

Federal Government Healthcare Agency*

Baseline Usability Tests 1 and 2 Report

August 29, 2011

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1 Overview

1.1 Usability Testing

Company* conducted two rounds of baseline usability testing of the existing ABCD* web site from August 3 through August 11, 2011 at the ABCD* office in Rockville, MD. During the first test, two groups of representative users of the ABCD* web site (Clinicians and Researchers) were asked to complete 11 key tasks. In the second test, two different groups of representative users (Patients/General Public and Policymakers/Media) were asked to complete nine different key tasks. Users in both tests were asked additional questions about the user interface and navigation scheme. The purpose of this document is to report the results of the usability tests. This report includes a summary of participants and tasks, overall test results, results by individual task scenario, and design/information architecture recommendations (shown both by task and in a summary matrix.)

In Sections 3 and 4, individual task scenario results, identified usability issues, and recommendations are presented. A brief summary of each task scenario, question, and correct answer is presented for each task scenario. For a complete description of each scenario as well as the comprehensive testing approach and plan, please refer the documents entitled *Usability Test Plan 1* and *Usability Test Plan 2*.

Usability issues identified during testing were rated using the standard *Nielsen Usability Severity Scale*:

- 1 = Cosmetic problem only: need not be fixed unless extra time is available on project.
- 2 = Minor usability problem: fixing this should be given low priority.
- 3 = Major usability problem: important to fix, so should be given high priority.
- 4 = Usability catastrophe: imperative to fix this before product can be released.

While not an exact scale, the *Severity Scale* is a useful tool to begin discussions regarding the prioritization of solutions to identified usability issues.

Usability issues identified during testing were also categorized in terms of *Issue Areas*, which include the following:

- Consistency and standards
- Content strategy
- Error prevention
- Forms and applications
- Information architecture
- Interface design
- Page Design
- Page structure
- Site structure

In addition to ranking the severity of each identified usability issue, an attempt was made to rate the estimated *Level of Effort* (LOE) required to implement each recommended solution using the following scale:

Low: requires simple, page-level, information design changes, such as labeling and minor text adjustments

Medium: requires moderately complex information design changes, such as significantly changing page layouts or changing page or sub-site level navigation items (including navigation text)

High: requires complex information design changes or significant site re-engineering, such as changing global navigation or site template design. This can include text changes to global navigation.

1.2 Test Participants

1.2.1 Test One (Clinicians and Researchers)

The first baseline ABCD* web site usability test included 10 participants, of whom 5 were recruited from outside of ABCD*, and 5 were ABCD* employees. The 10 participants represented a sub-set of representative users of the ABCD* web site, divided into 2 sub-groups. The following are brief descriptions of each of the 2 participant sub-groups.

Rationale: Clinicians and Researchers are a key customer and target audience for the agency, as determined through stakeholder interviews and the ForeSee survey. From 3,640 total survey respondents to the ABCD* Main Site ForeSee survey for the period June 1, 2010 – June 1, 2011:

- 1,370 respondents (38%) self-identified as a clinician
 - Nurse/Nurse Practitioner: 22%
 - Physician/Physician's Assistant: 12%
 - Other Clinical Specialist: 4%
- 1,074 respondents (30%) were seeking information to use in a clinical/professional setting
 - Improve or apply treatment for my patients: 16%
 - Help with work assignment or job responsibilities: 14%
- 725 respondents (20%) self-identified as a researcher
 - Researcher or Analyst: 12%
 - Student: 8%
- 1,060 respondents (29%) sought information to use in a research capacity
 - Prepare research paper or presentation: 13%
 - Plan research project: 9%,
 - Complete school/class project: 7%

1.2.1.1 Group 1: Clinicians/Practitioners

This group included Clinicians/Practitioners and was made up of a mix of Internal (ABCD* employee) and External (non-ABCD* employee) users. Some examples of these types of users include the following:

- Physicians, Physician Assistants
- Nurses, Nurse Practitioners
- Other Medical Practitioners (e.g., Pharmacist, Physical Therapist, etc.)

1.2.1.2 Group 2: Healthcare Researchers

This group included Healthcare Researchers and was made up of a mix of Internal (ABCD* employee) and External (non-ABCD* employee) users. Some examples of these types of users include the following:

- Healthcare Researchers/Grantees/Analysts
- Students
- Educators

Table 1: ABCD* Web site Usability Test 1 Participant Matrix

P#	Group	Role
1	External Clinician	RN, Nurse Educator
2	External Clinician	Occupational Therapist
3	External Researcher	Research Nurse/Regulatory Compliance Manager for pediatric cancer trials
4	External Researcher	Professor of Psychology
5	External Clinician	Clinical Crisis Nurse-Hospital ICU
6	Internal Clinician	Director of the Pharmaceutical Research Programs
7	Internal Researcher	Senior Social Scientist
8	Internal Clinician	EPC Program Task Order Officer
9	Internal Researcher	Survey Analyst
10	Internal Researcher	Management/ Program Analyst

General requirements for all testers: Computer literacy; familiarity with Internet, English proficiency.

1.2.2 Test Two (Patients/General Public and Policymakers/Media)

The second baseline ABCD* web site usability test included 12 participants, of whom 7 were recruited from outside of ABCD*, and 5 were ABCD* employees. The 12 participants represented a sub-set of representative users of the ABCD* web site, divided into 2 sub-groups. The following are brief descriptions of each of the 2 participant sub-groups. These groups are based on interviews with ABCD* staff and a review of existing user research and data.

Rationale: Patients or General Public and Policymakers or Media are a key customer and target audience for the agency, as determined through stakeholder interviews and the ForeSee survey. From 3,640 total survey respondents to the ABCD* Main Site ForeSee survey for the period June 1, 2010 – June 1, 2011:

- 440 respondents (12%) self-identified as Consumers, Patients, or General Public
 - Consumer, Patient, or General Public: 9%
 - Retiree: 3%
- 645 respondents (18%) were seeking medical information for themselves or general knowledge
 - Make decision about my own care or for family members: 11%
 - General knowledge or no immediate purpose: 7%
- 467 respondents (13%) self-identified as Policymakers or Media
 - Health Care Administrator: 8%
 - Allied Health Care Provider: 2%
 - Health Insurer: 1%
 - Media/Press: 1%
 - Human Resources Manager: 1%
- 460 respondents (13%) sought information to use in a policy or media capacity
 - Make policy decisions: 8%
 - Prepare report or article for publication: 5%

1.2.2.1 Group 1: Consumers, Patients, and General Public

This group included Consumers, Patients, and General Public and was made up of a mix of Internal (ABCD* employee) and External (non-ABCD* employee) users. Some examples of these types of users include the following:

- People looking for health information for themselves
- People looking for health information for a friend or family member
- Non-medical Professionals (e.g., employees of a patient advocacy group) looking for health information to disseminate to a specific group

1.2.2.2 Group 2: Policymakers/Media

This group included Policymakers or Media and was made up of a mix of Internal (ABCD* employee) and External (non-ABCD* employee) users. Some examples of these types of users include the following:

- Elected Officials or Aides
- Health Care Administrators
- Health Insurers
- Reporters/Journalists

Table 2: ABCD* Web site Usability Test 2 Participant Matrix

P#	Group	Role
1	External Policymaker	Health Policy Associate for Child Welfare League of America
2	External Patient/General	Retired, some consulting
3	External Patient/General	Consulting/teaching in emergency response
4	External Patient/General	Teacher
5	External Patient/General	Writer
6	External Policymaker	Legislative Assistant
7	Internal Patient/General	Management Analyst
8	Internal Media	Public Affairs Specialist
9	External Policymaker	Director of Federal Government affairs for American Diabetes Association
10	Internal Patient/General	Social Science Analyst
11	Internal Policymaker	Senior Health Policy Researcher
12	Internal Policymaker	Senior Fellow

General requirements for all testers: Computer literacy; familiarity with Internet, English proficiency.

1.3 Pre-test Participant Survey

Before beginning the task scenario portion of both of the usability tests, all participants were asked the following pre-scenario questions:

1. How often do you use (visit) the ABCD* Web site?

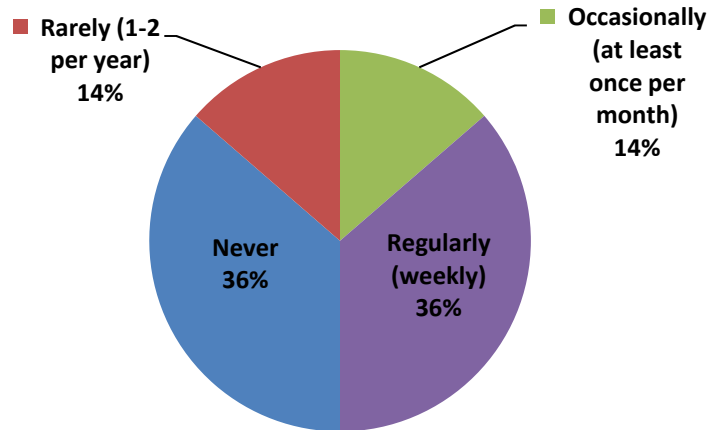


Figure 1: Users' self-reported Frequency of visiting ABCD*'s web site

2. About how many hours per week do you use the internet on the job or as part of your work?

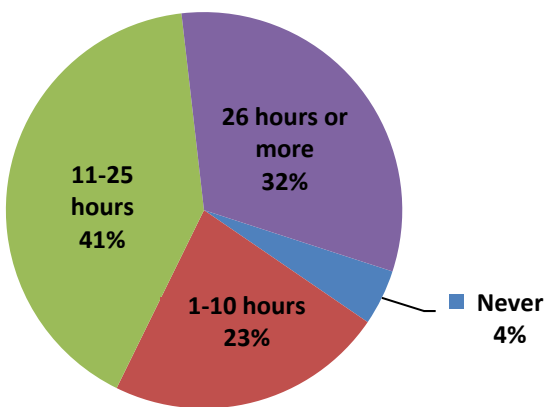


Figure 2: Users' self-reported frequency of internet use for work

* Identifying information removed

3. How often in the past 12 months have you used the internet to look for information about healthcare topics?

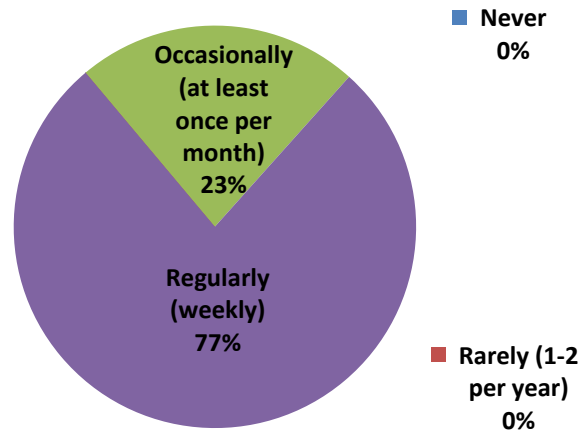


Figure 3: Users' self-reported frequency of looking up healthcare topics on the internet

4. What devices do you use to access the internet? (select all that apply)

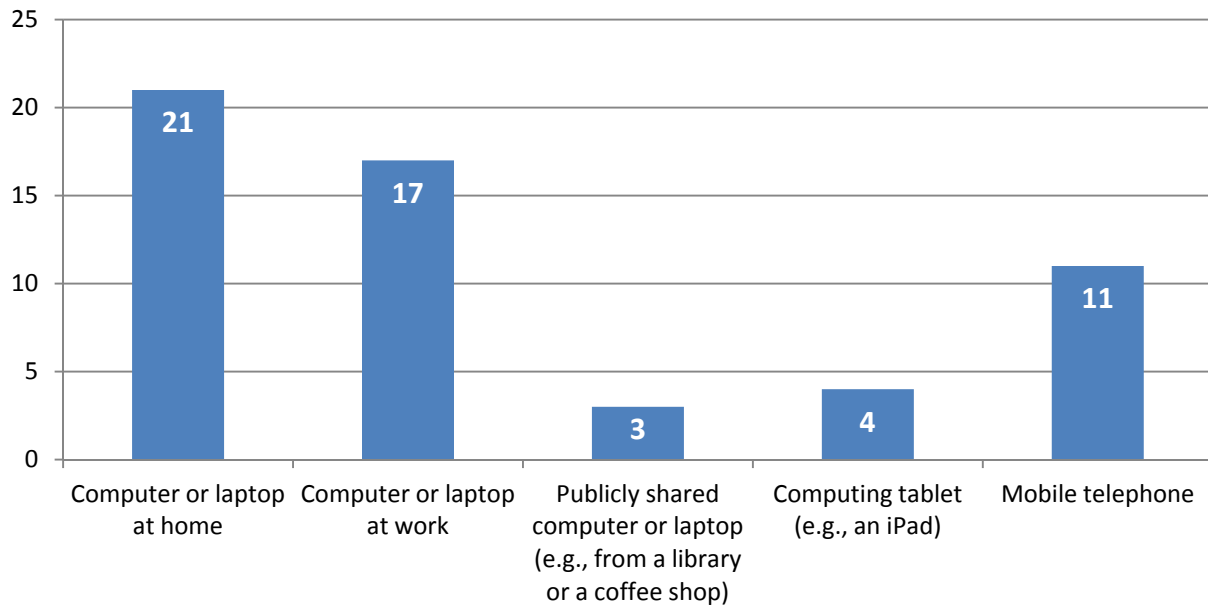


Figure 4: Devices users use to access the internet

1.4 Task Scenario Overview

During usability test sessions all participants were asked to use the ABCD* web site to attempt to complete the following representative tasks. Each task had a question associated with it and users were asked to use the ABCD* web site to locate the answer to each question. Task details and associated questions are shown in [Section 3](#) and [Section 4](#).

1.4.1 Test One Task Scenarios

- Task 1—Locate ABCD* Funding Priorities
- Task 2—Locate Open Program Announcements
- Task 3—Locate Grants On-Line Database
- Task 4—Find Clinician-focused material on a subject
- Task 5—Find Consumer-focused material on the same subject
- Task 6—Register for the ABCD* 2011 Conference
- Task 7—Locate the MEPSnet tool
- Task 8—Locate a recent EPC Evidence Report
- Task 9—Locate an Evidence-Based clinical practice guideline
- Task 10—Locate the HCUPnet tool
- Task 11—Locate Effective Healthcare Continuing Education Resources

1.4.2 Test Two Task Scenarios

- Task 1—Locate Consumer-focused material that was advertised
- Task 2—Locate Consumer-focused material on a particular subject
- Task 3—Locate Consumer-focused material on a different subject
- Task 4—Find an HCUP statistical brief
- Task 5—Locate recommendations for preventive services
- Task 6—Locate Consumer-focused material for a friend
- Task 7— Determine medical community's recommendation on a medical issue
- Task 8—Subscribe to the Research Findings Newsletter
- Task 9—Find open positions on ABCD*.gov

2 Usability Test Results and Recommendations

2.1 Results Summary

The purpose of these baseline usability tests was to assess whether or not the ABCD*.gov web site supports key user tasks identified by the ABCD* team, provide recommendations for modifications or enhancements that could be made to improve usability of ABCD*.gov, and gather quantitative performance and satisfaction metrics to track potential site improvements. Data from usability test participants demonstrate that the information architecture and content management of the ABCD*.gov web site do not adequately support the needs of ABCD*'s users. High-level test results include the following:

- Highly related content is disconnected and isolated in separate areas of the web site and third-level domain sites. When users locate a page listing multiple sources of information on a topic (such as cardiovascular disease), they will assume it is a comprehensive list of all available information. This means they will not continue to browse the web site, so they will not find the other information that is available. Examples of this disconnect are found throughout the main ABCD*.gov web site and the many third-level subdomain sites, such as the following:
 - An EPC report about “Medication Management and Health IT” can only be found by going to “Clinical Information” > “Evidence-based practice” > EPC reports. It cannot be found on the HealthIT web site.
 - Completely different options for information about pregnancy and childbirth can be found on “Priority Populations > Women’s Health” vs. “Research Findings > Fact Sheets > Women’s Health” vs. “Consumers & Patients > Understanding Diseases & Conditions > Pregnancy & Delivery.” For more examples of this disconnect between highly related information, see the Individual Task Results and Recommendations section below.
- Navigation options and labels are unclear and not intuitive to users. Many participants relied heavily on some sort of utility tool throughout the test, such as the A-Z index or sitemap, which suggests that the primary (left) navigation for the site was not particularly intuitive to them. Additionally, participants often commented on not knowing where to go to start a task, often stalling for an extended period of time on the home page, often saying something like, “I’m confused about where to go.” Most of the participants made multiple attempts at finding a different “path” to navigate in order to find the information.
- Inconsistent navigation across pages within the site and across third-level subdomain sites hindered users' success on tasks. Very few participants used the persistent left navigation throughout the entire test, possibly because the navigation disappears so often on content pages and it is often inconsistent within the ABCD*.gov site. Additionally, the left navigation changes completely when users navigate to a third-level subdomain site. Users expressed confusion about the navigation changes when on these subdomain sites. Also, many users encountered difficulty getting from these third-level sites back to the main ABCD*.gov site. They would often click a “Home” button and then express confusion about why that did not take them back to ABCD*.gov’s home page.
- Many participants first attempted to locate information by specific healthcare topic (disease, condition, etc.) instead of categorical topic (funding, guidelines, etc.), which often led to task failure. This supports the need for robust information architecture because people will take many different paths to get to the same topic.

Based on these results, the following recommendations were made about the information architecture, navigation, and taxonomy of the ABCD*.gov web site:

- Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.
- Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.
- Perform a full content inventory and use the results to revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that information is not repeatedly duplicated across many pages.
 - In the meantime, a full content inventory could be used to update the A-Z index and other utility tools, such as the A-Z Quick Menu dropdown.
- Ensure that navigation is consistent across all pages on the site. This could most easily be accomplished with the help of a content management system and page templates.
 - In the meantime, utilize the tools available in Dreamweaver to make use of navigation templates, to eliminate the inconsistencies within the persistent left navigation throughout the main ABCD*.gov site.

The results of these studies suggest that changes are necessary to achieve a level of usability warranted by the content contained in the ABCD* web site. The suggested approach is to begin with the lower effort recommendations to improve user experience now; in addition to planning for the higher level of effort recommendations.

For each of the 20 tasks (or scenarios) the following usability metrics were compiled:

- **Task Completion Rates**—the number of users who were able to complete each task within a reasonable amount of time, with ease or difficulty
- **Time to on Task**— the amount of time spent on the task before completing or timing out
- **System Usability Scale (SUS)**—participant ratings about the overall ease of use of the web site

The following sections detail the usability test results for these for metrics.

2.1.2 Task Completion Rate Summary

2.1.2.1 Test 1 (Clinicians and Researchers)

As shown in Figure 5 below, with the exception of Tasks 5 and 6, only 50% or fewer Clinicians and Researchers were able to successfully complete the tasks with ease. Difficulties participants had with each task will be described in detail in the Individual Task Results and Recommendations section below.

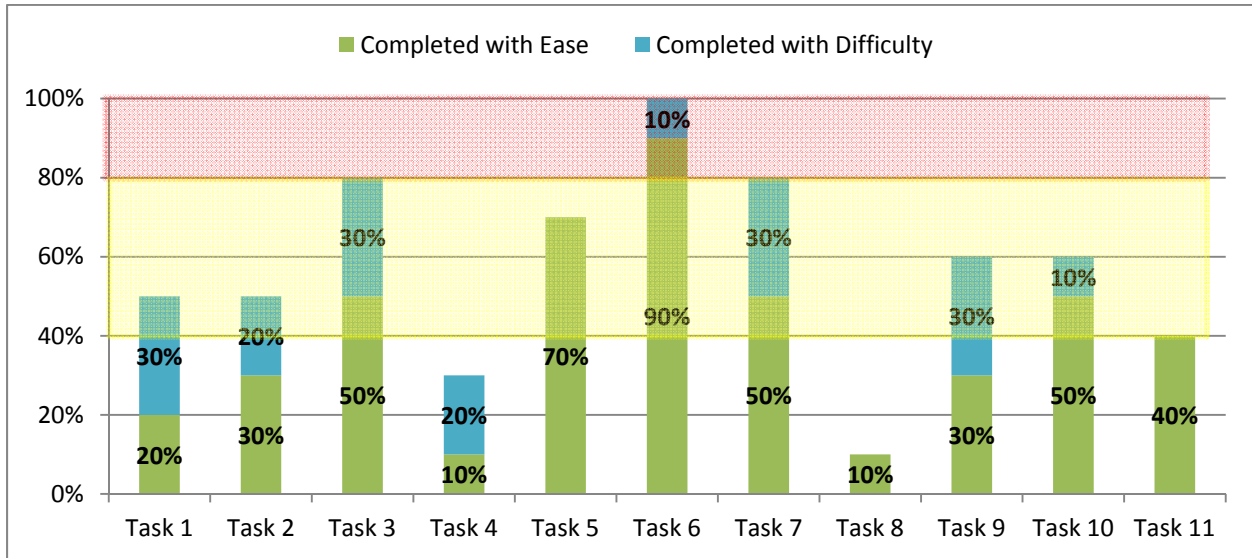


Figure 5: Test 1—Task Completion Scores (All Tasks)

2.1.2.2 Test 2 (Patients/General Public and Policymakers/Media)

As shown in Figure 6 below, fewer than 70% of Patients/General Public and Policymakers/Media were able to successfully complete each task with ease. Difficulties participants had with each task will be described in detail in the Individual Task Results and Recommendations section below.

