Travel Health Knowledge, Attitudes and Practices among Australasian Travelers

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Background: Although the Asia Pacific region is the focus of the fastest-growing tourist and travel industry, few data are available on the knowledge, attitudes and practices (KAP) of travelers from this region with regard to travel-related infectious diseases.

Methods: We conducted a cross-sectional survey among travelers at the departure lounges of five airports in Australasia (Singapore, Kuala Lumpur, Taipeh, Melbourne, Seoul) whose travel destinations were Asia, Africa or South America. Two standardized questionnaires directed towards KAP in travel health, travel immunizations and malaria were administered.

Results: Of 2,101 respondents (82% Asian, 17% Western), 31% had sought pretravel health advice and only 4% sought travel health advice from the travel medicine specialist. The risk of vaccine-preventable infectious diseases and malaria at the destination country was perceived to be low. Overall, fewer than 5% of travelers had been vaccinated in preparation for their trip. The most frequent travel vaccinations were for hepatitis A and B. Only 40% of travelers to malaria-endemic areas carried malaria prophylaxis. Compared to Western travelers, those of Asian nationality were significantly less likely to obtain pretravel advice and malaria prophylaxis and to receive travel vaccinations.

Conclusion: There is an urgent need for increased awareness about travel-related infectious diseases among Asian travelers, and greater uptake of pretravel health advice, vaccinations and malaria prophylactic measures.

Introduction

The Asia Pacific region is the focus of the fastest-growing tourist and travel industry. However, the provision of travel health advice among Asian travelers lags behind both need and demand.[1] Travel medicine in Asia is a relatively new discipline, unlike in Western countries, which have a longer history of well-established travel health services. Whereas there is already a plethora of data published on knowledge, attitude and practice (KAP) in regard to travel health in travelers from Western countries,[2–5] data are scarce on KAP in travelers from Asia. This information is necessary to help health care providers develop and prioritize travel health services in Asia.

We therefore conducted an airport-based questionnaire survey on KAP in Australasian travelers.

Methods

The study was conducted at the departure lounges of five airports in Australasia (Melbourne, Australia; Kuala Lumpur, Malaysia; Singapore; Seoul, South Korea; and Taipeh, Taiwan). Participants were recruited from flights to countries in Asia, Africa, and South America. We used two standardized questionnaires which were developed by the European Travel Health Advisory Board in European travelers (Van Herck et al, this issue). Self-administered questions were directed towards KAP on travel vaccinations (Q-Vac) and malaria chemoprophylaxis (Q-Mal). Each site aimed to recruit 400 travelers (200 for Q-Vac and 200 for Q-Mal). Data were entered into an excel file database (Microsoft), and analysis was

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performed with Stata 7.0. Study subjects were grouped into Asian travelers and travelers from Western countries (Australia, New Zealand, Europe, North America) as defined by passport. We defined areas of moderate-to-high risk of malaria: all rural/jungle areas in Asian countries except for northern China, Singapore, Taiwan and Japan; and all sub-Saharan countries. We focus on descriptive analysis and comparative analysis (using Student's *t*-test or chi-square test where appropriate) but also performed logistic regression analyses, measuring the effect of variables on pretravel consultation.

Results

Demographics and Travel Characteristics

Overall, 2,101 travelers were recruited (1,041 Q-Mal and 1,060 Q-Vac), with every site contributing more than 400 travelers. The mean age of travelers was 37.6 years (SD 12.7), and 1,155/2,044 (56%) were male. The majority of travelers (1,655/2,010; 82%) were Asian, and 340/2,010 (17%) were from a Western country. With regard to occupational background, 880/1,927 (46%) were professionals with university/college degrees, managers, executives or businessmen (PMEB); 551/1,927 (29%) had white-collar/blue-collar professions (white collar is defined as office workers, clerks etc.; blue collar as non-office workers with some technical skill training); 200 (10%) were students; and the remainder were housewives, retirees or unemployed. Access to the Internet was recorded in 1,632 (78%). Of the respondents, 659 (31%) traveled alone, 262 (12%) with spouse or partner, 378 (18%) with children, 159 (8%) with friends, and 186 (9%) with work colleagues.

