

Immigrant Health Information

Development, Design, and Assessment of IHI.org

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LITERATURE REVIEW

Immigrants' Health Information Seeking Behaviors and Needs: Situational Design

Immigrants with varied demographic characteristics encounter similar life situations and contexts, thus sharing information needs and behaviors across ethnic and geographic boundaries. For example, immigrants seek information on practical matters for adjusting to a new environment such as public transportation or health insurance enrollment (Burke, 2008; Fisher, Marcoux, Miller, Sánchez, & Ramirez Cunningham, 2004). For many immigrants to the United States or Canada, limited English-language skills constitute a barrier to information seeking; immigrants manage this challenge by seeking out English learning materials (Fisher, Durrance, & Hinton, 2004). In part due to the language barrier, immigrants tend to favor personal social networks as sources of information, rather than popular media, institutions, or other electronic sources (Courtright, 2004; Jeong 2004). Efforts to reach immigrant populations with web-based information work best if they are embedded in a social context involving direct support from human staff (Allen, Matthew, & Boland, 2004; Matthews, Darbisi, Sandmann, Galen, & Rubin, 2009; Ginossar & Nelson, 2010). Because immigrants across ethnicities share life situations and contexts, it is more efficient to design information systems to address situational needs rather than tailoring systems for each demographic group (Dervin, 2005).

Information about health is centrally important to immigrants who must adapt to a new system of health care institutions (Hearst, Ramirez, & Gany, 2010). Researchers are concerned with two main categories of health information for immigrants: information on specific health issues, and on local health care systems. The first includes medical conditions such as cancer, diabetes, or mental health problems, for which immigrants are at high risk but are less likely to seek preventive care or screenings (e.g., Nguyen & Bellamy, 2006; Ginossar & Nelson, 2010). Sligo and Jameson (2000) and Matthews et al. (2009) attribute this failure to seek preventive treatment to information poverty. Researchers work to understand the best way to get information about specific medical conditions to vulnerable populations (Dervin, 2005).

Other researchers point out that immigrants need clear overviews and specific details of local health care systems (Hearst et al., 2009). For example, no institution provided an overview of local health care options to facilitate immigrants' decision making in Bloomington, IN (Courtright, 2004). Recent immigrants lacked information on public health insurance programs, under-enrolling due to unfamiliarity with eligibility and enrollment processes, and because language barriers impeded their acquisition of information about insurance (Hearst et al., 2009). Elderly Chinese immigrants have had insufficient information about available health care options, and financial resources for health care, while limited transportation and discomfort with English have also hindered their use of health services (Su & Conaway, 1995; Pang, Jordan-Marsh, Silverstein, & Cody, 2003). Zanchetta & Poureslami (2006) and Poureslami, Rootman, Doyle-Waters, Nimmon, and Fitzgerald (2010) argued that newly arrived immigrants in Vancouver, Canada, have had difficulty obtaining information about where specifically to go for health care, and about program eligibility and enrollment.

Because health care systems differ from country to country and even from state to state within the US, health care systems in destination countries are hard for immigrants to understand (Gallo Stampino, 2007). Thus, information systems geared toward facilitating immigrants' access to health care should provide specific details that a non-immigrant would normally understand (Hearst et al., 2009). Bobal, Brown, Hartman, Magee, & Schmid (2007), for example, produced a video showing immigrants the process of visiting a doctor, including making the appointment, checking in, and following up by finding and evaluating information from the Internet and library.

Immigrants' searches for health information are inseparable from their total information-seeking behavior because immigrants find health information when seeking other information types in a variety of social situations (Allen et al., 2004). Even when immigrants did not

proactively seek health information, they accessed it when searching for English as a Second Language classes and English learning materials, which are among the most sought-after programs and information resources for recent immigrants (Burke 2008; Fisher, Durrance, et al., 2004; Fisher, Marcoux, et al., 2004; Flythe 2001). Other recurring information needs of immigrants include information on public transportation, education, recreational activities, taxes, legal information, and information on affordable housing and tenants' rights (Flythe 2001; Fisher, Durrance, et al., 2004; Burke, 2008; Su & Conaway, 1995). Because knowledge of transportation systems and a mastery of English are necessary in order to access health information, these information-seeking behaviors are interdependent and inextricable.

Language differences have a strong impact on immigrant information-seeking behavior. Even when immigrants are able to locate health information, they are often unable to understand it. (Zanchetta & Poureslami 2006). Difficulty with English leads to a reluctance to ask about available services (Su & Conaway 1995). For this reason, immigrants express preferences for health information in their native language (Poureslami et al., 2010; Allen et al., 2004). Monolingual parents may take their children along as translators when they visit doctors (Poureslami et al., 2010), so that immigrants' children often take on a mediating role in immigrants' information-seeking behavior (Chu, 1999).

The role of children in immigrant health information-seeking is particularly crucial. Chu (1999) called bilingual children of monolingual parents "immigrant children mediators" (ICMs) because they translate, interpret, and explain to and on behalf of their parents, using sophisticated adult vocabularies. Chu argued that ICMs should be specifically trained in information seeking and evaluation. Bobal et al. (2007) addressed their video to an eight-year old audience, both to ensure that the video was easily understandable, and so that children would view it and tell their parents what it said. Hearst et al. (2009) claimed that targeting adolescent immigrants with information about insurance enrollment could help increase access both for younger children and for adults, as the adolescents might mediate the information for their relatives. Thus, designers of health information systems for immigrants should consider catering content to children audiences.

Person-to-person social connections are the primary source of information in many immigrant communities. The primary sources of information for Latino immigrants in Bloomington, IN, were social networks (Courtright, 2004)—family, neighbors, friends, volunteers, coworkers. When immigrants sought information in institutions, they preferred to ask people instead of consulting printed materials. Flythe (2001) found that family and friends were the main source of information for newly arrived Hispanic immigrants in Durham County, NC. Church, newspaper, and community center were secondary sources of information. Fisher, Marcoux, et al. (2004) found that 71% migrant farm workers in the northwest preferred interpersonal sources of information, finding these reliable, easy, and familiar. Jeong (2004) found that a Korean ethnic church was the primary source of information for a population of Korean graduate students. Su & Conaway (1995) found that while the newspaper was the most-used source of information among elderly Chinese immigrants, family and friends were also a major source of information.

Fisher, Durrance, et al. (2004) and Fisher, Marcoux, et al. (2004) used Pettigrew's concept of information grounds to understand immigrant information seeking behavior. According to Fisher, Durrance, et al. (2004, pp. 756-757), an information ground is an "environment temporarily created by the behavior of people who have come together to perform a given task, but from which emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information." Fisher, Durrance, et al. (2004) examined the Queens Borough Public Library as an immigrant information ground. QBPL staff addressed immigrants' needs for practical information about adjusting to life in their new place of residence through ESL classes and adult coping classes for immigrants. Fisher, Durrance, et al. (2004) observed these classes

and interviewed participants, finding that, for example, ESL classes served as sites for multi-directional information exchange on a variety of topics, involving teaching materials, staff, and participants. An information literacy component was woven into both classes in order to better aid immigrants in finding and evaluating information on their own. Fisher, Durrance, et al. (2004) found positive outcomes as measured by participants' statements that they felt more confident taking actions in their new social environments.

Fisher, Durrance, et al. (2004) noted that immigrants go to an information ground for an overt purpose that is completely disconnected from information seeking, and yet obtain a great deal of information. For example, Allen et al. (2004) found it more effective to offer health information to Hmong immigrants at soccer tournament food stands than at poorly attended health fairs. Information system designers should take into account recent immigrants' preference for verbal information obtained in social gatherings.

Information system designers have embedded web-based information in face-to-face social contexts to promote usage by immigrant communities. Matthews et al. (2009) created web-enabled touchscreen kiosks to provide diabetes information to Latino immigrants. Since Latinos under-use digital resources (Ginossar & Nelson, 2010) and prefer to gather information in face-to-face social networks, the designers placed kiosks in information grounds. A kiosk in the community center was widely used, with users reporting that they acted on the information; the presence and support of community health educators (called *promotoras*) increased kiosk use. Ginossar & Nelson (2010) also used a social scaffolding system involving *promotoras* as a means of enhancing the use of a website for immigrant health information. Ginossar & Nelson involved community members in designing their website. Drawing on Kreps et al. (as cited in Ginossar & Nelson, 2010), they created "edutainment" content in the form of narrative photonovelas, photographic stories showing examples of successful outcomes such as finding health information on the internet, or talking to a health care provider.

Like the library staff at QBPL (Fisher, Durrance, et al. 2004), Ginossar & Nelson (2010) bundled information literacy training with health information seeking, thus potentially offering not just health information but the autonomous capacity to find and evaluate information. The QBPL study (Fisher, Durrance, et al. 2004) suggested that enhancing immigrant information seekers' self-efficacy is more likely to generate positive outcomes than simply giving them information. Dervin (2005, p. 78) made the same point in her review of information seeking and use in vulnerable populations, and argued that audiences can receive information if they are cognitively involved; one approach is "creating involvement through skill building and empowerment, which facilitates people's capacities to implement change in their own life contexts."

