

eHealth and Tourism

Kerstin Heuwinkel

University of Applied Sciences
Waldhausweg 14
66123 Saarbrücken, Germany
kerstin.heuwinkel@htw-saarland.de

Abstract: International tourist arrivals worldwide reached 842 million in 2006. Many travellers fall ill while being abroad. The WHO advises travellers to get information about the destination especially when they have been ill before. In case of illness information, e.g. about doctors and hospitals, and communication, e.g. with relatives or the family doctor, are important. Although the combination of eHealth and tourism suggests itself, neither information nor medical science answer the question which information people in case of illness while being abroad need and which media might be suitable. In this paper, we present a survey on information needs of travellers and the role of the internet. Furthermore, we studied the acceptance of mobile eHealth services and the willingness to pay.

1 Introduction

eHealth, i.e. healthcare that is based upon information and communication technology (ICT), brings a lot of advantages for the whole healthcare systems, health professionals, and patients. Healthcare organizations use information technologies in order to optimize their business processes. Furthermore, ICT facilitates data exchange. Many patients have become members of online groups, e.g. forums and chats, and find social support in these virtual groups. Patients are not the only persons that use the internet in order to find information about health related topics. Many people look for information about health risks and possibilities to avoid getting ill. In future, mobile eHealth applications may secure their well-being regardless of time and location. People will carry their personal health advice system with them. In case of illness they can directly contact their health professionals in order to get information and help. These systems will offer new business models – if people are willing to pay.

In this paper we put the focus on travellers as potential patients. We want to know what people are likely to do in case of illness while being abroad. Does the internet play a role? Which information sources will be used? Will people use mobile services and would they pay for them?

It is very important to understand the users and their information and service needs. In order to develop good applications and to increase compliance eHealth has to match structures and processes of everyday life [SS79, He06]. People that fall ill are in a special situation. Very often patients are forced to change their life twice: First, because of their illness and second, because of technology. The aim should be not only to diminish the changes resulting from ICT use, but to use ICT in a way that illness related changes are reduced, too. One prominent example is giving people the possibility to travel to foreign countries. Many people suffering from a chronic illness are afraid of going abroad. They fear being distant from their doctors. Furthermore, they doubt if foreign doctors are able to help them if something happens during their journey. Even people who are not ill think about possible health risks. Information and communication technologies may help as it is possible to:

1. provide health related information and thus reduce uncertainty,
2. make medical communication possible and thus close the gap between patient abroad and doctor at home,
3. offer personalized services according to the health level and simplify being abroad.

The aim of this paper is to investigate information and service needs of people that fall ill while being in a foreign country. In order to do so we conducted a survey on information needs and practices. Furthermore, we studied the acceptance of mobile eHealth applications.

The structure of the paper is as follows. In the next section we give a short overview of eHealth applications for travellers. After this, we introduce the methodologies used, and describe the outcome of the conducted analysis. The paper finishes off with a summary and conclusions.

2 Background – Falling ill abroad

According to actual statistics the number of visits abroad increases continuously. International tourist arrivals worldwide reached 842 million in 2006 [Wt07]. Neither natural nor social crisis can stop people from travelling.

Physical and environmental changes during a journey may lead to stress and illness. Travel related risks are influenced by characteristics of the traveller and characteristics of the destination, such as duration of visit, purpose of visit, standards of accommodation and food hygiene, behaviour of the traveller [Wh05]. The WHO advises travellers to get information about the country they are going especially when they have been ill before. Furthermore, they should conclude travel insurance and take a medical kit with them. According to the WHO travel experts, i.e. travel agencies, tour operators, have to care for their customers. To sum up, information and communication plays a decisive role with respect to reducing travel related risks.

Because of this one might assume that information and communication technologies gain more and more importance to the travel sector. In order to prove this assumption we carried out a review of the literature obtained from BMJ, statistic websites, and textbooks on the subject of medical tourism [Ru04].

According to the Traveler's Use of the Internet [Tr02] information and communication technologies are of great importance to travellers. The number one technology brought along by business travellers is the mobile phone (69 percent). 25 percent brought a laptop computer and 16 percent a handheld personal digital assistant and/or a pager (13 percent) on at least one business trip. Even 61 percent of pleasure travellers brought on a mobile phone. Laptop computer (9 percent), pager (9 percent), and/or a handheld personal digital assistant (5 percent) are less important. With respect to the real usage 42 percent of business travellers and 22 percent of pleasure travellers used the internet or email while being abroad.

