CHAPTER 13

Students Traveling Abroad

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Students are traveling abroad in increasing numbers, with the largest increase observed in the university-student age group. Preparing the student for travel abroad encompasses the depth and breadth of travel medicine. The benefits of foreign travel and educational international exchange programs include cross-cultural knowledge and competency, international language development, leadership development, and personal growth.

Current data show shifting patterns of travel within the 13- to 17-year-old group. Information from the Council on Standards for International Educational Travel (CSIET) suggests that participation in semester-long or year-long study-abroad programs is decreasing for American students and increasing for those traveling to the United States from other countries. The statistical information from CSIET captures only data from school programs applying for CSIET listing; the exact number of students traveling abroad within this age group is currently unknown.

The number of American students traveling abroad in the university-age group has more than tripled in the last 20 years, and this trend appears to be accelerating. A recent study shows more students are traveling to Asia, Africa, the Middle East, and Latin America than in the past. University students often are more independent and travel more remotely than the younger students.

Students traveling abroad represent a distinct group within the travel medicine community due to rapid changes in physical and developmental maturation, propensity for risk-taking activities, and style of travel. Many students travel to remote locations for long periods of time and engage in activities with an increased likelihood of adverse health outcomes compared with older populations.

Due to their developmental maturation, traveling students often act like adults and children at the same time. In addition, students with the same chronologic age can be at different developmental ages. The wise practitioner will adjust his or her advice to the developmental level of the traveler.

Working with enthusiastic students can be a delight for the healthcare provider. But it requires subtlety to master the dual obligations to both the student and his or her parents. Having an open conversation at the outset of the appointment about what will and will not be disclosed often sets the tone for a successful visit. Many countries have specific regulations about how confidentiality about mental health and sexuality issues is handled.

Students traveling abroad will need the same counseling as other travelers regarding basic food and water precautions, insect bite avoidance, malaria prevention (when appropriate), and altitude precautions. It can be difficult to reach traveling students, as several studies show that they underutilize preventative travel health services. Additionally, this age group is likely to get health advice from nonprofessional sources such as guidebooks and travel websites.

The way in which the information is presented is likely to have a profound effect on how well the student understands and follows the recommendations. Practitioners working with university students often use a variety of formats, including group visits, educational videos, and questionnaires, to present the information in an engaging and relevant manner. If a chaperone is traveling with the group, he or she can reinforce healthy habits and behaviors, such as daily use of insect repellants, sun protection, and appropriate food choices.

THE PRE-UNIVERSITY STUDENT

Health-associated risk and specific disease entities in adolescent international travelers are underreported in the medical literature. Analysis of the GeoSentinel surveillance data shows that travel for tourism is the most common reason for travel in the 12- to 17-year-old group, but conclusions about diseases acquired while traveling cannot be drawn due to limitations created by the methods of data collection in this age group. In this age group, a case report of 29 female student New Zealand travelers (mean age 16) and six accompanying adults including one physician traveling to Peru found the following percentages of illness based on organ system: 37% gastrointestinal, 16% respiratory, 12% altitude, 7% dermatologic, 5% each for anxiety, genitourinary, neurologic, and musculoskeletal, and 3% adverse drug reactions.

UNIVERSITY STUDENTS

More information can be found in the literature for this group of travelers. University students traveling for pleasure often do so during designated school breaks, such as spring break, and travel for shorter periods of time (1-2 weeks), with "fun" being the driving force for the trip. Excessive alcohol consumption and risky sexual behavior have been associated with spring break vacations.

Students who travel for longer tourist excursions usually travel in the low-budget category, including backpacking and camping, which puts them at greater risk for various mosquito-, fly-, tick-, and water-borne diseases. These trips may include travel to more than one country. "Adventure" is often the driving force for travel in this population. The backpack traveler is more likely to take risks with personal safety; the lack of social norms, lack of an anchoring job or school responsibility, and freedom experienced in a new exotic environment lead to risky sexual behavior that may or may not be associated with alcohol and drug usage.

Another group of university students travel for study-abroad programs for 1-3 months at a time. This group often has a more formalized agenda than the adventure traveler; however, these students may seek adventure on the weekends or tack on an adventure trip at the end of their stay.

Students on longer trips for any reason are at risk for several additional health problems. Longer duration of stay is associated with chronic diarrhea, giardiasis, chronic fatigue, eosinophilia, cutaneous leishmaniasis (CLM), schistosomiasis, and *Entamoeba histolytica* diarrhea. Sometimes, traveler loneliness can precipitate a reactive depression. Anticipation of these problems and arrangement for post-travel follow-up may be needed.

