



# VIRGINIA EPIDEMIOLOGY BULLETIN

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## Health Promotion and Disease Prevention for Travelers

### Introduction

Each year, more than 40 million Americans work and travel internationally. However, 50-75% of travelers to tropical and subtropical regions report some health impairment, with infectious agents as the most common cause of illness. Fortunately, most travel-related illnesses are preventable through immunization, prophylactic medications, and health education.<sup>1</sup>

As people prepare for travel abroad, part of their planning should include an evaluation by a healthcare provider.<sup>1</sup> This article outlines some of the health-related considerations that need to be made by travelers and providers, as well as resources that exist to fulfill the health-related needs of travelers.

### Travel Medicine

It is essential for a health advisor to know the traveler's age, country of birth, medical history (including allergies), health status, pregnancy status, previous immunizations, reasons for travel, detailed travel itinerary and activities (including stop-overs and excursions, accommodations, association with local populations, and durations of stay), employment or occupation during travel, style of travel, whether travel will be rural or urban, and requirements mandated by the public health authorities of the countries of destination.<sup>1,2</sup> The traveler's budget for vaccines and other

Cardiovascular disease and accidents (motor vehicle accidents and drownings) account for, respectively, 50% and 22% of deaths in travelers. Infectious disease accounts for 1-4% of deaths.<sup>1</sup>

health-related materials will also influence recommendations.

The three main areas for health-related travel recommendations include immunization needs, chemoprophylaxis, and targeted health education.

### Immunizations

Completing an immunization schedule before departure is an important step in preventing travel-related illnesses. Travelers often complicate matters by not allowing enough time to be immunized according to established schedules. Travelers should allow up to eight weeks before departure in case multiple doses of one or more vaccines are necessary.<sup>2</sup>

Immunizations can be divided into:

- Routine—the traveler's visit is an excellent opportunity to review and update their "childhood" or adult immunizations (e.g. tetanus/diphtheria);<sup>1</sup>
- Required—those needed to cross certain international borders. These immunizations must be recorded in the traveler's *International Certificate of Vaccination* or "Yellow Card." Examples may include vaccines for yellow fever or meningococcal meningitis.<sup>1</sup> Although no country requires vaccination for

- cholera, a written waiver for cholera vaccine may be required by local authorities;<sup>2</sup> and,
- Recommended—according to the risk of illness for the destination and activities. Examples may include vaccines for hepatitis A (and/or immune globulin), rabies, and Japanese encephalitis. Vaccines for plague or tuberculosis (Bacille Calmette-Guerin – BCG) may also be considered for some situations.<sup>1</sup>

### Chemoprophylaxis

More than 30,000 North American and European travelers develop malaria each year. However, the increasing prevalence of resistance to chemoprophylactic agents has complicated recommendations (available at [www.cdc.gov/travel/](http://www.cdc.gov/travel/)). Prophylaxis for other vector-borne diseases (e.g., typhus, plague) may also be a consideration, although these are not usually recommended except for select individuals at high risk of infection.<sup>1</sup> Since other regions of the world have different influenza "seasons" from the U.S. the use of influenza antiviral agents may be a consideration.

### Health Education

Health education provides the traveler with skills and behaviors that they can use to reduce the risk of illness while traveling. A very wide range of issues may need to be addressed. Some examples include:

Personal protection—Travelers should be advised about methods to protect themselves from insect-, soil- and water-borne diseases (e.g., malaria, schistosomiasis).



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This includes the use of repellent, appropriate footwear and clothing, and bed netting.

**Travelers' Diarrhea**—Travelers are almost seven times more likely to have diarrhea while traveling abroad than during a similar time span at home.<sup>3</sup> Therefore, food and water precautions should be addressed. A good rule of thumb is, “if you can't peel it or cook it, don't eat it.” In addition, education on the use of handwashing/hand sanitizers, water purifiers, and chemoprophylaxis/self-treatment (oral rehydration therapy, bismuth subsalicylate, loperamide, and antimicrobials, as indicated) may be necessary.<sup>1</sup>

**STDs**—Counseling about preventing sexually transmitted diseases is advisable for patients who may pursue riskier sexual behaviors while they are traveling.

