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Travel-related health problems of Hong Kong residents: Assessing the need for travel medicine services

Abu Saleh M. Abdullah^{a,b,*}, Davidson H. Hamer^{a,c}

^aDepartment of International Health, Boston University School of Public Health, Boston, MA, USA

^bDepartment of Community Medicine and School of Public Health, The University of Hong Kong, Hong Kong Special Administrative Region, Hong Kong

^cDepartment of Medicine, Boston University School of Medicine, Boston, MA, USA

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Summary

Background: Although there has been a marked increase in travel among Hong Kong residents, travel-related health risks have not been well characterized nor has their use of travel medicine services.

Objectives: To assess the travel health care needs of Chinese residents in Hong Kong by examining travel health problems of returning Hong Kong residents and by understanding their use of travel health services before or after travel.

Methods: Review of available data followed by a cross-sectional telephone survey of 280 travellers and 15 service providers. A structured pre-tested questionnaire was used for data collection. Household members, who were ethnic Chinese, aged 15–64 years, able to communicate in Cantonese, and who had travelled at least once during the preceding 12 months were invited to participate.

Results: There was a scarcity of travel medicine services in Hong Kong. The most common destinations for travellers were countries in the Asia-Pacific region, especially mainland China (33%). Twenty percent of the respondents developed health problems during or shortly after travel. Although only 9% of respondents had received pre-travel health advice, 61% used some form of precautions. Twelve percent had lost at least a day due to travel-related health problems. The service providers agreed that there are demands for travel health services. However, half of the service providers had not been trained in travel or tropical medicine.

*Corresponding author. Center for International Health and Development, Boston University School of Public Health, 5th floor 85 East Concord St., Boston, MA 02118, USA. Tel.: +617 638 5234; fax: +617 638 4476.

E-mail address: asm.abdullah@graduate.hku.hk (A.S.M. Abdullah).

Conclusions: This study indicates the need for specialized travel medicine services in Hong Kong to improve the health of travellers.

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Introduction

Health consequences of travel, ranging from trivial illness to death, are now well recognized.^{1–6} With the worldwide increase of both international and domestic travel, the need for specialized travel health care services within the health care system is quite evident. There has been a marked increase in travel among Hong Kong residents in the past decade. In 1996, Hong Kong's 6.8 million residents made over 37 million overseas visits (including mainland China), 56% more than in 1990, and 8% more than in 1995.⁷ This trend reflects rapid movement of large population subgroups, which may pose increased risks of travel-related illnesses, particularly communicable diseases. To describe the magnitude of the problem we reviewed the existing situation of travel-related health and the availability of travel medicine services in Hong Kong.

Travel-related health in Hong Kong

Hong Kong, as an international travel hub, entertains a large number of both business and holiday travellers each year. At present although information on travel-related health problems among Hong Kong public is still limited, it is, nevertheless, clear that international travel places much of this population at risk of health hazards. For example, in March 1998, a cholera outbreak occurred amongst Hong Kong travellers who travelled to Thailand with a travel agency.⁸ Twenty eight percent (29/103) of the tour members were confirmed with cholera in this outbreak which was acquired from a restaurant in Thailand. In August 1998, an imported case of *Escherichia coli* 0157 was reported,⁹ acquired from the ingestion of unpasteurized milk from a dairy farm in the United Kingdom. Malaria is often imported into Hong Kong by tourists after travel to malaria-endemic areas of Africa, Southeast Asia, and the Indian subcontinent.¹⁰ Most of the reported cases of typhoid fever (106) and paratyphoid fever (13 cases) in 2000 were thought to be imported cases.¹⁰ Furthermore, a substantial proportion of the reported tuberculosis and hepatitis cases in Hong Kong are thought to be related to travel to mainland China.¹¹ In 2003, a

physician, who travelled from Guangdong to Hong Kong, was the point source for the subsequent outbreak of severe acute respiratory syndrome (SARS) in early 2003.¹²

In 1997, a survey conducted among 448 social hygiene clinic attendees in Hong Kong found that 20% of all participants and 62% of those with confirmed sexually transmitted diseases had had sex during travel within 3 months prior to the study, and only 51% had used condoms.⁵ Another study conducted among 258 university staff¹³ and 1197 university students⁶ indicated that 56% and 41% of the respondents, respectively had developed one or more travel-related health problems during the previous year.