The main travel destinations were within Asia, and included 482 (22.9%) to Thailand, 452 (21.5%) to China, 278 (13.2%) to Indonesia, 161 (7.7%) to Indochina (Vietnam, Laos, Cambodia), and 155 (7.4%) to India. Only 17 (0.1%) traveled to Africa and 35 (0.2%) to South America. A large proportion (1,720; 82%) traveled to urban settings, 416 (20%) for a beach holiday, and 233 (11%) to rural and jungle areas. Overall, 18% were classified as backpackers, and these were significantly more likely to be of Western (102/340; 30%) than of Asian (249/1,655; 15%) origin ($p < .001$). For 461 (22%) travelers, this was their first journey to the developing world, and 591 (28%) travelers had visited Asia within the past 12 months.

The main purpose of the journey was tourism or holiday (1,282; 61%), followed by business (442; 21%) and visiting friends or relatives (419; 20%). The majority (1,050; 50%) had a short duration of travel (4 to 7 days), whereas 374/2,101 (18%) planned to travel for 8 to 14 days and 191/1,997 (10%) for 15 to 28 days. The trip was planned less than 1 week before departure in 519/1,996 (26%), 1 to 2 weeks before departure in 355/1,996 (18%), 2 weeks to 1 month before departure in 474/1,996 (24%), 1 to 2 months before departure in 288 (14%), and >2 months before departure in 358/1,996 (18%).

KAP Concerning Travel Health

Of the 2,101 respondents, 1,269 (60%) had sought general information about the destination country before departure, and this was mainly from the travel agent (49%), Internet (45%), and family and friends (40%) (more than one answer allowed). However, only 665 (32%) had sought advice from travel health specialists. Reasons for not seeking advice and sources of travel health advice are presented in Table 1. It is of note that, of those 665 who sought travel health advice, only 12% sought travel health advice from a travel medicine specialist. Overall, of the 2,101 respondents, only 4% sought advice from the travel medicine specialist. The overall rating of satisfaction for travel health advice sought was high and not significantly different for all sources.

Travelers planning to visit rural places were significantly more likely to seek pretravel health advice than those planning to go to urban settings (42% vs. 27%; $p < .001$). Travelers of Asian origin sought travel health advice significantly less often (428/1,655; 26%) than did Western (Australia, New Zealand, US, Europe) travelers

Table 1 Travel Health-seeking Behavior

Seek general information about destination before departure ($n = 2101$)	1,269 (60%)
Seek travel health advice before traveling ($n = 2101$)	665 (32%)
Reasons for not seeking travel health advice ($n = 1152$)	
Too busy	253 (22%)
Perception that adequate preventive measures have already been taken	403 (35%)
Perception of not being at risk	164 (14%)
Lack of awareness about travel-related diseases	218 (19%)
Others	114 (10%)
Sources of travel health advice ($n = 665$; more than one answer allowed)	
General practitioner/family doctor	487 (73%)
Colleagues from work	238 (36%)
Travel agent	167 (25%)
Embassy/consulate/official foreign tourism office	158 (24%)
Internet	150 (23%)
Occupational health physician/company doctor	114 (17%)
Travel medicine specialist/travel clinic	79 (12%)
Pharmacist	59 (9%)
Books/brochures/newspaper/magazine articles	56 (8%)
Family/friends	43 (6%)
Airline	40 (6%)

(213/340; 63%, $p < .001$). Age, gender and traveling with children were not associated with travel health-seeking behavior.

Table 2 presents univariate factors which may predict increased uptake of pretravel health advice from a medical source (general practitioners, travel medicine practitioners, government medical institutions). On multivariate analysis, most of these predictors were shown to be co-dependent factors. Independent predictors for seeking pretravel consultation were longer duration of travel in the destination country, perceived high risk of malaria, and Western nationality.

Table 2 Univariate Factors Associated with Seeking Travel Health Advice from Medical Sources

Factor	*Odds Ratio*	*95% CI*	*p-value*
Length of stay			
1–3 days	1		
4–14 days	0.75	(0.51, 1.09)	.127
15–28 days	3.58	(2.28, 5.62)	<.001
>28 days	3.87	(2.54, 5.90)	<.001
Plan to backpack	2.04	(1.62, 2.57)	<.001
Nationality			
Asian	1		
Western	7.05	(5.48, 9.08)	<.001
Attitude: Vaccinations provide essential protection			
Yes	1.63	(1.16, 2.28)	.005
Perceived risk of hepatitis A			
Don't know	1		
Low/high risk	2.07	(1.62, 2.63)	<.001
Perceived risk of malaria			
Don't know	1		
Low/high risk	2.20	(1.70, 2.84)	<.001
PMEB (professionals, managers, executives)	1.29	(1.05, 1.57)	.013
Have easy access to Internet	1.36	(1.07, 1.72)	.011
Travel to rural area	1.94	(1.46, 2.56)	<.001