Other dangers that may be discussed with travelers could include the effects of sun exposure (burns, skin cancer) and the use of sunscreen, thermal injuries (e.g., “heat stroke”), altitude sickness, prevention of deep vein thrombosis, and jet lag and motion sickness.<sup>1,2</sup> Additional health-related considerations for travelers may include a dental exam prior to departure and travel evacuation insurance.

### **Travelers with Special Needs**

In general, those with chronic medical conditions and disabilities need only take sensible precautions. Travelers with chronic illnesses should carry a letter from a physician describing the medical condition, copies of prescriptions and the generic names for the drugs, and a listing of all medications and equipment (e.g., needles for diabetics), especially if a medication is unusual or contains narcotics.<sup>5,6</sup> Travelers need to bring an adequate supply of any prescription or over-the-counter medicines.<sup>6</sup> All medications should be kept in carry-on luggage.<sup>5</sup> To avoid problems when passing through customs, keep medicines in their original, labeled containers.<sup>7</sup> Travelers with significant medical conditions should wear medical alert identification bracelets or necklaces.<sup>5</sup>

Additional precautions may be necessary for some conditions. For example:

- **Disabilities:** Travelers should call ahead to ensure the availability of wheelchairs, specially adapted cars,



ground floor rooms, elevators, and other aids. Contingency plans should be made in case the promised aids are not available on arrival.<sup>5</sup>

- **Pregnancy:** Pregnancy is not an absolute contraindication to travel unless complicated by an unstable medical condition or impending labor. However, some activities (e.g., scuba diving) should be curtailed. Pregnant travelers should call their airlines as air travel is contraindicated after the 36<sup>th</sup> week of gestation or with impending labor.<sup>5</sup> Vaccine use, chemoprophylaxis for malaria, and treatment for diarrhea may need to be adjusted in pregnancy.
- **Diabetes:** Serum glucose in diabetics can be affected by exposure to unusual foods, changes in time zones, disease, and varying amounts of exercise. Meals may be delayed or inedible, so diabetics should carry snacks such as crackers, dried fruits, or nuts. Sugar cubes or candy should be carried in case of hypoglycemia.<sup>5</sup>

It is also important for the diabetic traveler to be well equipped, since supplies may be difficult to find in other countries.

Travelers should take enough insulin and syringes to last more than the entire trip, and at least one bottle of regular insulin.

Insulin will remain stable for months at room temperature, but should be protected from extreme heat and from freezing.<sup>5</sup>

- **Heart Disease:** Travel is not recommended for persons with unstable angina, uncontrolled congestive heart failure, or a heart attack within four weeks of travel. A copy of a recent electrocardiogram and a letter describing the traveler's condition is useful. Travelers should tailor their activities to their physical capabilities—a gradual exercise program starting several weeks before a trip may help deconditioned travelers.<sup>5</sup>

Pacemakers may activate metal detectors, therefore travelers should carry a letter from their physician stating that they have a pacemaker. Long-distance telephone connections from foreign countries may interfere with telephone regulation of pacemakers. Mefloquine should not be given concurrently with anti-arrhythmics or beta-blockers<sup>5</sup> and long-term travelers on warfarin should consider having their protime checked abroad.<sup>5</sup>

- **Chronic Lung Disease:** Air travel decreases the partial pressure of oxygen in the blood and may cause symptoms in travelers with chronic lung disease. Since travelers are not permitted to use their own oxygen tanks in flight, supplemental oxygen (available on U.S. airlines) must be ordered in advance<sup>5</sup> and may require a prescription.
- **Immune compromise:** The immune response to vaccinations may be reduced in immunocompromised travelers. There is also the potential

for disseminated infection with live virus vaccines in patients with significant immunosuppression.<sup>5</sup>

