

Illness and injury presenting to a Norwegian travel insurance company's helpline.

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Abstract

Introduction

Travel abroad is increasing, yet little attention has been paid to the use of health services by specific groups of travelers. This study describes the prevalence of illness, injury and subsequent changes to homeward bound travel and the costs for a group of Norwegian travelers.

Methods

In 2003, 1,787 cases were registered in the data base of the helpline of Norway's largest insurance company. This data were analyzed for prevalence of illness and injury according to age, gender, type of illness or injury, travel destination, type of travel, and the impact on return travel.

Results

Illness and injury accounted for 76.2% and 23.8% of the notifications respectively. Travellers over the age of 60 accounted for 32.3% of the total number of illnesses. The illness reported most frequently was infection (20.3%), with the highest prevalence of infections occurring in Southern and Eastern Europe (10.2%). The results obtained in this study were compared with studies of other populations of European travelers revealing that infectious diseases are the most prevalent illness. Differences were noted in the incidence of cardiovascular disease and the destinations where this occurred, and of fatality.

Conclusion

The results of this study when compared with those of other European travellers revealed that sufficient difference occurs such that pre-departure information needs to target better specific population groups with respect to minimizing the risk of illness and injury. As well, the collection of data by the insurance company misses the opportunity of acquiring data of real

value for future travelers, the insurance company and the medical profession. It is argued that there is a need to develop a comprehensive data base of greater use than available currently.

Keywords: Travel insurance, Travellers, Emergency assistance, Travel epidemiology.

Introduction

In the last 50 years travel abroad has become an accepted and increasing feature of modern lifestyle. For example, in 1998, 625 million people traveled abroad on holiday¹; in the year 2000 there were about 700 million international travellers, and every year more than 50 million people travel to developing nations². In Norway, of a total of 4.7 million inhabitants, approximately 1.2 million people travel abroad annually for holidays³.

It is estimated that between 1.5% and 5% of travellers become so ill that they require medical attention⁴. It has been estimated that at least 50% of people traveling to the developing world become ill or are injured, with 8 % requiring medical attention².

The evidence highlights that there is an increasing number of people traveling abroad and it is anticipated that this will continue⁵; and it can be expected at the same time that there will be increased need for health care for travellers and yet relatively little is known about their actual health care needs⁶.

The increase in international travel has also been accompanied by more people choosing exotic destinations and adventure-style activities, and it is likely that more people will find themselves experiencing health problems where medical resources are limited⁷.

It has been suggested that data collected routinely by travel health insurance companies provide a valuable source for monitoring health risks and their potential costs⁶. The costs of illness or injury can be substantial; for example, it has been estimated that the average cost to the individual and the health service of a case of *Salmonella enteritidis* infection can be as high as £ 800 (US\$ 1,418; €1,169)⁸. Such costs are not merely a potential burden for the

individual traveller, but also for the travel health insurance company, and the national health care system that is responsible for treating the traveller on their return. They can also be a significant burden upon foreign health services. This last factor is especially significant in those countries that struggle to provide adequate health services to their own nationals⁷. More information on the patterns of ill health among international travellers is necessary for the provision of preventive strategies to reduce the risks and costs associated with overseas travel^{5, 6, 9}. In particular, the data gathered by emergency helplines is potentially a valuable source of information which may contribute to the development of the healthcare services provided by travel insurers.

Based on data from the largest Norwegian travel insurance company, this paper describes the prevalence of illness and injury of travellers in relation to travel destination, the subsequent consequences regarding transportation needs following an episode of serious illness or injury while abroad, and the costs to the insurance company.

Methods

Emergency case data from Europeiske, the largest Norwegian travel insurance company, for the year 2003 was analyzed in this cross-sectional study. In 2003, the company's helpline registered around 3,500 cases, of these approximately 2,500 were cases of illness or injury requiring further assistance. Of this total there were 1,787 cases registered in the helpline's computerized database.

