

## Pre-travel Health Advice and Medical Services by Healthcare Professionals – A Literature Review

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**Introduction:** Travel medicine is an emerging branch of medicine concerned with the well-beings of travellers before, during, and after travel. Pre-travel health advice and medical services are important to keep travellers healthy and ensure a safe and pleasant journey by minimising impact of illness and accidents.

**Objective:** This paper serves as a literature review paper on the pre-travel health advice seeking behaviours amongst travellers as well as the pre-travel health advice and medical services provided by the health professionals.

**Methodology:** An extensive online literature search using the search terms of “pre-travel”, “health advice”, “medical services”, and “health professionals” was done on electronic bibliographic databases including PubMed and Scopus supplemented by Google Scholar.

**Results:** Twenty original studies as retrieved from the online databases which fulfilled the inclusion criteria were included in the review. Prevalence of pre-travel advice seeking behaviour is reportedly low in Malaysia (36.8% - 40.5%). Studies done amongst pharmacists in Malaysia revealed that the Malaysian pharmacists have been actively involved in providing pre-travel health advice and medical services (76.6% - 85%). High percentages of healthcare professionals in Europe and American (68% - 94.7%) provide pre-travel advice and medical services, followed by 79.5% in Saudi and 44.7% in Qatar. The top 5 topics of health advice most frequently cited were on malaria, travel insurance, sexually transmitted disease/HIV, vaccinations and first aid kit. The average duration spent for pre-travel consultation range from 5 to 30 minutes.

**Conclusion:** Travellers should be educated on the importance of seeking pre-travel advice and vaccinations to raise their awareness. Healthcare practitioners should be well-trained and informed to provide good pre-travel advice and services.

**Keywords:** *Pre-travel, health advice, medical services, travellers.*

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### Introduction

Travelling is one of the favourite activities globally, be it for leisure or business purposes. Over the past six decades, tourism industry has been experiencing rapid expansion and diversification.<sup>1</sup> In 2013, international travel increased by 5% and reached a record of 1087 million arrivals worldwide.<sup>2</sup> As reported by the United Nations World Tourism Organization (UNWTO) World Tourism Barometer, international tourists worldwide had subsequently grown 7% remarkably in 2017 reaching a total of 1.322 billion and it was expected to increase at a rate of between 4% and 5% in 2018.<sup>3</sup> By year 2030, the number of international travellers was estimated to reach 1.8 billion per year.<sup>4</sup>

Prior to the COVID-19 outbreak, it was estimated that 11.9 million outbound trips were recorded in Malaysia in 2016 ([www.statista.com](http://www.statista.com)) and this figure was projected to grow by an average of 3.5% annually to 14.2 million trips by 2021.<sup>5</sup> Tourism is one of the major industries contributing to the Gross Domestic Product in Malaysia.<sup>6</sup> In 2017 alone, Malaysia received 25.95 million tourists which garnered RM82.1 billion to the economy in the country.<sup>6</sup> According to the Department of Statistics Malaysia Official Portal, the outbound tourism expenditure by Malaysians showed

a steady upward trend from RM31.1 billion in 2015 to RM44.8 billion in 2019 before the pandemic.<sup>7</sup> Besides, annual sales of RM220 million in 2017 were also reported by the Malaysian Association of Tour and Travel Agents (MATTA).<sup>5</sup> Over the years, the number of Malaysians travelling abroad has also increased tremendously along with improved access to air travel, easier booking of flight tickets with the availability of Internet, as well as the rise of low-cost and economic airlines.<sup>5</sup>

Travel medicine is an emerging branch of medicine for more than 25 years<sup>8</sup> with the recent celebration of the 30<sup>th</sup> anniversary in 2021 by the International Society of Travel Medicine (ISTM). It deals with preventing and managing diseases and conditions which are commonly acquired during travel.<sup>9</sup> It involves a wide range of interdisciplinary fields ranging from epidemiology, preventive medicine, infectious diseases, primary care, emergency medicine, tropical medicine, dermatology, gastroenterology and many other medical speciality fields.<sup>9</sup> It is concerned with the well-beings of travellers before, during, and after travel.<sup>8</sup> The primary purpose of travel medicine is to minimise impact of illness and accidents by various modes of self-treatment which ultimately keeps the travellers healthy and alive.<sup>10</sup> The art of travel medicine lies in the meticulous adoption of preventive strategies while avoiding measures which may bring unnecessary adverse events, costs, or inconveniences.<sup>10</sup>

