



# ED Custom Search Guidance Document

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The ED Custom Search allows users to develop and save custom definitions for emergency department visit data based on chief complaint, triage notes, and/or diagnosis codes. This document provides additional guidance to ensure that you build your definitions as accurately as possible, but when using the report users must acknowledge that results may vary based on the accuracy of search criteria included and/or syntax used.

## Getting Started

When you use the report for the first time, you will see an empty table. Click on New Custom Search to get started on building a new definition.

Figure 1: ED Custom Search - Table of Custom Search Definitions

The screenshot displays the 'ED Custom Search - Table of Custom Search Definitions' interface. At the top, there is a header with the title and a small red icon. Below the header, a message reads: 'To do a new custom search, click New Custom Search. Click Run/Update in the table next to a saved definition to run or use that definition. Use Delete to delete a definition. Please refer to the [guidance document](#) for additional instructions.' Below this message is a button labeled 'New Custom Search'. The main area contains a table with three columns: 'Definition Name', 'Definition Details', and 'Actions'. The table is currently empty, with the text 'No matching records found' centered below the column headers. At the bottom of the table area, there is a search input field with the placeholder text 'Search', a 'Rows per page:' label, a dropdown menu showing '100', and a '0' value. To the right of these elements are two navigation buttons, a left arrow and a right arrow.

## ED Custom Search – Select Criteria

In the ED Custom Search users can select the date range, location type and optional filters of interest. Optional filters (not shown) include Age Group (grouped into six or nine age groups), Gender, Race, Ethnicity, Disposition, Insurance Coverage and Transport Mode. Note that date range, location, and optional filter criteria are NOT saved along with a definition when a user elects to save a definition of chief complaint and/or triage note keywords and/or diagnosis codes.

Figure 2: ED Custom Search Criteria

The screenshot displays the 'ED Custom Search' interface. At the top, there are two links: 'Hide Search Parameters' and 'Go back to my Table of Definitions'. The form is organized into several sections:

- Data Source:** A dropdown menu is set to 'ED'.
- Date Range:** Two date input fields are present. The 'From' field contains '10/03/2022' and the 'To' field contains '10/13/2022'.
- Select Location Type:** Three radio buttons are shown: 'County' (selected), 'Region', and 'Hospital'.
- Select Location:** A dropdown menu is set to 'All'.
- Optional Filters:** Two radio buttons are shown: 'Yes' (selected) and 'No'.
- Custom Search Options:** This section contains two rows of radio buttons:
  - 'Search by Keywords: Yes' (selected) and 'No'.
  - 'Search by Diagnosis Codes: Yes' (selected) and 'No'.

At the bottom of the form, there are two links: 'View Custom Search Definition' and 'Save Custom Search Definition'. A large blue 'Search' button is positioned at the very bottom of the interface.

## Search by Keywords

To include a keyword search, click **Yes** and then enter the search terms of interest. Select to search chief complaint only or both chief complaint and triage notes. A search of chief complaint only will be more precise but will not capture as many visits, while a search that includes chief complaint and triage notes will capture more visits but may include visits that you do not want. For example, if you search on “GSW”, a search that includes triage notes will capture visits that include comments like “GSW 3 years ago.”

Figure 3: Search by Keywords

Custom Search Options:

Search by Keywords:  Yes  No

Keyword Search Option:  Chief Complaint Only  Chief Complaint and Triage Notes

Enter your search terms:  
Please note that your search must adhere to specific syntax in order to work properly. Please refer to the [guidance document](#) for proper definition format. Use OR for terms if you want results for any of the terms listed. Use AND if you want the results to include all of the terms in your AND statement. For example, if you want to see ED visits that mention fever AND cough or sore throat, you would enter your query as follows: fever AND (cough OR "sore throat") :

Enter any exclusion terms separated by OR:

### Keyword Search Strategies and Syntax

**AND/OR:** Search terms should be entered using AND and/or OR statements. An AND statement will require all of the terms, while an OR will return visits with any of the terms. This logic can be combined together provided you use parentheses appropriately. Please note that you can use & (ampersand) in lieu of typing AND, and you can use | (pipe) in lieu of typing OR. **See the query examples in this document.**

**Case:** your search is NOT case sensitive

**Exact Terms:** Exact words can be typed exactly as you want to search for them. For example, if you want to search for fever, type fever.

