

Rapidly Retrieve Clinical Information Across Multiple Data Sources



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ABSTRACT

The vast and disparate nature of clinical data challenges our ability to search and analyze. Using Reveal, you can now answer precise questions gleaning data from spanning disparate sources in seconds rather than hours. Questions like: Where is GI Bleeding? What hypertension events were seen across this compound? Reveal's search technology eliminates the need for multiple manual, time-intensive searches through various clinical data systems and uniquely reaches sources previously impossible to search. It bridges the gap between data and analytic tools so users avoid spending time hunting for the information and, instead, focus on the analysis to answer key scientific questions.

Shine A Light On Clinical Data

Pharmaceutical companies are awash in data, and it isn't getting easier. Increased regulatory requirements, deepening medical sciences, and mergers and acquisitions are adding to ever-growing mountains of data. You know how to store your data, but how do you find it again? Days later... months later... years later...?

Search Far And Wide

Reveal is designed to perform a federated search across different repositories. You can build a single search index which includes multiple, heterogeneous data sources. Even if your data resides in different physical locations, Reveal can consolidate the information into one searchable body of knowledge.

Easy Search

To use Reveal, you simply type in clinical terms to find your data. There is no need for complicated query languages like SQL.

Reveal displays all of the files where both of the words blood and pneumonia occur. Search results appear in 1 or 2 seconds along with a relative ranking and file information.

| Q blood AND pne | umonia | | | | | | 🔐 Help me |
|------------------------------|--------|----------------|-------------|--------|----------------------|--------------|---|
| Found 43 hits in 0.215 secs. | | | | | | | |
| Folder | • | Name | Туре | Size | Modified | Relative Sco | V Notes |
| studies/study8 | | mh.sas7bda: | sasDataTabl | 216 KB | 08/18/11 3:23:02 PM | | 2 matches for 'blcod'; 30 matches for 'pneumonia' |
| studies/study6 | | suppae.sas7bda | sasDataTabl | 152 KB | 08/18/11 3:19:54 PM | | 33 matches for 'blood'; 2 matches for 'pneumonia' |
| studies/study6 | | mh.sas7bdat | sasDataTabl | 168 KB | 08/18/11 3:19:54 Plv | | 1 match for 'blood'; 20 matches for 'pneumonia' |

This picture shows the search results screen from Reveal after the user has entered the search: blood & pneumonia

| O. Spath:*cam | ıd* | | | | | | 🔯 Help | me |
|--------------------------|------|-----------------|---------|----------|---------------------|----------------|---------|----|
| ound 160 hits in 0.219 s | ecs. | | | | | | | |
| older | • | Name | Туре | Size | Modified | Relative Score | ✓ Notes | |
| amd/1055 | | sv.sas7bdat | dataset | 145 KB | 03/01/11 3:15:01 PM | | | |
| amd/1055 | 4 | suppmh.sas7bdat | dataset | 177 KB | 03/01/11 3:14:59 PM | | | |
| amd/1055 | 4 | qs.sas7bdat | dataset | 1,953 KB | 03/01/11 3:14:57 PM | | | |
| amd/1055 | | mh.sas7bdat | dataset | 769 KB | 03/01/11 3:14:49 PM | | | |
| amd/1055 | | lb.sas7bdat | dataset | 7,985 KB | 03/01/11 3:15:01 PM | | | |
| amd/1055 | | ds.sas7bdat | dataset | 81 KB | 03/01/11 3:14:46 PM | | | |
| amd/1055 | | dm.sas7bdat | dataset | 49 KB | 03/01/11 3:14:45 PM | | | |
| amd/1055 | | cmsv.sas7bdat | dataset | 4,289 KB | 03/01/11 3:14:47 PM | | | |
| amd/1055 | 4 | cm.sas7bdat | dataset | 1,185 KB | 03/01/11 3:14:43 PM | | | |
| amd/1055 | | ae.sas7bdat | dataset | 257 KB | 03/01/11 3:14:46 PM | | | |

Here we see the search results from the query: \$path: *camd*

Narrow The Focus

Using metadata-powered search terms you can narrow your search to a study path.

Using table and column names you can narrow your search to have precise clinical meaning.