The inclusion criteria for this study were all cases of illness or injury notified to the help line, including rape and assault, for which there was complete data, and it also included those with a pre-existing health conditions. The data were categorized with respect to age, gender, type

of health problem (illness or injury), destination, reason for travel (business or holiday) and mode of transport used for the homeward journey. The patients' illnesses were categorized into the following: a) cerebrovascular, b) cardiovascular, c) pulmonary, d) gastrointestinal, e) nephrology, f) infectious, g) cancer, h) psychiatric; and, i) other illnesses. Injuries caused by accidents were categorized into 5 categories according to which part of the body was affected: a) head, b) extremities, c) thorax, spinal, pelvis, d) abdominal; and, e) other.

The travel destinations were grouped into three geographical areas:

1. Northern Europe, North America, Australia and New Zealand
2. Southern and Eastern Europe
3. Remaining countries (Africa, Asia, South and Central America, and the former USSR).

This classification is made according to the Norwegians' travel patterns and classification of travel patterns in the national statistics³. Furthermore, it is similar to a Swiss study⁶, and was considered the most appropriate. It does not imply any assumptions with respect to the relative merits of the health services available in the countries of these three regions.

No denominator data were available on the total number of travellers insured or on the travellers' length of stay abroad.

The type of escort used for the homeward journey was categorized as:

1. As planned originally without escort
2. Escorted by a nurse or a physician
3. Escorted by others

The costs for each case is presented in Euros (€) and includes all costs paid by the insurer, which covers necessary medical assistance on site, necessary medical assistance, care and escort during transportation, and adequate means of transportation when returning to the home country (e.g. air-ambulance in severe cases, stretcher or extra seats on scheduled aircraft and new itinerary in less severe cases).

Data on these variables for the following number of cases were missing: on age for one, type of travel for eleven, and illnesses and injuries for forty-one.

The descriptive statistics were analyzed with Statistical Package for the Social Sciences¹⁰. Gender differences were tested with Pearson chi- square test. Level of statistical significance was set to 0.05.

Ethical considerations

In Norway, only those studies in which there is the potential risk for the subject to be identified require approval from an Ethics Committee. The data available for this study did not contain any information that could identify any particular individual and thus ethics approval was not sought.

Results

There were approximately 3 500 registered cases at the helpdesk and 7.4% (n= 2,500) were related to health issues. Other insurance issues such as lost property and car breakdown accounted for the rest. Of the 2500 cases related to health issues, approximately 47% (n=1182) required hospital admission. Holiday travellers were the largest group by far, accounting for 93.5% of all those included in the study, and there were more men than women

represented in the sample of both holiday and business travel (49.7% vs. 43.8% and 4.8% vs. 1.7%, $p < 0.001$).

The number of travellers included in this study was 1787, which includes 67 patients who died. There was a mean age of 45 years, and an age range from < 1 year of age to 100 years of age (SD=23.5). The gender distribution of the sample was women, 45.5% and men, 54.5% (Table 1). There was no significant difference between the mean ages between the sexes.

Table 1 and 2 about here

Illness accounted for 76.2% and injury for 23.8% of the notifications. The age distribution (Table 2) shows that the number of notifications for illness increased with age, although there was little difference in the percentage of illnesses notified between the age groups 15-29 (18.2%) and 30-44 (18.3%). More than one third (33.8%) of all illnesses reported occurred in travellers over the age of 60, while the largest number of injuries occurred in the age group 15-29 years (27.7%).

The highest illness prevalence rates occurred in the infectious (20.3%), other (14.4%) and pulmonary (10.1%) categories. The 'other' category included neurological conditions (other than cerebrovascular injury), while the pulmonary category included conditions such as chronic obstructive pulmonary disease (COPD). The large number of cases in the infectious category resulted from of the inclusion of traveller's diarrhoea and pulmonary infections.

Table 3 about here

The most common sites for trauma were the extremities (52.7%), the head (17.7%) and the thorax/spine/pelvis (16.5%).

Of the 67 deaths that occurred, 24 were classified as "sudden death of unknown cause", often a cardiovascular incident. Of the other causes the most frequent causes of death were ischemic heart disease (n=9), drowning (n=7), car/motorbike accident (n=5), lung infection (4), liver failure (n=4), and cerebral insult (n=3). No data were available to allow conclusions on the relationship between medical care and subsequent death.

