Educational Issues and Concerns in Travel Health Advice: Is All the Effort a Waste of Time?

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Along with prescribing and vaccinating, a large part of any pretravel consultation is the provision of information to the traveler. Clients are advised what to do to stay as healthy as possible during their journey. By the end of the visit to the travel clinic or general practitioner, the traveler has been told what there is to know, and “the case is closed.” But is it? This article discusses a little-explored area in travel health, the use of educational theory to inform the activity of travel health advice. It suggests how an educational-behavioral framework might be used to increase the likelihood of this advice being accepted.

Outcome of Travel Health Advice in Practice

The topic of this discussion evolved from a variety of sources, including personal observations of traveler health behavior and experiences as the recipient of travel health advice. Invaluable insight was also gained from overhearing other travelers exchange experiences of health-related issues. These talks were often about malaria prophylaxis, the type of drug prescribed, and a critical assessment of this prescription. They also indicated how other travelers’ views often carry a much higher level of credibility than do those of the medical practitioner. Other topics were vaccinations, those received and those not deemed necessary, and detailed accounts of bouts of traveler’s diarrhea and other issues worth sharing. Some conversations were mind-boggling in terms of knowledge (“I got a malaria shot”), views, and beliefs regarding travel health issues. These records are not generalizable since they were not collected within a traditional research framework. However, it is unlikely that I was just unlucky in meeting people with predominantly poor knowledge, poor memory, or poor interest in their own and others’ well-being while traveling. Recognizing that poorly informed travelers exist, it seems worth examining whether the way travel health advice is given contributes in some form to a less-than-satisfactory outcome in terms of travelers’ health preparation. Doubts in the process of giving travel health advice have also been confirmed in research undertaken more recently,1–4 with problems occurring in three areas: (1) the content of the advice, (2) the way the information is conveyed, and (3) the effect it has on the recipient.

In one study of travelers to Peru,1 over 90% of tourists to Manu National Park did not get advice on leishmaniasis disease, despite the area being an endemic region. It was not possible to ascertain if this specific advice had actually been given and was just forgotten. However, when asked generally about health information received, many tourists were certain they were not told about the disease. In addition, there was great dissatisfaction with what they perceived as inconsistent and insufficient advice. Of 552 travelers to Peru, 96% had sought advice before their trip.2 The majority (60.4%) reported to remember most, 23.4% all, 15.5% some, and 0.6% none. The number of items remembered ranged from 0 to 11. Here, the question arises whether those who claimed to remember everything but named very little were only given little advice or just did not remember more. This is important because only what they remembered would have been of use to them in preventing potential health problems. If travelers had been given advice but had forgotten a lot, why did this occur?

In another study 106 Australian travelers to developing countries were asked about their experiences with health advice just received.3 Most (86.5%) had visited their local general practitioner for advice; however, not all were happy with what they got, with some (13.5%) needing more advice and others feeling that advice received conflicted with advice others received for the same trip or with advice obtained from other sources. Again, the number of individual items recalled per visit varied considerably, and often the advice given was surprising considering the planned destination. As before,
it could not be ascertained what percentage of advice given was actually recalled.

What could have gone wrong in the scenarios described above? Factors influencing the quality of travel health advice released by the health professional (sender) include correctness/incorrectness of information, appropriate/inappropriate amount of information, appropriate/inappropriate medium chosen, sufficient/insufficient amount of time spent, and level of interpersonal skills. Factors influencing the level of knowledge at the receiving end (traveler) include issues such as age, level of interest, type of learner, fatigue, amount of information, distraction owing to more pressing tasks before the trip, previous knowledge, an attitude that the “spouse deals with this stuff,” poor retention, dislike of being told what to do, and so on.

A better understanding of human health behavior and principles of communication can assist in eliminating some of these factors. The remainder of this article is devoted to the discussion of some theoretic frameworks, illustrating them with practical travel health examples.

