



FINAL REPORT

User-based Categorization of Healthcare Topics from the NLM Asian American Health Web Site

Submitted to:

Dr. Alla Keselman
Contractor, Specialized Information Services
National Library of Medicine
301-496-3420
keselmana@mail.nlm.nih.gov

Laura Bartlett
Manager, Asian American Health
National Library of Medicine
240-446-8219
bartlettl@mail.nlm.nih.gov

Submitted by:

Dick Horst, Weimin Hou, Dustin Chambers
UserWorks, Inc.
1738 Elton Road, Suite 138
Silver Spring, MD 20903
(301)-431-0500
<http://www.userworks.com>

July 10, 2009

Executive Summary

The present project involved a study of how representative users would expect the topics to be organized on the National Library of Medicine's (NLM's) web site presenting materials on Asian American Health (AAH). In that NLM is planning to implement a content management system for its materials in Asian languages, these materials can be tagged with multiple instances of metadata. This will enable an information architecture that doesn't require exclusive placement of each item in an A-Z index or other single location, but rather will allow articles to be accessed from multiple links or keywords. This in turn suggests the possibility of a faceted browsing scheme, either in place of or in addition to the A-Z index. The question then becomes one of developing facets by which the articles in the collection would be tagged. The facets should be compatible with how users would likely think about the material. Thus the present user research was conducted to explore how representative users, both lay people and healthcare professionals, would expect the material in the AAH collection to be organized and categorized, and the implications of these results for how the user interface with the collection could be designed.

To meet the aforementioned study objectives, we designed a two-phase study. Both phases used the same 16 participants, 8 lay people and 8 healthcare professionals who might have the occasion to access these materials in Asian languages. Phase I involved an "open card sort" and was conducted in person and one-on-one. Participants sorted cards that were constructed with representative content from selected articles in the AAH collection. The sorting was "open" in that participants were free to create as many categories and subcategories as made sense to them, and they could label these clusters as they saw fit. Based on an analysis of the participants' Phase I sorting results we derived a consensus set of categories and subcategories that would accommodate the subset of AAH materials that were used in Phase I. This categorization scheme, constituting a possible set of user-compatible facets by which the AAH collection could be tagged, was translated into a set of menus for use in Phase II.

The Phase II exercise then involved an un-moderated, online survey in which the participants were given a series of healthcare questions or issues of interest, mimicking the interests with which a user might approach the web site. They were asked to choose items from the set of menus derived from Phase I that they would expect to lead them to relevant information about the healthcare questions/issues of interest. We predicted what menu choices they would make, i.e., which menu items would indeed lead them to relevant articles from the AAH collection had we tagged those articles based on the facets that underlay the menu structure. This Phase II exercise thus served to validate how well participants related to the categorization scheme derived from Phase I.

In large part, participants' Phase II choices did validate the set of menus derived from Phase I, but also suggested a few cautions and refinements. We present the modified menu structure categorization scheme that emerged from Phase II. We also speculate as to the implications of these results for creating a new user interface for the Asian Health web site and the process for NLM tagging new incoming content and expanding the faceted menu structure as needed in the future.

Table of Contents

EXECUTIVE SUMMARY	II
TABLE OF CONTENTS.....	III
BACKGROUND AND PURPOSE	1
PARTICIPANTS.....	1
PHASE I STUDY.....	2
OVERVIEW	2
FACILITIES	2
PHASE I PROCEDURES	2
PHASE I ANALYSIS AND FINDINGS	3
CONTENT PRESENTATION SUGGESTIONS FROM PARTICIPANTS	8
PHASE II STUDY	9
OVERVIEW	9
PHASE II ONLINE EXERCISE	9
PHASE II ANALYSIS AND FINDINGS	10
DESIGN IMPLICATIONS AND RECOMMENDATIONS	13
TAGGING AAH CONTENT WITH METADATA BASED ON THE FACETED MENU STRUCTURE.....	13
MAINTENANCE AND EXPANSION OF THESE METADATA.....	14
IMPLICATIONS FOR THE AAH SITE USER INTERFACE.....	14
CAVEATS.....	15
APPENDIX A: SCREENER.....	16
APPENDIX B: INFORMED CONSENT FORM	22
APPENDIX C: PARTICIPANT DEMOGRAPHICS.....	23
APPENDIX D: SAMPLE CARD FROM PHASE I CARD SORT.....	24
APPENDIX E: TITLES OF HEALTHCARE ARTICLES/WEB SITES USED IN PHASE I.....	25
APPENDIX F: MODERATOR’S GUIDE FOR PHASE I STUDY	26
APPENDIX G: CATEGORIES INTO WHICH EACH PARTICIPANT SORTED EACH CARD.....	30
APPENDIX H: FIRST, SECOND, AND THIRD MOST COMMON STANDARDIZED CATEGORIES INTO WHICH EACH CARD WAS GROUPED IN PHASE I.....	40
APPENDIX I. HEALTHCARE TASKS USED IN PHASE II	43
APPENDIX J. PHASE II ONLINE EXERCISE	44
APPENDIX K: PHASE II PARTICIPANT MENU CHOICES VERSUS PREDICTED.....	49
APPENDIX L: PHASE II PARTICIPANTS’ SUGGESTIONS FOR ALTERNATIVE MENUS OR MENU ITEMS	56
APPENDIX M: PHASE II PARTICIPANT RESPONSES TO QUESTIONS ON LAST PAGE OF THE ONLINE SURVEY	61

Background and Purpose

To promote Asian American Health (AAH), the National Library of Medicine (NLM) offers healthcare topics in multiple Asian languages online at (www.asianamericanhealth.nlm.nih.gov). In recent years, this web site has grown in scope and coverage, but without an overriding plan for managing content. At present the available content in the “Materials in Asian Languages” section of the site is accessed by choosing a language and then selecting articles from an A-Z index. However, the level of granularity and consistency varies among the topics currently listed as A-Z headings. For example, for most languages, the alphabetical headings pertain to disease names, but there are also topics like “End of Life Issues” Some articles could justifiably be categorized under multiple ones of the present topics (e.g., “Breast Cancer” or “Cancer, General”). An attempt has been made in the current headings to anticipate some of the alternate ways that different audience groups might think of certain medical concepts (e.g., “Blood Sugar” versus “Diabetes”), but there is not cross referencing among such related topics.

The present project stemmed from NLM’s desire to determine, through user-based studies, the best way to organize the materials in the AAH collection so that users can readily find the information they seek. NLM is planning to implement a content management system that will allow them to tag a given article or piece of information in the collection with multiple instances of metadata. This will enable an information architecture that doesn’t require exclusive placement in an A-Z index, but rather will allow articles to be accessed from multiple links or keywords. This suggests the possibility of a faceted browsing scheme, either in place of or in addition to the A-Z index. The question then becomes one of developing facets by which the articles in the collection would be tagged that are compatible with how users would be likely to think about the material. Thus the present user research was conducted to explore how representative users, both lay people and healthcare professionals, would expect the material in the AAH collection to be organized and categorized. We then draw implications from these results about how the user interface with the collection could be designed.

Participants

Because materials in Chinese constitute one of the larger subsets of the AAH collection, for this study we decided to focus on lay people whose first language was Chinese and healthcare providers who treat Chinese patients as a significant part of their practice. The participants – 8 healthcare professionals and 8 lay people – were recruited using UserWorks’ database of volunteers, through personal contacts, and by reaching out to targeted healthcare providers who appeared to serve Chinese immigrant families. All participants completed both the Phase I and Phase II studies. All appeared to do so conscientiously, and many were complimentary about NLM’s efforts in this regard.

Those who responded to an initial email announcement about the study were interviewed by telephone using the screening questionnaire shown in [Appendix A](#). All participants signed the Informed Consent form shown in [Appendix B](#). The professionals were paid a cash incentive of \$150 and the lay people were paid \$100 upon completing the Phase II exercise. The characteristics of the 16 participants are summarized in [Appendix C](#). The professions of the lay people included 1 Chemical Engineer, 1 Systems Analyst, 1 Internet Specialist, 1 Web

Developer, 1 Civil Engineer, and 3 graduate students. The healthcare professionals included 3 Physicians, 1 Plastic Surgeon, 3 Registered Nurse, and 1 Physician's Assistant. This was, therefore, a sample of very well-educated people, but it is our impression that they are representative of the Chinese speaking population in the Washington, DC area who speak English well enough to participate in a study like the present, which was conducted in English. Although most of these participants spoke English well enough to read web healthcare content in English, the idea was the many would have family members or patients who would benefit by accessing AAH content in Chinese.

Phase I Study

Overview

We selected 41 pieces of Chinese language, health-related information from the existing AAH web site and printed the main excerpts of each piece of information on index cards. [Appendix D](#) shows a representative card, illustrating the format that was used. Then we asked the 16 participants to individually sort these 41 cards into whatever group made sense to them. Doing so allowed us to see, from the users' perspective, how the AAH content should be categorized and grouped. [Appendix E](#) shows the titles of the AAH articles that were presented on the 41 cards used in Phase I and [Appendix F](#) presents the Moderator's Guide that was used to conduct the sessions.

Facilities

The card sorting sessions were conducted in a usability lab at UserWorks' facilities in Silver Spring, MD. Participants worked with a deck of 6 x 8 inch cards, which contained the excerpts of one piece, a pdf article or web site, of health related information. The participants manipulated these materials on a table top with an overhead video camera recording the sorting. The participant's comments and the discussion between the moderator and participant was captured by a microphone and recorded at the same time. The recordings were made in digital video and copied as Windows Media files onto DVDs.

Phase I Procedures

In the Phase I one-on-one in-person sessions, the moderator greeted each participant, provided a brief overview of the purpose of the session, and asked him/her to sign the consent form. The moderator's interactions with the participant followed the guide presented in [Appendix F](#). The participants were briefed on the procedure to be used for the card sorting exercise and given some sorting examples. Then the participants sorted the 41 cards with the sample content selected from the AAH web site, grouping them into whatever groups made sense to them. They labeled the clusters of cards that they created with whatever group names they preferred. They could create a hierarchy of clusters if they wished (i.e., creating groups and subgroups). The participants could also duplicate cards if they wished in order to put a given card in more than one cluster.

Participants were asked to “think aloud” as they conducted the sort, describing their reasoning of the grouping and any uncertainties that they encountered. The moderator remained in the room during the card sort to interact with the participants, if needed, to help the participants move their cards when they found it necessary to expand the table-space they were using, to probe to understand the participants’ grouping decisions, and to take notes. After the participants left, the moderator wrote down the group names and the cards that were put under each group on a note pad and also took photos of the sorting results. Then the results were transferred to an Excel workbook.

Phase I Analysis and Findings

To record the sorting results of each participant from Phase I and discover patterns among them – what similar terms/group names they utilized – we used a spreadsheet-based analysis system (see www.rosenfeldmedia.com/books/cardsorting/blog/card_sort_analysis_spreadsheet/) developed by Donna Maurer Spencer, who is in the process of publishing a book on card sorting. This spreadsheet allowed us to:

1. Record how the 41 cards were grouped by each participant;
2. See the names that each participant chose for each group of cards that they created and record which of these named groups (the “original categories”) each card was placed in;
3. Look for commonalities in the groupings across participants and thereby create “standardized categories,” i.e., group names that would accommodate a large proportion of different participants’ groupings (these “standardized categories” form the basis for a list of possible “facets” or menus that could be offered as a navigation, or advanced search, scheme on the AAH website).

[Appendix G](#) lists the 41 cards by number and the “original categories” that each participant sorted the cards into. In the table below we present a listing of our derived “standardized categories” and the corresponding “original categories” into which various participants sorted the 41 cards. In deriving the “standardized” categories we tried to pick an overarching name for each apparent cluster that best characterized that grouping. In many cases the names we chose were among those suggested by the participants. In a few cases we chose a unique name that captured the essence of the commonalities that participants seemed to have in mind in creating the groupings that they did.

Standardized Categories Derived by Researchers	Original Categories Labeled by Participants
Aging	Aging, Overcome Aging and Related Health Issues, Men's Health: Aging, Women's Health: Aging, Aging, Aging body
Alcohol Related	Alcohol, Aging: Aging and its effects on clearance of alcohol, Prevention regarding lifestyle: Others Regarding Alcohol, Emotion, Pathogens
Demographic Groups: Asian Specific	Asian /Asian Related/Specific, Asia Disease, Hepatitis B for Chinese, Health Information Related to Asian Americans

Demographic Groups: Children and Youth	Demographic Groups: Children and Youth, Health Education Information: Health Education for Babies and Children, Children (birth-5 years), Diseases Prevention: Prevention for Children, Childhood Health, Pediatrics, Hepatitis B for Children, Children Health, Children, Age Group: Children, Information for different people: Children, General health to children/baby, General Health Information: Children
Demographic Groups: Men	Cancer: Men's Cancer, Rheumatology: Osteoporosis in Men, Men's Health, Diseases Prevention: Diseases Regarding Men, Cancer: Cancer of Men, Men, Information for different people: Men, General Health for men, Cancer: For men, Bone Health/Osteoporosis: Men,
Demographic Groups: Seniors	Older/Aging, Aging Health, Age Group: Age 50+, Information for different people: For elderly adults, General Health Information: Older,
Demographic Groups: Women	Information for different people: Women, Cancer: Women's Cancer, Women, Gender Related, Women's Health, Cancer: Cancer of Women, Rheumatology: Osteoporosis in Women, Diseases Prevention: Diseases Regarding Women, Gender Related, General Health Information: Women, Bone Health/Osteoporosis: Women, Cancer: Women
Diagnostic Tests	Health Tests, Diseases Prevention: Diseases Regarding Women: Diagnosis regarding women's diseases, Instructional, Diseases: Tests, Information for people schedule with an examination, General Health Information: Mammogram, Hospital (Schedule, test)/Prepare for tests, Methods/Ways (Screen/Cure): Screening Disease, Cancer: Men: Screening Tests for Breast Cancer, Cancer: Women: Screening Tests for Breast Cancer
Diseases	Diseases/Disease Information, Diseases condition disorder, General Health Issues, Disease, Facts/Health Facts,
Diseases: Alzheimer's	Aging: Alzheimer's, Men's Health: Alzheimer's, Women's Health: Alzheimer's, Diseases: Alzheimer's Disease, Alzheimer,
Diseases: Anemia	Health Information Related to Asian Americans: Anemia, Men's Health: Anemia, Women's Health: Anemia,
Diseases: Avian Influenza ("Bird Flu")	Avian Flu, Men's Health: Avian influenza (bird flu), Women's Health: Avian influenza (bird flu), Diseases: Avian Influenza ("Bird Flu"),
Diseases: Blood Diseases/Hematology	Anemia (Blood), Anemia, General Health Issues: Blood Disease, Diseases: Anemia, Diseases: Hemoglobin H (Hgb H) Disease, Facts/Health Facts: Blood Disease, Blood
Diseases: Bone Diseases/Osteoporosis/Rheumatology	Aging: Osteoporosis, Rheumatology, Anemia, Osteoporosis, Men's Health: Osteoporosis, Women's Health: Osteoporosis, Men's Health: Bone Disease, Disease Osteoporosis, Diseases: Osteoporosis, Bone, Facts/Health Facts: Osteoporosis <-> calcium/Vitamin D, Bone Health/Osteoporosis,
Diseases: Breast Cancer	Cancer: Women's Cancer: Breast Cancer,
Diseases: Cancers	Cancer, Men's Health: Cancer, Women's Health: Cancer, Information for different people: Men: Cancer, Information for different people: Women: Cancer, Facts/Health Facts: Cancer,
Diseases: Care	Diabetes and its Management,
Diseases: Cervical Cancer	Cancer: Women's Cancer: Cervical Cancer
Diseases: Colorectal Cancer	Cancer: Women's Cancer: Colorectal Cancer
Diseases: Deadly Diseases	Information for common Deadly diseases and illness
Diseases: Diabetes	Disease Prevention: Diabetes, Diabetes, Diseases Prevention: Related to Diabetes, Men's Health: Diabetes, Women's Health: Diabetes, General Health Issues: Diabetes, Disease: Diabetes,

