

Pre-Travel Paediatric Consultation: A Six-Year Retrospective Study

Consulta do Viajante em Pediatria: Um Estudo Retrospectivo de Seis Anos

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Acta Pediatr Port 2015;46:376-81

Resumo

Introdução: O presente estudo pretendeu avaliar os cuidados de saúde pré-viagem prestados numa consulta do viajante destinada a crianças, realizada num hospital português de Grupo I, identificando áreas de potencial melhoria.

Métodos: Análise retrospectiva dos processos de consulta (outubro de 2007 a outubro de 2013). Avaliação de dados demográficos, doenças preexistentes, itinerário da viagem, alojamento, vacinação e medicação prescritas. Excluíram-se os processos incompletos.

Resultados: Das 499 crianças que recorreram à consulta foram incluídas 435 (87,2%). A maioria (52%) era do sexo feminino. A mediana de idades foi de 6 anos. A mediana de tempo entre a consulta e a partida foi de 27 dias, mas 39,7% das crianças recorreram à consulta muito perto da data da partida (sete dias ou menos). Os países africanos foram o destino mais frequente (78,4%), particularmente Angola (69,5%). Para 57,7% crianças, o objetivo da viagem foi visitar familiares. A mediana de tempo de estadia foram 30 dias. Em 27,6% crianças a duração da viagem foi superior a seis meses. Destas, 83,3% mudaram de residência. Foi prescrita vacinação a 85,7% crianças. As vacinas da febre amarela (26,8%), hepatite A (25,1%), febre tifoide (23,3%) e cólera (19,1%) foram as mais frequentemente administradas. A mefloquina foi o fármaco antimalárico mais prescrito (97,6%).

Discussão: Verificou-se um aumento do número de crianças viajantes ao longo do período de estudo, o que está de acordo com a literatura internacional e reforça a necessidade de uma consulta pré-viagem dirigida a este grupo etário. Este estudo fornece informação sobre o serviço prestado à criança viajante, permitindo a elaboração de estratégias para a redução do risco relacionado com a viagem, como sejam evitar o recurso tardio à consulta e promover a importância dos cuidados de saúde pré-viagem.

Palavras-chave: Criança; Medicina do Viajante; Prevenção Primária; Viagem

Abstract

Introduction: The aim of this study was to evaluate the pre-travel health care provided in a Portuguese Group I hospital and to identify areas in which it could be improved.

Methods: We retrospectively reviewed the medical charts of paediatric pre-travel consultations from October 2007 to October 2013. We collected data on patients' demographics, pre-existing medical conditions, travel itinerary, accommodation, prescribed travel vaccines and medications. Patients with incomplete medical records were excluded.

Results: Of the 499 patients who received a pre-travel consultation, 435 (87.2%) were included. The median age was six years and 52% were female. The median time from consultation to departure was 27 days, although 39.7% presented close to the date of departure (≤ 7 days). African countries were the most common travel destination (78.4%), especially Angola (69.5%). For 57.7%, the purpose of travelling was to visit relatives. The median length of stay was 30 days, but 27.6% of patients stayed longer than six months, most of whom

(83.3%) moved permanently. Vaccines were prescribed to 85.7% of patients. Yellow fever (26.8%), hepatitis A (25.1%), typhoid fever (23.3%) and cholera (19.1%) were the most frequent vaccinations. Mefloquine was the most prescribed antimalarial medication (97.6%).

Discussion: The number of paediatric travellers increased over the study period, which is consistent with the international literature and highlights the need for appropriate pre-travel consultation in this group. This study provides information on the health services provided to children in our hospital, and enables us to develop risk-reduction strategies such as raising awareness of travel health issues and avoiding presentation close to departure date.

