

ESSENCE Query Guide

Syntax and Best Practices

Query Language: Regular Expressions

Expression	Use	Example
Caret ^	Wildcard: anything, everything, nothing	^fall^
OR	Either term	^fall^,or,^fell^
AND	Both terms	^fall^,and,^head^
ANDNOT	The first term but not the second	^fall^,andnot,^crestfallen^
Parenthesis ()	Group terms	^fall^,andnot,(,^crestfallen^,or,^rainfall^,)
Brackets []	Pick list	^f[ae]ll^

Regular Expression Examples

Example	Explanation
<code>^tick^</code>	Will pick up any word or phrase containing the word “tick” (stick, tickle, ticket, uptick, ticks)
<code>tick</code>	Will only pick up fields containing only the word “tick”
<code>tick^</code>	Requires the first word in the field to be “tick”
<code>^tick</code>	Requires the last word in the field to be “tick”
<code>^tick^,AND,^bite^</code>	Requires both “tick” and “bite” to be included in the field, may be in any order
<code>^tick^bite^</code>	Requires both “tick” and “bite” to be included and in that order
<code>^tick^,OR,^mosquito^, ANDNOT,^stick^</code>	INCORRECT: andnot will attempt to negate against “mosquito” not “tick” •<code>(,^tick^,OR,^mosquito^,),ANDNOT,(^stick^,)</code> •<code>^mosquito^,OR,^tick^,ANDNOT,^stick^</code> •<code>^tick^,ANDNOT,^stick^,OR,^mosquito^</code>

Commas ,

- Commas must be used around the words you use to create relationships between your query terms
 - Example: (, ^fever^ , AND , ^cough^ ,) , OR , ^flu^
- The commas tell ESSENCE that it's a relationship word, not a search term

Wildcards ^

- Carets, representing wildcards, can be anything, everything, and nothing
- Make use of placement of wildcards, punctuation, and spaces, to find the terms you are looking for

Wildcards ^

1. Fall
2. Fell getting out of car
3. Left arm injury; fall
4. Falling out with friends; SI
5. Feels crestfallen
6. Patient brought in after falling on face
7. Fall; left wrist injury

Wildcard Use	Examples Matched
fall	1
fall^	1,4,7
^fall	1,3
^fall^	1,3,4,5,6,7
^fall ^	--
^ fall^	3,6

Underscores _

- Underscores, representing placeholders, specify that something (anything) must be in that place
- Most useful for ICD10 codes
 - ^T39.__2^ would give you all poisoning by NSAIDS that receive a 2 in the 6th place indicating intentional self-harm

Underscores _

1. Fall
2. Fell getting out of car
3. Left arm injury; fall
4. Falling out with friends; SI
5. Feels crestfallen
6. Patient brought in after falling on face
7. Fall; left wrist injury

Underscore Use	Examples Matched
<code>^fall_^</code>	4,5,6,7
<code>^_fall^</code>	3,5,6
<code>^_fall_^</code>	5,6
<code>^f_ll^</code>	1,2,3,4,5,6,7
<code>^f__ ^</code>	1,2,3,4,5,6,7

Brackets []

- Brackets, representing placeholders, specify a pick list to take that position
- Brackets can contain ranges, but only take the place of one position
 - [0-24] = [0124]
 - [a-c] = [abc]
 - [0-9] = [0-23-9] = [0123456789]

Brackets []

- “Brackets are weird. If your query is giving incorrect or null results, it can sometimes be the brackets.”
- Search for commas and underscores in brackets: [COMMA] [_
• NOT carets [^]

Brackets []

1. Fall
2. Fell getting out of car
3. Left arm injury; fall
4. Falling out with friends; SI
5. Feels crestfallen
6. Patient brought in after falling on face
7. Fall; left wrist injury

Underscore Use	Examples Matched
<code>^[;]fall^</code>	3,6
<code>^fall[;]^</code>	7
<code>^[;]fall[;]^</code>	--
<code>^f[ae]ll^</code>	1,2,3,4,5,6,7

Wildcards, Brackets, and Underscores

- Use combinations!
- It's better to be specific in your exclusion terms than to use excessive ANDNOTs

Wildcards, Brackets, and Underscores

1. Fall
2. Fell getting out of car
3. Left arm injury; fall
4. Falling out with friends; SI
5. Feels crestfallen
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How can we write a query that will return only the **true positives**?

`^[ ;]f[ae]ll^,OR,f[ae]ll^`

Diagnosis Codes

- Frequency of ANY SNOMED coded visits:

$^{[;/][0-9][0-9][0-9][0-9][0-9][0-9]}$

- Frequency of ANY ICD10 coded visits

$^{[;/][a-z][0-9a-z][0-9a-z]}$

- From there, you can use AND, OR, ANDNOT statements to figure out what mix of ICD10 and SNOMED you receive

Steps in Creating a Query

1. Terms
2. Review Positive Chief Complaints
3. First Draft
4. Review Visits
5. Refine
6. Repeat Steps 4-5

1. Terms

- Check existing syndromes
 - ESSENCE -> More -> Syndrome Definitions
 - ISDS Syndrome Definition Library
- Brainstorm keywords
- Diagnosis Codes
- Consult with subject matter experts

2. Check Positive Chief Complaints

- Search for individual terms and codes
- Review the Chief Complaints (Triage Notes, Admit Reason, etc) of matching visits
 - Look for key terms you might have missed
- Add identified terms or exclusions to free-text query

3. First Draft

- Can terms be shortened?
- Do you need to account for different versions of terms?
- Do terms need to be rearranged or combined?
- What terms will create too much “noise” in your results?
- Start with a single free-text field

4. Review Visits

- How many visits?
- Which of your terms appeared and how often?
- Which visits are false positives and why?

6. Repeat Steps 4-5

- BALANCE
 - Will adding a new free-text field add too many false positives compared to true positives?
 - Are there terms that cause too much noise in your results?
- What are you using the query for? Case finding? Trend observation? Enhanced surveillance?

Resources

- Syndrome Definition Committee Guidance Document:
 - [https://cdn.ymaws.com/www.healthsurveillance.org/resource/collection/672DC1B9-20B2-4511-BCB1-9EB82FA3E5A7/SDC Syndrome Definition Guidance document FINAL.pdf](https://cdn.ymaws.com/www.healthsurveillance.org/resource/collection/672DC1B9-20B2-4511-BCB1-9EB82FA3E5A7/SDC_Syndrome_Definition_Guidance_document_FINAL.pdf)
- Syndrome Definition Library
 - <https://www.surveillancerepository.org/>
- Query Tool
 - [https://www.healthsurveillance.org/resource/collection/672DC1B9-20B2-4511-BCB1-9EB82FA3E5A7/EQWT V2.2 - SDC Copy.xlsx](https://www.healthsurveillance.org/resource/collection/672DC1B9-20B2-4511-BCB1-9EB82FA3E5A7/EQWT_V2.2_-_SDC_Copy.xlsx)