medical kit?
- How does this client learn best: counseling or reading?

After completing the pre-trip assessment and doing some more thinking about his trip, Dave decided he would visit Australia, Asia, and the Pacific Islands, to include Japan, China, Malaysia, Thailand, Vietnam, French Polynesia, Papua New Guinea, and Guam); while traveling, he also decided to visit India. He made the personal choice to forgo some spontaneity to maximize his health and safety. He asked to read everything available about potential health issues for this trip.

Recommendations for this traveler

Immunizations

- **Vaccines:** Provide required and recommended vaccines appropriate to this traveler and destinations. (*See table below for vaccine recommendations.)* Base recommendations on proposed travel areas with the highest risks, projected duration of travel, and expected travel style, as well as immunization history. Discuss the advantages of "pre-loading" immunizations when future needs are not always known or predictable. Help him make decisions about rabies, Japanese encephalitis, hepatitis B, tetanus, pertussis, and diphtheria, typhoid, and cholera using up-to-date resources to ascertain risk.
- **Finances:** As needed, explore ways to obtain all recommended vaccines if money is an issue, as is often the case in college settings. By contrast, in the corporate setting, it is customary to maximally prepare employees. Factor in any future travel plans when addressing this issue. Immunizations have 3 costs: vaccine cost, visit charges, and the value of client time.
- **Time constraints:** Decide with the client if he can complete the recommended series prior to departure. Consult accelerated schedules as needed. Consider directing the client to services abroad if additional immunizations are indicated.
- **Document:** Thoroughly document all care, including full immunization details, such as manufacturer, because this client may need to seek care abroad.

- **Important:** Educate the client about the need to verify immunization requirements and recommendations if he adds destinations. This may be critical if he has elected not to receive all recommended immunizations recommended.

Dave had adequate funds for a full set of immunizations and wanted to get everything. He chose to postpone his trip by a month and complete his immunizations.

Vaccine	**Recommended**	**Comments**
Cholera	No	Vaccine not available in U.S.; recommended only for aid and refugee workers.
Hepatitis A	Yes	Recommended for all travelers. Give HepA/B on days 0, 7, and 21. Instruct traveler to return in 12 months for booster dose. While the normal schedule cannot be used due to time constraints, an acceptable accelerated schedule to protect against hepatitis B (as well as hepatitis A) can be used for persons traveling to endemic areas on short notice.
Hepatitis B	Yes	*See above.*
Influenza	Yes	Recommended for all travelers. He has not had influenza vaccine this season.
Japanese encephalitis	Yes	Risk exists in several of his potential destinations. Give 2 doses (days 0 and 28). Instruct traveler that the second dose will not be able to be given 1 week before possible exposure, so strict insect precautions are necessary.
MMR	No	Had 2 doses MMR as a child. (Childhood immunization records provided by mother.)
Meningococcal	No	Not in risk area.
Polio	Yes (booster)	Had primary series as a child, but has not had a 1-time adult booster.
Rabies preexposure series	Yes	Risk exists in several potential destinations (e.g., Thailand, China, Vietnam, etc.). Since traveler does not know if he will always be within 24 hours of reliable source of HRIG and vaccine, he opts to receive rabies preexposure series for maximum preparedness.
Td/Tdap	Yes (Tdap)	Had primary series. Has not had 1 dose of Tdap.
TBE	No	Only recommended for travelers with prolonged stays participating in outdoor activities in certain areas of China and Japan. Traveler instructed to practice tick precautions.
Typhoid	Yes	Recommended for all travelers to several of his potential destinations.
Varicella	No	Had chickenpox as a child.
Yellow fever	No	Not required for entry or recommended for protection on this itinerary.

Malaria

Chemoprophylaxis choice

- What are the malaria risks of the possible destinations in this more open itinerary?
    - Risk for both *P. vivax* and *P. falciparum* at potential destinations.
- Are there areas with resistant strains?
    - Mefloquine resistance exists in Thailand and Vietnam.
- Does the client have any contraindications to the use of standard antimalarials?
    - No contraindications.
- Be sure the client knows the potential side effects of any malaria prophylaxis.

Because he may travel to areas of mefloquine resistance, antimalarials recommended were doxycycline or atovaquone/proguanil (A/P). Dave chose to use doxycycline due to the high cost of A/P for a long trip.