Keywords: Child; Primary Prevention; Travel Medicine; Travel

Introduction

International travel has increased over recent decades,¹ including families travelling with their children for leisure and business purposes or to visit friends and

relatives in their countries of origin.^{2,3} Travelling families should seek medical advice if they wish to share the travel experience with their children.⁴ The pre-travel consultation will offer them an opportunity to prepare for their trip, focusing on health and safety issues related to travelling with children.⁵

In order to adjust to global mobility trends and the increasing number of travelling children, in 2003 the Paediatrics Department of our Group I hospital established a pre-travel clinic for paediatric international travellers. The hospital's catchment area is an ethnically diverse city with a high immigration density, and therefore a large percentage of the population are foreign-born and commonly travel with their children to their countries of origin to visit friends and family. Those paediatric travellers are known to be at a higher risk for travel-related infectious illnesses, commonly due to presumption of immunity to infections found at the travel destinations, lower socioeconomic status and ineffective provision of pre-travel health services.^{6,7} This consultation meets the needs of the entire family as both children and parents can receive pre-travel advice and immunisations during the same visit. The paediatric unit is responsible for children's consultations and the infectious unit for adults' consultations.

The main purpose of this clinic was to provide specific paediatric-oriented advice and care to a large paediatric age population in our community. In addition, pre-travel advice could be provided to both children and their adult relatives during the same visit, without the need for referral to another clinic.

The pre-travel consultation is easily accessible, as patients themselves can make an appointment, and free of charge for children. Our hospital is one of the country's International Travel Vaccination Centres and therefore the prescribed immunisations are administered in the consultation facilities. Patients have to pay for the prescribed vaccines.

Although we do not routinely schedule an appointment for children after they have returned home, they are given specific instructions to seek our care if they experience symptoms possibly related to travel-associated illness.

The main goals of the paediatric pre-travel consultation include assessing the health of the travellers; analysing their itinerary and determining potential health risks; giving advice to parents on topics like food and water precautions, sun exposure, insect protection, and altitude sickness; and providing children with selected vaccines for vaccine-preventable diseases according to destination and medications for prophylaxis whenever indicated.⁵ Parents are provided with information about the prevention and self-treatment of the most common

travel-related diseases among children, including diarrheal illnesses, dermatological conditions and systemic febrile illnesses, especially malaria. Regarding malaria, counselling is given on exposure prophylaxis, including the prevention of mosquito bites, including use of repellents and mosquito nets. Parents are also given advice about the composition of a first aid travel kit and are always provided with a leaflet on travel health advice.

We usually obtain information from Tropimed®, which is travel medicine software that provides reliable and up-to-date information on immunisations and malaria chemoprophylaxis according to itinerary, epidemiological news and disease outbreaks and warnings. We also rely on Health Information for International Travel (the Yellow Book) from the Centers for Disease Control and Prevention.

In the medical literature there are only a few studies that describe the profile of the travelling child and, to our knowledge, none have been published in the national literature.

The aim of this study was to evaluate the pre-travel care provided in our institution and to identify areas in which it could be improved.

Methods

Paediatric international travellers who required a pre-travel consultation in our hospital, from October 1, 2007 through October 31, 2013 were included in this study.

The following data was retrospective collected from the patient's medical chart: age, gender, medical history, date of departure, travel itinerary, duration and purpose of travel, accommodation, administration of routine and travel vaccines and prescribed medications. Patients with incomplete medical records were excluded.

Results

A total of 499 patients received a pre-travel consultation over the study period. Of those, 435 (87.2%) were included in the study. Females comprised a slight majority of the sample (226 patients, 52%). The mean age of the patients was 6.9 years and the median was 6 years (minimum 13 days, maximum 17.4 years). Forty-two patients (9.7%) were younger than 12 (Table 1).

Most patients (377 patients, 86.7%) were health but among those with medical conditions, asthma and allergic diseases, such as rhinitis and atopic dermatitis were the most common (36 patients, 62.1%).

Age groups	n (%)
< 1 year	42 (9.7%)
1-2 years	90 (20.7%)
3-5 years	86 (19.8%)
6-9 years	85 (19.5%)
10-12 years	68 (15.6%)
> 12 years	64 (14.7%)

	n (%)
Duration of travel	
≤ 1 month	209 (48%)
]1-3] months	89 (20.5%)
]3-6] months	17 (3.9%)
> 6 months	120 (27.6%)
Purpose of travel	
Visiting family and relatives	251 (57.7%)
Tourism	84 (19.3%)
Moving abroad	100 (23%)