HEALTH SCIENCE STUDENTS ABROAD

The advent of global health programs has spurred health science students' interest in participating in clinical programs in less developed countries. An interest in international health, a desire for increased cultural competency, the need for hands-on clinical experiences, and the desire to help have all been cited as reasons for the growth in electives abroad for health science students. These students are more mature than undergraduate students; however, they still may not perceive true risks in less developed countries. Surveys of medical students and nursing students with high-risk blood-borne pathogen exposure including human immunodeficiency virus (HIV) have shown that students rarely if ever report such injuries and do not take HIV post-exposure prophylaxis (PEP), even if they bring the medicines with them.

Many health science schools have developed specific curriculum criteria such that only experienced students participate in higher-level clinical activities. However the literature still reports that "junior" students participate in risky procedures such as surgeries and delivery of babies. In addition, provision of care in less developed countries exposes students to illnesses related to poverty and crowding, such as tuberculosis and meningococcal disease.

Counseling for health science students traveling internationally for clinical rotations should include the standard destination-specific travel advice: vaccine recommendation, malaria prophylaxis, medication for travelers' diarrhea, and insect precautions. Students in health science fields usually have already been vaccinated with hepatitis B vaccine. The counseling should include screening pre and post travel for tuberculosis either with a purified protein derivative placement or one of the interferon gamma-releasing assay (IGRA) blood tests. Meningococcal vaccine should be offered if the student is traveling to high-risk countries (e.g., the meningitis belt in Africa) or will have prolonged clinical contact with host populations.

Universal precautions, high-risk procedures (e.g., surgical procedures in regions with a high prevalence of HIV), and the need for HIV PEP should be discussed, offering HIV PEP if necessary. Due to the costs and side effects of such medications, students are often given a 3- to 5-day quantity with the understanding that the exposure necessitates an immediate trip back to the home country for more medication and monitoring. Current recommendations for HIV PEP can be found at http://nccc.ucsf.edu/clinical-resources/pep-resources/pep-guidelines.

Some studies show that despite their medical education, health science students are less likely to follow recommendations for malaria prophylaxis and insect precautions. This disparity between perceived and real risk is of paramount importance due to the intimate nature of contact with patients. As for all students traveling abroad, the risks of motor vehicle safety, drug usage, alcohol overconsumption, and unprotected sexual experiences should also be discussed.

VACCINES FOR STUDENTS

Routine childhood vaccinations vary by country. Recommended schedules for European countries can be found at http://vaccinews.net/vaccination_schedule.php. However, a review of actual vaccines received by the specific student is needed to avoid any gaps in coverage.

Students who are under-immunized present a unique problem for the travel medicine provider. Increasing rates of vaccine refusal in childhood puts this subset at risk of acquiring preventable illness while traveling. Healthcare providers encountering an under-immunized student will need to have a frank discussion about the suitability of travel to the desired destination without proper immunization and discuss strategies for "catch-up" immunizations (see http://www.cdc.gov/vaccines/schedules/hcp/imz/catchup.html). The risk of acquiring vaccine-preventable disease while traveling is not trivial; there are many reports of under-immunized travelers returning with vaccine-preventable diseases.

Students traveling to remote destinations or for long periods of time are more likely to need rabies pre-exposure prophylaxis and Japanese encephalitis vaccines than others. Students are typically unaware of the dangers of encounters of potentially rabid animals. Rabies avoidance precautions are essential, since the long-term traveler who is feeling lonely may want to pet an animal. Many students forego rabies vaccine due to the high cost in the developed world without realizing the difficulty of obtaining rabies immune globulin in the event of a bite. Students should be encouraged to purchase travel health insurance with evacuation to assist with obtaining appropriate wound care in a timely manner.

MEDICATIONS FOR TRAVELING STUDENTS

Pediatric dosing schedules for medications should be used for students between 12 and 17 years of age. Consult Chapter 8, on pediatric travelers, for advice about appropriate dosing of altitude and malaria medications. Traveler's diarrhea is treated with azithromycin

10 mg/kg/day for 3 days up to a maximum of 500 mg per day for 3 days. Some students will need their antibiotics in dry powder form with instructions for reconstitution, and others can manage tablets easily. Rifaximin or symptomatic care can be used for the azithromycin-intolerant adolescent.

University and graduate students use adult doses of medications. Obtaining the patient's medication list is very important when prescribing either ciprofloxacin or azithromycin. Given the stress of higher education, many students are taking medication for depression and/or mood stabilization. These drugs may cause prolongation of the QT interval when used in combination with azithromycin or ciprofloxacin. Consultation with a pharmacist is recommended. Rifaximin is an alternative for these patients. Also, one should always be mindful that unintended pregnancy is a possibility. Medications that are inappropriate for pregnant women should be avoided.