As international travel has increased dramatically, the risk of travel associated illnesses has also increased drastically,<sup>11</sup> such as infectious diseases.<sup>12</sup> Conservatively, 30-50% of travellers were estimated

to experience injuries or fall ill whilst travelling.<sup>13</sup> The maximum level of joy and fun during travelling could be attained by travellers if they are well advised of the risk to their health and safety associated with the trip.<sup>7</sup> Therefore, travel medicine has emerged as an obvious necessity<sup>10</sup> and it is crucial for travellers to seek pre-travel health advice and medical services to protect themselves from possible travel-related illnesses.<sup>1,14</sup> Ideally, pre-travel consultation should be done 6 to 8 weeks before travel to allow for vaccine courses or trial of chemoprophylaxis.<sup>8</sup> The risks of conditions such as infectious diseases, extreme temperatures, and marine hazards could be reduced and effectively prevented by pre-travel advice, vaccinations, and chemoprophylaxis.<sup>15</sup>

Hence, the main objective of this paper is to serve as a literature review paper on the pre-travel health advice seeking behaviours amongst travellers as well as the pre-travel health advice and medical services provided by the health professionals. By gathering all the published evidences for this topic, it aims to describe and provide insights on the behaviours of travellers in seeking pre-travel health advice as well as the involvements of health professionals including physicians, general practitioners (GPs), pharmacists, and nurses, not only from Malaysia but also globally, in travel medicine.

### Methodology

An extensive online literature search using the search terms of “pre-travel”, “health advice”, “medical services”, and “health professionals” was done on electronic bibliographic databases including PubMed and Scopus supplemented by Google Scholar.

The inclusion criteria for the eligible studies to be included in this literature review are as follows:

1. Study site: Studies conducted in Malaysia and all other countries.
2. Study participants: All healthcare professionals, including physicians, GPs, pharmacists, nurses, and etc.
3. Study design: Cross-sectional study
4. Study type: Original articles
5. Language: English

The exclusion criteria of the papers are:

1. Books, monographs, reports, case reports, conference abstracts, editorials, letters, comments, reviews (narrative or systematic), study protocols, as well as theses or dissertations

## Results

The literature search was performed from inception through 3<sup>rd</sup> July 2022. An online database search using search terms “pre-travel”, “health advice”, “medical services”, and “health professionals” yielded 20 relevant papers which fulfilled the inclusion criteria for this review. After finalising the studies to be included for review, full texts of all the eligible studies were retrieved. The retrieved references were managed using EndNote X8 citation manager.<sup>16</sup>

The studies were conducted in many countries globally, including Australia, Thailand, Ireland, New Zealand, United Kingdom, Qatar, Saudi Arabia, United States, Germany, France, Turkey, Switzerland, and Malaysia. Out of the 20 papers, two papers were published in Malaysia (each in Kuala Lumpur and Selangor). The studies had involved nurses, GPs, pharmacists, and primary health care (PHC) physicians.

### *Seeking Pre-Travel Health Advice and Uptake of Pre-Travel Vaccines among Travellers*

Pre-travel advice seeking among Malaysian travellers was found to be rather low. A survey done among 498 Malaysian travellers in the Kuala Lumpur International Airport (KLIA)<sup>17</sup> reported that only 36.8% of the respondents had sought pre-travel health advice and mostly (64.7%) from their doctor. It is noteworthy that only 23.6% of the travellers had received travel vaccinations, 40% were uninsured and over 50% did not know how to access medical care overseas. Meanwhile, this study also reported that the biggest perceived barriers to seeking travel health advice was concern about potential side effects (21.9%), not considering themselves at risk (20.9%), and financial constraints (13.3%).