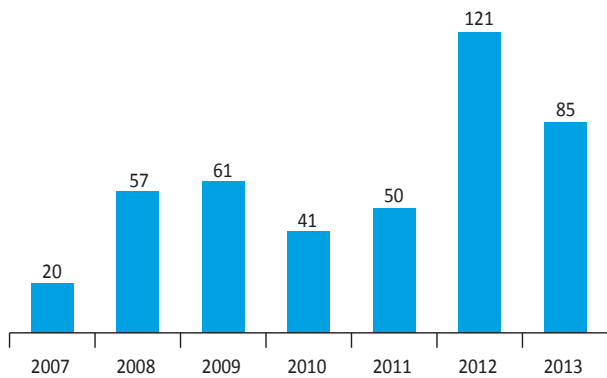


Figure 1. Number of consultations over the study period.

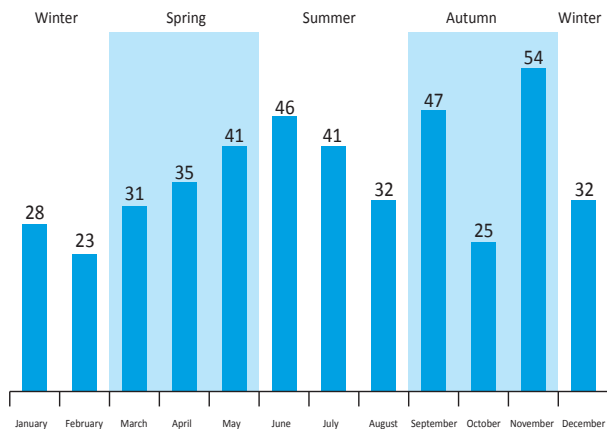


Figure 2. Distribution of consultations by month and season.

Patients were either self-referred or referred by their primary care physicians. The number of consultations increased over the last two years of study, comprising 47.4% of all consultations in the study period (Fig. 1). The distribution of children traveling by month and season can be seen in Fig. 2.

The median time from consultation to departure was 27 days (range: one to 389 days). An important percentage of patients (39.7%) presented within seven days or less prior to the date of departure. The patients travel characteristics are shown in Table 2.

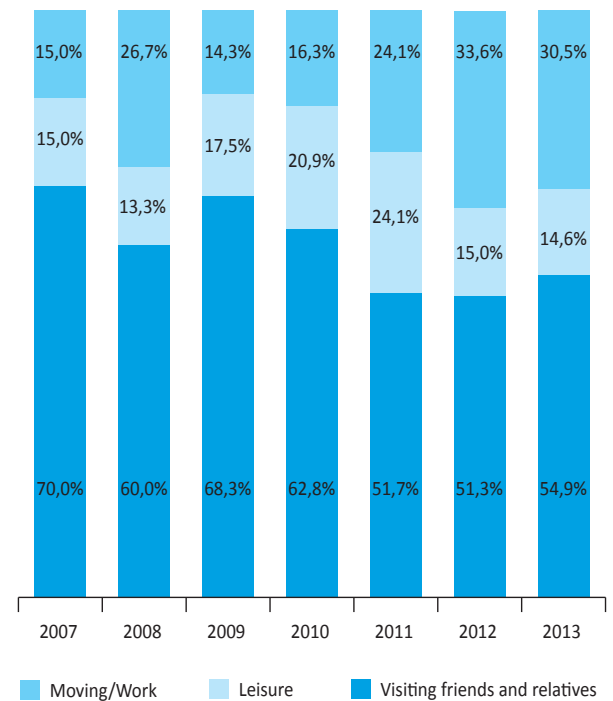


Figure 3. Proportion of reasons for traveling by year.

The median time of staying was 30 days (range: seven to 300 days) and for most patients (209 patients, 48%) the duration of stay was less than one month. About 27% of the patients stayed longer than six months, and the majority of those (83.3%) moved definitely accompanying their parents on a foreign work experience. The most common reason for traveling was to visit family and relatives (251 patients, 57.7%). All children visiting friends and relatives stayed at a local house. In the second half of the study period the percentage of patients moving abroad increased, particularly in the last two years. In the same period of time there was a decline in the percentage of patients traveling for leisure (Fig. 3).