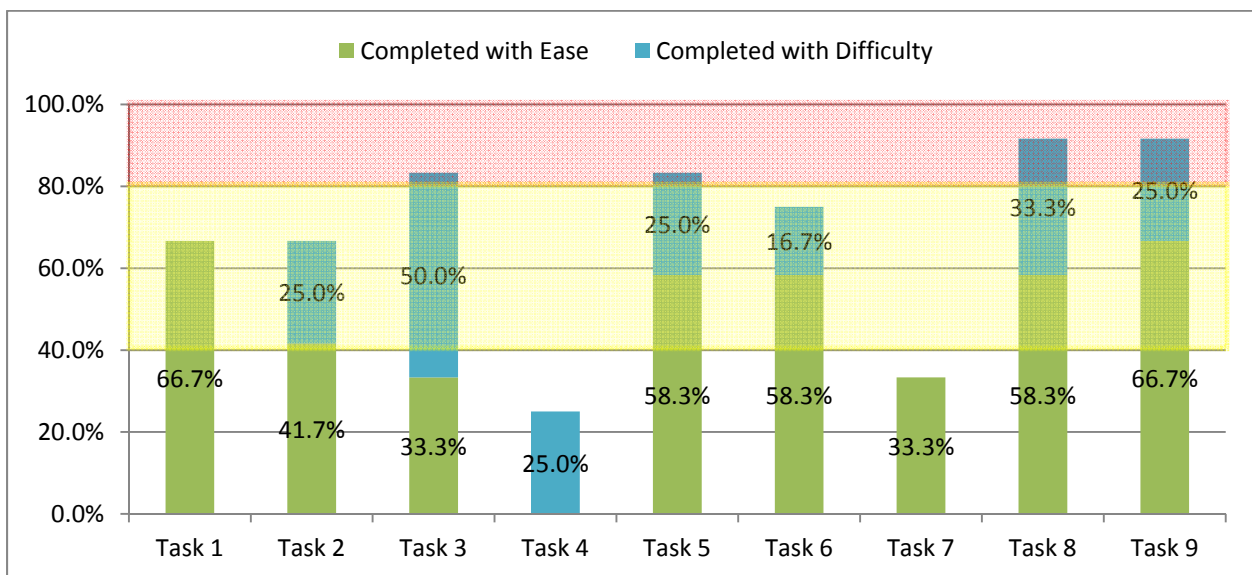


Figure 6: Test 2—Task Success (All Tasks)

2.1.3 Time on Task Summary

Figures 7 and 8 show the average amount of time participants spent working on each task until they answered the task question, gave up, or were told to stop by the test facilitator. Usability testing research suggests that users should typically be able to complete web-based information seeking tasks in three minutes or less. Average time on task for Clinicians and Researchers for 8 out of 11 tasks was above the three-minute standard. Average time on task for Patients/General Public and Policymakers/Media for 3 out of 9 tasks was above the three-minute standard.

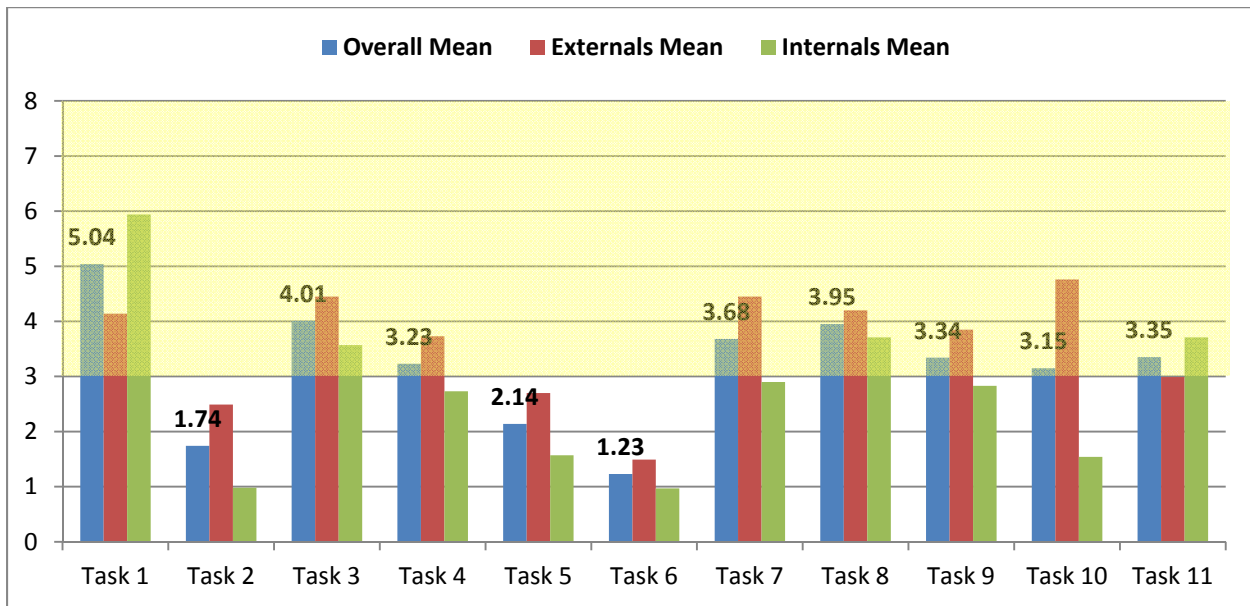


Figure 7: Average Time on Task (in minutes) for Test 1 (Clinicians and Researchers)

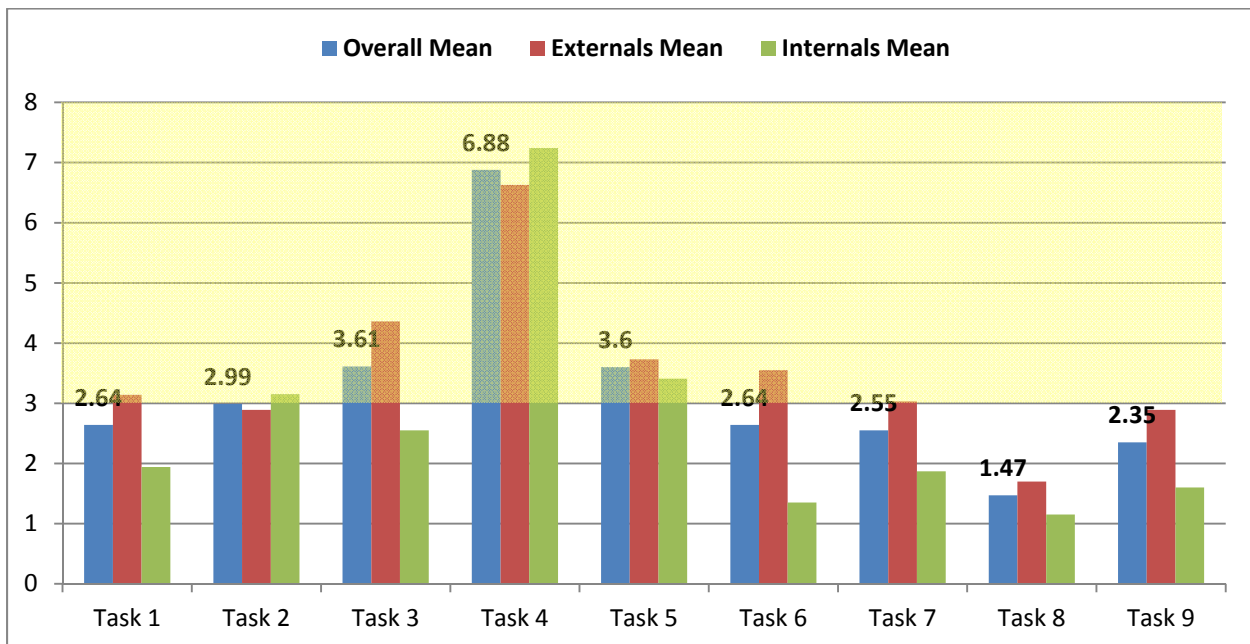


Figure 8: Average Time on Task (in minutes) for Test 2 (Patients/General Public and Policymakers/Media)

2.1.4 System Usability Scale

The System Usability Scale (SUS) is a subjective scale useful for measuring user satisfaction with web sites and applications. This satisfaction scale has been in use for several years by many usability testers to complement objective measures, such as time on task and task completion rates.

At the end of each testing session, each participant was asked to indicate the degree to which they agree or disagree with the following statements regarding the usability of the ABCD* web site:

1. I think that I would like to use this System again (if needed)
2. I found the System unnecessarily complex
3. I thought the System was easy to use
4. I think that I would need the support of a technical person to be able to use this System
5. I found the functions in this system were well integrated.
6. I thought there was too much inconsistency in this System
7. I would imagine that most people would learn to use this System very quickly
8. I found the System very cumbersome to use
9. I felt very confident using the System
10. I needed to learn a lot of things before I could get going with this System

SUS scores can range from 0 (very little satisfaction) to 100 (very high satisfaction). According to usability researchers, average satisfaction scores are usually between 65 and 70.

The overall SUS score for the ABCD* web site, based on feedback from all 22 participants from both tests, was a low 47.7. The overall SUS score for Clinicians and Researchers was 48, and the overall SUS score for Patients/General Public and Policymakers/Media was very close at 47.5.

When comparing SUS scores for external versus internal participants, it is worth noting that internal Patients/General Public and Policymakers/Media had a notably lower SUS score of 34. Figure 9 shows the breakdown of SUS scores for each test over external and internal participants.

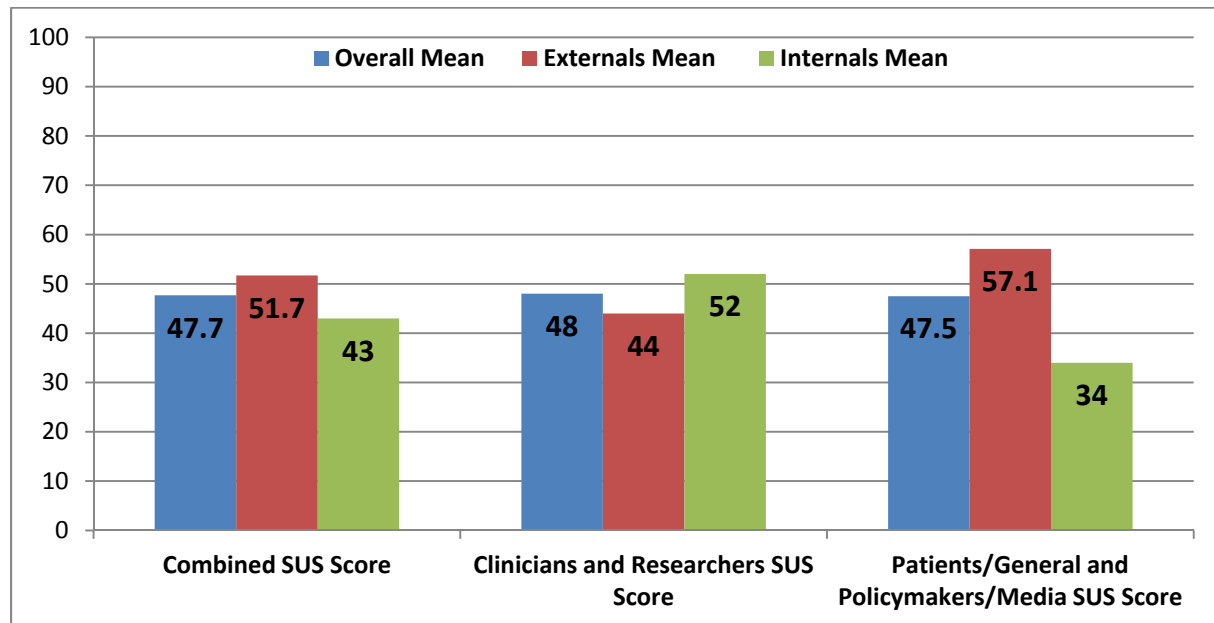


Figure 9: SUS scores for Test 1 and Test 2, External vs. Internal Participants

* Identifying information removed

3 Test 1 (Clinicians and Researchers) Individual Task Results and Recommendations

3.1 Task 1—Locate ABCD* Funding Priorities

Goal: The goal of this task was to gain insight into how well users can locate Funding Priorities from the ABCD*.gov home page if they have in mind concepts or words related to research into a particular topic. This scenario represents a common task performed by healthcare researchers on the ABCD* website, as described by stakeholders.

Task Scenario: You are interested in conducting a research study related to reducing infections contracted while a patient is undergoing treatment or during a hospital stay and you want to know if the Agency for Healthcare Research and Quality is particularly interested in research in this area. Determine if reducing these types of infections is of particular interest to ABCD*.

Question: Does ABCD* identify research into reducing infections contracted during hospital stays as a research area they want to encourage? (**Answer:** Yes)

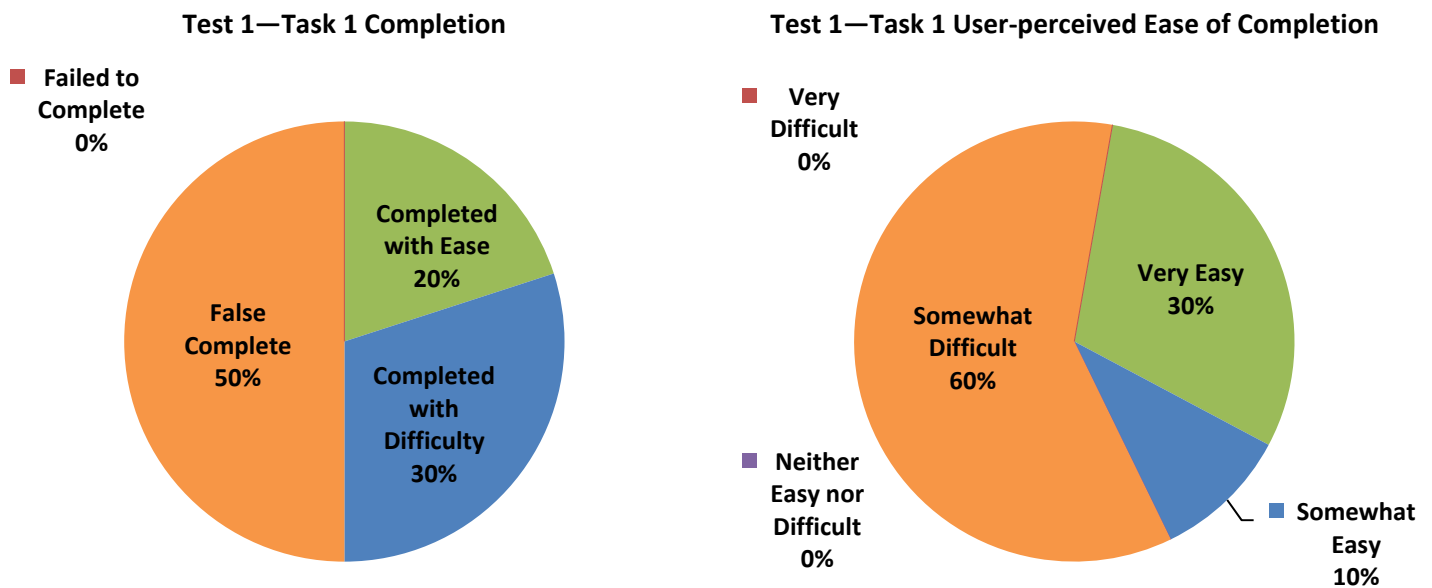


Figure 10: Test 1—Task 1: Completion and Ease of Completing Task Self-Report

Task 1 Results Summary

As shown in Figure 10, half of the participants (50%) were able to complete Task 1; although only 20% were able to do so with ease. Many participants started by looking for pages about the particular health topic mentioned in the scenario (Healthcare Associated Infections, or HAIs). The tendency to look first for specific healthcare topics (disease, condition, etc.) instead of categorical topics (funding, guidelines, etc.) was demonstrated in many other tasks as well. This indicates that searching for healthcare topic is a very common behavior that should be anticipated from many users.

This task had a high false completion rate of 50%. The majority of false completions came from internal (ABCD* Employee) participants, which implies that for this task, knowledge of ABCD* and its internal structure was not a help, but possibly a hindrance.

Additionally, 7 of the 10 participants used some sort of utility tool, such as the A-Z index or sitemap, which suggests that the navigation for the site was not particularly intuitive to them.



The average time spent on this task was over five minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 1

1: Navigation options unclear, and attempting to locate the specific healthcare topic led to task failure (Severity: 3)

Half of the participants started by looking for pages about the particular health topic mentioned in the scenario (HAIs/Nosocomial Infections/Hospital Infections). Not only did those participants have difficulty finding a page about Healthcare Associated Infections, but also those that did find something on this topic were unable to get from that location to the ABCD* Research Funding Priorities page without prompting from the facilitator.

Additionally, 7 of the 10 participants used some sort of utility tool, such as the A-Z index or sitemap, which suggests that the navigation for the site was not particularly intuitive to them.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Disconnect between highly related information (Severity: 3)

This task had a high false completion rate of 50%. Some false completions came from users locating the Program Announcement for HAIs and inferring that this topic must be a priority if ABCD* is offering funding. Other false completions came from users searching the site for Research results and/or findings about HAIs and inferring the answer about whether or not this type of research is a priority to ABCD* based on if they were able to find recent research reports or data about the topic. One user even commented, "There seems to be a disconnect between research output and trying to find out, as a researcher, whether or not I'd get funded here."

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

3: Locating the specific Special Emphasis Notice in the large list of links took too long (Severity: 3)

Users were not able to quickly scan the list of Special Emphasis Notices and find the one of interest to them. This was due to the fact that the link titles are unnecessarily long, they all start with the same seven or eight words and the pertinent information is put at the end of the link title. For example in, "Special Emphasis Notice (SEN): ABCD* Announces Interest in Career Development (K01, K02, K08) Grants Focused on Healthcare-Associated Infections" the most pertinent information is contained in the last three words of the title, "Healthcare-Associated Infections." Lastly, the titles

are inconsistent, with some using specific grant types (R01, K08, etc.), and others do not.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: Low)

The list of links on the Funding Priorities page (http://www.abcd*.gov/fund/ragendix.htm) all belong to the category of “Special Emphasis Notices” and all start with the words “ABCD* Announces Interest in.” This list could be made easier to scan by doing the following:

1. Remove the “Special Emphasis Notice: ABCD* Announces Interest in” text from the beginning of each link. This information is redundant, because the list heading of “Special Emphasis Notices — ABCD* Areas of Research Interest” provides the same information.
2. Draw attention to the specific topic of interest by putting it at the beginning of the link.
3. Be consistent with the link titles.
4. Consider alphabetizing the list or ordering it by date.

The updated list of Special Emphasis Notices could look like this: (alphabetized)

Special Emphasis Notices—ABCD* Areas of Research Interest:

- [Diagnostic Errors in Ambulatory Care Settings](#)
- [Health Care System Redesign: Career Development](#)
- [Health Information Technology \(IT\): Career Development and Dissertation](#)
- [Health Issues of Minority Women](#)
- [Healthcare-Associated Infections: Career Development](#)
- [Healthcare-Associated Infections Research](#)
- [Prevention and Healthcare Management of Complex Patients: Career Development](#)
- [Priority Populations Research](#)

or like this: (ordered by date)

Release Date	Special Emphasis Notices—ABCD* Areas of Research Interest:
Jun 09, 2011	Health Information Technology (IT): Career Development and Dissertation
Apr 13, 2011	Priority Populations Research
Apr 13, 2011	Health Issues of Minority Women
Feb 15, 2011	Health Care System Redesign: Career Development
Nov 05, 2010	Healthcare-Associated Infections: Career Development
Nov 03, 2010	Healthcare-Associated Infections Research
Dec 14, 2007	Prevention and Healthcare Management of Complex Patients: Career Development
Oct 25, 2007	Diagnostic Errors in Ambulatory Care Settings

(additionally, functionality can be added to a table layout so users could sort by either column)

4: Duplicate titles on Funding Priority page linking to different pages (Severity: 3)

The title, “Special Emphasis Notice: ABCD* Announces Interest in Career Development (K01, K02, K08) and Dissertation (R36) Grants focused on Health Information Technology (IT)” is used twice on the list of ABCD* Funding Priorities, and each time it links to a different announcement on the NIH Grants site. This can lead to confusion for users.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Perform a full content inventory and use the results to revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that information is not repeatedly duplicated across many pages.