THE ROLE OF THE CHAPERONE

The challenge for the healthcare provider is to help students prepare to manage their health and safety while away from familiar surroundings and the assistance of their families. Students traveling abroad with a chaperone are often younger students, travel in groups, and typically visit well-traveled itineraries.

Since most chaperones are parents or teachers not trained in healthcare, ground rules need to be established about the role of a chaperone in a student's health. It is important for the student, the chaperone, and the sponsoring organization to have a clear understanding of what health information needs to be shared with the chaperone, privacy issues, and how to handle health problems that arise. Additionally, the student and family should be reminded that the chaperone is not typically trained in healthcare, and this should be kept in mind when planning to travel with a chronic illness. The student and/or family member may request a note from the specialist detailing additional precautions and emergency plans with the chaperone.

TRAVELING WITH CHRONIC ILLNESS

Helping the student with an underlying medical condition successfully travel is one of the joys of travel medicine. The secret to a successful trip is plenty of advance planning. The travel medicine provider will need to guide the traveler in examining what conditions at the destination are likely to either cause a flare-up of symptoms or impact the traveler's ability to respond to a flare-up of the underlying health problem. For example, discussions about travel with asthma might include exposure to possible triggers such as cigarette smoke, air pollution, mold in damp climates, cold air, respiratory infections, and animals in people's homes. In addition, the level of medical care available at the planned destination should be reviewed with regard to the student's particular health condition. With careful questioning many problems can be anticipated or avoided all together.

Travelers with chronic conditions such as diabetes, asthma, Crohn's disease, and other diseases often have predicable causes of flare-ups. Most have become quite adept at managing these episodes in their home country. Anticipatory guidance should include providing the student with a sufficient quantity of his or her maintenance medications for the duration of the trip along with the usual medications for flare-ups. It is also important to educate both the traveler and supervising adult about what to watch for, when it is okay to self-treat, and when to seek medical care locally.

Many advocacy organizations organized around a particular disease have informative "how to" tip sheets and travel guides available on their websites. National health services such as the Centers for Disease Control and Prevention, National Health Service, Health Canada, and Australian Department of Health also have informative web pages designed to assist travelers with questions about specific diseases. Chapter 16, on Travel with Chronic Medical Conditions, is an excellent resource for more detailed information.

Traveling with food sensitivities or allergies causes significant concern for the student and his or her family. Several organizations offer pre-printed cards in multiple languages to

help avoid the offending items. Accidental exposure to the offending food often happens when traveling despite using the language cards. For this reason travelers with food sensitivities and allergies should be prepared to manage a severe reaction. If a student with anaphylaxis to certain foods is traveling with a chaperone, teaching the chaperone to use an epinephrine auto-injector and the importance of follow-up care at a local emergency room is essential. Unaccompanied students will need to educate their traveling companions about their severe reactions and what their companions should do to help the distressed traveler.

Students with compromised immune systems (immune-compromising illnesses or who take immunosuppressive medications) represent a distinct group. Modern medications may have normalized the lives of these patients so dramatically that they are now ready to join their peers studying abroad. These students may experience a significant flare-up of their underlying disease or an increased susceptibility to certain infections acquired at their destination. Their disease state and medication dosage may limit the ability to receive live attenuated vaccines such as yellow fever vaccine, thus limiting travel to certain geographic destinations. They are also harder to protect prior to departure since they are also more likely to have a weakened immune response to other vaccines.

Healthcare providers will need to provide advice for management of common health problems and/or significant flare-ups of the underlying condition and determine how to protect the student from infections and access the ability of local medical providers to provide appropriate and timely care. For example, some destinations are well equipped to manage a flare-up of organ transplant rejection or Crohn's disease, while others are not. Often this will require consultation with the healthcare providers at the destination; this is far easier to do now through use of the Internet access to colleagues in international professional societies. Some destinations may not be appropriate for a particular student based on conditions at the destination or level of available medical care. Frank discussions are often uncomfortable, but necessary, in these situations.

MENTAL HEALTH

Traveling with a mental health problem has its own set of unique uncertainties. Two issues need to be addressed: Is the condition stable enough to withstand the stresses of travel? and Are the routine medications used permitted in the host country? Many students do not disclose their underlying illness due to privacy or other concerns. This leaves the chaperone or supervising adult in a delicate position, one for which they are untrained, should there be an exacerbation of symptoms. Full disclosure and honest discussion of the underlying problem and management is essential in ensuring a successful trip.