Friends and relatives are the most important travel information with 43 percent. Travel agents (39 percent) and travel companies (32 percent) are important, too. 21 percent of the travellers contacted official institutions such as city, state or country's tourism office. Contacts with travel agents, tourism offices and travel companies include face-to-face contacts as well as the use of web sites. With respect to travel media 24 percent of the travellers find internet web sites most useful.

To sum up, one can find a lot of information about travellers' use of information and communication technologies. In contrast to this it is difficult to find literature on the subject of eHealth and tourism. Combining the terms information needs and patients studies about cancer patients' information needs [LB00] are found. Travel medicine brings tourism and healthcare together but does not deal with information and communication technologies. Thus, we analysed both areas and brought the findings together.

2.1 Information needs and patients

Online health information research focuses on the way patients use online applications and how this influences the care process [Fe00]. Search-engines, email, online support, virtual groups and medical guidance are the favourites. Another important aspect is the fact, that not only patients but relatives use these options, too. Telemedicine research focuses on technical and economical aspects [CLB03, FG02].

In medical science the use of ICT is mainly discussed in connection with self-management and disease management programmes. A lot of studies describe the possibilities of self-management programs, compare them to traditional care and enlist means to motivate patients to participate [GT97]. Giving information to the patient seems to be motivating. But we do not learn more about the kind of information or the media.

Cancer patients' information needs have been subject of research, too [LB00, ZCD04]. Here we learn some important things about information needs, the reasons why the internet is used, when and how it is used. A central aspect is that the internet is used for various reasons and that the usage changes due to the situation. Furthermore, we learn a lot about information and services. Getting information, choosing and checking treatments, understanding medical terms, and getting social support are important points. Still, the case of cancer patients' going abroad is not discussed.

To summarize, neither information nor medical science answers the question which information patients need and which media might be suitable.

2.2 Travel medicine

According to Zuckerman "travel medicine is developing as a new speciality" [Zu02]. Important aspects of travel medicine are pre-travel risk analysis as well as the assessment of the fitness to fly, the assessment of public health implications of a mobile society, the study and treatment of vector borne diseases (especially Malaria), the development of new combination vaccines, training in the discipline and international certification. The first point has implications to eHealth as information has to be distributed and communication processes has to be organized and supported. Organisations such as the International Society of Travel Medicine, the British Travel Health Association, and the World Health Organisation use the internet in order to offer information about travel risks, travel medicine specialists and clinics.

Until now, a user centred approach to the usage of eHealth in tourism is missing. Information platforms may be an element but we think that eHealth offers a lot more. Especially while being abroad the internet may be the link to medical services that people trust in.

3 Methodologies – The Survey

In spring 2007 we started a survey in order to investigate health related information search before and during a journey. We wanted to learn more about the information sources. What information do people use? Do age, travel experience and health level play a role with respect to information behaviour? If somebody had become ill abroad before, would he or she be more likely to look for addresses of doctors in the foreign country? A central aspect was the acceptance of the internet as information source. Furthermore, we were interested in the use of the mobile phone and the feelings towards mobile health services. We used a standardized questionnaire. The first questioning took place at a German university. 25 students were asked to answer the questionnaires and to give questionnaires to their parents and grandparents. As a result we got 40 completely filled-in questionnaires. Although this sample is not representative, it is a good starting point for assumptions.

3.1 Gender, age

27 of the sample were woman, 13 were men.

	female	male
absolute	27	13
%	67.5	32.5

Table 1: Gender

Due to the fact, that we started the survey at a university the sample is very young. 57.5 percent are younger than 30. Only 15 percent are older than 50. In the next questioning we aim for increasing the number of older people

	<20	21-30	31-40	41-50	>50
absolute	3	20	7	4	6
%	7.5	50	17.5	10	15

Table 2: Age

3.2 Travel experience and foreign languages

The average number of annual travels is 2.5. The average time they are abroad is 6.1 weeks per year. The average duration of a journey is 2.9 weeks

	<1 week	1-2 weeks	2-4 weeks	4-6 weeks	> 6 weeks
	2	14	15	7	0
absolute	2	14	15	7	2
%	5	35	37.5	17.5	5

Table 3: Duration of journey

As the students are students of international management most of the participants stated that they can express themselves in two foreign languages.

