

Final Report on SEER Training Website Usability Evaluation Project

Expert Review and Three Rounds of Usability Evaluation

Conducted by User-Centered Design, Inc.

**For the
National Cancer Institute's
Applied Research Program**

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Executive Summary

The SEER Training Website (<http://training.seer.cancer.gov/>) is a training hub for Cancer Tumor Registrars (CTRs) and other interested parties. It serves as a valuable resource for users who are developing their skills in cancer registration and surveillance.

The SEER Training Website is undergoing a major revision. Currently, the website is focused solely on the needs of users who have been developing their skills in cancer registration and surveillance as part of their training to become CTRs. The updated website will provide CTRs with newer and more relevant information that reflects current trends in the field of cancer registration and surveillance, while also serving a wider audience of users who utilize the SEER Training Website to learn about more generalized concepts and terminology that can be acquired by browsing the various training modules. These impending changes represent a major upgrade for the SEER Training Website.

User Centered Design, Inc. (UCD) was contracted to evaluate the usability of the current website and the functional changes being considered for the website. To meet these goals, UCD conducted an expert review of the current site based on industry standards and best practices, followed by three rounds of iterative usability testing on the revisions being made to the site.

The expert review found several types of usability issues on the current site: content and navigation issues on the home page and landing pages, functionality of the Left Navigation and local navigation (“Next” and “Previous” buttons), and layout issues on specific sub-pages. Since the navigation issues were deemed to be critical, prior to the first round of usability testing the SEER team implemented changes to how the “Next” and “Previous” buttons on live content pages operated.

The three iterative rounds of usability evaluation were conducted on the live site, a development version of the site, and interactive mockups. Participants represented a variety of experience levels, type of work environment (state/central registries or hospital-based registries), and geographical location (multiple states across the USA and provinces across Canada). Research questions were tailored for each round of testing, and generally focused on finding information on the site, use of the navigational tools, layout for parts of the Hands on Exercises, a new “Help” section, and overall usability of the site. Participants also provided feedback on their use of the site and additional content or features they would like to see implemented in the future.

Overall ratings of the quality of information on the site were uniformly high, and summative ratings of usability were consistently high. Some concerns were raised by more experienced practitioners about the timeliness of updates to the content.

Changes to the site organization and layout that are ready for implementation based on findings from these evaluations include: changes to the navigation controls, a new “Resources” section to replace the old “Information Modules,” a new “Help” section to aid trainees in learning to use the site, and a new format for Case History within Hands on Exercises. Some of the new

functionality are ready for implementation on the live site by IMS, the contractor in charge of site development. The new format for Case History within Hands on Exercises will be implemented when new content is developed for all Hands on Exercises throughout all the site-specific modules.

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Introduction

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The SEER Training Website is undergoing a major revision. Currently, the website is focused solely on the needs of users who have been developing their skills in cancer registration and surveillance as part of their training to become CTRs. The updated website will provide CTRs with newer and more relevant information that reflects current trends in the field of cancer registration and surveillance, while also serving a wider audience of users who utilize the SEER Training Website to learn about more generalized concepts and terminology that can be acquired by browsing the various training modules. These impending changes represent a major upgrade for the SEER Training Website.

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Method

The project was conducted in two phases.

Phase 1: Expert review of current site. The expert review was conducted on the current website by two UCD staff members, a Human Factors Engineer and an Interaction Architect, in August, 2010. The review was based on industry standards and best practices related to usability. Findings from the two reviewers are combined in this report.

Phase 2: Usability evaluations. Three rounds of usability evaluation on the evolving design of the website were conducted in January, March, and June, 2011. All sessions were conducted remotely, with individuals participating in the evaluation from their offices. Communication was handled by telephone and through online conferencing software that allowed participants to interact with the website while the facilitator observed.

Participants were recruited by the SEER team from notices posted to listservs and from personal recruitment letters. In all rounds, a mixture of experience levels (i.e., experienced cancer tumor registrars (CTRs) and those in training) was recruited. In the 2nd and 3rd rounds, place of work (i.e., central registry vs. hospital-based registry) and geographical location (states within US and provinces within Canada) was also considered. Tables 1-3 show the characteristics of each group of participants. Note that in Canada, registries are not distinguished as state/central or hospital, so Canadian registrars are listed separately.

Table 1 – Usability evaluation round 1 participant characteristics

	# participants
Experienced	5
Trainee	5
Total	10

Table 2 - Usability evaluation round 2 participant characteristics

	State/Central Registry	Hospital-based Registry	Canada	Total
Experienced	4	3	1	8
Trainee	1	7	1	9
Total	5	10	2	17

Table 3 - Usability evaluation round 3 participant characteristics

	State/Central Registry	Hospital-based Registry	Canada	Total
Experienced	3	3	3	9
Trainee	5	2	0	7
Total	8	5	3	16

Round 1 of testing was conducted on the live site. Prior to testing and based on findings from the Expert Review, the “Next” and “Previous” buttons were changed to link to pages in the anticipated sequence. Participants in this round of testing saw the changed functionality.

Rounds 2 & 3. These rounds of testing were conducted on a development version of the site and mockups of alternatives for Hands-on Exercises.

Each session lasted approximately 40 minutes. Participants were first asked to explore the website to become familiar with the layout, organization and breadth of content; and they were asked to describe their initial reaction. They then performed a series of information-search tasks (see Appendices A-C for the Facilitators Guides). The facilitator noted whether participants were able to complete each task as well as any problems encountered in the process. At the conclusion of the tasks, participants completed a standard usability metric questionnaire and provided comments on the content and organization of information on the site.

Findings

Expert review of current site

The expert review found several types of usability issues on the current site: content and navigation issues on the home page and landing pages, functionality of the Left Navigation and local navigation (“Next” and “Previous” buttons), and layout issues on specific sub-pages. All are described in the following sections.

Home page and landing pages

The SEER Training website home page briefly describes the intended audiences, purpose, and changes implemented in the new version of the site (see Figure 1). There is no overt indication as to how to proceed, nor is there positional feedback indicating the current position within the website.

Recommendation: Placing a “Home” link at the top of the Left Navigation and marking it as the current page would provide the user insight into the site’s organization. Additionally, the text on the Home page could be expanded to more thoroughly cover the uses of the site, as illustrated in Figure 2.



Figure 1 - Current Home Page

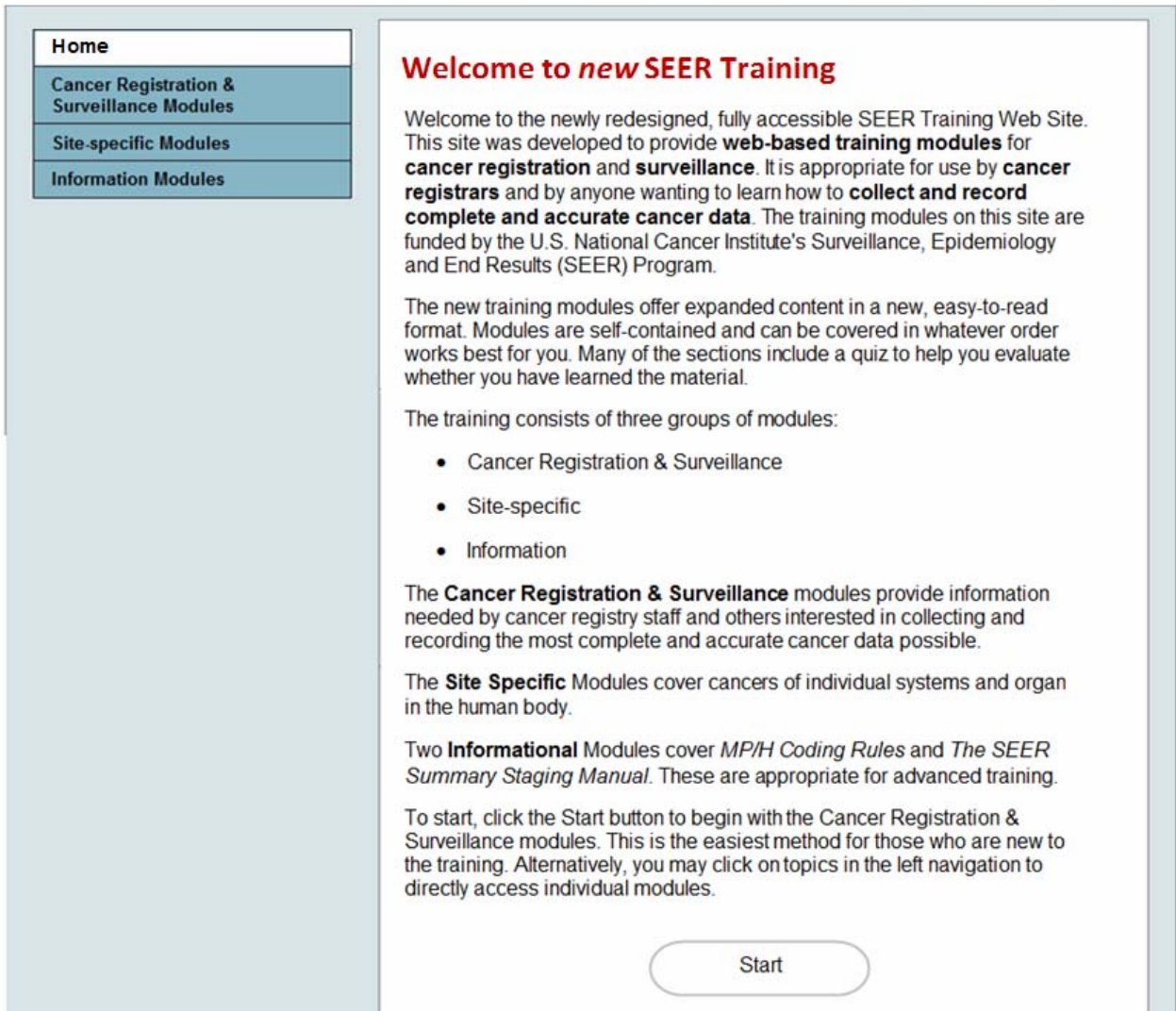


Figure 2 - Alternative Home Page text

Figure 3 shows the landing page for the “Cancer Registration & Surveillance Modules” (CRSM) section. The main content area contains a good description of the intended audiences and a summary of topics covered. However, the mapping between the bullets in the center area and the modules listed in the Left Navigation is somewhat unclear.

Recommendation: Consider adding relevant module names after each bullet. In addition, the text could be extended to explain expected usage, such as whether cancer registrars are expected to go through all modules in this section.

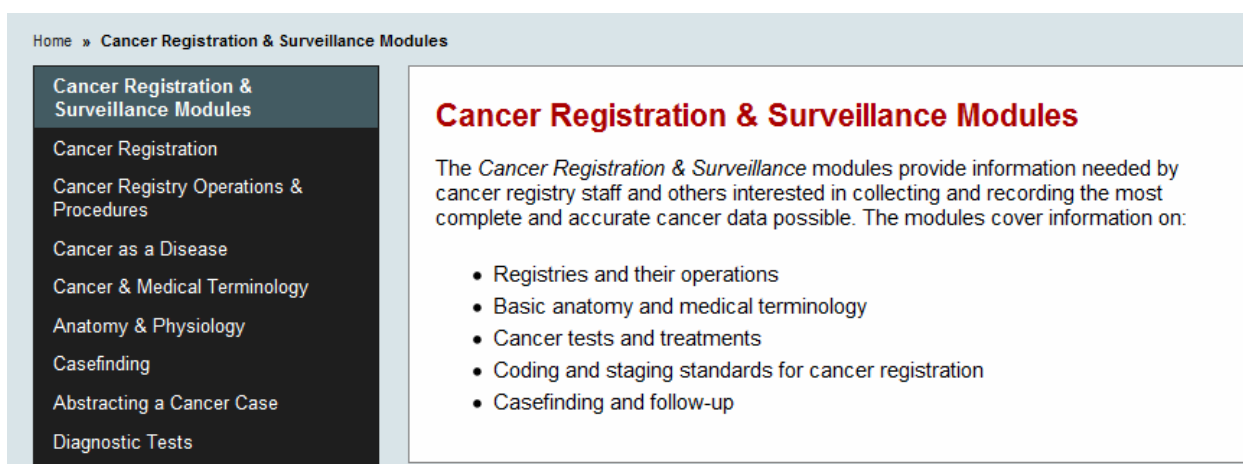


Figure 3 - "Cancer Registration & Surveillance Modules landing page

The landing page for the module “Cancer Registration” provides a good example of how to clearly describe the topics and objectives (see Figure 4). In contrast, the introductory pages for some other modules within “Cancer Registration & Surveillance Modules” start abruptly with module content, for example “Casefinding, Cancer Treatment,” “Introduction to Collaborative Staging,” and “Multiple Primaries & Histology Coding Rules.”

Recommendation: Consider using the format from the “Cancer Registration” module, including standard phrasing, for all modules.

Home » Cancer Registration & Surveillance » Cancer Registration

Cancer Registration & Surveillance Modules

- Cancer Registration
- Cancer Registry
- Types of Registries
- Data Collection
- Site-specific Modules
- Information Modules

Cancer Registration Module [View Module Map](#)

The *Cancer Registration* module introduces you to the basic concepts related to cancer registration, the different types of cancer registries, the importance of collecting cancer data, and the process of its collection.

In this module, you will learn how to:

- Define key concepts related to cancer registration.
- Describe the history of cancer registration.
- Explain the importance of cancer registration in fighting cancer.
- Name the two major types of cancer registries and describe how they differ.
- List the four major cancer data categories.
- Describe the cancer data collection process.
- Explain the importance of patient confidentiality and how it is protected.

Figure 4 - "Cancer Registration" landing page

Navigation

There are two aspects of the navigation that may be confusing to users.

Left Navigation. As shown in Figure 5, when a user clicks on “Cancer Registration” in the Left Navigation, the “Cancer Registration Module” landing page appears. Note that the other module titles are now hidden on the Left Navigation. It appears that there is only one module within “Cancer Registration & Surveillance Modules.” Furthermore, it is not clear how to return to the full list of modules. This may have been done to de-clutter the display, but it may be disorienting for the user.