Models of Human Health Behavior

Teaching is generally understood to be an imparting of knowledge or information, whereas health education is a more complex process aimed at motivating people to either adopt healthy behavior or modify previously compromising behavior. Pavlov's model of classical conditioning and Skinner's model of operant conditioning in the early 1900s prepared the ground for various, more recent theories and models that have attempted to explain human health behavior and that provide a framework for health behavior–changing strategies. Four commonly employed models are presented here as a basis for understanding why some travel health advice outcomes may be more successful than others.

Health Belief Model

The health belief model by Rosenstock is based on the assumption that an individual's perception of susceptibility to a health problem and its severity motivates health behavior. For example, it explains why somebody who does not feel to be in a particular danger of getting malaria at the chosen destination does not take prophylaxis as prescribed, despite having been advised to do so, or why somebody may refuse a highly recommended travel vaccination. Advice based on this model needs to trigger the occurrence of three events simultaneously: (1) the presence of sufficient health concern to make the problem relevant, (2) the belief of susceptibility (“perceived threat”), and (3) the belief that some action can reduce this perceived threat.5

Social-Learning Theory

Often criticized for its complexity, the social-learning theory by Bandura is nevertheless a popular framework in educational theory. Social-learning theory determines behavior by expectancies and incentives.5,6 Expectancies are about environmental cues such as how one event leads to another (the bite of an infected sandfly leads to bartonellosis), about consequences of action (the use of repellent influences that outcome), and about the competency to carry out necessary behavior (rigorous application of repellent when necessary, regardless of inconvenience, fatigue, or resulting sticky hands). This last factor, called self-efficacy, not only represents a person's competence in doing what is required but also the confidence in overcoming barriers to performing the required action,7 such as not minding being exposed to the mockery of fellow travelers. The incentives in this theory are the valued outcomes of behavior change, for example, using measures of personal protection to avoid arthropod-borne infections, refraining from casual unprotected sex at the destination to remain free of sexually transmitted diseases, or being particular about food hygiene to avoid the inconvenience of traveler's diarrhea.

Theory of Reasoned Action

In the theory of reasoned action by Fishbein and Ajzen, behavior is based on two factors, one's intention to perform a specific behavior (take malaria pills), and attitudes toward that behavior by that individual (malaria prophylaxis a good thing) and by other people important to this individual (what fellow backpackers think about taking malaria pills). By including others’ views, the inclusion of social norms in this theory as an influence on behavior poses an additional challenge regarding travel health advice. It raises the need to educate more than just the individual coming in for a consultation to make health behavior changes work.

PRECEDE Model

The PRECEDE model by Green and Kreuter is included here for its frequent use in patient education. It is based on three factors: predisposing, enabling, and reinforcing.7,8 Predisposing factors, again, rely on the individual's beliefs and perceived benefits of a behavior (eg, wearing proper footwear when trekking). Enabling factors are those that facilitate the health behavior of a person who understands the need for change but finds it difficult to act on it (eg, when the information on what to do if bloody diarrhea occurs in a remote location and self-treatment is indicated is too complex to be understood or remembered). Reinforcing factors ensure that the required health behavior is adhered to for the required period of time (eg, a group of fellow travelers remind each
other of the “Sunday-morning chloroquine” to ensure nobody misses a weekly dose).

**Comparison of Theories**

To compare the differences between these theories, an overview of expected outcomes of their application to travel health advice using two common health messages is presented in Table 1.

More details on human health behavior models can be found in the original work of the theorists or in textbooks on patient education.9–15 Egger and colleagues’ synthesis of the outlined models and subsequent strategies provides a framework for travel health application.5 First, formative research needs to determine the beliefs and perceptions behind attitudes, motivation, and behavior. Then strategies can be designed to change these beliefs if necessary (eg, by increasing the perceived likelihood of contracting hepatitis B during practices involving the potential exchange of blood), change the evaluation of these beliefs (eg, by increasing knowledge about the potential long-term effects of hepatitis B), and introduce new relevant health beliefs (eg, the likelihood of contracting the potentially even more dangerous hepatitis C). Key factors to be researched and incorporated into health education (Table 2) can all be applied to travel health advice.