Diseases: Diagnosis	Diseases to help self diagnose
Diseases: Foodborne Illness	Bacteria, Diseases: Diseases caused by food, General Health Information: BAC, Foodborne Illness
Diseases: Heart/Cardiovascular Diseases	Cardiovascular, Heart Disease, Diseases Prevention: Prevention of cardiovascular system, Heart Disease, Men's Health: Heart Disease, Women's Health: Heart Disease, Heart, Facts/Health Facts: Heart disease, Heart Failure, Heart Health
Diseases: Hepatitis	Information on Hepatitis B, Infection/Hepatitis/HIV: Hepatitis, Hepatitis, Infectious Disease: Hepatitis, Hepatitis B, Diseases Prevention: Prevention of Hepatitis, Health Information Related to Asian Americans: Hepatitis, Hepatitis , Men's Health: Hepatitis B, Women's Health: Hepatitis B, Children Health: Hepatitis, General Health Issues: Hepatitis, Disease Hepatitis B, Diseases: Hepatitis B, Epidemic (Infectious): Sexual transfer: Hepatitis B, Facts/Health Facts: Hepatitis B, General Health Information: Hepatitis B,
Diseases: HIV/AIDS	Men's Health: HIV/AIDS, Women's Health: HIV/AIDS, Diseases: HIV/AIDS, HIV/Aids
Diseases: Immune Diseases	Immune Diseases,
Diseases: Infectious Diseases	Infection/Hepatitis/HIV, Infectious Disease, Bacterial, Virus (Flu), Infectious Diseases
Diseases: Lupus	Men's Health: Lupus, Women's Health: Lupus, General Health Issues: Lupus, Diseases: Lupus, Lupus, Lupus
Diseases: Other	Diseases Prevention: Other diseases prevention information , Hot-topic (Popular) Diseases,
Diseases: Other Cancers	Cancer and its Prevention: Other Types of Cancers,
Diseases: Prevention	Disease Prevention, Prevention non disease related, Methods/Ways (Screen/Cure), Cancer: Men: Colon Cancer Prevention,
Diseases: Sexually Transmitted Diseases	Epidemic (Infectious): Sexual transfer,
Diseases: Treatment	Methods/Ways (Screen/Cure): Methods to cure disease,
Diseases: Viruses	Viruses
Drug & Substance Abuse	Children Health: Drug Abuse
Fitness & Exercise	Exercise
Food & Nutrition	Bad Eating Habits
Government & Organizations	Health Care in Government, Social Security - Who qualifies?
Health Education Resources	Health Education Information, WEB link, Health education, Health Education Is Important, General Information Resources, Health Education Info, Related resources, Informational but not specific to, Information for different people: General Tips for All People, General Health: Educational, General Health Information,
Health Maintenance	Health Education Information: Other Matters for Better Family Health, Health Maintenance, Preventative/Staying healthy, Good Things for Health, Living Longer/Healthy Lifestyle
Medications/Medicines	Food, Nutrition, and Medications, Medicines,
Mental Health	Mental Health, Psychological, Diseases: Eating Disorder, Diseases: Mental Disease, Mental/Mental Health/Mental Disease, Mental Health: Mental Health Disorders
Oral Hygiene	Children Health: Oral Hygiene
Pregnancy	Women Pregnancy (Obstetrical or Pelvic Ultrasound)

We made efforts to include ALL the categories from each participant in our “standardizing” process. For example, Participant 9 put Card 8 “Breast Cancer Screening: Things To Know About Quality Mammograms” and Card 27 “Information for Patients Scheduled for Mammogram” in a hierarchical structure, with the top category being “Cancer”, a subcategory under that being “Women,” and eventually a subcategory under “Women” called “Screening Tests for Breast Cancer.” We indicated this result by “Cancer: Women: Screening Tests for Breast Cancer,” with the punctuation of “:” to distinguish the upper level and lower level groupings.

In the standardizing process, however, we treated the above sorting as three separate categories and standardized all of them so as to capture all the original categories that the participant came up with:

Partic.9	Cancer	Diseases: Cancers	
Partic.9	Cancer: Women	Demographic Groups: Women	
Partic.9	Cancer: Women: Screening Tests for Breast Cancer	Diagnostic Tests	

Similarly, we standardized “Men's Health: Cancer” into two categories – “Demographic Groups: Men” and “Diseases: Cancers.”

We identified some original categories that included too many topics in the first round of the standardization process, such as a category called “Food, Nutrition, and Medications” by Participant 2. After the first round, we went back to those categories and made adjustments, drawing guidance from the categories that had been created to accommodate other participants’ sorts. For example, we dealt with the above category by creating “Medications and Medicines,” since “Food and Nutrition” already existed from the results of the other participants.

[Appendix H](#) shows a breakdown, for each card that was sorted, of what was the most popular standardized category into which it was grouped, which was the second most common category, and which was the third most common category. This provides another indication of how much consensus there was in the ways participants thought about this content. Many participants organized their categories into hierarchical structures, particularly when the content combined demographic and disease information. One can also examine in this table how often participants started out their classification with disease, followed by demographics, and how often the reverse was true.

From the list of standardized categories we constructed the following set of menus and menu items which could serve as facets by which to tag AAH content. This menu structure was then used in the Phase II online exercise, which was aimed at validating it. In moving to this menu structure we also took account of comments that participants had made while sorting. For example, several participants expressed the desire to find health-related information by body parts, so we added the category of “Health Information by Parts of the Body” to this menu structure. The menu structure that resulted from our interpretation of the Phase I standardized categories, with feedback and suggestions from NLM, was as follows:

Health Information for Different Demographic Groups

Children and Youth

Men

Women

Senior citizens

Asian Specific

Other (Please suggest)

Not Applicable

Healthy Living

Fitness & Exercise

Food & Nutrition

Health Maintenance

Other (Please suggest)

Not Applicable

Disease Names

Alzheimer's

Anemia

Avian Influenza ("Bird Flu")

Cancers

Coronary Artery Disease (CAD)

Diabetes

Hepatitis

HIV/AIDS

Leukemia

Lupus

Other Diseases (Please suggest)

Not Applicable

Disease Types

Blood Diseases/Hematology

Bone Diseases/Osteoporosis/Rheumatology

Cancers

Foodborne Illness

Heart/Cardiovascular Diseases

Immune System Diseases

Infectious Diseases

Sexually Transmitted Diseases

Virus Diseases

Other Types (Please suggest)

Not Applicable

Miscellaneous Health Topics

Alcohol Related

Drug & Substance Abuse
Health Education Resources
Medications/Medicines
Mental Health
Oral Hygiene
Pregnancy
Other (Please suggest)
Not Applicable

Health Information by Parts of the Body

Breast
Bones
Eye
Heart
Liver
Lung
Skin
Teeth
Other (Please suggest)
Not Applicable

Stages of Health

Prevention
Diagnosis
Treatment
Care
Other (Please suggest)
Not Applicable

Content Presentation Suggestions from Participants

In their comments while performing the Phase I card sorting, participants made several useful suggestions about the preferred organization and presentation of AAH content:

- Present the bilingual titles – English and Chinese - of the health resources. P1, P4, and P8, who were originally from mainland China, mentioned that a site that provided health related information in two languages could help them learn the medical terms in English and use the knowledge that they gained in China to process the English materials. In addition, Prof_4 believed that adding the Chinese titles, especially making use of some old Chinese sayings in the titles, would make the materials more attractive.
- General disease information on top of the specific disease information. For a disease topic that has a lot of content, several participants (Prof_1, Prof_4, P4, and P6) thought that the general information should be placed right below the topic, while the more specific information should be below the general information at the bottom.

Phase II Study

Overview

We used the menu structure derived from Phase I in a Phase II exercise that was aimed at validating and suggesting improvements to these menus. The Phase II exercise was implemented as an online survey in SurveyMonkey (www.surveymonkey.com).

We considered several alternatives for conducting this Phase II validation, within the constraints determined early on, namely that Phase II would involve an online and un-moderated exercise, which took participants no more than 20 – 30 minutes to complete. The decision to use the procedure that we did was based on several assumptions:

- It is possible to tag existing and incoming materials for the AAH collection with multiple metadata tags;
- There is a desire to offer access to these materials by way of any of these tags that users might think of; and
- There can thus be multiple “facets” or menus through which users can access a given document.

Based on these assumptions, we envisioned the menus and menu items to be used in this study as eventually being incorporated into the user interface of the AAH web site. They would form the basis for either a faceted navigation or an advanced search scheme (or both). The purpose of the Phase II exercise was therefore to validate the usefulness of the menus that emerged from Phase I, i.e., the ease with which representative users could relate to them.

Phase II Online Exercise

We involved the same 16 participants in Phase II as in Phase I. But instead of showing them materials similar to that of the cards in Phase I, we had them think in terms of finding information about particular healthcare questions or issues. The participants were requested to interact with the menus as they would on the actual site, clicking on the menus and menu items that they thought would be most likely to lead them to the desired information about these questions or issues. The default choice on each menu was a blank and one of the menu items that participants could choose was “Not applicable.” The participants could indicate in either of these ways that a given menu was irrelevant to a given question. They were also offered a free form comment field in which to suggest a better menu or menu item as an alternative to those presented.

We devised 20 healthcare questions dealing with topics drawn from articles in the AAH collection (see [Appendix I](#)). These questions were intended to mimic the sort of medical issues that users might have in mind when they approach the AAH web site. Most of these questions or issues were derived from the AAH articles used in Phase I, but about a quarter of them were from additional articles in the AAH collection that were not used in Phase I.

We also predicted which menus and menu items the participants would choose as being likely to lead them to relevant information about each question or issue. These predictions would

correspond to the metadata facets with which we would have tagged those relevant articles in the AAH collection, if this scheme were applied in practice to the actual web site content.

To the extent that the participants chose the menus and menu items that we had pre-determined to be relevant to a given topic, we interpreted that as validation of the usability of the menu structure. If they chose differently from what we had expected, or if they suggested better alternative menus or menu items, we considered those responses as opportunities to improve the menu structure derived from Phase I.

In addition to having the participants select all menus and menu items that they thought would lead them to the desired information, we also had them indicate which of those menus would be **most likely** to be fruitful in this regard (i.e., their top choice) for each question. On the last page of the survey, we took the opportunity to ask several questions about alternative wording for several of the menus.

The details of the Phase II online exercise, including the invitation email, instructions to participants, the survey questions, and the menu structure from which participants could choose, are presented in [Appendix J](#).

Phase II Analysis and Findings

The Phase II participant responses are presented in Appendices K, L, and M. [Appendix K](#) presents the participants' menu choices for each task (i.e., each healthcare question or issue). [Appendix L](#) shows participants' suggestions for alternative menus or menu items as well as their free form comments. [Appendix M](#) shows participants' responses to the design questions on the last page of the online survey.

In Appendix K, the numbers in the cells are a count of the number of participants, lay or professional, who chose each menu item for each task. The Xs in the Predict columns show our "predictions," i.e., if we were tagging the materials in the AAH collection, the way we would have tagged the materials related to each task topic so that they would have shown up in the results associated with the various menu choices.

The most striking aspect of these data is the strong correlation between predicted and actual responses. For all of the predicted choices, there was, in fact, a concentration of participant responses, usually from both lay and professional participants. These concentrations ranged from a few to most of the 8 participants in a given audience group. Although not necessarily apparent from these tallies, it was the case that while not all participants chose all predicted menu items, practically all participants chose at least one of the predicted choices for a given task. Therefore, had we tagged the article that the healthcare question or issue was drawn from with the predicted menu choices, a very high proportion of participants would have found the article by virtue of one or the other of their actual menu choices.

In Task 4 (the one dealing with tuberculosis), many participants pointed out that "tuberculosis" should have been a choice on the "Disease Names" menu. This was actually an oversight on our part in constructing that menu. In Task 17 (dealing with Hepatitis B), we failed to predict that professionals would recognize this as a "Virus Disease," although we did correctly predict that some participants would see it as an "Infectious Disease" (we also incorrectly predicted that "sexually transmitted" would be a popular choice on this menu, when it in fact wasn't). We failed to predict that a number of people would

see the Hepatitis B question as a matter of “Prevention” on the “Stages of Health” menu (about the same number who we correctly predicted would choose “Diagnosis” on that same “Stages of Health” menu).

The “Health Maintenance” item on the “Healthy Living” menu and especially the “Health Education Resources” item on the “Miscellaneous Health Topics” menu drew more responses than expected. In retrospect, it perhaps makes sense that many healthcare topics can be seen as matters of “health maintenance” or a “Health education resource” issue. While that hadn’t occurred to us, these terms may be so pervasive in their perceived applicability that they won’t be worth including as filtering criteria.

