KNOWLEDGE AND PRACTICE OF TRAVEL MEDICINE AMONG PRIMARY HEALTH CARE PHYSICIANS IN QATAR

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Abstract. This prospective descriptive survey was conducted among primary health care (PHC) physicians in Qatar from January to May 2007 in order to determine whether travelers obtained correct travel health information. Of 130 physicians approached, 98 agreed to participate in the study and 76 attended the symposium and complete the questionnaire. The questionnaire included socio-demographic characteristics, knowledge and practices about travel medicine before and after the symposium. Forty-four point seven percent of the subjects provided health advice to travelers. Female physicians (59.2%) outnumbered male physicians (40.8%). Qatari physicians (60.5%) outnumbered non-Qataris (39.5%). Most physicians spent at least 15 minutes with each traveler (44.1%). The symposium increased the knowledge of physicians about travel medicine. A significant increase in knowledge was seen in the post-symposium questionnaire for most questions. The main source of knowledge for most physicians was the internet (78.9%). Nearly half the subjects provided pre-travel health advice. All the subjects had improved knowledge of travel medicine following the symposium.

Keywords: travel medicine, knowledge, practice, PHC physicians, Qatar

INTRODUCTION

Travel medicine is a constantly changing specialty. Travel-associated health risks need to be balanced against the positive opportunities associated with interregional travel (Behrens *et al*, 2010). The primary goal of travel health is to protect travelers from accidents, disease and death. Travel related diseases are important for public health. International travel has dramatically increased during recent years. Each year, 50 million travelers residing in developed countries visit developing countries where the hygienic and epidemiological conditions are fundamentally different from their home country; this number is rapidly

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increasing (WHO, 1999). The number of UK residents traveling abroad is increasing at a rate of 16% per year (Carroll *et al*, 1998). In 2000, UK residents made 56.8 million trips abroad, more than 3 times the number in 1980, increasing exposure to travel related morbidity (Office for National Statistics, 2000). Southest Asia has seen an increase in travel and pre-travel health consultations (Wilder Smith *et al*, 2004). Africa, Southeast Asia, and the Middle East have seen high tourist growth rates (World Tourism Organization, 2010). Travelers are increasing risk of exposure to travel-related health problems, including infectious diseases, which may be imported back to their country of residence. Tuberculosis has been transmitted during journeys within the US (Moore *et al*, 1999).

Many travelers do not seek pre-travel health advice and are unaware of the health risks of their destination. Adequate medical pre-travel advice and post-travel medical care are important for traveler's health. In an era of globalization, physicians are expected to have a broader understanding of various medical practices, and a knowledge of tropical diseases and emerging global infections (Bateman *et al*, 2001). Primary care physicians are often the first line contacts for travelers seeking pre-travel advice or post-travel consultation. Those advising travelers need to know about the changing epidemiology of travel-associated diseases and the availability of specific new preventive and treatment measures (Ingram and Ellis-Pegler, 1996).

The State of Qatar, like many other developing countries, has witnessed a rapid change in many aspects of life during the last two decades. The discovery of oil in the mid-1900s has contributed to a significant social change, and Qatar has experienced a rapid transition in its socioeconomic status. People in Qatar now enjoy a high standard of living; and more and more people each year are involved in international travel for reasons of business and pleasure. Thus, international travel has dramatically increased during the past decade. There has been an increase in disease and public health problems. No study has yet been conducted in Qatar regarding the knowledge and practices of providers about travel medicine.

This study evaluated the baseline knowledge and practices of primary health care (PHC) physicians regarding travel medicine before and after symposium in the State of Qatar to determine whether travelers obtain correct travel health information from physicians.

MATERIALS AND METHODS

This was a prospective descriptive study conducted among PHC physicians in the State of Qatar from January to May 2007. A questionnaire was used to evaluate knowledge and practices of PHC physicians regarding travel health. Written consent was obtained from the PHC Center Directorate to interview the selected physicians. There were 130 physicians working at primary health care centers; all of them were approached to complete the questionnaire. Those who gave consent were included in this study. Of the total 130 physicians approached, 98 expressed an interest to participate in the study and responded to the questionnaires, with a response rate of 75.4%. Only 76 physicians attended the symposium and completing both questionnaires because of their duties.

