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

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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, 880 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). Observational 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 countries and counties visited, illness encountered while abroad, and incidence of traveler's diarrhea (TD) were the primary outcome measures. We performed a retrospective observational cohort analysis of 3,025 travelers from data collected in the post-travel survey. Statistical analysis was performed using t-tests for continuous variables and chi-square and Fisher’s exact tests for categorical data.

RESULTS - We mailed 2,920 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 (32%), or Africa (31%). The mean number of travel days was 21.3 ± 2.72, 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 < 0.05). 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 0.05. 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.

Discussion
Study Benefits - Post-travel survey has demonstrated value as a QI tool; data collected reflects pre-travel visit counseling.

Knowledge of illnesses particular to regions will ensure travel-specific prophylactic recommendations. Significant TD development prompted discussion on prescribing prophylactic antibiotics.

Study Limitations - Low survey return rate (18%) may have led to sampling error. Patient response may be subject to a recall bias

Conclusions - Travelers in this study did not have a statistically significant difference in reporting illness for different travel destinations. However, duration of travel was strongly significant for developing illness, notably TD.

Large illness was consistent with previously published travel data, with the travelers in our study sought medical attention at a higher rate than predicted by prior studies (4). Capturing illness and post-travel survey response 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 on travel risks and precautions
- Email or web-based collection will be used to improve return rate

References

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Table I. Travel Characteristics

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number of Travelers</th>
<th>Percentage of Travelers Reporting Illness</th>
<th>Traveler Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>113 (32%)</td>
<td>28 (25%)</td>
<td>Toto to Puntarenas</td>
</tr>
<tr>
<td>Europe</td>
<td>32 (10%)</td>
<td>6 (19%)</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Africa</td>
<td>188 (13%)</td>
<td>44 (23%)</td>
<td>Paris</td>
</tr>
<tr>
<td>Central America</td>
<td>18 (6%)</td>
<td>5 (28%)</td>
<td>Buenos Aires</td>
</tr>
<tr>
<td>Australia</td>
<td>55 (17%)</td>
<td>13 (24%)</td>
<td>Sydney</td>
</tr>
<tr>
<td>India</td>
<td>46 (14%)</td>
<td>13 (28%)</td>
<td>Delhi</td>
</tr>
<tr>
<td>Multiple Countries</td>
<td>103 (34%)</td>
<td>26 (25%)</td>
<td>Mexico City</td>
</tr>
<tr>
<td>TOTAL</td>
<td>525 (100%)</td>
<td>125 (24%)</td>
<td>New York</td>
</tr>
</tbody>
</table>

Satisfaction with Pre-travel Advice
- 48.5% Excellent
- 36.5% Satisfied
- 13.5% Neutral
- 1.5% Unsatisfied

Table 1. Travel Characteristics

- Illness was reported in 104 (20%) of all responders (Table 1).
- Of those who reported illness, the most common were gastrointestinal (141, 14%) and respiratory illness (146, 14%).
- The regions with the highest incidence of reported illness were South America and Asia 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 illnesses

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

(Access was impossible due to the low return rate of the proportion of travelers)

(Figure 1) A graph showing the classification of illnesses encountered while abroad.

(Figure 2) A chart depicting the frequency of travelers developing TD by duration of travel.

(Figure 3) A graph showing the percentage of travelers developing TD by duration of travel.

(Figure 4) A chart illustrating the satisfaction with pre-travel advice.

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