

Team Scrubs - Part 1

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I. Overview

In the last 7 months, almost 20 million people have travelled overseas from the United States to other parts of the world. Unfortunately, some of these travellers come back with illnesses that can be potentially life threatening. Since climates are distinct across the globe, so are the health issues that come along with them.

Before flying to Peru, the CDC advises most travelers to get vaccinated for Hepatitis A and Typhoid. They also advise taking additional preventive measures for Malaria such as using prescription medicine before even getting there. If your vacation extends to Argentina, they recommend you also get vaccinated for Yellow Fever. Clearly, finding precautionary information for each unique destination on your trip can easily become overwhelming and confusing. This should not be the case when it comes to keeping you and your family safe while traveling abroad.

Our application will give users the most up to date health and safety information for every one of their destinations, while also giving them easy to understand instructions and tips for everything from preparing to travel to precautions they should take after coming back. In the unfortunate case that someone does fall sick abroad, their entire medical profile and history will be accessible through our application for quick reference. Having personal health data at your fingertips while abroad can prove to be lifesaving in the event you need emergency medical attention.

Travelling with our application gives the user a peace of mind because they are well-informed of what to watch out for abroad and how to prepare for it before even getting there. The user will be able to save their personal and family medical data manually or by having their doctor upload it. After entering their trip destinations, they will receive comprehensive precautionary tips, medical requirements, and current health issues to be aware of organized by location. Our application ensures our users and their families are the safest and most prepared they can be while travelling across the globe.

II. Key Characteristics of Users

Typical users of our system include new and veteran international travellers. Our users want access to thorough, accurate, and up to date health information that pertains to them on their trip. Because of this, it appeals to new travellers who are looking for basic

precautionary and medical information and to veteran travellers, whom are looking for the latest health issues that may be relevant to their travels.

Specifically, our user base will include professionals and vacationers. Professionals often travel to international countries for their work and are very up to date on travelling procedures. Yet, they need current information about the destinations they have to visit for work to be prepared. They want this information quickly and without any error. Because professionals often travel in short routine cycles, they have a much higher exposure and chance to contracting a disease abroad. Thus, they are much more inclined to value the up to date information about each destination we provide.

Vacationers can either be travelling with their family or friends, so having their group's medical information on the go is of high value to them. Vacationers will also be more inclined to explore terrain and wildlife on their trip compared to professionals, so they would prefer health information regarding exploring outdoors. Another specific demographic of users is the parents of young children. Young travelling parents want to make sure they have all the necessary medical information to ensure their children are safe while on vacation.

Our users are professionals and vacationers that value their personal and family's health deeply. They are also busy people that don't have time to research specific medical/health requirements, current health issues, and tips to stay safe for every one of their destinations. They want a solution that is simple, yet comprehensive enough to ensure they are as prepared as possible when travelling overseas.

III. Task Analysis

A. Task Descriptions

1. Users can view their previous medical records.
2. They can search the requirements of the country they would like to visit.
3. They can find all necessary contact information for their physician and any other medical personnel.
4. They will be able to search if a vaccine they have been given is equivalent to the requirement of a different country
5. They can easily find a list of recommended medicines they should have with them when traveling.
6. Users can view what symptoms to look out for while travelling.
7. It will be an effective tool as far as receiving updates on any major diseases or outbreaks that are prevalent.

8. There will also be a feature for users to identify and locate nearby medical facilities in case of emergency.
9. In different countries the access to internet may be limited so we will include most of the features in an offline format.
10. The user will also have passwords securing the app because we are aware that it contains sensitive information.

B. Task Environment Details

1. Users can use the device from a doctor's office to be more prepared for their appointment and ask any necessary questions about their trip.
2. They can use it at an airport in case they need to show any documentation before boarding their flight.
3. The user may need to use the app in a foreign country in the case of an emergency to find help or show medical records to help the medical personnel of the country in assisting the user.
4. Users may find the app useful to use when planning for their trip in determining areas they need to go to and how they must prepare for their trip.

