

Chapter 1: Introduction to SEER*DMS

The Surveillance, Epidemiology, and End Results (SEER) Program is an initiative sponsored by the National Cancer Institute (NCI) to collect cancer incidence and related information from population-based cancer registries. Participating registries are required to obtain information on all cancers occurring in their area from a variety of hospitals, pathology laboratories, radiology facilities, physician offices, and other facilities. Data collected by the registries are submitted to the NCI and other organizations. This information contributes to national surveillance data on cancer incidence and forms the sole source of population-based estimates of U.S. cancer survival and prevalence.

The SEER Data Management System (SEER*DMS) provides support for all core cancer registry functions -- importing data, editing, linkage, consolidation, and reporting. The individual SEER Registries actively participated in the requirements analysis and design of SEER*DMS. It was determined that despite the variety, number, and complexity of the registries' processes and corresponding functional requirements, a centrally designed data management system could be employed by the various SEER Registries. SEER*DMS improves cost efficiency and reduces duplication of effort in terms of system maintenance and administration. Furthermore, the centralized system design and development improves data quality and consistency, increases efficiency, and increases the sharing of knowledge and experience among registries.

This chapter provides an introduction to SEER*DMS and an overview of the system's support of registry operations. It includes a summary of the system's core components with references to relevant chapters in this manual and in other technical documents.

In this chapter, you'll learn about

- SEER*DMS Reference Materials
- SEER*DMS Database
- Getting Started
- Workflow and Worklist
- Loading Data into SEER*DMS
- Record Reportability
- Special Studies
- Matching and Consolidating Data
- Visually Editing and Resolving Patient Set Errors
- Death Clearance and Follow-up
- Contact Information for Physicians and Facilities
- Other Management Tools
- Reports and Data Extracts
- Managing System Accounts and Roles
- System Administration

SEER*DMS Reference Materials

The SEER*DMS User Manual is available as a single PDF in the SEER*DMS help menu. In addition, the individual chapters and several tutorials are available on a page of the SEER website: <http://seer.cancer.gov/seerdms/manual/>. All users with Internet access can view the online materials. The User Manual provides an in-depth description of the SEER*DMS features and provides step-by-step instructions for using the system. Each of the SEER*DMS tutorials presents a single topic in a more interactive approach using screen shots and examples. The tutorials can be viewed as a screencast with audio; or registry staff can use them as presentations to train new employees.

In addition to the SEER*DMS User Manual, the Help menu within SEER*DMS provides access to a list of keyboard shortcuts that can be used on the current page, detailed descriptions of the registry-specific configuration settings and algorithms, the version history, and a link to technical support. The Help menu items include documents describing configuration settings for the major system modules: AFL algorithms, Auto-build, Auto-consolidation, Edits, Field Mappings, Imports, Matching, Polishers, and Screening. The Version History contains a detailed list of changes made for each release of SEER*DMS.

The SEER*DMS Web Portal (<https://seer.cancer.gov/seerdms/portal>) is a secure website that enables NCI-SEER, IMS, and registry staff to share information related to the SEER*DMS project. SEER*DMS reference materials, data dictionaries, system and database diagrams, Change Control Board (CCB) news and information, sample reports, and other information are available on this site. Registry-specific materials are available in restricted-access folders. The registry-specific materials include registry-specific database documentation, technical references, diagrams of hardware architecture, and real-time access to graphs showing resource utilization by the SEER*DMS servers at the registry. The SEER*DMS Technical Reference describes the database configuration and system infrastructure. This reference includes definitions for all of the system's configuration parameters.

The System > Administration section within SEER*DMS allows you to monitor system logs, review source code related to registry-specific algorithms, and view SQL used in SEER*DMS reports.