Another survey amongst 316 travellers in KLIA and Sultan Abdul Aziz Shah Airport<sup>14</sup> also reported similar results where only 40.5% of the subjects sought pre-travel health advice. Of those, only 12.5% sought advice from a health care professional, 39.8% sought it from family or friends, 35.2% from the internet, 7.0% from a travel agency, 3.1% from their company and 2.3% from travel literature. Fifty-two point eight percent of subjects had received pre-travel vaccinations and 4.1% of the subjects took malaria prophylaxis medication.

A survey amongst 111 pharmacists in Kuala Lumpur showcased that the participation of Malaysian pharmacists in travel medicine was quite high, with 76.6% actually provided travel medicine advice to travellers.<sup>2</sup> The pharmacists counselled a mean ( $\pm$ SD) of  $6\pm 5$  travellers every month and the average counselling time spent with each traveller was  $8\pm 4$  minutes.

Another survey conducted in 95 community pharmacies in nine districts of Selangor revealed that 85% of the pharmacies provided services to both international travellers and outbound Malaysian travellers.<sup>1</sup> The common healthcare services provided to international travellers were monitoring of chronic diseases including hypertension and diabetes, and advice on minor ailments, supplements and medical devices. The key health services provided to outbound Malaysian travellers were advice on vaccination requirements, better management of chronic diseases and necessary medications to manage illness during travel. Common services sought by international travellers were measuring blood pressure (81.19%), testing of blood glucose (77.23%), advice on minor ailments such as fever, allergy, cold and flu (39.60%), recommendations regarding supplements and medical devices (37.62%), and general guidance on wound care and minor injuries (11.88%). Medicines and self-care products sought by all kinds of travellers were insect repellent (100%), anti-diarrhoeal medications (100%), medications for motion sickness (100%), medications for travellers' diarrhoea (98.02%), oral rehydration solution (ORS) (97.03%), medications for altitude illness (74.26%), first aid kit for travellers (69.31%), anti-malarial medications (41.58%), water purification tablets (19.80%), mosquito nets (9.90%), vaccinations for travellers (7.92%), and oral typhoid vaccine (3.96%).

A nationwide survey done in Germany<sup>18</sup> involving 1320 GPs highlighted that 94.7% provided pre-travel advice or travel-related health care to their patients. Reportedly, the average number of patients with travel-related issues was 13.2 per month and about two-thirds (63.6%) of the GPs gave pre-travel counselling to at least 10 patients monthly.

In the United States, a survey amongst 902 practitioners<sup>19</sup> saw that 80% of the respondents personally provided pre-travel advice (95% travel medicine specialists versus 73% primary care physicians). More than half (59%) of the travel medicine specialists compared to only 18% of the primary care physicians reportedly consulted >500 travellers per year.

A study involving 433 GPs in Australia reported that the GPs saw an average of 3.9 (SD  $\pm$  11.8) travellers per week and most of them (79.2%) spent between 5-25 minutes for pre-travel consultations.<sup>20</sup> Meanwhile, another survey conducted amongst 255 pharmacists in Australia<sup>21</sup> remarked that over two-thirds (68%) provided travel-related advice in their current practice. Similarly, the frequency of giving advice was rather low with 69% pharmacists seeing less than two travellers per week and 83.9% spending less than one hour per week on providing these services. In addition, only two pharmacists (1.1%) in this study completed full and formal pre-travel health risk assessments for the patients.

In a survey of 210 primary healthcare physicians in Saudi Arabia,<sup>22</sup> most of the physicians (79.5%) had ever provided health advice to travellers. The majority of the physicians had less than 10 consultations every week for pre-travel health advice and approximately 5-10 minutes were spent on more than 30% of travellers. These findings were in contrast to another study done in the state of Qatar whereby a survey amongst 130 primary health care (PHC) physicians found that only 44.7% provided health advice to travellers.<sup>23</sup> Most physicians (44.1%) spent at least 15 minutes with each traveller and the mean duration of consultation was  $7.3 \pm 4.6$  minutes.