Women had a higher proportion of urological illnesses (59.4% vs. 40.6%, $p=0.018$) and accidents which involved injury of the extremities (52.5% vs. 47.5%, $p=0.026$). Men had a higher proportion of accidents which involved injury to the thorax, spine, pelvis or abdomen (67.6% vs. 32.4%, $p=0.027$). No other gender differences were found with respect to the proportion of illnesses and accidents.

Illnesses were more common than injuries for all the travel destinations with illness to injury ratios of 2.3:1 for Northern Europe, North America, and Australia and New Zealand, 3.4:1 for Southern and Eastern Europe and 5.2:1 for the rest. The higher prevalence of illnesses in countries outside Northern Europe, North America, Australia and New Zealand can be attributed to the frequency of infectious problems, pulmonary illness and the large number of diagnoses that fall in the 'other' category (Table 3).

When the traveller returned home, 86.7% returned without any escort, 2.2% were escorted by a non-professional person and 11.1% were escorted by a nurse or a physician. Most of the travellers returned as planned originally (54.4%), and 31.9% used the same mode of transport

as planned, but changed the time of their return. 13.6% of the travellers required both another form of transport and another time than was originally planned. An air ambulance flight was required by 41 patients, and 56 patients were able to be repatriated by stretcher on a commercial aircraft.

The actual costs to the insurance company are shown in Table 2. Except for the age-group 30-44 where the average cost owing to illness was higher, the highest average cost was incurred by travellers who had injuries. In the case of both illness and injury the highest average costs occur in the age group 60 years and over, with an average cost of €5,878 for the individual patient with illness and €3,167 for injury patients.

Discussion

Since the study is cross-sectional, no conclusions on causal relationship can be made. The data may not be completely reliable as it was collected initially by the insurance company, and by several different insurance claims handlers. Furthermore, since the data were not collected initially for research purposes, relevant data for exploring conditions related to illnesses and diseases and relevant confounding variables are not available. Thus, there is no information on pre-existing conditions and no exact cause of death in a large proportion of those who died. This study does not include data with respect to the number of Norwegians who travel within the other Nordic countries (Sweden, Denmark and Finland) where agreements between the countries mean that the health costs are met by the country in which the illness or injury occurs. There are also a number of health incidents which are not reported to the emergency center, but for which claims are lodged upon return to Norway. The total number of health incidents occurring abroad is therefore unknown. However, since the number of cases is relatively large, and since the data had been collected from the Norwegian

insurance company that has the major share of the travel insurance market, it is argued that the study has value with respect to description of the potential health needs of those traveling outside of the Nordic countries.

Although, this data describe the experience of a Norwegian population, it is possible that the results may also be of value for other Scandinavian and North European countries where similar patterns of travel are to be found. The pattern of travel is also similar to that of travellers from the United States¹¹.

When comparing our findings with a study of Swiss travellers⁶ the highest proportion of illnesses was also classified as infectious (20.3% and 26% of all cases of illness and accidents). In that study, the category of infectious diseases did not include travellers' diarrhoea which was included in the gastrointestinal category, whereas in this study travellers' diarrhoea was classified as part of the infectious category. When the data for this study were adjusted to include traveller's diarrhoea in the gastrointestinal category the results were consistent with the proportion of 20.9% in the Swiss study and 19% in the present study.

In a study of Polish travellers¹², diseases of the digestive system, including diarrhea and food poisoning, accounted for 15.2% of all illnesses. While the proportion of men was higher among Polish travellers¹², our study did not show such differences. A study of Australian travellers also found no gender differences in the proportion of illnesses and accidents¹³.

A Norwegian survey of holiday travel showed that, excluding travel to Denmark and Sweden, travel to South and Eastern Europe accounted for 59% of travel abroad.³ In this study, infection was the most common illness among travellers to Southern and Eastern Europe,

which no doubt reflects the popularity of Mediterranean destinations for the Norwegian traveller⁴. The findings in studies of European travellers that infectious diseases are the most prevalent illnesses^{6, 12} would appear to differ from studies of Australian travellers which found that the most common medical conditions were respiratory problems (20.4% and 11.7%), musculoskeletal (16.7% and 28.2%), and gastrointestinal illness (13.9% and 14.6%)^{13, 14}. It is difficult to compare these findings with those of the present study owing to differences in the classification of pulmonary problems between the studies.