Dervin (2005) offered two critical insights that are applicable to the design of health information systems for immigrants. First, Dervin (2005) noted that it is problematic to conceive of information dissemination as transmission: "top-down information transmission ... is received as irrelevant at best and as prejudicial and oppressive at worst ... Communication interventions must be communicative; if they revert to transmission they will fail" (p. 76). Information aimed at immigrants can be perceived as prejudicial if, for example, it assumes that the audience is ignorant, or implies a criticism of their culture. For example, Sligo & Jameson (2000) posed the research question of why Pacific Island immigrants in New Zealand do not get more cervical cancer screenings. They argued that cultural attitudes, intensified by membership in conservative churches, impede women from communicating about their reproductive systems. The problem is that this is the wrong rhetorical position to take when communicating about health with immigrants. If one takes the position that immigrant culture is a barrier or a problem, the immigrant audience will certainly perceive the cultural criticism as prejudice, and thus reject the information. Hence, Dervin's suggestion to forgo transmission for communication has practical value.

Dervin (2005) also suggested that information packages should be based on the user's situation, not their demographic category. She stated that demographic group membership does not predict information-seeking behavior, but situational circumstances do. Thus, information packages for diverse audiences, such as immigrants, should be categorized according to life circumstances, not ethnic group (Dervin, 2005, p. 79):

Focusing on information seeking and use situationally and contextually decreases the variability that information disseminators must cope with. Situational predictions of information seeking and use account for more variance. If information packages are attempted to be devised for recipients based on demographic characteristics even in a single racial or ethnic group (age, gender, income, education, location, and so on), at least several thousand different information packages need to be designed. When, however, information disseminators move to situational message design based on lived experiences, they find the number reduced to twenty or thirty and often much less. In short, people with very different demographic characteristics who see their life circumstances similarly end up reaching for the same kinds of information.

Dervin's proposition is also a potential solution to the problem of demographic and linguistic variability in information system design for immigrant audiences. One solution is to "tailor" each information package to a particular group (Gallo Stampino, 2005; Matthews et al., 2009). However, this approach is very costly in time and money; there will never be enough resources to develop group-specific materials for all immigrant groups. Instead, if one thinks of immigrants in specific situations, dealing with these situations in similar ways, (e.g. through social networks and the use of information grounds), then the range of variability the information system designer must account for is diminished. As an example, bundling health information with ESL and information literacy can enhance the communication of health information by facilitating access for audiences with limited English and computer experience. Thus, designing for life situations rather than for demographic groups can help reach diverse audiences by reducing the number of information packages system designers need to create, alleviating financial and time pressures.

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INTERMEDIATE DESIGN ARTIFACTS

Drawing on our learning from the literature review, our design process used several different techniques. Our first step was to develop the Pilar and Sun-Hee personas, to help us “put a face on” possible users of our proposed Web site. Keeping these personas in mind, we progressed to a users’ needs analysis based on the Bridge methodology presented by Dr. Eugenie Bertus. The first part of this design exercise demanded that we think broadly on what types of health information questions Pilar and Sun-Hee might have. We were fortunate to have immigrant representatives in our group to expand further on possible questions. Upon generating a multitude of possible queries in a free form brainstorming session we proceeded to sort through these concerns, discarding the duplicates, and sorting the remainder into domain areas. After completing our analysis of users’ needs, we proceeded to perform task analyses on the identified domain areas. The methodologies for this portion of the design process varied according to the design team member’s preferred form of analysis, and ranged from text to sketch to digital graphics. The final result of this intermediate design stage was a whiteboard sketch that we unfortunately did not capture photographically.

Persona: Pilar



My name is Pilar. Totally uncool, I know, but it could have been much, much worse: my mom wanted to call me Guadalupe. Imagine being a 21st century Lupe. My mom is a big fan of the Virgen de la Guadalupe, hasn't stopped praying to her since I was born. She always tells me the doctors said I was impossible, that she couldn't get pregnant, but she prayed and prayed and here I am. So she wanted to honor the Virgen by naming me after her. Thank goodness my dad intervened, it's got to be one of the best things he's done for me in his life.

I live in Austin, TX with my mom and my aunt and uncle and their two kids in a house way too small for us. Yes, I sleep in the same bed as my mother, but you better not tell anyone, it's embarrassing. My aunt came to the States first, a long time ago, like around the time I was born. Then she found a nice guy, married, and about eight years ago she became a citizen. She called my mom and told her to come over. Eventually my dad and mom and I all came over on a

tourist visa and never left. Except my dad. He left a couple of years ago.

I'm fifteen now, I'm in high school, I've been in Austin since I was eight but my mom still hasn't gotten me even a green card. Boy does she drive me crazy. All the time talking about staying on the right path and avoiding bad company and studying and not hanging out on the street. Don't do drugs, don't smoke, don't go out with boys. She has this altar that's supposed to be for La Virgen but it keeps getting invaded by other saints and prophets every time there's a problem. Saint so-and-so for lost objects, saint who-knows for government paperwork, a prophet or two for general health. She always knows the right saint, and each saint has to have the right images and incenses and candles. If the saint is not comfortable it won't strike the bargain, and the trick is to get the saint to agree to the bargain. Mom says she always gets good deals out of saints, and I believe her too. Now if only she would put as much energy into my immigration papers as she does into her altar. If only ...

It took her six years to get her green card. Some bad lawyers kept taking her money and losing her paperwork. Meanwhile my dad got depressed. Back in Oaxaca he had a little bit of land to farm, he had friends, he had his self-respect. Must have had other women too, since he had hepatitis by the time we left. Imagine my surprise when they taught us in health class that hepatitis was an STD. I'm not even sure if my mom knows, and we never talk about where he got hepatitis. My dad and his brothers were against the mayor of our village, who got 90% of the votes every time and ran the village like a private kingdom, taking all the government money and giving all the jobs to his buddies. Then the organizers from the new left-wing party came around and in a lot of villages people started to think they could vote for whoever they wanted. But in our village the mayor's people were just waiting by the ballot box looking at people's votes and they beat up anybody who tried to vote against him. That's how it all started, and it ended with my mom and dad running away in the night and heading north to find my aunt. This was after the third time our house had been machine gunned in the night.

My dad didn't take to the whole illegal lifestyle. The stuff he knew how to fix hadn't been made here in fifty years. The cars he knew how to work on were like out of an old movie. He would get mad about wages, start trying to organize people, so of course nobody would hire him any more. His health got worse and worse. In Mexico, he had taken drugs for his hepatitis, but when he came here he couldn't get them for a long time. He lost a lot of weight. Then he found

a charity that would give him the treatment and it looked like he was getting better. But he wasn't happy and he started getting drunk with his friends and skipping his appointments and not taking his shots. It was like he had never come to Austin, like my dad had stayed behind in Oaxaca and this was some other person. He never raised a hand to us or anything like that, but the dad that I knew just wasn't there any more, he ignored us. He stopped even looking for work and then one day we heard he'd been arrested and La Migra got him.

We couldn't find him for a month. By the time a lawyer from mom's church found him he was in a detention facility in New York. Then they moved him again, and it took us another month to find out where he was. Eventually we tracked him down to Arizona, but it was useless, he was deported. He tried to tell them about the mayor, the death threats, the machine gun attacks, but I think the judge was more interested in the fact that he had stolen beer from a convenience store and resisted arrest, whatever that means, like a drunk scarecrow can resist arrest. While he was in immigration detention they refused to treat him for hepatitis so his health deteriorated again. He told me about it later when I saw him in Oaxaca, the one time I went when my mom finally put in my green card paperwork. Mom wouldn't let me stay with dad in the city, I only saw him once. He said they took his blood and tested it and said he didn't have hepatitis. One of the nurses told him they actually threw away his blood and faked the results, they just didn't want to pay for the drugs because they were expensive and he was getting deported anyway. They did it all the time. He told us the nurse was going to report it but we never did learn if anything happened (1). He's being treated now but I don't think he's going to make it. He's living in Oaxaca city, running with the activists, getting hassled and beaten and he's skinnier than ever. Mom says he's keeping bad company, that those are not the good activists, that they are just bandits with pretty ideas. I'm not too sure. It sounds like he's doing something he believes in, trying to change injustices. And what's mom doing? Folding linens. That won't be me. No way. I mean, I don't want to be sick and drunk and dying of hepatitis, but my dad does inspire me in many ways. Mom just drives me crazy when she gives me her stupid consejos. But she's right about one thing: I'm staying in school. As long as no one pays too much attention to my papers. My green card application is finally in the works, has been for almost six months. If I can just hang on for a little while longer I'll be legal. And if my mom had managed to get her green card sooner, and had gotten one for my dad? Sometimes I think dad would have gotten a good job, been a good father to us. Other times I just think we'd have a dying man lying around getting drunk all day.