Besides, a study among 150 Swiss and 150 German general practitioners reported that 96% of the Swiss GPs and 89% of the German GPs provided pre-travel advice, with 4–5 times per month and 5–7 times per month respectively for the two groups.<sup>24</sup> However, another survey involving 120 Swiss pharmacists conducted in three cantons in Switzerland found that only 56% of the Swiss pharmacists gave advice regularly on an average of 2 to 3 times per month.<sup>25</sup>

Meanwhile, in a survey involving 91 general practices in South Cheshire Health Authority, the duration of consultation ranged from less than 5 to over 30 minutes, with a median and mode of 11 to 15 minutes respectively.<sup>26</sup>

In a cross-sectional study of pre-travel health-seeking practices among travellers (n=843) departing Sydney and Bangkok airports,<sup>27</sup> only half (49%) of the respondents were found to have sought pre-travel health information from any source and out of which only 35% seeking pre-travel advice from a health professional, the majority through general practice. Besides, only 12% of the respondents had received pre-travel vaccines. Interestingly, this study also highlighted that Asian travellers were less likely to report seeking pre-travel health advice and uptake of pre-travel vaccines than Australian or other Western travellers. As for the Australian travellers, migrant Australians were less likely to report seeking pre-travel health advice compared to the Australian-born travellers.

Also, a survey of 2019 travellers with chronic illness in France found that less than half (only 40.1%) sought pre-travel advice from their GPs<sup>28</sup> with 40.1% healthy travellers and 40.5% travellers reporting

chronic illness sought pre-travel advice from their GPs (P=0.96).

Similarly in the United Kingdom, a survey involving 320 British residents at Heathrow Airport traveling to malaria endemic areas revealed that only 54% visited their GPs before their trips and of these 79% were advised about antimalarial precautions.<sup>29</sup>

In another study describing the characteristics of last minutes travellers (LMTs) attending a travel health clinic in Ireland (n=1296),<sup>30</sup> over half (52.0%) had previously received travel vaccinations. The majority (92.8%) of the LMTs were unable to complete a scheduled course of pre-travel vaccines. Nevertheless, type of pre-travel advice was not the scope of this study.

#### ***Types of Pre-Travel Health Advice and Medical Services Provided***

In a survey among GPs registered with the New Zealand Medical Council,<sup>31</sup> the types of health advice given were concerning malaria (310/310, 100%), immunisation (309/310, 100%), travellers' diarrhoea (296/305, 97%), insect avoidance (287/299, 96%), sexually transmitted diseases/human immunodeficiency virus (233/283, 82%), water purification (235/293, 80%) and other areas (35/75, 47%).

A study involving 433 GPs in Australia<sup>20</sup> reported that the GPs generally advised the travellers on travel vaccines, malaria prophylaxis, personal protective measures against insect bites, geographic diseases, clothing, and sexually transmitted infections. The majority of GPs did not routinely give information on travel insurance, unsafe sex, barotrauma, in-flight exercise, jet lag or first aid knowledge.

Of the physicians active in travel medicine in a nationwide Germany survey,<sup>18</sup> the majority (98.2%) dealt with prophylaxis issues (on average, 11.6 patients/ month). Other issues advised on included travellers' diarrhoea, mosquito bites, malaria, immunisation, first-aid kit, travel insurance, sexually transmitted disease, and protection from sun.

Health advice offered by 50 GPs in Western Turkey<sup>32</sup> were care with food or water 35(70%), risks of excessive exposure to sun 15(30%), safe sex practices 9(18%), avoidance of insect bites 4(8%), danger of rabies 3(6%), dangers of illicit drug use 2(4%), health insurance 2(4%), and advisory leaflet given 2(4%).

Nevertheless, many other studies did not provide the details of the type of medical advice given. For instance, a survey involving 91 general practices in South Cheshire Health Authority,<sup>26</sup> most respondents reported giving advice on most travel-associated risks and the commonest source of advice was wall immunisation charts.

A survey amongst 111 pharmacists in Kuala Lumpur<sup>2</sup> only revealed that the topic rated as the most frequently advised was traveller's diarrhoea (74.7%) and the main area least frequently discussed was travel health insurance (64%).

In another survey conducted amongst 255 pharmacists in Australia,<sup>21</sup> when questioned about the type and level of travel health service offered, over a third of respondents (34.5%) reported that they only responded to travellers' questions and did not perform formal pre-travel health risk assessments, although 64.5% of respondents reported that they did ask the traveller questions about their itinerary and medical history.