By and large, there were not striking differences between the patterns of choices by lay and healthcare professional participants. More lay participants than professionals saw HIV/AIDS as being a “sexually transmitted disease”, while more professionals than lay people chose “immune system disease” from the “Disease Type” menu.

As indicated in Appendix L, participants’ menu suggestions and comments didn’t yield anything approaching a consensus view, nor anything that would prompt us to change the menus, except pointing out our oversight in omitting “Tuberculosis” from the “Disease Names” menu.

As shown in Appendix M:

- Overall, participants were evenly split in their preference between “Health Information for Different Demographic Groups” and “Health Information for Different Audiences.” Since the lay participants had a slight preference for the latter, we will go with that.
- Both audience groups preferred “Healthy Living” for the title of the menu with tips for staying healthy.
- Professionals preferred “Stages of Disease” although lay people preferred “Stages of Health” for the “Prevention, Diagnosis, Treatment, Care” menu. Overall the tallies showed a slight preference for the former.

Thus while the user input from the Phase II exercise largely validated the categorization scheme that had been envisioned previously, it resulted in some enhancements that will hopefully further improve the extent to which the site organization complies with user expectations and mental models of the available content. The changes to the menu structure that we would suggest based on the Phase II results are as follows:

- Add “Tuberculosis” to the “Disease Name” menu
- Remove “Health Education Resources” from the “Miscellaneous Health Topics” menu
- Change the menu name from “Health Information for Different Demographic Groups” to “Health Information for Different Audiences.”
- Change the menu name from “Stages of Health” to “Stages of Disease”

The final menu structure, incorporating the changes above, was then as follows:

Health Information for Different Audiences

Children and Youth

Men

Women

Senior citizens

Asian Specific

Other (Please suggest)
Not Applicable

Healthy Living

Fitness & Exercise
Food & Nutrition
Health Maintenance
Other (Please suggest)
Not Applicable

Disease Names

Alzheimer's
Anemia
Avian Influenza ("Bird Flu")
Cancers
Coronary Artery Disease (CAD)
Diabetes
Hepatitis
HIV/AIDS
Leukemia
Lupus
Tuberculosis
Other Diseases (Please suggest)
Not Applicable

Disease Types

Blood Diseases/Hematology
Bone Diseases/Osteoporosis/Rheumatology
Cancers
Foodborne Illness
Heart/Cardiovascular Diseases
Immune System Diseases
Infectious Diseases
Sexually Transmitted Diseases
Virus Diseases
Other Types (Please suggest)
Not Applicable

Miscellaneous Health Topics

Alcohol Related
Drug & Substance Abuse
Medications/Medicines
Mental Health
Oral Hygiene
Pregnancy
Other (Please suggest)

Not Applicable

Health Information by Parts of the Body

Breast

Bones

Eye

Heart

Liver

Lung

Skin

Teeth

Other (Please suggest)

Not Applicable

Stages of Disease

Prevention

Diagnosis

Treatment

Care

Other (Please suggest)

Not Applicable

Design Implications and Recommendations

The categorization scheme that emerged from Phase I and the menu structure that we derived from it represent the way the present study participants thought to group and label the sample of AAH content we gave them to work with in Phase I. We interpreted the results of the Phase II exercise as largely validating the fact that the menu structure was one with which users could work effectively in realistic scenarios, seeking information on typical healthcare questions and issues. The Phase II results suggested several improvements to the menu structure, but these entailed relatively minor changes, which we have now made.

We are recommending that NLM consider the resulting menu structure as a faceted scheme for browsing and searching AAH content. This would have implications for tagging the content with metadata and for maintaining that metadata as new content is accepted into the collection. It would also have implications for the user interface of the AAH site.

Tagging AAH Content with Metadata Based on the Faceted Menu Structure

In addition to whatever keyword searching of article content is provided by the search engine on the AAH site, the adoption of the recommended faceted approach would entail tagging each piece of content with metadata that would associate the article with multiple items in the proposed menu structure. Integral to the faceted approach is the ability for a given article to be accessed via a variety of tags rather than having to position the article in a hierarchical taxonomy. This presumably allows different users to be thinking about a given article in different ways, using different terms, and still find it.

The tagging, of course, would be done by the NLM webmaster or person responsible for content management. That person would need to anticipate the multiple ways that users might want to access each piece of content (e.g., what demographic group or groups it pertains to, what disease it relates to, what body parts are affected, etc). For a given article, the content manager would, in essence, think through the proposed menu structure, applying tags for as many or as few menu items as seem applicable.

Since there is no particular limit to the number of tags that could be associated with a given article, in some sense the more the better. However, one would want to impose some judgment and selectivity on this process, because if tags are applied too liberally, the user's ability to filter the collection based on facets becomes meaningless. NLM would also need to decide whether to overlay some sort of relevance ranking on the tagging process and to include those rankings in the metadata as well.

Maintenance and Expansion of These Metadata

As NLM goes through the process of tagging the entire AAH collection with metadata that reflects the facets implied by the present menu structure, it will no doubt be necessary to expand that menu structure (e.g., adding disease names to the Disease Name menu as articles are encountered that address other diseases than those covered by the 41 articles that were sorted in Phase I). Even after accommodating the entire present AAH collection, as new material is added over time, this expanding of the menu structure would need to continue. This will be an important part of the site maintenance process and vetting new material. Presumably the content management system that is planned for implementation on the AAH site will have provisions for applying metadata to pieces of content and for maintaining the faceted menu structure (the taxonomy if you will) upon which these metadata are based.

Implications for the AAH Site User Interface

The faceted metadata scheme that we are recommending would, of course, enable a new user interface for the AAH site, in addition to the present A-Z index. In fact, one could consider a variety of possible interfaces to take advantage of the proposed faceted browsing capability. These new options could be used to replace, or to merely supplement, the A-Z index. And they would presumably be in addition to a keyword search capability, which we assume will be offered regardless. Although thinking through the exact look and feel of a new AAH interface is beyond the scope of the present project, we can suggest some "broad brush" possibilities for further exploration.

Faceted browsing is usually implemented as a filtering process, allowing the user to access particular content through the application of a variety of filters. This would be somewhat akin to the left navigation options that are offered on the present AAH site after one clicks into "Materials in Asian Languages" (or, for that matter, on any of the other top level choices on the AAH home page). However, rather than the very limited set of choices now offered, one would presumably have access to the entire menu structure that emerged from the present categorization exercises. The full faceted browse menu might be offered after the user chooses

“language,” since typically users will only care to see materials in their language(s). However, language could also be included as one of a variety of facets, having the same prominence as the other facets. And instead of leading into an A-Z index, the results display of the filtering would provide the set of relevant articles that meet the criteria specified by the user’s faceted menu choices.

Some important design decisions would be whether or not to allow facets to be successively specified (in effect allowing the user to apply additional filters after having seen the results produced by an initial set of filters), and whether or not to have the filters applied conjunctively or disjunctively (i.e., with a logical “AND” or “OR”). An “AND-ed” filtering strategy would seem to approximate a typical Advanced Search capability with the user being able to, for example, check multiple criteria of interest while leaving others blank. This logical “AND” approach would allow the user to home in quickly on a very specific subset of articles, but in instances where “No results were found that meet this set of criteria,” it would not be apparent which facet(s) caused the filtering to be too narrowly defined.

Caveats

The current faceted menu structure was, of course, derived from a study with 16 participants working with a sample of 41 pieces of AAH material. We believe the 8 lay participants and 8 healthcare practitioners are likely to be fairly representative of AAH users who speak Chinese (or who work with patients who speak Chinese), but we of course have no way to confirm that. Moreover, the 41 pieces of AAH content that were sorted in Phase I were selected as representative of the Chinese language material that is available, and the Chinese language portion of the collection is one of its larger components. Nonetheless, it remains to be seen how well the presently recommended metadata scheme will generalize to users who speak other languages and how well it will accommodate the broader AAH collection.

With regard to the latter point, as NLM goes through the process of tagging the entire AAH collection with metadata that reflects the facets implied by the present menu structure, it will no doubt be necessary to expand that menu structure (e.g., adding disease names to the Disease Name menu as articles are encountered that address other diseases than those covered by the 41 articles that were sorted in Phase I). Even after accommodating the entire present AAH collection, as new material is added over time, this expanding of the menu structure would need to continue. This will be an important part of the site maintenance process and vetting new material.

With regard to whether the broader base of AAH users will react as well in using the recommended menu structure as the present sample of Chinese-language users did, it would require additional user research with other audience groups to tell. However, there is no reason to expect that speakers of other Asian languages would be systematically different than Chinese-speakers. Assuming that the AAH material in other languages lends itself as well to being characterized by the present menu structure or that the menu structure is expanded to accommodate whatever additional healthcare topics come into play with the AAH material in other languages, it seems likely that other audience groups will fare as well.

Appendix A: Screener

Telephone Screening Questionnaire for **Lay People** for the **Lockheed/NLM Asian American Health Web Site Project**

Moderator: Weimin Hou

Sessions: In person at UserWorks' lab

Dates: Week of February 11-27th, 2009

Participant's Name:

Male Female (Recruit a mix)

Daytime Phone #

Evening Phone #

Email

Recruiter will call candidate participants who either responded to the above announcement or who have come to our attention via personal contacts and paraphrase:

- Hello, my name is _____, and I'm calling from UserWorks, a consulting firm that specializes in the design of web site user interfaces. You recently replied to our announcement about an upcoming web usability study.
- We are doing a project for a federal government agency, getting users' opinions about a web site that presents health information in Asian languages. If you are interested in participating, I would like to ask you a few questions to see if you qualify.
- If you qualify, you would be paid **\$100** for your participation in a study involving two sessions. For the first session, you would come into our facility in Silver Spring, MD, for about an hour and a half. The second session would be done from your home or office, talking to us by phone, while you do an online exercise. This second session will last about half an hour.
- We will be conducting the first sessions during the week of February 9th.
- May I ask you a few questions? This will take less than 10 minutes. Your answers will be kept strictly confidential.

1. What type of work do you do? (recruit a mix of **NON Health related occupations**. If they work in healthcare, go to the **Screener for Healthcare Professionals**):

2. Do you currently speak Chinese with reasonable fluency?

- Yes [continue].
 No [thank and terminate]

3. Can you read both Simplified and Traditional Chinese?

- Not at all [thank and terminate]
- Barely [thank and terminate]
- Yes, reasonably well [continue]
- Yes, very well [continue]

4. How good is your English?

- Very limited [thank and terminate]
- Good enough to have a reasonable conversation with a native English speaker
- Good and sufficient in most situations, but I prefer using my first language when I have a choice
- Very good, as good or almost as good as my Chinese
- I consider English my first language

5. Do you use the Internet to look for information?

- Yes [continue].
- No [thank and terminate]

6. How frequently do you look for information on the Internet?

- Once a week or less [thank and terminate]
- Several times a week [continue]
- Almost every day [continue]

7. Have you ever looked for HEALTH information online?

- Yes [continue].
- No [thank and terminate]

8. What is the highest level of education you've completed? (recruit a mix)

- High School
- Some college
- Associate's degree or trade school
- Bachelor's degree _____
- Graduate degree _____
- Other: _____

9. Which of the following categories includes your age? (recruit a mix)

- Younger than 18 [thank and terminate]
- 18-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70-79
- 80 or older

10. The study sessions will be audio/video recorded, including a recording of you conducting the activities that we ask of you and your discussion with the moderator. Only the team working on this project will use the recording, and your name will not be associated with the recording or other data in any way. You will be asked to sign an informed consent form. Would you be willing to sign a consent form and be recorded?

- Yes [continue]
- No [thank and terminate]

11. How would you like the directions to our office sent to you?

- Email: _____
- Fax: _____
- Over the phone

You are the only person scheduled to participate at [*time & date of session*]. If you are not able to keep this appointment, please call me at 301.431.0500 as soon as possible.

**Telephone Screening Questionnaire
for Healthcare Professionals for the
Lockheed/NLM Asian American Health Web Site Project**

**Moderator: Weimin Hou
Sessions: In person at UserWorks' lab
Dates: Week of February 11-27th, 2009**

Participant's Name: _____

Male Female (Recruit a mix)

Daytime Phone # _____

Evening Phone # _____

Email _____

Recruiter will call candidate participants who either responded to the above announcement or who have come to our attention via personal contacts and paraphrase:

- Hello, my name is _____ and I'm calling from UserWorks, a consulting firm that specializes in the design of web site user interfaces. You recently replied to our announcement about an upcoming web usability study.
- We are doing a project for a federal government agency, getting users' opinions about a web site that presents health information in Asian languages. If you are interested in participating, I would like to ask you a few questions to see if you qualify.
- If you qualify, you would be paid **\$150** for your participation in a study involving two sessions. For the first session, you would come into our facility in Silver Spring, MD, for about an hour and a half. The second session would be done from your home or office, talking to us by phone, while you do an online exercise. This second session will last about half an hour.
- We will be conducting the first sessions during the week of February 9th.
- May I ask you a few questions? This will take less than 10 minutes. Your answers will be kept strictly confidential.

1. What is your job title (what sort of work do you do)?
2. What proportions of your patients/clients/customers (between 0-100%) are of Chinese descendents? _____ (if less than 10%, thank and terminate)

- Physician
- Nurse
- Physician's Assistant
- Nurse Practitioner
- Public Health Educator / Master of Public Health (MPH)
- Medical or public health social worker / Master of Social Work (MSW) / Clinical Social Worker
- Medical librarian
- Other (make a judgment as to whether they are healthcare professionals or defer and get back to them)
- None of the above [thank and terminate]

3. Of these Chinese people, what proportions of them speak English as a second language or not at all?

4. Do you speak Chinese?

- Yes [continue].
- No [recruit a **max** of 4 and ask i below; after that thank and terminate]

i. Do you speak an Asian language?

- Yes [continue].
- No [thank and terminate]

Note to recruiter:

- We want a mix of healthcare professionals:
 - At least 4 who are English and Chinese bilingual, ideally 6
 - A Maximum 4 who do not know Chinese: 1 person who's English speaking only, one who speaks English and another non-Asian language, and 2 who speak English as well as another Asian language.