KAP Concerning Vaccine-preventable Diseases

The risk of vaccine-preventable diseases (Table 3) in the destination countries was perceived to be low among travelers. Up to 76% of all travelers believed that vaccination provides essential protection, 5% thought that vaccines are useless, 10% thought that vaccines have side effects, 4% found them painful, 7% considered them to be expensive, and 6% thought that they were unnecessary. The reasons for not being vaccinated prior to the current travel was the perception of not being at risk (combined with not being aware of the disease and rating the disease as unimportant) followed by short duration of travel (Table 4). Cost or a genuine antipathy to vaccines were not major factors in the decision not to be vaccinated. The overall uptake of pretravel immunizations was low: hepatitis A, 5%; hepatitis B, 5%; typhoid fever, 3%; influenza, 2%; rabies, 1%; meningococcal meningitis, 2%; cholera, 1%; polio, 2%; yellow fever, 2%. However, fewer than 3% of Asian travelers received any vaccination prior to this travel, with the highest vaccine uptake being for hepatitis A and B. Table 5 presents the proportion of Asian vs. Western travelers vaccinated for this particular trip and previously vaccinated. For the majority of vaccinations, Asian travelers had received significantly fewer vaccinations than Western travelers. In particular, for, respectively, hepatitis A and B, only 2% and 3% of Asians had received vaccinations, compared with 18% and 12% of Western travelers. Previous hepatitis A and B vaccinations were given to 9% and 28% of Asians vs. 31% of Western travelers (Table 5). The documentation level of vaccination if they claimed they had been vaccinated prior to this trip was 55%. However, overall, only 18% had an immunization record with them.

Subjects were also asked to estimate the risk posed by HIV at their destinations; 735 (46%) did not know, 298 (19%) thought there was no risk, 370 (23%) thought that there was a low risk, and 187 (12%) thought that there was a high risk.

Table 3 Estimates of Risk of Vaccine-preventable Travel-related Diseases in the Destination Country

Disease	*Don't Know*	*No Risk*	*High Risk*	*Low Risk*	*Total*
Hepatitis A	590 (34%)	206 (12%)	529 (31%)	396 (23%)	1,721
Hepatitis B	489 (28%)	235 (13%)	609 (35%)	414 (24%)	1,747
Malaria	706 (44%)	313 (20%)	210 (13%)	358 (23%)	1,587
Yellow fever	665 (40%)	251 (15%)	364 (22%)	363 (22%)	1,643
Typhoid fever	554 (34%)	247 (15%)	482 (29%)	360 (22%)	1,643
Cholera	778 (49%)	386 (24%)	108 (7%)	310 (20%)	1,582
Polio	774 (49%)	356 (23%)	123 (8%)	322 (20%)	1,575
Rabies	505 (30%)	243 (14%)	628 (37%)	332 (19%)	1,708
Meningitis	489 (29%)	217 (13%)	483 (29%)	505 (30%)	1,694
Influenza	522 (63%)	148 (18%)	39 (5%)	125 (15%)	834
Varicella	137 (26%)	28 (5%)	275 (53%)	82 (16%)	522
HIV/AIDS	735 (46%)	298 (19%)	187 (12%)	370 (23%)	1,590