SEER*DMS Database

The SEER*DMS Web Portal is the most comprehensive resource of documentation related to the SEER*DMS database. The following materials are available online:

- Description of each table in the database
- Diagrams showing table relationships

The Field Mappings section of the SEER*DMS Help menu is a searchable tool that provides:

- Mapping of database fields to the labels used in SEER*DMS
- Mapping of database fields to NAACCR items

A basic overview of the SEER*DMS database structures related to patient data is provided in:

- *Chapter 2: Records and Patient Sets*

Getting Started

SEER*DMS allows the user to interact with the registry's database through an interface displayed in a web browser. This design reduces maintenance of individual workstations by providing a mechanism for simultaneously delivering system upgrades to all registry desktops.

Instructions for getting started with SEER*DMS are described in:

- *Chapter 3: Using SEER*DMS*

Workflow and Worklist

The workflow controls the flow of data through the system and identifies tasks that must be completed by registry staff. A record entering the system is first processed in a series of automatic tasks. If the computer cannot auto-complete a task, a manual task is initiated. Once a person completes the manual task, the record continues to the next automatic task. The record moves

from automatic to manual tasks as necessary, until all required processes are complete. Registry-defined algorithms that impact the workflow are documented in the SEER*DMS help menu.

The SEER*DMS worklist provides a view of automatic tasks that are currently running and manual tasks that require attention. The manual tasks displayed in the worklist are the staff's "to do list". Users can select tasks or managers can assign tasks to users, depending on registry policy.

Step-by-step instructions are provided in:

- *Chapter 4: Using the Worklist*

Loading Data into SEER*DMS

Data files may be uploaded using the SEER*DMS interface or auto-loaded from a specified network location. In addition, SEER*DMS includes data entry screens that allow a user to enter data using the keyboard. A "record" is created in the SEER*DMS database from the data loaded from files or keyed in a data entry session. Each record represents an individual abstract, case finding report, pathology report, or other type of report containing patient health or follow-up data.

Step-by-step instructions are provided in:

- *Chapter 5: Importing Data Files*
- *Chapter 6: Data Entry*

Record Reportability

SEER*DMS uses a combination of automated and manual screening tasks to determine whether a record contains data related to a reportable case. But first, registry-defined record edits are applied to the record to ensure that the record has core data items that are required for screening and other workflow processes. A manual Resolve Record Errors task is created if required data items are missing. The purpose of the Resolve Record Errors task is to allow a person to code missing data items that are required. The fields required for processing typically include site, histology, a physician field, and a facility field. The edits that trigger Resolve Record Errors tasks vary by record type. For example, an edit may fail if a coded value for site is not available for an abstract record but the same edit may not fail for a pathology record.

The record then moves to the screening portion of the workflow. If possible, an automatic screening task will set the reportability flag. Otherwise, either the standard Screening task or the Pathology Screening task will be created so that a user can set the flag manually. The usage of these tasks varies by registry.

A manual task is rarely required for abstracts and other records that contain coded values for site, histology, and behavior. The auto-screener is typically able to set the reportability flag based on the registry's screening algorithm. A manual Screening task is only created for an abstract record if the auto-screener could not determine reportability.

A manual Pathology Screening task is often created for records containing pathology report data. The Pathology Screening task has a specialized interface that highlights keywords in the text fields in order to facilitate the coding of site, histology, behavior, and grade. The user completing the task also sets the reportability flag for the record.

A description of edits and step-by-step instructions for screening are provided in:

- *Chapter 7: Edit Errors*
- *Chapter 8: Resolving Record Errors*
- *Chapter 9: Screening for Reportability*

Matching and Consolidating Data

A “patient set” is a packet of data in the SEER*DMS database which includes all data associated with a particular patient. These data include patient demographics, information on all reportable tumors, admissions information, diagnostic procedures, treatment information, and text documentation. An incoming record for a reportable cancer is matched against the database to determine if it needs to become a new patient set or become part of an existing patient set. Once the matching process is complete, the record is either consolidated with an existing patient set or used to create a new patient set.

