Heuristic Analysis
Medicare.gov Prescription Drug Plan Finder

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1. Introduction

Medicare.gov offers an interactive application to assist users in their search for a Medicare prescription drug plan based on criteria such as cost, drugs covered and participating pharmacies. A heuristic analysis of the general search was conducted according to current usability standards set forth for seniors. An emphasis was placed on heuristics that decrease demands on two cognitive abilities that decline in age: attention and working memory. The analysis is an informal one: only one reviewer was used and there was limited access to the tool. Regardless, key redesign suggestions resulted from the review.

2. Executive Summary

Summary

A heuristic analysis was performed with a focus on decreasing the cognitive demands on attention and memory for seniors who use the medicare.gov website. The Prescription Drug Plan Finder met several of the criteria, however some usability challenges were found.

Heuristics

Two primary heuristics were used to analyze the Prescription Drug Plan Finder:

- Attention: Sites should employ consistent, minimal design to ensure comprehension of and attention to the most important elements on the screen.

- Working Memory: A clear, consistent, shallow structure that provides the user the ability to maintain confidence in where they are in the process, what information has been used and what will be needed.

Recommendations

Six approachable redesign goals are recommended, all of which can be applied quickly and easily:

- Make text easier to read and scan
- Get rid of clutter
- Keep it all in view
- Assist recognition rather than recall
- Guide the way
- Provide friendly, contextual clues

3. Methodology

Heuristic analysis

A heuristic evaluation typically pulls together a team of experts to test a user interface against a set of agreed upon usability standards. Each expert reviews the site alone and rates it according to how it measures up to those standards, or the severity of how it does not. While not considered as effective as user testing, heuristic analysis is noted as quick, informal and a cost effective means for review.

For the heuristic analysis of medicare.gov's Prescription Drug Plan Finder, a review of current research into age and web standards was conducted. From this search, two of the primary cognitive abilities that decline with age were chosen as a focus and both were used to define a heuristic. Key web standards that make sites friendlier to older adults with cognitive disabilities were selected as examples for each of the heuristics. With these in hand the site was reviewed through once for each. Where the Finder met the standards or deviated from them was noted. These notes were considered in the proposed redesign of the tool.

Cognitive abilities found to decrease with age

In order to best serve the primary audience of medicare.gov's Prescription Drug Plan Finder, it was decided to focus on current usability standards for senior computer users (defined in this analysis as 65 and older). Seniors have a wide range of abilities and experience using technology, yet are frequently at a disadvantage in accessing technology due to impairments in vision, cognition, motor skills and literacy that increase with age (Becker, 2004, p.390). This heuristic analysis focuses on usability standards that apply to cognitive impairments. Czaja writes (2005), "Age-related changes in cognition may have a negative impact on access and use of technology" (p.9). In order to design the best possible interface for older adults, it is important to understand which cognitive processes decline as we age. The following have been found:

- Attentional processes: the ability to concentrate and focus on the task at hand.
- Working memory: also known as short-term memory. A common rule of usability standards is Miller's Rule – users can process seven tasks, plus or minus two, at a time.
- Discourse comprehension: the ability to comprehend spoken or written discourse.
- Problem solving and reasoning.
- Inference formation and interpretation: the ability to draw conclusions based on prior knowledge and observation.
- Encoding and retrieval in memory: the ability to process and call back stored information.

The first two, attention and working memory, are pointed out most frequently as impairments that can hamper access to technology and are the focus of this review. If disabilities in either of these cognitive processes are not considered in the interface of the Drug Plan Finder application, it can greatly affect how a senior user navigates through it, or if they manage to get

through it at all. Appropriate design that caters to the needs of users with such disabilities can improve efficiency, learnability, and user-satisfaction. (Kurniawan & Zaphiris, 2005, p.130)

Usability standards for seniors

There is a great deal of research into web accessibility and usability standards, most notably the World Wide Web Consortium's Web Content Accessibility Guidelines, section 508 of the Telecommunications Act, Shneiderman's "Eight Golden Rules of Interface Design" and Nielson's ten user interface heuristics. Usability researchers and organizations such as the AARP, National Institute on Aging and the National Library of Medicine have also compiled standards to use when designing sites for seniors. This literature was reviewed to find heuristics key to minimizing demands on attention and working memory.

◊ Attention

To ease the cognitive demands on attentional processes a design should strive to limit the amount of information on each page by including only necessary information and highlighting what's most important. Czaja notes (2005) "Declines in attentional capacity may make it difficult for older people to perform concurrent activities or switch their attention between competing displays of information," (p.9), which includes identifying a necessary button or link on a crowded website. Furthermore, too much information on the screen is a barrier to the user concentrating on the task at hand, especially when dealing with more complex information such as choosing a health plan. Kurniawan and Zaphiris (2005) have found:

> [The] cognitive effort required to do sensory processing diminishes the remaining mental resources available for engaging in deeper, interpretive processing of the information. (p.130)

The Drug Plan Finder's general search returns 76 available plans, which is a large amount of information for any user to process. Avoiding animation, pop-up or multiple browser windows, using visual conventions for navigation, buttons and links and a consistent, minimal page layout also contribute to lessening the demands on the users attention.

◊ Working Memory

To reduce demands on working memory it's key to help users recognize and find information on a page rather than expect them to remember information from either previous pages or even elsewhere on the current page. Senior web users with impairments to working memory have difficulty remembering what pages they visited or what steps they took to arrive at their current page (Kurniawan & Zaphiris, 2005, p.130). Such impairments may also "make it difficult for older people to learn new concepts or skills or recall complex operational procedures" (Czaja, 2005, p.9). Also, tied in to some of the problems associated with attentional processes, seniors with impairments in working memory are less able to pick out important details in an overly crowded or distracting display of information (Becker, 2004, p.390). To help increase performance and satisfaction of a senior user with impairments in working memory a visible site structure with simple, linear navigation, a shallow hierarchy and a minimal, consistent page layout should be characteristics of the interface.