Existing travel medicine services in Hong Kong

The way in which travel health care is organised and managed in Hong Kong varies considerably. Most minor illnesses are dealt with at the primary care level by frontline health care workers (e.g., nurses or doctors). Upon consultation patients are given advice or specific treatment, or are referred to a specialist. Public hospitals do not provide any free immunizations to the public intending to travel to areas with vaccine-preventable diseases. Most people visit their general practitioners if they want travel health advice or pre-travel vaccinations. However, specialists also offer their expertise when appropriate through the referral service available to each setting. Below are a small number of services that are available in Hong Kong:

(a) *Public services:* The Port Health Office of the Department of Health (Government of the Hong Kong SAR) provides vaccination services and travel health information on request in its two traveller's health centres. However, the general public has limited awareness of the existence of these clinics. The Department of Health also has a travel health website (www.info.gov.hk/trhealth), which provides information on infectious disease outbreaks of concern to travellers, health risks from infectious disease and environmental factors, precautions for healthy travel and vaccinations for prevention of travel-related infectious disease.

(b) *Private services:* A few private organisations also provide travel medicine services. For example,

the Hong Kong Adventist Hospital has a travel clinic, which provides travel health services to its clients, but the fees are very high. An international medical assistance company (International SOS) also provides travel health services to their clients, who are mainly employees of large multinational companies, through their worldwide insurance coverage policies. These services are not accessible to the general public due to the high annual membership fees.

As described above there is a significant burden of travel-associated illnesses among Hong Kong residents as well as a lack of appropriate pre-travel health care services. Although Hong Kong enjoys a healthcare infrastructure similar to those of other developed nations, at the time of this assessment relatively few organized programmes provided specialized pre-travel services. The availability of effective interventions to reduce travel health risks abroad¹⁴⁻¹⁹ and the high frequency of travel among Hong Kong residents underscore the need for travel medicine services in Hong Kong. In this study we assessed the travel health care needs of Chinese residents in Hong Kong by examining travel-related health problems of returning residents and by understanding their use of travel health services before or after travel.

Methods

For this study several methods were used including a cross-sectional survey of travellers, interviews with health professionals and comparison with historical population groups. The ethics committee of the Faculty of Medicine of The University of Hong Kong approved the study.

A random digit dialling technique of all land-based telephone lines in Hong Kong was performed between June and October, 1998 in order to identify potential participants for the travel survey. Eligible participants were those in the household who were ethnic Chinese, aged 15-64 years, able to communicate in Cantonese and had travelled overseas (including mainland China) in the past 12 months. A structured questionnaire was used for data collection. Details of the data collection methods have been described elsewhere.²⁰ Briefly, the questionnaire included questions on demographics, types of precautionary measures taken prior to travel, whether help had been sought from any health professionals/services, and health problems experienced during and within 2 weeks after travel.

For the cross-sectional survey among the residents, we contacted 527 travellers and 369 were willing to be interviewed (70% response rate). Of

these 89 reported that they had travelled to Guangdong Province (the closest province of mainland China to Hong Kong). Since many of these travellers might live in nearby cities or visit there only for a short duration, they were excluded from the analysis. Therefore our final analysis is based on 280 travellers.

To obtain views from health professionals regarding the demands for travel health services in Hong Kong and to assess the types of services provided by practitioners, a telephone interview was carried out with 20 systematically recruited practitioners of tropical medicine ($n = 8$) and family medicine (12).