Recommendation (LOE: Low)

If one of the announcements is outdated, remove the link. If both announcements are current, group the links together and add text to distinguish between the two announcements.

3.2 Task 2—Locate Open Program Announcements

Goal: The goal of this task was to gain insight into how well users can locate funding opportunities on the ABCD*.gov web site if they have in mind concepts or words related to funding for research into a particular topic. This scenario represents a common task performed by healthcare researchers on the ABCD* website, as described by stakeholders.

Task Scenario: Now that you know that ABCD* is interested in research regarding reducing infections contracted as a result of a patient’s participation in the healthcare system, you want to know if ABCD* is allocating financial support for projects in this area.

Question: Is ABCD* currently funding any research into reducing these infections? (**Answer:** Yes)

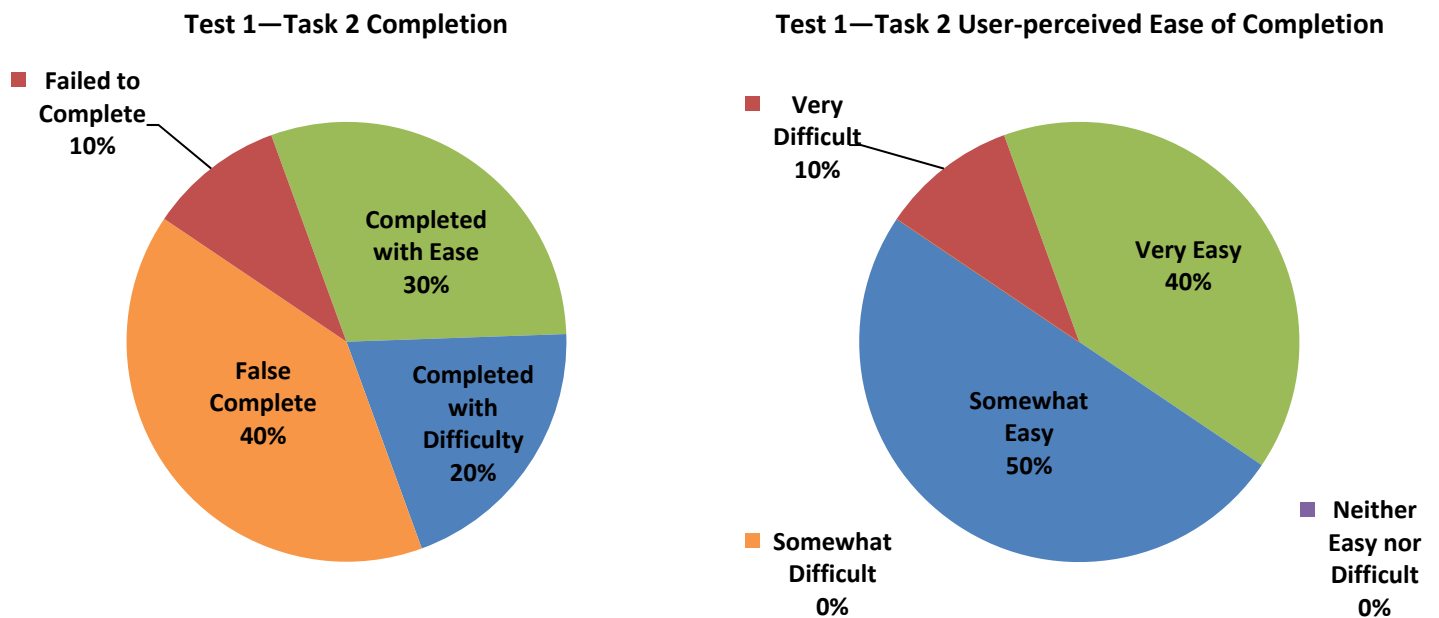


Figure 11: Test 1—Task 2: Completion and Ease of Completing Task Self-Report

Task 2 Results Summary

As shown in Figure 11, half of the participants (50%) were able to complete Task 2, and only 30% were able to do so with ease. Many participants assumed the information they needed to find was on the Special Emphasis Notice located in Task 1, and they did not realize they had to go back to ABCD*.gov to find Funding Opportunities on a separate page. Users assumed all relevant program announcements could be found on the NIH Special Emphasis Notice (SEN) page. This led to a high false completion rate of 40%. Many participants pointed out the links to the Funding Opportunity Announcements (FOAs) listed on the SEN page (Figure 12, Annotation A) as proof that ABCD* was offering funding on this topic. However, none of the links to FOAs on the Special Emphasis Notice page matched the link to the FOA that could be found on the ABCD* Funding Announcements page. This is another example of disconnect between highly related information.



The average time spent on this task was 1.74 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 2

1: Disconnect between highly related information (Severity: 3)

Users assumed all relevant program announcements could be found on the XYZ* Special Emphasis Notice (SEN) page. All four of the false completions in this scenario resulted from users reading the SEN page (http://grants.xyz*.gov/grants/guide/notice-files/NOT-HS-11-002.html) and inferring that ABCD* was accepting grant applications on this topic. Additionally, three other participants attempted first to navigate to funding announcements or grant applications directly from the SEN page. Two of these participants were later able to complete the task after prompting from the facilitator. Many participants pointed out the links to the Funding Opportunity Announcements (FOAs) listed on the SEN page (Figure 12, Annotation A) as proof that ABCD* was offering funding on this topic. However, none of the links to FOAs on the Special Emphasis Notice page matched the link to the FOA that could be found on the ABCD* Funding Announcements page.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

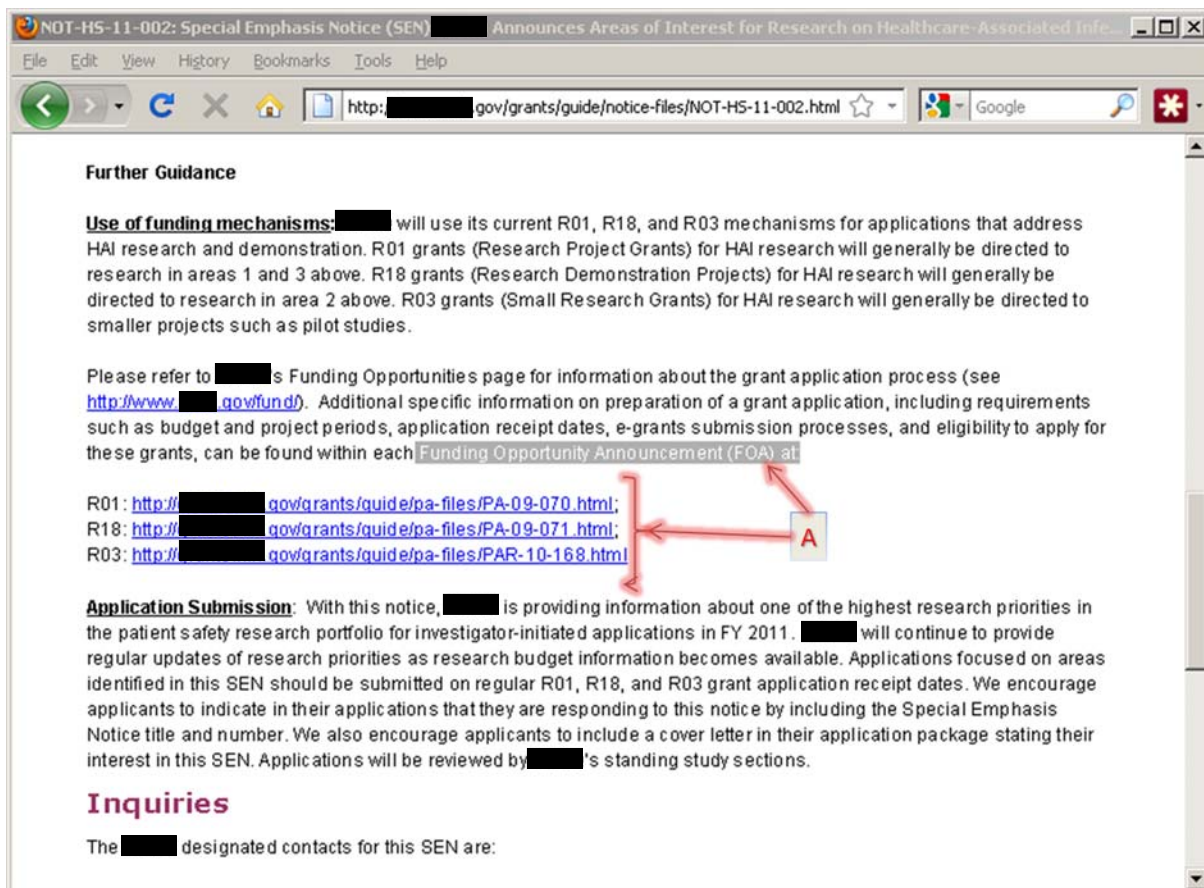


Figure 12: Screenshot of Web Page Special Emphasis Notice NOT-HS-11-002

3.3 Task 3—Locate Grants On-Line Database

Goal: The goal of this task was to gain insight into how well users can locate previously awarded grants on the ABCD*.gov web site. This scenario represents a common task performed by healthcare researchers on the ABCD* website, as described by stakeholders.

Task Scenario: You are a researcher that wants to apply for a grant for your work on child health issues in urban areas. You want to know if ABCD* has previously provided any grants on this or similar topics. Locate the area of the ABCD*.gov web site where you can find previous grants funded by ABCD*.

Question: Were you able to complete this task? (Answer: Yes)

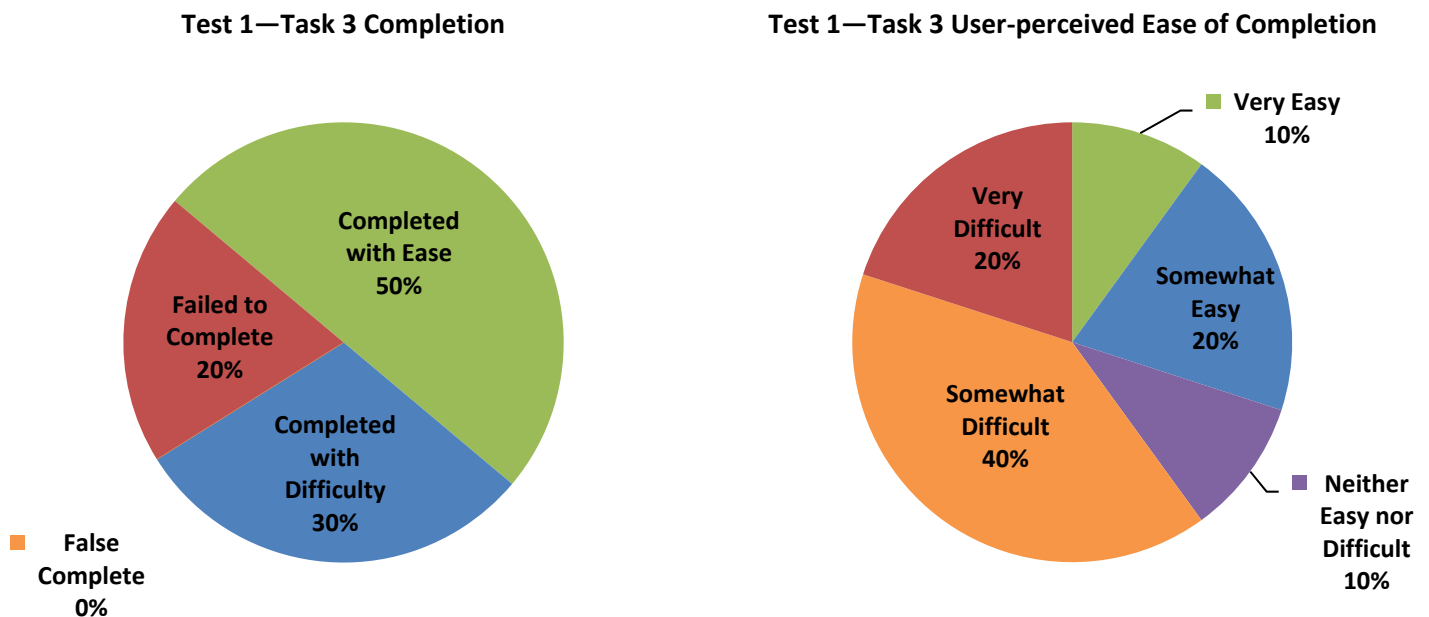


Figure 13: Test 1—Task 3: Completion and Ease of Completing Task Self-Report

Task 3 Results Summary

As shown in Figure 13, 80% of the participants were able to complete Task 3, and 50% were able to do so with ease. The eight participants who were able to complete the task did so in six very different ways. It is possible that the high success rate of this task can be at least partly attributed to the fact that links to GOLD can be found in many places throughout the web site. This indicates that the term “Grants On-Line Database” makes sense to users as a place to look up previously funded grants. However, the high average task time (just over 4 minutes) for this task indicates that it took users longer to locate this link than it should have.

Many of the internal participants stated that they thought part of the reason they were able to complete this task was because they knew that Grants On-Line Database (GOLD) existed. These internal participants said that they thought non-ABCD* employees would not know to look for GOLD.



The average time spent on this task was just over 4 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 3

1: Navigation options unclear (Severity: 3)

The only method repeated across multiple participants was clicking on the Grants On-Line Database link under About ABCD* on the home page. However, participants who found GOLD under About ABCD* commented that they thought it was a strange place for it. This link was probably clicked most often because it is the most easily visible link to GOLD from the home page.

The rest of the successful participants found GOLD in the site map, in the bottom navigation on the home page, in a "Spotlight" section under research findings, or in the left navigation under Data & Surveys or Funding Opportunities.

The high success rate of this task can be at least partly attributed to the fact that links to GOLD can be found in many places throughout the web site. This indicates that the term "Grants On-Line Database" makes sense to users as a place to look up previously funded grants. However, the high average task time (just over 4 minutes) for this task indicates that it took users longer to locate this link than it should have. This is another example of navigation being not particularly intuitive or clear to the users.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Inconsistent Navigation rollover and landing page (Severity: 3)

Many participants hovered over "Funding Opportunities" in the left navigation on the home page early on in this task, but either did not notice the link to GOLD in the rollover, or saw it but did not realize it was a link. Some users then clicked on the "Funding Opportunities" tab to go to the Funding landing page. However, the list of links in the body of the Funding Opportunities landing page does not match the links from the home page Funding Opportunities rollover in number, order, nor displayed link text. Additionally, GOLD does not appear as a "Related Topics" link in the persistent left navigation on other Funding pages (e.g., Funding Announcements http://www.abcd*.gov/fund/grantix.htm). The persistent left navigation is inconsistent with both the homepage set of links and the "Funding Opportunities" landing page body links.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

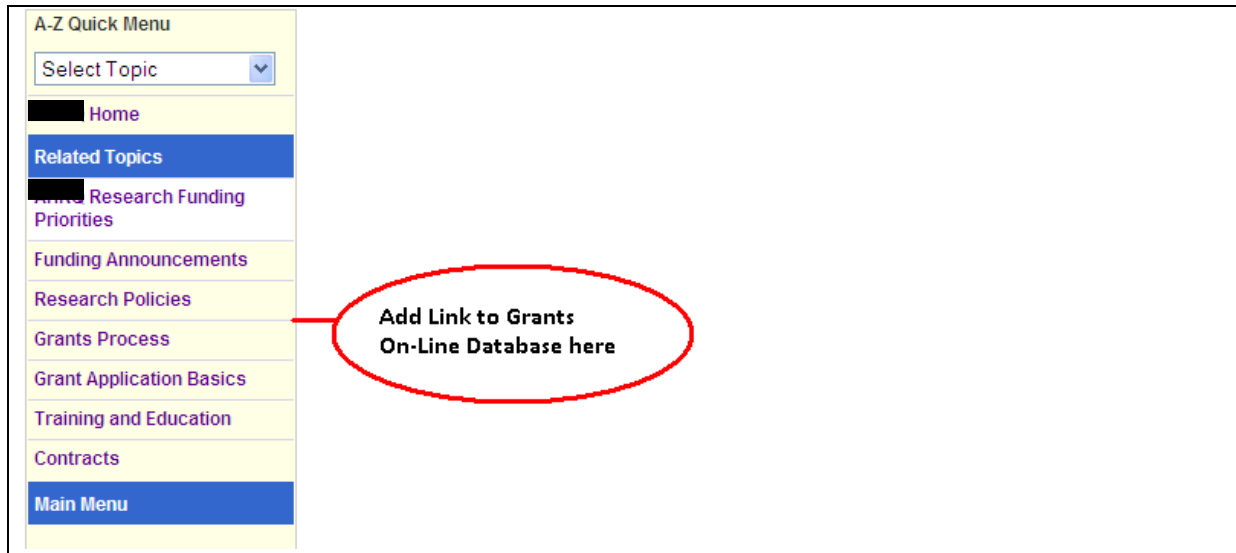
Recommendation (LOE: High)

Ensure that navigation is consistent across all pages on the site. This could most easily be accomplished with the help of a content management system and page templates.

Recommendation (LOE: Low)

Add a link to Grants On-Line Database on the Funding landing page (http://www.abcd*.gov/fund/index.html) and also in the left navigation of subsequent funding pages.

* Identifying information removed



3: Unnecessary extra click when navigating to GOLD under About ABCD* (Severity: 2)

When users came across the link to "Grants On-Line Database" under About ABCD* on the home page and clicked on it, it expands to show another link to "Grants On-Line Database" which users have to click again in order to navigate to GOLD.

Issue areas: Consistency and standards, Content strategy, Information architecture, Page structure

Recommendation (LOE: Low)

This extra click can be eliminated by navigating to GOLD when the user clicks on the first link, instead of expanding to a redundant link.

3.4 Task 4—Find Clinician-focused material on a subject

Goal: The goal of this task was to gain insight into how well users can locate clinician-focused material on a subject from the ABCD*.gov home page if they have in mind concepts or words related to a particular health topic. This scenario represents a common task done by healthcare professionals in clinical practice on the ABCD* site, as described by stakeholders and based on health topic relevance supported by analysis of top ABCD* site search terms¹.

Task Scenario: You are a primary care physician and you have noticed that more and more of your patients seem to be smoking these days and you want to do something about encouraging them to quit. Find material on the ABCD* web site that is geared toward steps that you as a doctor can take to encourage them to quit smoking.

Question: Were you able to complete find material for a doctor to encourage her patients to quit smoking? (Answer: Yes)

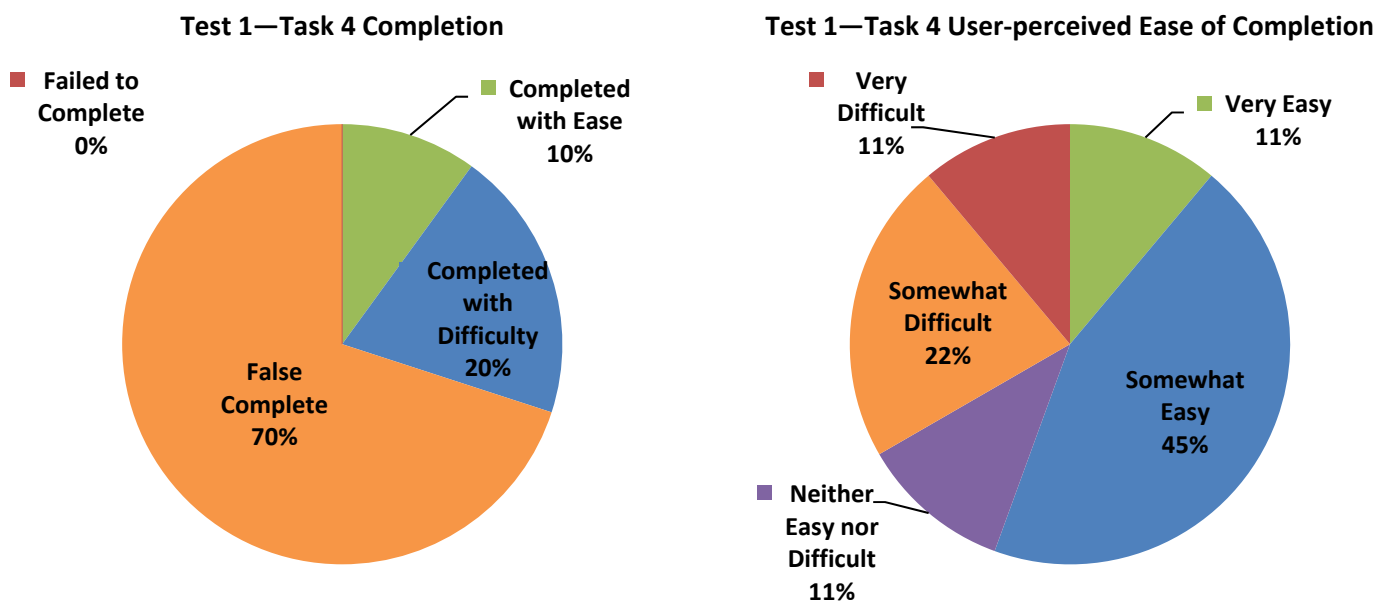


Figure 14: Test 1—Task 4: Completion and Ease of Completing Task Self-Report

Task 4 Results Summary

As shown in Figure 14, only 30% of the participants were able to complete Task 4, more with difficulty than with ease, and the remaining 70% had false completions. This large number of false completions was entirely due to participants finding related “Tobacco Cessation” material elsewhere on the site, and concluding that this was the only information available. This is another example of disconnect between highly related information.