**Abbreviations/Misspellings/Synonyms:** This report does not automatically include abbreviations, misspellings or synonyms. You must list all abbreviations, synonyms and misspellings that you want to include. For example, if you want to search for heroin, you may want to include the following terms: heroin OR heroine OR heronin OR heroin, for example.

**Word Roots:** To simplify your search somewhat, you can put root terms in your search with an \* and double quotation marks. For example, to search on fever, fevers, feverish you can enter your term as follows: “fev\*”

**Phrases:** To search on a phrase, put the phrase in double quotation marks. For example, to search for loss of consciousness, enter your term as follows: "loss of consciousness"

**Exclusion Terms:** if you want an ED visit to be excluded from your results based on one or more terms, enter those terms into the exclusion terms box, separated by OR. Note that you cannot search *only* on exclusion terms. Inclusion keywords must also be in your search if you want to also exclude keywords.

### Keyword Search Query Examples

I want to find ED visits for animal or dog bites. I want to be sure to find ED visits that use terms like bit or bitten as well as bite:

```
(dog or canine or animal) AND "bit*"
```

I want to find ED visits that document both benzodiazepine-type drugs and alcohol:

```
("benzo*" OR Xanax OR valium OR Ativan OR klonopin OR clonopin)  
AND (alcohol OR ETOH)
```

I want to find ED visits that mention synthetic cannabinoids AND bleeding problems:

```
("synthetic cannabinoids" | "synthetic marijuana" | "fake weed"  
| spice | k2 | genie | zohai | voodoo | "fake marijuana" |  
"fake pot" | "yucatan Fire" | FIYA | "smoking incense" |  
mindtrip | "mind trip" | mojo | "laced pot" | "laced weed" |  
"laced marijuana" | "sexy monkey" | "bling monkey" | giant  
|"kisha cole" | "cloud 9" | cloud9 | joker | matrix)  
& ("blood*" | "bleed*" | "coag*" | epistaxis | "hemat*" |  
"hemopt*" | "hemorrhag*" | "hemorhag*" | "hemorrag*" |  
"menorrhag*" | "menorhag*" | "menorrag*" | INR)
```

I want to find ED visits that mention fentanyl but want to exclude visits that mention fentanyl patch(es):

Search terms box:

```
fentanyl
```

Exclusion terms box:

```
"fentanyl patch*"
```

## Search by Diagnosis Codes

To include a search by one or more diagnosis codes, click **Yes**. For diagnosis code data entry, users can enter diagnosis codes directly into the text box with each code separated by a comma or can use the diagnosis code selector. Note that diagnosis codes cannot be wildcarded; each diagnosis code that you want to include in your search must be listed. ED visits with ANY of the codes entered will be included in your results.

### Entering Diagnosis Codes Directly into the Text Box

The screenshot below shows an example of multiple ICD-10-CM diagnosis codes related to stroke.

Figure 4: Search by Diagnosis Codes with Text Box Data Entry

Search Diagnosis Codes:

Search Diagnosis Codes Option:

• Please enter one or more ICD-9/10-CM diagnosis codes, separated by a comma with no spaces. Diagnosis codes may contain numbers or letters. If a diagnosis code has a period, the period must be included. Characters other than numbers, letters, periods, and commas are not permitted. Check your code for spaces if you are receiving this message after entering valid codes.