Information and instructions related to matching and consolidation are provided in:

- *Chapter 10: Matching Incoming Records to Existing Data*
- *Chapter 11: The Patient Set Editor*
- *Chapter 12: Consolidating Data*

Visually Editing and Resolving Patient Set Errors

Quality control of data involves the review of edit errors identified by the computerized edits and a visual review of data fields. It is recommended that, whenever possible, changes be made to the patient set and not to the record. In SEER*DMS, the Visual Edit Patient Set task enables registrars to visually review data for a new patient, when a patient set is auto-created from a single abstract record. Consolidation tasks enable registrars to visually review incoming data as they consolidate the data with other data previously loaded into the system. The edit errors identified by the computerized edits may be resolved in these tasks, or the patient set may be saved with errors and forwarded to a Resolve Patient Set Errors task.

Information and instructions related to editing and resolving patient set errors are provided in:

- *Chapter 7: Edit Errors*
- *Chapter 12: Consolidating Data*
- *Chapter 13: Visual Editing*
- *Chapter 14: Resolving Patient Set Errors*

Special Studies

In SEER*DMS, “Special Studies” consist of user-defined criteria to determine the eligibility of incoming records for the purpose of rapid case ascertainment. The criteria specified for a Special Study are applied to the record as it moves through the workflow’s auto-screening task. The criteria may define a record as “eligible for the study”, “ineligible”, or “possible data for the study”. A manual Review Special Studies task is created if the record is identified as a “possible” study case that requires review. In addition, you may assign records or patient sets to a special study via mass change imports or manually assign data to a study using the SEER*DMS editor.

Information and instructions related to Special Studies are provided in:

- *Chapter 28: Special Studies*

Contact Information for Physicians and Facilities

SEER*DMS maintains information about organizations and facilities that collaborate with the cancer registry and contact information for physicians and representatives of these organizations. The organization and contact lists are referenced throughout SEER*DMS when selecting values for data fields, tracking data and follow-back sources, and managing abstracting assignments.

Information and instructions related to these topics are provided in:

- *Chapter 18: The Facility List*
- *Chapter 19: The Contact List*

Death Clearance

Death certificate records provide a valuable source of follow-up data for cases that are known to the registry and they provide a case finding source for new potential cases.

Information and instructions related to Death Clearance are provided in:

- *Chapter 17: Death Clearance*
- *Chapter 16: Follow-up*

Other Management Tools

SEER*DMS includes manager pages specifically designed to monitor and assign case finding leads, process requests for follow-back information, and manage active follow-up activities. In addition, there are tools for searching the database based on patient identifiers and other fields. The search features are useful in support of a variety of management tasks.

Information and instructions related to these topics are provided in:

- *Chapter 20: Searching for Records and Patients*
- *Chapter 21: Managing Abstracting Assignments*
- *Chapter 22: Follow-back*
- *Chapter 16: Follow-up*

Reports and Data Extracts

SEER*DMS includes a variety of integrated reports which summarize registry activities, track data through the system, and provide other quality control information. Extracts for SEER and NAACCR data submissions are also integrated within SEER*DMS. In addition, external reports and data extracts may be generated that query the SEER*DMS database using a variety of software packages. External reports and extract programs must be maintained by registry staff.

Information and instructions related to integrated reports and extracts are provided in:

- *Chapter 24: Creating Reports and Extracting Data*

Managing System Accounts and Roles

Registry managers and/or system administrators are responsible for creating SEER*DMS user accounts and enabling system permissions by assigning roles to those accounts.

Information and instructions related to these topics are provided in:

- *Chapter 25: Managing User Accounts*
- *Chapter 26: Managing System Roles*

System Administration

SEER*DMS is a Web-based application that interacts with the registry's PostgreSQL database. The registry's information technology (IT) staff are responsible for providing ad hoc programming support to registry staff, providing on-site technical support for workstations and 3rd party

software required by SEER*DMS, and maintaining some aspects of the hardware infrastructure required by the SEER*DMS appliance

Information and instructions related to system administration are provided in:

- *Chapter 27: System Administration*