	1	2	3	> 3	non response
absolute	12	18	7	0	3
%	30	45	17,5	0	7,5

Table 4: Foreign languages

3.3 Health level

As stated in 3.1 the sample is very young. Because of this most of the participants have not been seriously ill before. Only one person stated that he/she is chronically ill.

	non	light	middle	grave	chronic	non response
absolute	28	6	1	2	1	2
%	70	15	2.5	5	2.5	5

Table 5: Pre-existing illness

Then we asked if the person has fallen ill while being abroad. 26 persons said no. 14 persons said yes, two of them suffered from a grave illness.

	light	middle	grave
absolute	4	8	2
%	30	60	10

Table 6: Seriousness of illness while being abroad

3.4 Information

One of our central questions addressed information search before a journey. We asked: Which of the following information sources do you use in order to prepare a journey? Answer options were: very often (5), often (4), sometimes (3), seldom (2), never (1). Here, we calculated the average.

	all	>50	<50
Internet: Website	3,5	2,3	3,7
Friends	3,4	2,3	3,6
Books	2,9	2,8	2,9
Travel agencies	2,8	3,0	2,7
Newspapers	2,6	2,8	2,5
TV	2,1	2,3	2,0
Internet: Foren, Blog	1,9	1,5	2,0
Doctors	1,6	1,3	1,6
Officials	1,4	1,0	1,4

Table 7: Information sources

According to our findings the internet and friends are the most prominent information sources used before a journey. Books, travel agencies and newspapers follow. Official institutions and doctors are unimportant. We see light differences between the age groups. Younger people are the more likely to use the internet or to ask friends than people older than 50. For older people travel agencies are the number one information source.

Studies show that information about health risks play an important role. We wanted to check the importance of information in relation to other travel precautions such as travel insurance or medical consultation. Therefore, we asked: “Which precautions do you take for the case you fall ill while being abroad?” According to our findings the favourite measure is the travel insurance, then information and medical kit. Talking with the family doctor and seeking out the address of German speaking doctors abroad are negligible. With respect to age travel insurance is more important for older people than younger people.

	all	>50	<50
Travel insurance	3.9	4.2	3.8
Information	3.4	3.2	3.5
Medical kit	3.4	2.2	3.6
Vaccination	2.6	2.2	2.6
Emergency number	2.0	1.3	2.1
Medical consultation	1.8	1.8	1.8
Address of German speaking doctor	1.6	1.7	1.6

Table 8: Measures

Next we wanted to see if and how experience (being ill before while being abroad) influences the precautions. Although the sample is not representative we find a slight tendency that people who have been ill abroad before are more cautious. Interviews with people who had accidents in foreign countries or who had seriously fallen ill validated our assumption.

	ill before	not ill before
Travel insurance	4,1	3,7
Medical kit	4,0	3,0
Information	3,8	3,2
Vaccination	2,7	2,5
Medical consultation	2,1	1,7
Emergency number	2,1	2,0
Address of German speaking doctor	1,6	1,6

Table 9: Measures

We not only wanted to get to know about precautions people take. Furthermore, we were interested in possible actions in case of illness. We wanted to know what people would do, if they fell ill. In order to find out if the seriousness of illness has any influence, we distinguished between the following types of disease: diarrhoea/vomiting, eye inflammation, insect or snakes bite, sprained ankle, fever, skin disease, pain in the chest. Multiple answers were allowed. Contacting the doctor abroad is the favourite. Only in case of diarrhoea/vomiting self medication is preferred.

	Other travellers	Hotel	Doctor abroad	Parents /friends	Family doctor	Internet	Self medication
Diarrhoea/vomiting	4	2	6	3	1	0	29
Eye inflammation	2	6	24	1	2	0	9
Insect/snake bite	0	7	34	0	0	0	3
Sprained ankle	0	1	23	1	0	0	14
Fever	1	2	21	4	0	0	14
Skin disease	3	4	18	2	1	2	12
Pain in the chest	2	3	28	5	1	0	4
absolute	12	25	154	16	5	2	85
%	4,0	8,4	51,5	5,4	1,7	0,7	28,4

Table 10: Actions in case of illness

We were very surprised that the internet has no relevance. Only two persons would use the internet in case of a skin disease.

3.5 Mobile services

A lot of money has been spent in order to build infrastructures for mobile services. Still, a so-called “killer-application” has not been found. It seems to be logic to use the mobile phone in order to deliver health information, to use GPS (global positioning services) in order to locate persons who have an accident, or to warn people in case of a catastrophe.