G45.0,G45.1,G45.2,G45.8,G45.9,G46.0,G46.1,G46.2,G46.3,G46.4,G46.5,G46.6,G46.7,G46.8,G97.31,G97.32,I60.00,I60.01,I60.02,I60.10,I60.11,I60.12,I60.20,I60.21,I60.22,I60.30,I60.31,I60.32,I60.4,I60.50,I60.51,I60.52,I60.6,I60.7,I60.8,I60.9,I61.0,I61.1,I61.2,I61.3,I61.4,I61.5,I61.6,I61.8,I61.9,I63.00,I63.02,I63.01,I63.012,I63.013,I63.019,I63.02,I63.031,I63.032,I63.039,I63.09,I63.10,I63.11,I63.112,I63.119,I63.12,I63.131,I63.132,I63.139,I63.19,I63.20,I63.2,I63.21,I63.213,I63.219,I63.22,I63.231,I63.232,I63.233,I63.239,I63.29,I63.30,I63.31,I63.312,I63.313,I63.319,I63.321,I63.322,I63.323,I63.329,I63.331,I63.332,I63.333,I63.339,I63.341,I63.342,I63.343,I63.349,I63.39,I63.40,I63.41,I63.412,I63.413,I63.419,I63.421,I63.422,I63.423,I63.429,I63.431,I63.432,I63.433,I63.439,I63.441,I63.442,I63.443,I63.449,I63.49,I63.50,I63.51,I63.512,I63.513,I63.519,I63.521,I63.522,I63.523,I63.529,I63.531,I63.532,I63.533,I63.539,I63.541,I63.542,I63.543,I63.549,I63.59,I63.6,I63.8,I63.9,I66.01,I66.02,I66.03,I66.09,I66.11,I66.12,I66.16

Do you want to require one or more diagnosis codes (Boolean AND) with the diagnosis code(s) already included in your definition?

Do you want to exclude diagnosis codes?

### Search by Diagnosis Using Diagnosis Code Selector (ICD-10-CM only)

If you are unsure of which codes you want to include in your search, the diagnosis code selector is the better option. Enter a diagnosis term of interest in the search box to narrow down the list of available codes. To select the ICD-10-CM diagnosis codes you want to include in your search, click in the check boxes on the left. Selected diagnosis codes will appear in the Selected Diagnosis Codes box on the right. Clicking the check box at the top of the Select Diagnosis Codes table will include all codes identified in your search. Use the Delete links in the Selected Diagnosis Codes box to delete any codes that you do not want to include in your search. Note that the diagnosis code selector includes ICD-10-CM codes only. If you want to include ICD-9-CM codes in your search (for visits from 2009-10/1/2015) you must enter them into the search box, with each code separated by a comma.

Figure 5: Diagnosis Code Selector

Search Diagnosis Codes Option:

- Use the left panel to select codes. Search codes using the filter, click the left side box in a row to select a code. To select all codes on the current page, click in the box on the column header row.
- The selected codes are listed on the right panel. Use View Definition to view definition for the selected codes.
- To remove selected codes, uncheck the codes on the left panel, or use Delete on the right panel. Use Clear All Selected Diagnosis Codes to clear all selected codes.

Select Diagnosis Codes:		Selected Diagnosis Codes:	
<input type="checkbox"/>	Diagnosis Code	Total Number of Selected Codes: 53 <a href="#">View Definition</a>	
<input type="checkbox"/>	Q asthma	J45, J45.2, J45.20, J45.21, J45.22, J45.3, J45.30, J45.31, J45.32, J45.4, J45.40, J45.41, J45.42, J45.5, J45.50, J45.51, J45.52, J45.9, J45.90, J45.901, J45.902, J45.909, J45.99, J45.991, J45.998, J82.83, T48.6, T48.6X, T48.6X1, T48.6X1A, T48.6X1D, T48.6X1S, T48.6X2, T48.6X2A, T48.6X2D,	
<input checked="" type="checkbox"/>	J45 - Asthma	J45 - Asthma	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.2 - Mild intermittent asthma	J45.2 - Mild intermittent asthma	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.20 - Mild intermittent asthma, uncomplicated	J45.20 - Mild intermittent asthma, uncomplicated	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.21 - Mild intermittent asthma with (acute) exacerbation	J45.21 - Mild intermittent asthma with (acute) exacerbation	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.22 - Mild intermittent asthma with status asthmaticus	J45.22 - Mild intermittent asthma with status asthmaticus	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.3 - Mild persistent asthma	J45.3 - Mild persistent asthma	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.30 - Mild persistent asthma, uncomplicated	J45.30 - Mild persistent asthma, uncomplicated	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.31 - Mild persistent asthma with (acute) exacerbation	J45.31 - Mild persistent asthma with (acute) exacerbation	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.32 - Mild persistent asthma with status asthmaticus	J45.32 - Mild persistent asthma with status asthmaticus	<a href="#">Delete</a>
<input checked="" type="checkbox"/>	J45.4 - Moderate persistent asthma	J45.4 - Moderate persistent asthma	<a href="#">Delete</a>
<input checked="" type="checkbox"/>		J45.40 - Moderate persistent asthma, uncomplicated	<a href="#">Delete</a>