Table 4 Reasons for Not Having Vaccination when Advised by Health Professional

Disease	*I'm Not at Risk*	*Not Aware of Disease*	*Not Important*	*Not Staying for Long*	*Cost*	*Dislike Vaccine*	*Previously Vaccinated*	*Total*
Hepatitis A	46 (30%)	14 (9%)	11 (7%)	27 (18%)	6 (4%)	10 (7%)	38 (25%)	152
Hepatitis B	43 (26%)	13 (8%)	7 (4%)	25 (15%)	5 (3%)	9 (6%)	61 (37%)	163
Cholera	42 (33%)	20 (16%)	8 (6%)	29 (23%)	4 (3%)	14 (11%)	12 (9%)	129
Yellow fever	43 (36%)	20 (17%)	9 (8%)	28 (24%)	3 (3%)	11 (9%)	5 (4%)	119
Typhoid fever	43 (33%)	22 (17%)	13 (10%)	26 (20%)	3 (2%)	12 (9%)	12 (9%)	131
Tetanus	37 (29%)	20 (16%)	9 (7%)	25 (20%)	4 (3%)	8 (6%)	24 (19%)	127
Polio	40 (32%)	20 (16%)	10 (8%)	21 (17%)	3 (2%)	9 (7%)	23 (18%)	126
Rabies	39 (33%)	20 (17%)	12 (10%)	25 (21%)	4 (3%)	14 (12%)	6 (5%)	120
Meningitis	35 (29%)	23 (19%)	10 (8%)	25 (21%)	4 (3%)	13 (11%)	11 (9%)	121
Tuberculosis	38 (31%)	17 (14%)	10 (8%)	26 (21%)	4 (3%)	11 (9%)	16 (13%)	122
Diphtheria	35 (29%)	27 (23%)	8 (7%)	26 (22%)	3 (3%)	10 (8%)	10 (8%)	119
Influenza	38 (27%)	15 (11%)	20 (14%)	28 (20%)	5 (4%)	14 (10%)	19 (14%)	139
Varicella	10 (21%)	8 (17%)	5 (10%)	16 (33%)	2 (4%)	6 (13%)	1 (2%)	48

Table 5 History of Vaccination for this Specific Journey and Previous Vaccination by Nationality

	History of Vaccination for this Specific Journey (%)			*History of Previous Vaccination (%)*		
	Asian Travelers	*Western Travelers*	*p-value*	*Asian Travelers*	*Western Travelers*	*p-value*
Hepatitis A	2	18	<.001	9	31	<.001
Hepatitis B	3	12	<.001	28	31	<.1
Hepatitis A and B	0.5	6	<.001	4	13	<.001
Cholera	0.5	5	<.001	4	13	<.001
Yellow fever	0.6	6	<.001	1.4	13	<.001
Typhoid	0.9	18	<.001	3	26	<.001
Tetanus	1.5	10	<.001	10	50	<.001
Polio	0.9	8	<.001	15	39	<.001
Rabies	0.4	3	.013	1.1	5	.002
Meningitis	1.5	4	.099	5	8	.174
Tuberculosis	0.7	2	.151	13	19	.104
Diphtheria	0.5	4	<.001	9	20	<.001
Influenza	1.6	3	.197	5	11	.008
Varicella	0.4	0	<.999	2	0.0	.091

p-values from Fisher's exact test.

KAP Concerning Malaria

Of the 1,041 respondents for Q-Mal, 71% correctly identified fever as the main symptom of malaria. Most travelers estimated the risk of malaria at their destination to be low. Table 6 presents the perceived risk of malaria in the destination countries, and attitudes and practices concerning malaria chemoprophylaxis and personal protective measures. There was a discrepancy between attitude (planning to use protective personal measures) and practices (bringing along protective personal measures such as insect repellants). Overall, 7% carried malaria tablets with them, and this was mainly for prophylaxis purposes rather than standby treatment (73% vs. 11%; Table 6). Asian travelers were significantly less likely to take antimalarial prophylaxis (23/798; 2.9%) than were Western travelers (45/183; 24.6%) ($p < .001$). Of those travelers at moderate-to-high risk of acquiring malaria (as defined in Methods) in Asia, 32/81 (40%) took malaria chemoprophylaxis, compared with 36/747 (5%) of those traveling to low-risk (urban) areas ($p < .001$). Of the 12 travelers going to Africa, 5 (42%) took antimalarial prophylaxis. Antimalarial carriage is summarized in Table 6. The most commonly used drug for malaria chemoprophylaxis was doxycycline, followed by mefloquine and chloroquine. A large proportion (722; 42%) of respondents thought that they would be able to get treatment at the destination if they developed malaria.

