

# Chapter 20: Searching for Records and Patients

SEER\*DMS provides four search tools to users who have system permissions to view patient data: the quick search using the Lookup toolbar and the three Patient Lookup tabs.

Use the **Lookup** box in the user toolbar to search by a single data field (Patient Set ID, Record ID, AFL ID, Import ID, date of birth, name, or SSN). Use the Patient Lookup to create a search based on multiple search fields (the Patient Lookup can be accessed by selecting **View > Patients** in the SEER\*DMS menu). The Patient Lookup's **Standard Search** is based on a limited number of personal identifiers, but can be used to search for patient data in unlinked records as well as data consolidated into patient sets. The **Advanced Search** allows you to define more robust search criteria based on a large number of patient set data fields. However, the Advanced Search is limited to patient set fields and does not consider the values in record data fields. The Patient Lookup's **ID Search** allows you to search for a set of records and/or patient sets using one or more Patient/Record IDs, a single Import ID, or a single Special Study ID.

The Standard Search provides a way to find all available data related to a specific patient. The Advanced and ID Searches enable you to review a particular set of records or patient sets or to review a sample of data for research or quality control purposes.

Once you find the data of interest, you may view or edit the data in the record or patient set editor. However, you must take precautions to ensure that you do not edit data that are being processed by others. To avoid the loss of effort, you should verify that the data are not involved in worklist tasks and are not being edited by another staff member (please refer to the *Direct Editing of Records and Patient Sets* section of this chapter for more information).

In this chapter, you'll learn about

- Standard Search
- ID Lookup
- Advanced Search
- Search Results
- Quick Search
- Direct Editing of Records and Patient Sets

## Standard Search

Select **View > Patients** to access the Patient Lookup. The Standard Search tab will be displayed as shown below. The Standard search enables you to search for a patient's data based on personal identifiers (name, DOB, SSN, Sex, Race). The Data Type, Facility, and Exclude criteria can be used to limit the search to a subset of data in the database.

The screenshot shows the SEER\*DMS MDCSS Patient Lookup interface. At the top, there is a navigation bar with 'SEER\*DMS MDCSS' on the left, 'User: coyle' and 'Lookup:' on the right, and 'Account | Logoff' on the far right. Below this is a red navigation bar with 'Patient Lookup' and four menu items: 'View', 'Manage', 'System', and 'Help'. The main content area is a green form titled 'Standard' with a sidebar on the left containing 'Standard', 'ID Lookup', and 'Advanced' tabs. The form includes input fields for 'Name (L,F,M)', 'DOB', 'SSN', 'Sex', and 'Race'. There are also fields for 'Facility' and 'Exclude' (set to 'dead > 8 years'). A 'Data Type' dropdown menu is open, showing options like 'Patient Sets', 'Unlinked Records', 'Casefinding', 'Death Cert', 'Death Notice', 'Follow-up Only', 'HL7 E-Path', and 'Health Task'. At the bottom of the form are 'Search', 'Clear', and 'Create AFL' buttons.

## Search Fields on the Standard Search Tab

SEER\*DMS uses registry-specific matching algorithms to compare the patient information specified in the Standard Search to patient sets and unlinked records in the database (see the *SEER\*DMS Technical Reference* for details). A weighted matching scheme may be implemented in the registry-specific algorithm. In weighted matching, a score calculated for each possible match provides a mechanism to sort the results by the likelihood of the match. Entering multiple identifiers quickens the search and increases the score of true matches. It is recommended that you enter information into as many fields as possible or enter a unique identifier, such as Social Security Number. If searching for a patient with a common name, it is particularly important to enter values into as many search fields as are known.

The Standard search fields are listed below.

- **Name (L,F,M)** – Three search fields are provided for searching by patient name. You may enter a full or partial name in any or all of the boxes. The boxes are displayed in the order of last name, first name, middle name. However, you may enter “Last, First” into the first box. SEER\*DMS will automatically parse the text into the two fields for the search.
- **DOB** – Enter date of birth in MMDDYYYY or MM-DD-YYYY format. If you only know the patient’s year of birth, enter 99 for day and month (e.g., 99-99-1961). A valid month and year are required when other patient identifiers are not specified (last name or social security number).
- **SSN** – A complete Social Security Number must be entered. The value may be formatted as 999999999 or 999-99-9999.
- **Sex** – A drop-down list enables you to search for data based on a valid code for sex.
- **Race** – A drop-down list enables you to search for data based on a valid code for race. One value for race may be selected.

You must specify a value for at least one of these fields: last name, Social Security Number, or date of birth. The Standard Search is designed to search for data for a specific patient; you cannot use it to generate a generic list of data by sex, race, record type, or facility. To create such a list, you should either use the Advanced Search, as described later in this chapter, or query the database using an external tool. Sample SQL and tips for querying the database are provided on the SEER\*DMS Web Portal (<http://seer.cancer.gov/seerdms/portal>).

