

Travel Health Knowledge, Attitudes and Practices among United States Travelers

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Background: Large numbers of United States residents travel each year to countries where malaria, hepatitis A, hepatitis B and other vaccine-preventable diseases are prevalent. However, relatively little is known about how United States travelers perceive risks associated with travel or how they prepare for their international voyages. This airport survey was therefore performed to determine the travel health knowledge, attitudes and practices (KAP) of United States travelers.

Methods: Questionnaires were administered to international travelers, aged 18 years or more, departing from the John F. Kennedy International Airport in New York who were going to destinations that were high risk for malaria or hepatitis A.

Results: Overall, 404 questionnaires were completed, including 203 focused on malaria and 201 on vaccine-preventable diseases. Latin America and Asia were the most common destinations. Only 36% of travelers sought travel health advice, despite the fact that more than half prepared their trip at least a month in advance. Only 17% of travelers considered themselves at high risk for hepatitis A. Although the majority of travelers (73%) to a high-risk malaria-endemic region perceived malaria as a high health risk, only 46% of them were carrying antimalarial medications. Additionally, although the majority of travelers believed that vaccines were effective for prevention, few were vaccinated for their journey: 11% for tetanus, 14% for hepatitis A, 13% for hepatitis B, and 5% for yellow fever.

Discussion: This airport survey demonstrated important shortcomings in the travel health KAP of international travelers. A substantial proportion of the travelers were not adequately protected against malaria, hepatitis A or hepatitis B. Future efforts need to focus on improving the level of awareness of travelers regarding their risk of disease acquisition overseas and the importance of pretravel education, immunizations, and malaria chemoprophylaxis.

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Introduction

Millions of United States residents travel each year to regions of the world where hepatitis A, other vaccine-preventable diseases and malaria are endemic.¹ Since a substantial proportion of travelers are at risk for falling ill or having an injury during their trips, there is a need for travelers to seek appropriate pretravel education and immunizations in order to reduce their risk of illness while away from home.² Despite the large numbers of United States residents who travel internationally every year, relatively little is known about their level of awareness of risk or how well they prepare for their journeys in terms of their health needs. This airport survey was therefore undertaken in order to elucidate the travel health knowledge, attitudes and practices (KAP) of United States travelers.

Methods

As in the other “airport studies”, in-person interviews were conducted among international travelers at John F. Kennedy International Airport in New York from

15 January to 22 January 2003. Before the study was begun, permission was obtained from the administration of the John F. Kennedy International Air Terminal. Methodological details are provided elsewhere in this issue. In order to qualify for the study, respondents must have been traveling to a target destination country identified as high risk, not be a resident of the target destination country, and be 18 years of age or older.

High-risk countries for malaria included Ghana, Nigeria, Liberia, Tanzania, and Kenya with the exception of Nairobi. Travelers to rural areas with a known risk of malaria in the following countries were considered to be at low-to-intermediate risk for malaria: Brazil, Ecuador, Dominican Republic, China, The Philippines, Thailand, Guyana, and El Salvador.³ The remainder of the malaria questionnaire respondents were categorized as being at no risk or, if insufficient information was provided in the responses, unknown risk. The analysis of the malaria questions was restricted to these two groups.

Results

The two survey instruments were administered to 404 respondents, and included 201 vaccine questionnaires and 203 malaria questionnaires. The mean age of the United States survey respondents was 42.4 years, with roughly equal proportions falling in the following age ranges: 18 to 34 (31%); 35 to 49 (38%); and 50 or more (30%). Survey respondents were nearly equally divided into men and women (52% and 48% respectively). Nearly all (98%) of the survey respondents were United States residents. In terms of nationality, 56% were United States citizens, and the next largest group was from India (8%).

The majority (57%) of international travelers planned to spend no more than 2 weeks on their trips. In contrast, 22% planned trips of 15 to 28 days in duration, and only 21% planned trips of more than 4 weeks. Respondents were just as likely to be traveling alone as with companions (48% alone, 30% with partner/spouse, 15% with friends, 8% with children, and 4% with colleagues).