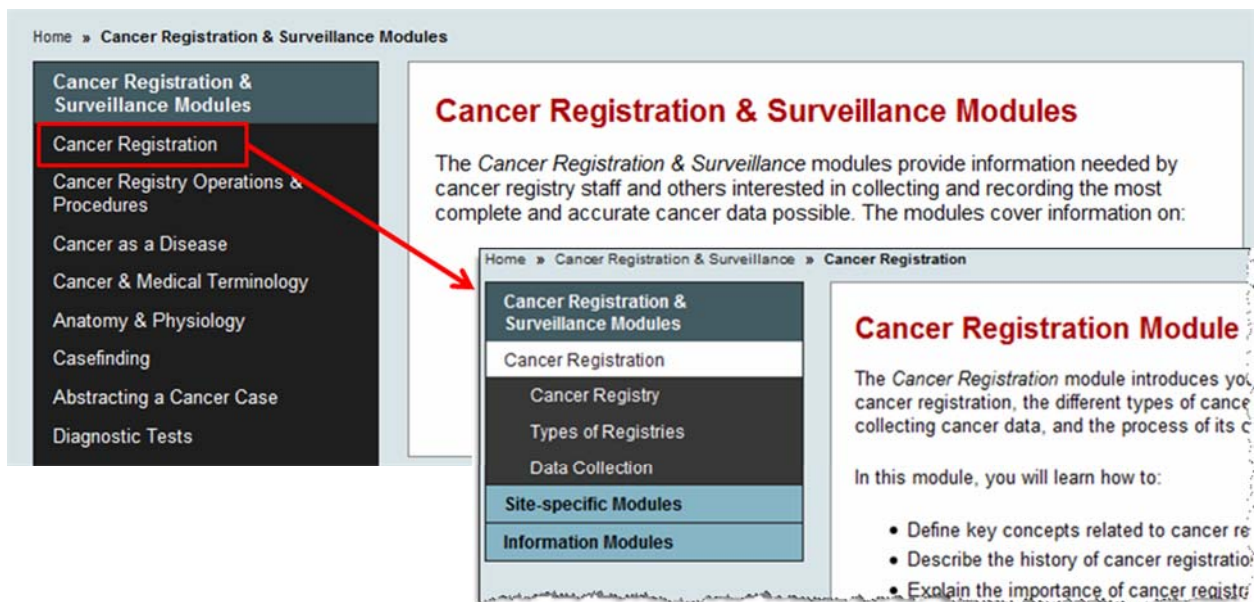


Figure 5 - Hidden modules in Left Navigation

Additionally, on the final section within a module (see Figure 6), it appears from the Left Navigation that the user has completed all modules, though this is not the case. Also, it is not clear how to proceed to the next module.

Recommendation: Consider showing all modules in the Left Navigation to address both of these concerns.

Home » Cancer Registration & Surveillance » Cancer Registration » Data Collection » Quiz

Cancer Registration & Surveillance Modules

Cancer Registration

Cancer Registry

Types of Registries

Data Collection

Process of Cancer Data Collection

Confidentiality

Review

Quiz

Site-specific Modules

Information Modules

Quiz: Data Collection

Summary of quiz results:

- *Correct: 1*
- *Incorrect: 1*
- *Unanswered: 8*

Please review your answers below.

- Information collected by cancer registries can be placed into two main categories: patient demographics and follow-up.
☐ True ☒ False *Correct*
- Demographic data consist of the primary site of the malignancy, its cell type, and the extent of disease.
☒ True ☐ False *Incorrect*
- Cancer data collection begins by identifying people with cancer.
☐ True ☐ False *Unanswered*
- Cancer information results from the diagnostic findings about a patient, which includes the primary site of the malignancy, its cell type, and the extent of disease.
☐ True ☐ False *Unanswered*
- Providers who only diagnose the cancer, but do not treat it, do not have to report the case.
☐ True ☐ False *Unanswered*
- Complete and timely cancer data collection requires field work from cancer registrars.
☐ True ☐ False *Unanswered*
- One of the most important responsibilities of a cancer registrar is to protect the confidentiality of cancer patient information.
☐ True ☐ False *Unanswered*
- It is no longer necessary to follow a patient once they have been entered into the registry.
☐ True ☐ False *Unanswered*
- Individual identifiers make it possible to check for duplicate cases in the registry.
☐ True ☐ False *Unanswered*
- Long term follow-up on cancer patients is important for registries to conduct survival analysis.
☐ True ☐ False *Unanswered*

Get Answers Reset

« Previous (Review)

Figure 6 - Example of final page in a module

Next/Previous Buttons. From a module landing page, the only way to proceed is to click the first section title in the Left Navigation (see Figure 7 where the user should click Cancer Registry). No module landing pages have “Next” or “Previous” buttons.

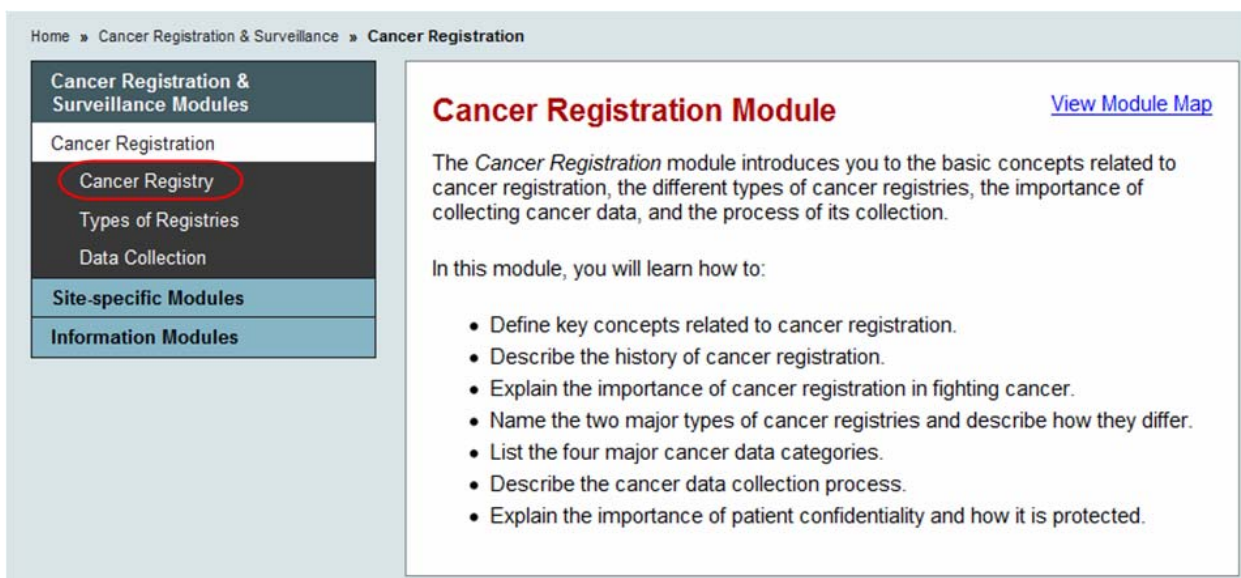


Figure 7 - Module landing page showing no Next or Previous buttons

Once beyond the module landing pages, however, “Next” buttons provide page control within the main content area. After reading through the page, the user’s eye is already at the bottom of the page, where the button is located, so use of the “Next” button is a natural action (see Figure 8).

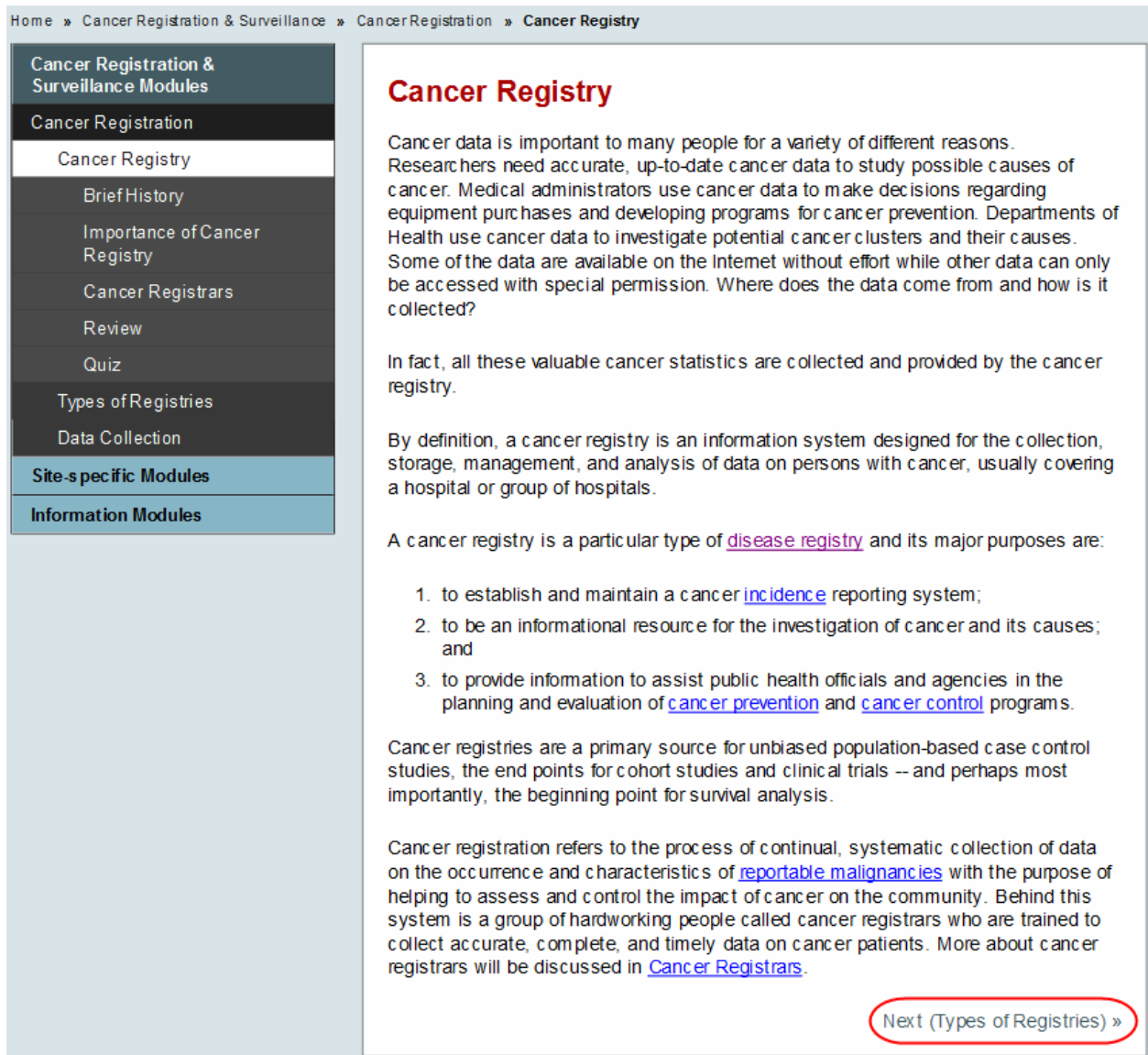


Figure 8 - Sub-page showing Next button

However, the “Next” button does not always link to the next page in sequence. Instead, the button allows users to proceed to the next section *at the same level as the current page*. For instance, Figure 8 shows that the “Next” button links to “Types of Registries” rather than “Brief History.” As currently implemented, the section linked by “Next” is not usually the expected path for most users. Also, there is no “Previous” link on this page, which is the first page within the module.

Recommendation: Consider supporting the anticipated path and linking to the next page in sequence. Also, consider providing a “Previous” button on all pages and linking it to the previous page in the anticipated sequence.

From the module landing page, there is a “View Module Map” link that displays the sections in the module (see Figure 9). This information can be very useful but is available only while viewing this page.

Recommendation: By putting the map in the more typical location of the Left Navigation, it would be available at any time. Alternatively, the map could display in its own window.

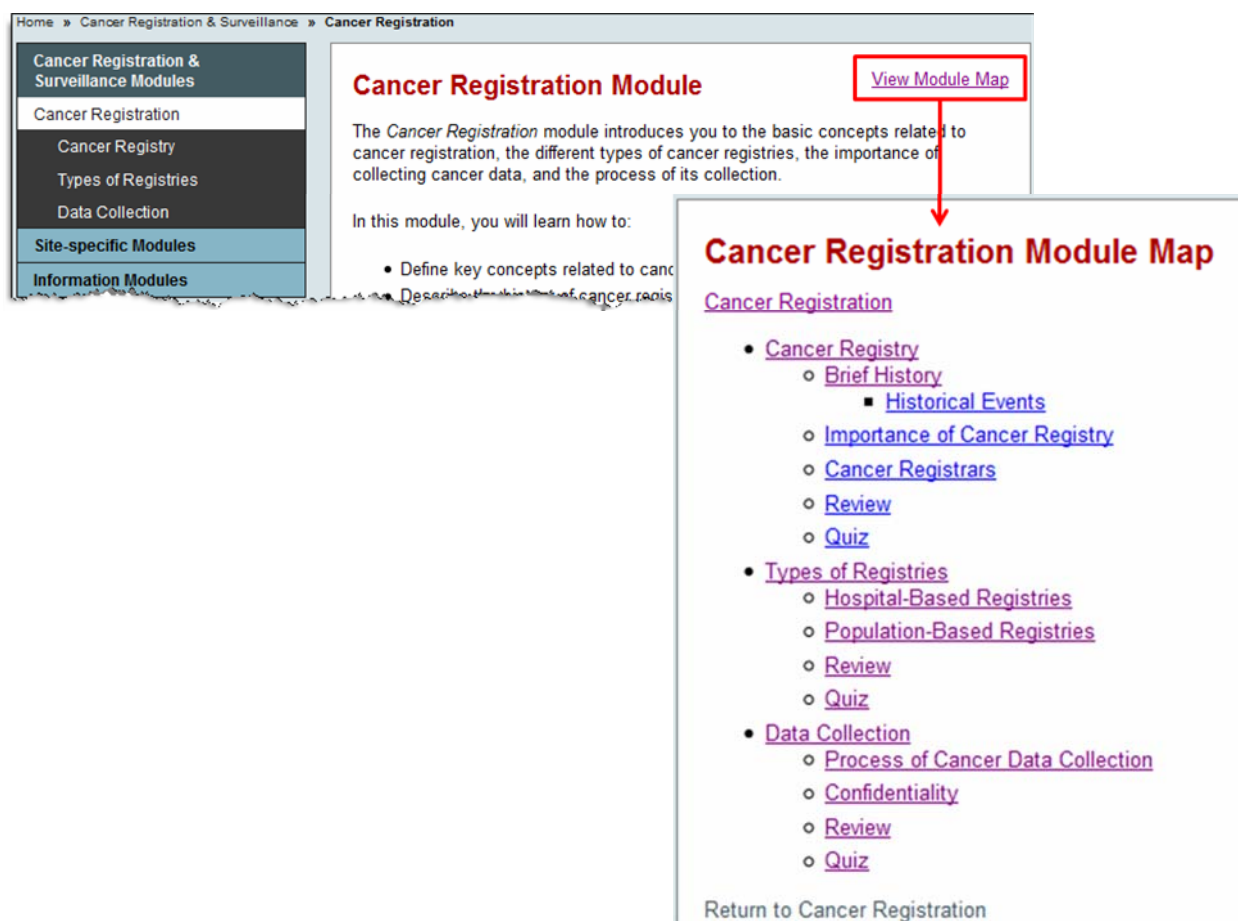


Figure 9 - "View Module Map" link

At the bottom of the “Review” page there is an explicit link to the Quiz (see Figure 10). This serves to emphasize that a quiz is available, though it duplicates the “Next” button.