C. Task Analysis of Problem (HTA of Current System)

1. Make travel plans abroad
2. Retrieve personal medical history
 - 2.1. Try to remember details of last vaccination
 - 2.2. Contact Doctor to fill in missing gaps
3. Research online and ask friends about recommended vaccinations and antibiotics to carry for destination
 - 3.1. Research online the necessary vaccinations for the destinations you are visiting
 - 3.2. Compare results to blogs or past experiences from those that visited that country
4. Get necessary vaccinations and preventive antibiotics based on feedback from doctor and search results online or through friends
5. Document proof of new vaccinations for trip
6. Research medical facilities nearby your destination in case of emergency during the trip
 - 6.1. Record list of facilities relevant to distance from where you are staying and the services they provide

- 6.2. Investigate current political situation in country and any health news pertaining to recent outbreaks
7. Enjoy the traveling experience!

IV. Existing System Analysis

TravelSmart markets itself as a global medical advisor aboard, in most aspects it does just that with four main features. It provides emergency numbers while aboard along with translate names for common medicines such as Tylenol. It even has the contact number and location for hospitals in over 100 countries. However, the glaring issue with TravelSmart is in the service it does not provide such as directions to a hospital. It also does not allow you to upload your medical records for use aboard.

The Travel Guide is an application that tries to put a doctor in your hand. Think WebMD but with a horrible design and user interface. Disregarding the user interface of this app, the benefit of it is the information it provides to a user while they are overseas.

I.C.E. Imagine being unconscious in a freak accident in a foreign country where no one knows anything about you. This app aims to solve this issue. It allows your emergency contacts to appear on the homescreen of your mobile device and to also store important medical information. With respect to our application, the downside of I.C.E. is that it does not provide information about your current location or how to contact emergency services of the country you are located in.

Help Call has a great user interface and provides a valuable tool while traveling to any country. It allows you to contact the country's emergency services. It essentially syncs the emergency numbers to the app depending on your location. The downside of Help Call is that it doesn't work in most situations, according to app reviews.

!Emergency! functionality is the same as Help Call but it takes it a step further by providing a map, relative to your location, of nearby clinics and other medical services. It also has a clean user interface, but it does not allow you to store personal medical records. If this app allowed you to contain your medical records it might fill the void between technology and society that we are trying to fill with this project.

V. Larger Social & Technical System Implications

Our goal is to build from a technical base to create an application that will fill a social need among travelers through a medical knowledge exchange system, and while providing other necessary information about the traveler's current location. There is no current technical system in place providing this type of exchange system. We are

creating the first system that integrates technology into a societal need for medical purposes while traveling abroad. By doing so, we will close the gap between health safety in a foreign country regardless of the country's current infrastructure online or offline. We will fill this gap by securely providing medical information about local facilities and doctors, pertinent information relative to one's location, safety tips, and personal medical data in a ready to use format all at the fingertips of the user. This will be done by using channels within the technical base to provide the important external and internal elements necessary for successful user interaction at the front-end. Some of these channels are the CDC, Embassies, and other governmental agencies focused on travel. This won't be a one way app limiting users to U.S. citizens or residents, it will be able to be used by people traveling to the United States, it has double implications. It is the complete package for travelers.

VI. Usability Criteria & Success Measures

The usability of our application will heavily depend on the nature of our user base. Because our application alleviates health concerns for our user while traveling, it needs to satisfy the customer's needs while assuming that their resources are limited. Below we have a few of these guidelines formulated into principles that will allow our team to evaluate different directions of our application as we iterate through the design process.