Heuristics used for medicare.gov analysis

A general goal according to easing cognitive demands on both attention and working memory and associated web usability standards were used in the heuristic analysis.

◊ Attentional processes

Sites should employ consistent, minimal design to ensure comprehension of and attention to the most important elements on the screen.

Key web standards:

- Consistent, conventional and minimal page layout (including button and information positioning) throughout
- Simple, consistent navigation that incorporates backward/forward navigation
- Incorporates text with icons
- Use of large buttons
- Avoidance of scrolling text
- Key information highlighted (bold, increase of text size, position)
- Only necessary information on the screen
- Perceptual organization, such as grouping

◊ Working memory

A clear, consistent, shallow structure that provides the user the ability to maintain confidence in where they are in the process, what information has been used and what will be needed.

Key web standards:

- Provides clues to ensure users understand what came before and what comes next
- Visible system instructions throughout
- User should not have to remember information form one screen to the next
- Clear, linear navigation scheme with consistent labeling

4. Site Assessment

In the evaluation of the Drug Plan Finder several elements of the interface were found to help decrease the cognitive load on seniors using the site. Several important problems were also found, for which redesign suggestions are offered in Section Five.

Interface Strengths

The Drug Plan Finder meets a good deal of criteria regarding working memory, though not always consistently. The application anticipates some potential errors (figure 1).

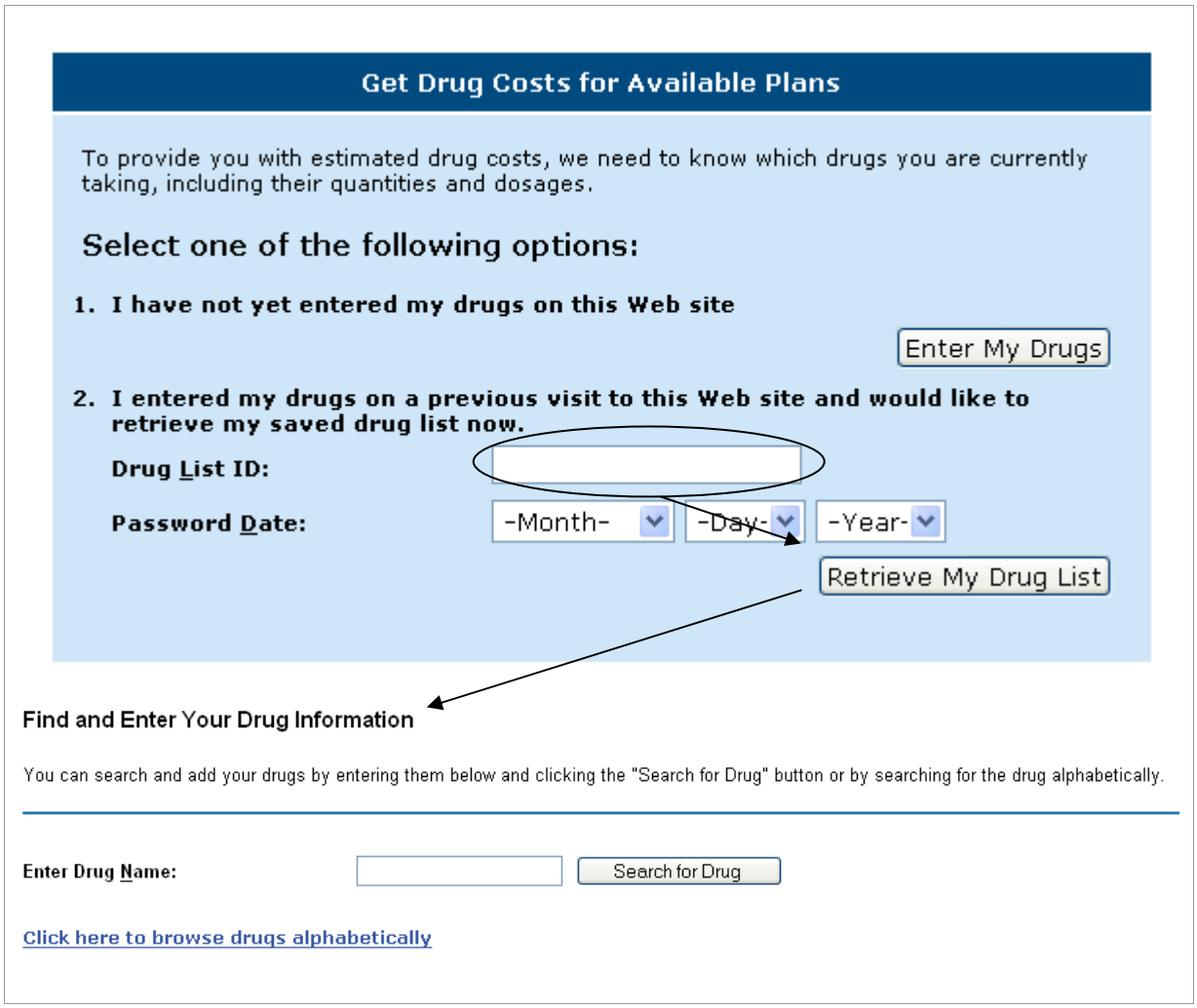

Figure 1: Mistakenly hitting "Retrieve my drug list" without entering any information directs the user to "enter my drugs." *From Medicare.gov.*

A list of materials needed to answer some of the questions used in the application is provided early on, and an option is offered for users who do not have the necessary materials (figure 2). A glossary, help documentation and an email link are provided at the top right hand corner of each page (figure 3).