Meanwhile I study hard. When I came here I didn't speak a word of English. But I always was pretty smart and I got lucky and had good teachers and learned English in a hurry. Now I can argue over whether Chaucer is still relevant (no) and why we should read Shakespeare (if you have to ask, you'll never get it). I'm on the debate team and my opponents fear me.

Sometimes I wish I wasn't so smart. Then maybe my mother wouldn't treat me like a personal assistant. I swear! I have to keep track of her appointments, plan her transportation, fill out her forms, and if she's going somewhere where they might not speak English, I have to go. Oh! It's ridiculous. She can't even talk to my teachers. On parent-teacher conference nights, when all the other students are standing outside the conference rooms wondering what their parents and teachers are saying, I'm in the room translating for my mom! I mostly tell her what they say, but you know, she doesn't need to know every detail (2). I mean, like, one time I finished my science experiments and wrote up my report two weeks early. So the teacher said that the next weeks I should just help the other students. Are you kidding me? Now if she had told me I could do another experiment, I would have totally gone to class, but instead I just skipped. Yes, the perfect student skips class. So at the conference, when the teacher told my mom I had skipped class, I told her like I hadn't turned in some assignments. So the teacher saw my mom get all

upset and angry and give me a good lecture, so both my mom and the teacher thought I'd translated right. Adults. Sooo gullible.

Do other students' work for them? I'd rather hang out. It's just that my mom can't find out. If I don't do an assignment, she'll blame herself for making me help too much around the house. But if I skip school, here come the consejos: don't hang out on the street, don't keep bad company. And for the last two years, she's added a new sentence to her advice. "Look what happened to your father," she says now. "Don't drink, don't hang out on the street, don't hang out with bad company ..." I've heard it all before, so I'll go to great lengths to avoid hearing it again.

Notes

1. Inspired by an episode in *American Gulag: Inside U.S. Immigration Prisons* by Mark Dow, pp. 101-105.
2. Inspired by research conducted by Margarita Azmitia & Jane R. Brown, "Latino Immigrant Parents' Beliefs about the "Path of Life" of Their Adolescent Children," in *Latino Children and Families in the United States*, ed. by Josefina M. Contreras, Kathryn A. Kearns, and Angela M. Neal-Barnett, Praeger Publishers, 2002, pp. 77-89, and Catherine R. Cooper, Jane Brown, Margaret Azmitia, and Gabriela Chavira, "Including Latino Immigrant Families, Schools, and Community Programs as Research Partners on the Good Path of Life (El Buen Camino de la Vida)," in *Discovering Successful Pathways in Children's Development: Mixed Methods in the Study of Childhood and Family Life* ed. by Thomas S. Weisner, University of Chicago Press, 2005, pp. 359-386.

Scenario

Needless to say you can forget about having a computer at home. My cousins think a computer is like a porn DVD that never ends. Once my uncle bought them a cheap netbook? Within a day they had downloaded so many viruses that the browser just kept opening porn windows endlessly as soon as you started it up. I'm not kidding, you just had to open Explorer and within a minute there were more than a hundred pages open. A day later the computer just stopped working. A month later my uncle got his credit card bill—my cousins had stolen his number to pay for porn. That cost him twice as much as the computer. Even if I could afford a computer my cousins would steal it and ruin it.

I use the computers at school a lot but they have filters and spyware on them so you really can only do school work. For Facebook and Youtube and for really exploring the web I have to go to the library. Luckily there's a little branch on my way home and if I run and catch the bus that leaves just when school gets out, I can beat the crowd and get a computer. There's a really good librarian there who's helped me to learn how to find good information. And boy do I need it because mom can't find the answer to even the easiest questions. I have to find out everything for her. How do you get to the new driver's license office by bus, what's going on back home in Oaxaca, is dad still alive, what's the next step for my green card, what do we do if our landlord won't fix things.

Not that I spend most of my time finding information. I spend most of my time playing games and socializing and I look for information on the side. I've gotten good at that. Still, I can't play around as much as a lot of the other kids. I actually do research for homework, which most of the kids don't, and most kids don't have a mother like mine. There's a couple of other kids like me who go to the library, one of them is Guatemalan and one is Iranian. We've talked a couple of times but mostly we just avoid each other. None of us likes to talk about our problems, and we have nothing else in common.

Now the clinic that mom and I have gone to ever since we got to Austin has lost its funding. They might shut down, or they might stay open but they'll have to charge more. Mom is scared and so am I. It's not just the money. The clinic provided a lot of cheap and free services, especially for me, but mom's doctor visits were always cheap. What was always expensive was the drugs. That's why we dreaded getting sick. You'd think we could get Medicaid, right? File that one under "if I only had a green card," with the rest of my plans and dreams. I tell her she should get it for herself but she's afraid they'll find out about me. Soon, my daughter, she says, pronto, mi hija. So we're not just scared of where we'll find the money, we're scared that we won't find a doctor who is safe for me to visit.

The librarian says that a local nonprofit has just launched an information portal on Austin health resources for immigrants. He says it's featured from the library homepage and I should check it out. Just then another three people walk in and he has to deal with them. I go back to my computer and click on the link.

Persona: Sun-Hee



Hi! My name is Sun-Hee. I am 63 years old. I live in Houston, TX with my husband. I came to the United States for the first time almost 13 years ago when my first grandchild was born to my only son. I came to help him and his wife to take care of the newborn as both my son and daughter-in-law were graduate students at the University of Illinois at that time and could not afford sending their child to a child care. Besides, I really wanted to be near my first grandchild who, unfortunately, was not very strong in health.

My husband, his cousin and I had a family business in Busan, Korea. We ran two small restaurants and a beauty salon. I was managing accounting. But after the birth of my grandson, I was not able to work as much as before because I decided to go to the US to

help my son raise the child. I had to go back to Korea every six months to extend my visa. But three years later, after my son was accepted to the Texas A&M University in College Station, TX as an assistant professor and was offered a sponsorship for permanent residence, my husband and I decided to try our luck in establishing our own business in the United States. As soon as our son got his permanent residence (???), he took care of our papers and made sure we got our green cards before starting business.

We knew it was risky and we were not that young and could not speak good English (well, in fact, my husband could speak some English while I knew a few basic words and expressions) but we had some capital to start with and close relatives in Houston, TX who had immigrated in the US almost a decade before we decided to do business in the US and were willing to help us.

So, with a big help from my husband's brother we started a small Korean-Japanese restaurant not very far from the downtown of Houston. To our luck, the business went well, and three years later we opened another medium-scale sushi restaurant in Houston. The competition is tough but we can live a decent life. Besides, our son is always helping us. We still have our small share in the restaurant business back in Korea, but we have now settled down here in the US.

I do not work as much anymore as we have hired a manager and an accountant. So I spend most of my time taking care of my husband's and my own health and my grandchildren whenever they come over or when I go to visit them in College Station.

Every Sunday, I go to a Korean church to worship Jesus and meet my church friends. I attend a bible study on Wednesdays with my Korean female friends after which we usually have lunch together and discuss news, problems and just chit-chat. Although at times I feel home-sick and want to go back to Korea, for the most part, I like my life here with my husband and my son.