More than half of the false completes were accomplished by internal participants (ABCD* Employees), indicating that for this task, knowledge of ABCD* and its internal structure was not a help.

In this scenario, the average time for external participants was higher at 3.73 minutes, with internal participants completing the task in an average of 2.73 minutes. However, acceptable time on task with high False Complete numbers in this task indicates disconnect between highly related information.



The average time spent on this task was 3.23 minutes, which is slightly over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 4

1: Disconnect between highly related information (Severity: 3)

The high false completion rate in this task is attributable to users finding other information related to Tobacco Cessation on the site and ending the task. Most of the false completes came from users finding the USPSTF Recommendation page on Counseling & Intervention to Prevent Tobacco Use. Other users found consumer-focused information (e.g., “Help for Smokers and Other Tobacco Users”) and assumed that was the only information available.

Issue areas: Content strategy, Information architecture, Site structure, Consistency and standards, Error prevention

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

2: Inconsistency between navigation tools (Severity: 3)

Participants who used the A-Z index from the home page and looked under “S” for “smoking” found only a link to “Smoking (Tobacco Use), U.S. Preventive Services Task Force recommendations.” Though the A-Z index provides the same USPSTF link under “T”, in addition to a link to the “Treating Tobacco Use and Dependence” Clinical Guideline page and the “Tobacco Use: Prevention, Cessation, and Control” EPC Report, users who used the A-Z index for this task did not think to look under “T” for “tobacco.”

Additionally, participants who used the A-Z Quick Menu dropdown on internal pages were only presented with one option (“Tobacco Cessation”) which takes them to the Clinical Guideline pathfinder page. Users indicated that they were more likely to look for something that said “Smoking” or “Quit Smoking.”

Issue areas: Content strategy, Information architecture, Site structure, Consistency and standards, Error prevention

Recommendation (LOE: High)

Ensure that navigation is consistent across all pages on the site. This could most easily be accomplished with the help of a content management system and page templates.

Implement an agency-wide taxonomy and metadata strategy to provide the foundation for enhanced findability features (e.g., automated suggestions of related content).

Pursue ongoing data analysis (especially of site search logs) and user testing to continually refine ABCD*’s taxonomy and labeling to reflect the user’s terminology.

Recommendation (LOE: Medium)

Thoroughly update the index so it is a more fully comprehensive index for all ABCD* sites, and update the A-Z Quick Menu dropdown to be consistent with the A-Z index.

3.5 Task 5—Find Consumer-focused material on the same subject

Goal: The goal of this task was to gain insight into how well users can locate patient-focused material on a subject from the ABCD*.gov home page if they have in mind concepts or words related to a particular health topic. This scenario was developed to compare finding different types of information (clinician-focused vs. consumer-focused) on the same topic, and represents a common task performed by healthcare professionals in a clinical practice, as described by stakeholders.

Task Scenario: Now that you have material for you as a doctor to encourage your patients to quit smoking, you decide you also want to find additional patient-focused material that you can give to your patients to help them quit. Find at least two patient-focused documents which you can print out and give them.

Question: Were you able to complete this task? (Answer: Yes)

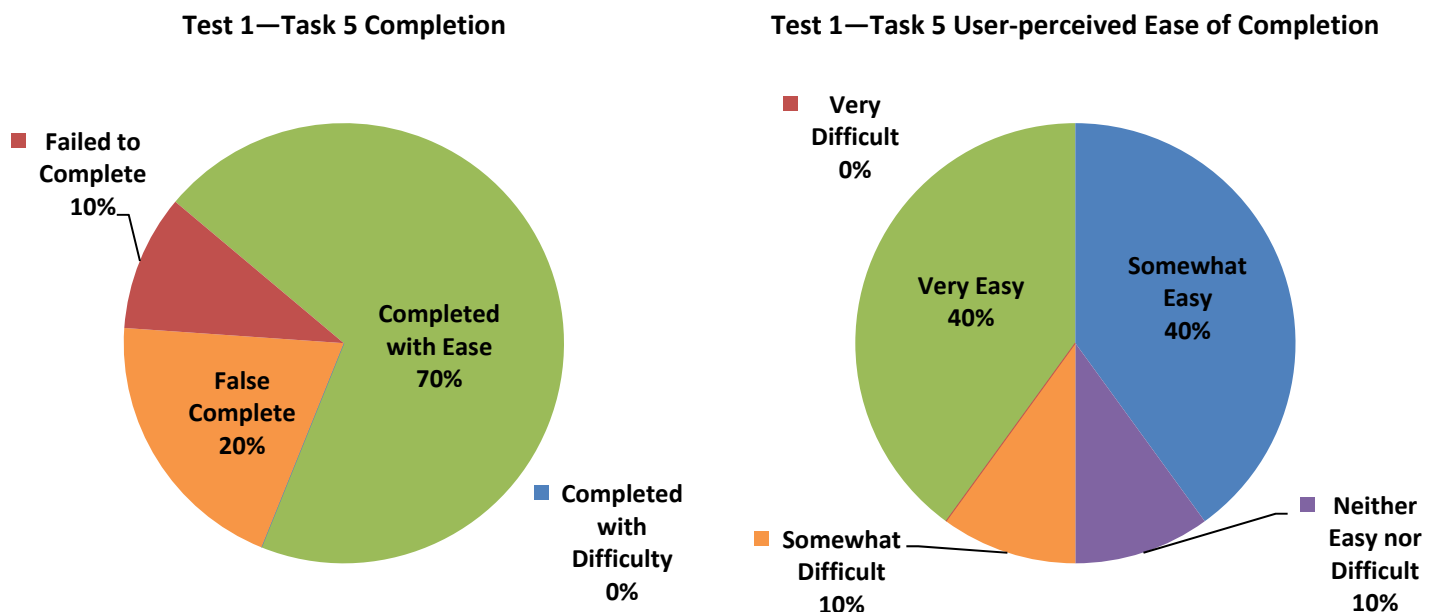


Figure 15: Test 1—Task 5: Completion and Ease of Completing Task Self-Report

Task 5 Results Summary

As shown in Figure 15, 70% of the participants were able to complete Task 5 with ease. Many users commented that they remembered seeing something about this during the previous task. The 30% of users who either failed or had a false complete were also users who failed or had a false complete in the previous task. Users who found the “Treating Tobacco Use & Dependence” pathfinder page were able to find more materials than users who went through Consumers & Patients > Staying Healthy. It is important to make sure all resources are available to all users, regardless of the path they take to find the information.



The average time spent on this task was 2.14 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 5

1: Disconnect between highly related information (Severity: 3)

Users who found resources via the pathfinder page had more items to choose from than users who found resources under Consumers & Patients > Staying Healthy.

Issue areas: Information architecture, Site structure, Consistency and standards, Error prevention

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

2: User found out-dated page and did not notice the re-direct (Severity: 2)

One user who struggled with the task and twice mentioned she felt she had gotten “lost” in the site ended up clicking the “Browse” link in the top utility navigation. From the Browse page, she selected “Consumer Information & Education” and then “Fact Sheets.” From there, she found “Do you smoke? Do you want to quit?” and clicked on it. However, this took her to an empty page that said “This information has been updated. Please change your bookmark to: http://www.abcd*.gov/path/tobacco.htm.”

Issue areas: Information architecture, Site structure, Consistency and standards, Error prevention

Recommendation (LOE: Low)

Update the link on the Browse page so that it takes users directly to the Tobacco pathfinder page. Maintain the redirect page only for people who have bookmarked the URL. No active links on ABCD*.gov should take users to this redirect page (http://www.abcd*.gov/consumer/smokecsm.htm)

3: Bug noticed with A-Z Quick Menu dropdown (Severity: 2)

Steps to reproduce:

1. Start on an internal page, such as “Child Health” page (http://www.abcd*.gov/child/)
2. Select “Tobacco Cessation” from the A-Z Quick Menu dropdown. (This takes you to http://www.abcd*.gov/path/tobacco.htm)
3. Click the browser “Back” button (return to http://www.abcd*.gov/child/)
4. Note that “Tobacco Cessation” is still showing in the A-Z Quick Menu dropdown.
5. Click in the dropdown and select “Tobacco Cessation” again. Nothing happens.
6. Need to select something else in dropdown and then select Tobacco Cessation again. This is an unnecessary extra step

Issue areas: Consistency and standards, Interface design, Error prevention, Forms and applications

Recommendation (LOE: Low)

Fix the A-Z Quick Menu dropdown so that the page web form behavior is the same when a user re-selects the currently highlighted selection as it behaves when the item is first selected.

3.6 Task 6—Register for the ABCD* 2011 Conference

Goal: The goal of this task was to gain insight into how well users can locate the 2011 Annual ABCD* Conference page. This scenario was described by stakeholders as an important task they want to make sure Clinicians and Researchers can accomplish on the ABCD* site.

Task Scenario: You heard that the Agency for Healthcare Research and Quality has an annual conference coming up, with the theme “ABCD*: Leading Through Innovation & Collaboration,” and you are very interested in attending. Find out more information about this conference and answer the following question.

Question: Where and when is the conference is taking place and can you register online? (**Answer:** Bethesda, MD, Sept. 18-21, 2011 / Yes)

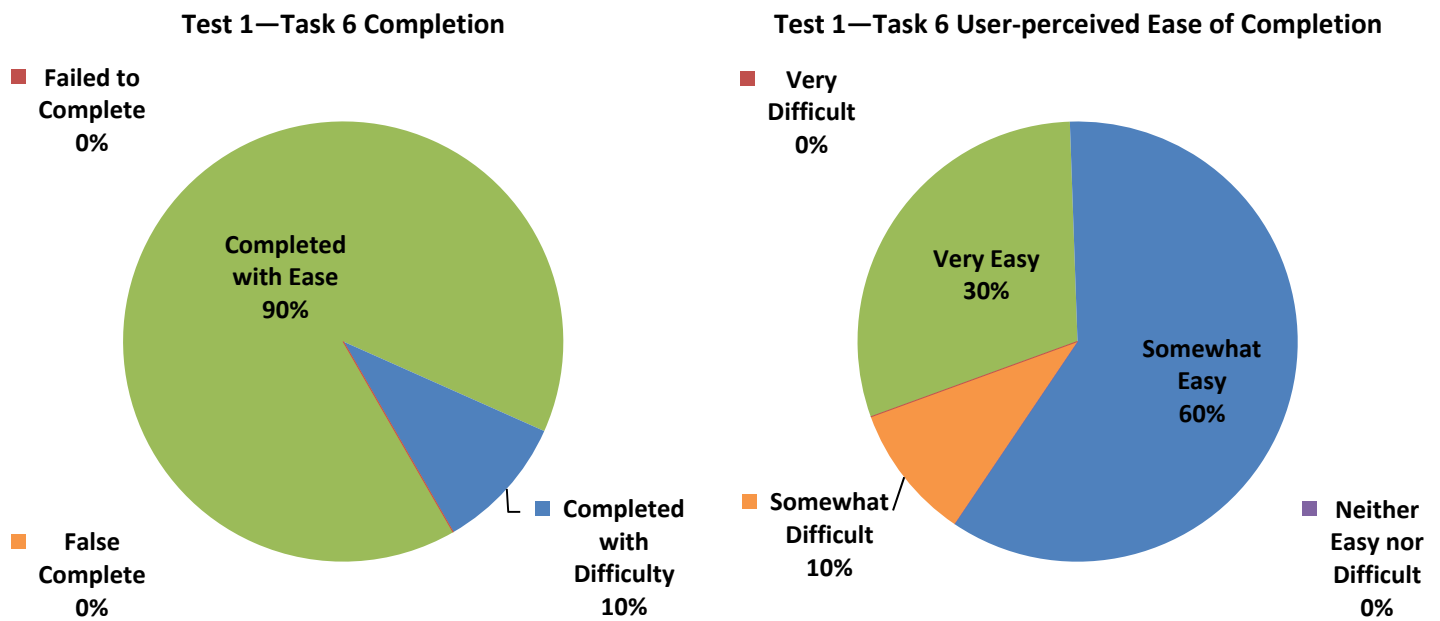


Figure 16: Test 1—Task 6: Completion and Ease of Completing Task Self-Report

Task 6 Results Summary

As shown in Figure 16, all of the participants (100%) were able to complete Task 6, and 90% were able to do so with ease. Seven of the 10 participants found the Annual Conference page via a link in the News & Events box on the home page (either the direct conference page link or the Events & Announcements link). Two participants found the conference page via “ABCD* Events & Announcements” under “A” in the A-Z index. Finally, one participant scrolled around the home page and finally clicked on the conference page link at the very bottom of the page. None of the participants used the Conference Brick to navigate to the page, even though the Conference brick was displayed during this task, sometimes at the exact moment when a user was looking directly at the home page and commenting that they thought the conference should be more prominent.



The average time spent on this task was 1.23 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 6

1: Conduct more research into how users use the bricks (Severity: 2)

None of the participants used the ABCD* Annual Conference “brick” on the home page to navigate to the ABCD* Annual Conference page. In fact, none of the participants even appeared to notice the brick. One possible reason is that because the home page has so much information on it, the users’ eyes are constantly scanning over all of the text and options available and do not linger long enough on the brick area to notice its contents. Another possibility is that because the left navigation rollovers “replace” the brick, users quickly learn to associate that area of the home page with sub-navigation. First identified in 1998,ⁱⁱ there is a common phenomenon known as “banner blindness” where users scan for relevant information in text headings and text hyperlinks,ⁱⁱⁱ but gloss over colorful or animated graphics perceiving them as advertisements, and therefore unhelpful to the user’s purpose.

Issue areas: Information architecture, Interface design, Page structure, Consistency and standards, Error prevention

Recommendation (LOE: Medium)

While outside the scope of this round of testing, this observation makes the usefulness of the “bricks” a candidate for future usability testing and research, considering the valuable page real estate they occupy on the home page.

2: Duplication of content and unnecessary steps for users (Severity: 3)

Many users went no further than the ABCD*: Leading Through Innovation & Collaboration page and did not click either of two links on the page to access the actual conference web site (http://abcd*.capconcorp.com/abcd*/Registration.asp). This resulted in many participants assuming the capability to register online existed despite wording they had seen up to that point never indicating the means of registration (online submission? printable mail-in form? telephone number?). The ABCD*: Leading Through Innovation & Collaboration page provides no apparent added-value to the conference web site, and is an unnecessary step for users. Those users that did access the third-party conference web site were required to make additional clicks before reaching the actual online registration form. Duplicating content is a risk for misinforming users when content is not maintained concurrently. Leading users through intermediate web pages with no additional value causes unnecessary delay.

Issue areas: Consistency and standards, Editorial style, Error prevention, Forms & applications, Interface design, Site structure

Recommendation (LOE: High)

Perform a full content inventory and use the results to revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that information is not repeatedly duplicated across many pages.

Recommendation (LOE: Low)

Have all links on the ABCD* main web site link directly to the ABCD* 2011 Annual Conference web site as appropriate to the displayed link text.

On the conference web site, combine the Registration page (http://abcd*.capconcorp.com/abcd*/Registration.asp) and the first page of the registration form (<http://www.regonline.com/Register/Checkin.aspx?EventID=979506>) into a single web page to save the additional extra step.

3.7 Task 7—Locate the MEPSnet tool

Goal: The goal of this task was to gain insight into how well users can locate the Medical Expenditure Panel Survey (MEPS) and the MEPSnet Query Tool from ABCD*.gov. This scenario represents a common task performed by healthcare researchers on the ABCD* site, as described by stakeholders.

Task Scenario: You are interested in conducting research into what percentage of employees of private-sector companies are paying out-of-pocket toward the costs of their employer-sponsored health insurance premiums and you want to see if ABCD*.gov has any tools that can help you with this research. Look for a tool that will help you look up statistics relating to healthcare costs.

Question: Were you able to locate a tool that will help you look up statistics relating to healthcare costs? (**Answer:** Yes)

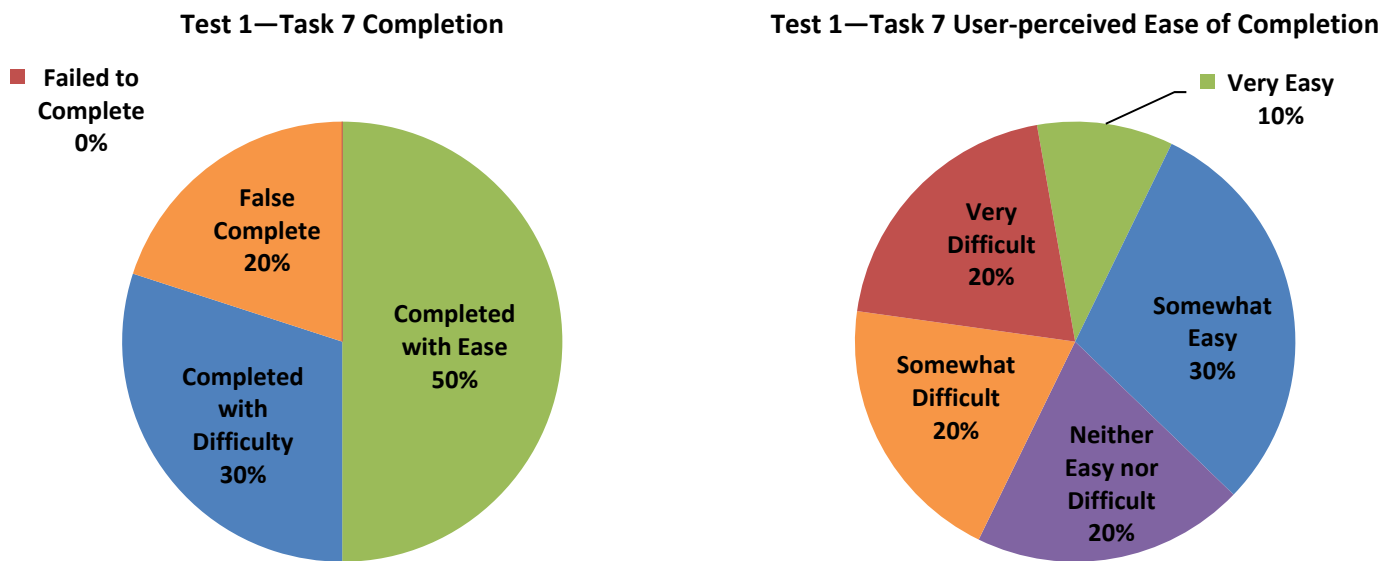


Figure 17: Test 1—Task 7: Completion and Ease of Completing Task Self-Report

Task 7 Results Summary

As shown in Figure 17, 80% of the participants were able to complete Task 7, and 50% were able to do so with ease.

This task had a false completion rate of 20%. One false complete came from an external participant and one came from an internal participant. The external participant in this case found the page of “ABCD* Analyses of MEPS Data Inform HHS Report on Declining Employer-Sponsored Insurance Coverage,” but did not go further than that, thinking that Healthreform.gov report would be the tool. The internal participant chose HCUP instead of MEPS, saying it was because “HCUP has cost in the name.”

The remaining internal participants were able to complete the task with ease, but several of them commented that they thought the only reason they could do this was because they know what MEPS is. One internal participant stated, “If I didn’t know what these were, I wouldn’t know which of these two would be more pertinent [talking about MEPS vs. HCUP].”



The average time spent on this task was 3.68 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 7

1: Navigation options and labels unclear (Severity: 3)

Users showed confusion about where to begin the task. While half of the users clicked on Data & Surveys first, many of them did so after significant searching around the home page, wondering aloud what they should click on. Some users went straight to a utility such as the A-Z Index or “Questions?” link, which suggests that the existing navigation did not give them an idea of where to start. Other users went to Research Findings, thinking that is where they would find tools. This information, combined with a high average task time, indicates that the navigation options and labels presented to the users at this point were not clear.