African countries were the most common travel destination (341 patients, 78.4%) followed by American countries (74 patients, 17%) and Asian countries (19 patients, 4.4%). There was only one patient traveling to the Australian continent (Table 3).

The majority of children traveling to Africa were visiting family and relatives (212 patients, 62.2%) and about half of the patients traveling to Asia had leisure plans (nine patients, 47.4%) (Fig. 4).

According to destination, vaccines were prescribed to 373 patients (85.7%). Yellow fever (26.8%), hepatitis A (25.1%), typhoid fever (23.3%) and cholera (19.1%), were the most frequent. There were seven cases of parental refusal to vaccinate, due to economical reasons: hepatitis A in four patients, typhoid fever in two patients and cholera in one patient. The National Immunization Schedule was systematically reviewed and routine vaccines were updated in 10 patients.

Malaria prophylaxis was recommended in 67% of the cases (292 patients). Mefloquine was prescribed in 285 patients (97.6%), the majority of those travelling to sub-Saharan Africa (266 patients, 93.3%) and to South-East Asia (eight patients, 2.8%). Six patients received atovaquone-proguanil: three patients due to personal history of epilepsy and the other three due to last-minute travel. One patient traveling to Mexico received chloroquine.

Discussion

The current study gives information about children who travel abroad from our city and the pre-travel services provided to them.

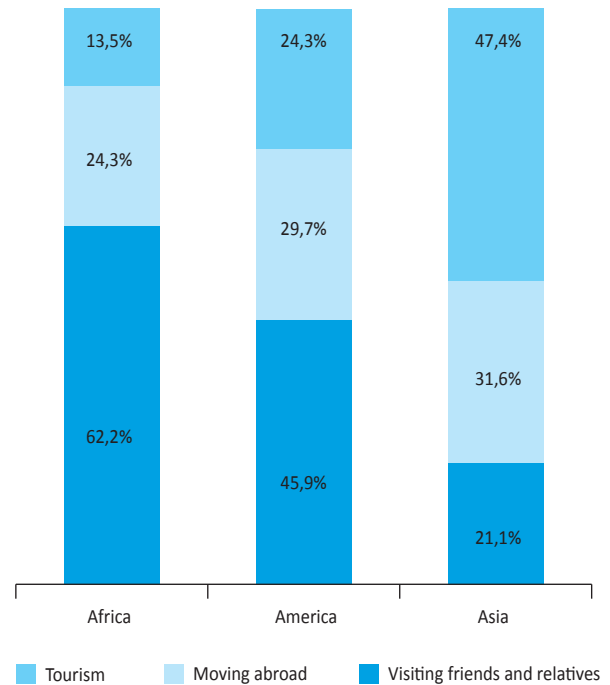


Figure 4. Purpose of traveling by continent.

Table 3. Patient's destinations by continent

		n (%)
Africa (n = 341)	Angola	237 (69.5%)
	Mozambique	38 (11.1%)
	Cape Verde	21 (6.2%)
	São Tomé and Príncipe	13 (3.81%)
	South Africa	6 (1.76%)
	Others	26 (7.6%)
	America (n = 74)	Brazil
Dominican Republic		7 (9.5%)
Mexico		5 (6.8%)
Others		3 (4.1%)
Asia (n = 19)	Timor	5 (26.3%)
	Malaysia	3 (15.8%)
	Thailand	3 (15.8%)
	India	2 (10.5%)
	Others	6 (31.6%)

The number of consultations increased over the last two years of study, as did the percentage of patients moving abroad. This is probably due to the economic crises and its impact on labour-related migration.

The most common travel destinations included Portuguese-speaking countries and former colonies such as Angola, Mozambique and Brazil. This probably reflects the countries of origin of the parents.