Usability Criteria

1. *Simplicity*
 - 1.1. The user inputs and finds information with relative ease
 - 1.2. Updating the personal information can be done when creating a profile and at any other time necessary
 - 1.3. Our application will minimize the amount of pages the user sees so that it takes minimal time to know the user interface
 - 1.4. The experience is so simple that a user could easily navigate the application for their desires while walking around an airport or crowded area
2. *Quick/Lightweight*
 - 2.1. Users can quickly retrieve information about the desired region in all circumstances
 - 2.2. The application caches popular regions and recently traveled destinations to quicken the retrieval process
 - 2.3. Updating the personal information about a user can be done while traveling
3. *Current & Accurate*
 - 3.1. Information about each region must be aligned with the current standards

- 3.2. Information specific to a situation or that requires numerous details should point the user to the right point of contact
- 3.3. Information included about each region should be pertinent to the majority of the users and also be concise and understandable
- 4. *Localizable*
 - 4.1. The application **MUST** be used in a variety of languages across the globe
 - 4.2. The primary user base will be travelers so the application has to support a variety of languages

Success Measures

Each of our four main criteria will have to be measured in an individual way. Simplicity will obviously need multiple inputs from different users, where our team would focus on points of the interface that were challenging to navigate. Speed can be measured in the amount of time it takes for a user to perform an action, and how quickly our application responds to the user. The success of our interface's quickness will be highly correlated with the simplicity. Accuracy and localization of the application are also measurable by testing supported languages and also information retrieval. These categories are very concrete and can easily be measured by the applications functionality to different situations.

VII. Sources

Existing Systems

TravelSmart - <https://www.allianztravelinsurance.com/travelsmart.htm>

The Travel Guide - <http://www.travellingwell.com.au/iphoneapp.html>

I.C.E. - <http://www.acadianice.com>

Help Call - <https://itunes.apple.com/us/app/help-call/id393098002?mt=8>

!Emergency! - <https://itunes.apple.com/US/app/id333332908?mt=8>

Safety Map Worldwide - <https://itunes.apple.com/us/app/safety-map-worldwide/id762124549?mt=8>

Travel Information

South America -

http://www.transitionsabroad.com/listings/travel/articles/travel_health_tips_for_south_america.shtml

Office of Travel & Tourism Industries - <http://travel.trade.gov/view/m-2015-O-001/index.html>

VIII. What we Learned

When deciding what direction we wanted to go with this project, most of the members in our group thought we had a clear understanding of what the user would need. The medical industry has been surpassed by many other sectors technologically, and we wanted to bring a more advanced solution to those facing medical situations while traveling. However, after investigating what challenges people face medically while traveling abroad, we discovered numerous complications that could be addressed by our solution. We simply discovered a more defined problem scope while completing Part 1, and will continue to work towards that while refining our solution.

Formulating the HTA based on the current system really showed some of the key requirements that our application would need. The HTA revealed some of the major concerns with the existing system and the struggle to smoothly travel abroad. Many complications can arise trying to find your own medical history and also getting proof in case it is questioned. There are also a vast array of requirements and recommendations for protecting yourself medically that completely depend on the country you are trying to visit, and current events taking place in that destination. There are many important steps to take to make sure one is safe when traveling abroad. New countries feature an entirely new host of medical problems and it is important to be aware of them and try to combat them.

The usability criteria was extremely insightful in trying to brainstorm the direction of our application. Having a standard of what the user has to have from the application is very freeing as it eliminates many design choices. It would be really difficult to make decisions on the key functions of the application if we weren't well-informed of the customer's goals and typical use-cases. After learning about people's specific needs, we know which features are more valuable to focus on in the application. More than knowing just their needs, understanding the user's limitations helps us structure our application to better fit their pertinent use cases.

While researching existing systems we learned a lot about how the front end design should be laid out and also how it should not be laid out, which will benefit us greatly. We also discovered where to pull data from for the internal channels of our application regarding what to do before traveling to a foreign country and what to do after returning. The CDC provides information for both the former and latter in great detail. Finding the information on the CDC's website was pivotal because it provided all the information in one place rather than several channels. Most importantly, we learned how to travel abroad safely. Most of our group has not travelled outside of the U.S. and for us personally, we learned what to do, what not to do, and how to do it, when planning to leave the country. This includes where to find this information such as the CDC or the U.S. Embassy's website of the country you're planning on visiting. Consequently, we

realized the importance of making this information easily accessible and digestible for the user.

After thoroughly investigating our problem space, we were able to find a specific market that would greatly benefit from our solution. Furthermore, we were able to learn how to appeal to the design of our product to our target audience by understanding their environment and needs.