## Limiting the Search

You may specify the records and patient sets to be searched by entering values for facility, data type, and the “exclude” field. Unlike the Search Fields, these criteria are never weighted. They are used to make a definite determination of whether a record or patient set is “in” or “out” of the search results.

- **Facility** – Limit the search to patient sets with admissions or treatments related to a specific facility (the facility may be the reporting or treating facility), or to unlinked records that were provided by the facility. Leave this field blank to search all data regardless of facility.
- **Exclude** – Exclude patient sets and records for patients who have been dead for more than the specified number of years (based on vital status and date of last contact). Leave this field blank to search all data regardless of vital status.
- **Data Type** – Search all patient sets and unlinked records, or limit the search to one or more data types. To include linked records in the search, you must include Patient Sets. The patient set to which the record is linked will be returned. To select more than one data type, hold down the CTRL key and click each desired type. To deselect a type, click it a second time while holding the CTRL key.

## Executing the Standard Search

Enter as much information as known into the form and click **Search**. As many as 500 matches will be displayed. The results will be sorted by score with the best matches listed first. The results will include records and/or patient sets which, according to your registry's matching algorithms, yielded a score greater than zero when matched against the search and exclusion criteria. To view the algorithm, click the **Patient and Record Lookup** link shown at the bottom of the screen when results are returned.

You may click an ID to open a record or patient set in an editor. If the data are involved in a worklist task, a **View** link will be displayed in the **Tasks** column. For more information on the data displayed, see the *Search Results* section of this chapter.

To search for a new patient, click the **Clear** button. Patient information that you entered will be removed, the Facility field will be cleared, and the Exclude field will be set to the system default. The Data Type is retained to allow you to search for a specific data type for multiple patients.

## Create AFL

Casefinding or abstracting assignments are maintained and tracked in SEER\*DMS as Abstract Facility Leads (AFLs). If casefinding information is received via paper records or ad hoc communications with a facility, the database must be searched to verify that the case was not previously abstracted. The Create AFL button is provided on the Patient Lookup to allow the casefinding manager to create an abstracting assignment, as necessary. Please refer to *Chapter 21: Managing Abstracting Assignments* for specific instructions.

## ID Lookup

The Patient Lookup's **ID Search** allows you to search for a set of records and/or patient sets using one or more Patient/Record IDs, a single Import ID, or a single Special Study ID.

Select **View > Patients** to access the Patient Lookup. Click **ID Lookup** in the left navigation bar. The ID Lookup tab will be displayed, as shown below.

The screenshot shows the SEER\*DMS Patient Lookup interface. At the top, there is a header with the SEER\*DMS logo on the left and user information (User: coyle, Lookup: [input field], Account | Logoff) on the right. Below the header is a navigation bar with tabs: Patient Lookup, View, Manage, System, and Help. The Patient Lookup tab is active. The main content area is divided into three sections: Standard, ID Lookup, and Advanced. The ID Lookup section is selected and contains three input fields: Pat/Rec ID (with a dropdown arrow), Import ID (with a lightbulb icon), and Special Study (with a lightbulb icon). At the bottom of the form are three buttons: Search, Clear, and Create AFL.

The search fields available on the ID Lookup are listed below. You may search by one of these fields, searches based on combinations of these fields are not supported. Regardless of the field that is used, a maximum of 500 results will be returned. To obtain a list of all data in a large import or special study, use a system report or external query.

- **Pat/Rec ID** – You may search by one or more Patient Set or Record IDs. To enter multiple IDs, click the down arrow  to expand the filter. You may type directly into this field or paste IDs from the Windows clipboard. The "REC-" and "PAT-" prefixes are optional.
- **Import ID** – To search for data loaded in a particular import, enter the Import ID or click the Lookup icon  to select the Import ID from a list. No results will be returned when searching for an import which has an open Import Review task.

- **Special Study** – The short name assigned to a Special Study must be entered. Enter the text directly or click the Lookup icon  to select the study from a list.

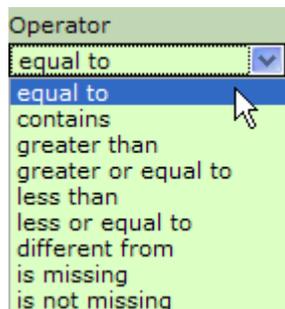
## Advanced Search

Select **View > Patients** to access the Patient Lookup. The Standard search tab will be displayed by default. If you wish to use search fields that are not available in the Standard search and your search is limited to Patient Set data, click **Advanced** in the left navigation bar. The Advanced search tab will be displayed, as shown below. You will use the controls on this page to define a search statement based on Boolean logic. The expressions in each row will be ANDed to create the search criteria.