A structured self-administered questionnaire was used to obtain information regarding travel health advices given by

PHC physicians in Qatar. This questionnaire included information about various issues of travel medicine and socio-demographic characteristics of physicians. The survey instrument was tested on 15 randomly selected PHC physicians.

A one-day symposium was held for study subjects about travel medicine. A post-intervention questionnaire was filled out by subjects immediately after the symposium. A second questionnaire, a multiple choice question format, was used to measure the knowledge of physicians. This questionnaire included 10 questions regarding various aspects of travel medicine. Prior to the course, attendees completed this questionnaire. The physicians were asked to complete and return it on an anonymous basis. After the symposium, an identical test was given to measure their improvement in knowledge with the seminar.

The State of Qatar is located halfway up the western coast of the Arabian Gulf. Doha is the capital and commercial center of the country. The estimated population of the State of Qatar for the year 2006 was 838,065 (Planning Council, 2006). Approximately 30% of the population was Qatari nationals and the rest were expatriates, mostly from the Middle East, South Asia, and Southeast Asia. This study was approved by the Hamad General Hospital Research Ethics Committee and were performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. The Statistical Package for Social Sciences (SPSS, Chicago, IL) was used for statistical analysis. A paired *t*-test was used to ascertain significant of differences between paired groups. The Fisher exact test (two-tailed) and chi-square were used for statistical analysis. The *p*-value <0.05 was considered significant.

Table 1
Demographic and travel medicine practice characteristics of primary health care physicians in Qatar ($N = 76$).

Variables	*n* (%)
Age group (years)	
<30	23 (30.3)
30-39	29 (38.2)
40-49	8 (10.5)
≥50	16 (21.1)
Mean age ±SD	37.0 ± 10.5
Gender	
Male	31 (40.8)
Female	45 (59.2)
Nationality	
Qatari	46 (60.5%)
Non-Qatari	30 (39.5%)
Medical degree obtained	
Bachelor	60 (78.9)
Diploma	2 (2.6)
Master	10 (13.2)
Arab Board	2 (2.6)
PhD	2 (2.6)
No. of years of experience	
1-9 years	46 (60.5)
10-19 years	13 (17.1)
20-29 years	8 (10.5)
≥30 years	9 (11.8)
Number of patients seen per week	
<100	25 (32.9)
100-200	18 (23.7)
200-300	16 (21.1)
300-400	11 (14.5)
400-500	6 (7.9)
Health advice given to travelers	
Yes	34 (44.7)
No	42 (55.3)
Number of travelers seen per week	
<10	17 (22.4)
10-19	10 (13.2)
20-29	7 (9.2)
Not seen	42 (55.3)
Duration of health advice to travelers (in minutes)	
1-5	9 (26.5)
5-10	10 (29.4)
10-15	15 (44.7)
Mean duration ±SD	7.30 ± 4.6

RESULTS

Table 1 shows the demographic and travel medicine practice characteristics of the studied subjects. Of the study subjects, 79% were general practitioners. The mean age was 37 years; 38.2% were aged 30-39 years and 30.3% were aged <30 years. Fifty-nine point two percent were females, and 60.5% were Qatari. Forty-four point seven percent provided travel related health advice, and 44.7% spent at least 15 minutes with each traveler and the mean duration of consultation was 7.3±4.6 minutes. The average subjects saw ID travelers per week.

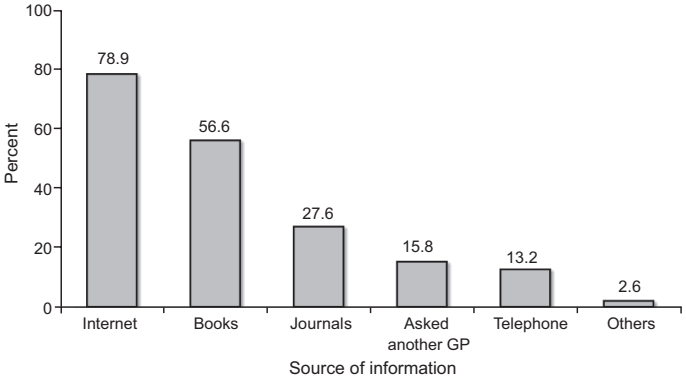

Fig 1–Main source of information about travel medicine among primary health care physicians in Qatar.

