

Graph vs Table

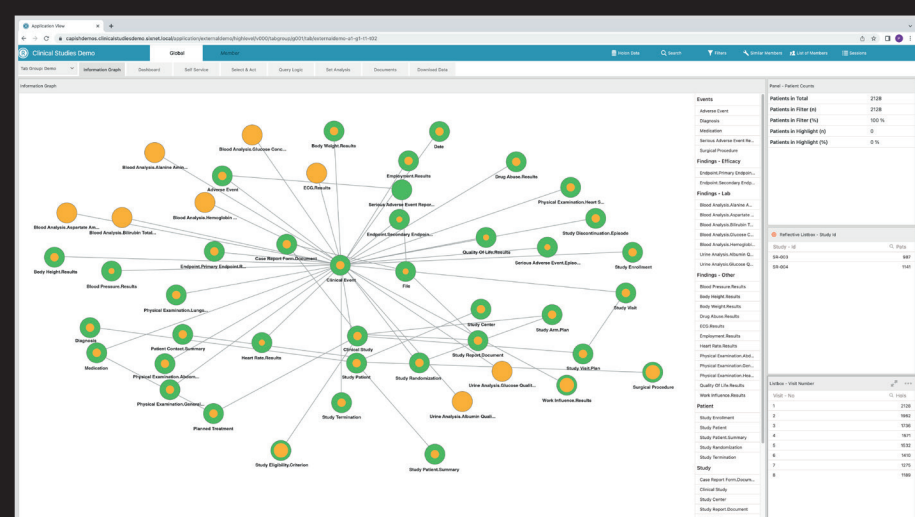
A COMPLEX QUESTION

Catharina Dahlbo & Eva Kelty
Capish, Sweden

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During the years there has been an increased interest in how graph databases can be a better alternative than relational databases when handling complex and unstructured data. Clinical trials and medical data are examples as this data seeks to represent and explain the complexity of biological processes. A powerful and flexible interface to the graph database lets end-users take full advantage of the data structure and its content.

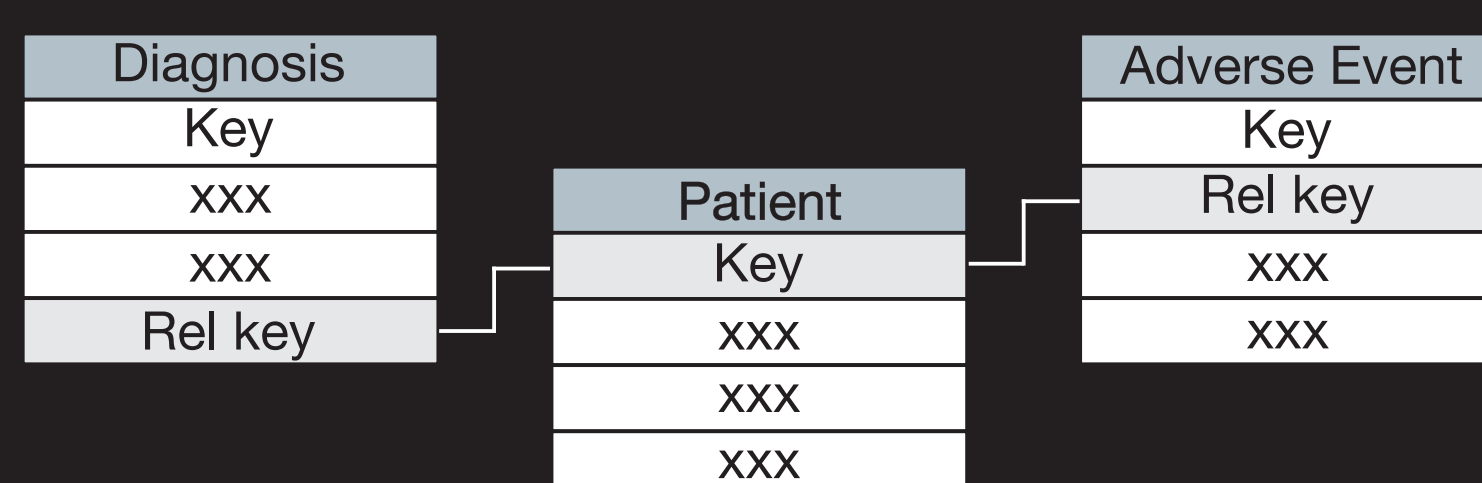
Graph DB for Data Exploration



Graph databases store data as nodes (people, places, drugs, etc.) and relationships that connect

the nodes. The graph database does not require a predefined data structure, instead nodes and relationships can be added when needed.