The Advanced Search controls are described below.

- **Field** – The data field to be used in this expression. This includes many, but not all, patient set data fields. The field name is followed by the data entity, for example, “Site [CTC]” indicates the Site field which is part of the CTC data.
- **Operator** – The relational operator to be used in the expression.



- **Value** – A valid value for the data field. The value must be in the format that is used to store the data field in the database. If the field has an associated lookup, the lookup icon will be displayed to the right of the value box and you may use the lookup to select the value.
- **Add Row** - Creates a blank expression row.
- **Remove Row**  icon - Removes unwanted expressions.
- **Search** – Starts the search engine using the statement that you have defined.
- **Clear** – Removes all expression rows.

*To search the database using the Advanced Search in the Patient Lookup:*

1. Select **View > Patients**.
2. If your search is limited to Patient Set data or you wish to use search fields that are not available in the Standard Search, click **Advanced** in the left navigation. You will create a Boolean statement consisting of one or more expressions. The expressions in each row will be ANDed to create the search criteria.

3. To define an expression in each "row" of the statement:
  - a. Select the search **Field** from the large number of patient set fields. To find a field, you may:
    - i. Begin typing text into Field. SEER\*DMS will present a list of candidates that match the text that you have entered.
    - ii. Or use the Firefox search tool to find text within the list of available fields. Click the Lookup icon  to view a list of available fields. Click CTRL-F (Firefox shortcut for "Find in this page"). Click "Find Next" in the Firefox toolbar to move to the next match in the list.
  - b. Select a relational **Operator** from the drop-down list.
  - c. Enter a **Value** to be used in the relational expression. The value must be in the format that is used to store the data field in the database. If the field has an associated lookup, the lookup icon will be displayed to the right of the value box and you may use the lookup to select the value.
  - d. To add an expression to the statement, click **Add Row**.
4. When you complete the search statement, click **Search**.
5. The results of your search will be displayed in the Possible Matches section of the page. The result set is limited to 500 items. You may click an ID to open a record or patient set in an editor. If the data are involved in a worklist task, a **View** link will be displayed in the **Tasks** column.

### Using a Range of Values for a Search Field

To search for a range of values for a numeric field, add two expression rows (one with the "greater or equal to" operator and the other row with the "less or equal to" operator). In the example shown below, two expressions are used to search for patients with Age At Diagnosis from 20 through 39. To search for a range of cancer codes within the same major site, use the "contains" operator. In the example, "Primary Site [CTC] contains C34" is used to search for patients with a lung cancer diagnosis (C340 through C349).



The screenshot shows the SEER\*DMS MDCSS Patient Lookup interface. At the top, there is a header with the logo and user information (User: coyle, Lookup: [input], Account | Logoff). Below the header is a navigation bar with buttons for View, Manage, System, and Help. The main area contains a table for defining search criteria:

Standard	Field	Operator	Value
ID Lookup	Sex [PAT]	equal to	2
Advanced	Primary Site [CTC]	contains	C34
	Date Of Diagnosis YYYY [CTC]	equal to	2004
	Age At Diagnosis [CTC]	greater or equal to	20
	Age At Diagnosis [CTC]	less or equal to	39

At the bottom of the table is an "Add Row" button. Below the table are buttons for "Search", "Clear", and "Create AFL".

### Search Results

The columns listed below are shown in the search matches. The value in the table will be shown in bold if it is an exact match to a search field. If the matching algorithm supports partial matches for Social Security Number and Date of Birth, only the matching fragment will be shown in bold. Fields not listed may have been involved in the search. For example, the matching algorithm may compare last name to maiden name or alias last name.

- **Score** – A value calculated by the matching algorithm that allows the results to be sorted by the likelihood of the match. You may click the score to view a summary of the calculation. Results with the highest score are displayed first. Score is shown in all search results but is only relevant to the Standard search which uses a weighted matching scheme. The Advanced and ID searches use a determinant matching scheme; only results with a score of 1000 (match all criteria exactly) are returned for the Advanced and ID searches.
- **Type** – Data type. Patient Set or a record type will be listed. If the match is a record and the record's reportability status is something other than "reportable", an icon will be displayed:
  - N Non-reportable
  - A Auditable
  - U Unknown (the record has not yet been screened)
  - N/A Not applicable; the record type is not screened (e.g., supplemental records)
 No icon is displayed if the record is reportable.
- **ID** – Patient Set or Record ID. Click the Information Icon  next to the record's or patient set's ID to see a select set of fields. To browse all pages of the record or patient set, click the record's or patient set's ID.
- **Last Name, First Name, M** – Patient's last name, first name, and middle initial. If the text is an exact match to search criteria, it will be shown in bold. The middle initial column will contain the first character of the middle name field. If additional characters are specified in the middle name field, the initial will be followed by an ellipsis (e.g., M...). Hold your mouse over the text to view the full middle name.
- **DOB** – Date of birth.
- **SSN** – Social Security Number.
- **Sex** – Shown in bold if
- **Race** – Race indicated in the first race field of the patient set or record.
- **DOLC** – Date of last contact.
- **VS** – Vital status.
- **Tasks** – If the data are involved in a worklist task, a **View** link will be displayed in the Tasks column.