General Plan Search

The General Plan Search will not give you information about your current enrollment and cannot provide tailored plan information.

Use this search if you:

- do **not** have your red, white, and blue Medicare card
- want details about the Medicare Prescription Drug Plans and Medicare Health Plans in your area

Figure 2: List of necessary documents. *From Medicare.gov.*

Home Help Glossary How Plans Work

Vea en Español | Use Larger Font | Email

Figure 3: Help offered in the upper right hand corner of each page. *From Medicare.gov.*

Buttons use descriptive text and there is consistent use of bulleted and bolded text (figures 4 and 5), criteria that help with both attention and working memory impairments.

Search includes personalized information about:

- Medicare Prescription Drug Plans
- Medicare Health Plans (that cover drugs)

Search doesn't include:

- Medicare Health Plans (that do not cover drugs)
- Original Medicare Plan
- Medigap Policies

Figure 4: Bulleted text assists readability. *From Medicare.gov.*

View Your Current Plan | Find & Compare Plans | Enroll Online

Figure 5: Button text adequately describes the information it links to. *From Medicare.gov.*

It was also noted that the user does not always need to remember information to understand the questions asked on screen.

Areas for Improvement

Two challenges found for seniors with cognitive impairments in both working memory and attention was an inconsistent use of minimal page layout and scrolling text (figures 6 and 7).

Find & Compare Plans that Cover Drugs

Search includes personalized information about:

- Medicare Prescription Drug Plans
- Medicare Health Plans (that cover drugs)

Search doesn't include:

- Medicare Health Plans (that do not cover drugs)
- Original Medicare Plan
- Medigap Policies

Find and compare these plans using the Medicare Options Compare.

Find & Compare Plans

Enroll in a Medicare Prescription Drug Plan

Once you know which Medicare Prescription Drug Plan you want, use our online enrollment system to join.

Enroll Online

View Your Current Plan

If you are already enrolled in a Medicare Prescription Drug Plan, you can view information about your plan.

View Your Current Plan

Learn More About Drug Coverage Options

If you are a Medicare beneficiary, you are eligible for Medicare prescription drug coverage, regardless of your income, health status, or current prescription expenses.

There are two types of Medicare plans that provide prescription drug coverage:

Medicare Prescription Drug Plans
These plans add prescription drug coverage to the Original Medicare Plan, and certain types of Medicare Health Plans.
Learn more

Medicare Health Plans
Some of these plans cover both health care and prescription drugs.
Learn more

Learn More About Plans in Your Area

Access a directory of all Medicare plans with drug coverage that are available in your state or territory

Select a State | View Plans

Important Coverage Information

- Click here if you have Military retiree benefits (TRICARE)
- Click here if you have Veteran benefits (VA)
- Click here if you have Federal employee retiree benefits (FEHBP)

Medicare Stories

Share Your Story

Figure 6: Too much information on the page makes it difficult to decide what to do. *From Medicare.gov.*

<< Back to Review Current Coverage & Options

Vea en Español | Use Larger Font | Email

Find and Compare Plans

Step 4: Review List of Plans in Your ZIP Code

Print this Page

Plans available in ZIP code 21218:

55 Prescription Drug Plans [What is this?]
13 Medicare Health Plans [What is this?]
8 Medicare Special Needs Plan [What is this?]

Get Drug Costs for Plans Displayed Below

If you pay more than $35 a month for drugs, we suggest you enter your drugs to find out what you might pay for drugs each month with each of the plans listed below.

If you already entered and saved your drug list on a previous visit, you can retrieve it to get drug costs more quickly.

Get Drug Costs

Related Tools

Medicare Options Compare
Use this tool if you want to start over and compare Medicare Health Plans or Medigap policies. These plans offer health and hospitalization coverage. Some of these plans also offer drug coverage.

Get Plan Performance Information

Show Select Criteria to Reduce Number of Plans Shown (optional)

Collapse all Plan Types

Hide 55 Prescription Drug Plans in ZIP Code 21218 Back to Top

These results are sorted by the **Monthly Drug Premium**. Click on a column to sort. Click on plan names to view more information about each plan.

Showing plans 1-5

1 of 11 pages Next > **Show:** 5 per page | 10 | 20 | All **Sort Table By:** Monthly Drug Premium Sort

Plan Name and ID Numbers [What is this?]	Company Name (Co-brand) [What is this?]	Monthly Drug Premium ▲ [What is this?]	Annual Deductible [What is this?]	Drug Cost Sharing [What is this?]	Coverage in the Gap [1] [What is this?]	Enroll Now
WellCare Classic	WellCare	$12.20	$265	$2	No gap coverage	Enroll Now

Figure 7: Too much information as well as scrolling text. *From Medicare.gov.*

Page and back button labeling is both inconsistent and not descriptive enough, two criteria for working memory (figure 8).

Figure 8: Inconsistent header labeling – "general questions" is not used as a header on the previous page. *From Medicare.gov.*

Another key problem found in terms of working memory was a lack of contextual clues to inform the user where they are in the process of the application. Which page starts and ends the process is not quite clear, nor are steps to take once the final search results are presented. This can lead to greater misunderstandings, such as the greater goal of the application, and whether or not the user has completed such goal. Without these clues too much stress is placed on working memory resulting in an unsatisfying experience.

In terms of attentional processes, too much information offered on most of the pages, including buttons and links, which can be very distracting to the goal at hand (figure 9 and 10).

