A Quality Improvement Initiative Using A Novel Travel Survey to Define High-Risk International Travel and Promote Patient-Centered Counseling

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Introduction

In 2011, as reported by the World Tourism Organization, 980 million travelers crossed an international border (1). As recently reported by the Global TravEpiNet, up to 59% of selected travelers have an underlying medical condition and many immunocompromised patients are traveling to developing countries (2). Previous studies have documented that 20-64% of international travelers will develop some health problem while abroad (3).

Abstract

BACKGROUND - We sought to define high-risk travel destinations and identify predictors of higher risk travel so that we can provide itinerary-specific care to our travelers. We also sought to develop our post-travel survey as a valuable tool in gathering high quality, quantitative data as a quality improvement initiative

METHODS - Post-travel surveys were mailed, and upon receipt de-identified data from travelers were entered into a database. Itinerary data, including continents and countries visited, illness encountered while abroad, and incidence of traveler's diarrhea (TD) were the primary variables examined. We performed a retrospective observational cohort analysis of patients from data collected in the post-travel survey. Statistical analysis was performed using t-tests for continuous variables and chi-square and Fischer's exact tests for categorical data.

RESULTS - We mailed 2920 surveys to patients within one month of the date of their departure. Of these surveys, 525 were returned (response rate of 18%) and responses entered into the database. The majority of respondents traveled to Asia (22%), or Africa (31%). The mean number of travel days was 21.3 ± 72.5, the median 14. Univariate analysis demonstrated a statistically significant risk of general illness for travel greater than 14 days (27.7% vs. 11.3%, p<0.001). Duration of travel was also significant with regard to development of TD (p=0.0015). Destination of travel and development of TD trended toward significance, but did not meet it. Serious illness requiring travelers to see a local physician was infrequent, as were vaccine-related complications.

CONCLUSION - The data observed, including rates of illness, were consistent with previously published travel medicine literature. The post-travel survey has been modified as a result of our cohort study, and has been expanded to identify specific variables, including patient co-morbidities, reason for travel, and accommodations. A limitation of this study was the low rate of return of the post-travel survey. To improve survey response rate, we plan to add additional modalities for the survey, including E-mail reminders and a web-based database.

Results

Table I. Travel Characteristics

Destination	Number of Travelers	Travelers Reporting Illness	Traveler's Diarrhea*
Asia	117 (22%)	25 (21%)	25 (21%)
South America	99 (19%)	27 (27%)	28 (28%)
Africa	161 (31%)	28 (17%)	43 (27%)
Europe	13 (2%)	0 (0%)	0 (0%)
Central America	74 (14%)	12 (16%)	13 (18%)
Australia	5 (1%)	0 (0%)	0 (0%)
India	46 (9%)	10 (22%)	8 (17%)
Multiple Continents	10 (2%)	2 (20%)	3 (30%)
TOTAL	525 (100%)	104 (20%)	120 (23%)

* Some travelers did not report TD as "illness"

- Illness was reported in 104 (20%) of all responders (Table 1).
- Of those who reported illness, the most common were gastrointestinal-related 74 (14%) and respiratory illness 14 (3%) (Figure 1).
- The regions with the highest incidence of reported illness were South American and India with 27% and 22%, respectively.
- Of the 104 travelers who reported illness, 28 (27%) sought medical attention while abroad.

Data collection demonstrated an 18% survey return rate
These illness rates were consistent with previously published data

Figure 1. Classification of Illness

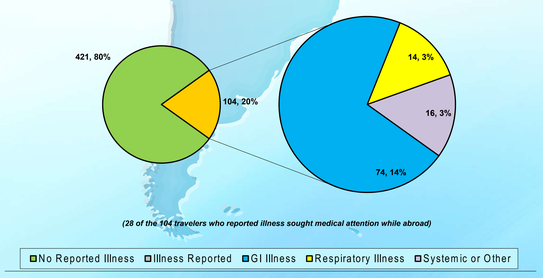


Figure 2. Frequency of TD by Duration of Travel

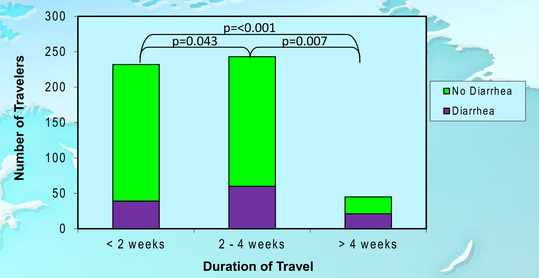


Figure 3. Percentage of Travelers Developing Travelers Diarrhea (TD) by Duration of Travel

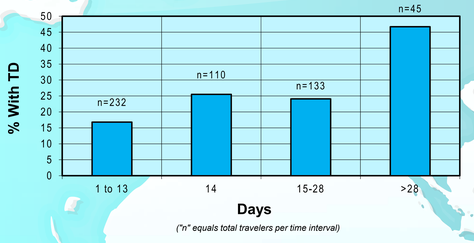
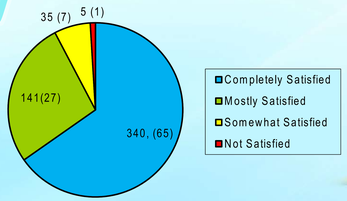


Figure 4. Satisfaction with Pre-travel Advice



Discussion

Study Benefits

- Post-travel survey has demonstrated value as a QI tool; data collected will guide pre-travel visit counseling
- Knowledge of illnesses particular to regions will ensure travel-specific care
- Significance of TD development prompted discussion on prescribing prophylactic antibiotics

Study Limitations

- Low survey return rate (18%) may have led to sampling error
- Survey responses may have been subject to a recall bias

Conclusions

- Travelers in this study did not have a statistically significant difference in acquiring illness for different travel destinations, though duration of travel was strongly significant for developing illness, notably TD.
- Rates of illness was consistent with previously published travel data, though the travelers in our study sought medical attention abroad at a higher rate than predicted by prior studies (4,5).
- Capturing pre- and post-travel data using this novel travel survey allows for patient-centered counseling by identifying specific travel variables.

Future Direction

- Expansion of demographic data collection (age, medical comorbidities, itinerary details) will allow for more detailed instructions about travel risks and precautions
- Email or web-based collection will be used to improve return rate

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