## Quick Search

Requires system permission: *pat\_edit, pat\_edit\_demographics, pat\_read\_only, rec\_edit, or rec\_read\_only*

If your system permissions allow you to view or edit patient data, the Lookup search box will be displayed in the SEER\*DMS User Bar. This provides a shortcut to the Patient Lookup for searches by Patient Set ID, Record ID, AFL ID, Import ID, date of birth, name, or Social Security Number.



To use the quick search to find a specific record or patient set in the database:

1. Enter the search text in the Lookup box on the SEER\*DMS User Bar. If you enter a string consisting of all digits, the search will assume that you are searching by Record or Patient Set ID. The following describes the formats required for each of the quick search fields:
  - a. **Record or Patient Set ID:** You may enter a complete ID or you may enter the numeric portion of the ID and omit the prefix. Search results based on partial ID numbers will not be returned; for example, "REC-1234567" will not be returned if you

search for "123" or "REC-123." If you entered a numeric value without the REC or PAT prefix, SEER\*DMS will perform two searches, using search strings created by appending the numeric value to the REC- and PAT- prefixes.

- b. **AFL ID:** A complete ID including the prefix is required (AFL-XXXX format).
  - c. **Import ID:** A complete ID including the prefix is required (IMP-XXXX format).
  - d. **Date of Birth:** MM-DD-YYYY format is required. A valid month and year are required by the Quick Search. You may enter 99 for unknown day.
  - e. **Name:** You may enter "last name" or "last name, first name".
  - f. **Social Security Number:** A complete SSN in the 99-999-9999 format is required.
2. Press Enter.
  3. Review the results of your search:
    - a. If a single record or patient set matched the search criteria, the data will be opened in the editor. If the record is linked to a patient set, the patient set will be opened.
    - b. If the search returns more than one possible match, the results will be displayed in the Matches section of the Patient Lookup page. If necessary, you may refine your search as described in *The Patient Lookup* and *Searching the Database* sections of this chapter.
    - c. If you searched by AFL ID, the AFL Manager will open. The filter will be auto-filled to search for that AFL. If an AFL with that ID exists, it will be listed on the page.
  4. If you need to edit the record or patient set data, you must make certain that the data are not being modified by other staff members. Further instructions are provided below in the *Direct Editing of Records and Patient Sets* section.

## Direct Editing of Records and Patient Sets

Requires system permission: *pat\_edit*, *pat\_edit\_demographics*, *pat\_read\_only*, *rec\_edit*, or *rec\_read\_only*

SEER\*DMS enables users to edit records or patient sets accessed via the Patient Lookup. This feature is designed primarily to facilitate the processing of follow-up information. However, it creates the possibility that two users may open the same record or patient set simultaneously. It is also possible for you to open a record or patient set that is currently being processed in an automatic task, or that is involved in a manual task. Prior to editing data that you access via the Patient Lookup or Quick Search, please review the information below and follow the appropriate steps to avoid having your or another user's changes overwritten.

*If you attempt to modify data that has been modified by another user or process:*

Two users may open and edit the same record or patient set. If this happens simultaneously, the first person to attempt to save the data will be able to successfully save their changes. If the other person attempts to save changes, SEER\*DMS will generate an error message indicating that the record or patient set has been modified since the data were loaded in the editor. SEER\*DMS will post an error message with instructions:

- Error: These data have been modified by another person or process; your changes cannot be saved. Print the data if you need a listing of your current values. Reload the data by selecting Undo Changes from the menu. You should review the revision history in the audit log prior to re-entering and saving your edits.

- The same message will be displayed if the data were modified by a process after you opened the editor but before you saved the data. In either situation, you should review the audit log to determine which user or process modified the data and what changes were made. You may continue editing, if appropriate.

*If you attempt to modify data involved in a worklist task:*

If a record or patient set included in the search results is involved in a worklist task, a **View** link will be displayed in the **Tasks** column. The data will remain in that task until the task is opened and completed; editing the data outside of the task will not move the data forward in the workflow.

If you open a record or patient set that is involved in a worklist task, SEER\*DMS will post a warning message and provide a link to review the task. It is generally recommended that you access and edit data in the context of a pending task, if one exists. You should certainly review the task prior to making changes, to ensure that you and another staff member are not duplicating efforts or editing the same data simultaneously.