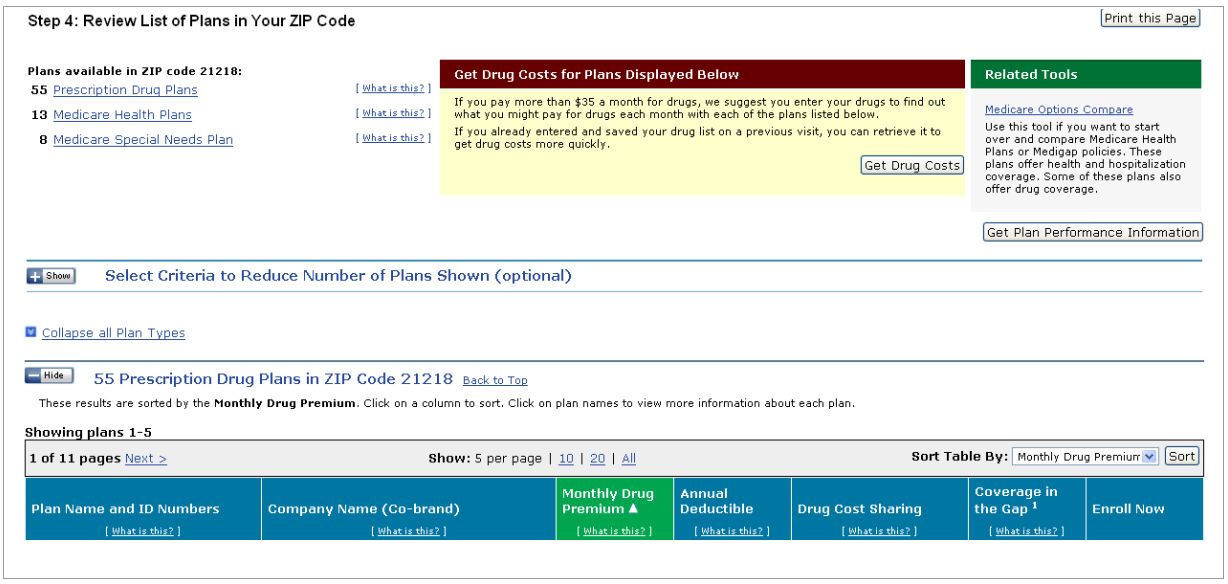

Figure 9: What step to take next? Competing colors, buttons, links and scrolling all vie for the users' attention. *From Medicare.gov.*

Step 2: Enter the Requested Information

Please enter your ZIP code and answer the questions as best you can. Any information you enter on this site is secure and will not be saved and will be used only to provide you with accurate search results.

Continue

ZIP Code 21218 ZIP Code Locator

Do you currently have prescription drug coverage?

- (•) Yes
- ( ) No (if you'll be getting Medicare coverage soon, click "No")
- ( ) I don't know

What type(s) of prescription drug coverage do you have? (Check all that apply)

- [ ] Medicare Prescription Drug Plan
- [ ] Medicare Health Plan (e.g., HMO, PPO, Private Fee-for-Service Plan, Medicare Medical Savings Account Plan)
- [ ] Medicaid
- [ ] Employer or Union Retiree Plan
- [ ] Medigap (Medicare Supplement Insurance) Policy
- [ ] None of the above
- [ ] I don't know

Do you have any other health insurance coverage?

- (•) Yes
- ( ) No
- ( ) I don't know

What type(s) of health care coverage do you have? (Check all that apply)

- [ ] Employer or Union Retiree Plan
- [ ] Original Medicare Plan
- [ ] Medigap (Medicare Supplement Insurance) Policy
- [ ] Medicare Health Plan (e.g., HMO, PPO, Private-Fee-for-Service Plan, Medicare Medical Savings Account Plan)
- [ ] I will be getting Medicare coverage soon
- [ ] None of the above
- [ ] I don't know

Did you get a letter from Medicare or the Social Security Administration (SSA) that said you are either eligible for or

Figure 10: Too many questions on the page. *From Medicare.gov.*

5. Recommendations

The overall redesign goal is to improve the efficiency, learnability, and user-satisfaction of seniors while navigating through the Prescription Drug Plan Finder interface. In order to do this it is important to think in terms of creating what Cooper calls a "considerate" interface. Amongst others, a considerate interface:

- Takes an interest in its primary audience – seniors
- Is forthcoming by anticipating potential problems its users may have and offering easy access to helpful information and an easy way out
- Anticipates the needs of its senior users
- Keeps seniors informed with both important information about the interface and the product

To achieve a considerate interface, there are six key suggestions.

Redesign goals

Make text easier to read and scan: further break down any paragraphs into small chunks or bullets.

Figure 11: A potential example of eliminating unnecessary information and simplifying text on the Prescription Drug Plan Finder home page. *From Medicare.gov.*

Get rid of clutter: increase number of pages in the process to cut down on the amount of information needed on each page (figure 12).

< Back to Choose a search option

Please enter your ZIP code.

Zip Code:

Not sure? Try the zip code locator.

Previous Next

< Back to general questions

Additional Questions

Please answer the following questions as best you can.

You indicated that you received a letter from Medicare or the Social Security Administration. Who sent you the letter?

○Medicare ○Social Security Administration ○I don't know

Previous Next

Figure 12: Break out the General Questions page into multiple pages so that the user can focus on each question. *From Medicare.gov*.

Keep it all in view: eliminate any need for scrolling by decreasing the amount of information on a given page and dividing pages into more than one when necessary (figure 13).