Showing page 1 of total 1 pages ( 53 codes ) < 1 >

### Additional Diagnosis Code Search Options

Note that ED visits will be included in your results set for ANY of the diagnosis codes included in your text box. If you want to require a combination of one or more diagnosis codes, click Yes next to the question, *Do you want to require one or more diagnosis codes (Boolean AND) with the diagnosis code(s) already included in your definition?* Then follow the same steps as previously described to enter the diagnosis codes of interest. Use this feature when you want to look at ED visits with more than one condition.

Figure 6: AND Diagnosis Code Search (Requiring a Combination of one or more Diagnosis Codes)

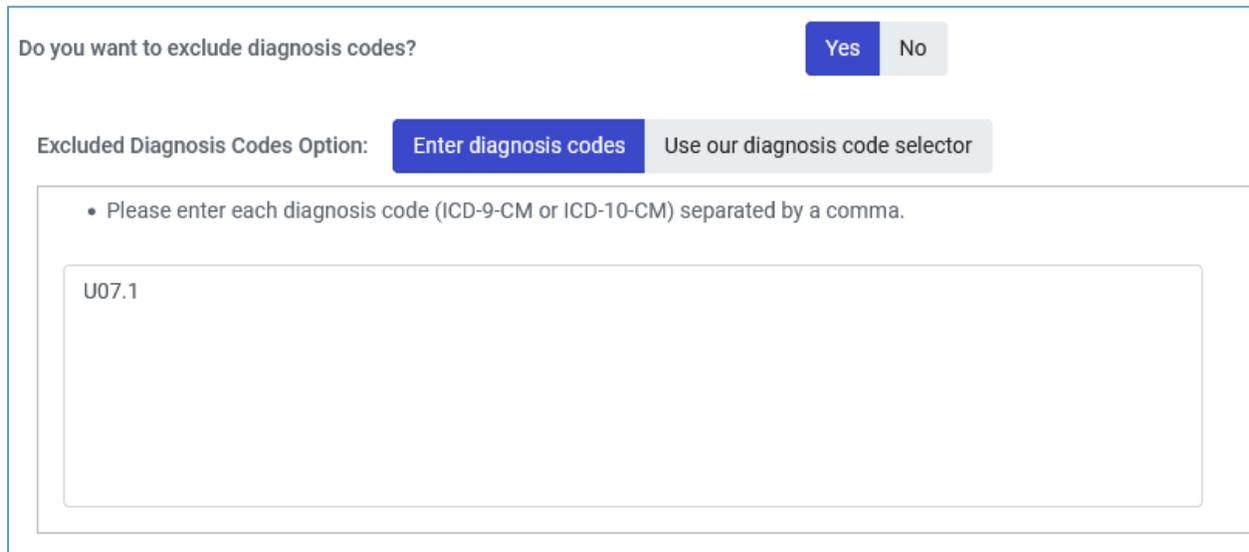
Do you want to require one or more diagnosis codes (Boolean AND) with the diagnosis code(s) already included in your definition?