Moving on from the theoretic background of behavior change, the concept of communication is chosen as the framework for giving travel health advice.

**Communication Theory as a Guide for Travel Health Advice**

Lasswell’s five key components of communication16—the sender, the message, the channel, the receiver, and the effect—are discussed below and related to travel health education.

**The Sender**

The sender is the health professional who prepares and transmits the message. The prerequisites for this job are appropriate knowledge, qualification, and experience. Knowledge here consists not only of the necessary medical background, preferably supported by a postgraduate travel health qualification including the certificate of travel health issued by the International Society of Travel Medicine, but also of a good geographic knowledge to understand the factors influencing endemic health patterns at a destination, such as climate, seasons, geology, or vegetation. In addition, “people knowledge” is crucial when it comes to the assessment of risk, not just regarding the destination but also the potential risk-taking behavior. A good interviewing technique can enhance the educational process,7 as do good interpersonal skills. Credibility of the health provider also plays an essential role in the communication of health messages.18

**The Message**

Travel health advice is the message released by the sender. In one study the preferred amount of information ranged from “very detailed” (44.5%) to “some background” (34.5%) to “just what to do” (21%).3 Several studies have suggested that some advice given is incorrect, inconsistent, confusing, incomplete, and contradicting.1–3,19–22 These findings suggest that there is room for improvement to ensure that the content is not only correct, consistent, complete, and up to date but that it is tailored to the unique needs of each traveler. This includes all topics deemed important in each case, even if the discussion of some issues such as planned sexual behavior may be awkward. Matteelli and Carosi questioned the capacity and willingness of travel medicine personnel to engage in education to reduce the risk of sexually transmitted diseases.23 When choosing material, commercial or self-designed, it is important that the material contain the information the patient wants and needs and that the patient understands and uses the material as presented.24

**The Channel**

Travel health advice comes in a range of media—oral, printed, on videotape, in electronic form, and in any possible combination. In one study most of the tourists (34.5%) preferred a combination of various media to convey the message, 32.5% wanted printed plus verbal advice, 25% wanted printed material only, and 8% found verbal information sufficient.3

Much has been written about the preparation of teaching materials, and details can be found in patient education handbooks.5,11,12 Such texts disclose that supplying printed information involves much more than producing typed and photocopied information sheets. Also to be considered are layout, font, font size, clarity, and the age and educational level of the consumer. For example, the application of readability formulas and suitability assessment of materials is crucial if the message is to reach the traveler.24 Similarly, audiovisual material is useful in health education when a number of rules regarding its production are followed. However, two considerations apply regardless of the medium: the medium should support the personalized education not replace it,12 and the material should reflect and take into account a person’s perception of health and health problems.24

Traditional media such as leaflets assist the communication process. However, there is no reason why other approaches to travel health advice cannot be taken; for example, a travel clinic with a larger catchment area...
<table>
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<tr>
<th>Message</th>
<th>Theories of Human Health Behavior*</th>
<th>Expected Patient Outcomes†</th>
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<tr>
<td>Malaria prophylaxis</td>
<td>Health belief model (Rosenstock)</td>
<td>1. Understands principles of malaria and its transmission and is aware of the presence of malaria in the visited area</td>
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<td></td>
<td>2. Perceived threat</td>
<td>2. Understands that there is a personal risk of infection and that malaria can be fatal</td>
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<td>3. Action can reduce threat</td>
<td>3. Believes that prophylaxis reduces the risk of getting the disease</td>
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<td></td>
<td>Social-learning theory (Bandura)</td>
<td>1. Understands how the bite of an infected mosquito can lead to a potentially fatal disease</td>
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<td></td>
<td>1. Expectancy</td>
<td>2. Understands that taking prophylaxis can interrupt this process</td>
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<td></td>
<td>2. Consequence of action</td>
<td>3. Takes prophylaxis because it is necessary, and overcomes barrier of inconvenience in terms of time schedules, side effects, costs</td>
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<td></td>
<td>3. Self-efficacy</td>
<td></td>
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<tr>
<td></td>
<td>Theory of reasoned action (Fishbein, Ajzen)</td>
<td>1. Understands reason for prophylaxis and plans to take it</td>
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<tr>
<td></td>
<td>1. Intention to perform</td>
<td>2. Attitude of patient and of others (public/fellow travelers): taking prophylaxis makes sense</td>
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<tr>
<td></td>
<td>2. Attitude toward performance by individual and by others</td>
<td>1. Understands the benefit of taking prophylaxis to reduce risk of infection</td>
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<tr>
<td>Safe sex</td>
<td>PRECEDE model (Green, Kreuter)</td>
<td>2. Has information including on side effects and access to prophylaxis</td>
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<td></td>
<td>1. Predisposing factors</td>
<td>3. Has system in place that ensures that prophylaxis is taken for the required length of time and in the required dosage</td>
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<td>2. Enabling factors</td>
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<td>3. Reinforcing factors</td>
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AIDS = acquired immunodeficiency syndrome; HIV = human immunodeficiency virus; STI = sexually transmitted infection.