Discussion

Asia was the most frequent destination in this cohort. Although Asia is endemic for many travel-related infectious diseases, travel health advice was only sought by 26% of Asians; this figure was significantly lower than that for

Table 6 Knowledge, Attitude and Practices Regarding Malaria and Malaria Prevention

Travelers' perceived risk of malaria by destination: no. (%) who indicated high risk	
China	33/423 (8%)
Thailand	48/392 (12%)
Indochina	10/110 (9%)
Indonesia	33/204 (16%)
India	16/101 (16%)
Africa	6/17 (35%)
South America	15/43 (35%)
Personal protective measures ($n = 1041$)	
Plan to take precautions for outdoor activities ($n = 1041$)	
Wear clothes to cover arms/legs	736 (71%)
Apply mosquito repellent to uncovered skin	543 (52%)
Use insecticide/mosquito coil	431 (41%)
Packed protective measures for this trip	
Brought insect repellent	151 (15%)
Brought mosquito coil	110 (11%)
Carriage of malaria chemoprophylaxis ($n = 1041$)	73 (7%)
Doxycycline	30 (41%)
Chloroquine	12 (16%)
Mefloquine	11 (15%)
Atovaquone/proguanil	6 (8%)
Proguanil	6 (8%)
Other	8 (11%)
Number of Asians taking malaria tablets with them	23/798 (3%)
Number of Westerners taking malaria tablets with them	45/183 (25%)
Number of travelers taking malaria tablets who are bound for rural areas in developing countries	33/101 (33%)
Number of travelers taking malaria tablets who are bound for cities in developing countries	40/940 (4%)
Reason for carrying malaria tablets	
Prevention (to be taken regularly)	48 (73%)
Standby emergency treatment	7 (11%)
Both for prevention and standby emergency treatment	11 (17%)

Western travelers in our cohort (63%), and also significantly lower than the figures for Western travelers traveling to Africa (91%),[4] to Peru (96%)[6] or to any developing country (66%).[2] Several factors influenced the uptake of pretravel medical advice, mainly higher standard of education, longer duration of travel, perceived high risk of malaria, backpacking, and travel to rural areas. Asian travelers sought travel health advice significantly less often than did Western travelers. Even if advice on travel-related diseases was sought, the proportion of those who went to see a doctor or travel medicine practitioner was small, and many sought advice from the Internet, friends, travel agencies and foreign tourism bureaus, which are reported to give inadequate or even wrong advice.[7–10] The proportion of travelers seeking pretravel health advice from a travel medicine specialist was disconcertingly low (4%). This may reflect very low awareness of this service, as well as a lack of availability of travel medicine clinics in Asia. These findings underline the fact that there is an urgent need to improve awareness and availability of travel medicine in Asia. This need is highlighted by the fact that general practitioners often lack training and knowledge in travel medicine.[11,12]

Our findings show that Asians tend to travel for shorter periods, engage in less adventurous behavior (i.e., less backpacking) and more often travel to cities and beaches rather than jungle or rural areas, compared with Western travelers. A frequent reason for travel within Asia is business, and this travel profile would strongly influence the content of the travel health advice received. Most cities in Asia are known to be malaria-free, and to have five-star hotels with high standards of hygiene. Duration of stay is correlated with increasing risk of travel-related infectious diseases. Therefore, we might expect the overall risk of vaccine-preventable diseases and malaria to be relatively small in Asian travelers with the constellation of short travel, travel to urban areas, and accommodation in five-star hotels. Future research will need to determine the extent of risk associated with this constellation of travel behaviors. Travel health advice provided to Asian tourists traveling to the same destinations as their Western counterparts should be based on an appropriate health risk assessment, and may therefore be substantially different from the advice given to Western travelers. In addition, it is likely that Asian travelers frequently travel within Asia, as supported by our finding that, for the large majority (78%), this was not the first trip to a developing country and 28% had traveled within Asia in the past 12 months. This would increase the accumulated risk of acquiring travel-related infections and would need to be taken into account in pretravel advice.

The risk of travel-related vaccine-preventable diseases was not known or was underestimated. The main reason for rejection of vaccines was not related to cost, fear of needles, or an overall negative attitude towards vaccines, but rather to lack of knowledge of the risk of these diseases. The overall uptake of pretravel vaccinations was disconcertingly low in Asian travelers ($< 5\%$). In addition, only a small proportion reported previous vaccinations for common infectious diseases. However, it is known that people may not recall past vaccination, and that these results are falsely low.[13] Despite the high risk of hepatitis A and B in Asia,[14,15] only a small proportion (5%) of travelers were vaccinated against hepatitis A and B for this trip. A sub-