Recommendation: Consider removing the link to the Quiz on these pages.

Home » Cancer Registration & Surveillance » CancerRegistration » Data Collection » Review

Cancer Registration & Surveillance Modules

- Cancer Registration
 - Cancer Registry
 - Types of Registries
 - Data Collection
 - Process of Cancer Data Collection
 - Confidentiality
 - Review**
 - Quiz
- Site-specific Modules
- Information Modules

Review: Data Collection

Data Collection focused on cancer data, answering the following questions:

1. What data are collected?
2. How are data collected?
3. How are data handled?

You have learned that cancer data collected by cancer registries can be put into four categories: demographic, tumor (cancer) identification, treatment, and outcome (follow-up). The demographic information identifies the cancer patient; the cancer information identifies the malignancy; the treatment information is about the various options selected to treat the cancer patient; and the outcome information consists of detailed information after the cancer diagnosis and treatment such as the cancer status and the patient's vital status.

You have also learned how cancer data are collected. The process begins with the diagnosis of cancer. In most cases, the data collection does not end until the patient dies. Although facilities that accept and treat cancer patients may be required by law to report cases and provide cancer data to a central cancer registry, cancer registrars also go out and visit hospitals and clinics to collect timely and quality cancer information.

To protect privacy and confidentiality of cancer patients, physicians, and health care facilities, relevant regulations, policies, and laws are strictly implemented to guide the handling of information in cancer registries.

Quiz

Go to the quiz if you want to test yourself on the material you learned in this section. The quiz is a self-assessment tool and no records are kept. The feedback will let you know if you have answered the questions correctly. You can take the quiz as many times as you want.

[Click here to take the quiz.](#)

« Previous (Confidentiality) Next (Quiz) »

Figure 10 - Link to Quiz from Review page

Page details

Glossary entries open in a small window appropriate to viewing the word and definition (see Figure 11). However, this format provides more functionality than is necessary.

Recommendation: Consider presenting the definition in a pop-up rather than a full window.

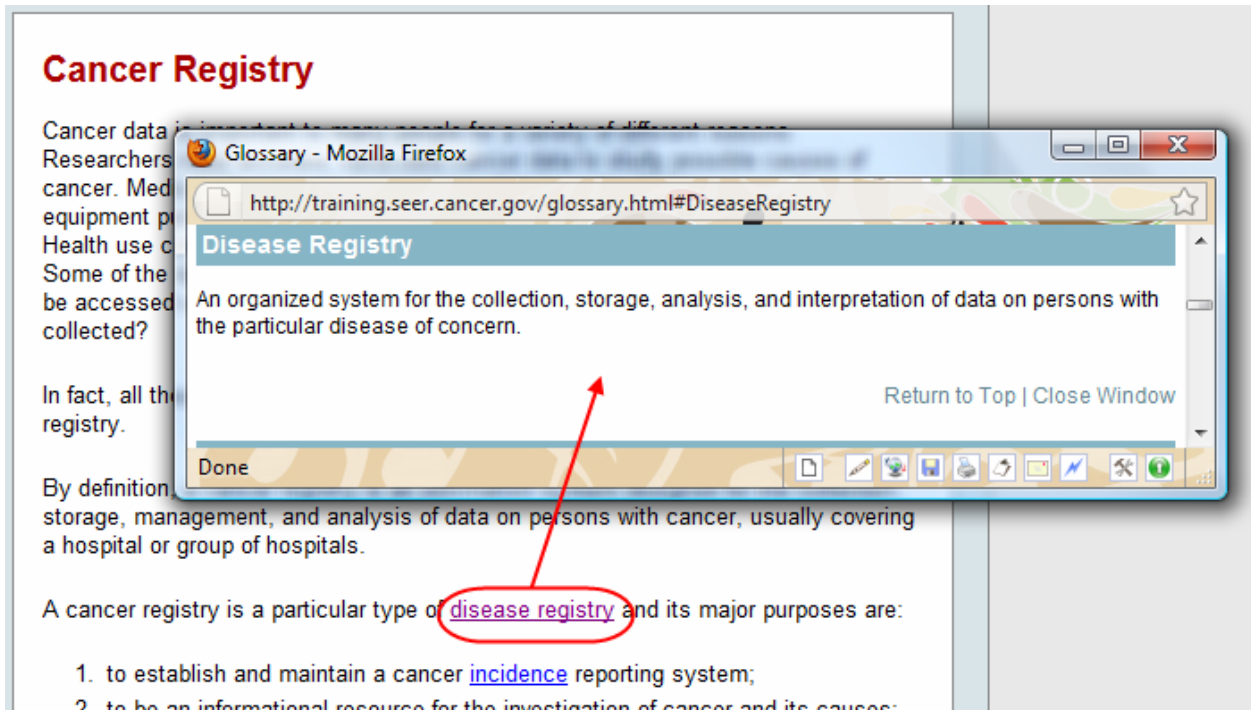


Figure 11 - Example of Glossary entry

Feedback on quizzes is minimal (see Figure 12). If a user answers a question incorrectly, there is no guidance as to where the relevant instructional material is located.

Recommendation: Consider adding a link to the relevant portion of the training for incorrect answers.

Home » Cancer Registration & Surveillance » Cancer Registration » Data Collection » Quiz

Cancer Registration & Surveillance Modules

Cancer Registration

Cancer Registry

Types of Registries

Data Collection

Process of Cancer Data Collection

Confidentiality

Review

Quiz

Site-specific Modules

Information Modules

Quiz: Data Collection

Summary of quiz results:

• Correct: 1

• Incorrect: 1

• Unanswered: 8

Please review your answers below.

1. Information collected by cancer registries can be placed into two main categories: patient demographics and follow-up.
☐ True ☒ False *Correct*

2. Demographic data consist of the primary site of the malignancy, its cell type, and the extent of disease.
☒ True ☐ False *Incorrect*

3. Cancer data collection begins by identifying people with cancer.
☐ True ☐ False *Unanswered*

4. Cancer information results from the diagnostic findings about a patient, which includes the primary site of the malignancy, its cell type, and the extent of disease.
☐ True ☐ False *Unanswered*

5. Providers who only diagnose the cancer, but do not treat it, do not have to report the case.
☐ True ☐ False *Unanswered*

6. Complete and timely cancer data collection requires field work from cancer registrars.
☐ True ☐ False *Unanswered*

7. One of the most important responsibilities of a cancer registrar is to protect the confidentiality of cancer patient information.
☐ True ☐ False *Unanswered*

8. It is no longer necessary to follow a patient once they have been entered into the registry.
☐ True ☐ False *Unanswered*

9. Individual identifiers make it possible to check for duplicate cases in the registry.
☐ True ☐ False *Unanswered*

10. Long term follow-up on cancer patients is important for registries to conduct survival analysis.
☐ True ☐ False *Unanswered*

Get Answers

Reset

« Previous (Review)

Figure 12 - Example of Quiz feedback

- 18 -

On exercises, the user can enter codes and verify that they are correct by clicking “Submit” (see Figure 13). Also on the exercises, the answers are displayed by clicking the “Answers” button. Use of this button is intuitive for showing answers, but the user must click “Answers” again to hide the answers which is not intuitive.

Recommendations: Since responses are not actually monitored, consider using the label “Check” instead of “Submit.” For clarity, change the “Get Answers” label to reflect the available action (“Show Answers” and “Hide Answers”).

Home » Cancer Registration & Surveillance » ICD-O-3 » Coding Exercise

Cancer Registration & Surveillance Modules

- ICD-O-3
 - What's New
 - What's the Same
 - Significance of Changes
 - Training Issues
 - ICD-O-3 Lists
 - Quiz
- Coding Exercise
- Site-specific Modules
- Information Modules

Type the correct histology/behavior and grade codes in the text input fields based on the diagnostic statements provided below.

ANLL (acute non-lymphocytic leukemia)

Histology/Behavior	Grade*
<input type="text"/>	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	<input type="button" value="Submit"/> <input type="button" value="Reset"/>

Answers

Histology/Behavior: 9861/3
Grade: 9

Figure 13 - Example of a coding exercise

The “Site-Specific Modules” and “Information Modules” sections have landing pages with all the sections listed in the main content area as well as on the Left Navigation (see Figure 14). This is a different format from the “Cancer Registration & Surveillance Modules” section, which lists the sections only on the Left Navigation.

Recommendation: Consider making the format of these pages consistent using the Cancer Registration and Surveillance Modules” as the model.

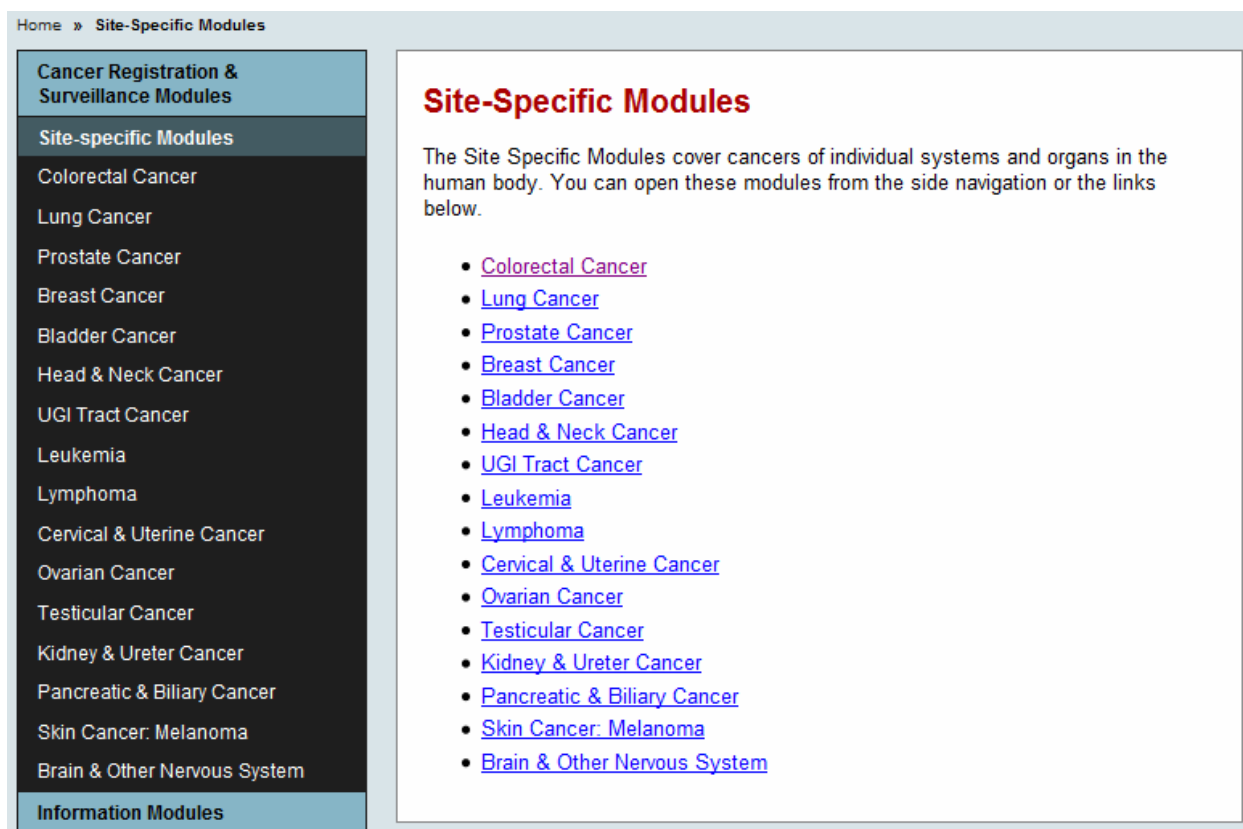


Figure 14 - "Site-specific Modules" landing page

On Hands-on Exercises, there are three tabs, each containing important information (see Figure 15). The “Next” button at the bottom of the pages actually steps through the tabs, but it may be below the fold for some screen resolutions and therefore not noticed.

Recommendations: Since pages up to this point have not included a tabbed design, a brief instruction to visit each of the tabs may be needed to ensure that users see the tabs. Also, consider indenting the text data beneath the headers on this page for readability.