Search Additional Diagnosis Codes Option:

- Please enter one or more ICD-9/10-CM diagnosis codes, separated by a comma with no spaces. Diagnosis codes may contain numbers or letters. If a diagnosis code has a period, the period must be included. Characters other than numbers, letters, periods, and commas are not permitted. Check your code for spaces if you are receiving this message after entering valid codes.

If you want to exclude ED visits with one or more diagnosis codes, click **Yes** next to the question, *Do you want to exclude diagnosis codes?* And then enter your excluded codes directly into the text box or using the diagnosis code selector. The screen shot below shows an example of excluding the ICD-10-CM code for COVID-19 (U07.1). Note that you must also have one or more *inclusion* diagnosis codes if you want to exclude diagnosis codes.

Figure 7: Excluded Diagnosis Code Example



Do you want to exclude diagnosis codes?

Excluded Diagnosis Codes Option:

- Please enter each diagnosis code (ICD-9-CM or ICD-10-CM) separated by a comma.

U07.1

## Notes on Search Strategy & How Exclusions Operate

- Searches can include both keyword terms and diagnosis codes. When both keywords and diagnosis codes are included, these searches are combined into an OR statement. In other words, ED visits with any of the keyword terms OR any of the diagnosis codes in your search will be included in the results.
- Exclusions are specific to keywords or diagnosis codes. If you have an exclusion keyword but also include diagnosis codes in your search, the results set will include ED visits with the any of the included diagnosis codes, even if the excluded keyword is present. Similarly, if you have an excluded diagnosis code but your search includes keywords, your results will include ED visits with those keywords even if the excluded diagnosis code is in an ED visit record.

## Saving Custom Search Definitions

In the ED Custom Search report, you have the option to save your custom search definition for future use. This definition is specific to your account and is accessible only to you. Once you are happy with your keyword and/or diagnosis code search criteria and want to save your search, click on the Save Custom Search Definition link at the bottom of the search criteria screen.

Figure 8: Saving a Custom Search Definition

The screenshot shows the 'Search by Keywords' section with a 'Yes' button selected. Below it, the 'Keyword Search Option' is set to 'Chief Complaint Only'. The search terms field contains 'fever AND (cough or 'sore throat')'. Below the search terms field is an empty field for exclusion terms. At the bottom of the search criteria section, there are two links: 'View Custom Search Definition' and 'Save Custom Search Definition', with the latter circled in green. A 'Search' button is located at the bottom of the page.

To access the *Save Custom Search Definition* link AFTER you have already conducted a search and you are on the line listing results screen, click on the *Show Search Parameters* link and then scroll down to the *Save Custom Search Definition* link.

Figure 9: Saving Custom Search Definitions from Results Page

The screenshot shows the 'ED Custom Search' results page. At the top, there are two links: 'Show Search Parameters' and 'Go back to my Table of Definitions', with the former circled in green. Below the links, the 'Search Criteria' section displays: Data Source: ED, Date Range: 9/1/2022 - 10/13/2022, and County: All NC Counties. The 'Custom Search Definition' section contains a note: 'Remember to save any definitions that you want to keep before you do a new search. To save this definition, click on Show Search Parameters and then click on one of the Save options available below your search criteria.' Below the note, the 'Definition Name' field is empty, and the 'Definition Details' section shows: Keyword Search Option: Chief Complaint Only and Keywords: fever AND (cough or 'sore throat').

Enter a name for your definition and then click on the Save button.

Save Custom Search Definition
✕

Save Definition Name as

Definition Name: CDC ILI CC Only

Definition Details:

- Keywords Search Option: Chief Complaint Only
- Keywords: fever AND (cough or "sore throat")

All saved definitions are available in the *Table of Custom Search Definitions*, which is the landing page for the ED Custom Search report. From this page you can run a search using a saved definition, update an existing definition, or delete an existing definition using the links in the Actions column. To begin a new custom search definition using the link at the top of the table.