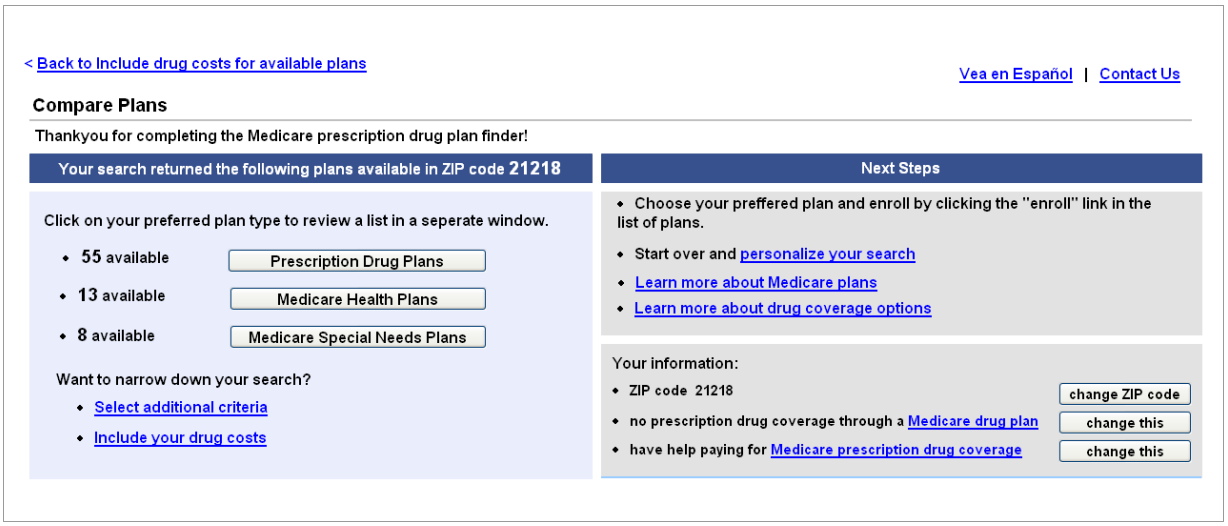

Figure 13: Include information offered below the scroll on the final page as links. *From Medicare.gov.*

Assist recognition rather than recall: use descriptive, consistent page labeling that lets the user know where they are in the process.

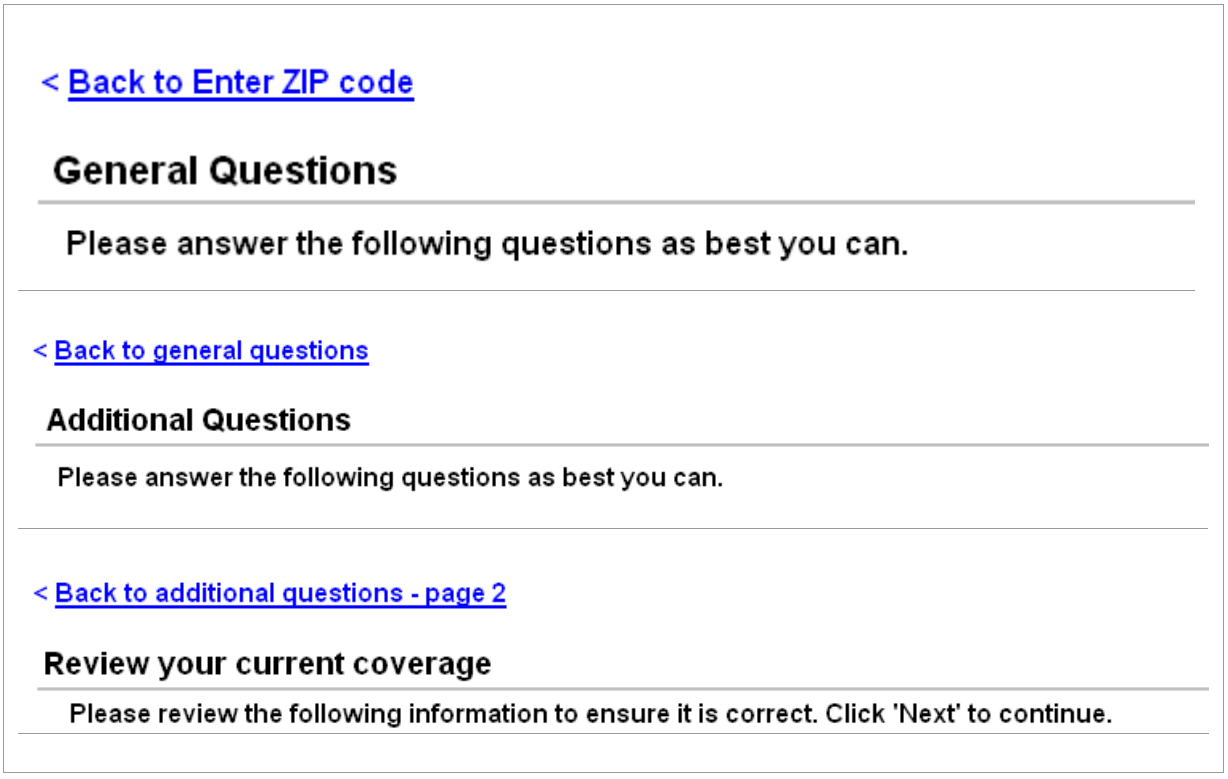

Figure 14: Use descriptive language in headings and be sure "back" links match the headings on the previous page. *From Medicare.gov.*

Guide the way: make navigation simpler and more accessible.