The screenshot displays a web application interface. At the top, a breadcrumb trail reads: Home » Site-specific Modules » Colorectal Cancer » Hands-on Exercises » Case #1. On the left is a vertical sidebar menu with the following sections: 'Cancer Registration & Surveillance Modules' (light blue), 'Site-specific Modules' (dark grey), 'Colorectal Cancer' (dark grey), a list of sub-topics (Introduction, Anatomy, Abstracting, Coding, & Staging, Treatment, Hands-on Exercises) in dark grey, 'Case #1' (highlighted in white), 'Case #2', 'Case #3', 'Case #4', 'Case #5' (all in dark grey), and 'Information Modules' (light blue). The main content area has three tabs: 'Case Information' (active, light blue), 'Coding Exercises' (dark grey), and 'Treatment Exercises' (dark grey). Under the 'Case Information' tab, the content is organized into sections with headers: 'Case 1' (red), 'Primary Site' (dark grey) with the value 'Splenic flexure', 'Physical Exam' (dark grey) with the value '02/05/XX' and 'Rectal: Normal', 'X-Rays & Scans' (dark grey) with the value 'None', 'Scopes' (dark grey) with the value '02/05/XX' and 'Colonoscopy: Small fungating tumor at 83 cm.', and 'Laboratory' (dark grey).

Figure 15 - Tabs on Hands-on Exercise

Note that some tabs have sub-menus (see Figure 16). It may not be clear to users which sub-menu option to select, whether this selection is part of the exercise, and whether they are expected to view all the sub-options.

Recommendation: As suggested above, some instruction may be helpful.

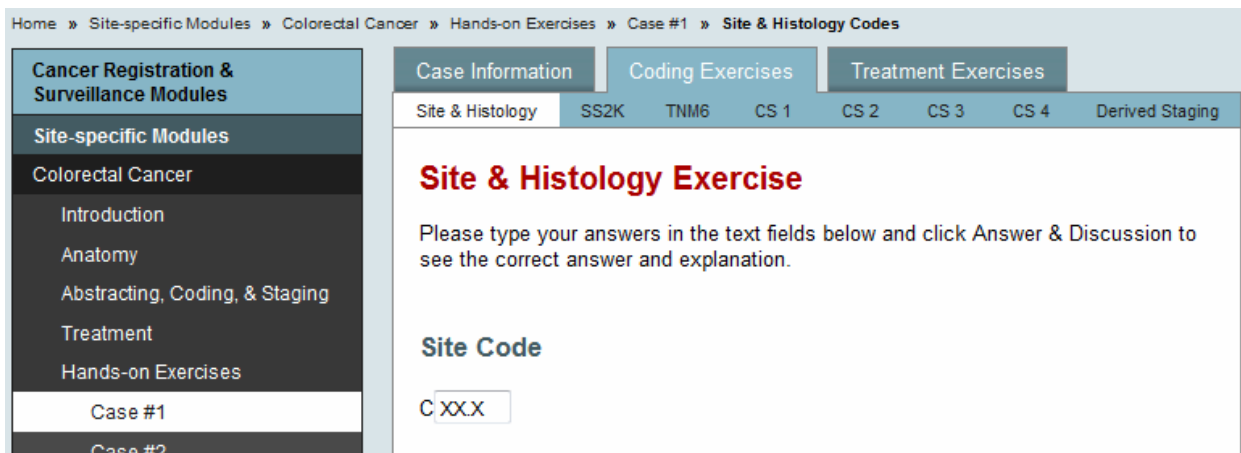


Figure 16 - Sub-menus on Hands-on Exercise tab

Some page titles don't match the labels in the Left Navigation. For instance, Figure 17 shows a section within "Multiple Primaries & Histology Coding Rules" that is listed as "Rationale" in the Left Navigation and titled "Why New Rules are Necessary" on the content page. While the two phrases have the same meaning, there should be at least some overlap in wording.

Recommendations: There should be at least some overlap in wording. Strive for overlap in page titles and Left Navigation entries. For instance, for this example, consider using "Rationale: Why New Rules Are Necessary" as the page title for this page.

The screenshot shows a web page with a breadcrumb trail at the top: "Home » Information Modules » Multiple Primaries & Histology Coding Rules » Rationale". On the left is a navigation menu with the following items: "Cancer Registration & Surveillance Modules", "Site-specific Modules", "Information Modules", "Multiple Primaries & Histology Coding Rules" (highlighted), "Overview", "Rationale" (highlighted), "Why Site-specific New Rules Are Necessary", "Major Changes", "Formats", "Using New Rules", and "Putting it All Together". The main content area has a red heading "Why New Rules Are Necessary". Below the heading is a paragraph of text explaining that existing rules were no longer optimally effective and that SEER Quality Improvement staff identified problems through various studies. A bulleted list follows, starting with "The existing rules were not written with computers in mind. SEER staff tried to flowchart the current rules&the first step in developing computer programs for determining multiple primaries and assigning histology codes&and found that it was impossible. This indicated that the logical order of the rules needed to be reviewed and revised."

Home » Information Modules » Multiple Primaries & Histology Coding Rules » Rationale

Cancer Registration & Surveillance Modules

Site-specific Modules

Information Modules

Multiple Primaries & Histology Coding Rules

Overview

Rationale

Why Site-specific New Rules Are Necessary

Major Changes

Formats

Using New Rules

Putting it All Together

Why New Rules Are Necessary

Over the course of time, the existing rules, which had been in place for over 25 years, were found to be no longer optimally effective. SEER Quality Improvement staff had identified problems with the existing rules through a number of sources. Various quality improvement studies, including field re-abstracting audits, casefinding audits, and centralized web-based reliability studies performed over the past 5 years were reviewed. These quality improvement studies identified growing problems in consistency and coding accuracy in determining the most representative ICD-O histology code, particularly for complex or mixed histologic types, and in making correct decisions regarding single versus multiple primary cancers using the existing rules. There were numerous problems, for example:

- The existing rules were not written with computers in mind. SEER staff tried to flowchart the current rules&the first step in developing computer programs for determining multiple primaries and assigning histology codes&and found that it was impossible. This indicated that the logical order of the rules needed to be reviewed and revised.

Figure 17 - Example of mismatched page title and Left Navigation entry

Some sections are very text-heavy (see Figure 18).

Recommendation: Consider adding section headings, bolded text, bullets, tables, and graphics to break up the content into readable chunks.

How Often Do the New Rules Apply?

- Usage varies by site
- Multiple Primaries: less than 10% of patients
 - 90% of cases are single primaries
- Histology: 15-25% of cases
 - 75-85% of cases are basic, nonspecific (NOS) terms

Not all primary sites have the same kinds of issues that led to developing site-specific rules, so the frequency with which the new rules apply will vary by site. Some primary sites, like the central nervous system, only infrequently develop multiple primaries; others, like the urinary sites, have a very high likelihood of developing multiple cancers concurrently (at the same time of diagnosis) or sequentially (months or years later). Some diagnoses, like that of a prostate or a head and neck tumor, may use a limited range of histology codes. Other diagnoses, like that of a breast or kidney tumor, may include multiple terms that could represent a complex diagnosis or simply descriptive adjectives.

Overall, however, multiple primaries occur in less than ten percent of patients, based on an analysis of historic data by the SEER Program. That means that more than 90 percent of cases that a registrar abstracts are single primaries, and there is only one rule for those cases: a single primary is a single abstract. For the remainder of the cases, the registrar will have to refer to the multiple primaries rules for the site being abstracted in order to determine whether the case is one of multiple tumors abstracted as separate primaries or multiple tumors abstracted as a single primary.

Once the number of primaries has been determined for the case, the registrar will have to consult the histology coding rules for between 15 and 25 percent of individual abstracts. SEER's research showed that more than three-quarters of cases are coded to basic histologies, such as adenocarcinoma, NOS; squamous cell carcinoma, NOS; or duct carcinoma, NOS. The remaining cases could be situations where there are combinations of descriptive and diagnostic terminology, a biopsy with one diagnosis and a resection with another diagnosis, complex or mixed tumors, or other histology issues. For these scenarios, the registrar should always consult the histology coding rules, even if the case presented as a single primary.

Now that you know what the changes are, you may also realize that the new rules take much of the uncertainty out of determining whether a case has multiple primaries and how to code the histology. And, in order to make the registrar's choices even more straightforward, the 2007 MPH rules have one more important change—they are provided in different formats so that registrars can grasp the concepts more quickly based on how they learn. This innovation in formatting is discussed in the next section.

Figure 18 - Example of text-heavy page

The “Multiple Primaries & Histology Coding Rules” module uses a different page structure than the other modules (see Figure 19). Links within “Overview” go to other pages within the section, e.g., the “multiple primaries...timeline” link takes users to the “Timeline” page. The change in structure may be confusing to users.

Recommendation: Consider structuring this module to be consistent with the other modules.

Home » Information Modules » Multiple Primaries & Histology Coding Rules » Overview

Cancer Registration & Surveillance Modules

Site-specific Modules

Information Modules

Multiple Primaries & Histology Coding Rules

Overview

Timeline

MPH Project Committee

Participating Organizations

Quiz

Rationale

Major Changes

Formats

Using New Rules

Putting it All Together

Overview: What The 2007 Rules Are

The 2007 Multiple Primary and Histology (MP/H) Coding Rules represent the first changes in nearly three decades in the way multiple primaries are counted and the first formal changes in the coding of histology in more than five years. Site-specific multiple primary and histology rules have been developed to promote consistent and standardized coding by cancer registrars.

The new, site-specific rules have been developed to address an assortment of problems that have been associated with inappropriate, ineffective, or inconsistent application of the general rules to specific cancer sites. The rules provide a major improvement in the classification, sequencing, and grouping of tumors, for which the long-established multiple primary and histology coding rules no longer work.

View the [multiple primaries and histology coding rules project timeline](#).

The 2007 MP/H Rules provide site-specific rules for lung, breast, colon, melanoma of the skin, head and neck, kidney, renal pelvis/ureter/bladder, and malignant brain. A separate set of rules addresses both general and specific rules for malignant solid tumors originating in all other sites.

The multiple primary rules guide and standardize the process of determining the number of primaries. The histology rules contain detailed histology coding instructions. For example, there are instructions and guidance for identifying histologic lineages, differentiating between general (NOS) terms and specific histologic types, and correctly assigning mixed and combination codes.

The rules are available in three formats: flowchart, matrix and text. The different formats were developed to meet the needs of registrars who have different learning styles.

The MP/H Task Force also developed three new data items that complement these rules, Multiplicity Counter, Date of Multiple Tumors, and Type of Multiple Tumors Reported as One Primary.

Read about the [history of the MPH Project committee](#).

View the [list of participating organizations](#).

Many state registrars associations have presented workshops on the new rules. The

Figure 19 - Landing page for "Multiple Primaries & Histology Coding Rules" module

Usability evaluations

Based on findings from the Expert Review, the SEER team implemented some changes to the navigation on the live site, specifically “Next” and “Previous” buttons were added to the module landing pages to allow users to consistently use this control for stepping through the content. Also, “Next” and “Previous” buttons were made to always proceed along the anticipated path, linking to the next (or previous) page in sequence.

Round 1

The first round of usability evaluation was conducted on the modified live site. Research questions focused on finding information, especially in CRSM, and overall usability of the site. See Figure 20 for the home page used in this round of testing (which looked the same as the homepage used in the Expert Review since changes were made on inner, content-level pages.)



Figure 20 - Home page as it appeared during Round 1 testing

Overall impressions - Experienced CTRs commented mostly on content. They felt that the modules contained appropriate content, though they expressed some concerns about the currency of staging system information. They felt the graphics were very helpful and wanted to see links on the content pages to associated manuals.

Trainees had positive comments about the website, such as “good” and “impressed.” Several noted that they would use the site when abstracting or performing linkages or reviewing a case – in other words, on a daily basis.

Cancer Registration & Surveillance Modules. Some experienced CTRs felt that some modules in this section were out of order. They felt that the sequence did not follow the process of abstracting a case. Since Collaborative Staging is now in use, they felt this section should precede discussion of other types of staging. They felt Summary Staging and Extent of Disease content should be included in the discussion of staging, but not be so prevalent. Also, they thought that Summary Staging content need not be repeated in multiple places. They commented that ICD-O-3 is important. CTRs suggested including links to manuals that are regularly used in abstracting. CTRs were also concerned about content on staging not being up to date.

Recommendation: Consider adjusting the order to follow that used when abstracting. Also, consider moving the section on patient information – either to a separate module or after the “Medical Terminology” module. This information is needed prior to coding (which is the current location).

Site-specific Modules. Participants were generally pleased with the content presented in “Site-Specific Modules.” Comments included “good for collaborative staging issues” and “good to have anatomy and treatment sections.” They felt the flow through the modules was smooth and that the anatomy graphics, which can be hard to find, were useful. In particular, the “Clock” diagram was one that was cited as particularly useful.

Suggestions for improvement included:

- Remove duplication between Left Navigation and center section
- Add contextual links to relevant sections in manuals...
- Add a link to Ford’s manual under Treatment>Surgery
- Add a link to Multiple Primaries in Abstracting, Coding & Staging
- Add links to Hematopoietic Database from both Leukemia and Lymphoma

Cancer Registration & Surveillance Modules
Cancer Registration
Cancer Registry Operations & Procedures
Cancer as a Disease
Cancer & Medical Terminology
Anatomy & Physiology
Casefinding
Abstracting a Cancer Case
Diagnostic Tests
Cancer Treatment
Coding Primary Site & Tumor Morphology
Staging a Cancer Case
Summary Stage 2000
Intro to Collaborative Stage
Cancer Patient Follow-up
ICD-O-3

Information Modules. Participants were not clear on what “Information Modules” meant (see Figure 21). All agreed that this section needed refining. Some thought it could be a reference section, with links to manuals. During the first test the content of this section seemed to be written for trainees.