Relational DB for Predefined Analysis

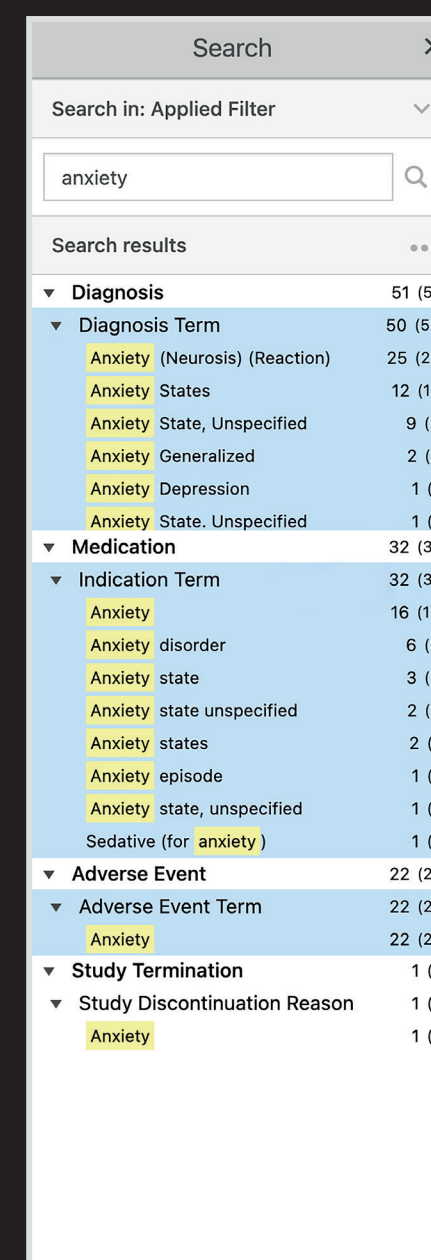


A relational database is a collection of tables of data arranged in rows and columns, each with a specific design called a schema. The schema must be carefully designed beforehand. To show connections between data, extra tables are added to the schema. If new relationships or elements need to be added, the schema must be modified accordingly.

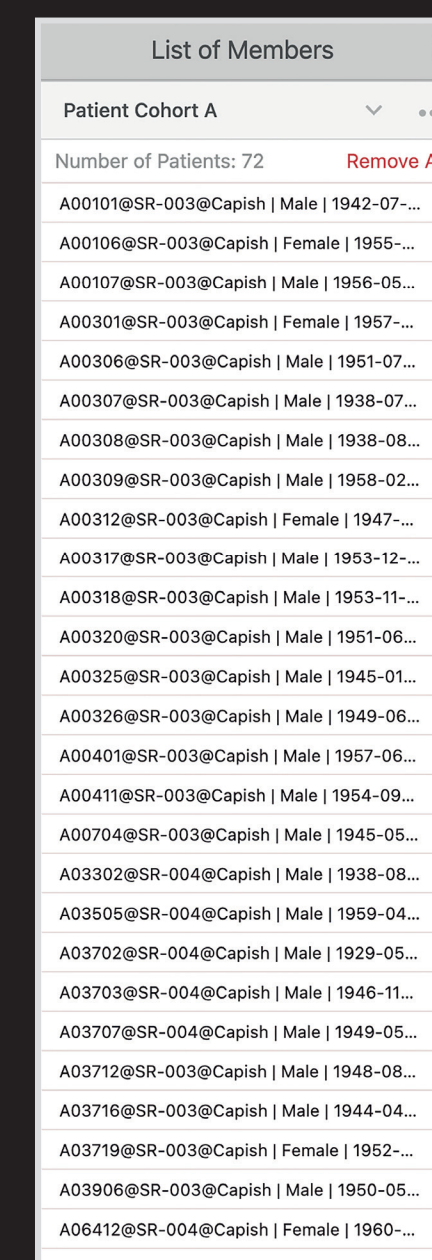
POPULATION

Subgroup

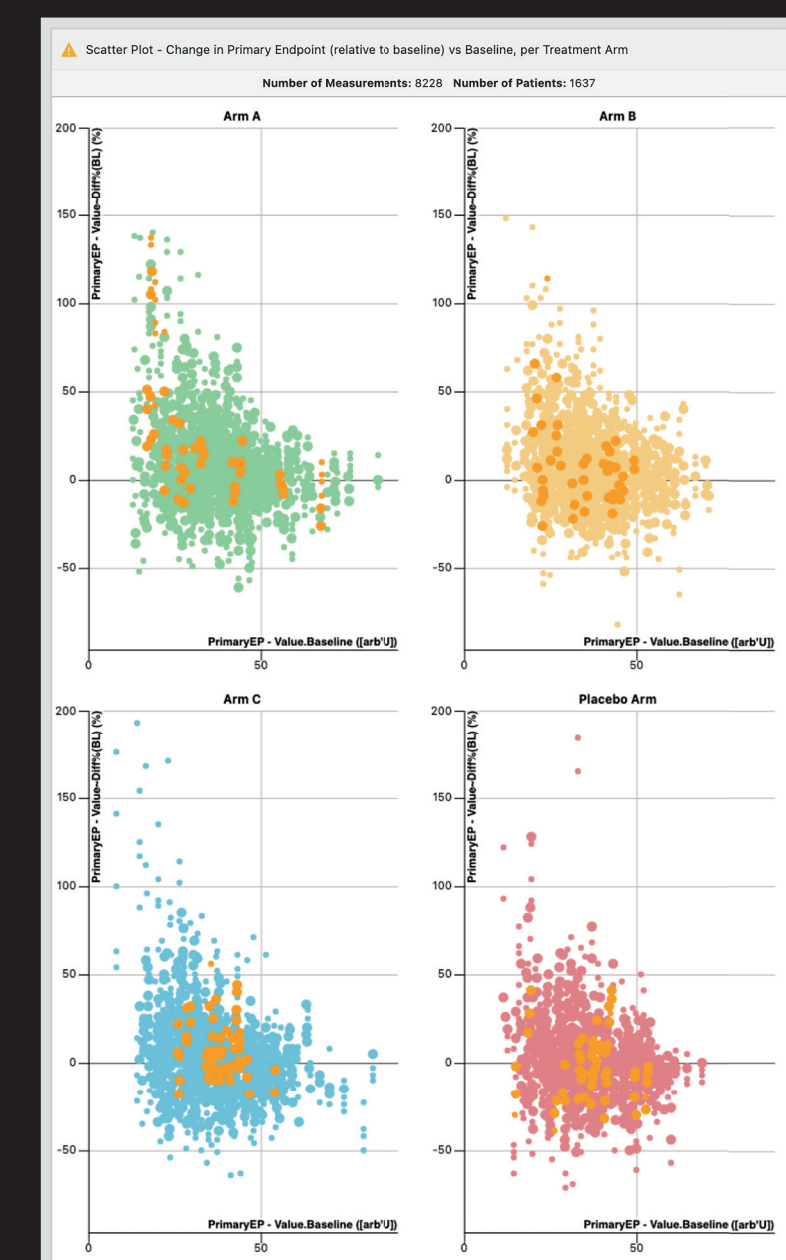
How is the endpoint response to study treatment in relation to the study population for patients with anxiety before or during the clinical trial as well as receiving medication for the condition?