*Key factors.

†Application of theories to travel health advice.
could provide monthly lectures for the public or package the health message into a travel slide show (perhaps even sponsored by a local travel agency). The consideration of the local residents at a travel destination is still neglected in travel health advice. Advice on how to safeguard the hosts’ well-being makes more sense when, through viewing slides, the audience is able to imagine its application on location. Other general pretravel activities could be play sessions for children where they learn about hygiene to reduce the risk of fecal-oral infections; there could also be workshops for adolescents on safe sex. Building up a pool of travel health knowledge in the population may also eventually allow individual consultations to be more focused on specifics and use time more efficiently.

The Receiver

Most travelers belong to the age group for which the principles of adult learning apply. One key concept is the presence of previous knowledge and experience on which to build health advice. Equally important are physiologic changes throughout people’s life that alter the ways they learn, such as memorizing, problem solving, and the amount of new knowledge that can be absorbed. The approaches for teaching a younger adult and a more mature traveler may differ considerably.

Based on individuals’ backgrounds, their assessment of risk (perceived threat) of the planned trip can vary widely and may in no way reflect the realistic risk or the risk as perceived by their clinician. The public’s definition of risk is often based on reports in the media, such as news about a plague epidemic or civil unrest at a destination (the “outrage factor”16). This can make the attempt to alert to more realistic but “silent” risks, such as hepatitis A, rather difficult.

Clinicians’ time is limited, and to use it in the most efficient way, there should be an assessment of learning needs covering a range of aspects, as is needed in any teaching. What is a traveler’s previous knowledge and experience? A seasoned traveler will “switch off” when told about washing and peeling fruit before consumption and may then lose interest in any further, relevant advice. Yet, a travel novice may need to be warned to prepare fruit. What is the traveler’s view on potential risks and susceptibility of disease? In three studies a small percentage of subjects reported never getting health advice because, as they claimed, they do not get sick.1–3 Time is wasted if a traveler sees no need for the advice given and has no plan to follow it; for example, one subject said, “I was told, ‘Don’t swim,’ but I will.”2

In patient education the learner’s assessment focuses on three aspects: learning needs, learning styles, and readiness to learn.12 In a travel consultation, such elaboration may not be possible. However, some of those issues can easily be dealt with if travelers are given a questionnaire in the waiting room to be filled out before the consultation, or if such questions are added to preconsultation forms that are used already. After demographics have been completed that give a reasonably good indication of the trip (to be marked on a world map and details noted, such as season, time, length of trip, type of transport, accommodation, and so on), further questions can be asked to assess previous knowledge and experience, including previous travel health problems, and the traveler’s perception of risk (eg, “What are you most worried about?”). Having such a questionnaire ready allows the clinician to deal specifically with the needs of the traveler in relation to the trip and the individual’s possible need for behavior change.