Suggestions for improvement included:

- Change the “Information modules” label to fit the content
- Add more information on SEER and SEER registry (which are on the CTR exam)
- Post a list of changes/effective dates for manuals and staging systems (see April Fritz’s website for dates)

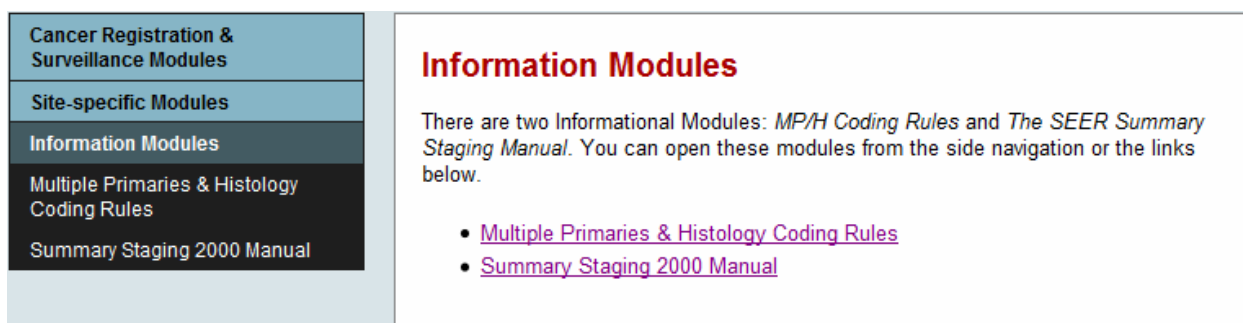


Figure 21 - Information Modules

Navigation. All participants knew how to get to the full list of modules from within a specific module (e.g., by clicking “Cancer Registration & Surveillance Modules”). They knew how to get to the home page, and all used the “Next” and “Previous” buttons to move between pages. Some also used the Left Navigation to move around the site. The change in functionality for “Next” and “Previous” buttons was noted and appreciated.

Participants gave the “Module Map” mixed reviews (see Figure 22). Some did not notice it and said they would not use it. Others liked the detail the map afforded, and others liked the overview it gave of the topic. All agreed that this level of detail is too much to include in the Left Navigation.

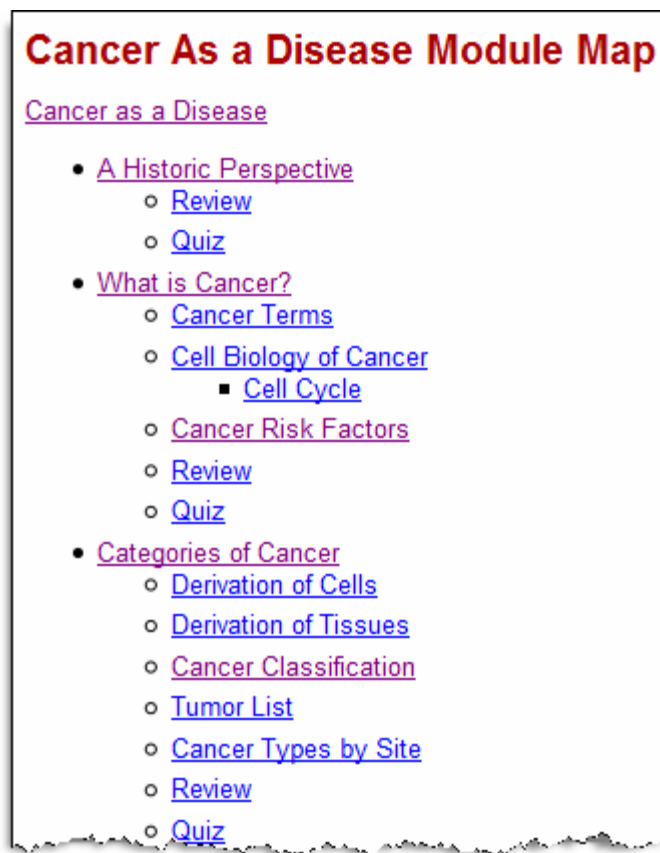


Figure 22 - Example of a Module Map

Recommendations: Since participants understood how to display the complete list of modules when working on a specific module, it is acceptable to hide the other modules when working in one module. Keep “Module Maps” as they are currently implemented. As practical, include key words and phrases from the Module Map in the Left Navigation to make content more transparent.

Hands-on Exercises. The concern about the Hands-on Exercises was whether users would notice and understand how to use the tabs (see Figure 23). During the evaluation, most participants saw and used the tabs correctly. One commented that she would like to have the Case History open when she is doing the exercises. The “Submit,” “Reset,” and “Answer & Discussion” buttons were used correctly.

Recommendations: No changes are recommended.

The screenshot shows a web application interface with three main tabs: "Case Information", "Coding Exercises", and "Treatment Exercises". Under the "Coding Exercises" tab, there are sub-tabs: "Site & Histology", "SS2K", "TNM6", "CS 1", "CS 2", "CS 3", "CS 4", and "Derived Staging". The "Site & Histology" sub-tab is currently selected, displaying the "Site & Histology Exercise" form. The form includes instructions: "Please type your answers in the text fields below and click Answer & Discussion to see the correct answer and explanation." It has two sections: "Site Code" with a text input field "C XX.X" and "Histology Code" with a text input field "C XXXX/XX". Each section has "Submit" and "Reset" buttons, followed by an "Answer & Discussion" button.

Figure 23 - Hands-on Exercise showing tabs

Round 2

Round 2 testing was done on a development version of the site that included a new “Resources” section as an alternative to the “Information Modules” section, as well as other minor changes. In addition, participants were shown mockups of alternative layouts for the Case History section of Hands-on Exercises. Round 2 continued to address the issues that were the focus of round 1 testing: finding information, especially within CRSM and the new “Resources” section, and general usability. See Figure 24 for the home page used during this round of testing.



Figure 24 - Home page as it appeared during Round 2 testing

Reported use of the site. Participants cited the following reasons for using the SEER Training website:

- For training new registrars – several cited the site-specific modules (SSM), in particular. They reported giving trainees an assignment, and then meeting to discuss. Trainees may include clinical staff and nurses who need to fill in abstracts.
- As a refresher – SSM were most often used for this purpose
- For clarification while abstracting
- For own training

Navigation. At issue was the list of module names that is hidden when the user is viewing a specific module. Most had little or no problem with the module names being hidden when they were in the CRSM section. Participants used a variety of ways to go back to the complete list of names, including the back button, clicking on “Cancer Registration & Surveillance Modules” in the Left Navigation, and using the breadcrumbs. However, some who seemed less computer-savvy were confused by the hidden module names. It was thought by some that this will likely only be a start-up issue.

None of the participants chose to view a module map independently. Several said they had not noticed the link. All who used one of the maps found it useful, and several elected to use the map on subsequent tasks. Several suggested providing easier and/or constant access to the module maps.

Recommendations: No changes recommended.

Cancer Registration & Surveillance Modules. Participants discussed where they expected to find information on Collaborative Stage (CS). The version of the site that they saw during the test included CS in the “References” section (because it described an older version of CS). All expected to see CS with the other staging systems. Experienced CTRs were divided on the exact placement, with several thinking CS should be presented first, while others thought CS should follow the other, simpler systems.

Most expected to find the list of common abbreviation in the “References” section. Some expected it to be in the Glossary. Most agreed that while it fits logically under “Medical Terminology” as part of initial training, more experienced users who use it would find it most easily under “References.”

Recommendations: When the CS module has been updated, place it in “CRSM/Staging/Staging Systems” before the other systems. Flag older systems as historical, and include dates of use. Place a link to the abbreviations page in both “CRSM” and “References.” Consider adding other resources, e.g., symbols, acronyms, to “References.”

Site-specific Modules. This section was reported to be used most frequently by participants. A common comment was, “Lots of useful information!” In particular, the following elements were mentioned as being especially helpful: surgery chart, pictures, abstracting keys, treatment options by stage, coding and staging information, and Hands-on exercises.

A suggestion made by a couple of participants was to add advanced topics to the site-specific modules.

References. All agreed the content under “References” was helpful. One said, “‘I’ve been looking for a list like this to share with students!’” Most participants easily found links to manuals in the “References” section. Due to its length, some had trouble finding items on the list, and most preferred the links grouped for ease of use. One participant suggested adding the College of American Pathology (CAP) to the list of organizations.

Recommendation: Add groupings by type of link, perhaps Manuals, Coding Help, Organizations, etc.

Hands-on Exercises. Participants were presented with the current layout and two alternative layouts for the Case History section of the Hands-on Exercises (see Figure 25). The order of presentation of new layouts was counter-balanced across participants.

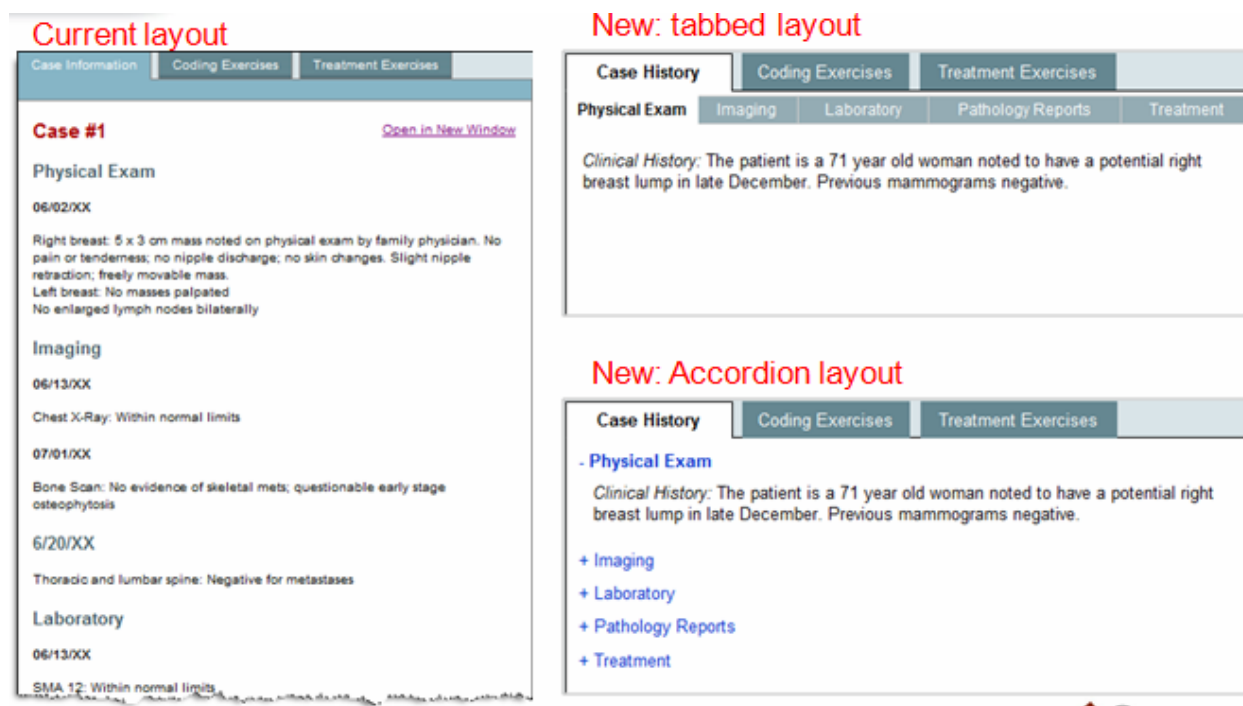


Figure 25 - Alternative layouts for Hands-on Exercises

Most participants preferred the tabbed layout over the current and accordion layouts. They felt that this approach was similar to a real world presentation where the information is in separate documents. They also felt this approach provided faster access to the information and was easier to read. One suggestion was to add a Print option. Several mentioned that they liked having the number and name on the site specific factors section (within “Coding Exercises”).

Though not preferable to the tabbed design, the majority thought the Accordion Layout was better than the current layout. The accordion layout allowed users to focus on an area of interest, but it was somewhat hard to read. Several thought this layout was better than tabs for comparing information, though this seems to be an infrequent task.

Addressing other functionality within the Hands-on Exercises, most participants wanted to be able to view the Case History while they were completing the exercises located on other tabs. This functionality has recently become available on the live site through the “Open in New Window” button (Not all of the participants were aware of this.). Some didn’t understand the link label, “Open in New Window,” though no alternative phrasing was offered. All thought the new layout for derived staging, designed to facilitate lookup and comparison tasks, was clear and easy to read (see Figure 26).

The screenshot shows a web interface with a top navigation bar containing three tabs: "Case History", "Coding Exercises", and "Treatment Exercises". Below this is a sub-navigation bar with seven tabs: "1-MPH Rules", "2-CS", "3-CS", "4-CS", "5-CS", "6-CS", and "7-Derived Staging". The "7-Derived Staging" tab is active.

Exercise 7 - Derived Staging

Derived staging information is given so that you may compare these codes to your manual codes in the earlier exercises.

Stage Codes

AJCC TNM	7th edition	6th edition
T (Tumor)	T1a	T1a
N (Nodes)	N0	N0
M (Mets)	M0	M0
Stage	1A	1

Summary Stage	2000	1977
Stage	1, Localized only	1, Localized only

Figure 26 - New layout for Derived Staging

Recommendation: Tentative recommendation is to implement the tabbed layout, though further testing during the next round of usability evaluation is suggested, using a mockup that has more functionality than the one used in this round. Implement the suggested layout for Derived Staging pages.

Round 3

Round 3 focused on locating information in the “Resources” section, expectations concerning content in “Archived Modules,” using the Left Navigation to locate content, the content and layout of the “Help” module, and the tabbed vs. accordion layouts for Case History in the Hands-on Exercises. See Figure 27 for the home page of the version of the site used in this round of testing. Note that it contains Resources in the Left Navigation as well as Help in the top menu bar.