We asked the participants which of the following services they would use. According to our findings positioning is the preferred service. Getting a message with the address of the next German speaking doctor is attractive, too. Especially persons older than 50 years would use this service. One important point was the high ranking of personalized information. People seem to like the idea of customized health information.

	all	>50	<50
Positioning	3,8	3,7	3,8
Next German speaking doctor	3,6	4,3	3,4
Personalized information	3,2	3,6	3,2
Next pharmacy	3,2	3,2	3,2
General information	2,7	2,5	2,7
Ozone warning	2,6	2,2	2,7
Pollen flight	2,1	1,5	2,1

Table 11: Mobile services

3.6 Willingness to pay

Finally, we wanted to know, if people would pay for mobile services. 50 percent said yes and 50 percent said no. At a first glance, the result is not meaningful. But looking on how much people are willing to pay we see that the willingness to pay is very low. 19 persons said they would pay for the service as much as for a SMS, i.e. some cents. Only one person would pay more.

	less than SMS	as much as SMS	more than SMS
absolute	0	19	1
%	0	95	5

Table 12: Amount people are willing to pay

4 Conclusion

The internet has gained access to the health sector. People use the internet in order to prepare their journeys and to get information about health related topics. But being abroad the internet seems to lose its influence. In case of illness people tend to ask doctors abroad, to try self medication or to get in contact with home. Thus, the internet seems to be located at home. It is part of the private surrounding. Until now it is not mobile. Reasons for this might be missing hardware and connectivity as well as the expenses and costs related with this. The mobile phone seems to be an alternative as nearly everybody brings it on a trip. According to our findings people would use mobile eHealth services. But they are not likely to pay for this. Reasons for this might be numerous and have to be investigated.

We hope that our study prepares the ground for further qualitative and quantitative work. We will broaden the survey. Besides expanding the sample, we will focus on older people in order to compare different age groups. Furthermore, we will work with persons suffering from a chronic illness in order to learn more about their needs.

References

[CLB03] Celler, B.; Lovell, N.; Basilakis, J.: Using information technology to improve the management of chronic disease. *MJA*2003, 179 (5): 242-246.

[EPK02] Eysenbach, G.; Powell, J.; Kuss, O.: Empirical Studies Assessing the Quality of Health Information for Consumers on the World Wide Web: A Systematic Review. *JAMA*, May 22, 2002; 287(20): 2691 – 2700.

[Fe00] Ferguson, T.: Online patient-helpers and physicians working together: a new partnership for high quality health care. *BMJ* 2000; 321; 1129-1132.

[FG02] Field M.; Grigsby J.: Telemedicine and remote patient monitoring. *JAMA* 2002; 288: 423-425.

[GT97] Giuffrida, A.; Torgensen, D.: Should we pay the patient? Review of financial incentives to enhance patient compliance. *BMJ* 1997, 315: 703-707.

- [He05] Healthcare Commission: State of healthcare 2005. London: Commission for Healthcare and Inspection, 2005.
- [He06] Heuwinkel, K.: Nursing ICT. In: Stormer, H.; Meier, A.; Schumacher, M. (Eds.): European Conference on eHealth 2006. Proceedings of the ECEH'06. Fribourg, 2006; 239-250.
- [LB00] Leydon, G.; Boulton, M.; Moynihan, C. et.al: Cancer patients' information needs and information seeking behaviour: in depth interview. *BMJ* 2000; 320 ;909-913.
- [Ru04] Rulle, M.: Der Gesundheitstourismus in Europa – Entwicklungstendenzen und Diversifikationsstrategien. Profil, München, 2004.
- [SS79] Sackett, D. L.; Snow, J.C.: The magnitude of compliance and noncompliance. In: Haynes, R.; Taylor, D.; Sackett, D.: *Compliance in Health Care*. Baltimore, Johns Hopkins University Press: 11-22. 1979.
- [Tr02] Travel Industry Association of America: *Travelers' Use of the Internet*, 2002 Edition.
- [Wh05] World Health Organization: *The World Health Report 2005*, Geneve, 2005.
- [Wt07] World Travel Organization: *Tourism Highlights 2006*. Madrid, World Travel Organization, 2007.
- [ZCD04] Ziebland, S.; Chapple, A.; Carol Dumelow, C. et.al: How the internet affects patients' experience of cancer: a qualitative study. *BMJ* 2004; 328 :564-71.
- [Zu02] Zuckerman, J.: Travel medicine. *BMJ* 2002; 325 :260–4.