Figure 10: Table of Custom Search Definitions with One Saved Definition

### ED Custom Search - Table of Custom Search Definitions

To do a new custom search, click New Custom Search. Click Run/Update in the table next to a saved definition to run or use that definition. For more instructions.

**[New Custom Search](#)**

↓ Definition Name	Definition Details	Actions
CDC ILI CC Only	<ul style="list-style-type: none"> <li>Keyword Search Option: Chief Complaint Only</li> <li>Keywords: fever AND (cough or "sore throat") <a href="#">See More</a></li> </ul>	<a href="#">Run/Update</a> <a href="#">Delete</a>

Rows per page:

1 - 1 of 1

## Running or Updating Saved Custom Search Definitions

To run or update a saved custom search definition, click on the *Run/Update* link in the Actions column. To conduct a search, select the desired date range, location type and any optional filters and then click search.

To update the keywords and/or diagnosis codes in your saved definition, click on the *Update Custom Search Definition* link.

Figure 11: Updating an Existing Definition

The screenshot displays the 'ED Custom Search' interface. At the top, there are two links: 'Hide Search Parameters' and 'Go back to my Table of Definitions'. Below this, the search parameters are set as follows: 'Data Source' is 'ED'; 'From' date is '10/03/2022'; 'To' date is '10/13/2022'; 'Select Location Type' includes 'County', 'Region', and 'Hospital'; 'Select Location' is 'All x'; 'Optional Filters' has 'Yes' and 'No' buttons. A link 'Update Custom Search Definition' is circled in green. Below the link, the 'Definition Name' is 'CDC ILI CC Only' and the 'Definition Details' are listed: 'Keywords Search Options: Chief Complaint Only', 'Keywords: fever AND (cough or "sore throat")', 'Excluded Keywords:', 'Diagnosis Codes:', 'Additional Diagnosis Codes:', and 'Excluded Diagnosis Codes:'. A 'Search' button is at the bottom.

Once you have at least one saved custom search definition, you will have an additional save option of *Save As Another Custom Search Definition*. Click this option if you want to keep your original definition rather than updating it. For example, you may have more than one definition for a similar topic with slightly different search criteria.

Figure 12: Save as Another Custom Search Definition Option

Custom Search Options:

Search by Keywords:  Yes  No

Keyword Search Option:  Chief Complaint Only  Chief Complaint and Triage Notes

Enter your search terms:  
Please note that your search must adhere to specific syntax in order to work properly. Please refer to the [guidance document](#) for proper definition format. Use OR for terms if you want results for any of the terms listed. Use AND if you want the results to include all of the terms in your AND statement. For example, if you want to see ED visits that mention fever AND cough or sore throat, you would enter your query as follows: fever AND (cough OR "sore throat") :

fever AND (cough or "sore throat")

Enter any exclusion terms separated by OR:

Search by Diagnosis Codes:  Yes  No

[View Custom Search Definition](#) [Save Custom Search Definition](#) [Save As Another Custom Search Definition](#)

Search

## Troubleshooting

If the report returns an error after a search and you do not understand why, try the following:

- Paste your query into Notepad to look for any hidden spaces.
- If you pasted your query into the search box directly from MS Word or another editing program, note that the quotation marks may not be recognized by the report. They may be seen as special characters rather than simple quotation marks. You can delete MS Word quotation marks in the interface and then enter them directly.
  - Notice the difference between this: " and this: “
  - There is an option to turn off the smart quote feature in MS Word by going to File → Options → Proofing → AutoCorrect Options.
    - Click the **AutoFormat As You Type** tab, and under **Replace as you type**, select or clear the **"Straight quotes" with "smart quotes"** check box.
    - Click the **AutoFormat** tab, and under **Replace**, select or clear the **"Straight quotes" with "smart quotes"** check box.

## Feedback

To provide feedback on this report, please send an email to [ncdetect@listserv.med.unc.edu](mailto:ncdetect@listserv.med.unc.edu).