Topics of pre-travel health advice reported in the studies are summarised in Table I. The top five topics of health advice most frequently cited were malaria (9 studies), travel insurance (7 studies), sexually transmitted disease or HIV (7 studies), vaccinations (6 studies), and first aid kit (6 studies).

**Table I: Pre-travel Health Advice Given by Health Professionals**

Topics	Reported Papers
Malaria	Heslop 2018, Leggat 1999, Seelan 2003, Campbell 1987, Al-Hajri 2011, Abeer 2021, Ropers 2004, Kodkani 1999, Hatz 1997.
Travel insurance	Heslop 2018, Seelan 2003, Al-Hajri 2011, Abeer 2021, Ropers 2004, Taha 2016, Usherwood 1989.
Sexually transmitted disease / HIV	Heslop 2018, Leggat 1999, Seelan 2003, Al-Hajri 2011, Abeer 2021, Ropers 2004, Kodkani 1999.
Vaccinations	Heslop 2018, Seelan 2003, Al-Hajri 2011, Abeer 2021, Kodkani 1999, Hatz 1997.
First aid kit	Heslop 2018, Seelan 2003, Al-Hajri 2011, Abeer 2021, Ropers 2004, Kodkani 1999.

Mosquito bite	Heslop 2018, Al-Hajri 2011, Ropers 2004, Kodkani 1999, Hatz 1997.
Insect bite	Heslop 2018, Leggat 1999, Seelan 2003, Abeer 2021, Usherwood 1989.
Jet lag	Heslop 2018, Seelan 2003, Al-Hajri 2011, Abeer 2021.
Motion sickness	Heslop 2018, Seelan 2003, Al-Hajri 2011, Abeer 2021.
Safe food consumption	Heslop 2018, Usherwood 1989, Kodkani 1999.
Safe water consumption	Heslop 2018, Leggat 1999, Usherwood 1989.
Immunisations	Leggat 1999, Ropers 2004, Usherwood 1989.
Geographic disease	Seelan 2003, Al-Hajri 2011, Abeer 2021.
Clothing	Seelan 2003, Al-Hajri 2011, Abeer 2021.
Safe sex	Seelan 2003, Al-Hajri 2011, Abeer 2021.
Barotrauma	Seelan 2003, Al-Hajri 2011, Abeer 2021.
In-flight exercises	Seelan 2003, Al-Hajri 2011, Abeer 2021.
Sun protection	Ropers 2004, Usherwood 1989, Kodkani 1999.
Rabies	Usherwood 1989.
Advisory leaflet given	Usherwood 1989.

## Discussion

This literature review provides valuable insights into pre-travel health advice seeking amongst travellers as well as the pre-travel health advice and medical services provided by the healthcare personnel, not only from Malaysia but also international context. A review of the literature shows that there is a paucity of data on the pre-travel health advice and medical services provided by the medical personnel in the Southeast Asia countries. Most studies regarding this topic were conducted in the Western countries. Nevertheless, it is noteworthy that two studies had

been conducted in the Malaysian airports and two studies involving pharmacists had been done in Malaysia.

To date, there is no specific travel medicine clinic in Malaysia.<sup>2</sup> Hence, community pharmacists play a vital role in providing pre-travel advice and health services to the travellers as they are among the first in line to convey pre-travel health advice and offer medical services to the community. This is evidenced by the two surveys done amongst the pharmacists in Kuala Lumpur whereby more than three-quarters of the pharmacists in the two studies (76.7% and 85%,

respectively)<sup>1,2</sup> provided advice and medical services to the travellers. However, it is important to note that no studies among medical doctors have been conducted in Malaysia to date. Hence, more studies involving not only the medical doctors but also all other groups of healthcare practitioners should be done in Malaysia.