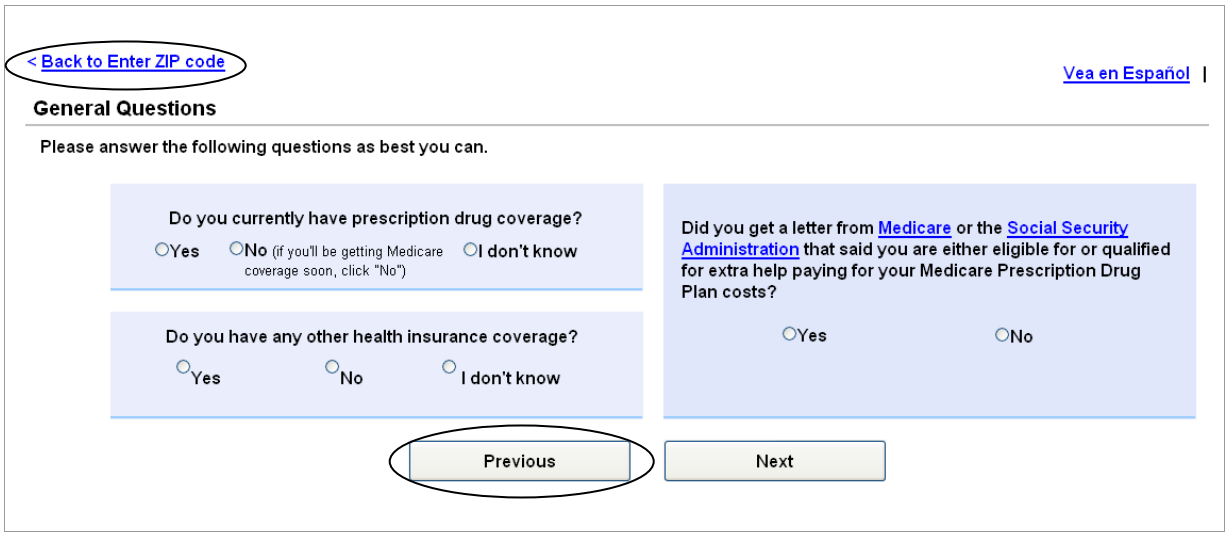

Figure 15: Provide multiple ways to navigate, such as a "back" link and a "previous" button. *From Medicare.gov.*

Figure 16: Provide easy tools to move back to key portions of the site. *From Medicare.gov.*

Provide friendly, contextual clues: include a welcome message, a page to signify the "end" of the process, and where to go next.

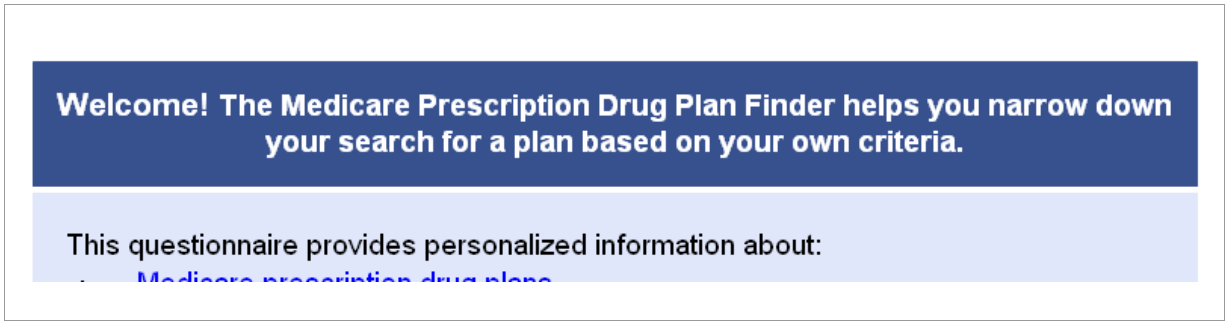

Figure 17: Simply adding the word "welcome" informs users they are at the start page. *From Medicare.gov.*

Figure 18: Use a completion message to alert users they are at the end. *From Medicare.gov*.

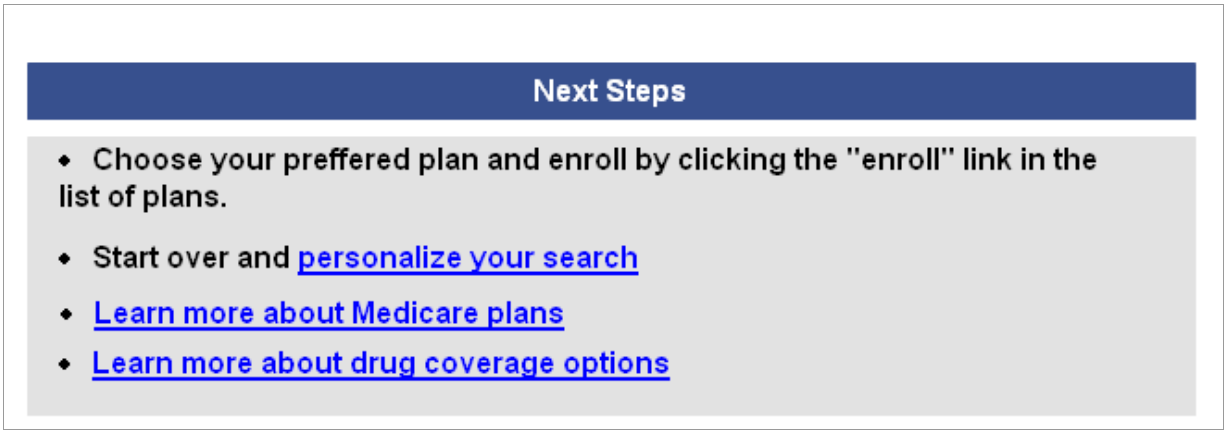

Figure 19: Offer links to any next steps so that users feel empowered to continue on. *From Medicare.gov*.

Appendix A

Heuristic References

Kurniawan and Zaphiris (2005) compiled a new set of web usability standards they consider more robust than unmerged guidelines currently available (p.131).