An important aspect of influencing someone’s readiness to learn is motivation. Motivation cannot be taught; it comes from within the person. A traveler who understands the potential risks explained to him and ways to minimize those risks and who is generally interested in following the advice may still lack the motivation to put the advice in practice once on location. It can be frustrating for a clinician to suggest the implementation of preventive measures when the traveler’s motivation is not known or is doubtful. For example, the traveler may rely on drugs to treat traveler’s diarrhea rather than appreciating that it is much better to prevent this predicament and to avoid the loss of holiday experience, dis-

Table 2  Key Questions Relating to Health Education

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<td>• What is the individual’s perceived likelihood of contracting a particular infection/disease? If the perceived likelihood is unrealistically low, what sort of information, presented in what way and by whom, might change this perception?</td>
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<tr>
<td>• What is the individual’s perceived severity of a particular infection/disease? Is this realistic?</td>
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<tr>
<td>• What is the individual’s attitude toward adopting the recommended alternative behavior?</td>
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<tr>
<td>• What is the individual’s perceived likelihood of averting the threat if the recommended behaviors are adopted?</td>
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<tr>
<td>• What are the individual’s beliefs about the ability to adopt the recommended behaviors?</td>
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<tr>
<td>• What appear to be the major motivations that would induce a trial change of behavior?</td>
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<tr>
<td>• What are the individual’s main sources of information on health, and who are the main sources of influence?</td>
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<tr>
<td>• How do the individual’s social interactions influence health beliefs and behaviors?</td>
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Adapted from Egger G et al.7
comfort, disruption of itineraries, and general misery, even if prevention may cause some small inconvenience.

The Effect

The purpose of communication is an intended outcome. In travel health it is the acceptance of a rationale for the adoption of a certain suggested behavior. Many people traveling overseas consult a health professional for advice. However, it has been demonstrated that once travelers are at their destination, many know little or seem unconcerned about advice they were given. Do travel health professionals know that the outcome of their effort may not be what they hope? How might they feel knowing that the people they are advising enthusiastically may have no intention of following that advice, or that travelers may plan to follow advice but reality makes these plans impractical? Being asked these very questions, health care providers in a general setting felt frustration, a sense of failure, disappointment, anger, and that their time had been wasted.25 Travelers cannot follow the advice they are not told, but even if they are given instructions, they may not follow them.

Suggested Strategies to Start Improving the Outcome of Travel Health Advice

Exploring the communication process from a travel health perspective shows that the reasons for an unsatisfactory outcome can be located anywhere within this process. Therefore, each of the components needs to be examined for flaws and, if necessary, improved. Owing to space constraints, only some problems occurring within the receiver of the message are discussed here, namely knowledge and understanding, compliance, and the environmental setting.

Knowledge and Understanding

One reason for not following advice could be that the information has not been understood. Evaluation is an integral part of every teaching since it indicates whether the teaching is working. For example, we wouldn’t continue to hand out a pretty, customized leaflet on malaria prophylaxis if it turned out that travelers seemed more confused after reading it than they were before. And we would modify the amount of content on water purification or the way it was presented, or both, if it turned out that people barely remembered half of what was said. Several aspects of education can be evaluated,9 at least two of which apply to travel health: knowledge and behavior. In all practicality, testing of acquired knowledge is the easier of the two.

Clearly, the clinician wants feedback on the format of the consultation, but information regarding the amount of knowledge retained and its accuracy is also needed. Feedback on format and medium is easily obtained; evaluation of knowledge is difficult since this would have to be done under controlled circumstances, not very feasible in daily practice. Furthermore, although some travelers are keen to deal happily with anything that has to do with their upcoming trip, others are too busy to fill in forms that are of no immediate benefit to them. To enhance participation, a clinician or travel clinic can design a “take-home examination,” consisting of format and knowledge questions, which is given to the traveler after the consultation, together with a prepaid return envelope. As an incentive, every returned examination could go into a monthly draw to win, for example, a voucher ($10,$20,$50) sponsored by a vaccine company, a guidebook publisher, the local airline, or a travel agency chain. This approach is not a controlled test of knowledge (and, therefore, not the most valuable educational feedback), but people may feel competitive and consult the Internet or other sources to make up for missed information. This way, the tool becomes a teaching tool as well. The examination should be returned to the clinic before the trip so that travelers can call again if more advice is needed.