As of 2/13/09, we should get two professionals who are bilingual in English AND an Asian language, if we failed to find all 6 Chinese-English bilinguals.

5. Do you use the Internet to look for information?

- Yes [continue].
- No [thank and terminate]

6. How often do you use the Internet to find health information?

- Once a week or less [thank and terminate]
- Several times a week
- Almost every day

7. The study sessions will be audio/video recorded, including a recording of you conducting the activities that we ask of you and your discussion with the moderator. Only the team working on this project will use the recording, and your name will not be associated with the recording or other data in any way. You will be asked to sign an informed consent form. Would you be willing to sign a consent form and be recorded?

- Yes [continue]
 No [thank and terminate]

8. How would you like the directions to our office sent to you?

- Email: _____
 Fax: _____
 Over the phone

You are the only person scheduled to participate at [*time & date of session*]. If you are not able to keep this appointment, please call me at 301.431.0500 as soon as possible.

Appendix B: Informed Consent Form

INFORMED CONSENT, VIDEO RELEASE, & NON-DISCLOSURE FORM

Informed Consent

I, _____, freely and voluntarily consent to participate in this usability study under the direction of UserWorks, Inc.

I understand that my participation is completely voluntary and that I may withdraw my consent and discontinue my participation at any time without penalty or prejudice to my business organization or me.

I authorize UserWorks, Inc. to use the findings from this evaluation, with the provision that my name will not be associated with any of the results, for release to the developers of this product.

I have been given the right to ask questions concerning the procedures to be employed during this study and to have these procedures explained to my satisfaction.

Video Recording Release

Video recordings made during this study will be used for research and development. I have been informed that my work during this evaluation will be recorded and viewed by the staff of UserWorks, Inc. and their client.

I give my consent to UserWorks, Inc. and their client to use my recorded image and voice for these purposes, with the provision that my name will not be associated with the recording.

Non-Disclosure

UserWorks and their client regard the information disclosed in this test as proprietary and confidential. I agree not to make public, in any manner, any information obtained as a result of participating in this study.

I have read and understood the foregoing and understand that I may receive a copy of this form on the day of the study.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Appendix C: Participant Demographics

Lay People

No.	Gender	Profession	Currently speak Chinese?	Read Simplified and Traditional Chinese?	How good is your English?	Look for info online?	Frequency?	Look for health info online?	Education	Age
P1	male	Chemical Engineer	yes	yes very well	very good	yes	almost every day	yes	PhD	40-49
P2	female	Systems Analyst	yes	yes reasonably well	very good	yes	almost every day	yes	Bachelor	50-59
P3	female	Internet Specialist	yes	yes reasonably well	very good	yes	almost every day	yes	Bachelor	60-69
P4	female	Web Developer	yes	yes very well	good and sufficient	yes	almost every day	yes	Master	30-39
P5	female	Teaching Assistant	yes	yes very well	very good	yes	almost every day	yes	Master	18-29
P6	male	Civil Engineer	yes	yes very well	very good	yes	almost every day	yes	PhD	30-39
P7	male	Grad Student	yes	yes very well	good and sufficient	yes	almost every day	yes	Bachelor	18-29
P8	male	Grad Student	yes	yes very well	good and sufficient	yes	almost every day	yes	Bachelor	18-29

Health Care Professionals

No.	Gender	Job title?	Proportions of patients from Asian countries	Speak an Asian language?	Look for info online?	Frequency to find health info
Prof1	female	RN-Oncology RN- Nurse	20%	No, Spanish	yes	almost every day
Prof2	female	Educator	50%	no	yes	several time a week
Prof3	male	Physician	10%	Yes, Chinese	yes	several time a week
Prof4	male	Physician Physician's	10%	Yes, Chinese	yes	several time a week
Prof5	female	Assistant	50%	Yes, Chinese	yes	almost every day
Prof6	female	RN	70%	Yes, Chinese	yes	several time a week
Prof7	female	Physician	10%	Yes, Chinese	yes	almost every day
Prof8	female	Plastic Surgeon	10%	Yes, Taiwanese	yes	almost every day

Appendix D: Sample Card from Phase I Card Sort

4

Anemia: When Your Red Blood Cells Are Very Low

Red blood cells carry oxygen to all parts of your body. Anemia is usually a temporary condition caused by chemotherapy, and/or radiation treatments. Other causes might be blood loss, tumor spread into the bone marrow...

Being anemic may cause you to feel very tired physically and emotionally, extreme weakness, headache, paleness, and sleep problems.

Call your doctor right away for trouble breathing; fast heartbeat; chest pain, dizziness, and loss of concentration or confusion.

Things to do include deciding what activities are important to you and saving your energy for those tasks, balancing activity and rest, getting plenty of rest...

For more suggestions about Fatigue, see Inova Cancer Services “Managing Fatigue During the Cancer Experience” pamphlet.

1-page fact sheet in PDF revised in 2004

Inova Cancer Services

Appendix E: Titles of Healthcare Articles/Web Sites Used in Phase I

(Note: There were the titles of the cards that were sorted)

1. A New Pathway to Women's Health
2. Aging, Medicines, and Alcohol
3. All Kids Need Hepatitis B Shots!
4. Anemia: When Your Red Blood Cells Are Very Low
5. Asian Food Pyramid
6. Avian Influenza (“Bird Flu”)
7. Bone Health and Osteoporosis: A Guide for Asian Women Aged 50 and Older
8. Breast Cancer Screening: Things To Know About Quality Mammograms
9. Calcium and Vitamin D: Important at Every Age
10. Cancer Facts for Men
11. Cancer Facts for Women
12. Chinese Hepatitis B Website
13. Coronary Artery Disease
14. Diabetes Meal Planning for the Chinese American Client
15. Diabetes, Smoking, and Your Health
16. Exercise for Your Bone Health
17. Fight BAC!
18. Five Lifesaving Things You Can Do
19. Good Mental Health Is Ageless
20. Health Education Information
21. Heart Failure
22. Helping Yourself Heal: A Recovering Woman’s Guide to Coping With Childhood Abuse Issues
23. Hemoglobin H (Hgb H) Disease
24. Hepatitis B: What Asian Americans Need to Know
25. Hints For a Healthy Mouth: Birth to 24 Months
26. HIV/AIDS Treatment Information in Asian Languages
27. Information for Patients Scheduled for Mammogram
28. Information for Patients Scheduled for Obstetrical or Pelvic Ultrasound
29. Inhalant Abuse: Your Child at Risk
30. Know Your Blood Sugar Numbers
31. Osteoporosis in Men
32. Reducing Risk of Childhood Overweight Among Immigrant Families from Asia
33. Social Security Online: Multilanguage Gateway - Chinese
34. Steps to Enhance Communication: Interacting with Persons with Alzheimer's Disease
35. Steps To Manage Your Diabetes
36. Talking About Lupus
37. Ten Least Wanted Pathogens
38. Understanding Hepatitis B Blood Tests
39. Water Safety For Children Birth to Five Years
40. What Is An Eating Disorder
41. You Can Prevent Colorectal Cancer

Appendix F: Moderator's Guide for Phase I Study

Moderator's Guide for Lockheed Martin / NLM Asian American Health Website Card Sorting Activity - Phase I 2/11/09

1. Preparation

- 1) The 41 cards with the selected AAH content are numbered (they may also be labeled with barcodes).
- 2) They are shuffled prior to participants entering the room.
- 3) On the table, there are:
 - a. The shuffled cards pertaining to healthcare
 - b. A small deck of shuffled cards with fruits and vegetables for use in the food market example
 - c. A stack of blank cards
 - d. An ink pen
 - e. A notepad
 - f. A pile of the printed reference documents in English and Chinese, in order by number (for participants to refer to as they wish)

2. Introduction (< 5 mins)

Thank you very much for coming today. As you may be aware, we're helping a federal government agency better organize its web content on Asian American health. In order to make it as easy to use as possible, we'd like to get some input from typical users. And that's where you come in. Today's session will run between 60-90 minutes, and we will ask you to conduct **three** different activities.

- 1) First, I will ask you some questions regarding your experience in using the Internet to look for health related information.
- 2) Then I would like you to do a sorting exercise that will give us some insight into how we can better organize the sample content from the web site that we are interested in.
- 3) Finally I will ask you some questions about your experience with the sorting exercise.

You have read through the Consent Form, so you know this session will be recorded. I will now turn on the recording.

TURN ON THE VIDEO RECORDING!

3. Pre-task Interview Questions (5 – 10 mins)

[Review the participant's screener and clarify or get more detail about any responses of interest.]

- 1) How often would you say you look for health information on the Internet?
- 2) How do you look for health information online in English?
 - a. Browse or search?
 - b. Which websites do you use?

- c. For what purposes do you look for this information in English, if you do not mind me asking?
- 3) How do you look for health information online in another language?
 - a. What language(s) do you know?
 - b. Browse or search?
 - c. Which web sites do you use?
 - d. For what purposes do you look for this information in this language?

4. Card-sorting (45 – 60 min)

Now I would like to ask you to perform a sorting exercise. We would like you to sort a deck of cards into groups based on which ones you would expect to find together. **Here is a simple example.** These are cards of some items sold in a typical food market: apples, cucumbers, broccoli, pears, watermelons, blueberries, strawberries, blackberries, carrots, lettuce, and mushroom. If we ask you to organize these cards into groups, one way to group them is to put them into two groups and name them respectively **Fruits** and **Vegetables** (*laying out the cards on top of one another with only the titles showing and putting the labels on the top of the groups*). In addition, you can create a sub-group called **Berries** within the Fruits group, which can include blueberries, strawberries, and blackberries (*indicating a sub-group by using indentation*). You could also create a sub-group called **Leafy Vegetables** for the Vegetable group. Alternatively, you can group all the cards by the **color** of the fruits or vegetables, such as green, orange, red, and white, or group them by whether or not they have **seeds**. Other totally acceptable method might be to sort by **pizza toppings vs. pie fillings**, or **items that grow in trees vs. those that grow in the ground**. To summarize, what we are interested in is what features of these items you would expect to find them grouped by.

Now here is what we'd like you to do for this study. In front of you is a stack of cards. Each of these cards represents a piece of content selected from the website of interest. The cards do not cover ALL the website content, but they do represent a good portion of the site. Each piece of content provides information on some aspect of Asian American health available in both English and Chinese. Some of the material is also available in other Asian languages. **The piece of content might be an article, a brochure, a fact sheet, or a website.** We want you to sort these cards into piles of content that you would expect to find together, based on whatever information on the cards that you think important; that is, whatever characteristics you would expect them to be grouped by.

Here is **an example article and the card** associated with it. [*Holding up the printed document*] This is an actual piece of health related content selected from the website that we are working on. It is entitled "Cancer" and published by Health Information Translations. Since it takes a lot of time for you to read through the actual resources, we selected some excerpts from the articles and put them on these cards. The selected excerpts that we used on the cards are highlighted in yellow in the article. Please look at both the article and corresponding card and let me know if you have any questions.

We have all the material printed out here for you to refer to if you wish. You can see that each card consists of excerpts from the piece of content as well as a number. You can use the number

to find the actual resource from this pile of printed documents (*point to the pile of the reference documents*). There are altogether 41 cards, so here are 41 pieces of health related content, available in both English and Chinese.

Again we'd like you to sort the cards into groups (piles) that make sense to you or groups of this material that you would expect to find together. There is no right or wrong answers, but **it is VERY important that you take time to look through all the information on the cards before you start sorting. We are interested in what features of these materials that you use to categorize them.**

1. You can make as many groups as you want, and there is no minimum number of cards that must go into any one group.
2. Feel free to make sub-groups if you feel that is appropriate.
3. You can put a given card in more than one pile if you wish. To do that just copy the number onto a blank card with a note to remind yourself of what that numbered card is about.
4. If you think something doesn't belong, you can make an "outlier" pile.
5. Once your groups are established, I'd like you to give each group a name or label that makes sense to you. You can write the name of each group on one of these blank cards and place it on top of the pile (*demonstrate*).
6. Finally, if a title on the current card is unclear, feel free to write a better title on the card.

You can use the post-it stickers to add notes on the cards, if you find it helpful. You can also make notes to yourself on this notepad if that will help.

An important reminder: During the exercise, please try to share with me any thoughts that you have regarding the decisions that you make and any difficulties that you encounter. I will ask you to tell me what you are thinking if you are silent.

One last thing, please feel free to ask questions during the exercise if you have any. If you would like to know the Chinese translation of a certain term or word during the sorting exercise, I can translate it for you.

Are you ready?

Moderator's reminders:

- 1) *Probes:*
 - a. *What unifies all these cards together?*
 - b. *What questions are you asking yourself now?*
 - c. *Are you encountering any difficulties?*
- 2) *If the participants mention "cross-linking," pass a blank card for them to duplicate the card and put into the right piles*
- 3) *If the participants make a quick initial pass through the cards and obviously are not reading all the information on the cards, ask them what strategy they are using. If they say they will come back and read the information more carefully after an initial pass, let them do that. If not, remind them to take into account all of the information on the cards,*

because they may want to consider different aspects of this information for categorizing the cards. Again offer them post-it notes or notepad if they want to take notes.

Once the participants label all the groups that they have come up with, ask:

- a. Can you think of synonyms of these group names?
 - 1) If so, please write all the other possible group names on the same card.
- b. Depending on the actual number of piles
 - 1) Can some of these groups that you created be further divided into smaller groups?
 - If yes, what group names can they be?
 - 2) Can some of these groups that you created be grouped together to form bigger groups that make sense to you?
 - If yes, what group names can they be?

5. Post-Task Interview Questions (10 – 15 min)

- 1) [*Assuming we have them “think-aloud” during the exercise*] What more would you like to add regarding the reasons why you grouped the cards as you did?
- 2) What content on the card – Excerpts from the content, File Format, and Agency that published it – helped you make this grouping decision?
 - a. The most important field?
 - b. The least important field?
 - c. Is there some fields/information that you think important but currently missing on the cards?
- 3) What types of cards were easy to group?
- 4) What types of cards were difficult to group?
- 5) If we asked you to redo this activity, could you think of a different way of grouping the cards?
- 6) If you knew the existence of a website that has health information translated in the Asian languages, would you use it?
 - a. If yes, what information would you hope to find there?
 - b. For what purpose would you use a site like that?
- 7) Do you have more comments to add regarding your experience today?