When comparing the results of this study with those obtained from the study of Swiss travellers⁶ both samples demonstrated increased frequency of illness with advancing age. This was not found among Australian travellers¹³, and the study of Polish travellers found the highest prevalence rates of diseases and injuries in the age group 0–15 years¹².

It has been suggested that the higher prevalence of injuries to the extremities experienced by women may be a result of osteoporosis since it was found that 31.1% of injuries occurred in the over 60 age group⁶. A similar figure was found in this study (32.3%); however, without more data with respect to the exact type and cause of the injury it can be considered no more than a tentative hypothesis. Where these two studies diverge is with respect to the small percentage of people in this study experiencing cardiovascular illness. This cannot be accounted for by a larger proportion of their population being older as only 27.7% was in the age group 60 and over, compared to 32.3% in this study. The findings in this study are very similar to an Australian study where only 6.1% of the cases were due to cardiovascular illness¹⁴.

The data in this study reveal that relatively many travellers died. The study of travellers from Poland, recorded a lower incidence of fatalities with 7.14 and 2.8 (per 100, 000) respectively for disease and injury¹². Ischemic heart disease was the most prevalent cause of death in the present study. This was also found in a study of deaths in Australian overseas travellers¹⁵.

The findings in the Swiss study⁶ are not consistent with this study with respect to the geographical location in which the illness or injury occurred. In the present study 5.3% of the illness occurring in Southern Europe was cardiovascular in nature whereas in the Swiss study the percentage was 12.9%⁶. What makes this finding interesting is that data from the World Health Organization's global cardiovascular database reveal that Norwegians have a higher mortality rate for cardiovascular disease than the Swiss, with age-standardized death rates (per 100, 000) of 142.0 and 119.4 respectively in 2000¹⁶. It can only be speculated as to the circumstances which make the Swiss more likely to develop cardiovascular illness while traveling abroad.

One of the difficulties with arriving at the real cost of accident and illness is that travel insurance generally underwrites the worst-case scenario, which can lead to considerable financial costs. In this study the highest cost claim totaled €116,581, although this occurred in the 30-44 age group, overall the highest mean costs were among travellers over 60 years of age (Table 2). Nonetheless, it is likely that many travellers who experience minor bouts of illness or injury have these treated without seeking reimbursement from insurance companies. In addition, the financial impact of health problems while traveling is associated not only with the health-care costs but also with changes related to travel plans. For example, health insurance companies have to pay for altered travel costs, additional equipment requirements such as stretchers and wheelchairs, and costs related to accommodating travel companions.

Furthermore, the psychological and social impact of illness and injury upon the traveller can be severe. The stresses associated with seeking health-care in an unfamiliar territory, without the usual social network for support and resources, and uncertainty regarding outcomes of care, duration and the course of the illness cause additional burden to travellers and their companions.

The much higher cost incurred by those over 60 years of age who experienced injury needs further investigation. In particular, the insurance company needs to record meaningful data that elucidates the type of injury and factors that may have been involved in the outcome. When analyzing the available data with respect to injuries it becomes evident that insurance companies miss a valuable opportunity to collect data of real value to the medical profession. There is little value in collecting and categorizing the data by anatomical location of the injury. It would be more useful if the data were collected with respect to the cause of injury, e.g., drowning or motor vehicle injuries, or the type of injury. Such data could be obtained relatively easily and would create a significant database for the insurance companies and the medical profession.

This finding, in conjunction with this study which reports the largest group of illnesses in the infectious category in Southern and Eastern Europe, illustrates an important area for development for the travel insurance industry. Travel clinics should be provided routinely as a part of community health programs given the increasing numbers of international travellers. These could assist international travellers pre-departure to obtain the necessary immunizations, information regarding health risks related to travel destinations, develop specific ways to prevent illness and injury and establish personal procedures to manage existing illnesses. At the very least, information about such clinics, where they exist, should

be part of the information provided by the insurance companies to travellers when purchasing policies.

Conclusion

The comparison of our findings with those of other European studies has revealed that while similarities are present there is sufficient variance between the health outcomes for the different populations to suggest that the pre-departure information provided needs to be tailored to specific population groups and their intended destinations. It is possible that sufficient cultural differences exist with respect to the characteristics of European travellers, their preferred holiday destinations and recreational activities such that different health outcomes occur.