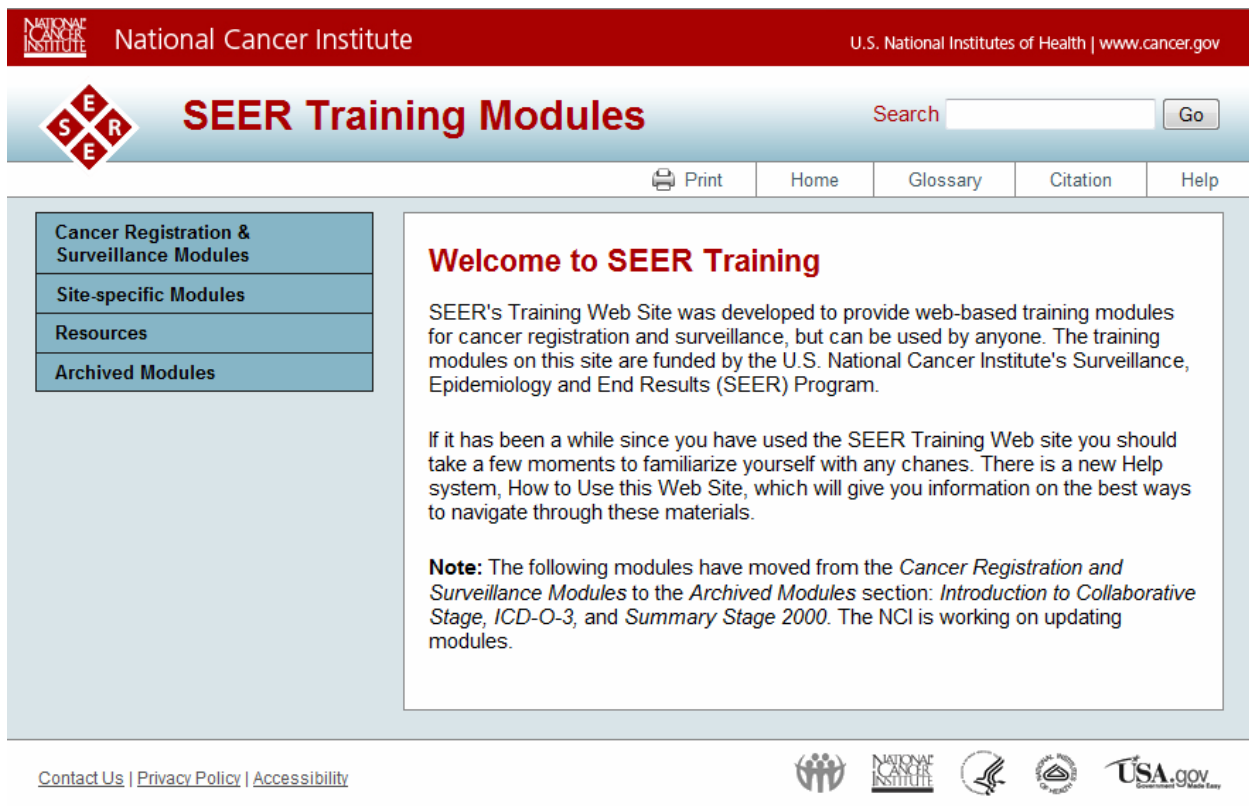


Figure 27 - Home page as it appeared during Round 3 testing

Overall ratings of SEER Training website. Participants were asked to rate the SEER Training website in terms of quality of information on the site, timeliness of information, and ease of learning. In terms of quality, the site received uniformly high ratings. Level of experience affected the timeliness ratings, with more experienced users commenting on the lag between new information becoming available through other sources and when it is incorporated onto the SEER site. One trainee thought that because the training site is online, it is automatically updated. Such a perception might be problematical if trainees rely on the SEER site for the most current information. Most reported having an easy time learning to use the website, though one trainee said it “took a while” because information was hidden in the Left Navigation. Several commented that they thought the new “Help” section would aid with learning to use the site.

Help. All users easily found “Help” in the top menu bar (see Figure 28). All thought the content would be helpful for trainees, *assuming they read it*, particularly in providing an overview of content and navigation. After reading the introductory text, most looked at the Left Navigation, then clicked “Navigating this Web Site” (see Figure 29) Many did not realize they should click “Introduction to the SEER Training Web Site,” also in the Left Navigation, to view additional pages. The non-standard icons (closed and open books) may have contributed to the confusion.

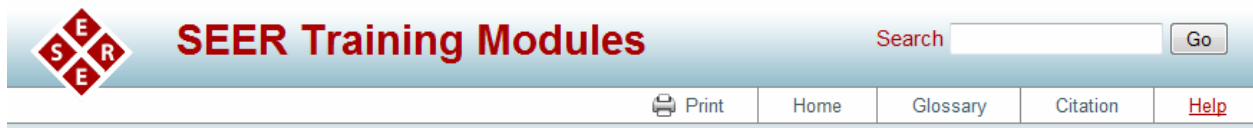


Figure 28 - Top menu bar

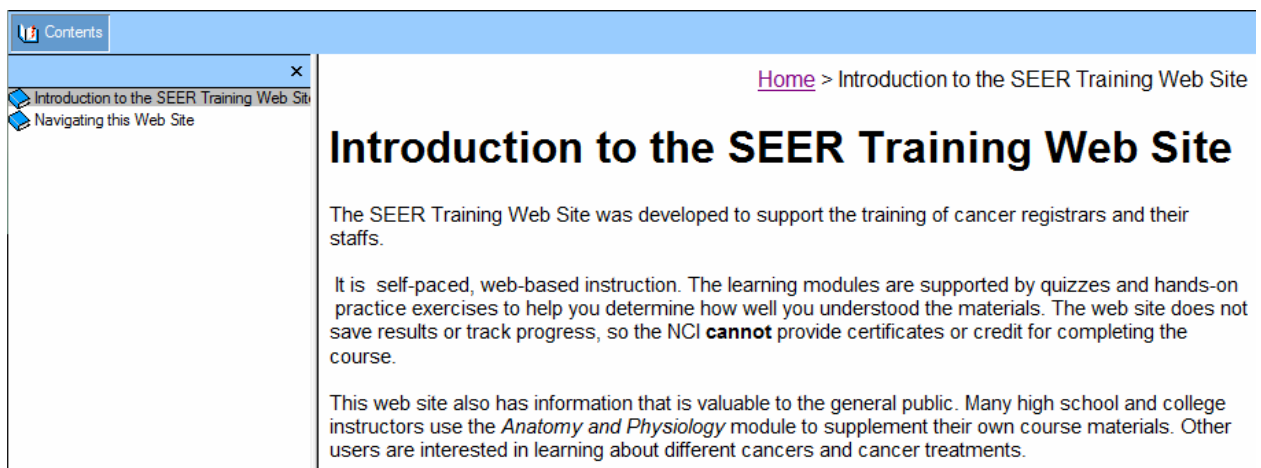


Figure 29 - Introductory page of Help section

Recommendations: Suggest on the home page that new users in particular might benefit from reading the “Help” section prior to using the full site. To facilitate use of the “Help” section, direct users to the Left Navigation of the Help section from the main content area of the introduction (landing) page. Also, start with the Left Navigation expanded, if possible. If the navigation panel cannot be expanded, tell users to click to open it. Foreshadow site navigation and layout by mimicking the site Left Navigation structure within the Help section and by moving breadcrumbs in the Help section to the left side of the page as they are positioned on the rest of the site. Add “Next” and “Previous” buttons to the bottom of the main content area.

Consider expanding the content of the “Help” section by adding an index and adding a “What’s New” section that would be updated as the site is revised. Also, the “Using Left Navigation” page under “Navigating this Web Site” in the Help section should be updated to include “Archived Modules.”

Searching for information. Most looked for manuals in the “Resources/References” section. One tried to find the SEER site (in Organizations) because she knew the manual was there, but SEER is not included in the list of organizations. Most expected the list of common abbreviations to be in “Resources/References” or in the Glossary.

Recommendations: Change link from “Summary Stage module” to “Summary Stage manual” and add SEER to the list of organizations in “Resources/Organizations”. Since this site is a tool not just for trainees, consider adding links to useful tools in “Resources/References,” possibly in a new section called “Tools.” The links in this section would essentially be quick links to existing content within “CRSM” and “Site-Specific Modules.” Participants cited other helpful tools on the site, such as, diagrams, regional lymph nodes, manuals, site-specific coding, and laterality.

Archived modules. The purpose of the “Archived Modules” section was clear: All participants expected older manuals to be here (see Figure 30). Several had trouble determining whether “Multiple Primaries & Histology Coding rules” (MPH) and “ICD-0-3” were current versions or not by looking at the manual content. Some were confused because they are currently using MPH and ICD-0-3 (they did not realize these were older versions and they wondered why these modules were here.)

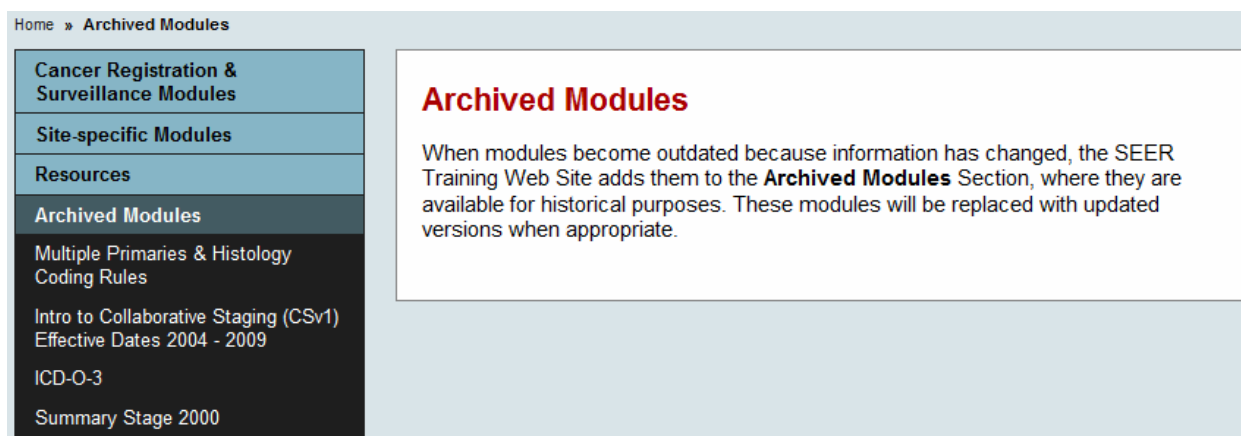


Figure 30 - Archived Modules

Recommendations: Add effective dates to all archived modules in Left Navigation. Consider adding a paragraph on the landing page main content area on each entry indicating that it is an old version, when to use it and what the effective dates were.¹

¹ See April Fritz’s website for books with years for historical research.

Hands-on Exercises. Participants saw two alternative layouts for the Case History section of Hands-on Exercises: tabbed and accordion (see Figure 31). The few that preferred the tabbed layout cited the following reasons:

- Less scrolling
- Content is separated/easier to read/less cluttered
- Not all in your face
- Easy to switch sections
- More like real world where info will be in separate documents

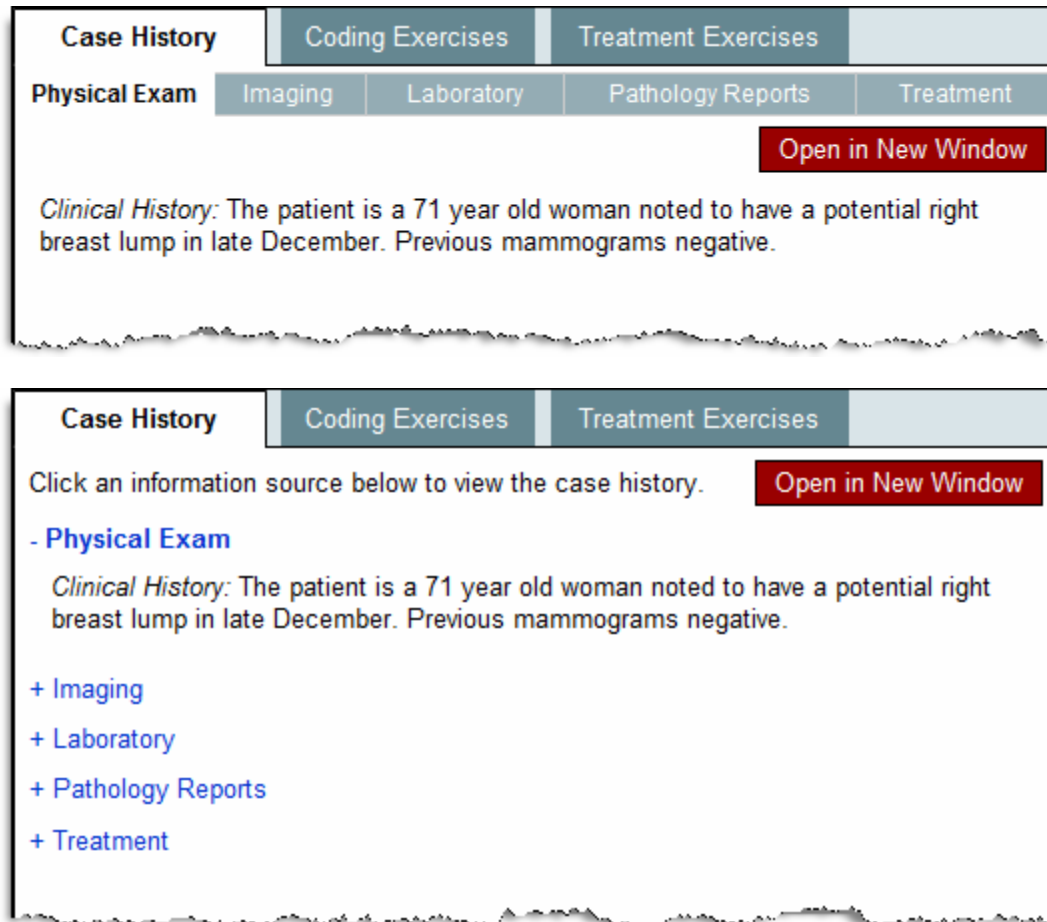


Figure 31 - Tabbed (top) and Accordion (bottom) layouts for Case History on Hands-on Exercises

Most, however, preferred the accordion layout to the tabbed layout. They commented that:

- Scrolling is better than multiple clicks
- Everything is on one page
- More efficient to use
- Can use Ctrl-f to find specific text
- Hard to remember what's on tabs that you're not currently looking at

- Better for comparisons
- Even though tabs are closer to real world, with info in separate places so can only see one at a time, for exercises, it's handy to have it all together

Recommendations: Use accordion format to present Case History.

