

# Paediatric international travellers from Greece: Characteristics and pre-travel recommendations

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### **KEYWORDS**

Paediatric travellers; Children; Pre-travel advice; Chemoprophylaxis; Vaccination Summary The aim of this study was to describe the children who seek pre-travel advice in Greece. During 2008–2010, 4065 persons sought pre-travel services in the 57 Prefectures, including 128 (3.15%) children <15 years. Main travel destinations were sub-Saharan Africa (54 children; 42.2%), South America (18; 14.1%), the Middle East (16; 12.5%), the Indian subcontinent (12; 9.4%), and South East Asia (7; 5.5%). Seventy-six children (59.4%) stayed for <1 month, 34 (26.6%) for 1–6 months, and 10 (7.8%) for >6 months. Recreation was the main purpose of travel (81 children; 63.3%), followed by work (24; 18.8%), and to visit friends and relatives (VFRs) (14; 10.9%). Paediatric travellers VFRs stayed more frequently in local residences compared to non-VFR paediatric travellers (85.7% and 20.2%). Children stayed more frequently in local residences and travelled more frequently for recreational purposes or to VFRs (27.3%, 63.3%, and 10.9%, respectively), compared to older travellers (11.9%, 58.8%, and 4%, respectively). Malaria chemoprophylaxis was prescribed for 64.8% of children travelling to sub-Saharan Africa. This study demonstrated clearly that only a very small number of international paediatric travellers seek pre-travel services in Greece. Communication strategies to access paediatric travellers should be developed in order to improve travel medicine services for children in Greece.

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## Introduction

International travel is growing rapidly. The World Tourism Organization forecasts that international arrivals are expected to reach from 0.8 billion in 2005 to nearly 1.6 billion by 2020, with the highest growth in the Middle East, South and East Asia and the Pacific, and Africa.<sup>1</sup> The profile of international travellers from developed countries changed the last decade, in association with a considerable influx of immigrants from tropical and subtropical countries.<sup>2</sup> Nowadays travellers who visit friends and relatives (travellers VFRs) account for up to 50% of international travellers from developed countries.<sup>2</sup> In Greece, a country with 10.9 million residents including 900,000 non-EU/EFTA immigrants, the number of international travellers >15 years old who travel for >4 nights increased from 418,265 in 2004 to 625.951 in 2008, while the number of travellers VFRs >15 years old increased from 148,120 to 173,462, respectively (1.17-fold increase) (Hellenic Statistical Authority; personal communication). The number of children who travel also increased the last decade. In the United States alone, 1.9 million children travel overseas annually.<sup>3</sup> In Greece, the number of children who travel abroad for >4 nights increased from 90,080 in 2004 to 160,007 in 2008, while the number of children VFRs increased from 32,315 to 68,634, respectively, which corresponds to more than a 2-fold increase in the latter group (Hellenic Statistical Authority; personal communication). Despite these trends, there are very few publications focussing on paediatric travellers.<sup>4-9</sup> The aim of this study is to describe the characteristics of paediatric travellers who seek pre-travel advice in Greece, and to compare them with those of older travellers.

# Methods

In Greece pre-travel advice, travel vaccines, and antimalarial drugs are provided mainly in the Health Departments of the 57 Prefectures across the country, with a good geographic and population coverage. Pre-travel services are provided free of charge by doctors, nurses, and health visitors, most of which have been trained in travel medicine through courses. In addition, pre-travel services are provided by few private clinics, university and public hospitals. Chloroquine and Yellow fever vaccine are available exclusively in the Health Departments of the Prefectures. Pre-travel consultation, malaria chemoprophylaxis, and travel vaccines are provided in accordance with the Hellenic Center for Disease Control and Prevention (HCDCP), the World Health Organization, and the United States Centers for Disease Control and Prevention guidelines. Oral information and leaflets are used. Routine vaccines are administered in accordance with the National Childhood Vaccination Program of Greece.<sup>10</sup> General consultations and emergency services are not provided in the Health Departments.

All international travellers who sought pre-travel counselling in the 57 Prefectures from January 1, 2008 through December 31, 2010, were asked to participate in a questionnaire-based study. Consent was requested from all adult participants, as well as the parents or guardians of children. The following data were collected prospectively using one standardized form per traveller: age, gender, nationality, date of departure, travel destination and itinerary, duration and purpose of travel, type of accommodation, prescription of malaria chemoprophylaxis, and administration of routine and travel vaccines.

Urban areas were defined as towns with a population of at least 5000 people, whereas rural areas were defined as villages with a population of <5000 people or staying in the countryside. Short-term travel was defined as a trip of less than 1-month duration, while long-term travel was defined as a trip of 6 months or more.<sup>11</sup> An organized trip was defined as a guided, package trip, mainly to popular tourist destinations. Outdoor activities include adventure sport, backpacking, hiking, and remote expedition. Travellers VFRs were defined as travellers whose primary purpose is travel to visit friends and relatives, where there is a gradient of epidemiological risk between home and destination.<sup>12</sup>

Statistical analysis was performed using the STATA 8.0 statistical package. Logistic regression (forward selection) was applied in order to investigate the relation between age and travel characteristics. *P*-values of 0.05 or less were considered statistically significant.

### Results

During the study period, 4065 international travellers sought pre-travel services in the 57 Prefectures, at a median of 16 days and a mean of 20.7 days (range: 0-176 days) before their departure. Of them, 128 (3.15%) were children <15years old. Table 1 shows their characteristics. The mean age of the children was 6 years (range: 1 month-14.9 years). The overwhelming majority of children (92.2%) were of Greek nationality. Sub-Sahara Africa was the common travel destination (54 children; 42.2%). All 16 children who travelled to Middle East concerned Hajj and travel to Mecca, Saudi Arabia. Overall, most children (68; 53.1%) stayed in urban areas exclusively, while 47 children (36.8%) visited rural areas. One third of children travelled for at least one month. Most children (76; 59.4%) stayed in a hotel, while 35 children (27.3%) stayed in local residences. Of the 81 children (63.3%) who travelled for recreational purposes, 46 (56.8%) did so on an organized trip. A significant proportion of children (40.9%) planned to be involved in outdoor activities, while contact with animals was reported by 24.2% of them.

There were 14 (10.9%) paediatric travellers VFRs. Their travel destinations were: India (4 children), Nigeria (3 children) Kenya, Niger, and Zimbabwe (2 children each), and Ethiopia (1 child). Paediatric travellers VFRs had the Greek nationality less frequently compared with non-VFRs paediatric travellers (71.4% versus 94.7%, respectively; *p*-value = 0.013). In addition, paediatric travellers VFRs stayed in a local residence significantly more frequently compared with non-VFRs paediatric travellers (85.7% versus 20.2%; *p*-value < 0.001). No other differences were noted among the two subgroups of paediatric travellers, in terms of age, gender, time interval between pre-travel advice and departure, duration and other travel characteristics (data not shown).

Logistic regression analysis showed that paediatric travellers  $\,<\!15$  years old, stayed in a local residence more

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