6. Payment information

We will be calling you within two weeks to do a follow up session by phone and Internet. The follow up session will only take about 20 – 30 minutes. The payment check will be sent by mail to the address that you indicated within two business days after your participation in the second session.

(Ask for the phone number) Thanks again for coming today!

STOP RECORDING!

Appendix G: Categories Into Which Each Participant Sorted Each Card

Notes: (The category labels were created by the participants, i.e., this was an “open” card sort)

(The columns labeled Sort1, Sort2, etc correspond to Participant 1, Participant 2, etc.)

(Sort1 through Sort8 are lay participants; Sort9 through Sort16 are healthcare professionals)

Lay Participants:

Card	Card name	Sort1	Sort2	Sort3	Sort4	Sort5	Sort6	Sort7	Sort8
1	A New Pathway to Women's Health	Cancer and its Prevention: Cancer for Women	Women Health: Cancer	Women	Gender Related	Information for different people: Women: Cancer	Cancer: For women	General Health Information	Cancer
2	Aging, Medicines, and Alcohol	Overcome Aging and Related Health Issues	Mental Health	Food	Age Group: Age 50+	Information for different people: For elderly adults	General Health: Healthy style	General Health Information: Older	Medicines
3	All Kids Need Hepatitis B Shots!	Hepatitis B for Children	Children Health: Hepatitis	Disease: Hepatitis B	Disease Hepatitis B	Information for different people: Children	General health to children/baby	Methods/Ways (Screen/Cure): Methods to cure disease	Hepatitis B
4	Anemia: When Your Red Blood Cells Are Very Low	Cancer and its Prevention: Other Types of Cancers	General Health Issues: Blood Disease	Disease	Diseases to help self diagnose	Diseases: Anemia	Anemia	Facts/Health Facts: Blood Disease	Blood
5	Asian Food Pyramid	Eat Smart	Food, Nutrition, and Medications	Food	Prevention non disease related	Information for different people: General Tips for All People	General Health: Educational	General Health Information: Diet advice/suggestion	Foodborne Bacteria/Eating Disorder/All About Food
6	Avian Influenza ("Bird Flu")	Information for common Deadly diseases and illness	Bacterial, Virus (Flu), Infectious Diseases	Disease	Informational but not specific to	Diseases: Avian Influenza ("Bird Flu")	Epidemic (Infectious)	Facts/Health Facts	Hot-topic (Popular) Diseases
7	Bone Health and Osteoporosis: A Guide for Asian Women Aged 50 and Older	Overcome Aging and Related Health Issues	Women Health: Bone Diseases	Women	Age Group: Age 50+	Information for different people: For elderly adults	Bone	General Health Information: Older	Osteoporosis
8	Breast Cancer Screening: Things To Know About Quality Mammograms	Cancer and its Prevention: Cancer for Women	Women Health: Cancer	Women	Instructional	Information for different people: Women: Cancer	Cancer: For women	Methods/Ways (Screen/Cure): Screening Disease	Cancer

9	Calcium and Vitamin D: Important at Every Age	Important nutrition	Food, Nutrition, and Medications	Food	Prevention non disease related	Information for different people: For elderly adults	General Health: Educational	Facts/Health Facts: Osteoporosis <-> calcium/Vitamin D	Good Things for Health
10	Cancer Facts for Men	Cancer and its Prevention: Cancer for Men	Men's Health: Cancer	Men	Gender Related	Information for different people: Men: Cancer	Cancer: For men	Facts/Health Facts: Cancer	Cancer
11	Cancer Facts for Women	Cancer and its Prevention: Cancer for Women	Women Health: Cancer	Women	Gender Related	Information for different people: Women: Cancer	Cancer: For women	Facts/Health Facts: Cancer	Cancer
12	Chinese Hepatitis B Website	Hepatitis B for Chinese	Children Health: Hepatitis	Related resources	Disease Hepatitis B	Diseases: Hepatitis B	Epidemic (Infectious): Sexual transfer: Hepatitis B	Facts/Health Facts: Hepatitis B	Hepatitis B
13	Coronary Artery Disease	Information for common Deadly diseases and illness	Men's Health: Heart Disease	Disease	Diseases to help self diagnose	Diseases: Heart Disease	Heart	Facts/Health Facts: Heart disease	Heart Failure
14	Diabetes Meal Planning for the Chinese American Client	Diabetes and its Management	General Health Issues: Diabetes	Disease: Diabetes	Disease Diabetes	Diseases: Diabetes	Diabetes	General Health Information: Diet advice/suggestion	Diabetes
15	Diabetes, Smoking, and Your Health	Diabetes and its Management	General Health Issues: Diabetes	Disease: Diabetes	Disease Diabetes	Diseases: Diabetes	Diabetes	General Health Information	Diabetes
16	Exercise for Your Bone Health	Overcome Aging and Related Health Issues	Men's Health: Bone Disease	Exercise	Disease Osteoporosis	Information for different people: For elderly adults	Bone	General Health Information: Older	Osteoporosis
17	Fight BAC!	Bad Eating Habits	Bacterial, Virus (Flu), Infectious Diseases	Bacteria	Informational but not specific to	Diseases: Diseases caused by food	General Health: Educational	Methods/Ways (Screen/Cure): Methods to cure disease	Foodborne Bacteria/Eating Disorder/All About Food
18	Five Lifesaving Things You Can Do	Health Education Information: Other Matters for Better Family Health	Health Education Info	Food	Prevention non disease related	Information for different people: General Tips for All People	General Health: Healthy style	Methods/Ways (Screen/Cure)	Good Things for Health
19	Good Mental Health Is Ageless	Overcome Aging and Related Health Issues	Mental Health	Mental Health	Mental health	Information for different people: General Tips for All People	Mental health	General Health Information	Mental/Mental Health/Mental Disease

20	Health Education Information	Health Education Information	Health Education Info	Related resources	Informational but not specific to	Information for different people: Women: Cancer	Helpline	General Health Information	Heart Failure
21	Heart Failure	Information for common Deadly diseases and illness	Men's Health: Heart Disease	Disease	Prevention non disease related	Diseases: Heart Disease	Heart	Facts/Health Facts: Heart disease	Heart Failure
22	Helping Yourself Heal: A Recovering Woman's Guide to Coping With Childhood Abuse Issues	Health Education Information: Other Matters for Better Family Health	Mental Health	Women	Mental health	Information for different people: Women	Mental health	Methods/Ways (Screen/Cure)	Mental/Mental Health/Mental Disease
23	Hemoglobin H (Hgb H) Disease	Information for common Deadly diseases and illness	General Health Issues: Blood Disease	Disease	Diseases to help self diagnose	Diseases: Hemoglobin H (Hgb H) Disease	Anemia	Facts/Health Facts: Blood Disease	Blood
24	Hepatitis B: What Asian Americans Need to Know	Information on Hepatitis B	Children Health: Hepatitis	Disease: Hepatitis B	Disease Hepatitis B	Diseases: Hepatitis B	Epidemic (Infectious): Sexual transfer: Hepatitis B	Facts/Health Facts: Hepatitis B	Hepatitis B
25	Hints For a Healthy Mouth: Birth to 24 Months	Health Education Information: Health Education for Babies and Children	Children Health: Oral Hygiene	Children	Age Group: Children	Information for different people: Children	General health to children/baby	General Health Information: Children	Children's Health
26	HIV/AIDS Treatment Information in Asian Languages	Information for common Deadly diseases and illness	Health Education Info	Related resources	Informational but not specific to	Diseases: HIV/AIDS	Epidemic (Infectious): Sexual transfer	Methods/Ways (Screen/Cure)	Hot-topic (Popular) Diseases
27	Information for Patients Scheduled for Mammogram	Cancer and its Prevention: Cancer for Women	Women Health: Cancer	Women	Instructional	Information for people schedule with an examination	Cancer: For women	General Health Information: Mammogram	Cancer
28	Information for Patients Scheduled for Obstetrical or Pelvic Ultrasound	Cancer and its Prevention: Other Types of Cancers	Women Health: Cancer	Women	Instructional	Information for people schedule with an examination	Bone	Hospital (Schedule, test)/Prepare for tests	Women Pregnancy (Obstetrical or Pelvic Ultrasound)

29	Inhalant Abuse: Your Child at Risk	Health Education Information: Health Education for Babies and Children	Children Health: Drug Abuse	Children	Age Group: Children	Information for different people: Children	General health to children/baby	Facts/Health Facts	Children's Health
30	Know Your Blood Sugar Numbers	Diabetes and its Management	General Health Issues: Diabetes	Disease: Diabetes	Disease Diabetes	Diseases: Diabetes	Diabetes	Methods/Ways (Screen/Cure)	Blood
31	Osteoporosis in Men	Overcome Aging and Related Health Issues	Men's Health: Bone Disease	Men	Disease Osteoporosis	Information for different people: For elderly adults	Bone	Facts/Health Facts: Osteoporosis <-> calcium/Vitamin D	Osteoporosis
32	Reducing Risk of Childhood Overweight Among Immigrant Families from Asia	Bad Eating Habits	Children Health: Weight Issues	Children	Age Group: Children	Information for different people: Children	General health to children/baby	Methods/Ways (Screen/Cure)	Foodborne Bacteria/Eating Disorder/All About Food
33	Social Security Online: Multilanguage Gateway - Chinese	Health Education Information: Other Matters for Better Family Health	Need Help From Government (Misc Issue)	Related resources		Information for different people: General Tips for All People	Helpline	General Health Information	Health Care in Government
34	Steps to Enhance Communication: Interacting with Persons with Alzheimer's Disease	Information for common Deadly diseases and illness	Mental Health	Mental Health	Instructional	Diseases: Alzheimer's Disease	Alzheimer	Methods/Ways (Screen/Cure)	Mental/Mental Health/Mental Disease
35	Steps To Manage Your Diabetes	Diabetes and its Management	General Health Issues: Diabetes	Disease: Diabetes	Disease Diabetes	Diseases: Diabetes	Diabetes	Methods/Ways (Screen/Cure): Methods to cure disease	Diabetes
36	Talking About Lupus	Information for common Deadly diseases and illness	General Health Issues: Lupus	Disease	Prevention non disease related	Diseases: Lupus	Lupus	Facts/Health Facts	Hot-topic (Popular) Diseases
37	Ten Least Wanted Pathogens	Information for common Deadly diseases and illness	Bacterial, Virus (Flu), Infectious Diseases	Bacteria	Prevention non disease related	Diseases: Diseases caused by food	General health to children/baby	General Health Information	Foodborne Bacteria/Eating Disorder/All About Food
38	Understanding Hepatitis B Blood Tests	Information on Hepatitis B	Children Health: Hepatitis	Disease: Hepatitis B	Disease Hepatitis B	Information for people schedule with an examination	Epidemic (Infectious): Sexual transfer: Hepatitis B	General Health Information: Hepatitis B	Hepatitis B

39	Water Safety For Children Birth to Five Years	Health Education Information: Health Education for Babies and Children	Children Health: Hepatitis	Children	Age Group: Children	Information for different people: Children	General health to children/baby	General Health Information: Children	Children's Health
40	What Is An Eating Disorder	Bad Eating Habits	Mental Health	Mental Health	Diseases to help self diagnose	Diseases: Eating Disorder	General Health: Educational	Facts/Health Facts	Foodborne Bacteria/Eating Disorder/All About Food
41	You Can Prevent Colorectal Cancer	Cancer and its Prevention: Other Types of Cancers	Men's Health: Cancer	Disease	Prevention non disease related	Information for different people: Women: Cancer	Cancer	Methods/Ways (Screen/Cure)	Cancer

Health Professional Participants:

Card	Card name	Sort9	Sort10	Sort11	Sort12	Sort13	Sort14	Sort15	Sort16
1	A New Pathway to Women's Health	Cancer: Women	Women's Health	Cancer	Cancer: Cancer of Women	Women's Health	Diseases Prevention: Diseases Regarding Women	Cancer: Women's Cancer: Cervical Cancer	Women's Health: Cancer
2	Aging, Medicines, and Alcohol	Aging: Aging and its effects on clearance of alcohol	Health Maintenance	Preventative/Staying healthy	Aging/Aging body	Aging Health	Prevention regarding lifestyle: Others Regarding Alcohol, Emotion, Pathogens	Aging	Women's Health: Aging
3	All Kids Need Hepatitis B Shots!	Hepatitis B	Pediatrics	Child/Youth Issues	Infectious Disease: Hepatitis	Hepatitis B	Diseases Prevention: Prevention for Children	Health related to children	Children's Health
4	Anemia: When Your Red Blood Cells Are Very Low	Anemia	Diseases/Disease Information	Anemia (Blood)	Cardiovascular	Anemia	Diseases Prevention: Prevention of Blood System	Health Information Related to Asian Americans: Anemia	Women's Health: Anemia
5	Asian Food Pyramid	Cancer: Women: Colon Cancer Prevention	Asian /Asian Related/Specific	Food & vitamin	Healthy Eating	Asia Disease	Prevention regarding lifestyle: Food	Health Information Related to Asian Americans: Eating	Asian Diet

6	Avian Influenza ("Bird Flu")	Viruses	Infection/Hepatitis/HIV	Diseases condition disorder	Infectious Disease	Asia Disease	Diseases Prevention: Other diseases prevention information	Avian Flu	Women's Health: Avian influenza (bird flu)
7	Bone Health and Osteoporosis: A Guide for Asian Women Aged 50 and Older	Bone Health/Osteoporosis: Women	Women's Health	Older/Aging	Rheumatology: Osteoporosis in Women	Women's Health	Diseases Prevention: Diseases Regarding Women	Aging: Osteoporosis	Women's Health: Osteoporosis
8	Breast Cancer Screening: Things To Know About Quality Mammograms	Cancer: Women: Screening Tests for Breast Cancer	Women's Health	Health Tests	Cancer: Cancer of Women	Women's Health	Diseases Prevention: Diseases Regarding Women: Diagnosis regarding women's diseases	Cancer: Women's Cancer: Breast Cancer	Women's Health: Cancer
9	Calcium and Vitamin D: Important at Every Age	Bone Health/Osteoporosis: Men	Health Maintenance	Food & vitamin	Rheumatology	Women's Health	Prevention regarding lifestyle: Food	Aging: Osteoporosis	Women's Health: Osteoporosis
10	Cancer Facts for Men	Cancer: Men	Men's Health	Cancer	Cancer: Cancer of Men	Cancer	Diseases Prevention: Diseases Regarding Men	Cancer: Men's Cancer	Men's Health: Cancer
11	Cancer Facts for Women	Cancer: Women	Women's Health	Cancer	Cancer: Cancer of Women	Cancer	Diseases Prevention: Diseases Regarding Women	Cancer: Women's Cancer	Women's Health: Cancer
12	Chinese Hepatitis B Website	Hepatitis B	Asian /Asian Related/Specific	Hepatitis	Infectious Disease: Hepatitis	Hepatitis B	Diseases Prevention: Prevention of Hepatitis	Health Information Related to Asian Americans: Hepatitis	Women's Health: Hepatitis B
13	Coronary Artery Disease	Heart Health	Diseases/Disease Information	Diseases condition disorder	Cardiovascular	Heart Disease	Diseases Prevention: Prevention of cardiovascular system	Heart diseases	Women's Health: Heart Disease