Scenario

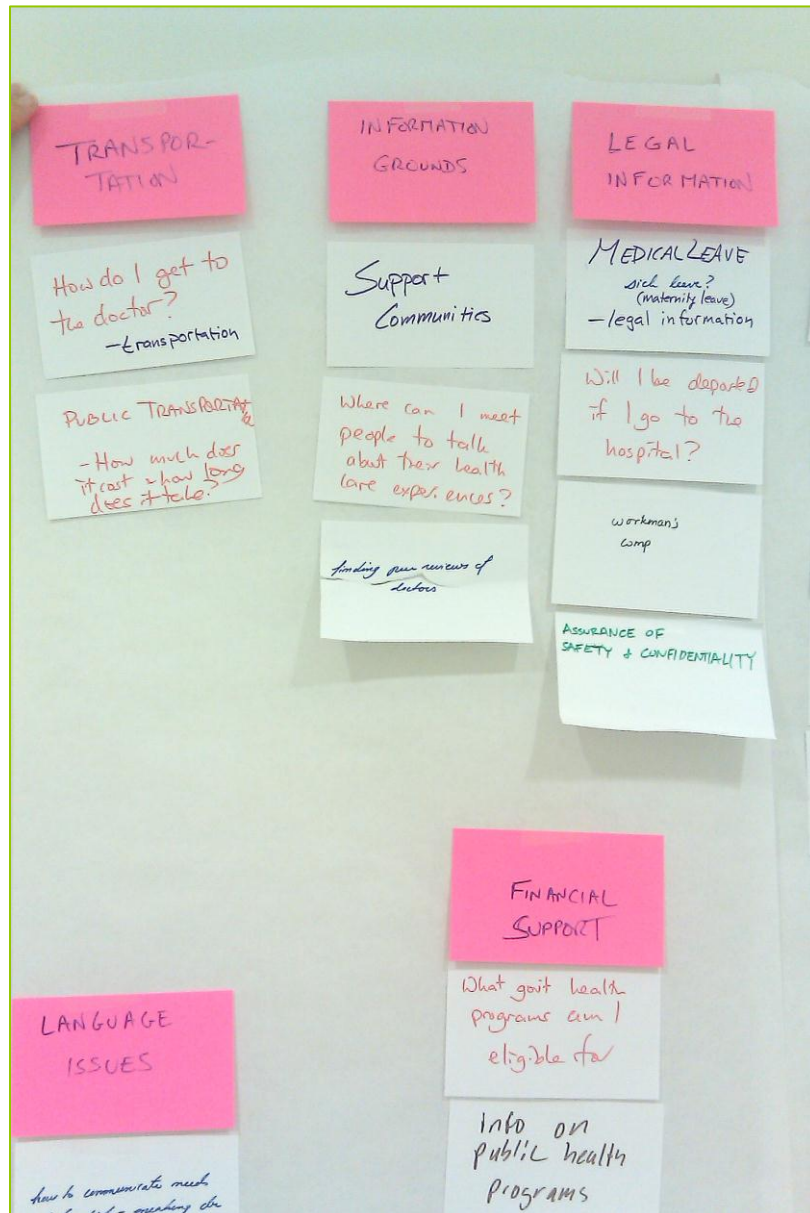
I am not quite used to using a computer although I read news on Korean web sites from time to time and use Skype to see my grandchildren. Occasionally, I use the Internet to find an English translation for a Korean word.

When I need health information, I usually consult with my Korean friends or my son. But of course, not all health issues I can discuss with my friends and I don't want to bother my son for every little thing. For example, I need to find a new gynecologist as the one I have seen for the

past several years is moving to another town (she was so nice and she could speak Korean. It is unfortunate that she is moving). I plan to ask my female friends if they know of any good doctor in Houston but I wish I could look on the Internet by myself. And I have never used the Internet to find a doctor. I just don't know which web site to use to find information like this and am afraid that there is too much information and most of it is in English.

One of my Korean friends has told me about a nice health information portal for immigrants in the US and she even said there is a Korean version of this web site. They might have information on doctors in Houston, so I am definitely going to look at this web site.

Users' Needs Analysis

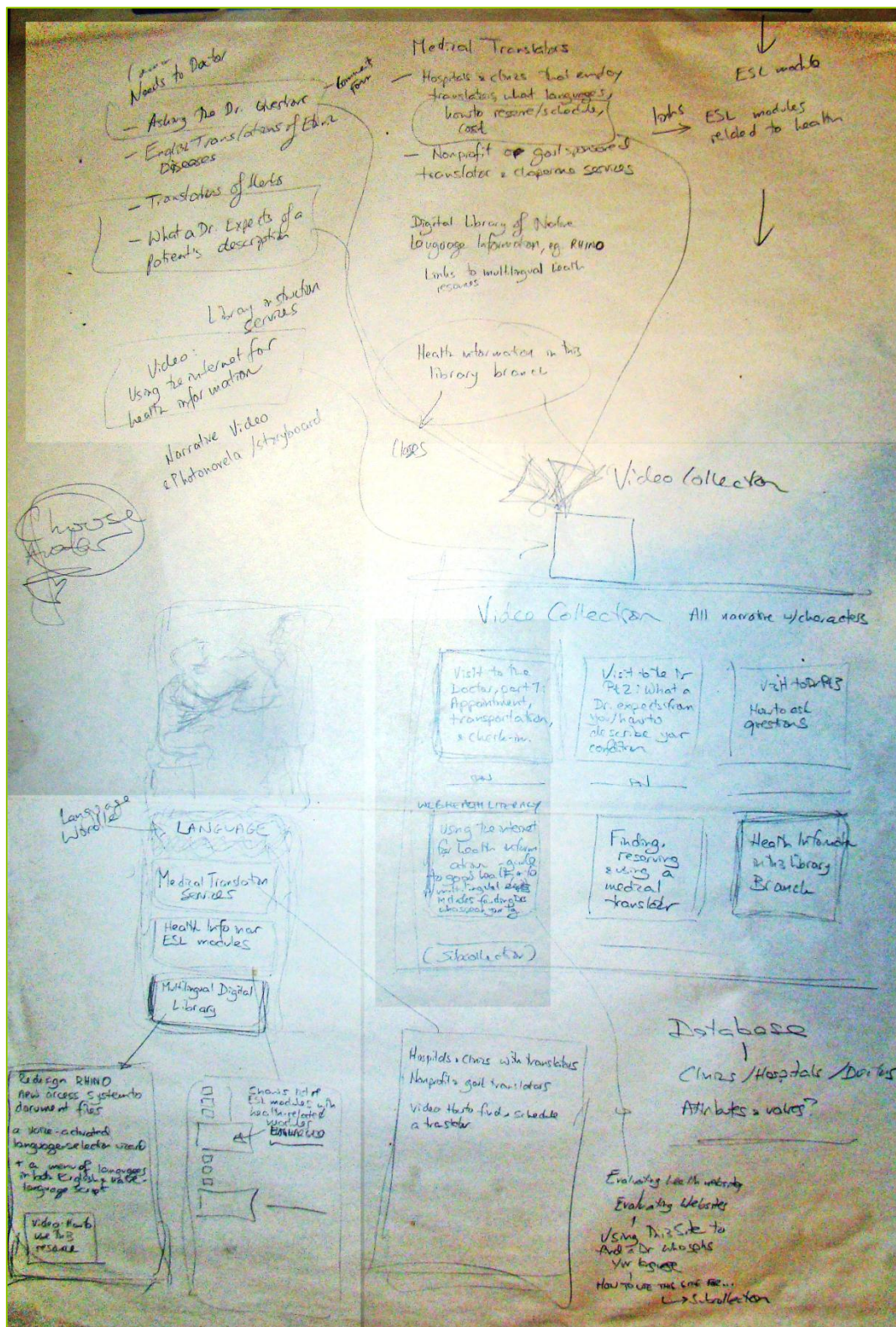






Task Analysis

INFORMATION SERVICES



TRANSPORTATION

The purpose of including transportation information on our site is to ensure that health info searches are not abandoned due to lack of access to information on transportation options.

- Transportation and directions are not a primary resource for our site
- Users will not be coming to the site to find directions
- Directions and public transportation instructions should be linked to every address listed on the site
- Links to public transportation services should be included in FAQ page
- All information should be available in multiple languages

Addresses will appear in multiple locations on the site: the Medical Care, FAQ, Info Services, Legal Info, Community, Medications/Drug Stores, and Financial Support sections will include addresses of local resources. Therefore a user-friendly but small system for linking to directions and transportation info should be developed.

Google Maps provides directions for driving, walking, biking, and bus. This system can be integrated into the site. Additionally, information on public transportation services (bus and rail rates, multilingual help line numbers, disabled transportation services, etc.) should be prominently featured around Google Maps applet. Users may be unfamiliar with Google Maps functionality. The site should therefore include interfaces that simplify interactions with maps. Google maps also provides info in multiple languages, which is ideal for our purposes.

Option 1: Each address is hyperlinked to a Google Maps integrated app.

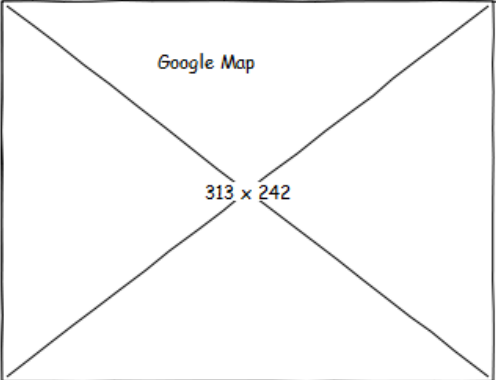
Option 2: A link beside each address with the words “How do I get here?” connects users to mapping functions.

Option 3: A link on each page saying “Map Addresses on this Page” links to a Google Map containing all the addresses on the current page.

[How do I get here?](#)

[1 Example Way, Austin, TX 78704](#)

Where are you traveling from?

Car	Bus	Bike	Walking
 Google Map 313 x 242			
Public Transit information Capital Metro			

FINANCIAL SERVICES

- Providing information about and access to financial support services should be a primary function of this site
- Users will likely come to the site seeking this information
- Some users will only discover a need for this info after using other resources on the site: Medical Care, Legal Info, and Medications
- The site should actively provide information of which users may be unaware
- The site should include articles designed to simplify information provided by the government sources. These articles should be written in the simplest language possible and include details on programs and eligibility in bullet point lists. Links to appropriate websites should be provided within articles

Option 1: Searched keywords related to this topic should return the site's articles

Option 2: Links on the main page connect to articles on these topics

Option 3: When a search leads a user to a service provider (medical, legal, etc.) a link labeled "Help paying for these services" will connect users to applicable information on community support

Option 4: An information box on the main page and related pages should rotate messages such as this: "Did you know that Medicare can help you pay for medical services? Click here to find out more!" "Texas CHIP pays for children's doctor visits, dental appointments, and more. Click here to determine eligibility."