The two surveys conducted in the Malaysian airports<sup>14,17</sup> portrayed a lack of preparedness amongst travellers<sup>17</sup> as less than half of the travellers actually sought pre-travel advice (36.8% and 40.5% respectively) and only 23% to 53% of travellers had the recommended travel vaccination coverage. This could be due to the lack of travel medicine clinic in Malaysia. Besides, this could also indicate a lack of awareness on seeking pre-travel advice among Malaysian travellers. It is thus warranted to set up more travel medicine clinics in Malaysia as part of the initiative to raise awareness among Malaysian travellers to seek pre-travel advice. Nevertheless, these surveys provided very important initial baseline data for travel medicine in Malaysia and this may inform the future development of travel medicine service in the country.

Meanwhile, surveys in the airports of Bangkok,<sup>27</sup> Sydney,<sup>27</sup> Ireland,<sup>30</sup> and Heathrow,<sup>29</sup> as well as France Travel Medicine Clinic,<sup>28</sup> revealed that only around half of the participants sought pre-travel advice prior to their trips. Although the numbers were slightly higher as compared to the Malaysian airports,<sup>14,17</sup> this still depicts the low uptake of pre-travel health advice seeking amongst travellers. This highly suggests that public health strategies aimed at travellers may be warranted, such as increasing uptake of pre-travel medical advice, ensuring routine and travel vaccines

are up-to-date, as well as setting up of travel clinics which are affordable and accessible.<sup>27</sup>

In view of the low percentages of travellers seeking pre-travel advice, it is thus also strongly suggested to conduct more future studies to explore the reasons of not seeking pre-travel health advice and medical services amongst travellers. Perhaps qualitative studies would provide more in-depth views and insights from the perspectives of travellers in regard to seeking pre-travel advice.

Nevertheless, the review generally revealed high percentages (44% - 96%) of healthcare practitioners providing pre-travel advice as part of their consultations. This is an encouraging scenario as it depicts the high awareness and active participation of medical professionals in travel medicine. Seeing adequate number of travellers in a timely manner could help to maintain expertise amongst the healthcare practitioners as well.<sup>23</sup>

From the review, the average time spent for pre-travel consultations range from 5 to 30 minutes which is equivalent to average time spent by a doctor with a patient in a general consultation. This might suggest the limited or insufficient time available for the doctors to provide comprehensive pre-travel advice and services. Consequently, the doctors, physicians, or GPs should consider producing standardised written advice and documentations for travellers such as pamphlets containing pre-travel advice and healthful information.<sup>20</sup> Distribution of written travel advice and information not only raises awareness amongst travellers in an efficient manner but also is a cost-effective way.



It is crucial for healthcare practitioners to provide not only informative but also accurate pre-travel advice and medical services. Hence, healthcare practitioners should be well-informed and receive sufficient training to achieve proficiency in travel medicine<sup>2</sup> for the maximal benefits of travellers at the receiving end. It was reported that there were inadequacies of training, inconsistent reference resources, and little incentive for practices for healthcare professionals to provide pre-travel health services.<sup>26</sup> On top of all, specialised travel medicine clinical services are also not currently well-established in Malaysia.<sup>17</sup> Therefore, it is strongly advocated that training centres for travel medicine should be widely established globally. National policy on governance or training requirements as well as monitoring of the quality in travel medicine should also be looked into.<sup>26</sup>

Apart from that, the topic of travel medicine should also be incorporated into the undergraduate curriculum as well as postgraduate training<sup>2</sup> for medical subjects in order that the medical, pharmacy, nursing, and students of other allied health subjects could get early exposure to travel medicine knowledge.

Lastly, more future research should be carried out to look into the level of knowledge pertaining to travel medicine amongst the healthcare practitioners. There is also a need for future research on the quality of pre-travel advice provided by the healthcare practitioners.<sup>18</sup> Besides, research should also be done on the demography of travellers in order to seek correlations between demographic characteristics and pre-travel advice seeking behaviours amongst travellers.

### Conclusion

Travel medicine is vital to ensure a pleasant and safe journey for all travellers. However, there is a deficiency in pre-travel advice and services seeking behaviours amongst travellers. Hence, travellers should be educated on the importance of seeking pre-travel advice, vaccinations, and medical services. Meanwhile, healthcare practitioners should be well-trained in travel medicine and given good incentives to encourage more participation in travel medicine practices.

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