Chemoprophylaxis supply:

- Address the issue of medication purchase.
- Discuss the pros and cons of waiting to buy medications abroad.
    - Pros: The medication is purchased only if needed, eliminating the need for storage. Medication prices vary between countries and may be less expensive abroad.
    - Cons: The medication may not be available when needed, quality may be questionable, or language conflicts may occur.
- Dave chose to purchase enough antimalarial to last for the entire trip and was also given names of clinics where he might obtain additional supplies, if needed.

Medication schedule and compliance:

- With an unplanned itinerary, will this client need to take medication continuously or intermittently?
- How well does the client comply with medication schedules?
- Consider providing this client with a calendar to plan his medication intake.
- Dave chose to use the drug continuously while in Asia, and, with the resource list provided, he planned to review malaria issues at clinics in Nepal and Australia.

Review mosquito precautions:

- Will he bring his own bed netting?
- How much repellent is he able to carry?
- Stress the importance of not leaving behind items necessary for health and safety.
- Also discuss ways to obtain these supplies in the regions he plans to visit.

Self-treatment:

- Educate the client to recognize the risk of malaria and the need to seek medical treatment quickly if symptoms occur.
- Unless contraindicated, provide this client with a course of self-treatment of malaria ("stand-by" treatment or "reliable supply") and detailed instructions on how and when to self-treat.
- Provide resources for malaria care abroad.
- Dave was supplied with A/P for self-treatment, along with instructions on how and when it should be used.

Traveler's diarrhea

Risk exists in most of his potential destinations.

- Food and beverage precautions are essential in order to reduce chance of illness.
- Dave will carry loperamide and was given Rx for both ciprofloxacin and azithromycin (for coverage in areas of quinolone resistance, such as Thailand and India) for presumptive self-treatment of diarrhea if it occurs, as well as instructions on use.
    - Because of the increasing incidence of quinolone-resistant *campylobacter* in many countries, azithromycin should be started in all patients who have no response at all to a quinolone in 36-48 hours. In Thailand and India and any other country with known high rates of quinolone resistance, azithromycin should be the first line therapy.

Other recommendations

Recommend the usual guidelines for any travel: up-to-date dental care, evaluation for any acute problems, review of any chronic medical problems, and laboratory testing as indicated. Dave had avoided a dentist for 4 years and required 3 visits to undo the damage. Review the client's health insurance and need for evacuation insurance. He spent some of his trip money to purchase his first health care policy but decided not to get evacuation coverage.

Tuberculosis is common in developing countries. Consider pre-departure PPD skin test. Traveler should avoid crowded public places and public transportation, if possible.

Dengue fever presents a risk, especially in areas of French Polynesia, Malaysia, Papua New Guinea, Thailand, Australia, and Vietnam. Daytime insect precautions are recommended.

Chikungunya presents risk in parts of Asia, Africa, the Caribbean, and the Americas. Daytime insect precautions are recommended.

Leishmaniasis present risks in parts of Asia. Daytime and nighttime insect precautions are recommended.

Monkey bites occur among tourists. Monkeys may transmit a number of diseases, including rabies and herpes B. Avoid feeding monkeys; if bitten, immediately cleanse bites thoroughly with soap or detergent under running water for at least 15 minutes, and seek urgent medical consultation.

Medical kit: Anticipate needs for self-care while traveling. Encourage Dave to prepare a travel medicine kit that maximizes his ability to safely self-treat while traveling but doesn't overburden his luggage. Include a first aid pamphlet, and indicate destinations where he can safely refill his kit.

- Assess the need for additional antibiotics (e.g., for respiratory infections, skin infections, and genital-urinary problems). Dave denied all allergies and took ciprofloxacin and azithromycin in addition to the standard list of travel kit items. Discuss proper transport and safe storage of medications.

- Dave doubled the amount of sunscreen he had originally planned to take and added 2 packets of oral rehydration solution (ORS) to his kit. He also brought an ample supply of his usual brand of condoms. Since Dave was planning to travel solo he purchased a first aid book and asked lots of questions about self-care. He carried the International Society of Travel Medicine listings with him plus some embassy phone numbers.

Medical care: Provide appropriate resources for care and questions abroad. Dave made a last-minute decision to bring a laptop computer and learned how to access a number of travel health websites for future use.