Data were analyzed using SPSS for Windows version 6.0. Missing data were excluded from the analysis. The demographic and other relevant characteristics of subjects who developed health problems during and within 2 weeks after travel were compared with those of subjects who did not develop travel-related illness using χ^2 tests or Fisher Exact tests. We assumed that health problems that developed within 2 weeks after travel could have been associated with the recent travel. Excess burden of health problems due to travel was assessed by making comparison with other locally available data in a descriptive manner.

Results

Demographic characteristics

Of the 280 respondents, 53% were female; 18% were aged below 25 years, 55% between 25 and 44 years, and 27% between 45 and 64 years; 61% were married; 24% had attained education at college or above; and 20% were ever smokers. The mean number of trips made by the respondents in the previous year was 7.8 (SD = 3.44) with 60% travelling once or twice, 16% three or four times, and the remaining 24% five or more times. Most of the journeys were made to countries in the Asia-Pacific region. China was the most popular destination (33%) followed by Thailand (21%), Japan (8%), the Philippines (7%), South Korea (4%), other Asian countries (19%), countries in North America (5%) and Europe (3%).

Travel health advice and provision of precautions

Only 9% of respondents received pre-travel health advice. Sources of pre-travel health advice for the 25 traveller who sought assistance included travel agents (29%), general practitioners (GP) (21%),

family members or friends (12%), travel magazines or books (12%), insurance companies (6%), and the remaining 20% from other sources.

Of the respondents ($n = 280$), 67% mentioned that they would visit hospital for pre-travel health advice if there were travel medicine clinics and 78% (145/187) of these would be willing to pay for these services. Of those who would seek pre-travel health advice ($n = 187$), 43% said that they would request vaccinations while 72% would ask about health hazards in their destination countries. When asked about their preferred methods for receiving travel health-related information (multiple responses were allowed) most travellers (74%) mentioned leaflets distributed by travel agents while buying tickets. Other potential sources of information described included leaflets available at exit points (53%), healthcare workers (15%), video show at exit points (12%), free travel health kits (5%) and others (18%).

Health problems reported by travellers

Of the respondents ($n = 280$), 20% had developed health problems during or within 2 weeks after travel. Alimentary and respiratory illnesses were the most commonly reported health problems (Table 1). Of those who developed health problems during or after travel ($n = 56$), 12% had lost at least a day from work due to their travel-related health problems, 2% were hospitalised and 75% had to spend money (19% had spent >US\$12) either for buying self-medication, medical consultations or hospitalisation.

Health problems: while travelling vs. while staying in Hong Kong

Table 2 shows the percentage of travellers who experienced health problems during the 2 weeks prior to the interview (8%; 21/263) and during travel abroad (20%; 56/280). Travellers were 8 times more likely to experience problems of the alimentary system and 2.5 times more likely to experience respiratory problems while abroad than non-travelling Hong Kong residents. Travellers also experienced 1.7 times more miscellaneous health problems while abroad than while in Hong Kong (Table 2).

Health problems: travellers vs. non-travellers

We further compared the health problems reported by travellers with those reported by non-travellers (did not make any travel out of Hong Kong during

Table 1 Health problems reported by travellers during or within 2 weeks after travel ($N = 56$).

Health problem	No. of cases	%
<i>Alimentary system</i>	22	39.3
Diarrhoea	6	10.7
Vomiting	2	3.6
Abdominal cramps	3	5.3
Indigestion/abdominal discomfort	8	14.4
Constipation	3	5.3
<i>Respiratory system</i>	14	25
Sore throat	2	3.6
Common cold	6	10.7
Runny nose	3	5.3
High fever	1	1.8
Influenza-like illness	2	3.6
<i>Dermatological and musculoskeletal problems</i>	6	10.7
Sun burn	2	3.6
Skin allergy	1	1.8
Dermatitis	1	1.8
Muscle pain	1	1.8
Physical trauma	1	1.8
<i>Miscellaneous</i>	14	25
Exacerbation of a pre-existing disease	6	10.7
Dental problem	2	3.6
Other health problems	6	10.7

Note: Bold numbers and percentages indicate system summaries.

the past year) in Hong Kong in 1996–1997.¹³ Travellers were 8 times more likely to experience problems of the alimentary system and 1.6 times more likely to experience respiratory problems while abroad in comparison to their non-travelling counterparts in Hong Kong (Table 3).