Table 2 shows the knowledge of PHC physicians after the one day symposium on travel medicine. A two fold increase occurred in the number of physicians who answered questions correctly on travel medicine after the symposium compared to the pre-test. There was a significant improvement in overall physician knowledge of travel medicine except for two questions related to travelers' diarrhea and dengue hemorrhagic fever. The main improvement was in the subject schistosomiasis, followed by which combination of drugs should be avoided during travel, then causes of death in developing countries.

Table 3 shows the frequency of various types of health advice given regarding travel medicine. Physicians provided pre-travel advice mostly regarding travel vaccines, malaria prophylaxis, safety, first aid knowledge, insect bite avoidance, sexual transmitted infection, motion sickness and unsafe sex. The most common topics in pre-travel consultations were travel vaccines (30.3%), malaria prophylaxis (28.9%), and sexually transmitted infections (19.7%).

Fig 1 shows the main sources of knowledge about travel medicine for PHC physicians in Qatar. The main source of knowledge was the internet (78.9%), followed by books (56.6%) and journals (27.6%). Fifteen point eight percent of physicians asked another physician and 13.2% sought advice through the phone.

DISCUSSION

This study provided an overview of the travel health practices provided by PHC physicians and assessed their baseline knowledge about travel medicine in the State of Qatar. Travel health advice can be complex and trained health care professionals are essential to ensure the well being of travelers. To our knowledge, this is the only study in Qatar of knowledge and practices of physicians about travel medicine.

Forty-four point seven percent of the PHC physicians in our study provided pre-travel medical advice to travelers. A study done in Germany reported 90% of general practitioners (GPs) provided travel health advice or dealt with ill

Table 2
Assessment of acquisition of knowledge of primary health care physicians after the one day symposium on travel medicine ($N = 76$).

Questions	Before symposium *n* (%)	After symposium *n* (%)	*p*-value
Q1. Reminding the user to avoid taking which combinations of drugs?	24 (31.6)	55 (72.4)	<0.001
Q2. Vaccination of yellow fever is important for travelers when travelling to which country?	19 (25.0)	37 (48.7)	0.010
Q3. Taking bismuth subsalicylate will decrease the incidence of traveler's diarrhea to what percent?	31 (40.8)	40 (52.6)	0.163
Q4. The most common cause of death among travelers in developing countries.	27 (35.5)	57 (75.0)	<0.001
Q5. *Plasmodium falciparum* resistance to mefloquine is found primarily where?	20 (26.3)	40 (52.6)	<0.001
Q6. Which of the following regimens are inappropriate for malaria chemoprophylaxis?	29 (38.2)	44 (57.9)	0.006
Q7. Dengue hemorrhagic fever.	7 (9.2)	8 (10.5)	0.999
Q8. What is the important drug to give in case of anaphylaxis after giving a vaccine?	46 (60.5)	63 (82.9)	<0.001
Q9. Where is there no risk of schistosomiasis?	7 (9.2)	63 (82.9)	<0.001
Q10. The best way to sterilize water for drinking.	35 (46.1)	62 (81.6)	<0.001

Table 3
Frequency of various types of health advice given on travel medicine by primary health care physicians in Qatar.