Issue areas: Information architecture, Interface design

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Navigation options and labels unclear (Severity: 3)

Once they found the Data & Surveys area of the web site, many external users expressed some confusion about which Data & Survey link to choose (MEPS or HCUP), and internal users often mentioned that they thought they only knew which one to choose because they work at ABCD*. Additionally, users on the Data & Surveys landing page had some confusion between the MEPS link and the MEPSnet link. Some users chose HCUP first because the word “Cost” stood out to them.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design

Recommendation (LOE: Low)

Expand the descriptions under each link on the Data & Surveys landing page to give more information about what each site and tool is.

3: Confusion on MEPS site (Severity: 2)

The primary goal of this task was to determine if users can locate the MEPS web site from ABCD*.gov, with a secondary goal of locating the MEPSnet interactive tool. Eight of the 10 participants found the MEPS web site, and five of those eight found the tool. However, many users who found the tool promptly “lost” it again by clicking in the navigation in the MEPS site. None of the users clicked the blue button to “Start MEPSnet.”

Issue areas: Consistency and standards, Content strategy, Error prevention, Forms and applications, Information architecture, Interface design

Recommendation (LOE: Medium)

Consider reviewing the usability of the MEPS web site, which is outside the scope of this project. Possibly make the interactive tool more prominent on the MEPS site.

3.8 Task 8—Locate a recent EPC Evidence Report

Goal: The goal of this task was to gain insight into how well users can locate Evidence-based Practice Center Evidence Reports on the ABCD*.gov web site. This scenario represents a common task performed by healthcare researchers on the ABCD* site, as described by stakeholders.

Task Scenario: You are developing a poster to present at the Annual Aging in America Conference on medication management and health IT. Go to http://www.abcd*.gov and see if you can find evidence based information on this topic.

Question: Were you able to complete this task? (Answer: Yes)

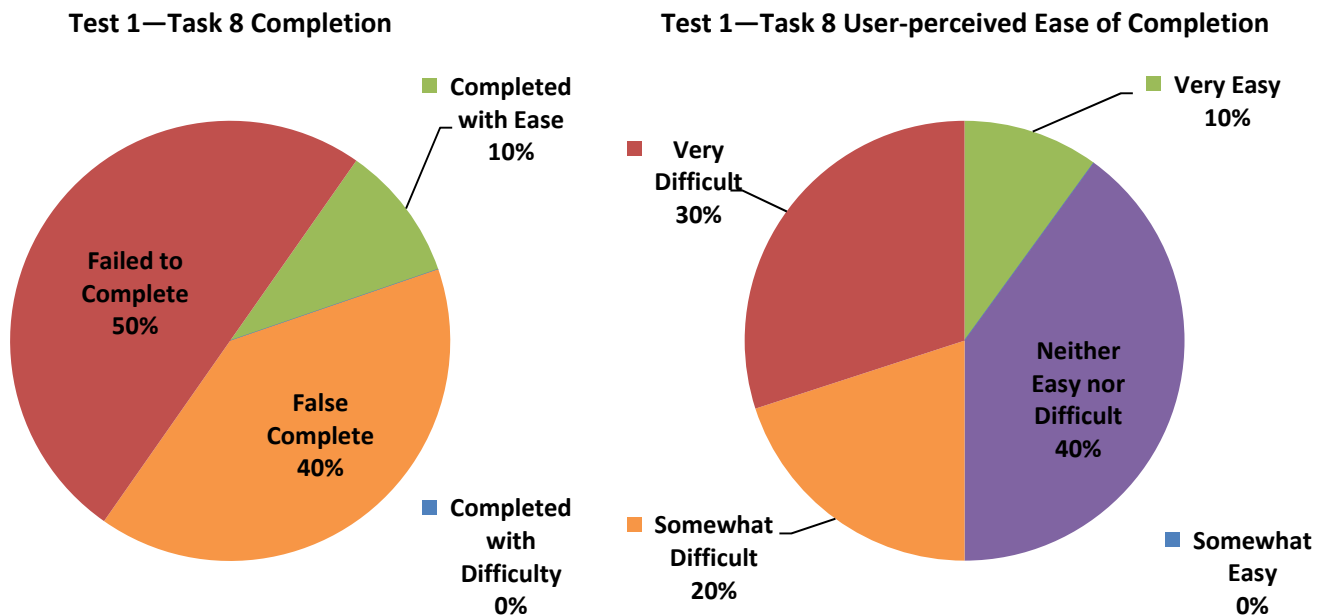


Figure 18: Test 1—Task 8: Completion and Ease of Completing Task Self-Report

Task 8 Results Summary

As shown in Figure 18, this task had an extremely high failure rate of 90%, where failure includes “Failed to Complete” or “False Complete.” This could be due, in part, to the complexity of the scenario. The scenario was written to ask users to find “evidence-based information on medication management and health IT,” but did not specifically tell the users to find something called “Evidence Reports.” However, even though the term “evidence-based” was used in the scenario, and many of the participants repeated the term “evidence-based” to themselves while performing the task, 80% of the participants went first to the Health IT web site (http://healthit.abcd*.gov) instead of going to Evidence-Based Practice under Clinical Information. Furthermore, even though the particular Evidence Report they were searching for had Health IT in the title, it could not be found on the Health IT web site. This is another example of disconnect between highly related information.



The average time spent on this task was 3.95 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 8

1: Disconnect between highly related information (Severity: 3)

80% of the participants went first to the Health IT web site (http://healthit.abcd*.gov) instead of going to Evidence-Based Practice under Clinical Information on the main ABCD* site. Even though the particular Evidence Report they were searching for had Health IT in the title, it could not be found on the Health IT web site. This is another example of disconnect between highly related information.

Issue areas: Consistency and standards, Content strategy, Information architecture, Interface design, Page structure, Site structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

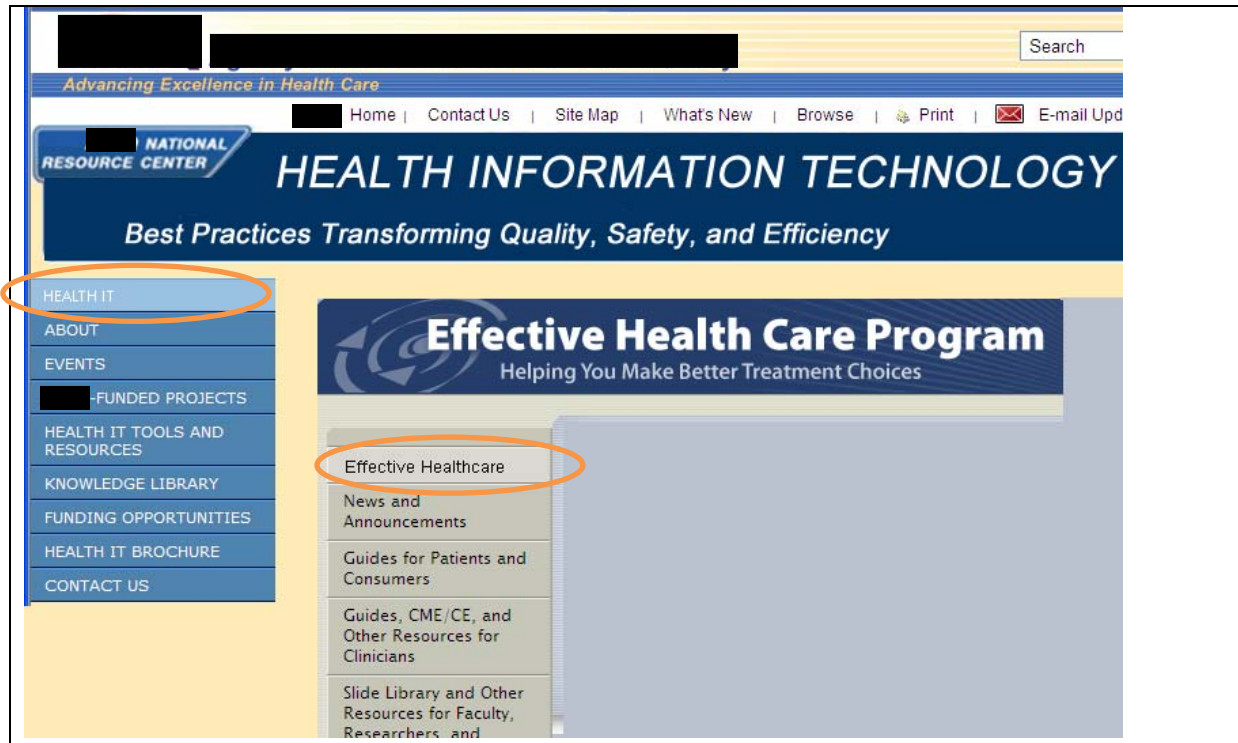
2: Trouble getting back to ABCD* Home from third-level domain site (Severity: 3)

Most users navigated to the Health IT sub-site during this task. Later, they wanted to get back to the ABCD* home page, and many of them had trouble doing so. Users clicked the “Home” tab at the top of the left navigation on the Health IT site and were then confused as to why they were not on the ABCD* home page. Most users who experienced this issue then resorted to hitting the browser’s back button repeatedly until they came to a page within the main ABCD* web site.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page structure, Site structure

Recommendation (LOE: Low)

Sub-sites that are still part of ABCD* (e.g., Health IT, Effective Healthcare, etc.) should not use generic “Home” links or buttons that return users to the home page of the sub-site. Instead, the “Home” buttons on these pages should be labeled with the name of the sub-site, without the term “Home.” “Home” should be reserved for www.abcd*.gov only.



3.9 Task 9—Locate an Evidence-Based clinical practice guideline

Goal: The goal of this task was to gain insight into how well users can locate Evidence-Based clinical practice guidelines on the ABCD*.gov web site. This scenario represents a common task performed by healthcare professionals in clinical practice on the ABCD* site, as described by stakeholders and based on health topic relevance supported by analysis of top ABCD* site search terms^{iv}.

Task Scenario: You are a primary-care physician and you have been recommending that some of your patients take aspirin to prevent cardiovascular disease. You read in a medical journal that ABCD* has guidelines on this topic. Locate the guidelines and answer the following questions.

Question: How recently were the guidelines updated? (**Answer:** March 2009)

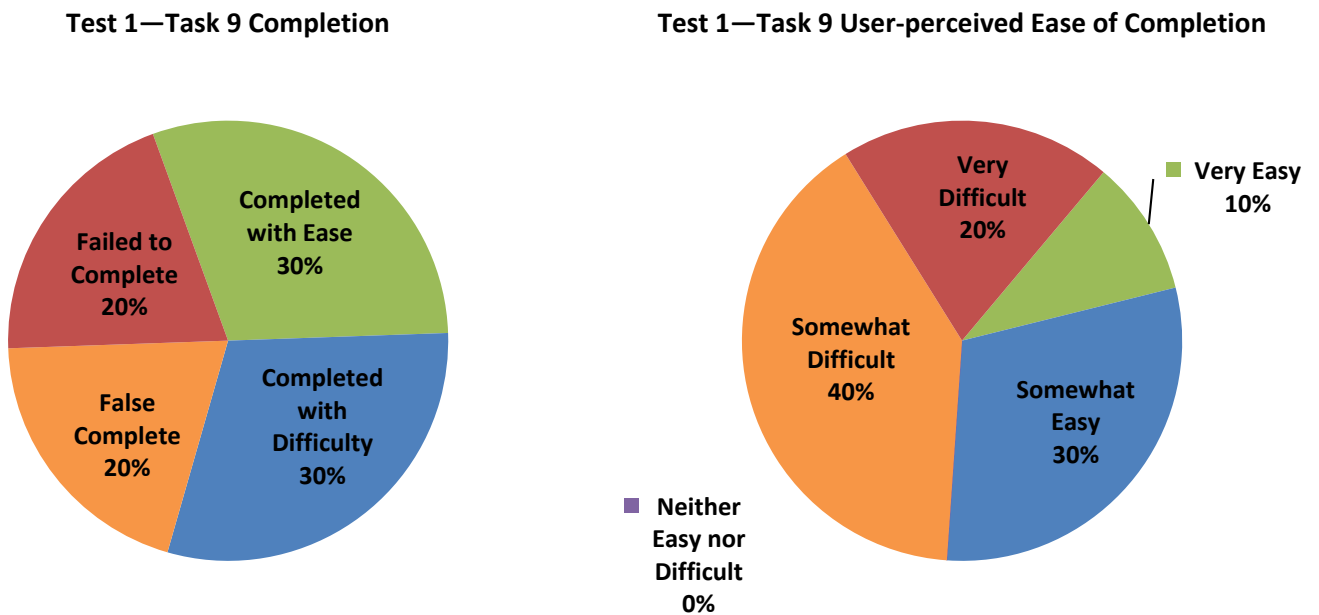


Figure 19: Test 1—Task 9: Completion and Ease of Completing Task Self-Report

Task 9 Results Summary

As shown in Figure 19, 60% of the participants were able to complete Task 9; although only 30% were able to do so with ease. Nine out of 10 participants stated at the beginning of the task that they were specifically looking for “guidelines” as a keyword. However, many participants had trouble finding anything on the home page that said “Guidelines,” even as they hovered near the word. Additionally, while most participants went immediately to either “Clinical Information” or “ABCD* for You > Clinicians & Providers,” they had trouble figuring out where to go next. This implies that the navigation options and labels presented to the users at this point were not clear.

Some task failures and difficulties resulted from users starting down one path and finding information that seemed relevant to the task, such as Cardiovascular Disease or Guides for Clinicians. Users would then persist along these paths thinking they were on the right track, which would ultimately lead them to failure or false completion. This is another example of disconnect between highly related information.



The average time spent on this task was 3.34 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 9

1: Navigation options and labels unclear (Severity: 3)

Nine out of 10 participants stated at the beginning of the task that they were specifically looking for “guidelines” as a keyword. However, many participants had trouble finding anything on the home page that said “guidelines,” even as the mouse cursor hovered near the word. Additionally, while most participants went immediately to either “Clinical Information” or “ABCD* for You > Clinicians & Providers,” they had trouble figuring out where to go next. This implies that the navigation options and labels presented to the users at this point were not clear.

Issue areas: Information architecture, Interface design

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Disconnect between highly related information (Severity: 3)

Some task failures and difficulties resulted from users starting down one path and finding information that seemed relevant to the task, such as Cardiovascular Disease (under Consumers & Patients > Understanding Diseases/Conditions) or Guides for Clinicians (under Effective Health Care). Users would then persist along these paths thinking they were on the right track, which would ultimately lead them to failure or false completion. This is another example of disconnect between highly related information.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page structure, Site structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

3: Search issues in Effective Health Care Program site (Severity: 2)

One failure resulted from a participant navigating to Effective Health Care, instead of to the National Guideline Clearinghouse. However, when in Effective Health Care, the participant used the “Search for Guides” option, but misspelled aspirin as “asprin,” which yielded no results. Search engines such as Google Search Appliance have the ability to offer suggestions/corrections for frequently misspelled words. The ABCD* Google Search Appliance would have suggested “aspirin” as an alternative search term. However, not all sub-sites are using the Google Search Appliance.

Issue areas: Consistency and standards, Content strategy, Error prevention, Forms and applications, Interface design, Site structure.

Recommendation (LOE: Medium)

Upgrade the Effective Health Care search engine to Google Search Appliance

3.10 Task 10—Locate the HCUPnet tool

Goal: The goal of this task was to gain insight into how well users can locate the HCUP interactive tool on the ABCD*.gov web site. This scenario represents a common task performed by healthcare researchers on the ABCD* website, as described by stakeholders.

Task Scenario: You read in a recent newsletter that national and regional statistics trends for hospitals are available through ABCD*. Find a tool on the ABCD* web site that will allow you to access statistics and information on hospital inpatient and emergency department utilization.

Question: Were you able to complete this task? (Answer: Yes)

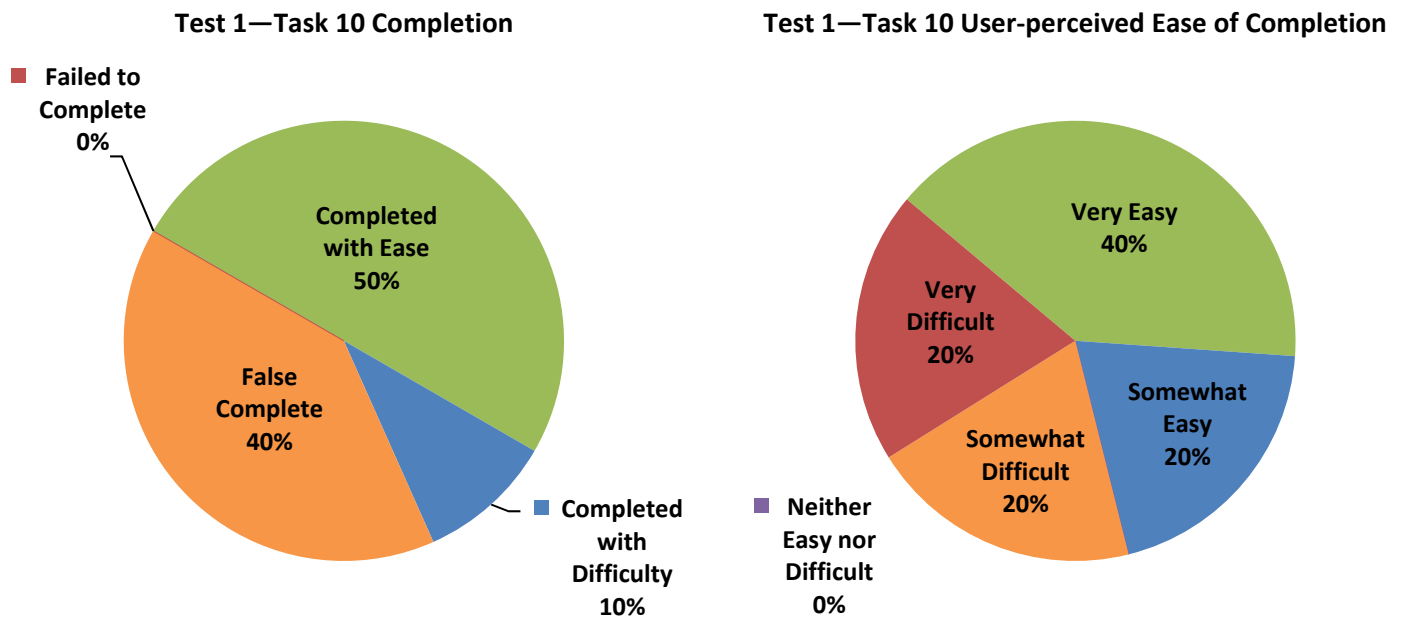


Figure 20: Test 1—Task 10: Completion and Ease of Completing Task Self-Report

Task 10 Results Summary

As shown in Figure 20, 60% of the participants were able to complete Task 10, and most were able to do so with ease. External participants had trouble deciding where to go to start this task, often looking around the home page for a long time and mentioning that they were confused about where to start.

This task had a high false completion rate of 40%. Most false completes in this task resulted because users found information about the Healthcare Cost & Utilization Project (HCUP), but did not make it all the way to the interactive tool at HCUPnet.

In this scenario, the average time for external participants was much higher at 4.76 minutes, with internal participants completing the task with a considerably faster average of 1.54 minutes. Many internal participants attributed success on this task to the fact that they work at ABCD* and know about HCUP.



The average time spent on this task was 3.15 minutes, which is slightly over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 10

1: Navigation options and labels unclear (Severity: 3)

Four of the five internal participants stated immediately they wanted to find “HCUP” and looked for it under Data & Surveys or the A to Z index. However, external participants had trouble deciding where to go to start this task. Many of the external participants stalled for an extended period of time on the home page, often saying something like, “I’m confused about where to go.” This implies that the navigation options and labels presented to the users at this point were not clear.

Issue areas: Consistency and standards, Content strategy, Information architecture, Interface design

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: HCUP Issues (Severity: 3)

Most of the false completes in this task resulted because the users made it to the HCUP page, or a Fact Sheet page about HCUP’s Databases, but not all the way to the interactive tool at HCUP net. Some of these users would see the term “Healthcare Cost & Utilization Project” and express confusion about what it is.

Issue areas: Content strategy, Error prevention, Information architecture, Interface design, Site structure

Recommendation (LOE: High)

The distinction for the two separate sites of HCUP-US and HCUPnet is not clear. Further testing is needed to understand whether the intended audience(s) for the two sites (a) understand the current distinction, and (b) would find it most efficient and effective to have two separate sites, one combined HCUP site, or perhaps some third alternative, such as integrating both sites into the overall ABCD*.gov site.

3: Trouble getting back to ABCD* Home from third-level domain site (Severity: 3)

Most users navigated to the HCUP sub-site during this task. Then later they wanted to get back to the ABCD* home page, and many of them had trouble doing so. Users clicked the “Home” tab at the left of the top navigation on the HCUP site and were then confused as to why they were not on the ABCD* home page. Most users who experienced this issue then resorted to hitting the browser’s back button repeatedly until they came to a page within the main ABCD* web site. This was especially pronounced on the HCUP site because the ABCD* header and utility navigation items were missing

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: Low)

Sub-sites that are still part of ABCD* (e.g., HCUP) should not use generic “Home” links or buttons that return users to the home page of the sub-site. Instead, the “Home” buttons on these pages

* Identifying information removed

should be labeled with the name of the sub-site, without the term “Home.” “Home” should be reserved for www.abcd*.gov only.