Sexual risk taking: travellers vs. non-travellers

Table 4 shows that travellers were 2 times more likely to have casual sex and 1.6 times more likely to have 2 or more casual sex partners while abroad than in Hong Kong. Although the prevalence of condom use was slightly higher during casual sex abroad, about one-third did not always use condoms.

Interviews with health professionals

Of the 20 physicians approached, 15 agreed to participate in the interview (75% acceptance rate).

Table 2 Comparison of travel-related (during or after travel) health problems of travellers with the past 2 weeks prior to interview.

Health problems reported	Travel-related health problems (<i>n</i> = 280) (%)	During the past 2 weeks prior to interview (<i>n</i> = 263)* (%)
Alimentary system [†]	8	1
Respiratory system [‡]	5	2
Dermatological and musculoskeletal problems [§]	2	2
Miscellaneous (symptoms, signs and other ill-defined conditions) [¶]	5	3
No health problems	80	92
Total	100	100

*Those respondents who had travelled in the past 2 weeks prior to interview (*n* = 17) were excluded.

[†]Included diarrhea, vomiting, abdominal cramps, indigestion, abdominal discomfort, constipation.

[‡]Sore throat, common cold, flu-like fever, high fever, runny nose.

[§]Dermatitis, skin allergy, sun burn, muscle pain, physical trauma.

[¶]Included pre-existing health problems and other minor signs and symptoms that cannot be categorized under any systems.

Table 3 Comparison of travel-related health problems of travellers with those non-travellers from different occupation groups.

Health problems reported	Travel-related health problems (<i>n</i> = 280) (%)	Health problems during the 2 weeks prior to survey among non-travellers (<i>n</i> = 1131)*,†,13 (%)
Alimentary system [‡]	8	1
Respiratory system [§]	5	3
Dermatological and musculoskeletal problems [¶]	2	2
Miscellaneous (symptoms, signs and other ill-defined conditions)**	5	4
No health problems	80	90
Total	100	100

*These subjects reported that they did not travel during the previous year.

[†]Subjects were recruited from different occupational groups including business sector, educational sector (staff and students), social hygiene clinic attenders, and service sector.

[‡]Included diarrhea, vomiting, abdominal cramps, indigestion, abdominal discomfort, constipation.

[§]Sore throat, common cold, flu-like fever, high fever, runny nose.

[¶]Dermatitis, skin allergy, sun burn, muscle pain, physical trauma.

**Included pre-existing health problems and other minor signs and symptoms that cannot be categorized under any systems.

Table 4 Comparison of sexual risk taking among travellers and non-travellers in Hong Kong (*N* = 425)²¹.

	While in Hong Kong during the previous year (%)	While travelling during the previous year (%)
Had sexual intercourse with casual sex partner	11	22
Always used condoms with casual sex partners	61	67
Number of casual sex partners (2 or more)	46	74

Five were tropical medicine specialists and 10 were general practitioners. Of the respondents (*n* = 15), 60% mentioned that they provide travel health services (advice, immunisation or consultation) to about 50% of their clients, 20% between 24% and

49% and the remaining 20% to less than 25% of their patients. Most providers (90%) mentioned that many patients receive travel-related services in association with visits for other health conditions. They also noted that many clients were concerned

about the fees, especially because they did not have coverage for travel health consultation for personal travel. Seventy percent of the practitioners thought that if travel medicine services were available then demands for the services would increase as many travellers were not aware of the existence and need for travel health services. When asked about the prevalence of illnesses among the travellers they had seen in the previous month, most health care providers mentioned gastrointestinal problems (90%), respiratory illnesses (50%), and malaria or fever of unknown origin (20%). All the tropical medicine specialists had received post-graduate training in tropical medicine whereas none of the GPs had received post graduate training in travel or tropical medicine. However, all mentioned that they felt confident in providing travel health service to their clients. When asked about need for training and guidelines on travel-related illnesses, 90% and 80% agreed, respectively.