In our series, the majority of children were traveling for a short period of time (less than one month), mainly to Africa, visiting friends and relatives and staying in a local house. This characteristics, which are consistent with other literature data,^{8,9} are known to put them at the highest risk of travel-related infectious diseases and morbidity, due to the increased likelihood of prolonged stays in the country, in family houses in remote rural areas with intimate contact with the local population.⁴ It is common that caregivers falsely believe that they are not susceptible to infectious diseases due to immunity acquired while still living on their homeland and therefore neglect preventive measures that put the entire family at risk.⁴

About 30% of the patients were younger than two years old. This is particularly important due to the recommended lower age limits of certain travel vaccines under which the vaccine should not be given because of poor immunogenicity or adverse effects.⁵ These cut off ages vary with each vaccine. The vaccine against yellow fever is approved for children nine months of age and older, although, infants between six and nine months of age should be immunized if they travel to areas of ongoing epidemic.⁵ Hepatitis A vaccine is not recommended for children under the age of 1 year and cholera vaccine is not recommended for children under the age of 2 years. These age restrictions comprise a higher risk of vaccine-preventable diseases.⁴ This being said, when advising parents one should emphasize that some destinations are best avoided for small infants, also because of safety considerations, inadequate sanitation and lack of medical facilities.⁵

In terms of travel vaccines, vaccination rates were high. They are a great measure of pre-travel preparation and probably constitute the most frequent reason for an international traveler to seek a consultation prior to the departure.¹⁰ The pre-travel appointment provided the opportunity to update the immunization schedule in a few cases, which is consistent with other studies.^{6,11}

Declining recommended vaccines was uncommon in our series. There were only seven cases of parental refuse to vaccinate, mainly involving hepatitis A vaccine and due to financial reasons. Cost is a well-know barrier to immunization for many parents and in our series was a declared reason not to vaccinate.¹¹ Vaccines

and medications can add significantly to the cost of an already expensive trip and might be the reason a family does not seek pre-travel care in the first place.¹² It is our believe that there is a need for more selective and individualized recommendations, based not only on the travel destination, duration and purpose of travel, but also on the financial resources of each family.

Prescription of malaria chemoprophylaxis was common in our study since the most frequent travel destinations were malaria-endemic countries. With one exception, all patients travelled to areas where the prevalence of chloroquine resistance was high so mefloquine was the most commonly prescribed antimalarial due to its safety profile and no age or weigh restrictions.^{6,13} When advising children, one should always emphasize that malaria prevention involves not only antimalarial medicines but also preventive measures against mosquito bites.

Approximately 40% of the children who sought our pre-travel services presented very close to the date of departure. The presence of a shorter consultation-travel time interval is considered inadequate and may compromise the pre-travel care. It may also represent lack of awareness of the need for adequate preparation time or last minute decision to travel.⁶ Sensitization and education of primary care providers about the possibility of travel among their patients and a better coordination of pre-travel care within the routine health care may improve timely access to pre-travel care.¹⁴

Even though the number of consultations increased in the last years of study, the authors consider that there is still a need to develop strategies to promote families' awareness of the pre-travel services available in our hospital and engage travelling children in pre-travel care. Many families still do not seek advice, perhaps related to their perception that the level of risk is low due to limited knowledge.^{12,15}

As most patients were traveling to visit relatives, immigrant families may represent a target group. Many immigrants face cultural, linguistic, legal or economic barriers when seeking healthcare services.⁹ This is a pattern also described in other pediatric series.^{6,8,9} For this reason, we consider that on a community setting, sharing information across tourism agencies and immigrant associations can play an important role in educating these travelers.

We understand that this study has limitations, mainly given its retrospective nature. It was based on data collected from the patients' charts, which can lead to loss of information. There are also other variables including household demographics, economic status, parental schooling level and language literacy that were not studied and could have an important role when analyzing our travel health services.

In this study we only characterize children who sought our pre-travel care and not the totality of the traveling children in our city, as there might have been a considerable number of children seeking pre-travel care on different settings. Nevertheless, we believe that this study has the value to provide insight into the pre-travel medical care of an epidemiologically significant population and to illustrate the characteristics of the local traveling children who sought our pre-travel care.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this work.

Funding Sources

There were no external funding sources for the publication of this paper.

Protection of human and animal subjects

The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Confidentiality of data

Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação dos dados de doentes.

Awards / presentations

The data in this article were presented as short oral communication in 32nd Annual Meeting of the European Society for Paediatric Infectious Diseases (ESPID 2014).

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Received: 22/08/2014

Accepted: 12/06/2015

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