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

Craig A. Mackaness DO
Lehigh Valley Health Network, Craig_A.Mackaness@lvhn.org

Mark Knouse MD
Lehigh Valley Health Network, Mark.Knouse@lvhn.org

Suzanne J. Templer DO
Lehigh Valley Health Network, Suzanne_J.Templer@lvhn.org

Deepti Verma MD
Deepti.Verma@lvhn.org

Allison Osbourne
Lehigh Valley Health Network

See next page for additional authors

Follow this and additional works at: http://scholarlyworks.lvhn.org/medicine
Part of the Categorical Data Analysis Commons, Infectious Disease Commons, and the Medical Sciences Commons

Published In/Presented At

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.
Authors
Craig A. Mackaness DO, Mark Knouse MD, Suzanne J. Templer DO, Deepti Verma MD, Allison Osbourne, and Michael J. Weiss MPH

This poster is available at LVHN Scholarly Works: http://scholarlyworks.lvhn.org/medicine/143
A Quality Improvement Initiative Using A Novel Travel Survey to Define High-Risk International Travel and Promote Patient-Centered Counseling
Craig A. Mackaness, DO, Mark Knouse, MD; Suzanne Templer, DO; Deepti Verma, MD; Allison Osborne; Michael Weiss, MPH
Department of Medicine, Lehigh Valley Health Network, Allentown, Pennsylvania

Introduction

In 2011, as reported by the World Tourism Organization, 980 million travelers crossed an international border (1). As recently reported by the Global TrippNet, up to 59% of selected travelers have an underlying medical condition and many immunocompromised patients are traveling to developing countries (2). PubMed 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 plan an 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 variables examined. We performed a retrospective observational analysis of patients from data collected in the post-travel survey. Statistical analysis was performed using t-tests for continuous variables and chi-square 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 ± 7.25, 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<0.001). 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 comorbidities, 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.

Table 1. Travel Characteristics

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number of Respondents</th>
<th>Percentage with Illness</th>
<th>Percentage with TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>525 (100%)</td>
<td>216 (41%)</td>
<td>84 (16%)</td>
</tr>
<tr>
<td>South Asia</td>
<td>35 (6.5%)</td>
<td>14 (40%)</td>
<td>8 (23%)</td>
</tr>
<tr>
<td>Africa</td>
<td>135 (25%)</td>
<td>81 (60%)</td>
<td>38 (29%)</td>
</tr>
<tr>
<td>Europe</td>
<td>111 (21%)</td>
<td>50 (45%)</td>
<td>23 (21%)</td>
</tr>
<tr>
<td>Oceania</td>
<td>51 (10%)</td>
<td>30 (59%)</td>
<td>14 (24%)</td>
</tr>
<tr>
<td>Other</td>
<td>15 (3%)</td>
<td>10 (67%)</td>
<td>6 (40%)</td>
</tr>
</tbody>
</table>

Figure 1. Classification of illnesses

- Illness was reported in 104 (20%) of all responders (Table 1).
- Of those who reported illness, the most common were gastroenteritis related to travel or a local illness (141 (41%) and respiratory illness 14 (3%) (Figure 1).
- The regions with the highest incidence of reported illness were Africa and oceania.
- Of the 104 travelers who reported illness, 28 (27%) sought medical attention while abroad.

Data collection demonstrated an 81% survey return rate. These illness rates were consistent with previously published data.

Figure 2. Frequency of TD by Duration of Travel

- Study Benefits
  - Post-travel survey has demonstrated value as a QI tool; data collected can guide pre-travel visit counseling
  - Knowledge of illnesses particular to regions will ensure travel-specific prophylactic antibiotics

Study Limitations
- Low survey return rate (52%) may have led to sampling error
- Response may have been subject to a recall bias

Conclusions

- Travelers in this study did not have a statistically significant difference in reporting illness for different travel destinations, though duration of travel was strongly significant for developing illness, notably TD. Although illness was consistent with previously published travel data, the travelers in our study sought medical attention at a higher rate than predicted by prior studies (4).
- Capturing 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 and travel risks and precautions.
- Email-based collected survey will be used to improve return rate

References
- US Department of State’s Traveler Information. https://travel.state.gov

Contact Information: cmmackaness@lvhn.org

Abstract

BACKGROUND - We sought to define high-risk travel destinations and identify predictors of higher risk travel so that we can plan an 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 variables examined. We performed a retrospective observational analysis of patients from data collected in the post-travel survey. Statistical analysis was performed using t-tests for continuous variables and chi-square 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 ± 7.25, 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<0.001). 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 comorbidities, 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.

Table 1. Travel Characteristics

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number of Respondents</th>
<th>Percentage with Illness</th>
<th>Percentage with TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>525 (100%)</td>
<td>216 (41%)</td>
<td>84 (16%)</td>
</tr>
<tr>
<td>South Asia</td>
<td>35 (6.5%)</td>
<td>14 (40%)</td>
<td>8 (23%)</td>
</tr>
<tr>
<td>Africa</td>
<td>135 (25%)</td>
<td>81 (60%)</td>
<td>38 (29%)</td>
</tr>
<tr>
<td>Europe</td>
<td>111 (21%)</td>
<td>50 (45%)</td>
<td>23 (21%)</td>
</tr>
<tr>
<td>Oceania</td>
<td>51 (10%)</td>
<td>30 (59%)</td>
<td>14 (24%)</td>
</tr>
<tr>
<td>Other</td>
<td>15 (3%)</td>
<td>10 (67%)</td>
<td>6 (40%)</td>
</tr>
</tbody>
</table>

Figure 1. Classification of illnesses

- Illness was reported in 104 (20%) of all responders (Table 1).
- Of those who reported illness, the most common were gastroenteritis related to travel or a local illness (141 (41%) and respiratory illness 14 (3%) (Figure 1).
- The regions with the highest incidence of reported illness were Africa and Oceania.
- Of the 104 travelers who reported illness, 28 (27%) sought medical attention while abroad.

Data collection demonstrated an 81% survey return rate. These illness rates were consistent with previously published data.

Figure 2. Frequency of TD by Duration of Travel

- Study Benefits
  - Post-travel survey has demonstrated value as a QI tool; data collected can guide pre-travel visit counseling
  - Knowledge of illnesses particular to regions will ensure travel-specific prophylactic antibiotics

Study Limitations
- Low survey return rate (52%) may have led to sampling error
- Response may have been subject to a recall bias

Conclusions

- Travelers in this study did not have a statistically significant difference in reporting illness for different travel destinations, though duration of travel was strongly significant for developing illness, notably TD. Although illness was consistent with previously published travel data, the travelers in our study sought medical attention at a higher rate than predicted by prior studies (4).
- Capturing 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 and travel risks and precautions.
- Email-based collected survey will be used to improve return rate

References
- US Department of State’s Traveler Information. https://travel.state.gov

Contact Information: cmmackaness@lvhn.org