Type of health advice	Always	Mostly	Sometimes	Never	Not sure
Malaria prophylaxis	22 (28.9)	19 (25.0)	16 (21.1)	4 (5.3)	15 (19.7)
Travel vaccines	23 (30.3)	12 (15.8)	24 (31.6)	2 (2.6)	15 (19.7)
Safety	10 (13.2)	22 (28.9)	17 (22.4)	9 (11.8)	18 (23.7)
First aid knowledge	10 (13.2)	18 (23.7)	19 (25.0)	13 (17.1)	16 (21.1)
Insect bite avoidance	11 (14.5)	15 (19.7)	27 (35.5)	8 (10.5)	15 (19.7)
STIs	15 (19.7)	11 (14.5)	17 (22.4)	11 (14.5)	22 (28.9)
Unsafe sex	9 (11.8)	17 (22.4)	16 (21.1)	15 (19.7)	19 (25.0)
Motion sickness	8 (10.5)	17 (22.4)	20 (26.3)	14 (18.4)	17 (22.4)
Medical first aid kit	7 (9.2)	17 (22.4)	20 (26.3)	12 (15.8)	20 (26.3)
Geographical diseases	7 (9.2)	15 (19.7)	20 (26.3)	13 (17.1)	21 (27.6)
Clothing	8 (10.5)	10 (13.2)	23 (30.3)	10 (13.2)	25 (32.9)
In flight exercise	5 (6.6)	8 (10.5)	27 (35.5)	16 (21.1)	20 (26.3)
Barotrauma	5 (6.6)	7 (9.2)	23 (30.3)	13 (17.1)	28 (36.8)
Travel insurance	3 (3.9)	8 (10.5)	12 (15.8)	30 (39.5)	23 (30.3)
Jet lag	3 (3.9)	8 (10.5)	15 (19.7)	14 (18.4)	36 (47.4)

travelers returning from tropical countries (Hughes and Carliste, 2000; Ropers *et al*, 2004). In a study from the UK, 85% of GPs saw patients for travel medicine consultations (Carroll *et al*, 1998). This shows in Qatar, travel medicine is not as prevalent in the primary care setting or travelers in this region have poor travel health seeking behavior. The provision of comprehensive pre-travel health advice is essential to reduce the incidence of travel related morbidity. Studies from other countries found that primary care physicians are active in travel medicine (Reed *et al*, 2001; Schunk *et al*, 2001). In the present study, more than half of the GPs did not offer travel health counseling for travelers.

Some suggest pre-travel health advice should be provided by qualified practitioners who can maintain expertise through seeing an adequate number of travelers per month (Wiks and Grenfill, 1997; Zuckerman, 2002; Spira, 2003). Primary health care physicians need to be well rounded regarding global health issues and understand existing and newly emerging global diseases. A clinician's ability to recognize or suspect disease endemic to other world regions has become increasingly important (Wilson and Pust, 1999) The present study revealed the number of physicians who answered questions correctly related to travel medicine was low. However, there was a two fold increase in the number of physicians who answered questions correctly after the symposium.

In this study, we evaluated the knowledge related to travel medicine of PHC physicians using a self-administered questionnaire before and after a symposium. There was a significant improvement in overall knowledge of the physicians after symposium. The main improvement was in the area schistosomiasis, followed by which combination of drugs should be avoided during travel and causes of death in developing countries.

In the UK, pre-travel health advice is predominantly provided through general practitioners. The duration of consults with travelers ranges from less than 5 minutes to over 30 minutes (Hoveyda *et al*, 2004). In Australia, most (79.2%) GPs reported they spent between 5-25 minutes for pre-travel consultations (Seelan and Leggat, 2003). Our study reported provision of health advice took 5-15 minutes among primary care physicians. The shorter duration of consultation found in our study is different from the UK and Australia. The GPs in our study reported they generally gave advice to travelers regarding travel vaccines, malaria prophylaxis, STI, personal protective measures against insect bites, first aid knowledge and safety. This same pattern was found in a study done in Australia (Seelan and Leggat, 2003).

The main sources of knowledge regarding travel medicine for physicians in Qatar was the internet (78.9%), followed by books (56.6%) and journals (27.6%). In Britain (Carroll *et al*, 1998), most GPs had ready access to a range of information sources including a postgraduate medical center (85%) and a medical library (91%). Computerized access to information is feasible to those who have a computer (93%). A national survey conducted among GPs in Germany (Planning Council, 2006) reported for counseling their patients, the main sources of the travel medicine information were the CRM handbook (73.6%), followed by "Fit for travel". One-fifth of GPs used official information channels (19.8%), such as epidemiological bulletins. PHC physicians are the best people to give pre-travel health advice, but they need to be well trained to meet the demands of the travelers. There was a significant

improvement in the overall knowledge of physicians after the symposium. These results suggest a high demand for education and training programs, which need to be expanded rapidly to meet the training needs of primary care physicians.

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