stantial (but still insufficient) proportion of Asian travelers indicated a past history of vaccination against hepatitis A and B. Asian countries have introduced hepatitis B vaccination as part of their childhood immunization programs and are also promoting catch-up vaccination programs for hepatitis B for adults.[16,17] Seropositivity against hepatitis A and B in the Asian population increases with age, with at least 40% being immune to hepatitis A or B above age 40 years.[15,18–22] A detailed vaccination history and prevaccination immune status should be taken into account for Asian travelers. However, seropositivity for hepatitis A is clearly decreasing in newly industrialized countries in Asia,[15,18,23,24] and therefore these guidelines need to be revised and updated. In particular, studies are needed to determine the seropositivity against hepatitis A in nonvaccinated Asian travelers, as it is likely that, due to the higher socioeconomic status of travelers, seropositivity may be lower compared with the general Asian population. It is likely that the risk of hepatitis B will decrease with increasing national immunization programs against hepatitis B in most Asian countries.

We found serious shortcomings in KAP in relation to malaria. Only a minority of travelers (7%) took malaria chemoprophylaxis with them, and only 40% of those traveling to areas of high risk for malaria (as defined by rural or jungle areas). This is far lower than the figures reported for Western travelers to Africa (77% for Zimbabwe,[25] 94% for East Africa[4]), and also lower than the figure reported for Western travelers to Asia (65%).[26,27] This finding is also consistent within our cohort: Asian travelers took antimalarial chemoprophylaxis significantly less often than did Western respondents (3% vs. 25%). It is conceivable that those who live in malaria-endemic regions do not perceive malaria to be such a great risk and health threat as those living outside of malaria-endemic countries. However, the risk of malaria in Asia is documented to be far lower than that in Africa.[28–30] Moreover, risk assessment of malaria is complex and depends on activities, duration of stay, and geographic variation, even within a so-called high-risk country. However, we could not take all these parameters into account in this survey, and we had to use a crude definition for the risk assessment of malaria (see Methods), which may have affected the accuracy of our results. Although a large proportion of travelers knew the symptoms of malaria, the perceived risk of malaria was very low for Asia, and moderately low for Africa and South America. There was a discrepancy between travelers' statements regarding the use of insect repellents and other personal precautions against mosquito-borne diseases and the actual prevalence of mosquito repellant use during travel. The most common drug was doxycycline, followed by mefloquine. Doxycycline was probably preferred because increasing resistance to mefloquine is now being reported in parts of Southeast Asia,[27] and doxycycline offers additional protection against leptospirosis and rickettsial diseases. Doxycycline has also been shown to be the most frequently prescribed drug in Australian travelers.[27] Malarone is given very infrequently, possibly because this drug was only recently registered in some Asian cities (for example, in Singapore malarone was registered only in 2002). Our findings showed that some travelers were taking chloroquine alone despite the widespread resistance of *Plasmodium falciparum* to this drug in most parts of the world,[28] indicating that suboptimal advice was given. Recent studies have highlighted the problem of non-*falciparum Plasmodium* infections in Asia which are associated with late onset of disease, despite presumed adequate malaria chemoprophylaxis; the most likely explanation for this is that current malaria chemoprophylactic agents are blood schizontocides and do not act on the liver stage.[31] Future research will need to focus on effective malaria prophylaxis against non-*falciparum Plasmodium* infections, a frequent problem in Asia.

In summary, we found considerable shortcomings in KAP with regard to travel vaccinations and malaria prophylaxis in Asian travelers to developing countries, with a documented high risk of vaccine-preventable diseases and malaria. Our findings show significant differences in Asian travelers vs. Western travelers in travel profile, uptake of pretravel health advice, pretravel vaccinations, and malaria prophylaxis. There is therefore an urgent need to increase awareness of the need and availability of travel vaccinations and malaria prophylaxis in Asian travelers. Awareness of travel medicine was very low, as reflected by the low uptake of specialist travel medicine advice. Increased media attention, public health education and involvement of travel agencies in referring travelers to travel clinics would be the best strategies to improve this situation. Standardized airport questionnaire surveys should be carried out at regular intervals to monitor the success of such interventions.

This was the first study on KAP with regard to travel-related infectious diseases in a large cohort of Asian travelers. Future research needs to investigate patterns of behavior in travel in Asians, which may be distinct from those in Western travelers, in order to prioritize areas within Asian travel health medicine and adapt the currently adopted advice in the West to the Asian context.

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