If, as might be expected, a primary objective of an insurance company is the reduction of expenses to the company through illness and injury, then data needs to be gathered that will be useful in devising guidelines for international travellers on how to avoid illness and injury and how to obtain the best care. Furthermore, both the insurance companies and the individual traveller can benefit by having better knowledge about various possible factors that contribute to illness and injury during travel. Comprehensive data collection would be an important step for providing more useful information than is currently available with respect to: preexisting health conditions, preexisting knowledge about the destination and the potential health problems that could be encountered, the exact nature of the travel (for example: business, visiting friends and relatives, education, holiday), length of stay, the exact nature of the injury, causative factors and antecedent conditions.

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Table 1 Characteristics of the sample. Numbers and Percents ^b

	Women		Men		Total	
	N	(%)	N	(%)	N	(%)
Age groups						
0–14	68	8.4	105	10.8	173	9.7
15–29	200	24.6	164	16.8	364	20.4
30–44	139	17.1	194	19.9	333	18.6
45–59	138	17.0	201	20.6	339	19.0
60+	267	32.9	310	31.8	557	32.3
Total	812	45.5	974	54.5	1786	100
Type of travel						
Holiday	777	43.8	883	49.7	1660	93.5
Business	30	1.7	86	4.8	116	6.5
Total	807	45.4	969	54.6	1776	100
Transport condition when returning to home country						
As originally planned	703	39.4	845	47.3	1548	86.7
Escorted by nurse or physician	95	5.3	104	5.8	199	11.1
Escorted by others	14	0.8	25	1.4	39	2.2
Total	812	45.5	974	54.5	1786	100

^b In the sample, data regarding age and return was missing for one patient, while data regarding type of travel were missing for 11 patients.

Table 2 Distribution of costs related to age, illness and injury. Median costs in Euros, range, numbers and percentages.

Age (years)	<i>Illness</i>				<i>Injury</i>				<i>Total</i>			
	Median	Range	N	%	Median	Range	N	%	Median	Range	N	%
0–14	1284	16 – 10331	144	10.6	4032	15 – 22635	27	6.6	1319	15 – 22635	171	9.7
15– 29	1252	16 – 25517	246	18.2	4677	0 – 49570	109	27.7	1351	0 – 49570	355	20.4
30–44	1573	0 – 116581	247	18.3	3890	53 – 33801	81	19.7	1696	0 – 116581	328	18.6
45–59	2134	0 – 66469	257	19.1	5624	86 – 83744	76	18.7	2134	0 – 83744	333	19.0
60+	3195	15 – 51665	464	33.8	8167	196 – 38020	112	27.4	3441	15 – 51665	576	32.3
Total	2092	0 – 116581	1358	100	5619	0 – 83744	405	100	2128	0 – 116581	1763	100

Table 3 Number of Cases per Type of Destination ^c

World Regions	<i>Northern Europe, North America, Australia and New Zealand</i>		<i>Southern and Eastern Europe</i>		<i>Africa, Asia, South and Central America, and the former USSR</i>	
	N	%	N	%	N	%
<i>Illnesses</i>						
Cerebrovascular	30	1.7	81	4.6	17	1.0
Cardiovascular	12	0.7	93	5.3	21	1.2
Pulmonary	23	1.3	115	6.6	38	2.2
Gastrointestinal	31	1.8	83	4.8	23	1.3
Urology	20	1.1	29	1.7	20	1.1
Infectious	52	3.0	177	10.2	122	7.1
Cancer	6	0.3	14	0.8	3	0.2
Psychiatric	11	0.6	44	2.5	19	1.1
Other illnesses	54	3.2	129	7.4	67	3.8
Total illnesses	239	13.5	765	43.9	330	18.8
<i>Injury</i>						
Head	15	0.9	38	2.2	20	1.1
Extremities	60	3.4	120	6.9	37	2.1
Thorax, spinal, pelvis, abdominal	17	1.0	40	2.3	11	0.6
Other injuries	12	0.7	27	1.5	15	0.9
Total injuries	104	6.0	225	12.9	83	4.7
Total	343	19.4	990	57.2	413	23.4

^c Data for 41 patients were missing.