4: More disconnect between highly related information and “Link Fake-outs” (Severity: 3)

Users hovered over things they thought should be links, but turned out not to be. For example, on the HCUP Tools fact sheet page (http://www.abcd*.gov/data/hcup/datahcup.htm), users tried clicking on the database titles such as “State Inpatient Databases (SID)” or “State Ambulatory Surgery Databases (SASD).” This is another example of disconnect between highly related information, and is even more frustrating to users, because they can tell these items are related to the topic at hand, but they cannot get to them.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

Recommendation (LOE: Low)

When a piece of text is not intended to be a link, do not use common link colors for the font color (blue for un-visited links, purple for visited links). Likewise, make sure that pieces of text that are links are clearly visually indicated as links and have rollover behavior.

3.11 Task 11—Locate Effective Healthcare Continuing Education Resources

Goal: The goal of this task was to gain insight into how well users can locate the Effective Healthcare Continuing Education resources on the ABCD*.gov web site. This scenario was described by stakeholders as an important, but underutilized task available to healthcare professionals on the ABCD* site.

Task Scenario: You would like to take a continuing education class in effective health care for diabetes. Locate a listing for an available class on effective health care for diabetes and answer the following question.

Question: Were you able to locate a listing for an available class on effective health care for diabetes?
(Answer: Yes)

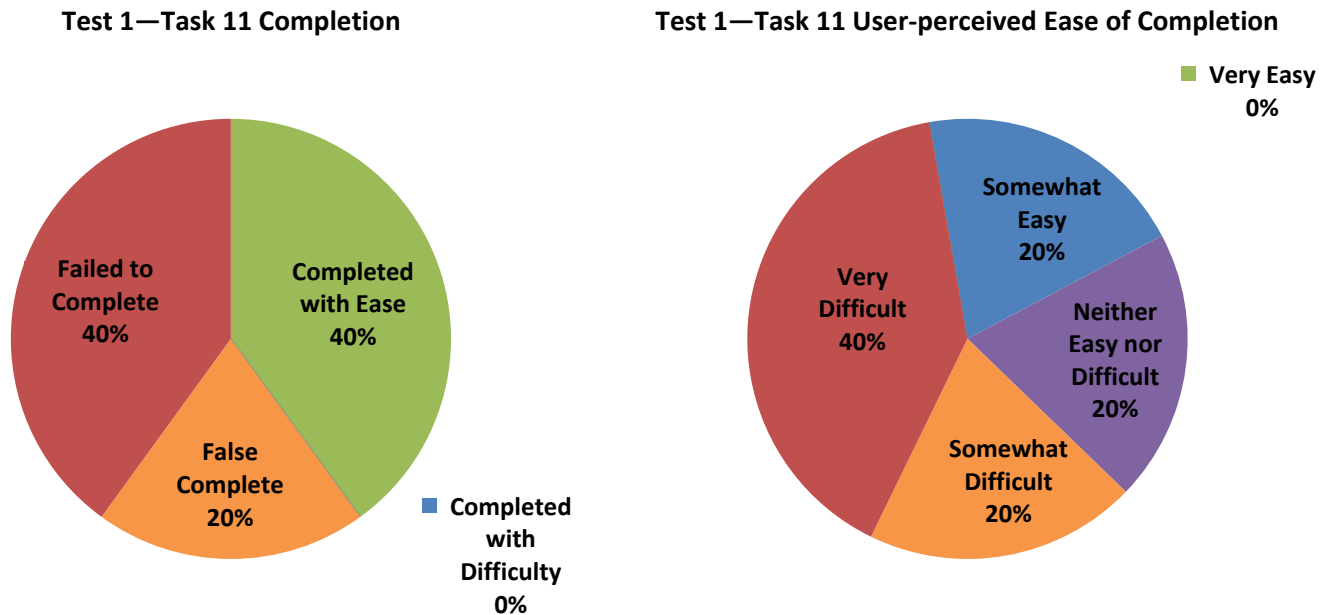


Figure 21: Test 1—Task 11: Completion and Ease of Completing Task Self-Report

Task 11 Results Summary

As shown in Figure 21, fewer than half of the participants (40%) were able to complete Task 11. Users who found the “Education Opportunities for Health Professionals” page immediately started looking for “diabetes.” They did not expect to have to wade through different sources at ABCD* of Continuing education. Both false completions in this scenario resulted from users finding the “Education Opportunities for Health Professionals” page and selecting the Comparative Effectiveness web conference about adults with type 2 diabetes.

The difference between success and failure on this task depended on whether or not the user honed in on the term “Effective Health Care.” Most of the users who succeeded on this task made a comment about choosing an “Effective Health Care” link because “that was a term in the question.” This suggests that had the question been worded without the term “Effective Health Care” in it, more users may have failed the task.



The average time spent on this task was 3.35 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 11

1: Disconnect between highly related information (Severity: 3)

Users expect related information to be in one place. Users who navigated to the Continuing Education for Health Care Professionals page (http://www.abcd*.gov/clinic/eduopps.htm) (from ABCD* For You > Clinicians or from A-Z Index > C) immediately started looking for “diabetes.” They did not expect to have to wade through different sources of continuing education at ABCD*. Both false completions in this scenario resulted from users finding the “Education Opportunities for Health Professionals” page and selecting the Comparative Effectiveness web conference about adults with type 2 diabetes.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

2: “Effective Health Care” Terminology not clear to users (Severity: 3)

The difference between success and failure on this task depended on whether or not the user honed in on the term “Effective Health Care.” Most of the users who succeeded on this task made a comment about choosing a link because “that was a term in the question.” This suggests that had the question been worded without the phrase “Effective Health Care,” more users may have failed the task. Even with that clue, users did not realize they were going to a separate area of the ABCD* web site (the third-level subdomain of “Effective Health Care”).

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design

Recommendation (LOE: High)

Integrate the content of the Effective Health Care sub-site with the ABCD*.gov main site, under a revised, more robust information architecture that allows users to reach all related information related to a particular topic in one area.

3: Duplicate Content on different pages (Severity: 3)

From the “Education Opportunities for Health Professionals” page (http://www.abcd*.gov/clinic/eduopps.htm), there is a link to a Comparative Effectiveness web conference (http://effectivehealthcare.abcd*.gov/components/webinar/04242009/files/lobby.html). On the Effective Health Care CME/CE page under Diabetes, there is also a link to this web conference (http://effectivehealthcare.abcd*.gov/index.cfm/search-for-guides-reviews-and-reports/?pageaction=displayproduct&productid=108). Upon close inspection, these appear to be identical content, but they are presented in very different formats. Users who come across these pages will not quickly recognize that they are duplicates, and think they have found two different related pieces of content. Additionally, duplicate content doubles the effort for updating and

* Identifying information removed

maintaining content, and also takes up extra storage space.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Perform a full content inventory and use the results to revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that information is not repeatedly duplicated across many pages.

* Identifying information removed

4 Test 2 (Patients/General Public and Policymakers/Media) Individual Task Results and Recommendations

4.1 Task 1—Locate Consumer-focused material that was advertised

Goal: The goal of this task was to gain insight into how well users can locate consumer/patient-focused material from the ABCD*.gov home page on a subject that has been recently marketed by ABCD*. This scenario was described by stakeholders as a common task done by Patients or General Public on the ABCD* site.

Task Scenario: You recently saw an ad on TV encouraging you to ask a lot of questions of your doctor and the ad referred you to ABCD*.gov. You are having surgery soon and you want to find out more information. Locate on the ABCD* web site where you can obtain a list of questions you can take with you to your next doctor’s appointment to make sure you get all of the necessary information before receiving surgery.

Question: Were you able to complete this task? (Answer: Yes)

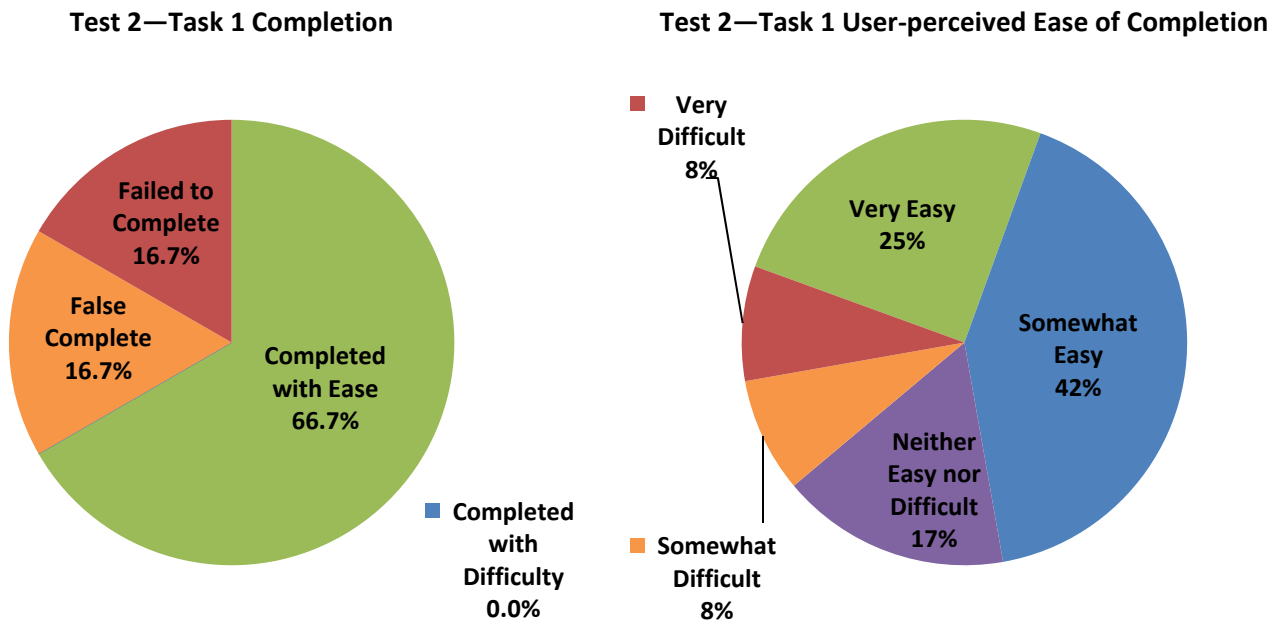


Figure 22: Test 2—Task 1: Completion and Ease of Completing Task Self-Report

Task 1 Results Summary

As shown in Figure 22, 66.7% of the participants were able to complete Task 1, and all those who completed the task did so with ease. For this task, there was a major difference between the success rate of internal participants with a 100% success rate, and external participants, who only had a success rate of less than 30%. Many internal participants even commented that they thought they only knew where to find “The top 10 Questions” because they work at ABCD*. Additionally, internal participants spent an average of over a minute less time on this task, because they knew where to go.

All failures and false completions on this task came from external participants. Many of the failures and false completions resulted from users following a path that led to information elsewhere on ABCD*.gov that seemed to answer the question.

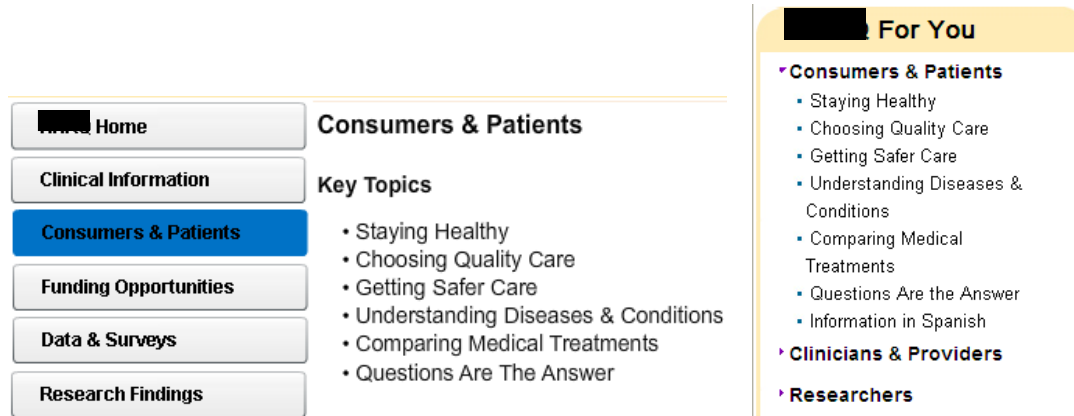


The average time spent on this task was 2.64 minutes, which is under the generally accepted three-minute limit. External participants spent an average of 3.14 minutes on the task, whereas internal participants spent an average of 1.94 minutes.

Usability Issues and Recommendations Associated with Task 1

1: Inconsistent Navigation rollover and landing page (Severity: 3)

Links to Questions are the Answer can be found in the rollover navigation on the home page under “Consumers & Patients” in the left navigation and also under “Consumers & Patients” in ABCD* for You. However, once a user has navigated past the home page into the Consumers & Patients section of the site, the main navigation no longer provides links to Questions are the Answer.



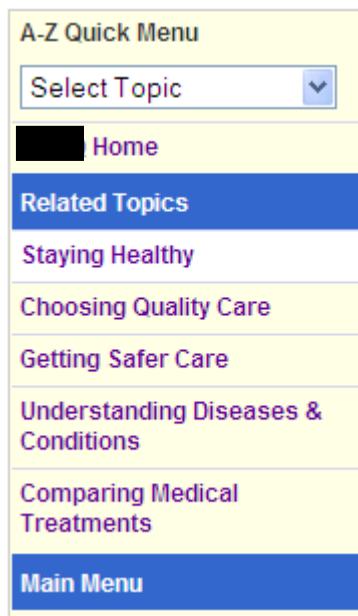
Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Ensure that navigation is consistent across all pages on the site. This could most easily be accomplished with the help of a content management system and page templates.

Recommendation (LOE: Low)

Add a link to the Questions area to the Consumers & Patients landing page (http://www.abcd*.gov/consumer/) and also in the left navigation of subsequent consumer pages.



2: Duplicate Content on different pages (Severity: 3)

All failures and false completions on this task came from external participants. Many of the failures and false completions resulted from users following a path that led to information elsewhere on ABCD*.gov that seemed to answer the question. For example, one user found content about Surgery under Consumers and Patients and found a page with a list of questions on it that is very similar to the surgery questions on “Questions are the Answer.” Duplicate content doubles the effort for updating and maintaining content, and also takes up extra storage space.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Perform a full content inventory and use the results to revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that information is not repeatedly duplicated across many pages.

3: Cluttered Home page leads to confusion (Severity: 3)

There was a major difference between the success rate of internal participants and external participants. Internal participants had a 100% success rate and an average task time of 1.94 minutes, whereas external participants only had a success rate of less than 30% and an average task time of 3.14 minutes. Most of the internal participants navigated to the Questions are the Answer section of the site via the links in the TV & Radio Ads box on the homepage. However, none of the external participants used links in that box, nor did they even seem to notice it. One possible explanation for this is that the Home page provides such an overload of information that many users do not notice the things to which ABCD* wants to draw their attention. Throughout the tests, when looking at the home page, participants made comments such as, “Whenever I see this home page, it’s not actually clear that this is the home page after you get there because there’s so much information. It feels like there should be another place that starts you off.”

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revising the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust and reintegrating some of the third-level subdomain sites back into ABCD*.gov would allow the home page to be redesigned and greatly simplified.

4.2 Task 2—Locate Consumer-focused material on a particular subject

Goal: The goal of this task was to gain insight into how well users can locate consumer/patient-focused material on a subject from the ABCD*.gov home page if they have in mind concepts or words related to a particular health condition. This scenario was specifically developed to see how well users can locate consumer-focused material within the Effective Healthcare site.

Task Scenario: You just completed your annual physical exam with your doctor and you found out that you have high cholesterol. Locate material on the ABCD* web site that will give you advice on managing your high cholesterol.

Question: What is the name of the area of the site where you can find information about treating high cholesterol? (**Answer:** Effective Health Care)

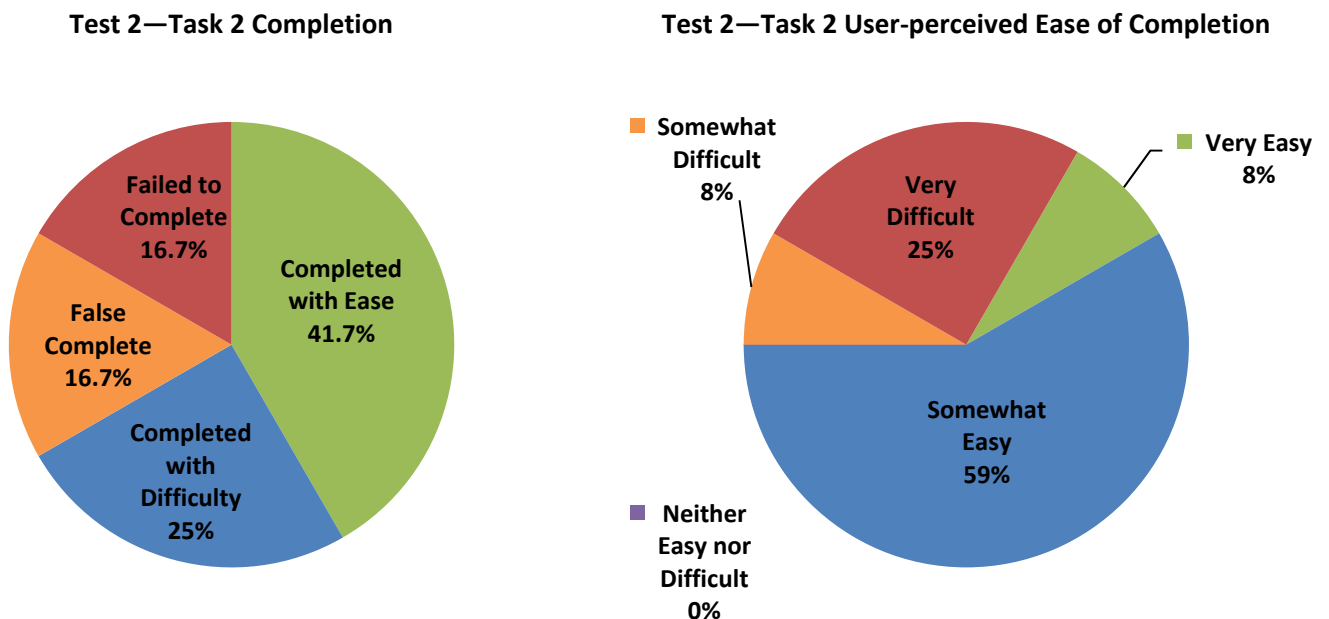


Figure 23: Test 2—Task 2: Completion and Ease of Completing Task Self-Report

Task 2 Results Summary

As shown in Figure 23, 66.7% of the participants were able to complete Task 2 and 41.7% were able to do so with ease. Most users had no trouble identifying themselves as “Consumers or Patients” for this task. Difficulty in this task stemmed from participants having trouble deciding where to go once they got to the “Consumers” section of the site. For the topic of High Cholesterol, some participants expressed confusion between going to “Staying Healthy” or “Understanding Diseases & Conditions.” Other difficulties came from users attempting to go straight to the A-Z index or Quick Menu dropdown and look for Cholesterol. This is another example of users looking first for specific healthcare topics (disease, condition, etc.) instead of categorical topics (guides, recommendations, etc.).

Because this scenario was specifically geared toward finding consumer information within Effective Healthcare, failures and false completions in this task resulted from users finding other cholesterol information elsewhere on the site, or starting down the right path, but not seeing or noticing the link to High Cholesterol information because it was buried in a long list of other links.



The average time spent on this task was 2.99 minutes, which is slightly under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 2

1: Terminology issues, users wanted to look for specific healthcare topic (Severity: 3)

After identifying themselves as Consumers looking for information about high cholesterol, users expressed confusion between going to “Staying Healthy” or “Understanding Diseases & Conditions.” Once users clicked on Consumers & Patients, they were expecting to then be able to look immediately for information on the specific medical topic (Cholesterol) without having to first figure out if high cholesterol counts as an actual “disease.”

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

Recommendation (LOE: Medium)

Thoroughly update the index so it is a more fully comprehensive index for all ABCD* sites

2: Locating specific links in the large list of links was difficult (Severity: 3)

A small number of users found the right page for linking to the Treating High Cholesterol Consumer Guide, (Consumers & Patients > Understanding Diseases & Conditions), but despite several scans through the list of links, never saw the link to the cholesterol guide. These users then left that page, thinking that information was not there. Many other users did not give up, but had to scan the page repeatedly, scrolling down, up, down, and up again, before finally finding the category label of “Cholesterol, High.”