Traveler education

- **Updated information:** Especially for this type of traveler, reiterate the changing nature of travel health risks and recommendations. Encourage the client to check in with U.S. consulates and get regular updates on health conditions and travelers' advisories for the next destination.
- **Paper trail:** For safety's sake, remind the traveler to always keep someone at home informed of his whereabouts and next destination. Recommend that he leave copies of all important papers with that contact person to allow for emergency replacement.
- **Post-travel:** Recommend a post-trip assessment visit. Advise the client to seek care upon return if s/he is symptomatic (especially if s/he has a fever) or otherwise wait for 6 weeks so appropriate laboratory tests (such as schistosomiasis screens) can be performed accurately.
- Emphasize that malaria may occur up to 1 year or more after travel, particularly in the first 2 months. If Dave develops a fever, he should seek medical attention immediately and request blood films to rule out malaria.

Dave added India to his itinerary while traveling, but knew from his consultation to update his pre-travel care before flying into Madras. Dave was sick a few times and used just about everything in his medical kit, but his post-trip exam at 7 weeks was normal.

Conclusion

The client with an open-ended itinerary poses a special challenge. Key elements for successful preparation of this client include: up-to-date travel health references, knowledge of travel health and other medical resources worldwide, adequate preparation time, a client's willingness and ability to engage in self-care education, and flexibility for all involved.

CASE 3: A FAMILY AFFAIR: COORDINATING CARE DELIVERY

A family of 5 is going on a 2-week vacation to Venezuela, leaving 3 months from today. The father grew up in Caracas, where they will be staying with his well-to-do family. However, they will also be traveling to rural areas in the southern part of the country. In addition to the parents, there are 3 children, aged 10 years, 4 years, and 18 months. The first thing the baby does is to toddle over to the computer and push the button to restart the system. No one is listening very well.

After determining travel destination, style of travel, departure date, and length of the trip, review the medical and immunization histories, including current medications and allergies, and discuss the plan for immunizations. In this situation, the patients were all established members of our health care plan so their immunization histories were readily accessible. All 5 clients were in good health, took no regular medications, and had no allergies. The mother was not pregnant.

Immunization and disease history

	Td/Tdap DTP/DtaP	**Last dose Td/Tdap/DtaP**	**Hib**	**Polio**	**MMR**	**Varicella**	**HepB**	**Influenza**
Father	Had Td series, including 1 dose Tdap	Within 3 yrs	No	Had series	Had diseases	Had disease	No	Had vaccine this season
Mother	Had Td series, including 1 dose Tdap	Within 2 yrs	No	Had series	Had 2 doses MMR	Had disease	No	Had vaccine this season
10-year-old	Had DtaP series	5 yrs ago	No	Had series	MMR 2 doses	Had disease	Had series	Had vaccine this season
4-year-old	4 doses DtaP	At age 18 mos	3 doses	3 doses	MMR 1 dose at age 12 mos	Had disease	Had series	Had vaccine this season
18-mo-old	4 doses DtaP	At age 16 mos	4 doses	3 doses	MMR 1 dose at age 12 mos	Had 1 dose vaccine at 12 months.	Had series	Had vaccine this season

Recommendations for these travelers

Immunizations

Assess need to update routine immunizations or for necessary travel vaccines (*see table below).*

Routine vaccines

Father	No routine immunizations needed.
Mother	No routine immunizations needed.
10-year-old	Consider giving adolescent Tdap dose (routinely recommended at age 11-12 yrs).
4-year-old	Give DtaP (4-6 year booster), Hib (booster), and MMR #2 before leaving.
18-month-old	Give MMR #2; *see below for hepatitis A.* Consider accelerating VAR #2. No other routine immunizations are indicated, and it is too early for DTaP 4-6 year booster.

Travel vaccines	**Recommended?**	**Comments**
Hepatitis A	Yes – for all	No one in the family has had this vaccine. Recommended for all since they probably will travel again and will want the long-term protection. In addition, hepatitis A is a routine vaccination for young children, with first dose usually given at age 12-15 months. Give first dose prior to travel, and instruct family to return for a second dose in 6 months.