Discussion

The review, analysis and findings of this study generated information that could be used for assessing the travel health needs of the Hong Kong population. The available data^{5,6,8-12} provide insight into the existence of travel-associated health hazards and the types of services that are available locally.

The health assessment survey among Hong Kong travellers helped to document the availability of travel-associated health information. The study had a high initial acceptance rate (70%) about travel-related health, possibly indicating awareness and concern on the part of the public about this issue. The demographic characteristics of this sample were comparable to the 1996 population By-Census data,²² reflecting the representativeness of the study population.

The attack rate of health problems during or after travel (20%) in the survey is lower than in other local⁶ and international²³ studies which reported attack rates of 37% and 41%, respectively. However, the prevalence of common health problems (respiratory and alimentary system) reported in this study is consistent with previous studies.^{3,6} The higher prevalence of health problems among travellers compared to non-travellers reflects the excess burden of health problems due to travel.

Previous studies have shown that travellers take more sexual risks than non-travellers.²¹ The higher rate of risk taking (more casual sex, more sexual partners and inconsistent condom use) among the

travellers indicate their increased risk of sexually transmitted diseases including human immunodeficiency virus (HIV) infection.

The proportion of travellers who received travel health advice (9%) was lower in this study compared to UK travellers (20%).³ While this may reflect the lack of awareness of travel health risks among the general population, it may also indicate inadequate travel health promotion services available to the general public in Hong Kong.

Although many of the health services needed for travellers are available within the current health services in Hong Kong, the disorganised manner of these services and effectiveness of travel medicine clinics elsewhere²⁴ suggest the need for specialized travel health services in Hong Kong. Similarly, services received from informal care indicate the potential demand for formal travel medicine services. However, before initiating any formal care it might be useful to identify gaps in the existing travel health service provided through different service providers and to explore how the coverage could be maximised.

This study has identified the lack of post-graduate training on travel medicine among the service providers, although they were providing travel health service in practice. Many also expressed interest in training on travel medicine. As travel medicine is a specialized area, arrangements for appropriate training would be necessary before establishing travel health clinics or initiating extensive travel health services within the existing service framework.

The study has several limitations. First, the data were collected by a trained interviewer who may have used different interviewing techniques, despite having being instructed in a standard technique (interviewer bias). However, quality checks by the principal investigator found no discrepancies with the standard technique. Second, the data on non-respondents were not available to compare with respondents. It may be that those who participated in the study and completed the interview were those who are more concerned about health issues, were more knowledgeable and more likely to use protective measures while travelling. However, the 70% response rate was comparable to other local and international studies, indicating the reliability of the study findings. Third, the views gathered and health problems recorded were based on self-reporting of the physicians and survey respondents respectively (reporting bias). However, comparison with other available local and international data gave an estimate of the actual problem. Fourth, the data were collected in 1998 and may not reflect the current situation in 1995.

Finally, the health burden associated with travel was estimated based on locally available information and health problems identified in the current study. In the absence of a comparison group it was difficult to assess the excess burden associated with travel. Moreover, some of the locally available studies^{5,13,21} were conducted among highly selected groups and, in addition, some of these studies mainly sought detailed information related to the risk of HIV infection. However, in the absence of any reliable data and the demand for an assessment within a limited period of time, our findings provided baseline information that could be used for further studies.

Conclusions

The current study identified several travel-related health problems and limitations in the current travel health service in Hong Kong. Although the prevalence of health problems was low compared to studies elsewhere, it is obvious that certain groups are at higher risk than others. While it may be difficult to identify those high-risk groups, the appropriate public health sector or the newly established Health Protection Agency could still take measures to reach the general public to meet their travel-related health care needs. Moreover, this assessment established the need for organized travel medicine services and training programmes in Hong Kong. This should encourage healthcare service providers and government policy makers to consider travel health service as part of the overall health care service and initiate programs accordingly.

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