Purpose of Travel and Destinations

More than half (54%) of the survey respondents were traveling on vacation, whereas a large percentage (43%) planned to visit friends or family. In contrast, only a small minority traveled on business or for volunteering, research or missionary purposes. Only a minority of respondents (17%) planned to backpack during their trip. The duration of travel among the 69 travelers who planned to backpack was longer than among the non-backpackers. Whereas 36% of the backpackers planned to spend 28 days or more traveling, only 18% of the non-backpackers planned to spend this length of time traveling.

Most travelers were going to either Latin America or Asia (37% and 35% respectively). The Caribbean (19%) and Africa (8%) were less frequent destinations. The top 10 destinations for this group of travelers were India (14%), Brazil (13%), Ecuador (11%), Dominican Republic (10%), China (7%), The Philippines (7%), Trinidad and Tobago (7%), Mexico (6%), Thailand (4%), and Ghana (4%). The majority of travelers (76%) had prior experience with travel to developing countries.

KAP on Travel Medicine

More than half of the travelers (53%) planned their trips a month or more in advance, whereas 19% made their plans 2 to 4 weeks before travel. A smaller proportion of travelers (15%) made plans 1 to 2 weeks beforehand, and 13% did so in the final week before their trip. Most travelers (62%) sought general information about their destination before their trip, with family/friends (53%), travel agents (50%), the Internet (40%) and travel literature (19%) serving as the most common sources of information.

Only 36% of travelers sought travel health advice. Among those who did not seek pretravel health advice, 43% felt that they already knew what to do to protect their health while traveling, 22% were not aware of the need to do so, 20% did not perceive a risk, and 10% were too busy. Out of those who did seek travel health advice, three-quarters (75%) did so less than 28 days prior to departure. Of the 144 travelers who sought pretravel health advice, 60% used their primary care provider for assistance, 30% family or friends, 19% the Internet, 12% occupational health physician/company doctors, and 10% travel medicine specialists. Company doctors were most highly rated in terms of the quality of their travel health advice, whereas primary care providers, the Internet and travel medicine specialists all were rated equally well and only marginally below the former group.

KAP on Malaria

Based on the reported destinations, 26/203 (13%) respondents were planning travel to high-risk malarious areas and 35/203 (17%) to low-intermediate-risk areas. The other respondents were considered to be at no risk (57%) or unable to be assessed based on the information provided (13%). The analysis of the following questions was restricted to those at either low-intermediate (hereafter referred to as low risk) or high risk.

The majority of travelers (73%) to a high-risk malaria-endemic region perceived malaria as a high health risk. In contrast, 40% of travelers to a low-risk area felt that malaria was a high risk and 23% considered malaria to be a low risk. Twelve percent of travelers to high-risk areas and 31% to low-risk areas did not know whether there was any risk of malaria at their planned destination. Most

respondents were familiar with the main symptoms of malaria, with 89% and 81% of travelers to high- and low-risk destinations being aware that fever was a cardinal manifestation of this infection. Most travelers (82% of the combined high- and low-risk groups) were confident that treatment for malaria would be available in their destination country.

In general, United States travelers were familiar with antivevector measures. The majority of travelers to high-risk (77%) and low-risk countries (91%) planned to wear long-sleeved clothing, and 75% of the combined group were planning to use insect repellent. During nights in malaria-endemic areas, 84% of the high- and low-risk respondents planned to keep the window or door closed to avoid allowing mosquitoes inside, and 59% planned to use airconditioners, 61% to use insect coils or insecticide indoors, and 57% to sleep under a bed net.

In contrast to the planned use of antivevector measures, only 46% of travelers to high-risk and 26% of those to low-risk destinations were carrying antimalarial medications with them. A small proportion of travelers (2.6%) to regions with no risk of malaria had also been prescribed antimalarials. The vast majority of the respondents (95% for high- and low-risk groups combined) were planning to use the medications on a regular basis for chemoprophylaxis, whereas 5% were carrying them for both prophylactic and standby therapeutic uses. No travelers were carrying antimalarial medications for the purpose of emergency standby therapy alone. Mefloquine (50%) and chloroquine (42%) were the two most commonly carried antimalarials by travelers to high-risk countries. More than half of the travelers to high- and low-risk countries who carried malaria tablets had had these prescribed by their primary care provider. Only 25% of travelers to high-risk destinations had been prescribed malaria chemoprophylaxis by a travel medicine specialist, and 17% had received them from a company doctor. When asked why they were not carrying antimalarial tablets, 46% of the combined high- and low-risk travelers replied that they did not like to take medications when nothing was wrong with them, whereas 10% cited allergy to antimalarial drugs, 5% cost and 3% side effects as reasons.