Influenza	No	All family members have received this season's vaccine, which is the same as the vaccine for the Southern Hemisphere.
Rabies	Discuss with parents	Rabies is a risk, particularly for children. Discuss risk and options, including vaccination (including cost) and avoidance behaviors. (Prioritization of vaccinations may be necessary when costs are prohibitive.)
Typhoid	Optional	If food preparation will be closely monitored, the parents may choose to decline this vaccine. If the vaccine is desired, the parents and the 10-year-old could take the oral typhoid vaccine (a series of 4 capsules) or a single dose of the injectable typhoid vaccine; the 4-year-old would be given a dose of injectable typhoid vaccine. The baby is too young to receive typhoid vaccine; careful food and beverage precautions should be employed.
Varicella	Consider giving second dose to 18-month-old	Second dose may be given 3 months after first dose.
Yellow fever	Yes – for all	Recommended for health protection when traveling in rural risk areas in the southern part of the country.

International Certificate of Vaccination or Prophylaxis: Appointments with families take a great deal of time on the part of the consultant, not the least of which is completing the *International Certificate of Vaccination or Prophylaxis*. At this point, all 5 family members may be anxious to leave, so if it is possible mail the certificates to them or have them return to pick up the certificates later.

Malaria

Malaria, predominantly *P. vivax*, is a risk, especially in the southern part of the country and rural areas of other locations.

- Mefloquine or atovaquone/proguanil (A/P) can be prescribed for malaria chemoprophylaxis, depending on final travel plans for in-country rural excursions.
    - While doxycycline is protective, it cannot be used in children < 8 years of age.
    - Choice of drug can be left to the parents to decide. Mefloquine must be started 2-3 weeks before entering malarious area but is only taken weekly; A/P can be started the day before entering malarious area but requires daily dosing and is more expensive. For the children, the dose will depend on their weight. (*See the package insert or the Shoreland malaria article for dosing*.)
- If they will assuredly not be in rural risk areas, mosquito precautions would be recommended and no Rx.
- Travelers should be instructed to seek immediate medical attention for fever or flu-like illness within 3 months after travel in a malaria risk area. Include mention of travel history.

Traveler's diarrhea

Except for deluxe accommodations, high risk exists everywhere. Offer ciprofloxacin to the parents for self-treatment of traveler's diarrhea. If the parents ask about a prescription for the children, point out the importance of oral rehydration and offer azithromycin for the children (drug of choice for TD treatment in children).

Other recommendations

Dengue fever presents significant risk in urban and rural areas, including in Caracas. Daytime insect precautions are recommended.

Leishmaniasis occurs throughout the country. Daytime and nighttime insect precautions are recommended.

Chagas' disease occurs in rural areas; risk to travelers is unknown but is thought to be negligible. Avoid overnight stays in houses constructed of mud, adobe brick, or palm thatch.

Schistosomiasis presents significant risk in focal areas of Aragua, Carabobo, and Vargas states. Travelers should avoid freshwater exposure in these areas.

Marine hazards may include jellyfish (often causing sea bather's eruption), coral, and sea urchins. Dangerous (potentially deadly) jellyfish are present year-round, but particularly during the rainy season. Children are especially at risk, and adults wading, launching boats, or fishing.

Traveler education

Since the parents may be preoccupied with the children, educating them about travel health issues will be difficult. It may be advisable to lend an educational DVD to the parents, if available, or have 1 parent remain in the office while the rest of the family stays in the waiting room. Having a quiet environment is important when discussing complicated instructions for food and water concerns, traveler's diarrhea, mosquito precautions, prescriptions, and other trip-related information.

Emphasize that malaria may occur up to 1 year or more after travel, particularly in the first 2 months. If 1 of the family members develops a fever, he or she should seek medical attention immediately and request blood films to rule out malaria.

Conclusion

- Make sure the parents know that the appointment will take a long time so waiting does not frustrate them. Suggest they bring along toys or games to occupy the children. In some cases, they may want to bring a babysitter. Consider asking 1 of the parents to set up an appointment to come in alone to provide the patient histories before bringing in the whole family.
- Gather the immunization histories before the appointment.
- Plan a clear, organized education session, referring parents to written materials that they can review later.
- Emphasize the important things: mosquito precautions, taking malaria medication as directed, seriousness of rabies exposure, safety issues, and food and water precautions. With so many family members, a vacation can be ruined if anyone has health problems on the trip.
- Families traveling with children may want to know what signs and symptoms should prompt them to seek medical care while abroad. It may be helpful to have printed information on this subject specifically regarding infants and children.
- Prioritization of immunizations may be necessary when cost is an issue.