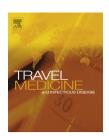


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FIRST LOOK — STUDENT RESEARCH

# Characteristics and pre-travel preparation of travelers at a Canadian pediatric tertiary care travel clinic: A retrospective analysis\*



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#### **KEYWORDS**

Child; Pediatric; Travel medicine; Canada; Risk **Summary** *Background*: International travelers are susceptible to a wide spectrum of travel related morbidities. Despite rising number of international travelers in Canada, the demographics, risk profiles, and preventative strategies of high-risk traveler groups, including pediatric travelers visiting friends and relatives (VFRs) are not well described.

Methods: A descriptive analysis was conducted on pre-travel consultations completed between January 2013 and August 2014 at a large pediatric tertiary care center in Toronto, Canada. Data on demographics, travel characteristics, and pre-travel interventions were extracted from 370 pre-travel consultations. Results were compared between all VFR and non-VFR travelers, as well as between children traveling to visit friends and relatives, for vacation, and for education and/or volunteer purposes.

Results: Forty-eight percent of consultations were for children <18 years of age (n=177), of which 31% were for young children (<5 years of age). Young children were more likely to travel to visit friends and/or relatives than for other purposes (29% vs 9%, p < 0.0001). Children VFRs (cVFRs) were more likely to travel for >28 days than children traveling for vacation (43% vs 1%, p < 0.0001), and children traveling for education/volunteer purposes (43% vs 21%, p = 0.03). Around half of cVFRs traveled to destinations in Asia (51%). The majority stayed with locals, friends and/or relatives (85%), and nearly all traveled to urban destinations (98%). The most

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prescribed interventions for children were azithromycin (84%), Dukoral (66%), and the hepatitis A vaccine (60%). Atovaquone/proguanil was the most commonly prescribed antimalarial for children.

Conclusion: Children that travel to visit friends and relatives represent a unique travel group and may require specific considerations during pre-travel preparations. Our findings can help develop targeted pre-travel strategies for children VFRs.

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#### 1. Introduction

Worldwide international travel has shown unprecedented growth. In 2010, over 8.7 million international trips were taken by Canadian residents to destinations other than the United States, a number that nearly doubled from 2000 [1]. The World Tourism Organization reported an estimated 1.1 billion international arrivals in 2014, and this number is projected to increase to 1.6 billion by 2020 [2,3].

Global migration has altered patterns of international travel. In Canada, foreign-born people represent about 20% of the country's total population, with even higher proportions in major urban centers such as Toronto (46%), Vancouver (40%) and Montreal (21%) [4]. Immigrants and their family members who travel back to their country of origin to visit friends and relatives (VFRs) now represent 15% of international trips from Canada [1]. Compared to non-VFR travel (e.g. vacation, business), VFR travel is known to be associated with higher risks of certain travelrelated morbidities [5-8]. Common VFR travel characteristics such as long travel duration, staying with locals, and close contact with local population may increase travelers' exposure to high-risk conditions [9-12]. VFRs are also more likely to travel without seeking preventative pre-travel care [5,12-14].

Children that travel internationally are significantly more likely than adults to travel to visit friends and relatives [10,15,16]. Despite this, children VFRs (cVFRs) remain an underrepresented group in travel medicine literature [16–19]. Moreover, there are currently no studies that focus on cVFRs within a Canadian setting. In this study, our aim is to describe the demographics, travel patterns, and pre-travel interventions of travelers who sought pre-travel care at the Family Travel Medicine Clinic within the Hospital for Sick Children (SickKids) in Toronto, Canada. While we included all travelers at the clinic, the study will focus on two important and understudied groups, children and cVFRs.

#### 2. Methods

#### 2.1. Data collection

We performed a retrospective chart review of new consultations at the SickKids Family Travel Clinic between January 1, 2013 and August 21, 2014. Consultations for both children and adults were included in this study. Adult

travelers consisted of both family members of children seen at the clinic as well as individual travelers traveling without children. Demographic data collected include age, sex, country of birth, and citizenship. Travel data collected include destinations, travel duration, purpose, activities, and accommodations. Intervention data collected include medications and vaccines that were recommended. Travelers who were SickKids employees at the time of clinic visit (n=56) were excluded.

#### 2.2. Definitions

Travelers were classified according to travel purpose(s) indicated on the pre-travel forms. More than one travel purpose could have been indicated by each traveler, which included vacation, visiting friends and/or relatives, business, education, volunteer work, cruise, religious/ pilgrimage and adoption. All travelers that indicated visiting friends and/or relatives as their travel purpose were defined as VFRs, even if additional travel purposes were indicated. Non-VFRs were defined as travelers that did not indicate visiting friends and/or relatives as their travel purpose. Travelers that indicated their travel purpose as vacation, cruise, or both were defined as travelers traveling for vacation. Travelers that indicated their travel purpose as education, volunteer work, or both were defined as travelers traveling for education/volunteer purposes. We defined children as persons less than 18 years of age, while young children were defined as children less than 5 years of age. Adolescents were defined as youth between 12 and 17 years of age. Destination countries were classified into continental regions according to the United Nations geographical region composition [20].

### 2.3. Data analysis

Results were compared between VFR and non-VFR travelers, and differences were assessed using the chi-square test or Fisher's exact test where appropriate, with p value < 0.05 as significant. Among children, travel related interventions were compared between cVFRs and non-cVFRs. Demographics and travel characteristics were compared between children traveling to visit friends and/or relatives, for vacation, and for education and volunteer purposes. Multiple comparisons were made between each group and the Bonferroni step-down adjustment was used to control type 1 error rate at 0.05. Data analyses were performed using SAS 9.3 (SAS Institute, Cary, NC).

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