Therefore, yellow fever vaccine should be waived in severely immunocompromised persons; however, asymptomatic immunocompromised persons may be offered the choice of vaccination if travel to a high-risk area is unavoidable.<sup>7</sup>

Gastrointestinal

illnesses may be more frequent and more severe in travelers with HIV. Strict food and water precautions, and chemoprophylaxis against traveler's diarrhea, will minimize the risk of severe disease. At all times, travelers should avoid activities that could spread infection to others.<sup>5</sup>

- **Children:** All children should be up-to-date on routine vaccinations. An accelerated vaccination schedule may be possible for children who will spend a long period of time in a developing country. In general, children should also receive approved



and age-appropriate travel vaccinations. Since the yellow fever vaccine may cause encephalitis in infants, it should be deferred until the child is at least six to nine months old. In addition, some agents (e.g., fluoroquinolones, doxycycline) are not approved for use in children. Mefloquine is not approved for use in children under 15 kg.<sup>5</sup>

### Travel Clinics in Virginia

Providing the appropriate travel counseling can require significant expertise and time. In addition, it may not be practical for providers to stock rarely used vaccines. Therefore, specialty travel clinics have been established by some private providers and local health departments in Virginia. For a list of certified yellow fever vaccination sites in Virginia go to [www.vdh.virginia.gov/imm/](http://www.vdh.virginia.gov/imm/). Services and hours of operation vary; therefore clinics should be contacted directly for additional information.

### Conclusions

While travel is generally safe, even a mild illness or injury can ruin a trip.<sup>1</sup> Adequate preparation can minimize the risk

**Medical waivers**—Most countries will accept a medical waiver for not receiving the yellow fever vaccination. A physician's letter that states the reason for withholding the vaccination and that is written on letterhead stationery usually suffices. The letter should bear the stamp used by the healthcare provider or official immunization center to validate the *International Certificate of Vaccination*.

of a poor outcome. However, since recommendations are modified frequently, up-to-date sources should always be reviewed before specific travel advice is given to patients planning trips abroad.<sup>3</sup> If travelers become seriously ill or injured abroad, they should contact the nearest U.S. embassy or consulate. A U.S. consular officer can furnish travelers with a list of local hospitals and English-speaking doctors.<sup>4</sup>

Further information about travel-related health promotion and disease prevention is available from the Centers for Disease Control and Prevention (CDC) website at [www.cdc.gov/travel/](http://www.cdc.gov/travel/). This site includes health updates by region, as well as the CDC's Yellow Book, an important reference for those who advise international travelers of health risks. The site also creates customized reports based on destination, vaccinations, and special needs (e.g., pregnancy, HIV), as well as

provides extensive additional tips for travelers (e.g., health kit checklist, cruise ship travel information).

The World Health Organization (WHO) also offers information for travelers on its International Travel and Health website at [www.who.int/ith/](http://www.who.int/ith/). The U.S. Department of State (<http://travel.state.gov/>) provides additional travel information, including warnings and consular information sheets.

Finally, clinicians should remember that illnesses acquired during travel can appear even after the traveler returns to the U.S. (e.g., STDs, malaria, schistosomiasis). Travelers should be warned that if they become ill, especially with fever, they should immediately inform their physician that they have traveled recently.<sup>1</sup>

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## VA Epidemiologists Conduct Special Surveillance During January 2005

In support of the Presidential Inauguration, Virginia Department of Health (VDH) epidemiologists in the northern region and the central office conducted enhanced health surveillance to detect evidence of possible terrorism attacks. All northern region hospital emergency departments were encouraged to contact the health department if unusual presentations or patterns of cases occurred. In addition, the existing syndromic surveillance systems were used to search for early indicators of disease or outbreaks that might require public health intervention. Under the authority of the *Code of Virginia*, epidemiology staff reviewed data from emergency department chief complaint logs each day

to classify visits into broad symptom categories ("syndromes"). Syndrome tallies were calculated and tracked over time, with higher-than-expected levels evaluated through further review of patient signs and symptoms, and patient demographic data and geographic distribution. Over-the-counter medication sales and ambulatory health care visits in the area were also evaluated. Daily communication with the Maryland and Washington, D.C. health departments helped to coordinate monitoring for the National Capital Region.