14	Diabetes Meal Planning for the Chinese American Client	Diabetes: Diet	Disease Prevention: Diabetes	Diabetes	Diabetes	Diabetes	Diseases Prevention: Related to Diabetes	Diabetes	Women's Health: Diabetes
15	Diabetes, Smoking, and Your Health	Diabetes	Disease Prevention: Diabetes	Diabetes	Diabetes	Diabetes	Diseases Prevention: Related to Diabetes	Diabetes	Women's Health: Diabetes
16	Exercise for Your Bone Health	Bone Health/Osteoporosis: Men	Health Maintenance	Preventative/Staying healthy	Rheumatology	Women's Health	Prevention regarding lifestyle: Exercise	Aging: Osteoporosis	Women's Health: Osteoporosis
17	Fight BAC!	Foodborne Illness	Disease Prevention	Preventative/Staying healthy	Health Education Is Important	Food Safety	Prevention regarding lifestyle: Food	Food related Pathogens	Asian Diet
18	Five Lifesaving Things You Can Do	Living Longer/Healthy Lifestyle	Health Maintenance	Preventative/Staying healthy	Health Education Is Important	Cancer	Prevention regarding lifestyle: Others Regarding Alcohol, Emotion, Pathogens	Cancer: Women's Cancer: Cervical Cancer	Women's Health: Aging
19	Good Mental Health Is Ageless	Mental Health	Health Maintenance	Mental Health	Psychological	Mental Health	Prevention regarding lifestyle: Others Regarding Alcohol, Emotion, Pathogens	Mental Health	Mental Health
20	Health Education Information	Bone Health/Osteoporosis: Men	Disease Prevention	Health education	Health Education Is Important	Diabetes	General Information Resources	Health Information Related to Asian Americans	Health Education Information
21	Heart Failure	Heart Health	Diseases/Disease Information	Diseases condition disorder	Cardiovascular	Heart Disease	Diseases Prevention: Prevention of cardiovascular system	Heart diseases	Women's Health: Heart Disease
22	Helping Yourself Heal: A Recovering Woman's Guide to Coping With Childhood Abuse Issues	Mental Health: Mental Health Disorders	Women's Health	Mental Health	Psychological	Mental Health	Diseases Prevention: Prevention for Children	Mental Health	Mental Health

23	Hemoglobin H (Hgb H) Disease	Anemia	Diseases/Disease Information	Anemia (Blood)	Cardiovascular	Anemia	Diseases Prevention: Prevention of Blood System	Health Information Related to Asian Americans: Anemia	Women's Health: Anemia
24	Hepatitis B: What Asian Americans Need to Know	Hepatitis B	Diseases/Disease Information	Hepatitis	Infectious Disease: Hepatitis	Hepatitis B	Diseases Prevention: Prevention of Hepatitis	Health Information Related to Asian Americans: Hepatitis	Women's Health: Hepatitis B
25	Hints For a Healthy Mouth: Birth to 24 Months	Children's Health	Pediatrics	Child/Youth Issues	Childhood Health	Children (birth-5 years)	Diseases Prevention: Prevention for Children	Health related to children	Children's Health
26	HIV/AIDS Treatment Information in Asian Languages	HIV/Aids	Asian /Asian Related/Specific	Diseases condition disorder	Infectious Disease	Asia Disease	Diseases Prevention: Other diseases prevention information	Immune Diseases	Women's Health: HIV/AIDS
27	Information for Patients Scheduled for Mammogram	Cancer: Women: Screening Tests for Breast Cancer	Women's Health	Health Tests	Cancer: Cancer of Women	Women's Health	Diseases Prevention: Diseases Regarding Women: Diagnosis regarding women's diseases	Cancer: Women's Cancer: Breast Cancer	Women's Health: Cancer
28	Information for Patients Scheduled for Obstetrical or Pelvic Ultrasound	Cancer: Women: Screening Tests for Breast Cancer	Women's Health	Health Tests	Diagnostic Tests	Women's Health	Diseases Prevention: Diseases Regarding Women: Diagnosis regarding women's diseases	Cancer: Women's Cancer: Cervical Cancer	Women's Health: Cancer
29	Inhalant Abuse: Your Child at Risk	Children's Health	Pediatrics	Child/Youth Issues	Psychological	Mental Health	Diseases Prevention: Prevention for Children	Health Information Related to Asian Americans	Children's Health

30	Know Your Blood Sugar Numbers	Diabetes	Disease Prevention: Diabetes	Diabetes	Diabetes	Diabetes	Diseases Prevention: Related to Diabetes	Diabetes	Women's Health: Diabetes
31	Osteoporosis in Men	Bone Health/Osteoporosis: Men	Men's Health	Diseases condition disorder	Rheumatology: Osteoporosis in Men	Osteoporosis	Diseases Prevention: Diseases Regarding Men	Aging: Osteoporosis	Men's Health: Osteoporosis
32	Reducing Risk of Childhood Overweight Among Immigrant Families from Asia	Children's Health: Obesity in children	Pediatrics	Child/Youth Issues	Psychological	Asia Disease	Diseases Prevention: Prevention for Children	Health Information Related to Asian Americans: Eating	Children's Health
33	Social Security Online: Multilanguage Gateway - Chinese	Social Security - Who qualifies?	WEB link	Older/Aging	Aging/Aging body	Asia Disease	General Information Resources	Aging	Social Security Online
34	Steps to Enhance Communication: Interacting with Persons with Alzheimer's Disease	Aging: Alzheimer	Aging	Older/Aging	Aging/Aging body	Aging Health	Diseases Prevention: Other diseases prevention information	Aging: Alzheimer's	Women's Health: Alzheimer's
35	Steps To Manage Your Diabetes	Diabetes	Disease Prevention: Diabetes	Diabetes	Diabetes	Diabetes	Diseases Prevention: Related to Diabetes	Diabetes	Women's Health: Diabetes
36	Talking About Lupus	Lupus	Diseases/Disease Information	Diseases condition disorder	Rheumatology	Asia Disease	Diseases Prevention: Other diseases prevention information	Health Information Related to Asian Americans	Women's Health: Lupus
37	Ten Least Wanted Pathogens	Foodborne Illness	Disease Prevention	Preventative/Staying healthy	Health Education Is Important	Food Safety	Prevention regarding lifestyle: Others Regarding Alcohol, Emotion, Pathogens	Food related Pathogens	Asian Diet
38	Understanding Hepatitis B Blood Tests	Hepatitis B	Disease Prevention	Health Tests	Infectious Disease: Hepatitis	Hepatitis B	Diseases Prevention: Prevention of Hepatitis	Hepatitis	Women's Health: Hepatitis B

39	Water Safety For Children Birth to Five Years	Children's Health	Pediatrics	Child/Youth Issues	Childhood Health	Children (birth-5 years)	Diseases Prevention: Prevention for Children	Health related to children	Children's Health
40	What Is An Eating Disorder	Mental Health: Mental Health Disorders	Diseases/Disease Information	Diseases condition disorder	Psychological	Mental Health	Prevention regarding lifestyle: Food	Mental Health	Mental Health
41	You Can Prevent Colorectal Cancer	Cancer: Women: Colon Cancer Prevention	Disease Prevention	Preventative/Staying healthy	Cancer	Cancer	Diseases Prevention: Other diseases prevention information	Cancer: Women's Cancer: Colorectal Cancer	Women's Health: Cancer

Appendix H: First, Second, and Third Most Common Standardized Categories Into Which Each Card Was Grouped in Phase I

Card Name	Most Common Standardized Category, Count	Second Most Common Standardized Category, Count	Third Most Common Standardized Category, Count
A New Pathway to Women's Health	Demographic Groups: Women, 9	Diseases: Cancers, 5	N/A
Aging, Medicines, and Alcohol	Demographics: Seniors, 4	Health Maintenance, 3	N/A
	Aging, 4		N/A
All Kids Need Hepatitis B Shots!	Demographic Groups: Children & Youth, 8	Diseases: Hepatitis, 7	N/A
Anemia: When Your Red Blood Cells Are Very Low	Diseases Blood Diseases/Hematology, 9	Diseases, 2	N/A
		Diseases: Anemia, 2	N/A
Asian Food Pyramid	Food & Nutrition, 9	Demographic Groups: Asian Specific, 2	N/A
		Health Education Resources, 2	N/A
Avian Influenza ("Bird Flu")	Diseases: Infectious Diseases, 4	Diseases: Avian Influenza ("Bird Flu"), 2	N/A
		Diseases: Other, 2	N/A
		Diseases, 2	N/A
Bone Health and Osteoporosis: A Guide for Asian Women Aged 50 and Older	Demographic Groups: Women, 6	N/A	N/A
		Demographic Groups: Seniors, 4	N/A
Breast Cancer Screening: Things To Know About Quality Mammograms	Demographic Groups: Women, 6	Diagnostic Tests, 5	Diseases: Cancers, 3
Calcium and Vitamin D: Important at Every Age	Diseases: Bone Diseases/ Osteoporosis/ Rheumatology, 4	Food and Nutrition, 2	N/A
		Health Maintenance, 2	N/A
Cancer Facts for Men	Demographic Groups: Men, 8	Diseases: Cancer, 7	N/A
Cancer Facts for Women	Demographic Groups: Women, 9	Diseases: Cancer, 7	N/A
Chinese Hepatitis B Website	Diseases: Hepatitis, 12		N/A
Coronary Artery Disease	Diseases: Heart/Cardiovascular Diseases, 10	Diseases, 2	N/A
Diabetes Meal Planning for the Chinese American Client	Diseases: Diabetes, 13	N/A	N/A
Diabetes, Smoking, and Your Health	Diseases: Diabetes, 14	N/A	N/A
Exercise for Your Bone Health	Diseases: Bone Diseases/ Osteoporosis/ Rheumatology, 7	Demographic Groups: Seniors, 2	N/A
Fight BAC!	Food & Nutrition, 5	Diseases: Food Borne Illness, 3	N/A

Five Lifesaving Things You Can Do	Health Maintenance, 6	Health Education Resources, 3	Diseases Prevention, 2
Good Mental Health Is Ageless	Mental Health, 11		N/A
Health Education Information	Health Education Resources, 9		N/A
Heart Failure	Diseases: Heart/Cardiovascular Diseases, 11	Diseases, 3	N/A
Helping Yourself Heal: A Recovering Woman's Guide to Coping With Childhood Abuse Issues	Mental Health, 11	Demographic Groups: Women, 3	N/A
Hemoglobin H (Hgb H) Disease	Diseases: Blood Diseases/ Hematology, 9	Diseases: Anemia, 2	N/A
Hepatitis B: What Asian Americans Need to Know	Diseases: Hepatitis, 12	N/A	N/A
Hints For a Healthy Mouth: Birth to 24 Months	Demographic Groups: Children & Youth, 8	N/A	N/A
HIV/AIDS Treatment Information in Asian Languages	Diseases: HIV/ AIDS, 3	Demographic Groups: Asian Specific, 2	N/A
	Health Education Resources, 3		N/A
Information for Patients Scheduled for Mammogram	Demographic Groups: Women, 6	Diseases: Cancers, 3	N/A
	Diagnostic Tests, 6		
Information for Patients Scheduled for Obstetrical or Pelvic Ultrasound	Diagnostic Tests, 7	Demographic Groups: Women, 3	Diseases: Cancers, 2
Inhalant Abuse: Your Child at Risk	Demographic Groups: Children & Youth, 8	Mental Health, 2	N/A
Know Your Blood Sugar Numbers	Diseases: Diabetes, 13	N/A	N/A
Osteoporosis in Men	Diseases: Bone Diseases/ Osteoporosis/ Rheumatology, 8	Demographic Groups: Men, 5	N/A
Reducing Risk of Childhood Overweight Among Immigrant Families from Asia	Demographic Groups: Children & Youth, 8	Food and Nutrition, 5	N/A
Social Security Online: Multilanguage Gateway - Chinese	Health Education Resources, 5	Aging, 2	N/A
	Government & Organizations, 5		
Steps to Enhance Communication: Interacting with Persons with Alzheimer's Disease	Diseases: Alzheimer's, 5	Mental Health, 3	Demographic Groups: Seniors, 2
Steps To Manage Your Diabetes	Diseases: Diabetes, 14		
Talking About Lupus	Diseases: Lupus, 5	Diseases, 4	Demographic Groups: Asian Specific, 2
Ten Least Wanted Pathogens	Food & Nutrition, 2	N/A	N/A
	Health Education Resources, 2		
	Diseases: Foodborne Illness, 2		
	Diseases: Prevention, 2		

Understanding Hepatitis B Blood Tests	Diseases: Hepatitis, 12	N/A	N/A
Water Safety For Children Birth to Five Years	Demographic Groups: Children & Youth, 15	N/A	N/A
What Is An Eating Disorder	Mental Health, 8	Diseases, 2	N/A
You Can Prevent Colorectal Cancer	Diseases: Cancers, 8	Diseases: Prevention, 4	N/A

Appendix I. Healthcare Tasks Used in Phase II

- Task 1. What cancers most frequently affect men?
- Task 2. What should diabetes patients eat or not eat?
- Task 3. How is leukemia diagnosed?
- Task 4. What is tuberculosis and what options are there for getting tested?
- Task 5. What steps can you take in handling food to avoid food borne illnesses?
- Task 6. How can Asian immigrant families keep their children from becoming overweight?
- Task 7. Get information about the Social Security Administration's Medicare program in your native Asian language.
- Task 8. Find out how to prevent diabetes.
- Task 9. Find out how to care for a family member who has been diagnosed with Coronary Artery Disease (CAD).
- Task 10. Learn how to communicate more effectively with someone who has Alzheimer's Disease.
- Task 11. What kinds of blood disorders are common in people from the Asian countries?
- Task 12. Find information on getting the best possible mammogram to detect breast cancer.
- Task 13. What are the best exercises for your bones?
- Task 14. What substances are misused by inhaling, especially by young people?
- Task 15. What drugs are available to treat HIV/AIDS?
- Task 16. Find out how to care for the teeth of children younger than 2 years old.
- Task 17. What groups of people are especially at high-risk for Hepatitis B infection and should be tested?
- Task 18. What are some signs that may indicate a medication-related problem?
- Task 19. What are the symptoms of Bird Flu?
- Task 20. What causes eating disorders and where can patients get help?