Navigation. The issue of the list of module names being hidden in the Left Navigation was addressed for the CRSM section in Round 2 of testing. While most had little or no problem with hidden sections in CRSM, the same functionality in “Resources” was confusing because users were more likely to want to move between sections under “Resources,” so being able to see the other modules is important.

Recommendation: Since the functionality of the Left Navigation must remain consistent across sections of the site, consider an alternative way to present the sections under “Resources,” for instance by implementing a single tabbed page under “Resources” with one tab for each module. See Figure 32 for an example.

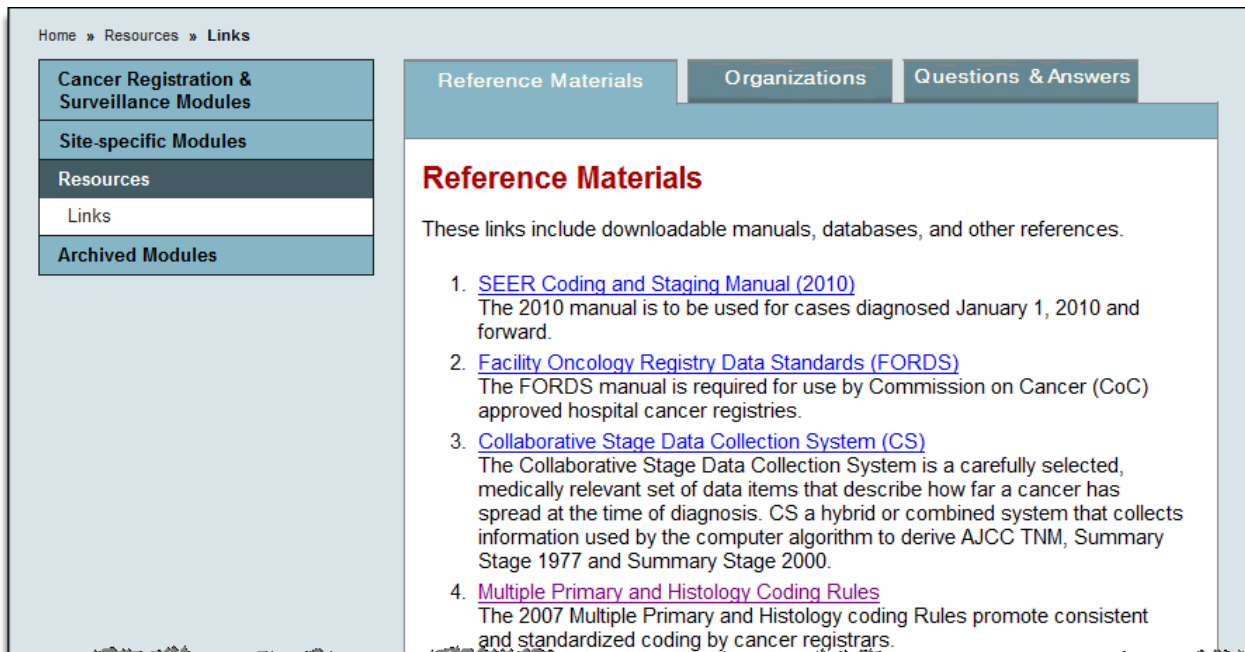


Figure 32 - Alternative layout for content sections under Resources

Another navigation issue was noted during this round of testing concerning the “Next” links. When participants used the “Next” link on the last page of a section (e.g., “Resources/Questions & Answers”), they were not taken to the anticipated next page (in this case, the “Archived Modules” landing page), but rather to the first page within the new section (here, “Multiple Primaries & Histology Coding Rules” under “Archived Modules” see Figure 33). In all such cases, the landing page is skipped. Several participants who saw this action thought this would be confusing to new trainees.

Recommendations: Link the “Next” link at the end of a section to the landing page of the next section.

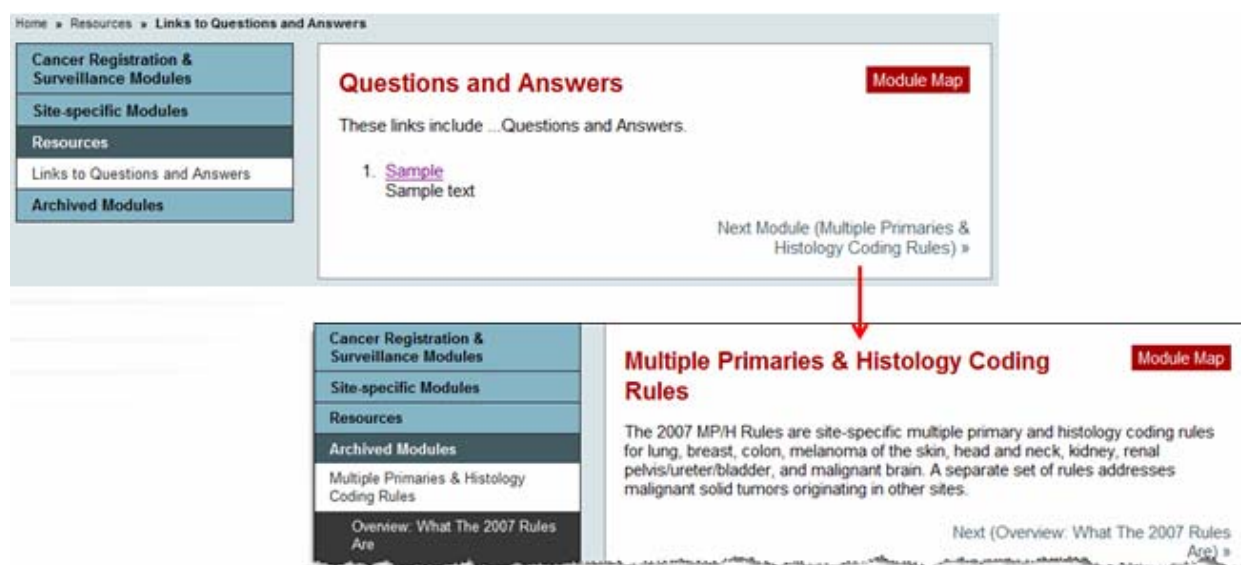


Figure 33 - Next link between sections of site

Other comments. Participants also offered the following comments. The training site is hard to locate from the main SEER home page. A few would like to have key vocabulary underlined and linked to bring up the definition. Consider indenting module names in the Left Navigation to clarify site hierarchy. And finally, there are some minor content updates that need attention: editing errors on the homepage, 2nd paragraph: “familiarize yourself with any *chanes*” and on the CRSM landing page, in the Note, the reference to “References” instead of “Archived Modules.”

Summative evaluations

Participants scored the overall usability of the site they worked with during testing using the System Usability Scale (SUS). This scale produces an overall score that ranges between 0-100 to indicate the participant’s sense of how usable the site seemed. Typical scores for most websites range between 60-70. The SEER Training site consistently scored above average, at 80 or higher. See Table 4 for average scores.

Table 4 - Average SUS Scores

Round	SUS Score (avg)
1*	89
2	80
3	87

* In round 1, only trainees completed the SUS survey.

Note that the scores are not directly comparable with each other and do not reflect a full exploration of the website as participants were limited by the set of tasks they were asked to perform.

Conclusion

Over the past year, SEER has made revisions to the functionality of its Training website, considered alternative designs for certain portions of the site, and validated the implemented and proposed changes through three rounds of usability testing. Changes to the site organization and layout that are ready for implementation based on findings from these evaluations include: changes to the navigation controls, a new “Resources” section to replace the old “Information Modules,” a new “Help” section to aid trainees in learning to use the site, and a new format for Case History within Hands on Exercises. Some of the new functionality are ready for implementation on the live site by IMS, the contractor in charge of site development. The new format for Case History within Hands on Exercises will be implemented when new content is developed for all Hands on Exercises throughout all the site-specific modules.

Appendices

Appendix A: Facilitator's Guide for Round One Usability Evaluation

[Note: The purpose of this document is to guide the moderator. The questions and tasks contained herein may not be asked as written. The facilitator often draws on participant comments and the natural flow of the testing process to determine the flow of the session. While the facilitator will try to follow the order of the guide, many times tasks will come up ahead of time or in different order. The facilitator may allow the order of the tasks to change in order to let the process flow naturally.]

Pre-Test

[Administer the informed consent and video release form]

Introduction

Thank you for agreeing to participate in this study. Do you have any questions for me before we get started?

You signed a video release so you know I'll be recording everything that shows up on the computer monitor. I'd also like you to know that there may be observers helping me by taking notes from another room, but don't worry about that. You and I will work on this together and they'll just watch.

We're going to be looking at a web site today that was created for the National Cancer Institute. I'm going to ask you to explore the web site and then do some tasks with the site. Then I'd like to get your opinion about it.

We have invited Cancer Tumor Registrars and other participants who have reasons to find information about cancer registration, surveillance, and other related concepts and terminology, to browse this web site. So we can understand the point of view that you are bringing to the testing, I'd like for you to tell me a little bit about your previous experience with, or knowledge about finding any of the aforementioned information.

- Where are you in your career/education/training? (What have you done previously? Where are you headed?)
- Have you ever been to the SEER Training Website? [If yes] Why did you use the site? When did you use it?

Since we'll be working on a computer today, I want to let you use this computer in a way that it looks like the computer you regularly use. Tell me a web site you use frequently. Now does this look too big or too small? [Facilitator adjusts the resolution until it matches for the participant's normal experience.]

There are two important things you should keep in mind while you work with this web site:

- First, I did not design it so you can't hurt my feelings. If there are problems with the design I would like to discuss them with you to see if we can find a way to make the web site better.
- Second, we are evaluating the web site and not you, so you cannot make any mistakes. The web site is supposed to be intuitive and easy to use. If it isn't, that's a problem with the web site – not with you.

Any comments you have, either positive or negative, will help make the product better so feel free to tell me whatever is on your mind. After you're done working, I'll ask you a few questions and then give you some time to ask me anything you'd like. Do you have any questions for me before we get started?

Initial Impression

[Open the browser to <http://training.seer.cancer.gov/>]

First, I'm going to let you explore this web site by yourself. I want to see what you can find that might be helpful or interesting to you. I'd like you to tell me about what you see and whether it does or does not relate to finding information useful to you. If you have questions as we go along, feel free to ask. I may not answer your questions right away in order to see how well you can figure out things for yourself, but it is valuable to know if you do have questions about the site.

[Observe the participants and note what information relevant to cancer registration and surveillance that they find on their own. Keep track of any relevant comment(s). After a few minutes

- If not offered, prompt for participant's impression of the main page.
- If not already covered, ask what prompted them to explore the sections they visited

Facilitator should ask about specific pages and sections as they are encountered. If users explore areas listed as a task below, the facilitator should get the feedback during their exploration. Areas of the site that seem to be of interest and then are dropped should be asked about.]

Tasks

[Explore each of these tasks or subtasks if the participant did not explore them on their own]

1. Let's start on the Home page. Please read through this page. Tell me what you would do next.
2. Take a few minutes to explore this site on your own and give me your impressions of the site.

3. What topics are covered in this training and how are they organized?
4. How would you use this site? (trying to understand how they would progress through the training—in order vs. random order? All vs. selected topics? Etc.)
5. Which topic(s) would be of particular interest to you?
 1. Imagine you were going to learn/review all of the content in the section for [the topic just identified]. Show me how you would do that.
 2. You've now reached the end of the section. How would you proceed to the next section of training?
6. Let's go to the Cancer Registration module. See the link 'View Module Map.' What do you think that is? Click on it. Is this what you expected? Would you use this during training?
7. I'm going to ask you to find some specific information on the site now.

For new users (CTRs-in-training):

1. What role does Diet play in the development of a cancer? [Cancer as a Disease / What is Cancer? / Cancer Risk Factors]
2. Where would you find information on ultrasound? [Diagnostic tests / Ultrasound]
3. Imagine you were actually going through all of the modules in this training site and you finished the section on ultrasound. Can you tell me how many more modules there are in the complete training? [15+16+2]
4. Where would you find information on the digestive system? [Anatomy & Physiology / Digestive system]
5. (Select a word that is underlined on the page.) Why is this word underlined?
6. Where is a listing of common abbreviations? [Cancer & Medical Terminology / Abbreviations, etc.]
7. In some of the sections of this training, there are hands-on exercises. For instance, go to Site-specific modules/Colorectal cancer/Hands-on exercises. I'm interested to see how you would work through these.

For experienced users (current CTRs):

1. What topics should be included in a policy and procedures manual? [CR Operations & Procedures / CR Management / Policy & Procedure manual]
2. When should the different cancer staging systems be used? [Staging a cancer case / Staging systems]

3. Where is information on organizing the critical information in patient records? [Abstracting a cancer case / Composition & organization of a medical record / Organization]
4. Imagine you were actually going through all of the modules in this training site and you finished the section on patient records. Can you tell me how many more modules there are in the complete training? [15+16+2]
5. Where is a listing of common abbreviations? [Cancer & Medical Terminology / Abbreviations, etc.]
6. Where are practice cases for implementing multiple primaries and histology coding rules? [Information modules / Multiple primaries & histology coding rules / Putting it all together]
7. In some of the sections of this training, there are hands-on exercises. For instance, go to Site-specific modules/Colorectal cancer/Hands-on exercises. I'm interested to see how you would work through these.

Post Test Interview Questions

Now, I'd like to collect a bit of information from you using some standard tools before we discuss your experience.

[Administer the System Usability Scale (SUS) questionnaire.]