Overall, VDH's special surveillance found no unusual disease patterns related to the Presidential Inauguration. However, routine syndromic surveillance will con-

tinue throughout the year to detect outbreaks or potential bioterrorism events.

In addition, nine VDH staff (epidemiologists and planners) worked directly with the District of Columbia Health Department to provide on-site support on the day of the Presidential Inauguration (January 20, 2005). In conjunction with public health and clinical staff from Maryland, D.C. and federal programs such as the U.S. Public Health Service, VDH epidemiologists performed activities that included interviewing patients, tracking demographic information, data entry, and surveillance for patterns or clusters of disease.



**Cases of Selected Notifiable Diseases Reported in Virginia\***

**Total Cases Reported, January 2005**

**Total Cases Reported Statewide,  
January**

Disease	State	Regions					Total Cases Reported Statewide, January		
		NW	N	SW	C	E	This Year	Last Year	5 Yr Avg
AIDS	67	10	15	4	15	23	67	25	37
Campylobacteriosis	9	1	2	3	2	1	9	14	10
<i>E. coli</i> O157:H7	0	0	0	0	0	0	0	0	1
Giardiasis	30	4	8	10	3	5	30	8	10
Gonorrhea	765	51	66	102	206	340	765	708	757
Hepatitis, Viral									
A	1	0	1	0	0	0	1	3	4
B, acute	15	2	3	1	8	1	15	1	4
C, acute	0	0	0	0	0	0	0	0	0
HIV Infection	50	7	9	2	10	22	50	38	52
Lead in Children†	20	5	1	5	6	3	20	33	23
Legionellosis	0	0	0	0	0	0	0	0	1
Lyme Disease	1	1	0	0	0	0	1	0	0
Measles	0	0	0	0	0	0	0	0	0
Meningococcal Infection	1	0	0	0	0	1	1	2	2
Mumps	0	0	0	0	0	0	0	0	0
Pertussis	2	1	0	1	0	0	2	5	1
Rabies in Animals	25	8	1	6	3	7	25	30	25
Rocky Mountain Spotted Fever	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0
Salmonellosis	32	5	7	8	8	4	32	23	20
Shigellosis	7	1	3	0	0	3	7	6	9
Syphilis, Early§	11	0	2	0	1	8	11	6	13
Tuberculosis	2	0	1	0	0	1	2	1	4

*Localities Reporting Animal Rabies This Month:* Accomack 2 raccoons; Albemarle 1 raccoon; Augusta 1 raccoon, 1 skunk; Bedford 1 raccoon, 1 skunk; Charles City 1 skunk; Chesterfield 1 skunk; Fairfax 1 skunk; Frederick 1 skunk; Greene 1 cow; Hanover 1 raccoon; Newport News 2 raccoons; Northampton 1 raccoon; Page 1 raccoon; Patrick 1 raccoon, 1 skunk; Richmond 1 cat; Roanoke 1 skunk; Rockingham 1 raccoon; Spotsylvania 1 raccoon; Wythe 1 goat; York 1 raccoon.

*Toxic Substance-related Illnesses:* Adult Lead Exposure 2; Chronic Pulmonary Disease 1; Mercury Exposure 1; Methemoglobinemia 1.

\*Data for 2005 are provisional. †Elevated blood lead levels  $\geq 10\mu\text{g/dL}$ . §Includes primary, secondary, and early latent.

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