

# Health Problems in Returning Travelers Consulting General Practitioners

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DOI: 10.1111/j.1708-8305.2008.00246.x

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Over a 2-month period, 43 of 143 participating general practitioners included 97 patients with 113 health impairments, mainly gastrointestinal problems (35%), respiratory tract infections (30%), and skin diseases (11%). Systemic febrile illness or imported tropical disease accounted for less than 4% of cases.

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To date, all the published studies evaluating the spectrum of diseases in travelers returning from abroad took place in units specialized in travel medicine or in infectious and tropical diseases.<sup>1-5</sup> Such an evaluation may be a source of referral or selection bias as recently discussed.<sup>6,7</sup>

We report the results of a study that contributes to this discussion by evaluating the spectrum of travel-associated diseases in the community through voluntary general practitioners (GPs).

## Patients and Methods

This is a prospective and descriptive study performed in the community through voluntary GPs belonging to two networks, the Groupes Régionaux d'Observation de la Grippe (ie, 559 GPs) and the Société Française de Médecine Générale (ie, 359 GPs). Voluntary GPs were recruited through the networks of their respective societies. All the consecutive travelers consulting, during a 2-month period (September 2005 and January 2006), for a health problem related to recent travel were included if they had returned from abroad (any non-Western country, ie, any country with the exception of Europe, Canada, the United States, and Australia/New Zealand)

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and if they presented with symptoms that had appeared during travel or within 1 month after their return. The following variables were assessed: age, sex, country of origin, purpose of travel, lag time between return and consultation, country visited, duration of travel, and result of the consultation.

## Results

Of the 123 GPs (13% of all screened GPs) who accepted to participate, 43 included 97 patients (1-13 patients/GP; 0.4 patient/mo/GP; 86 being already known by the GP) during the 2-month study period. The mean age of the patients was 30 years (1-78), and the male/female sex ratio was 0.87. The mean duration of travel was 32 days (7-365). The mean duration between return and consultation was 10 days (0-65). The two main purposes of travel were tourism (46%) and visiting friends and relatives in their country of origin (43%). The main areas visited were North Africa (51%), Turkey (6%), sub-Saharan Africa (17%), Asia Oceania (10%), the Middle East (7%), and South/Central America (7%).

The 97 patients presented with 113 health problems, 15 travelers having at least 2 problems. The main health impairments were gastrointestinal problems, respiratory tract infections, and skin diseases (Table 1). Fever of undetermined origin and related to a systemic febrile illness was observed in four patients each. Four patients were diagnosed with an imported disease (one hepatitis A, one dengue

**Table 1** A total of 113 health problems in 97 travelers consulting general practitioners after return

Health problems	N	%
Diarrhea*	30	26
ENT	19	16.8
LRTI	16	14
Skin diseases	13	11.5
GI, hepatitis	10	8.8
Rheumatology	4	3.5
Systemic febrile illness <sup>†</sup>	4	3.5
FUO	4	3.5
Trauma	3	2.6
Others <sup>‡</sup>	12	10.6
Total	113	100

GI = gastrointestinal complaints other than diarrhea but including hepatitis A (1); ENT = ear, nose, and throat; LRTI = lower respiratory tract infections; FUO = fever of unknown origin.

\*Undetermined (29).

<sup>†</sup>Malaria (2), dengue (1), and infectious mononucleosis (1).

<sup>‡</sup>Asthenia (7), allergies (2), urinary tract infection (1), depression (1), and cardiac arrhythmia (1).

fever, and two malaria). Malaria was diagnosed in 2 (12%) of the 17 travelers who were returning from sub-Saharan Africa. Eight patients were referred for cardiac, rheumatologic, or traumatic problems and the association of different problems and viral hepatitis, and one was hospitalized for malaria.

## Discussion

Despite the small amount of participating GPs and evaluated patients, this study is to the best of our knowledge the first one to evaluate travel-associated diseases in returning travelers in the community through GPs. However, even a GP study may have some referral and selection biases. In addition, there is no control or comparator group of patients with new/acute health problems independently from travel seen by the GPs during the investigation period.

The most striking result of our study is that imported infectious diseases (even malaria) are uncommon (4%) when compared to studies performed in academic or tertiary care units where this figure varies from 8% to 26% for malaria.<sup>1-5</sup> Such a difference is probably one of the consequences of the referral and selection biases in the latter studies as previously underlined.<sup>6,7</sup>

The travelers consulting GPs are more representative of the population than those consulting academic or tertiary care units and this is confirmed here. Indeed, in France, where one third of the travelers outside Europe concern North Africa,<sup>8</sup> the proportion of such travelers is less than 10% among those consulting in a specialized hospital unit in Paris.<sup>1</sup> In contrast, 51% of our patients were returning

from North Africa, and this fits more with the travel habits of the French.

Our study is supposed to catch the first-line complaints of travelers because GPs are the first-line doctors for most of the patients. Indeed, 86% of our sick travelers previously knew their GP. Health problems related to travel represented a small part of our GPs' workload (0.4 consultation/mo/GP), although our study took place during 2 months (September and January) known for travel medicine activity in France.<sup>8</sup> Apart from malaria and other tropical diseases, there is a predominance of diarrhea, lower and respiratory tract infections, and skin diseases as in most of the studies performed in travel medicine units.<sup>1-5</sup>

Interestingly, very few of our patients (9%) were referred by GPs to specialized doctors or hospitals, and the main reasons for referral were for problems of cardiac, rheumatologic, orthopedic, or hepatic origin and multiorgan involvement. Therefore, most of our patients were not referred to units specialized in travel medicine or infectious/tropical diseases. This result if confirmed in larger amount of patients also illustrates the referral and selection biases existing in the studies performed in specialized units.

Taken together, our results suggest that the studies performed in units specialized in infectious/tropical diseases and travel medicine probably overestimate the part occupied by imported infectious diseases and underestimate the part occupied by noninfectious diseases within the spectrum of travel-associated diseases. Nonetheless, the true denominator to assess travel-associated health risks would be a representative cohort of travelers who are prospectively assessed in terms of

health problems, consultation of GPs and other medical availabilities, and hospitalization, during and after travel.

### Acknowledgments

We thank all the GPs who included the patients, Catherine Goujon and Olivier Bouchaud for helpful advice, and the Société de Médecine des Voyages for support.

### Declaration of Interests

The authors state that they have no conflicts of interest.

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