Issue areas: Content strategy, Error prevention, Interface design, Page design, Page structure

Recommendation (LOE: Medium)

Locate all pages within the ABCD*.gov website that consist of long lists of blue links. Fix these pages to make the lists of links easier to scan by utilizing more white space between links and creating larger and more prominent category labels.

4.3 Task 3—Locate Consumer-focused material on a different subject

Goal: The goal of this task was to gain insight into how well users can locate consumer/patient-focused material on a subject from the ABCD*.gov home page if they have in mind concepts or words related to a particular health condition. This scenario was described by stakeholders as a common task done by Patients or General Public on the ABCD* site. This scenario was specifically developed to be similar to a scenario in Test 1.

Task Scenario: You are finally ready to quit smoking. Find material on the ABCD* web site that can help you on your quest.

Question: How many different pieces of information are available on ABCD*.gov to help you quit?

(Answer: Number of resources may vary by user)

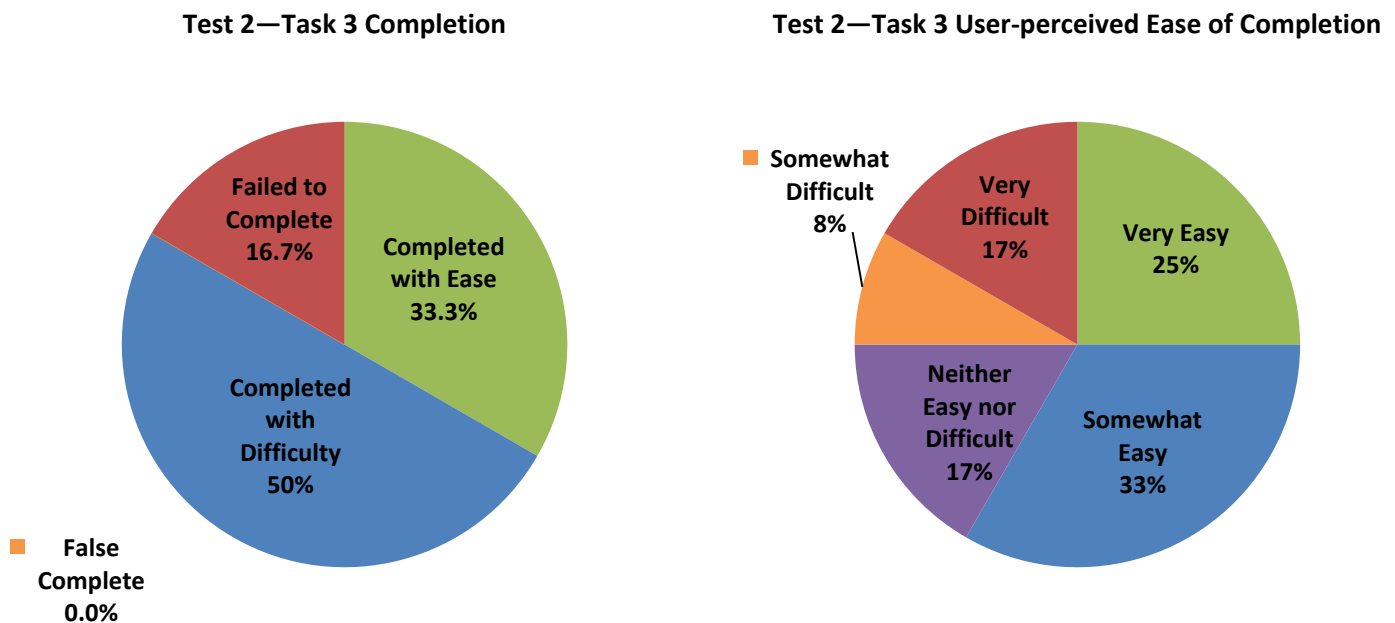


Figure 24: Test 2—Task 3: Completion and Ease of Completing Task Self-Report

Task 3 Results Summary

As shown in Figure 24, 83.3% of the participants were able to complete Task 3; although only 33.3% were able to do so with ease. Much of the difficulty in this task came from users being led astray by the A-Z index, because the only “smoking” link under “S” takes the users to the USPSTF content about tobacco cessation, which is geared toward clinicians, not consumers. At this point, some participants would start over at the home page and look under Consumers & Patients. Other participants would think that this was the only information ABCD* has about smoking, so they would end the task.

Additionally, seven of the ten participants used some sort of utility tool, such as the A-Z index or sitemap, which suggests that the navigation for the site was not particularly intuitive to them.



The average time spent on this task was 3.61 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 3

1: Disconnect between highly related information (Severity: 3)

Users who found resources via the pathfinder page had more items to choose from than users who found resources under Consumers & Patients > Staying Healthy.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

2: Navigation options and labels unclear (Severity: 3)

Seven of the 12 participants used some sort of utility tool, such as the A-Z index or Quick Menu dropdown, which suggests that the navigation for the site was not particularly intuitive to them or that the navigation options and labels presented to the users were not clear to them.

Issue areas: Consistency and standards, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

3: Inconsistency between navigation tools (Severity: 3)

Participants who used the A-Z index from the home page and looked under "S" for "smoking" find only a link to "Smoking (Tobacco Use), U.S. Preventive Services Task Force recommendations." Looking under "T" for "tobacco" provides the same USPSTF link, in addition to a link to the "Treating Tobacco Use and Dependence" Clinical Guideline page and the "Tobacco Use: Prevention, Cessation, and Control" EPC Report. However, users who used the A-Z index for this task did not think to look under "T" for "tobacco." Additionally, participants who used the A-Z Quick Menu dropdown on internal pages are only presented with one option "Tobacco Cessation" which takes them to the Clinical Guideline pathfinder page. Users were more likely to look for something that said "Smoking" or "Quit Smoking."

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture

Recommendation (LOE: High)

Ensure that navigation is consistent across all pages on the site. This could most easily be accomplished with the help of a content management system and page templates.

Recommendation (LOE: Medium)

Thoroughly update the index so it is a more fully comprehensive index for all ABCD* sites, and update the A-Z Quick Menu dropdown to be consistent with the A-Z index.

4.4 Task 4—Find an HCUP statistical brief

Goal: The goal of this task was to gain insight into how well users can locate information relating to general healthcare statistics if they have in mind concepts or words related to a particular condition or population group. This scenario was described by stakeholders as a common task done by Policymakers or Media on the ABCD* site.

Task Scenario: You are writing a story about childbirth experiences in the United States and your research has led you the Agency for Healthcare Research and Quality web site. Can you find any recent research on ABCD*.gov that tells you how many American women, on average, experience some type of complication during childbirth?

Question: (a) Where did this information come from? (b) Which age group of women had the most complications? (15–17 years; 18–24 years; 25–34 years; 35–44 years) (Answer: HCUP, 25–34 years)

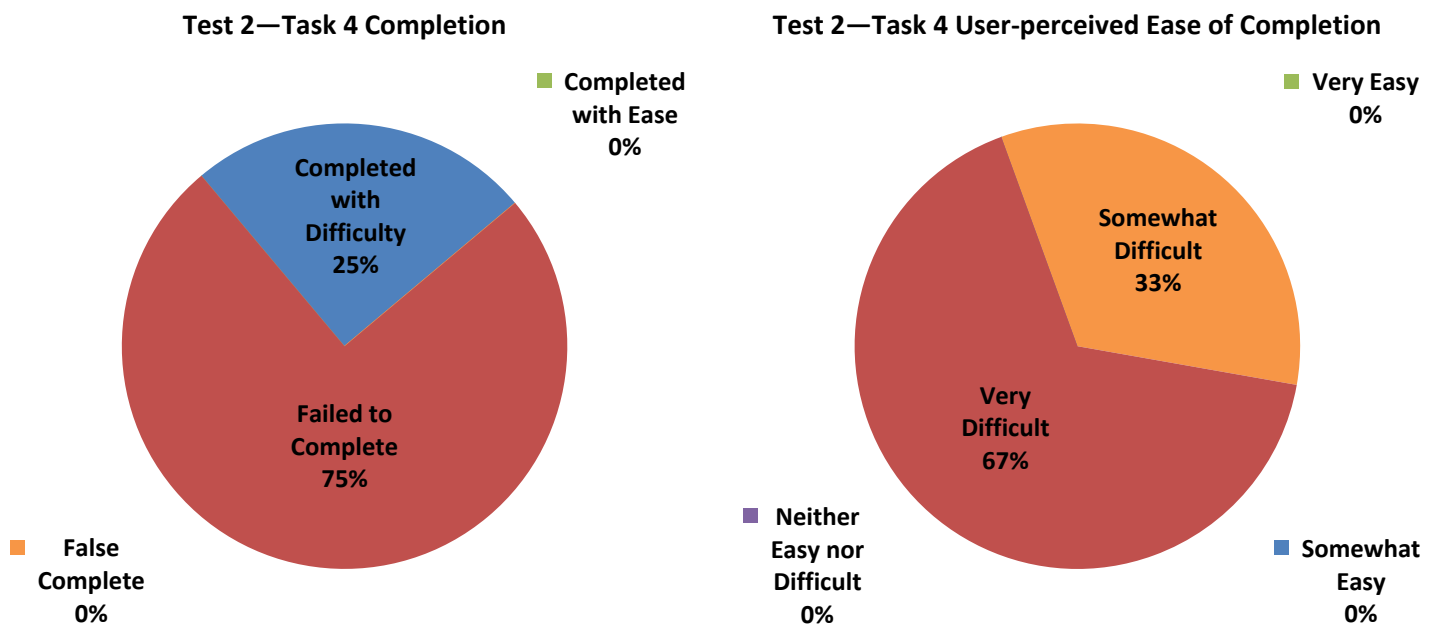


Figure 25: Test 2—Task 4: Completion and Ease of Completing Task Self-Report

Task 4 Results Summary

As shown in Figure 25, only 25% of the participants were able to complete Task 4, but none were able to complete the task with ease. Most of the participants made multiple attempts at finding a different “path” to navigate in order to find the information, most often returning to the ABCD* home page in order to “start over,” instead of using the persistent left navigation available throughout the site.

Most of the failures on this task involved users finding some statistical information about childbirth or maternity health, but not finding the specific information they wanted. Many participants would give up at this point. This is another example of disconnect between highly related information on the ABCD* web site.



The average time spent on this task was 6.88 minutes, which is well over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 4

1: Navigation options and labels unclear (Severity: 3)

Most of the participants made multiple attempts at finding a different “path” to navigate in order to find the information. Users would often get a few clicks down one path, and then decide that they wanted to go a different way. At this point, most users would return to the home page and start over again, instead of using the persistent left navigation. In fact, very few participants used the persistent left navigation throughout the entire test. This could be attributed to the navigation disappearing so often on content pages, or because the navigation changes completely when users navigate to a third-level subdomain site. Participants also exhibited a high reliance on utility tools, such as the A-Z index or Quick Menu topic dropdown, which indicates that the navigation options were not clear to them. Participants’ initial paths reached throughout the ABCD* Site: some went to Research Findings, some went to Priority populations, some went to Consumers & Patients; many went straight to the A-Z index or the Quick menu. This supports the need for robust information architecture because people will take many different paths to get to the same topic.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Disconnect between highly related information (Severity: 3)

Most of the failures on this task involved users finding some statistical information about childbirth or maternity health, but not finding anything regarding complications in childbirth, or age groups, etc. At this point, many users would conclude that the information was not available on ABCD* and give up. This is another example of disconnect between highly related information on the ABCD* web site. Navigating to “Priority Populations > Women’s Health” provides users with a slew of link options, but these are very different from the options available when navigating to “Research Findings > Fact Sheets > Women’s Health.” Different information is available by going to “Consumers & Patients > Understanding Diseases & Conditions > Pregnancy & Delivery.” Users do not expect information about one topic to be spread all over the site, without clear ways of getting from one area to another.

For example, some users found the “Women’s Health Highlights: Recent Findings” page (http://www.abcd*.gov/research/womenh1.htm), and thought they were on the right track. They became excited when they saw the section on Pregnancy and Childbirth, but as they read through the summaries in that section, very few of them had links to more information.”

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the

* Identifying information removed

help of a content management system using metadata.

3: HCUP issues (Severity: 2)

Five of the failures involved participants somehow getting to an HCUP page, such as Statistical Brief #110 (http://www.hcup-us.abcd*.gov/reports/statbriefs/sb110.jsp) or a Facts & Figures table of contents page (http://www.hcup-us.abcd*.gov/reports/factsandfigures/2007/TOC_2007.jsp), but not being able to get from those pages in HCUP to the desired Statistical Brief #113 page where the answers are. When users linked directly to a specific Statistical Brief from an ABCD* page, when they get there, there is no indication that there may be other briefs on related topics.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: Medium)

Consider reviewing the usability of the HCUP web site, which is outside the scope of this project.

4.5 Task 5—Locate recommendations for preventive services

Goal: The goal of this task was to gain insight into how well users can locate information relating to which clinical preventative services are recommended by medical experts. This scenario was described by stakeholders as a common task done by Policymakers or Media on the ABCD* site.

Task Scenario: You are a public health policy maker advocating for preventative care. Find information that will help you determine which preventative services are recommended by the medical community.

Question: Does the ABCD* web site provide any information about which preventive services are recommended for adults by the experts? (**Answer:** Yes)

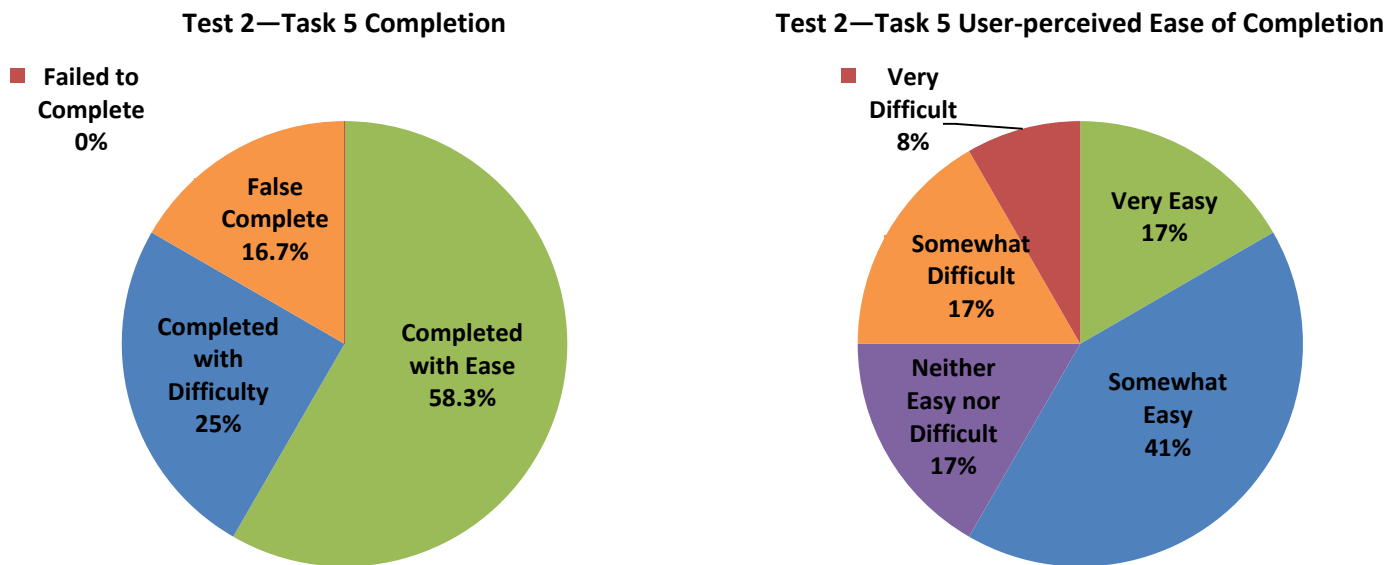


Figure 26: Test 2—Task 5: Completion and Ease of Completing Task Self-Report

Task 5 Results Summary

As shown in Figure 26, 83.3% of the participants were able to complete Task 5, and 58.3% were able to do so with ease. Three of the four internal participants who succeeded on this task directly attributed their success to the fact that they already knew about the U.S. Preventive Services Task Force. Four of the six external participants who succeeded on this task did so by using a utility tool such as the A-Z index or the Quick Menu dropdown. This information, combined with the longer-than-average task time, suggests that the navigation options and menu labels were unclear to the external users.

One internal participant and one external participant failed this task by having a false completion. Both of these false completions were due to the participants finding Consumer-focused information about Preventing Diseases (Women stay healthy at any age, Women stay healthy at 50+), and thinking this was the only information available. One participant commented, “I assume it’s recommended by the experts if they put it on their .gov web site.”



The average time spent on this task was 3.60 minutes, which is over the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 5

1: Navigation options and labels unclear (Severity: 3)

Most of the internal participants who succeeded on this task directly attributed their success to the fact that they already knew about the U.S. Preventive Services Task Force. Most of the external participants who succeeded on this task did so by using a utility tool such as the A-Z index or the Quick Menu dropdown. This information, combined with the longer-than-average task time, suggests that the navigation options and menu labels were unclear to the external users.

Issue areas: Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

2: Disconnect between highly related information (Severity: 3)

Both false completions on this task were due to the participants finding Consumer-focused information about Preventing Diseases (Women stay healthy at any age, Women stay healthy at 50+), and thinking this was the only information available. One participant commented, "I assume it's recommended by the experts if they put it on their .gov web site."

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

4.6 Task 6—Locate Consumer-focused material for a friend

Goal: The goal of this task was to gain insight into how well users can locate consumer/patient-focused material on a subject from the ABCD*.gov home page if they have in mind concepts or words related to a particular health condition. This scenario was described by stakeholders as a common task done by Patients or General Public on the ABCD* site.

Task Scenario: A close friend of yours has been told that she has an increased risk for breast cancer and someone suggested to her that she should take medicine to reduce her risk. Look for information on ABCD*.gov that will help her discuss the topic of taking medicine to reduce her risk for breast cancer with her doctor.

Question: Does ABCD* have any materials specifically addressing the use of medication to prevent breast cancer? (**Answer:** Yes)

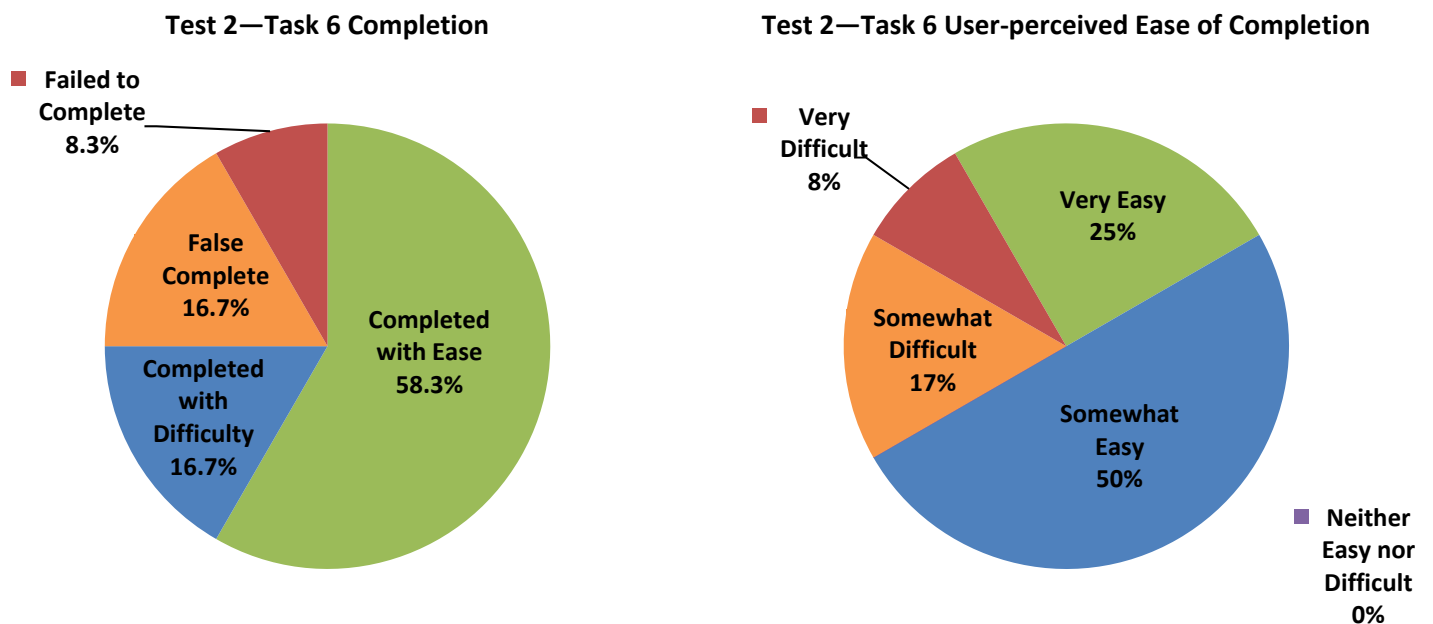


Figure 27: Test 2—Task 6: Completion and Ease of Completing Task Self-Report

Task 6 Results Summary

As shown in Figure 27, 75% of the participants were able to complete Task 6; and most (58.3%) were able to do so with ease. Difficulty on this task can be attributed to disconnect between highly related information and incomplete/out of date index. Many users were led astray on this task by finding the USPSTF Breast Cancer Chemoprevention recommendation page, which does not provide links to any other resources. Some users found this page because they used the A-Z index, looked at “B” for “Breast Cancer,” and the only link provided on the index was to the USPSTF Recommendations page. Other users navigated to the Women’s Health page and found the section on Cancer, but the only link there related to this task was also to the USPSTF recommendation page.