Appendix J. Phase II Online Exercise

Invitation email

Subject line: UserWorks' invitation for an online exercise for the Asian American Health Project

Once again, thank you for participating several weeks ago in a research project pertaining to our Asian American Health study! We apologize for the longer than expected delay in getting ready for this second session.

We are now ready to have you complete the study by participating in an online exercise. It should take you about 20-30 minutes. When you are ready, please click the link below, and follow the instructions that are presented.

As you know, we're helping a federal government agency improve a web site that offers healthcare information in Asian languages and that is of particular interest to Asian American health. Our objective is to better organize its web content so that the users can efficiently find the information that they are looking for. The present online exercise builds upon the results of the first sessions that were conducted in our lab in Silver Spring.

If you have any problems or questions, please contact Dick Horst. You can reach him at dhorst@userworks.com or at 301-431-0500, extension 213.

Within days of your completion of this online exercise we will mail you a check as your payment for both sessions. We greatly appreciate your help.

Here is the link to the online exercise:

http://www.surveymonkey.com/s.aspx?sm=bwcfhy1vNIRRK_2fdEkPhWeA_3d_3d

Instructions

First page of survey:

This exercise is the second session of a study aimed at organizing a web site that contains Asian American Health information. Enter your name below, and then proceed to the instructions. Your responses will be confidential. They will not be reported in association with your name or professional affiliation. They will not be reported in association with your name or professional affiliation.

NAME

NEXT

Second page of survey:

At the top of each of the upcoming pages you will see a “task,” a request for information about some healthcare topic. **Imagine that you wish to find this information on the Asian American Health web site.** The drop-down menus on each page represent the places you can look. Click on whichever menus would likely lead you to the desired information and choose the most appropriate item from each of those menus.

You can pick as many menus as seem useful, but you can only choose one item per menu. For menus that don’t seem useful for a given topic, just leave the choice blank or select “Not Applicable.”

You will not actually see the write ups about these healthcare topics. Rather, we are interested in what menu items you expect would lead you to the desired information. Near the bottom of each page, we ask you to indicate the menu that would **most likely** lead you to the desired information.

Also at the bottom of the page, you can fill in “Your suggestions for better menus or menu items,” if you think of a better menu or menu item for a given task other than the menus we offer. If you have other comments regarding the task, you can type it into the “Comments” box.

There are 20 tasks, one per page. Please indicate your choices on each page, and then click “Next”. You may return to a previous page and change your choices, if you wish, by clicking “Prev.” At the end of all the tasks there is a page of questions about specific design issues.

This exercise should take you 20 – 30 minutes. When you are ready to begin, click on “Next.”

If you have any problems or questions, please contact Dick Horst. You can reach him at dhorst@userworks.com or at 301-431-0500, extension 213.

Menus and menu items

Health Information for Different Demographic Groups

Children and Youth

Men

Women

Senior citizens

Asian Specific

Other (Please suggest)

Not Applicable

Healthy Living

Fitness & Exercise

Food & Nutrition

Health Maintenance

Other (Please suggest)

Not Applicable

Disease Names

Alzheimer's

Anemia

Avian Influenza ("Bird Flu")

Cancers

Coronary Artery Disease (CAD)

Diabetes

Hepatitis

HIV/AIDS

Leukemia

Lupus

Other Diseases (Please suggest)

Not Applicable

Disease Types

Blood Diseases/Hematology

Bone Diseases/Osteoporosis/Rheumatology

Cancers

Foodborne Illness

Heart/Cardiovascular Diseases

Immune System Diseases

Infectious Diseases

Sexually Transmitted Diseases

Virus Diseases

Other Types (Please suggest)

Not Applicable

Miscellaneous Health Topics

Alcohol Related
Drug & Substance Abuse
Health Education Resources
Medications/Medicines
Mental Health
Oral Hygiene
Pregnancy
Other (Please suggest)
Not Applicable

Health Information by Parts of the Body

Breast
Bones
Eye
Heart
Liver
Lung
Skin
Teeth
Other (Please suggest)
Not Applicable

Stages of Health

Prevention
Diagnosis
Treatment
Care
Other (Please suggest)
Not Applicable

Ranking**Which of the above menus do you think would MOST likely lead you to the desired information?**

Health Information for Different Demographic Groups
Healthy Living
Disease Names
Disease Types
Miscellaneous Health Topics
Health Information by Parts of the Body
Stages of Health
Other (Please suggest)

Your suggestions for better menus or menu items:**Comments:**

Additional questions on the last page of the survey

Which of the following phrases do you prefer as the name of the menu containing these items:

- Children and Youth
- Men
- Women
- Senior citizens
- Asian Specific

- Health Information for Different Demographic Groups
- Health Information for Different Audiences
- Other (please specify)

*

Which of the following phrases do you prefer as the name of the menu containing tips on staying healthy?

- Health Maintenance
- Healthy Lifestyle
- Healthy Living
- Other (please specify)

*

Which of the following phrases do you prefer as the name of the menu containing these items:

- Prevention
- Diagnosis
- Treatment
- Care

- Aspects of health
- Stages of condition
- Stages of disease
- Stages of health
- Other (please specify)

Do you have any comments regarding the tasks that you just completed or regarding your overall participation in this study?

Appendix K: Phase II Participant Menu Choices Versus Predicted

(See the following pages.

The columns show the “tasks” that participants were given in the online exercise, with separate blocks of columns for each of the 20 tasks, and with three separate columns within each block for our predictions, a tally of the lay participant responses, and a tally of the healthcare professional participant responses.

The rows are the menus and menu items to which participants responded, indicating which items would likely lead them to information about the topic in each task.

The numbers in the cells are a count of the number of participants, lay or professional, who chose each menu item for each task. The Xs in the Predict columns show our “predictions,” i.e., if we were tagging the materials in the AAH collection, the way we would have tagged the materials related to each task topic so that they would have shown up in the results associated with the various menu choices.

The cells that have the gray background shading are those that are noteworthy for some reason (although perhaps the most noteworthy pattern in these results is the strong correlation between predicted and actual responses).

Round 2 Summary Data	Task 1. What cancers most frequently affect men?			Task 2. What should diabetes patients eat or not eat?			Task 3. How is leukemia diagnosed?			Task 4. What is tuberculosis and what options are there for getting tested?			
	(all menus below also included "Not Applicable")	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups													
Children and Youth									1	2			2
Men	X	7	7										
Women													
Senior citizens			1		3	2							
Asian Specific						2			2				1
Other (Please suggest)						1							1
Healthy Living													
Fitness & Exercise													
Food & Nutrition			1	X	7	5							
Health Maintenance		4	5			2		3	3		3	5	
Other (Please suggest)									1				
Disease Names													
Alzheimer's													
Anemia													
Avian Influenza ("Bird Flu")													
Cancers	X	6	6						2				
Coronary Artery Disease (CAD)			1										
Diabetes				X	8	7							
Hepatitis						1							
HIV/AIDS													
Leukemia								X	8	5			
Lupus													
Other Diseases (Please suggest)											4	6	
Disease Types													
Blood Diseases/Hematology					1			X	5	4			
Bone Diseases/Osteoporosis/Rheumatology													
Cancers	X	8	6					X	2	2			
Foodborne Illness					2								
Heart/Cardiovascular Diseases			1		1	2							
Immune System Diseases					1					2			
Infectious Diseases									1		X	3	5
Sexually Transmitted Diseases													
Virus Diseases												1	
Other Types (Please suggest)					1	2						1	
Miscellaneous Health Topics													
Alcohol Related													
Drug & Substance Abuse													
Health Education Resources		3	5		6	6		5	2		4	4	
Medications/Medicines		2						1			1		
Mental Health													
Oral Hygiene			1								1		
Pregnancy													
Other (Please suggest)								1	1				1
Health Information by Parts of the Body													
Breast													
Bones									3				
Eye													
Heart			1										
Liver													
Lung		1	1								X	7	8
Skin		1											
Teeth						1							
Other (Please suggest)		1	2			2		2	3				
Stages of Health													
Prevention		1	3		2	1			1		1	3	
Diagnosis		3						X	7	5	X	5	3
Treatment		2	1			1				1		1	
Care			1	X	5	3						1	
Other (Please suggest)													
Which of the above menus do you think would MOST likely lead you to the desired information?													
Health Information for Different Demographic Groups		4	2			1			1				1
Healthy Living			1		2	1					1		
Disease Names		2	3		5	4		6	5		1	2	
Disease Types		2	2			2		1	1		1	1	
Miscellaneous Health Topics					1						1		
Health Information by Parts of the Body									1		4	4	
Stages of Health													
Other (Please suggest)								1					

Round 2 Summary Data	Task 5. What steps can you take in handling food to avoid food borne illnesses?			Task 6. How can Asian immigrant families keep their children from becoming overweight?			Task 7. Get information about the Social Security Administration's Medicare program in your native Asian language.			
	(all menus below also included "Not Applicable")	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups										
Children and Youth				X	5	3				
Men										
Women										
Senior citizens							X			3
Asian Specific			2	X	3	4	X	4		5
Other (Please suggest)										
Healthy Living										
Fitness & Exercise				X	6	3				
Food & Nutrition	X	6	8	X	1	5				
Health Maintenance		2		X					2	3
Other (Please suggest)								3		
Disease Names										
Alzheimer's										
Anemia										
Avian Influenza ("Bird Flu")										
Cancers										
Coronary Artery Disease (CAD)										
Diabetes						2				
Hepatitis			1							
HIV/AIDS										
Leukemia										
Lupus										
Other Diseases (Please suggest)		1	1		1					1
Disease Types										
Blood Diseases/Hematology										
Bone Diseases/Osteoporosis/Rheumatology										
Cancers										
Foodborne Illness	X	5	6							
Heart/Cardiovascular Diseases										
Immune System Diseases										
Infectious Diseases			1							1
Sexually Transmitted Diseases										
Virus Diseases										
Other Types (Please suggest)					1	2				2
Miscellaneous Health Topics										
Alcohol Related										
Drug & Substance Abuse										
Health Education Resources		6	5	X	6	5	X	6		3
Medications/Medicines								1		1
Mental Health										
Oral Hygiene										
Pregnancy										
Other (Please suggest)		1	1		1	1		1		1
Health Information by Parts of the Body										
Breast										
Bones										
Eye										
Heart						2				
Liver										
Lung										
Skin										
Teeth										
Other (Please suggest)		1	3		1					1
Stages of Health										
Prevention	X	7	5	X	5	6				
Diagnosis										
Treatment			1							
Care					1			2		3
Other (Please suggest)								1		
Which of the above menus do you think would MOST likely lead you to the desired information?										
Health Information for Different Demographic Groups					4	3		3		4
Healthy Living		4	5		2	5		1		1
Disease Names			2		1					
Disease Types		3	1							
Miscellaneous Health Topics		1			1			2		2
Health Information by Parts of the Body										
Stages of Health								1		1
Other (Please suggest)								1		

Round 2 Summary Data (all menus below also included "Not Applicable")	Task 8. Find out how to prevent diabetes.			Task 9. Find out how to care for a family member who has been diagnosed with Coronary Artery Disease (CAD).			Task 10. Learn how to communicate more effectively with someone who has Alzheimer's Disease.		
	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups									
Children and Youth			1						
Men									
Women									
Senior citizens			1			3	X	4	5
Asian Specific			2						
Other (Please suggest)									
Healthy Living									
Fitness & Exercise			1						
Food & Nutrition			1			1			
Health Maintenance	X	7	4		5	4		4	3
Other (Please suggest)									
Disease Names									
Alzheimer's							X	8	8
Anemia									
Avian Influenza ("Bird Flu")									
Cancers									
Coronary Artery Disease (CAD)				X	7	7			
Diabetes	X	8	8						
Hepatitis									
HIV/AIDS									
Leukemia									
Lupus									
Other Diseases (Please suggest)									
Disease Types									
Blood Diseases/Hematology			1		1	1			
Bone Diseases/Osteoporosis/Rheumatology									
Cancers									
Foodborne Illness									
Heart/Cardiovascular Diseases			1	X	5	7			
Immune System Diseases		1						1	
Infectious Diseases		1							
Sexually Transmitted Diseases									
Virus Diseases									
Other Types (Please suggest)			4					1	2
Miscellaneous Health Topics									
Alcohol Related						1			
Drug & Substance Abuse									
Health Education Resources		6	6		5	4		4	1
Medications/Medicines		1			1				
Mental Health							X	2	5
Oral Hygiene									
Pregnancy									
Other (Please suggest)									
Health Information by Parts of the Body									
Breast									
Bones									
Eye									
Heart			2	X	5	6			
Liver									
Lung									
Skin									
Teeth									
Other (Please suggest)			1					2	2
Stages of Health									
Prevention	X	7	5						
Diagnosis									
Treatment								1	
Care			1	X	7	7	X	6	5
Other (Please suggest)									
Which of the above menus do you think would MOST likely lead you to the desired information?									
Health Information for Different Demographic Groups								1	1
Healthy Living		2	3						
Disease Names		5	4		5	4		7	7
Disease Types			1			3			
Miscellaneous Health Topics									
Health Information by Parts of the Body					1	1			
Stages of Health		1			2				
Other (Please suggest)									