Compliance

The concept of compliance in health education has primarily been used in relation to medication regimens or other specific physician instructions.26 Poor patient performance has been demonstrated in a range of studies, with only 30 to 70% of people following instructions.27 These findings may have relevance in travel health. One reason for noncompliance or nonadherence is poor recall.26,28 Studies suggest that after 5 minutes, patients forget about half of the instructions, and remember best the first one-third of the communication.28 Another hindrance to compliance is that travelers deal with many concerns and distractions while overseas, and health issues are only part of them. Depending on the perception of risk, concern for health issues may disappear altogether. Further factors influencing compliance can be fear of ridicule, and group pressure.

There seem two main subject areas for which knowledge is imparted, available, and surely often understood, however, it is not acted upon: malaria prophylaxis and casual sex while overseas. How to make people modify behavior that is bad for their health (even though most understand it is bad for their health) is probably the biggest puzzle in health education. According to Bandura’s social-learning theory, it is low self-efficacy that contributes greatly to noncompliance, and relapse prevention aims to counteract low self-efficacy.29 However, this concept applies more to long-term health problems and may be of little use in the short-term nature of travel.
Environmental Setting

The communication framework allows a structured assessment of the process of giving travel health advice and an indication of where improvements might be warranted and possible. One component not included in Lasswell's structure is the environment in which communication/education takes place. Context has long been acknowledged as an important factor in influencing behavior change. The physical environment or, relevant to travel health, the geographical location is one such factor. In reality, a practitioner in a tidy hometown clinic with all the amenities advises a traveler to boil water to make it potable. Since the instruction happens in a setting very remote from that the traveler is going to travel to, the “context trigger” (the clinic) is inappropriate, and the water remains unboiled. The National Academy of Sciences states, “The learning of new behavior should take place in the contexts in which the person will need it the most.”30 This statement makes sense—it is like on-the-job training.

What, then, are the implications for travel health? Does the host country have to take on at least part of the responsibility in educating the travelers about preventing local health problems? There is actually no reason why destination countries should not contribute to the health education of travelers. The host country has more experience with local health problems and their prevention, and this practice would also be a great opportunity to remind travelers of the need to consider their impact on locals’ health, an issue that finds little mention in travel health advice.3 The Host Country Committee of the International Society of Travel Medicine would be an ideal forum for the development of such an approach.

Further Research

There is an extraordinary paucity of research-based literature on educational issues in travel health advice. This may be because health advice has always been an integral part of any medical consultation. There is a traditional lack of recognition of advice giving as an important activity in its own right, rather than just a service “on the side.” Also, the missing empiric background may be an indication of the methodologic challenges in educational research. Measuring educational processes and outcomes reliably is notoriously difficult, and the multifaceted nature of education is a challenge for any researcher.

It would be wonderful to have a study designed that allows the objective measurement of content and process of giving travel health advice, matching it with exact measurements of a traveler’s knowledge (after the consultation and on location), attitudes, and behavior while on the trip, attributable to the travel health advice. The difficulty in conducting such a study is clear. However, there are countless topics still awaiting research. Two of the few examples carried out so far are a study on identifying risk groups for noncompliance to malaria prophylaxis,31 and a study on predicting adherence to malaria prophylaxis (R. Behrens, personal communication, May 2001). Over time and considered together, such studies will provide an insight into prerequisites, methods, and outcomes of teaching. More qualitative research should be employed to facilitate an in-depth understanding of reasons for this variety in degrees of advice acceptance among travelers and of the expectations of clinicians for their own advice giving.

Conclusions

Research in patient education suggests success in situations where there is an appreciable threat to life.7 In travel health the prevention of something that may or may not happen seems much more difficult. The seemingly simple and straightforward process of giving health advice to travelers is part of a complex and comprehensive framework of educational and behavioral concepts built on attitudes, values, and beliefs. Apart from the obvious medical background, considerable theoretic knowledge is required. To reflect this complexity, perhaps we should move away from the term travel health advice and call it, more appropriately, travel health education.

References