There are no established guidelines to determine whether a mental health problem is stable enough to withstand the stressors of travel. A common rule of thumb is that it is okay to travel if the dose of medication has not been adjusted within the last 3 months and if the supervising mental health provider agrees that the student is ready for travel. It is important to discuss the role of maintaining routines in sleep, eating, and medication usage throughout travel.

Certain medications, including stimulants used for attention deficit hyperactivity disorder, may or may not be permitted at the destination. The student should be encouraged to contact the embassy or consulate of the host country to inquire about local laws and regulations for their specific medication. Many patients are unaware that they can receive up to 3 months of medication prior to departure from their home country with proper documentation from their supervising doctor. If time allows, some can be switched to nonregulated medications prior to departure.

The student should be discouraged from stopping medication while traveling. The stressors of travel are known to exacerbate underlying mental health problems. Additionally, some places and healthcare systems do not have the capacity to provide treatment of mental health problems. Therefore, prior to departure, contingency plans for repatriation in the event of worsening symptoms should be discussed. For this reason, purchase of travel health insurance should be strongly encouraged.

SOCIAL ISSUES

Traveling to other nations and cultures fosters deeper cultural understanding. This occurs at a time of increasing independence of the adolescent. At times students can be unsure of themselves, often looking to the group for acceptance and normative behaviors. Parents often express concern and anxiety as their son or daughter moves through this maturational process.

The separation created as the student travels abroad can temporarily increase this anxiety until both parents and children become more comfortable with this newfound independence. In some cases, this separation provokes the parent to request or demand inappropriate and somewhat smothering contact with their child. This limits the ability of the student to learn to travel independently. Discussing this with the family, especially of the younger student, by emphasizing the supervision provided by the sponsoring group and setting up guidelines for frequency of contact, allows for a successful transition.

Travel to another culture raises the possibility of experimentation with activities that are different from those in the student's home country. Students often interpret differences in rules and regulations, such as age of drinking alcohol, as tacit permission to participate. Alternatively, what may be permissible in the home country may have severe penalties in the host country, such as drug use or same-gender sexual encounters.

Alcohol use among university and graduate students is common. A study of university students found that, overall, university students traveling abroad drank twice as much as in their home country and reported negative consequences from this drinking. The degree of integration within the local culture had a protective effect against the negative effects of alcohol use. Clearly, counseling about alcohol overconsumption is needed, including its association with poor judgment and unprotected sexual encounters.

Students will need to become culturally aware of the customs and taboos of the host country. This becomes vitally important regarding issues of sexuality. In some locales, premarital sex or same-sex encounters are prohibited. Safer sexual practices, appropriate birth control, and follow-up care should be reviewed with the student. Familiarize the traveler with how to access information regarding emergency birth control in the event of unprotected sexual encounter (e.g., http://ec.princeton.edu/ecmaterials/).

PERSONAL SAFETY

Parents worry whether their child will be safe when studying abroad. This concern is validated by understanding that the adolescent brain does not fully mature until about age 25. As a group, adolescents have less executive function and fewer inhibitions. This leads to participation in more risky behavior. The desire for adventure coupled with the immature frontal lobes sets up a dynamic where the young adult traveler is at risk for personal safety issues.

In the United States the leading causes of death in the 12-29 age group are motor vehicle crashes, homicide, suicide, and other accidents; all are more common for men than women. Data about death of US citizens while abroad is not segregated by age but show motor vehicle crashes, homicide, suicide, and drowning as the leading causes of death while abroad. Of note, in one study 15% of motor vehicle crashes involved a motorcycle. The student should be actively counseled about the inherent risks of two-wheeled modes of transportation; this risk is amplified in low- to middle-income countries.

Drowning is almost as common as suicide among US travelers abroad. Caution the enthusiastic student to always check the depth of the pool or pond before jumping in and to never jump in head first. Unfamiliarity with the currents, inability to swim, and lack of lifeguards are thought to contribute to drowning. Personal flotation devices (life jackets) may be in short supply at water sport concessions. Those who wish to scuba dive should always search for a Professional Association of Diving Instructors (PADI)-certified dive shop and follow the buddy system and other best diving practices.

Water safety also includes counseling for schistosomiasis and leptospirosis prevention (when appropriate) and what to do in the event of an unanticipated exposure to potentially infectious fresh water. Numerous case reports of documented infections with only one

exposure to water exist. If one member of a group tests positive, all should be tested, since up to 80% may test positive within the cohort. The advice to avoid fresh-water exposure can be confusing to the active student who may encounter water sports concessions that appear very similar to home. It cannot be emphasized enough that they must avoid all waters known to be infected.