LEGAL INFORMATION

The “Legal Information” section intends to provide users with information on a variety of legal situations. These situations are both broad and specific. The section will primarily point them to the most thorough resources available online by providing relevant links, but the pages will also summarize key legal concepts in user-friendly ways.

The section addressing “medical rights for undocumented workers” basically attempts to answer the question, “will I be deported if I am an undocumented worker and I visit a doctor?” Unfortunately, this question is difficult to address due to the law’s ambiguity and also due to the constant introduction of new legislation.

Option 1:

This section will present these four main points in plain text, which will appear when you click the tab for “Medical Right for Undocumented Workers”:

- Hospitals are *obligated* to treat undocumented immigrants if they present themselves in an emergency room.
- Doctors in non-emergency rooms are *not obligated* to treat undocumented immigrants if they believe the immigrant cannot pay for services
- Doctors are *not supposed* to ask whether an individual is a document/undocumented worker and *should not* request that a patient present papers
- Immigrants should know that in some rare cases, undocumented workers have been deported as a result of having sought medical care and posing a significant financial burden on the state.

Although this information is unsatisfactory, given the qualification at the end, it’s the most definitive answer the website can give right now.

Option 2:

Because of how anxiety-inducing and uncertain this section is, the section could instead provide the contact information immigration lawyers that individuals may contact for specific questions. However, it may be difficult to find lawyers willing to provide this service.

Option 3:

This section could also feature a message board that would display testimonials from undocumented workers concerning their experience visiting the doctor as an illegal alien. This might be the most reassuring and useful presentation of information, providing real-world experiences.

Link: Because this may be a concern fresh in a user’s mind if he or she is considering seeking medical assistance, the information regarding choosing a doctor will link directly to the information about undocumented workers’ rights.

The section addressing “safety and confidentiality would give a short summary of HIPPA, the Health Insurance Portability and Accountability Act of 1996, which relates to privacy regulations for healthcare. It would then provide this link to the official act:

<http://www.hhs.gov/ocr/privacy/>

“Workers Compensation” will be a more complex section, attempting to guide the user through the steps of applying for compensation. The first subsection will be “What,” defining “workers compensation.” The website will provide a simple summary, and then link to the Texas Workers’ Compensation Act, at <http://www.tdi.state.tx.us/wc/employee/index.html>. The next subsection, “Who,” will name the circumstances necessary in order to qualify for worker’s comp. The “How” section will explain the information the user must gather and then link to the form website on the Texas state website. “Help” will provide the contact number for questions relating to workers’ comp.

The “Lawyers” section will provide a list of attorneys who may be of particular interest to the websites’ users. One subsection will focus on immigration rights lawyers and provide a list of local, specialized attorneys. The other subsection will provide a list of local attorneys who do pro bono work.

Option 1: The website chooses preapproved lawyers to feature, along with relevant information.

Option 2: The website provides a message board, which allows users to post information about attorneys they have used and leave comments.

The “Medical Leave” section will cover only sick leave and maternity leave and focus on the guidelines defined by the Family and Medical Leave Act of 1993. The website will give a brief summary of the circumstances necessary to qualify for medical leave and link to the government page concerning these rules and regulations, <http://www.dol.gov/whd/fmla/>.

LEGAL INFORMATION

Medical Rights for Undocumented Workers

Safety and Confidentiality

Workman’s Compensation

What – What is it? Link to Texas Worker’s Compensation Act

Who – Who qualifies? List necessary conditions

How – How to apply? Link to form.

Help – Provide website and phone number

Lawyers

Immigration Rights Lawyers

Pro Bono Lawyers

Medical Leave

Pregnancy/Adoption

Sick Leave

COMMUNITY

The “Community” section intends to connect users to other immigrants who are experiencing the same problems navigating Austin’s health services, and also to connect immigrants to other individuals and support groups who are suffering from similar medical problems.

The message board seeks to replicate the crucial person-to-person exchange of information that occurs in non-virtual settings. This feature will allow users to share their experience regarding doctors. The message board will serve the entire user population, but users will also have the option of searching within language-specified limitations. The message board will not function as other health information message boards, discussing medical problems and related information such as WebMD does. Instead, it is primarily meant to connect immigrants with people who may share the same concerns when visiting a doctor and convey their experience with a particular doctor so as to help users make informed decisions when choosing a doctor.

The message board will be both controlled and freeform: one section will pertain only to doctors, and will have a fixed form in which users will post the doctor’s name, type of doctor (physician/pediatrician/specialist, etc.), language spoken, approximate age, gender, insurance accepted, location, and then a freeform box for general impressions and comments. Because the reviews will therefore be well classified, users will be able to search for doctors according to specific qualifications.

Option 1: Users will type in specifications, selecting qualities they seek in a doctor, and all relevant doctors will appear.

Option 2: The reviews will be organized in a spreadsheet, and users may click headings to organize doctors by varying classifications.

Option 3: Users’ reviews will be displayed on a map of Austin, the way Google displays a cluster of similar businesses, and clicking on the doctor’s location will provide a list of reviews for the doctor.

The second aspect of the message board will be free and open and is intended to serve as a space for immigrants to pose questions to each other and share experiences and grievances.

Link: Because the message board will facilitate doctor selection, the site should link the user reviews of doctor to the website’s information on doctor selection.

“Community” will also involve support groups to connect individuals to others suffering similar maladies. The support groups will not be immigrant-oriented. The support groups will be divided between cancer support groups and addiction support groups, such as AA and Narcotics Anonymous. Each page will provide a brief introduction to each group and provide the link to the local Austin group.

COMMUNITY:

Message Board

Support Groups

Cancer Support Groups

Addiction Support

Age

☐ 30-40

☐ 40-50

☐ 50-65

Gender

☐ Male

☐ Female

Insurance Accepted

☐ Medicare

☐ Medicaid

☐ Private

Doctor Search

Type of Doctor

☐ Physician

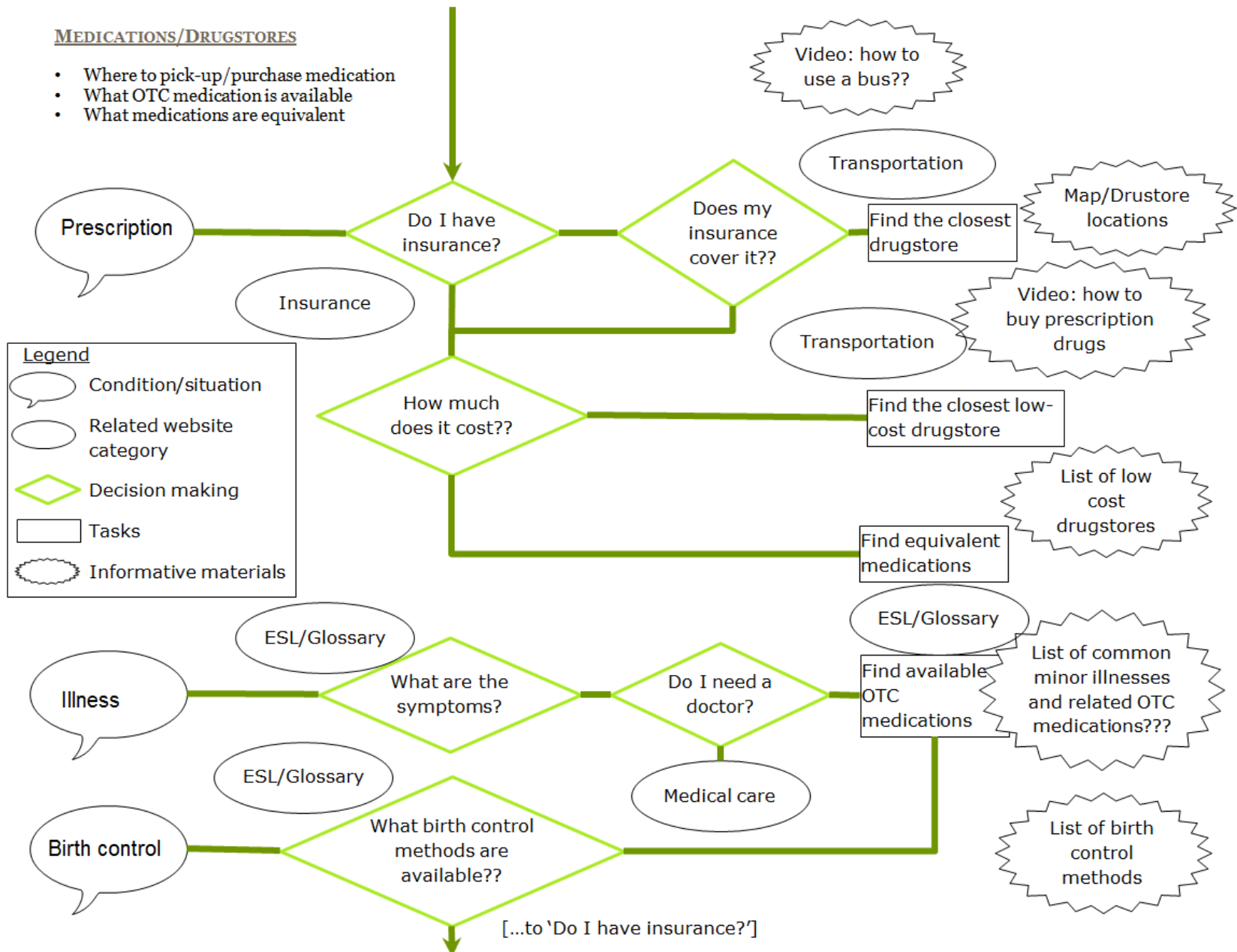
☐ Pediatrician

☐ Specialist

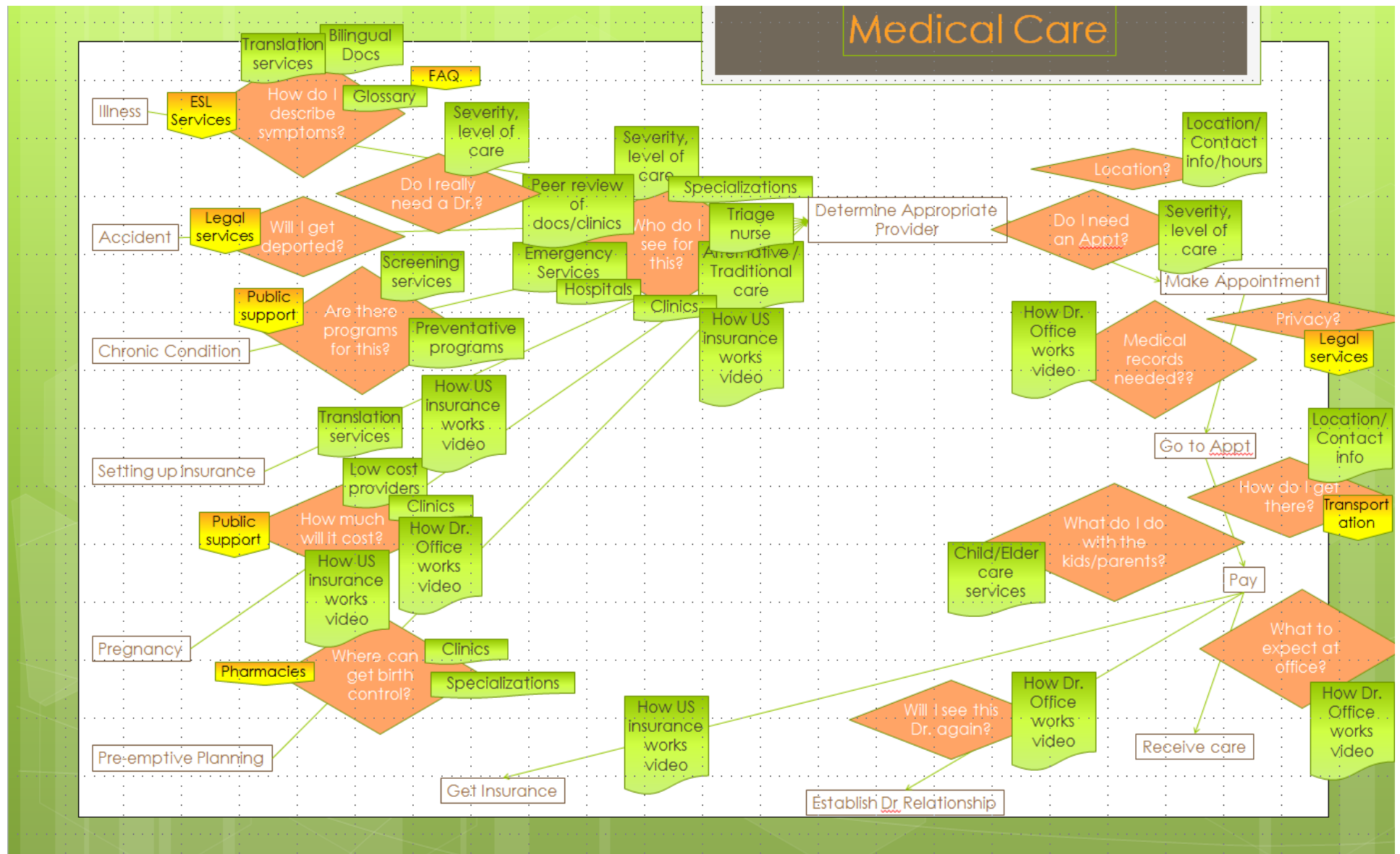
Language Spoken

MEDICATIONS/DRUGSTORES

- Where to pick-up/purchase medication
- What OTC medication is available
- What medications are equivalent