Round 2 Summary Data (all menus below also included "Not Applicable")	Task 11. What kinds of blood disorders are common in people from the Asian countries?			Task 12. Find information on getting the best possible mammogram to detect breast cancer.			Task 13. What are the best exercises for your bones?		
	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups									
Children and Youth									
Men									
Women				X	6	5			
Senior citizens									3
Asian Specific	X	7	6						
Other (Please suggest)									
Healthy Living									
Fitness & Exercise							X	8	6
Food & Nutrition									
Health Maintenance		4	3		6	5			1
Other (Please suggest)									
Disease Names									
Alzheimer's									
Anemia		1	1						
Avian Influenza ("Bird Flu")									
Cancers				X	7	4			
Coronary Artery Disease (CAD)									
Diabetes									
Hepatitis									
HIV/AIDS									
Leukemia			2						
Lupus									
Other Diseases (Please suggest)		2	2			1		1	2
Disease Types									
Blood Diseases/Hematology	X	8	8						
Bone Diseases/Osteoporosis/Rheumatology							X	5	7
Cancers				X	6	7			
Foodborne Illness									
Heart/Cardiovascular Diseases									
Immune System Diseases									
Infectious Diseases									
Sexually Transmitted Diseases									
Virus Diseases									
Other Types (Please suggest)									
Miscellaneous Health Topics									
Alcohol Related									
Drug & Substance Abuse									
Health Education Resources		5	3		5	2		6	5
Medications/Medicines			1						
Mental Health									
Oral Hygiene									
Pregnancy									
Other (Please suggest)						1			
Health Information by Parts of the Body									
Breast				X	8	8			
Bones			1				X	7	7
Eye									
Heart									
Liver									
Lung									
Skin									
Teeth									
Other (Please suggest)		2	3						
Stages of Health									
Prevention			2		2	6	X	2	7
Diagnosis	4		1	X	5	1			
Treatment			1						
Care		1						3	
Other (Please suggest)								1	
Which of the above menus do you think would MOST likely lead you to the desired information?									
Health Information for Different Demographic Groups		4	2		2	1			
Healthy Living						1		3	1
Disease Names					2				
Disease Types	4		6			1		1	2
Miscellaneous Health Topics					1			1	2
Health Information by Parts of the Body					3	5		3	3
Stages of Health									
Other (Please suggest)									

Round 2 Summary Data	Task 14. What substances are misused by inhaling, especially by young people?			Task 15. What drugs are available to treat HIV/AIDS?			Task 16. Find out how to care for the teeth of children younger than 2 years old.			Task 17. What groups of people are especially at high-risk for Hepatitis B infection and should be tested?			
	(all menus below also included "Not Applicable")	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups													
Children and Youth	X	7	6				X	8	6				
Men						1							1
Women													
Senior citizens													
Asian Specific			1			2						1	4
Other (Please suggest)					1								
Healthy Living													
Fitness & Exercise													
Food & Nutrition		2	1						1				1
Health Maintenance		2	1		1	3	X	7	6			4	3
Other (Please suggest)					1								
Disease Names													
Alzheimer's													
Anemia													
Avian Influenza ("Bird Flu")													
Cancers													
Coronary Artery Disease (CAD)													
Diabetes													
Hepatitis										X	8	8	
HIV/AIDS					X	8	8						
Leukemia													
Lupus													
Other Diseases (Please suggest)			2					1					
Disease Types													
Blood Diseases/Hematology													
Bone Diseases/Osteoporosis/Rheumatology													
Cancers													
Foodborne Illness		1											1
Heart/Cardiovascular Diseases												1	
Immune System Diseases					X	2	4						
Infectious Diseases		1								X	3	2	
Sexually Transmitted Diseases					X	5	1			X	1		
Virus Diseases			1				1					1	4
Other Types (Please suggest)			1						1	1			
Miscellaneous Health Topics													
Alcohol Related													
Drug & Substance Abuse	X	6	6		1	2							1
Health Education Resources		1			1	1		5	4		5	4	
Medications/Medicines					2	2							
Mental Health			1										
Oral Hygiene		1						X	2	3			
Pregnancy													
Other (Please suggest)					1								
Health Information by Parts of the Body													
Breast													
Bones													
Eye													
Heart													
Liver											5	7	
Lung		1	2										
Skin						1							
Teeth							X	7	6				
Other (Please suggest)			1										
Stages of Health													
Prevention		3	2			2		1	2		3	3	
Diagnosis										X	4	2	
Treatment			2	X	7	3							1
Care		1				1	X	5	4				
Other (Please suggest)		1											
Which of the above menus do you think would MOST likely lead you to the desired information?													
Health Information for Different Demographic Groups		3	2					1	3				
Healthy Living			1					1	2		1	1	
Disease Names					8	6					6	4	
Disease Types						1					1	2	
Miscellaneous Health Topics		5	4			1		2					
Health Information by Parts of the Body								4	3				1
Stages of Health			1										
Other (Please suggest)													

Round 2 Summary Data (all menus below also included "Not Applicable")	Task 18. What are some signs that may indicate a medication-related problem?			Task 19. What are the symptoms of Bird Flu?			Task 20. What causes eating disorders and where can patients get help?		
	Predit	Lay	Prof	Predit	Lay	Prof	Predit	Lay	Prof
Health Information for Different Demographic Groups									
Children and Youth								1	1
Men									
Women									1
Senior citizens			1						
Asian Specific			2		2	3			
Other (Please suggest)									
Healthy Living									
Fitness & Exercise									
Food & Nutrition			1				X	4	6
Health Maintenance		2	4		3	3		1	
Other (Please suggest)			1						
Disease Names									
Alzheimer's									
Anemia									
Avian Influenza ("Bird Flu")				X	7	8			
Cancers			1						
Coronary Artery Disease (CAD)									
Diabetes									
Hepatitis									
HIV/AIDS									
Leukemia									
Lupus									
Other Diseases (Please suggest)								1	3
Disease Types									
Blood Diseases/Hematology									
Bone Diseases/Osteoporosis/Rheumatology									
Cancers									
Foodborne Illness								2	1
Heart/Cardiovascular Diseases									
Immune System Diseases			1						
Infectious Diseases				X	4	3			
Sexually Transmitted Diseases									
Virus Diseases				X	2	4			
Other Types (Please suggest)									3
Miscellaneous Health Topics									
Alcohol Related									
Drug & Substance Abuse		2	2						
Health Education Resources			1		5	4	X	3	2
Medications/Medicines	X	6	4						
Mental Health							X	2	4
Oral Hygiene									
Pregnancy									
Other (Please suggest)			1					1	
Health Information by Parts of the Body									
Breast									
Bones									
Eye									
Heart			1						
Liver									
Lung						2			
Skin		1							1
Teeth									
Other (Please suggest)			1						1
Stages of Health									
Prevention		3	2		1	2		1	2
Diagnosis		1	3	X	5	4		3	1
Treatment								1	1
Care		1						1	1
Other (Please suggest)									
Which of the above menus do you think would MOST likely lead you to the desired information?									
Health Information for Different Demographic Groups									1
Healthy Living			1					2	1
Disease Names			1		8	8			1
Disease Types									2
Miscellaneous Health Topics		8	6					6	3
Health Information by Parts of the Body									
Stages of Health									
Other (Please suggest)									

Appendix L: Phase II Participants' Suggestions for Alternative Menus or Menu Items

Round 2 Summary Data	Task 1. What cancers most frequently affect men?	Task 2. What should diabetes patients eat or not eat?	Task 3. How is leukemia diagnosed?	Task 4. What is tuberculosis and what options are there for getting tested?
Your suggestions for better menus or menu items :				
	Lay: Genitals	Lay: The dropdown menu may not be the best choice because items are hidden until one clicks the arrow. The list box with hyperlink items selection would be more apparent for users.	Lay: Diagnosis	Lay: Tuberculosis
	Prof: Prostate	Pro: Disease type: Add metabolism	Lay: Blood	Pro: Tuberculosis under the disease name
		Pro: Endocrine	Pro: Blood	Pro: List TB in disease types for quicker, easier access
		Pro: What complications will be?	Pro: Bone Marrow	Pro: Tuberculosis
		Pro: Need a category for this.	Pro: What signs and symptoms of leukemia will be?	Pro: TB, not tuberculosis
Comments :				Pro: Immunization, vaccinated
	Lay: Should appear men's related cancer key words	Lay: Key word is really obvious	Lay: Health information by parts of the body-we can add blood	Lay: TB
	Lay: 2 keywords can be used: one is disease types, the other is gender, i.e. man. You could have allowed 2 selections	Pro: No category covered this.	Lay: First choice is disease names; second choice is disease types if users know the disease is a form of cancer	Lay: First choice is disease names; one might go to 2nd choice for treatment or parts of the body, but it seems unlikely
	Prof: Disease types should come before disease names		Pro: There is no menu related to leukemia diagnosis	Pro: Should have more menus, such as communicable disease. Foreign immigrants are at high risk for TB
				Pro: Have TB in the drop down box

Round 2 Summary Data	Task 5. What steps can you take in handling food to avoid food borne illnesses?	Task 6. How can Asian immigrant families keep their children from becoming overweight?	Task 7. Get information about the Social Security Administration's Medicare program in your native Asian language.
Your suggestions for better menus or menu items :			
	Lay: Everyday health tips/food handling tips	Lay: Overweight	Lay: Treatment and payment
	Lay: Food health	Pro: Include "Obesity" under disease names	Lay: Healthy information
	Pro: Gastrointestinal illness	Pro: Diet and Nutrition-Weight	Pro: Medical assistance
	Pro: Gastrointestinal	Pro: Lifestyle change: fast food	Pro: What languages does Social Security Administration Medical Program provided?
	Pro: Hygiene		
	Pro: Infectious disease, what is the fecal-oral route? How to avoid oral ingestion		
Comments :			
	Pro: Menus should be given more information related to food borne illness.	Lay: Healthy living tips	Lay: Health insurance benefits
		Pro: It is easy to find information related to lifestyle changing	Lay: There is really no proper choice for this subject: perhaps the closest one is Miscellaneous Health Topics. Information like this should have a category all its own.
			Pro: Should have more menus related to foreign immigrants
			Pro: None of the topics cover this

Round 2 Summary Data	Task 8. Find out how to prevent diabetes.	Task 9. Find out how to care for a family member who has been diagnosed with Coronary Artery Disease (CAD).	Task 10. Learn how to communicate more effectively with someone who has Alzheimer's Disease.
Your suggestions for better menus or menu items :			
	Pro: metabolic		Pro: Neurodegenerative-brain
	Pro: endocrine		Pro: How to take care Alzheimer's Disease
	Pro: What is diabetes? Cultural considerations		
Comments :			
	Lay: First choice is disease names; second choice is miscellaneous health	Lay: Everyday care/prevention, after attack care, long term/in house care	Lay: Brain/memory; living with (Disease name)
	Pro: More information related to diabetes should be given	Pro: Good menus	Lay: First choice is Disease Name; Second choice is Stages of Health

Round 2 Summary Data	Task 11. What kinds of blood disorders are common in people from the Asian countries?	Task 12. Find information on getting the best possible mammogram to detect breast cancer.	Task 13. What are the best exercises for your bones?
Your suggestions for better menus or menu items:			
	Lay: Genetic Disease	Lay: cancer	Lay: Exercises
	Lay: Blood Disorder	Pro: Breast cancer	Pro: Osteoporosis
	Pro: Health information by parts of the body..include BLOOD	Pro: Common cancers affect to women; how to prevent breast cancer	Pro: Osteoporosis
	Pro: Blood Disorder		Pro: Health care prevention for seniors; What common diseases are for senior citizens
	Pro: What are blood disorders?		
Comments:			
	Lay: Body Part: Blood	Lay: First choice-Disease Names; Second choice--Disease Types; Third choide--Health Information by Parts of the Body	Lay: Disease name by osteoporosis,
	Lay: First choice is Health Information for Different Demographic Groups; Second choice is Disease Type	Pro: More information about women's health should be provided	Lay: 1st choice-Healthy Living; 2nd choice-Miscellaneous Health Topics; 3rd choice-Body Part
	Pro: Menus can be focus on Asian diseases		Pro: More information related to seniors health should be provided

Round 2 Summary Data	Task 14. What substances are misused by inhaling, especially by young people?	Task 15. What drugs are available to treat HIV/AIDS?	Task 16. Find out how to care for the teeth of children younger than 2 years old.	Task 17. What groups of people are especially at high-risk for Hepatitis B infection and should be tested?
Your suggestions for better menus or menu items :				
	Pro: Under Disease Names..put Substance Abuse; and under Disease Types..put Substance Abuse	Lay: HIV/AIDS	Pro: How to take care of infants	Pro: What are communicable diseases?
	Pro: Teenager's mental health problems; what are controlled substances?	Pro: What are sexually transmitted diseases?		
Comments :				
	Pro: Good menus	Pro: Good menus	Pro: More infants-related information can be provided	Pro: Good menus

Round 2 Summary Data	Task 18. What are some signs that may indicate a medication-related problem?	Task 19. What are the symptoms of Bird Flu?	Task 20. What causes eating disorders and where can patients get help?
Your suggestions for better menus or menu items :			
	Pro: Drug interaction-drug interaction		Lay: Eating disorders
	Pro: Medication safe issues		Pro: This may be difficult to locate. Can you include in Disease Names as eating disorders
Comments :			Pro: Eating disorder-Mental/Emotional disorder
			Pro: Mental health issue
	Pro: No menus related to medication-related problem	Pro: Good menus	Pro: More women's health information should be provided

Appendix M: Phase II Participant Responses to Questions on Last Page of the Online Survey

Q. 1 Which of the following phrases do you prefer as the name of the menu containing these items: Children and Youth, Men, Women, Senior Citizens, Asian Specific		
	Lay	Prof
Health Information for Different Demographic Groups	3	5
Health Information for Different Audiences	5	3
Other (please specify)		
Q. 2 Which of the following phrases do you prefer as the name of the menu containing tips on staying healthy?		
	Lay	Prof
Health Maintenance		1
Healthy Lifestyle	1	3
Healthy Living	5	4
Other (please specify)		
Q. 3 Which of the following phrases do you prefer as the name of the menu containing these items: Prevention, Diagnosis, Treatment, Care		
	Lay	Prof
Aspects of health	1	
Stages of condition		
Stages of disease	2	6
Stages of health	4	2
Other (please specify)	1-Disease Management	