The negative effect of alcohol consumption on judgment must be discussed in conjunction with accident reduction. As in the home country, death, accidents, unintended sexual encounters, and other risky behavior are all associated with alcohol consumption. Legal ages for alcohol consumption may be much lower than in the home country, which may lead to the traveler drinking at a younger age.

Many study-abroad programs include a home stay. No guidelines exist for evaluation the safety of these popular programs. The prudent traveler will investigate how the host families are vetted by the sponsoring agency.

The goal of effective counseling is to change behaviors and minimize risk to the traveler. At the time of this writing, the most effective techniques to counsel young travelers to reduce risk are not known; this is an ongoing area of active research. It is known that many students travel abroad without pre-travel professional healthcare.

CONTINGENCY PLANNING FOR EMERGENCIES

From time to time emergencies arise when studying abroad. Travel health insurance with repatriation in the event of severe illness is strongly advised. These policies are minimal in cost and can be purchased on behalf of the entire group. Each sponsoring organization has a different policy regarding decision making and parental consent for medical treatment in the event of an emergency. In some instances written permission is needed to allow the chaperone to make decisions on behalf of the parent. Encourage the traveling student and his or her family to learn how communication will be handled in the event of an emergency.

SUMMARY

Students traveling abroad are increasing in numbers. Researchers are gathering data on where students are traveling, for how long, and what they are doing there. Preliminary trends show an increase in complexity of travel plans to more remote locations and for longer periods of time. Students traveling abroad for vacation, cultural exchange, and scholastic studies are vulnerable to predictable safety and health concerns. The poor executive brain function associated with this age group is thought to contribute to the propensity for risk-taking behavior.

Preparing the student for a successful travel abroad experience requires addressing vaccinations, infections, and medications and managing any underlying illnesses at the destination. Ideally the first visit to the healthcare practitioner will be 4-6 weeks in advance of departure. Accident reduction counseling is essential due to the increase in risk-taking behaviors by this age group. Certain groups, such as long-duration travelers and health sciences students, require additional counseling for specific health problems related to the activities at the destination.

FURTHER READING

General Travel

Harvey, K., et al., 2013. Surveillance for travel-related disease – GeoSentinel Surveillance System, United States, 1997-2011. MMWR 62 (3).

This article reviews the diagnoses among 10,032 United States after-travel patients.

Pre-University Adolescent Student Traveler

Hagmann, S., et al., 2010. Illness in children after international travel: analysis from the GeoSentinel Surveillance Network. Pediatrics 125 (5), doi:10.1542/peds.2009-1951.

This study is the only systematic review of the demographics, travel related illness, and health care use of children after international travel.

University Student Travelers

Emergency contraception: <http://ec.princeton.edu/ecmaterials/>.
This website provides information on how to provide emergency contraception using a worldwide database of oral contraceptive pills.

Hartjes, L.B., et al., 2009. Travel health risk perceptions and prevention behaviors of US study abroad students. J. Travel Med. 16 (5), 338–343. doi:10.1111/j.1708-8305.2009.00322.x.
Demographic, sources of travel prevention information, and travel related problems are discussed in this retrospective cross-sectional web-based questionnaire for returned University of Wisconsin study abroad students.

Hunley, H.A., 2010. Students functioning while studying abroad: the impact of psychological distress and loneliness. Int. J. Intercult. Relat. 34 (4), 386–392. doi:10.1016/j.ijintrel.2009.08.005.
This article highlights the psychological stress that may occur in study abroad students.

Pederson, E.R., et al., 2010. Heavier drinking American college students may self-select into study abroad programs: an examination of sex and ethnic differences within a high-risk group. Addict. Behav. 35, 844–847. doi:10.1016/j.addbeh.2010.04.003.
Students selecting study abroad programs may be a subgroup of heavier drinkers.

Rhodes, G., et al., 2014. Study Abroad & Other International Student Travel, Chapter 8 Advising Travelers with Specific Needs, CDC Yellow Book.
This chapter in the CDC yellow book has excellent resources and information for international student travel.

Health Science Student Travelers

PEP @ UCSF.edu: <http://nccc.ucsf.edu/clinical-resources/pep-resources/pep-guidelines>.
This website has up-to-date recommendations on occupational HIV post-exposure prophylaxis.

Franklin, G.F., et al., 2001. Provision of drugs for post-exposure prophylaxis of HIV for medical students on overseas elective. J. Infect. 43 (3), 191–194. PMID 11798258.
37% medical students participating in overseas electives from one medical center reported significant exposure to potentially infective fluids. Strategies to provide PEP for HIV in regions where it is not readily available are discussed.