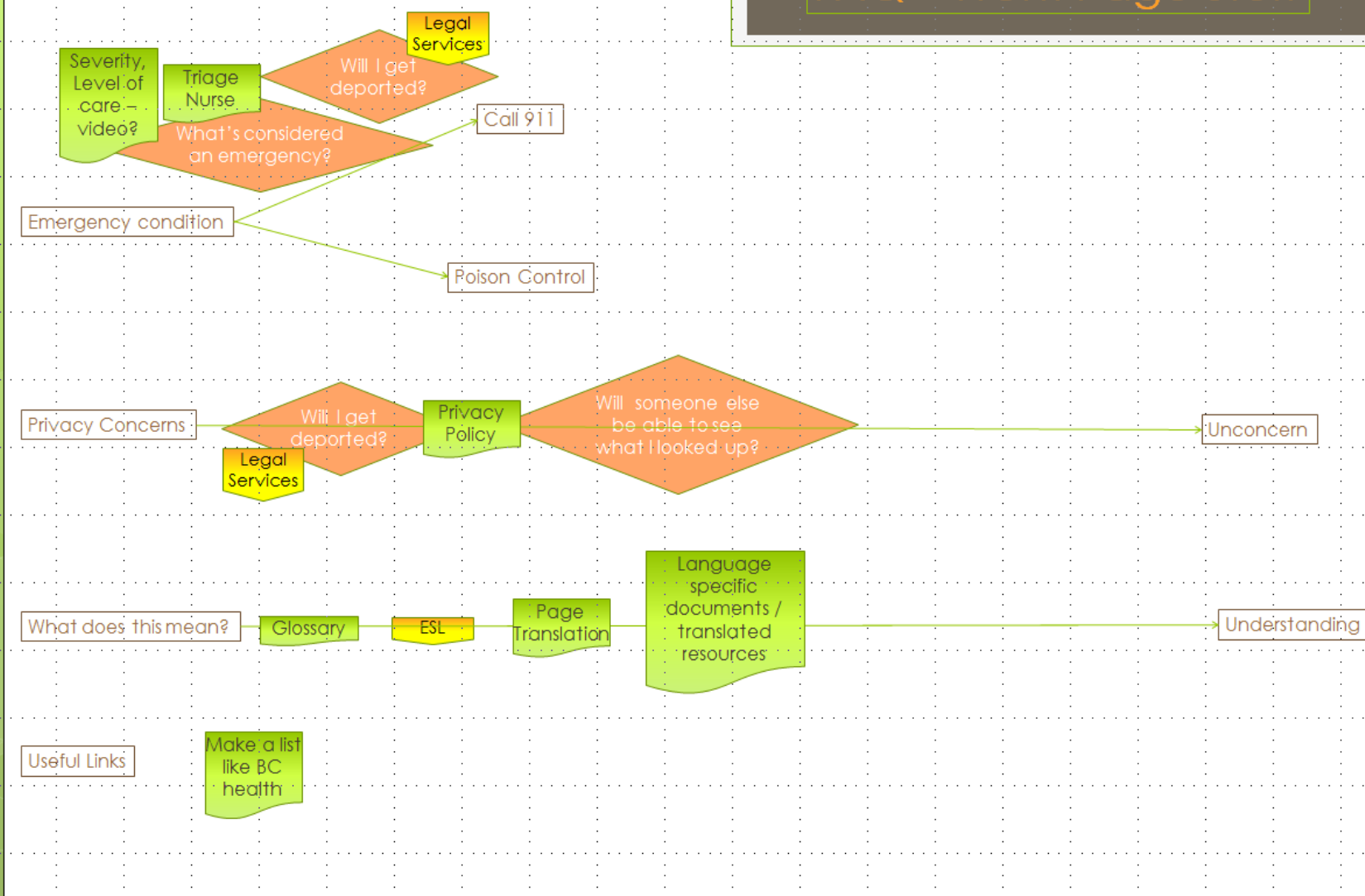


MEDICAL SERVICES



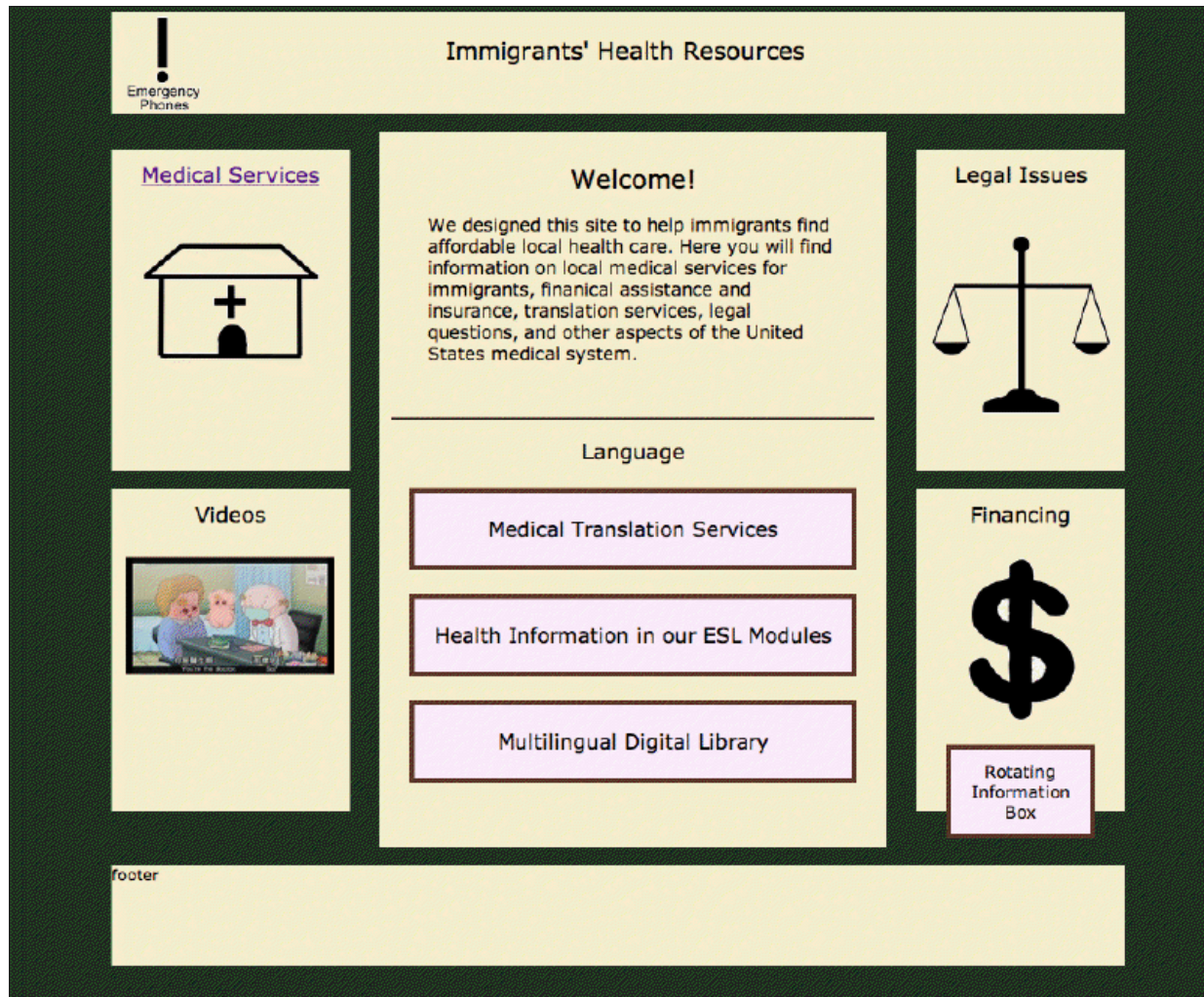
FREQUENTLY ASKED QUESTIONS

FAQ – Front Page Stuff



WEB PAGE DESIGN

Design iteration I



Find a Doctor

Home + Find a Doctor + Language + Legal Issues + Financing + Video Collections

Find a Doctor:

Specify Doctor Characteristics

Type of Doctor:

Gender of Doctor

☒ Male

☐ Female

Age of Doctor

☒ 30-40

☐ 41-55

☐ 56-70

Language of Doctor:

Insurance Accepted

☒ Medicare

☐ Medicaid

☐ Private

Search by Location

Within

☒ 5 miles

☐ 15 miles

☐ 25 miles

of

Address:

Constancio Conception, MD, FAAP

East Austin Health Clinic

211 Comal Street, Austin, TX 78702-4326 [How do I get here?](#)
(512) 972-4322

This doctor is: [A Pediatrician](#), [male](#), [40 years old](#), [immigrant-friendly](#)

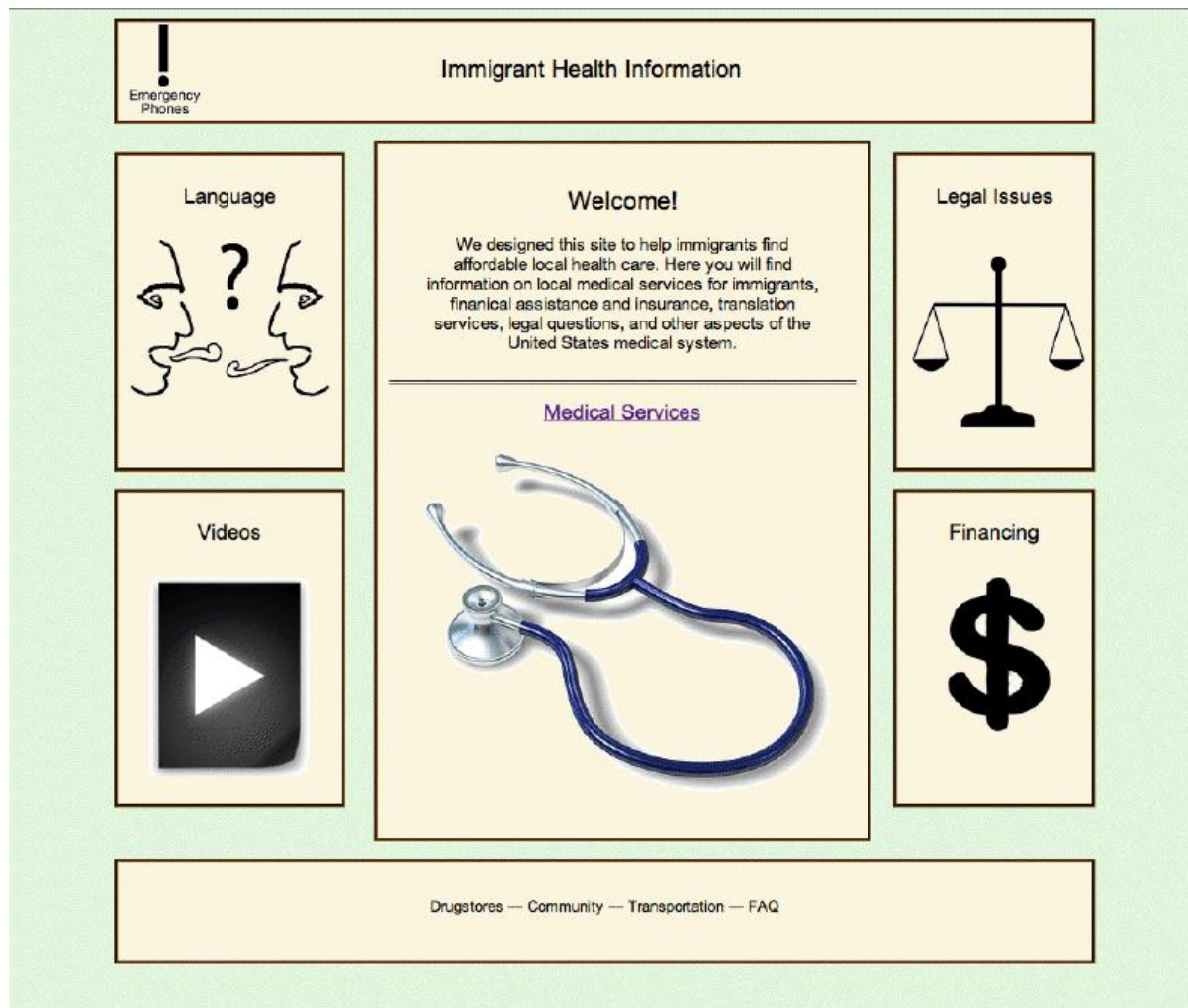
This doctor speaks: [English](#), [Spanish](#), [Filipino](#)