The average time spent on this task was 2.64 minutes, which is under the generally accepted three-minute limit. External participants spent an average of 3.55 minutes on the task, whereas internal participants spent an average of 1.35 minutes.

Usability Issues and Recommendations Associated with Task 6

1: Disconnect between highly related information (Severity: 3)

Some participants found the USPSTF recommendation page about Chemoprevention of Breast Cancer (<http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrpv.htm>), and they thought that was the only information available on the topic, so they ended the task with a false complete. There is no link to the Effective Health Care Program's "Reducing the Risk of Breast Cancer With Medicine" Guide from the USPSTF Recommendation page. Other users found the EHC's guide (task success), but were unable to complete the next task (find the recommendation), because there is no link from the EHC guide to the USPSTF recommendation. This is another example of disconnect between highly related information.

Another example of this disconnect was demonstrated by users who found the "Women: Stay Healthy at Any Age" or "Women: Stay Healthy at 50+" pages under Prevention & Care Management. Participants noticed statements on both of these pages that said, "**Breast Cancer Drugs**. If your mother, sister, or daughter has had breast cancer, talk to your doctor about whether you should take medicines to prevent breast cancer." However, there are no links to additional information associated with this statement. Users expressed frustration that there were no links to more information.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

Recommendation (LOE: Medium)

Perform a complete content inventory and add links to related information where appropriate throughout the web site.

2: Terminology issues, users wanted to look for specific healthcare topic (Severity: 3)

Most users immediately honed in on the term "Breast Cancer" in the task and immediately wanted to look around the ABCD*.gov web site for that term. Many users went straight to the A-Z index and looked under "B" for "Breast Cancer." This method did not work for them because the only Breast Cancer link in that page of the index leads to the USPSTF Recommendation page. Users also tried "M" for "Medication" and "C" for "Cancer" and had no luck.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site to be more robust, allowing users to reach all information about a particular health condition or topic from multiple facets or paths (for example, topical, functional, role/identity). This will give users clearer direction about where information is located and what is available on the web site.

Recommendation (LOE: Medium)

Thoroughly update the index so it is a more fully comprehensive index for all ABCD* sites

3: “en español” links/labels caused confusion (Severity: 2)

Two users in this scenario expressed confusion regarding the “(en español)” text following the link to “Reducing the Risk of Breast Cancer With Medicine: A Guide for Women” link on the Consumers > Comparing Medical Treatments page. Both of these users clicked on the link, and then immediately said something like, “Oh, no, I don’t want the Spanish version.”

Issue areas: Consistency and standards, Content strategy, Error prevention, Interface design, Page design, Page structure

Recommendation (LOE: Low)

Add more separation between the English link and the Spanish version. For example, consider adding the text “(Consumer Guide)” as non-linked text between the English title link and the “(en español)” link. See http://www.abcd*.gov/consumer/diseases.html under “Cancer” for an example.

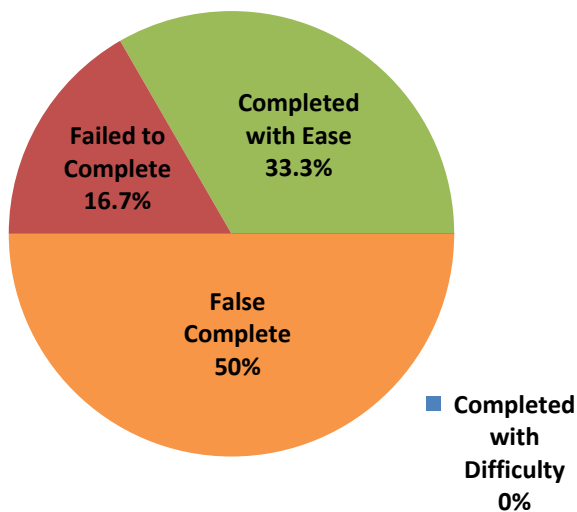
4.7 Task 7—Determine medical community’s recommendation on a medical issue

Goal: The goal of this task was to gain insight into how well non-medical users can locate information about guidelines or recommendations if they have in mind concepts or words related to a particular health condition. This scenario was described by stakeholders as a common task done by Patients or General Public on the ABCD* site.

Task Scenario: Your friend who is at increased risk for breast cancer has asked for your help in deciding if she should take the medicine her doctor recommended to lower her chance of breast cancer. You think her doctor might be out of touch, so you want to know what the medical experts recommend in this situation. Look on ABCD*.gov to determine if the medical experts recommend using medicines such as Tamoxifen or Raloxifene to help prevent breast cancer.

Question: Does the medical community recommend the use of medications to reduce the risk of breast cancer? (**Answer:** Yes or no answer may vary by user/open to interpretation)

Test 2—Task 7 Completion



Test 2—Task 7 User-perceived Ease of Completion

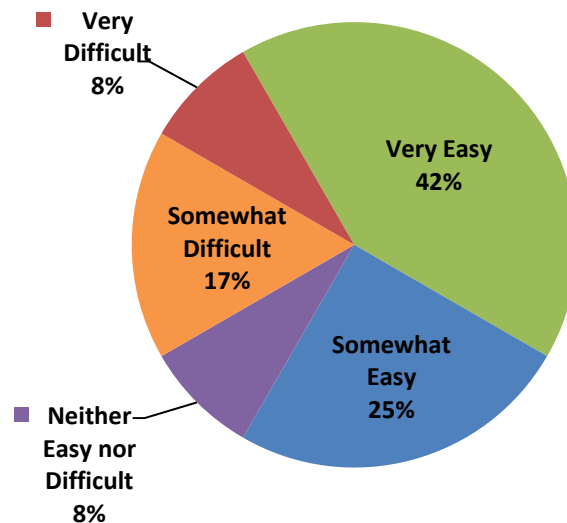


Figure 28: Test 2—Task 7: Completion and Ease of Completing Task Self-Report

Task 7 Results Summary

As shown in Figure 28, only a third of the participants (33.3%) were able to complete Task 7, and those who completed the task did so with ease. Many participants who succeeded on the previous task by finding the Effective Health Care Program’s “Reducing the Risk of Breast Cancer with Medicine” Guide were unable to complete or falsely completed this task because there is no link from the EHC guide to the USPSTF recommendation. This is another example of disconnect between highly related information. External participants spent an average of 3.03 minutes on the task, whereas internal participants spent an average of 1.87 minutes. However, acceptable time on task with high False Complete numbers in this task indicates disconnect between highly related information.



The average time spent on this task was 2.55 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 7

1: Disconnect between highly related information (Severity: 3)

Many participants who succeeded on the previous task by finding the Effective Health Care Program's "Reducing the Risk of Breast Cancer With Medicine" Guide were unable to complete this task of finding the recommendation, because there is no link from the EHC guide to the USPSTF recommendation. This is another example of disconnect between highly related information. Another example of this disconnect was demonstrated by users who found the "Women: Stay Healthy at Any Age" or "Women: Stay Healthy at 50+" pages under Prevention & Care Management. Participants noticed statements on both of these pages that said, "**Breast Cancer Drugs**. If your mother, sister, or daughter has had breast cancer, talk to your doctor about whether you should take medicines to prevent breast cancer." However, there are no links to additional information associated with this statement. Users expressed frustration that there were no links to more information.

Issue areas: Consistency and standards, Content strategy, Error prevention, Information architecture, Interface design, Page design, Page structure

Recommendation (LOE: High)

Revise the information architecture (organization and presentation of information, navigation, and taxonomy) of the site so that highly related information is not disconnected or isolated in separate areas of the web site and third-level domain sites. This could most easily be accomplished with the help of a content management system using metadata.

Recommendation (LOE: Medium)

Perform a complete content inventory and add links to related information where appropriate throughout the web site.

2: Locating specific links in the large list of links was difficult (Severity: 3)

Even when participants got to the right page, they often did not find the link they were looking for, because it is buried in a long list of links. In this task, some users found the Cancer section of the USPSTF's Recommendations for Adults page (http://www.abcd*.org/adultrec.htm#cancer), but did not see the link to the Recommendation. One user even read the link above it out loud, "Breast Cancer: Screening," and commented, "That's screening, that's not what I want" and then immediately clicked the browser's back button thinking the information he wanted was not one this page.

Issue areas: Content strategy, Information architecture, Interface design, Page structure

Recommendation (LOE: Medium)

Locate all pages within the ABCD*.gov website that consist of long lists of blue links. Fix these pages to make the lists of links easier to scan by utilizing more white space between links and creating larger and more prominent category labels.

4.8 Task 8—Subscribe to the Research Findings Newsletter

Goal: The goal of this task was to gain insight into how well users can locate the subscription services available on ABCD*.gov. This scenario was described by stakeholders as a common task done by Policymakers or Media on the ABCD* site.

Task Scenario: You are an aide to an elected official who has assigned you to stay on top of all the latest information on Healthcare Quality Research. You want to find out if there is a way for you to keep abreast of all research going on at ABCD* without having to remember to visit the web site every week or month. Sign up for a service offered by ABCD* that will keep you up to date.

Question: Were you able to complete this task? (Answer: Yes)

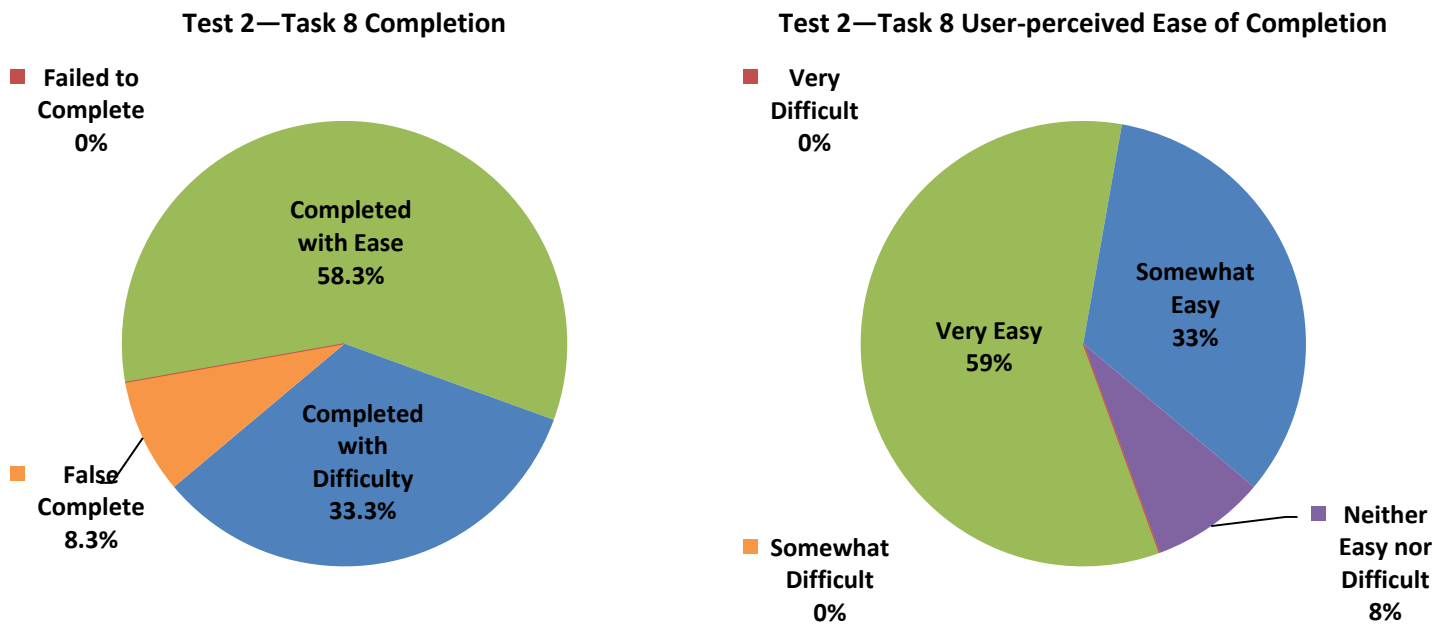


Figure 29: Test 2—Task 8: Completion and Ease of Completing Task Self-Report

Task 8 Results Summary

As shown in Figure 29, almost all of the participants (91.6%) were able to complete Task 8, and most (58.3%) were able to do so with ease. The one false complete from this task resulted from a user signing up for the “What’s New” email updates instead of the “Research Findings Newsletter” email updates.

The only other issue encountered in this task was that users who clicked on the “Email Updates” link in the top utility navigation (usually from the home page) expressed a desire to see which email updates they were signing up for before they entered their email address. This could be considered a GovDelivery issue.



The average time spent on this task was 1.47 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 8

1: Very long list of GovDelivery options is hard to scan (Severity: 2)

Participants who chose to enter their email address in this task and were presented with all email update options available seemed overwhelmed by the long and crowded list of options.

Issue areas: Consistency and standards, Content strategy, Information architecture, Page structure

Recommendation (LOE: Low)

When users access the GovDelivery options from the general “Email Updates” link, the page with all of the possible email subscriptions should show only the main categories first (i.e. have all of the expandable categories start out closed).

████████████████████ offers updates on the topics below.
Subscribe by checking the boxes; unsubscribe by unchecking the boxes.

Access your [subscriber preferences](#) to update your subscriptions or modify your password or E-mail address without adding subscriptions.

- News & Information**
- About ██████████**
- Clinical Information**
- Consumers & Patients**
- Data & Surveys**
- Funding Opportunities**
- Quality & Patient Safety**
- Research Findings**
- Specific Populations**

Recommendation (LOE: Medium)

If possible, examine the list of subscribers to each existing GovDelivery notification option to determine if some of them should be combined (i.e. if a large percent of the people who are signed up for Update A are also signed up for Update B (and vice versa), then they could possibly be combined. GovDelivery might have a mechanism already in place for doing this research.

2: Users want to know what they are signing up for before giving their email address (Severity: 1)

Users who clicked on the “Email Updates” link in the top utility navigation (usually from the home page) expressed a desire to see which email updates they were signing up for before they entered their email address.

Issue areas: Consistency and standards, Content strategy, Information architecture, Page structure

Recommendation (LOE: Low)

Because GovDelivery requires users to enter email addresses before doing anything else, consider adding an interim page that lists out all subscriptions available before the user connects to GovDelivery.

4.9 Task 9—Find open positions on ABCD*.gov

Goal: The goal of this task was to gain insight into how well users can locate information relating to employment at ABCD*. This scenario was chosen because “How do I found out about employment with your agency” is the most frequently viewed FAQ on the site, as documented by web statistics.

Task Scenario: You are interested in improving healthcare quality in America, and you think that the Agency for Healthcare Research and Quality would be a good place to work. Find out if there are any open positions at ABCD*.

Question: How many job openings are there currently at ABCD*? (**Answer:** 6 at the time of testing)

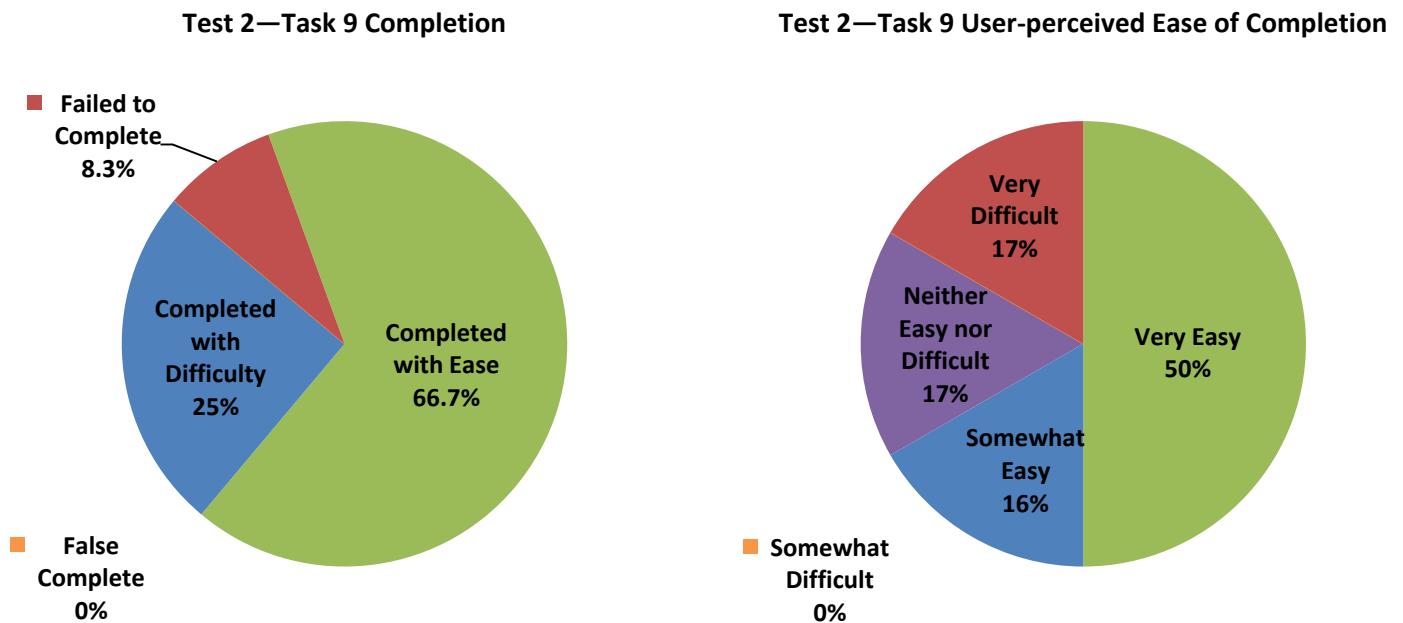


Figure 30: Test 2—Task 9: Completion and Ease of Completing Task Self-Report

Task 9 Results Summary

As shown in Figure 30, most of the participants (91.7%) were able to complete Task 9, and 66.7% were able to do so with ease. The one participant who failed this task mentioned she would expect to find links employment opportunities under “What’s New” or “Contact Us”. Difficulties with this task had to do with the steps users had to take on USAjobs.gov in order to determine how many job openings are currently at ABCD*.



The average time spent on this task was 2.35 minutes, which is under the generally accepted three-minute limit.

Usability Issues and Recommendations Associated with Task 9

1: Users expected to find job listings without having to perform a search on USAJobs (Severity: 2)

Difficulties with this task had to do with the steps users had to take on USAjobs.gov in order to determine how many job openings are currently at ABCD*.

Issue areas: Consistency and standards, Content strategy, Information architecture, Page structure

Recommendation (LOE: Medium)

In addition to the link to USA Jobs search for all HHS opportunities, either provide a current, up-to-date list that shows each current job opening with a link to its description on USA Jobs, or provide a separate link to USA Jobs with a pre-performed search for only ABCD* vacancies.

2: Unnecessary extra click when navigating to Job Vacancies under About ABCD* (Severity: 2)

When users came across the link to “Job Vacancies” under About ABCD* on the home page and clicked on it, it expands to show another link to “Employment Opportunities,” and users have to click that link in order to navigate to the Employment Opportunities page.

Issue areas: Consistency and standards, Content strategy, Information architecture, Page structure

Recommendation (LOE: Low)

This extra click can be eliminated by navigating to the Employment Opportunities page when the user clicks on the first link, instead of expanding to a redundant link.

ⁱ Site search log data from the ABCD* Google Search Appliance for the periods May-July 2010 and March-June 2011 show the terms 'smoking,' 'smoking cessation,' and 'tobacco' among the top 200 queries

ⁱⁱ Benway, J. P., Lane, D. M., "Banner Blindness: Web Searchers Often Miss 'Obvious' Links", 1998, Internet Technical Group, Rice University

ⁱⁱⁱ Nielson, Jakob. "Banner Blindness: Old and New Findings" (August 2007) on useit.com

^{iv} Site search log data from the ABCD* Google Search Appliance for the periods of May-July 2010 and March-June 2011 reveal:

- 'aspirin' among the top 100 queries;
- 'aspirin' among the top 200 keywords;
- 'guideline' and 'guidelines' among the top 200 keywords and also top 200 queries;
- 'heart' among the top 200 keywords;
- 'heart failure' among the top 100 queries