Reveal can search documents just like other enterprise search technology. However, Reveal is unique in that it recognizes data sets which are organized into rows and columns. The data set metadata is extracted by Reveal along with the rows of data. Both of these are indexed and available for searching. This powerful combination of searchable content enables you to find just what you are looking for.

| Q Ibte | estcd:ALB | | | | | | 👫 Help me |
|--------------------|-------------|--------|---------|------------|---------|-------------------------------------|-----------|
| Found 19 hits in 0 |).191 secs. | | | | | | () () |
| Folder • | Name | Туре | Size | Modified | Relativ | ☑ Notes | |
| studies/study8 | lb.sas7bdat | sasdat | 3,224 k | 08/18/11 3 | | 351 matches for 'alb' in Ibtestcd | |
| studies/study7 | lb.sas7bdat | sasdat | 896 KB | 08/18/11 3 | | 100 matches for 'alb' in Ibtestcd | |
| studies/study6 | lb.sas7bdat | sasdat | 2,312 k | 08/18/11 3 | | 223 matches for 'alb' in Ibtestcd | |
| studies/study5 | lb.sas7bdat | sasdat | 920 KB | 08/18/11 3 | | 102 matches for 'alb' in Ibtestcd | |
| studies/study4 | lb.sas7bdat | sasdat | 152 KB | 08/18/11 3 | | 12 matches for 'alb' in lbtestcd | |
| studies/study3 | lb.sas7bdat | sasdat | 1,184 k | 08/18/11 3 | | 112 matches for 'alb' in Ibtestcd | |
| studies/study2 | lb.sas7bdat | sasdat | 608 KB | 08/18/11 3 | | 61 matches for 'alb' in Ibtestcd | |
| studies/study1 | Ib.sas7bdat | sasdat | 1,088 k | 08/18/11 3 | | 104 matches for 'alb' in Ibtestcd | |
| camd/1054 | lb.sas7bdat | datase | 23,649 | 03/01/11 3 | | 786 matches for 'alb' in Ibtestcd | |
| camd/1053 | lb.sas7bdat | datase | 87,873 | 03/01/11 3 | | 2,942 matches for 'alb' in Ibtestcd | |

Here we see an example of searching for laboratory results of tests for albumin using the query: lbtestcd:ALB

Case Studies

Case Study 1

Problem:

Post approval safety issues are being reported across a number of the company's drugs within Alzheimer's. The team needs to be able to search across studies to find data that might contain an increase in anxiety events and a potential interaction with Memantine, a common medication for Alzheimer's.

Search:

A Reveal search: *Memantine AND Anxiety* displays results indicating that studies 1013 and 1014 have significant number of hits.

| | | 5.5.4.5%896288 | aaneena ar - | | | |
|------------------------------|-------------|----------------|--------------|---------------------|--------------|--|
| Q Memantine AND Anxiety | ۶. | | | | | 🔐 Help me |
| Found 10 hits in 0.206 secs. | | | | | | ۵ 🕒 🔇 |
| Folder | Name | Туре | Size | Modified | Relative S . | Notes |
| camd/1014 | cm.sas7bdat | Dataset | 10,593 KB | 03/01/11 3:28:51 PM | | 354 matches for 'memantine'; 154 matches for 'anxiety' |
| camd/1013 | cm.sas7bdat | Dataset | 10,961 KB | 03/01/11 3:25:53 PM | | 227 matches for 'memantine'; 167 matches for 'anxiety' |
| camd/1052 | cm.sas7bdat | Dataset | 3,201 KB | 03/01/11 3:06:43 PM | | 19 matches for 'memantine'; 47 matches for 'anxiety' |

Results:

The search finds a number of medication data sources that indicate both memantine and Anxiety are present. Next, the team extracts those data sources into an analytical tool to perform further research and look for trends.

Case Study 2

Problem:

An entire submission has been outsourced to a CRO and that organization has delivered the data. All 14 studies in our submission should collect the ADAS-COG questionnaire. The CRO should have verified this result.

Search:

Reveal is used to search for the questionnaire across studies. The search *\$path:*camd* \$name:qs* ADAS-COG* finds that only 13 study data sets have ADAS-COG. An additional search: *\$path:*camd* \$name:qs**. NOT(ADAS-COG) identifies the one questionnaire data set that does not include ADAS-COG.

| 🔍 \$path:*camd* \$name:qs* | NOT(ADAS-COG) | | | | | 🐕 Help me |
|----------------------------|---------------|---------|----------|---------------------|--------------|-----------|
| Found 1 hit in 0.263 secs. | | | | | | ۵ 🖨 🔕 |
| Folder | Name | Туре | Size | Modified | Relative S v | Notes |
| camd/1055 | qs.sas7bdat | Dataset | 1,953 KB | 03/01/11 3:14:57 PM | | |
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Results:

The data managers notify the CRO immediately to determine why they this study did not include ADAS-COG in the delivered data sets.

Conclusion

Data is growing rapidly in both size and complexity presenting a daily challenge for pharmaceutical companies. Innovative tools are necessary in order to locate the data you need for the task at hand. Reveal is a fast, scalable search solution that can help you with these challenges. Reveal searches terabytes of data in just a few seconds, reducing the time it takes to answer