H1. Target Design
H1.1. Provide larger targets
H1.2. There should be clear confirmation of target capture, which should be visible to older adults who should not be expected to detect small changes
H1.3. Older adult should not be expected to double click

H2. Use of Graphics
H2.1. Graphics should be relevant and not for decoration. No animation should be present
H2.2. Images should have alt tags
H2.3. Icons should be simple and meaningful

H3. Navigation
H3.1. Extra and bolder navigation cues should be provided
H3.2. Clear navigation should be provided
H3.3. Provide location of the current page
H3.4. Avoid pull-down menus
H3.5. Do not use a deep hierarchy and group information into meaningful categories

H4. Browser Window Features
H4.1. Avoid scroll bars
H4.2. Provide only one open window e.g., pop-up/ animated advertisements or multiple overlapping windows should be avoided

H5. Content Layout Design
H5.1. Language should be simple and clear
H5.2. Avoid irrelevant information on the screen
H5.3. Important information should be highlighted
H5.4. Information should be concentrated mainly in the centre
H5.5. Screen layout, navigation and terminology used should be simple, clear and consistent

H6. Links
H6.1. There should be differentiation between visited and unvisited links
H6.2. Links should be clearly named and no link with the same name should go to a different page
H6.3. Links should be in a bulleted list and not tightly clustered

H7. User Cognitive Design
H7.1. Provide ample time to read information

H7.2. Reduce the demand on working memory by supporting recognition rather than recall and provide fewer choices to the user

H8. Use of Colour and Background
H8.1. Colours should be used conservatively
H8.2. Blue and green tones should be avoided
H8.3. Background screens should not be pure white or change rapidly in brightness between screens. Also, a high contrast between the foreground and background should exist, for example, coloured text on coloured backgrounds should be avoided.
H8.4. Content should not all be in colour alone (colour here is denoted by all colours other than black and white)

H9. Text Design
H9.1. Avoid moving text
H9.2. Text should be left justified and text lines should be short in length
H9.3. There should be spacing between the lines
H9.4. Main body of the text should be in sentence case and not all capital letters
H9.5. Text should have clear large headings
H9.6. Use san serif type font i.e., Helvetica, Arial of 12-14 point size. Avoid other fancy font types.

H10. Search Engine
H10.1. Search engines should cater for spelling errors

H11. User Feedback & Support
H11.1. Provide a site map
H11.2. An online help tutorial should be provided
H11.3. Support user control and freedom
H11.4. Error messages should be simple and easy to follow

Heuristics compiled from AARP's (NA) review of relevant research on older adults and Web design. They include a list of questions used to focus observations on Web sites.

Interaction Design: Designing the way users work with the site

1. Use conventional interaction elements.
1.1 Does the site use standard treatments for links?
1.2 Is link treatment the same from to within the site?

2. Make it obvious what is clickable and what is not.
2.1 In lists of bulleted links, are the bullets clickable?
2.2 Are command and action items presented as buttons?
2.3 Do buttons and links show that they have been clicked?
2.4 Are buttons clearly labeled?
2.5 If there is an image on a button or icon, is it task-relevant?
2.6 Do graphic buttons avoid symbols that will be unfamiliar to older adults who have low computer and Web expertise?

2.7 Is there a visible change (other than the cursor changing) when the user "points" to something clickable with his or her mouse?

3. Make clickable items easy to target and hit.
3.1 Are buttons large enough to easily see the image or text on them – at least 180 x 22 pixels?
3.2 Is the area around buttons clickable?
3.3 Is there enough space between targets to prevent hitting multiple or incorrect targets?
3.4 Do buttons and links enlarge when the rest of the text size is increased?

4. Minimize vertical scrolling; eliminate horizontal scrolling.
4.1 Does the site work at the resolution that the user would typically view the site at without horizontal scrolling?
4.2 Do pop-ups and secondary windows open wide and long enough to contain the content without the need for scrolling?
4.3 For scrolling lists, for example, a list of all the states.

5. Ensure that the Back button behaves predictably.
5.1 Does the Back button appear on the browser toolbar on every page?
5.2 Does clicking the Back button always go back to the page that the user came from?

6. Let the user stay in control.
6.1 Is there no rolling text that goes by automatically?
6.2 Does the site use static menus (a click leads to another page) rather than "walking menus" (exposing a sub-menu on hovering)?
6.3 If there are walking menus, do they expand on a click (rather than a hover)?
6.4 Are the sub-menus timed to stay open for 5 seconds or until they're clicked?

7. Is there clear feedback on actions?
7.1 Are error pages descriptive and did they provide a solution to the user?
7.2 Are confirmation pages clear?

8. Provide feedback in other modes in addition to visual.
8.1 Are captioning and or meaningful alternative text provided for images, video, and animation?
8.2 Does the site support haptic (vibrating, tactile feedback) pointing devices (such as the Logitech iFeel mouse)?

Information Architecture: Organizing the content

9. Make the structure of the Web site as visible as possible.
9.1 Does the site use a directory list format for listing topics (such as Yahoo! does or hhs.gov or firstgov.gov)?
9.2 Does the site use cross-references to related topics and redundant links?
9.3 Is the site hierarchy as broad and shallow as possible?

10. Clearly label content categories; assist recognition and retrieval rather than recall.

10.1 Are labels descriptive enough to make it easy to accurately predict what the content will be under each topic category?
10.2 Do labels and links start with different, distinct, and relevant key words?
10.3 Are labels useful and understandable each on their own?
10.4 Do labels reflect language that older adults are familiar with?

11. Implement the shallowest possible information hierarchy.
11.1 Are important, frequently needed topics and tasks closer to the surface of the Web site?
11.2 Are related topics and links grouped and labeled?
11.3 Do labels and category names correspond to users' tasks and goals?
11.4 Do paths through the information architecture support users' tasks and goals?
11.5 Is the path for any given task a reasonable length (2-5 clicks)?
11.6 Is the path clear of distractors and other obstacles to reaching task goals?
11.7 Are there a few, helpful cross-reference links that are related to the current task goal?
11.8 Do redundant links have the same labels?