This clinic accepts: [CHIP](#), [Medicaid](#), [Medicare](#)



[How to pay](#)

Design iteration II



Immigrant Health Information

Home + Medical Services + Language + Legal Issues + Financing + Video Collections






Medical Services

Locate Medical Services:

Browse Doctors

General Physician

Pediatrician

Ari Brown	4007 Austin Professional Bldg		★★★★☆
Vanessa L. Chiapetta	4315 James Casey Street		★★★★★
Charles D. Dubose	313 East 12th Street #104		★☆☆☆☆
Juanita K. Bhatnagar	1015 E 32nd St # 101		★★★★☆
Joanne W. Edoka	Ste 208, 800 West 34th St		★★★☆☆

Reproductive

Specialist

Emergency

Specify Doctor Characteristics

Type of Doctor:

Gender of Doctor



Male



Female

Age of Doctor



30-40



41-55



56-70

Language of Doctor:

Insurance Accepted



Medicare



Medicaid



Private

Search by Location

Within



5 miles



15 miles



25 miles

of

Address:

Immigrant Health Information

Home + Medical Services + Language + Legal Issues + Financing + Video Collections

Medical Services Search Results

Constancio Concepcion, MD, FAAP

[East Austin Health Clinic](#)



This doctor is: [pediatrician](#) [male](#) [40 years old](#) [immigrant-friendly](#)

Speaks: [English](#) [Spanish](#) [Filipino](#)

Accepts: [CHIP](#) [Medicaid](#) [Medicare](#) [Insurance](#) [Cash](#) [Credit](#)

Hours: M-Th 8AM - 5PM
F 9AM - 5PM

[Appointment Recommended](#)
Limited same-day service

Website Services

-  [How to pay](#)
-  [What to expect](#)
-  [Making Appointments](#)

Video Collections

-  [Visiting a doctor](#)
-  [Making an appointment](#)
-  [Getting Insurance](#)



211 Comal Street, Austin, TX 78702-4326

(512) 972-4322 [How do I get here?](#)

Directions:

Community and Comments

15 Comments

Overall rating: ★★★★★

Comment 1

Final design:

http://www.ischool.utexas.edu/~jrUEDAS/382C_project.html

SITE MAP

Conventions - Page Title

Information on the page • **Titles of linked pages that contain further links** • *Titles of linked terminal pages* • → : linked to Found on this (**Parent page**)

Portal Entry

Site introduction
Site translation [translates site to selected language]
Site entry → **Welcome**

Welcome

Medical Services • **Language Assistance** • **Legal** • **Finance** • **Video**
Navigation bar: **Drugstores, Community, Transportation, FAQ**

Medical Services

Medical services search:
doctors, clinics, pharmacies, etc.
Advanced search functionality:
doctor characteristics, location
Search results → **Provider**

Provider

Hours, address, phone number • Languages spoken • Provider details • Map & direction widget
How do I get here? → **Transportation**
Billing practices → **Finance**
What to expect → **Video**
Rating → **Community**

Language Assistance

Picture based medical glossary
English as a second language resources
Language specific medical articles
Translation services

Videos

Search videos
Search results
Doctor's office collection
Finding health information on the internet
Finding health information in the library

Finance

Insurance eligibility and enrollment procedures
State & Federal health programs and public health initiatives
Low cost clinics and services
Articles on financing health care

Legal

Site confidentiality
Medical leave: Illness, Pregnancy, Adoption
Workman's comp
Medical rights for undocumented residents
Lawyers: Immigration rights & pro bono

Conventions - Page Title

Information on the page • **Titles of linked pages that contain further links** • *Titles of linked terminal pages* • → : linked to Found on this (**Parent page**)

Emergency

Pictorial definitions of what is & is not an emergency with alt text of, and link to, appropriate action. E.g. compound fracture & 911, child with poison bottle & poison control number, blue person & Heimlich maneuver, person in bed with thermometer at 100F & link to **Medical Services**

Phone numbers for Poison Control & 911

Drugstores

Find a pharmacy → **Medical Services**

Medications available over the counter

Search for American medicines effectively equivalent to known medications

Community

Support communities and forums

Discussion forums

Provider reviews [results shown on Medical Services search results]

Transportation

Embedded Google map search

Embedded Google directions

Public transit: instructions, directions, and costs

FAQ

Emergency

Discussion forums (**Community**)

Picture based medical glossary (**Language Assistance**)

Links to external immigrant services

Privacy concerns → **Legal**

Public transportation (**Transportation**)

USER STUDY PLAN

Introduction

The proposed immigrant health information web site (IHI.org) serves as a portal to health information and resources for immigrants to the United States, living in the Austin, TX area. This site provides a central source for immigrants to retrieve information about health resources across a variety of topics and sources.

Purpose

This test plan describes the actions for conducting a usability test for IHI.org. The goals of this usability test include establishing the following: user baseline performance, user performance measures, and areas of improvement in efficiency and end-user satisfaction. Potential areas of improvement may include navigation, presentation, and control usage. This user study will accomplish these goals by asking representative users to access and use IHI.org under controlled test conditions.

Participants

Background

Potential users of IHI.org vary across a number of characteristics such as age, education, facility with English, computer experience, experience with the local health care system, and country of origin. We will consider each of these characteristics when recruiting and selecting participants for this user study.

Recruitment

We will recruit participants for this study from community and religious centers, and libraries in the Austin area through outreach to those organizations that serve as information grounds to various immigrant communities. Recruitment may include some form of incentive.

Data collection methods

While there are methods that we will use to assess this web site that do not involve users, such as a heuristic evaluation, we will not address them in this User Study Plan. Participant interactions will be both audio and screen-recorded using one of the widely available screen-recorder applications. In addition, the user evaluation administrator will collect notes throughout the evaluation process. Prior to collecting any information or recordings, we will explain the purpose of the study and ask participants to sign a consent form. Participants will complete tasks on a computer running a Windows 7 OS.

Demographic questionnaire

Participants will complete a demographic questionnaire covering at a minimum: age, sex, time in the US, time in the local community, country of origin, cultural identification, religious identification, spoken languages, and level of education.

Interview

We will interview participants using semi-structured interviewing techniques both before and after interacting with the web site. These interviews will address demographic information, as well as experiential markers. Post-interaction interviews will allow participants to express freely what they liked or dis-liked about the web site and their experience using it.

Task execution

We will ask participants to complete a variety of tasks on the web site using a 'think-aloud' protocol. These tasks may include the following:

Show the participant the portal entry page. Ask them to describe whose site they think it is, what they think the site is for, and what they think they can do there.

A member of your family has suddenly become very ill. Identify a care giver and determine how you would meet with this care giver and pay for the services rendered.

You have been to a doctor who prescribed medication. How do you get this prescription filled?

You have a child and have heard of some government-supported health programs for children. Find out what programs exist and whether your child is eligible for them.

You cannot speak English well enough to visit a doctor's office. Identify services or resources this site offers to help you.

You would like to find a pediatrician for your child. Locate a pediatrician with positive reviews.

You are employed by a US company and you are pregnant. Find out how long the maternity leave can be and what your rights are.

Your child has swallowed too many multivitamin pills. Find immediate assistance.

Your car is broken. Identify the public transportation you can use to get to a doctor's office, how much would it cost, how long it will take, and directions.

You have never been to a doctor's office in the US. Locate a video that explains the procedure of visiting a doctor's office.

System usability scale

Following completion of the tasks and the post-interview, we will ask participants to complete a system usability scaleⁱ.

Data analysis

Demographic questionnaire

We will use descriptive statistics to analyze the data collected using this tool. This analysis will help us understand the characteristics of our participant pool, and possibly indicate other participant populations that to ask to evaluate the web site in future user studies.

Interview

We will perform content analysis on the pre- and post- interviews. Other statistics may be used to further analyze the results of the content analysis. This analysis will allow us to have a deeper understanding of our users see themselves and their experience with the web site. These data will also permit us to assess end-user satisfaction and user-acceptance.

Task execution

We will assess task execution using the following metrics: time on task, number of false attempts, and success rate. Additionally, we will perform content analysis on the comments that participants provide while using the think-aloud protocol. These analyses will help us determine baseline performance and applicability of performance measures. These data will also identify possible areas of improvement in efficiency, navigation, control-usage, and user satisfaction.

System usability scale

We will analyze the results of the system usability scale per the scale instructions. This will give us a single number to evaluate the general usability of the web site, which roughly equates to a letter gradeⁱⁱ.

ⁱ Brooke, J. (1996). SUS: a "quick and dirty" usability scale. In P. W. Jordan, B. Thomas, B. A. Weerdmeester, & A. L. McClelland (Eds.), *Usability Evaluation in Industry*. London: Taylor and Francis.

ⁱⁱ Bangor, A., Kortum, P., and Miller, J. (2009). Determining what individual SUS scores mean: Adding an adjective rating scale. *Journal of Usability Studies*, 4 (3), 114-123