KAP on Vaccine-preventable Diseases

A fifth of respondents viewed HIV/AIDS as a high-risk disease in the country that they were going to be visiting. Of the vaccine-preventable diseases, 17% viewed influenza and hepatitis A as high risk at their destinations, whereas 13% and 11% considered hepatitis B and typhoid fever to be high risk. Fewer than 8% considered meningitis, cholera, yellow fever, rabies, and polio to be serious risks.

In terms of knowledge of ways in which to reduce the potential risk of food- and waterborne disease, 70%

did not plan to drink tap water, 65% planned to avoid ice cubes, and 91% would not consume raw shellfish. In contrast, 62% did plan to eat salads on their trip.

The majority (74%) of the international travelers agreed that vaccinations provided essential protection, whereas only 46% felt that vaccines are safe. One-quarter were concerned about vaccine side effects, 12% were concerned about their cost, and 7% were wary of the pain associated with injections. Although the majority of travelers believed that vaccines were effective for prevention, few were vaccinated for their journey: 11% for tetanus, 14% for hepatitis A, 13% for hepatitis B, and 5% for yellow fever. A minority of travelers were aware of having had previous immunization against tetanus (22%), polio (16%), hepatitis B (16%), hepatitis A (10%), and diphtheria (7%). It can be estimated from the above that 76% of the investigated travelers to developing countries had not been immunized against hepatitis A, 71% had not been immunized against hepatitis B, and 33% had not been immunized against tetanus. Few travelers (only 9%) were carrying immunization records or vaccine certificates with them on their journey.

Discussion

Although the majority of respondents in this cohort of international travelers were experienced travelers with a history of previous travel to developing countries, the overall level of knowledge of risk and practice concerning preventive travel health measures, especially the use of itinerary-specific immunizations and antimalarial prophylaxis, was low. Far more international travelers sought general travel information than travel health advice before their trip to high-risk countries. Only 36% of travelers sought travel health advice, despite the fact that more than half prepared for their trip at least a month in advance.

Travel medicine specialists were woefully underutilized for pretravel advice, with only 10% of survey respondents reporting having seen a travel medicine specialist. Similarly, low rates of utilization of travel medicine specialists for pretravel health advice have been noted in several other studies.⁴⁻⁶ Surprisingly, our study found that travel medicine specialists were rated equally with general medicine practitioners by travelers as a source of health advice.

Although the majority of travelers to malaria-endemic areas planned to utilize antivevector measures, only a minority carried medications for the prevention of malaria. An especially worrisome finding was that 42% of travelers to high-risk destinations were carrying chloroquine for chemoprophylaxis. Since all of the high-risk destinations were countries in sub-Saharan Africa, where chloroquine resistance is widespread, this means that a substantial proportion of the travelers to high-risk malarious destinations

were at risk for contracting malaria by virtue of either not taking or taking ineffective chemoprophylaxis. Our findings are in contrast to those reported by Lobel et al., who found that 95% of United States travelers to Africa were using an effective chemoprophylactic agent (defined as either mefloquine or doxycycline).⁷

Awareness of the risk of vaccine-preventable diseases was also woefully inadequate. In addition, actual knowledge of previous or recent vaccination was low. In reality, many or at least some of the respondents probably had been previously vaccinated, but their vaccinations may not have been up to date. These facts are particularly surprising in view of the fact that many of those responding were "repeat" travelers.

Although this survey provides valuable information on the state of KAP among international travelers in the United States, certain limitations must be acknowledged. The survey included a small sample size and was done at only one United States airport over a brief period of time. Perhaps if the survey were expanded to other United States airports and covered a longer or different time period, regional or seasonal differences might be noted. In addition, the survey pre-dated by 2 months the initial published description of severe acute respiratory syndrome (SARS), an event which might have raised public awareness of travel health issues in general.

These survey results underscore the need for specialists in travel medicine to work to educate the traveling American public about the potential health risks associated with travel, the importance of safe and effective

preventive measures, such as vaccines and malaria prophylaxis, and the importance of being well prepared in terms of health before travel.

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