12. Include a site map and link to it from every page.
12.1 Is there a site map?
12.2 Is the site map linked from every page?
12.3 Does the site map provide a quick overview of the whole site, a rehash of the main navigation or a list of every single topic on the site?

Visual Design: Designing the pages

13. Make pages easy to skim or scan.
13.1 Are pages clean looking and well organized (versus cluttered or busy)?
13.2 Is there a clear visual "starting point" to the page?
13.3 If pages are dense with content, is content grouped or otherwise clustered to show what is related?
13.4 Is it easy to tell what is content and what is advertising?
13.5 Do task-supporting keywords stand out?
13.6 Are images relevant to, and supportive of, the text content?
13.7 Are there videos or animated sequences? If so, do they support specific goals or tasks?

14. Make elements on the page easy to read.
14.1 Is the default type size 12-point or larger?
14.2 If not, is there an obvious way on the page to increase the type size?
14.3 If not, does changing the type size in the browser enlarge all of the text?
14.4 Is the type size on pull-downs and drop-down menus the same size as the text content? Does it change when the user increases the type size?
14.5 Are headings noticeably larger than body content (18- or 24-point)?
14.6 Is sans serif type used for body content?
14.7 Are headings set in a typeface that is easy to read?
14.8 Are there visual cues to direct users' attention to important items that are in the left and right columns?

15. Visually group related topics.

15.1 Are pages dense with information, or sparse, or in between? Is the amount appropriate for the audience and type of site?
15.2 Are the most important and frequently used topics, features, and functions, close to the center of the page rather than in the far left or right margins?
15.3 Are task-related topics grouped together?
15.4 Are frequently used topics, actions, and links "above the fold"?

16. Make sure text and background colors contrast.
16.1 Are text and interaction elements a different color from the background (not just a different hue)?
16.2 Do the colors that are used together make information easy to see and find?
16.3 Are clickable items highlighted differently from other non-clickable highlighted items?
16.4 Are multiple types of highlighting minimized on each page?

17. Use adequate white space.
17.1 Are there visual cues in the layout of the page that help users know there is more content "below the fold"?
17.2 Is there line space between clickable items? (at least 2 pixels)
17.3 Is body text broken up with appropriate and obvious headings?

Information Design: Writing and formatting the content

18. Make it easy to find things on the page quickly.
18.1 Is the amount of text minimized; is only necessary information present?
18.2 If there are introduction paragraphs, are they necessary?
18.3 Are instructions and messages easy to recognize?
18.4 Is there liberal use of headings, bulleted lists, and links to assist skimming?
18.5 Do bulleted lists have the main points and important keywords at the beginning of each item?
18.6 Do links have meaningful labels?
18.7 Are buttons labeled clearly and unambiguously?
18.8 Do button and link labels start with action words?

19. Focus the writing on audience and purpose.
19.1 Is the content written in active voice, directed to "you"?
19.2 Are sentences short, simple, and straightforward?
19.3 Are paragraphs short?
19.4 Is humor used appropriately, if at all?
19.5 Are headings, labels, and captions descriptive of associated content?
19.6 Are conclusions and implications at the top of a body of text, with supporting content after? (inverted pyramid)

20. Use the users' language; minimize jargon and technical terms.
20.1 Does the site use words that most older adults know?
20.2 If there are technical words or jargon, are they appropriate for the level of domain expertise that the audience has?
20.3 If there are new or technical terms, does the site help users learn what the terms mean?

20.4 Are concepts and technical information (such as safety and effectiveness information about a prescription drugs) written in plain language?
20.5 Are instructions written in plain language?
20.6 Is the reading level appropriate for the capabilities of the audience and their literacy in the topic area? Is it easy to draw inferences and to understand the implications of text?

Nielson's (2005) 10 Usability Heuristics

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Recognition rather than recall
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use
Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and minimalist design
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Appendix B

Site Assessment Notes

Working memory	
provides clues to ensure users understand what came before and what comes next	[0] What the app includes/does not include is positive (but "search" is a vague term) [1-4] inconsistent page labeling [2] I don't know where I'm going after the review [4] clicking "show" provides unexpected information (and it's unconventional), where do the plan links go?
visible system instructions throughout	[4] is this the final page? there is no completion message (clicking on a plan brings user to more detailed information and enrollment information)
user should not have to remember information form one screen to the next	Except that the phone number is not offered on each page, there's no need to remember information from screen to screen in the general area search.

Attentional processes	
consistent, conventional & minimal page layout	[0] too many options on the page, and it's more information than the link referred to (what do I choose?), also, the small font is the default rather than large. There's also so much information on the page that I feel like I might be overlooking something important. [0A] Two choices are good, and it's laid out simply (but there is a lot of other information on the header and at the bottom of the page that is distracting). [1] This screen could be broken down into more than one – there is too much scrolling. [2] again, too much information to take in – could be broken into three screens [3] simple layout, but too much info in each box [4] What is this primary information this page is giving me? There is a lot to read vertically and horizontally. "select criteria" layout and wording confusing (but it's important criteria to help sort through all of the plans).
simple, consistent navigation that incorporates backward/forward navigation	[0] There are multiple options to other pages, but no link back to the main menu I came from besides the back button. [0A] "Back to home" is confusing in this context – it goes to prescription drug care home, but the link does not tell me that. [1] link to previous page titles it by a different name [4] where does the user go next?
single mouse clicks	
use of large buttons	[0] buttons use text that accurately describe what they do (but could be larger), also, links for Spanish, text size in the upper right corner would be more noticeable as buttons [1] "continue" button is too small [4] too many kinds of buttons and links on the page, use of links to other parts of the screen and hide/collapse is confusing
avoidance of pull-down menus	
avoidance of scrolling text	[0] must scroll to see some additional items [1] too many questions, user has to scroll [4] too much info to scroll through

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