I'd like to ask you a few specific questions.

1. Most sites have some type of learning curve associated with them. Does this site have a learning curve?
2. What is your evaluation of the material presented in the web site? If you were ranking it where 5 was very high quality and 1 was very low quality, what value would you give this material?
3. What is your evaluation of the timeliness of the material presented in the web site? If you were ranking it where 5 was very up-to-date and 1 was very out-of-date, what value would you give this material?
4. What are the three things you liked most about the way the site looks and works?
5. What three things did you like least about the way the site looks and works?
6. What about the site surprised you the most?
7. Is there any information or other content you would have expected to find, but didn't?

Wrap up

OK, we're done. Are there any questions you would like to ask me about the site or about today's experience that I did not ask you about?

Thanks again for your participation.

[Pay stipend and obtain signature]

Appendix B: Facilitator's Guide for Round Two Usability Evaluation

[Note: The purpose of this document is to guide the moderator. The questions and tasks contained herein may not be asked as written. The facilitator often draws on participant comments and the natural flow of the testing process to determine the flow of the session. While the facilitator will try to follow the order of the guide, many times tasks will come up ahead of time or in different order. The facilitator may allow the order of the tasks to change in order to let the process flow naturally.]

Pre-Test

[Administer the informed consent and video release form]

Introduction

Thank you for agreeing to participate in this study. Do you have any questions for me before we get started?

You signed a video release so you know I'll be recording everything that shows up on the computer monitor. I'd also like you to know that there may be observers helping me by taking notes, but don't worry about that. You and I will work on this together and they'll just watch.

We're going to be looking at a web site today that was created for the National Cancer Institute. I'm going to ask you to explore the web site and then do some tasks with the site. Then I'd like to get your opinion about it.

We have invited Cancer Tumor Registrars (CTR) and those who are in training to become CTRs to participate in this test of the web site. Based on our email correspondence, I'd like to confirm a couple of things about your background.

- Are you a CTR or in training?
- Do you work at a state cancer registry or at a hospital-based registry?
- Have you ever been to the SEER Training Website? [If yes] Why did you use the site? When did you use it?

Since we'll be working on a computer today, I want to let you use this computer in a way that it looks like the computer you regularly use. Tell me a web site you use frequently. Now does this look too big or too small? [Facilitator adjusts the resolution until it matches for the participant's normal experience.]

There are two important things you should keep in mind while you work with this web site:

- First, I did not design this website so you can't hurt my feelings if you have any critical comments. If there are problems with the design I would like to discuss them with you to see if we can find a way to make the web site better.

- Second, we are evaluating the web site and not you, so you cannot make any mistakes. The web site is supposed to be intuitive and easy to use. If it isn't, that's a problem with the web site – not with you.

Any comments you have, either positive or negative, will help make the product better so feel free to tell me whatever is on your mind. After you're done working, I'll ask you a few questions and then give you some time to ask me anything you'd like. Do you have any questions for me before we get started?

Initial Impression

[Open the browser to <http://training.seer.cancer.gov/>]

First, I'm going to let you explore this web site by yourself. Please tell me which sections of the site would be the most helpful or interesting to you.

[Observe the participants and note what information they point out as useful. Keep track of any relevant comment(s). After a few minutes

- If not offered, prompt for participant's impression of the main page.
- If not already covered, ask what prompted them to explore the sections they visited

Facilitator should ask about specific pages and sections as they are encountered. If users explore areas listed as a task below, the facilitator should get the feedback during their exploration. Areas of the site that seem to be of interest but then dropped should be asked about.]

Tasks

Now I have a few tasks that I'd like you to try. If you have questions as we go along, feel free to ask. I may not answer your questions right away in order to see how well you can figure out things for yourself, but it is valuable to know if you do have questions about the site.

[Explore each of these tasks or subtasks if the participant did not explore them already.]

1. Let's start on the Home page. Please read through this page. Tell me what you would do next.
2. What topics are covered in this training and how are they organized?
3. How would you use this site? (trying to understand how they would progress through the training—in order vs. random order? All vs. selected topics? Etc.)
4. Which topic(s) would be of particular interest to you?
 1. Imagine you were going to learn/review all of the content in the section for [the topic just identified]. Show me how you would do that.
 2. You've now reached the end of the section. How would you proceed to the next section of training?

5. Let's go to the Cancer Registration module. See the link 'View Module Map.' What do you think that is? Click on it. Is this what you expected? Would you use this during training?
6. I'm going to ask you to find some specific information on the site now.

For new users (CTRs-in-training):

1. What role does Diet play in the development of a cancer? [Cancer as a Disease / What is Cancer? / Cancer Risk Factors]
2. Where would you find information on ultrasound? [Diagnostic tests / Ultrasound]
3. Imagine you were actually going through all of the modules in this training site and you finished the section on ultrasound. Can you tell me how many more modules there are in the complete training? [15+16+2]
4. Where would you find information on the digestive system? [Anatomy & Physiology / Digestive system]
5. (Select a word that is underlined on the page.) Why is this word underlined?
6. How would you print a complete list of common abbreviations? [Cancer & Medical Terminology / Abbreviations, etc.]
7. What if you had a question about coding cancer cases and you wanted to seek advice. How would you do that on this website?
8. Where would you expect to be able to download the Multiple Primary and Histology Coding Rules Manual?
9. In some of the Site-specific modules, there are Hands-on Exercises. We are considering a new layout for these exercises, so I'm going to show you a mockup and I'd like you to work your way through the exercise. [show mockup 1 (tabs) and mockup 2 (accordion)]

For experienced users (current CTRs):

1. Take a look at the order of the modules under Cancer Registration and Surveillance. Does this seem appropriate to you?
2. The website is intended to present coding rules from the various staging systems. Please find where this information is located and comment on how the current system (collaborative staging) is presented in conjunction with earlier systems. *CR&SM, References*
3. Take a look at the References section and comment on the topics.

4. Where is information on organizing the critical information in patient records? [Abstracting a cancer case / Composition & organization of a medical record / Organization]
5. Where are practice cases for implementing multiple primaries and histology coding rules? [References / Multiple primaries & histology coding rules / Putting it all together]
6. What topics should be included in a policy and procedures manual? [CR Operations & Procedures / CR Management / Policy & Procedure manual]
7. In some of the Site-specific modules, there are Hands-on Exercises. We are considering a new layout for these exercises, so I'm going to show you a mockup and I'd like you to work your way through the exercise. [show mockup 1 (tabs) and mockup 2 (accordion)]

Post Test Interview Questions

Now, I'd like to collect a bit of information from you using some standard tools before we discuss your experience.

[Administer the System Usability Scale (SUS) questionnaire.]

I'd like to ask you a few specific questions.

1. Most sites have some type of learning curve associated with them. Does this site have a learning curve?
2. What is your evaluation of the material presented in the web site? If you were ranking it where 5 was very high quality and 1 was very low quality, what value would you give this material?
3. What is your evaluation of the timeliness of the material presented in the web site? If you were ranking it where 5 was very up-to-date and 1 was very out-of-date, what value would you give this material?
4. What are the three things you liked most about the way the site looks and works?
5. What three things did you like least about the way the site looks and works?
6. What about the site surprised you the most?
7. Is there any information or other content you would have expected to find, but didn't?

Wrap up

OK, we're done. Are there any questions you would like to ask me about the site or about today's experience that I did not ask you about?

Thanks again for your participation.

[Pay stipend and obtain signature]

Appendix C: Facilitator's Guide for Round Three Usability Evaluation

[Note: The purpose of this document is to guide the moderator. The questions and tasks contained herein may not be asked as written. The facilitator often draws on participant comments and the natural flow of the testing process to determine the flow of the session. While the facilitator will try to follow the order of the guide, many times tasks will come up ahead of time or in different order. The facilitator may allow the order of the tasks to change in order to let the process flow naturally.]

Pre-Test

[Administer the informed consent and video release form]

Introduction

Thank you for agreeing to participate in this study. Do you have any questions for me before we get started?

You signed a video release so you know I'll be recording everything that shows up on the computer monitor. I'd also like you to know that there may be observers helping me by taking notes, but don't worry about that. You and I will work on this together and they'll just watch.

We're going to be looking at a web site today that was created for the National Cancer Institute. I'm going to ask you to explore the web site and then do some tasks with the site. Then I'd like to get your opinion about it.

We have invited Cancer Tumor Registrars (CTR) and those who are in training to become CTRs to participate in this test of the web site. Based on our email correspondence, I'd like to confirm a couple of things about your background.

- Are you a CTR or in training? How long have you worked in cancer registry?
- Do you work at a state cancer registry or at a hospital-based registry?
- Have you ever been to the SEER Training Website? [If yes] Why did you use the site? When did you use it?

Since we'll be working on a computer today, I want to let you use this computer in a way that it looks like the computer you regularly use. Tell me a web site you use frequently. Now does this look too big or too small? [Facilitator adjusts the resolution until it matches for the participant's normal experience.]

There are two important things you should keep in mind while you work with this web site:

- First, I did not design this website so you can't hurt my feelings if you have any critical comments. If there are problems with the design I would like to discuss them with you to see if we can find a way to make the web site better.
- Second, we are evaluating the web site and not you, so you cannot make any mistakes. The web site is supposed to be intuitive and easy to use. If it isn't, that's a problem with the web site – not with you.

Any comments you have, either positive or negative, will help make the product better so feel free to tell me whatever is on your mind. After you're done working, I'll ask you a few questions and then give you some time to ask me anything you'd like. Do you have any questions for me before we get started?

Initial Impression

[Open the browser to <http://www108.imsweb.com/>] (imsdev/website)

First, I'm going to let you explore this web site by yourself. Please tell me which sections of the site would be the most helpful or interesting to you.

[Observe the participants and note what information they point out as useful. Keep track of any relevant comment(s). After a few minutes

- If not offered, prompt for participant's impression of the main page.
- If not already covered, ask what prompted them to explore the sections they visited

Facilitator should ask about specific pages and sections as they are encountered. If users explore areas listed as a task below, the facilitator should get the feedback during their exploration. Areas of the site that seem to be of interest but then dropped should be asked about.]

Tasks

Now I have a few tasks that I'd like you to try. If you have questions as we go along, feel free to ask. I may not answer your questions right away in order to see how well you can figure out things for yourself, but it is valuable to know if you do have questions about the site.

[Explore each of these tasks or subtasks if the participant did not explore them already.]

1. Are you familiar with Summary Stage (SS)? Where would you find the SS manual? [CRSM / Staging Cancer Case / Staging systems *or* Resources / Ref matls / SS 2000]
2. How would you print a complete list of common abbreviations? [CRSM / Cancer & Medical Terminology / Abbreviations, etc.]
3. Where would you expect to be able to download the Multiple Primary and Histology Coding Rules Manual? [Resources / Links to Reference Materials]
4. Where can you find information about the National Cancer Registrars Association (NCRA)? [Resources / Links to Organization *or* CRSM / Ops & Procedures / Data Stds / Standard Setters]
 - a. (Note any trouble getting to the Organizations page within Resources from the Reference Materials page. Does P click on Resources landing page to get full list of modules? Does P use Next button at bottom of Ref Materials page?)
5. (Before opening the Archived Modules landing page) Let's talk about the Archived Modules section.
 - a. In general, what kind of information do you expect to be in this section?
 - b. (From Archived landing page) Why do you think these particular modules are included here?
 - c. When would it be appropriate to use these?
6. (Before opening the Resources landing page) Now let's talk about the Resources section.

- a. In general, what kind of information do you expect to be in this section?
 - b. (From Resources landing page) What modules are in this section and how do they differ?
 - c. Let's look at the Questions and Answers module. There's a Next button at the bottom right of this page. Where do you think this takes you?
 - i. (Note if P understands that the module is the first one in Archived Modules.)
7. Where would you look for the Help section?
 - a. (Note if P went to this section independently prior to this.)
 - b. Take a look through this Help section and tell me what it covers.
 - c. What does the Help section say about how the website is organized? [Help / Introduction to SEER website / Information Organization
 - i. (Note whether P has any difficulty finding the sub-section under Intro.)
 - d. Using the Help section, find out what the Module Maps are and where they are located. [Help / Navigating the site / Module maps]
 - i. (Note whether P has any difficulty finding the sub-section under Navigating.)
 - e. (Point out the book icon in left nav.) What is this?
 - i. (Note whether P understands that the icon indicates whether there are additional topics.)
 - ii. How would you expand this section (see additional topics?)
 - f. Click on Using the Left Navigation Panel under Navigating this Web Site and describe to me what this page says.
 - g. Click on Using the Breadcrumb Trail to Navigate.
 - i. Why might you use breadcrumbs?
8. In the Site-specific modules, there are Hands-on Exercises that give you practice opportunities. We are considering a new layout for these exercises, so I'm going to show you a mockup and I'd like you to work your way through one of the exercise. [show mockup 1 (tabs) and mockup 2 (accordion)]
 - a. (Note any issues with moving between sub-tabs: maintaining location.)
 - b. (Note use of accordion display on Case History)
 - c. (Note use of new tabs (UCD mockup))

Post Test Interview Questions

Now, I'd like to collect a bit of information from you using some standard tools before we discuss your experience.

[Administer the System Usability Scale (SUS) questionnaire.]

I'd like to ask you a few specific questions.

1. Most sites have some type of learning curve associated with them. Does this site have a learning curve?
2. What is your evaluation of the material presented in the web site? If you were ranking it where 5 was very high quality and 1 was very low quality, what value would you give this material?

3. What is your evaluation of the timeliness of the material presented in the web site? If you were ranking it where 5 was very up-to-date and 1 was very out-of-date, what value would you give this material?
4. What are the three things you liked most about the way the site looks and works?
5. What three things did you like least about the way the site looks and works?
6. What about the site surprised you the most?
7. Is there any information or other content you would have expected to find, but didn't?

Wrap up

OK, we're done. Are there any questions you would like to ask me about the site or about today's experience that I did not ask you about?

Thanks again for your participation.

[Pay stipend and obtain signature]