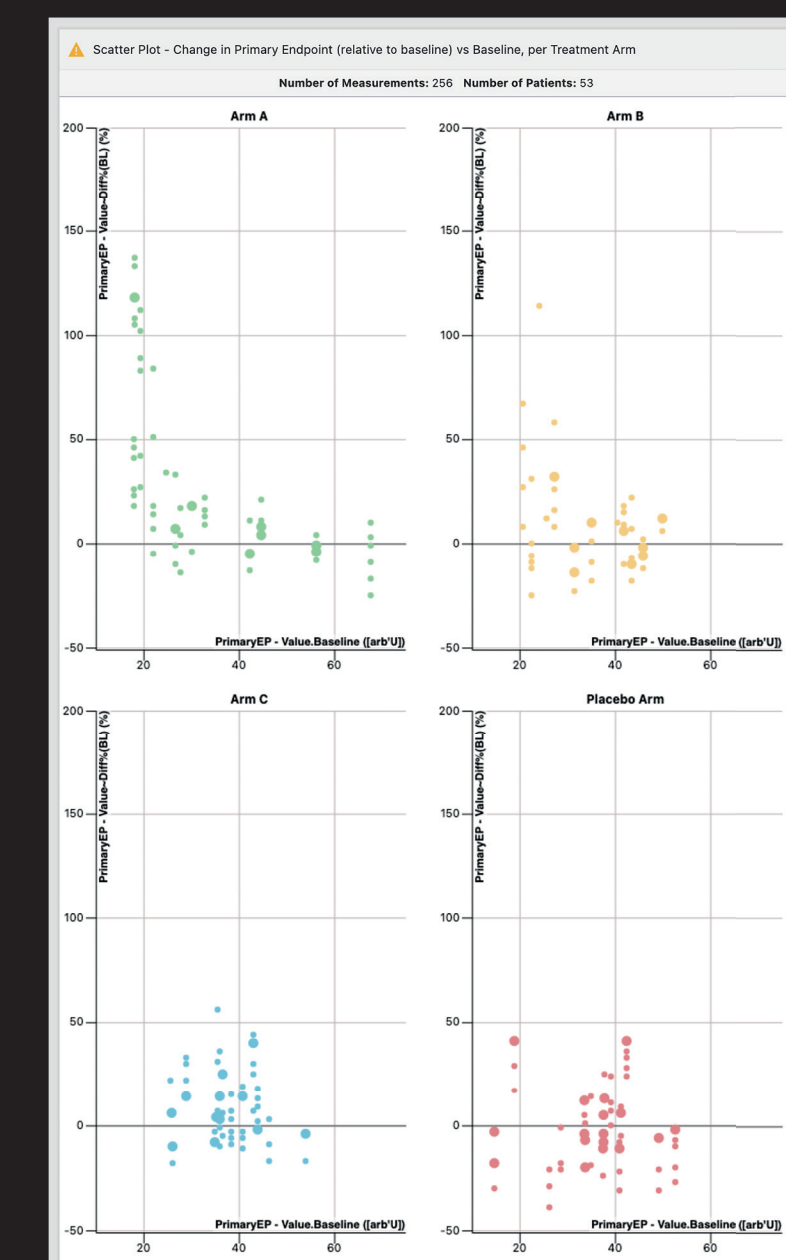
Global search.



72 identified patients.



Subgroup related to population.



Subgroup.

The choice of database depends on the context. Here the focus is to show how a powerful interface combined with a property graph database can be used to explore clinical trial data.

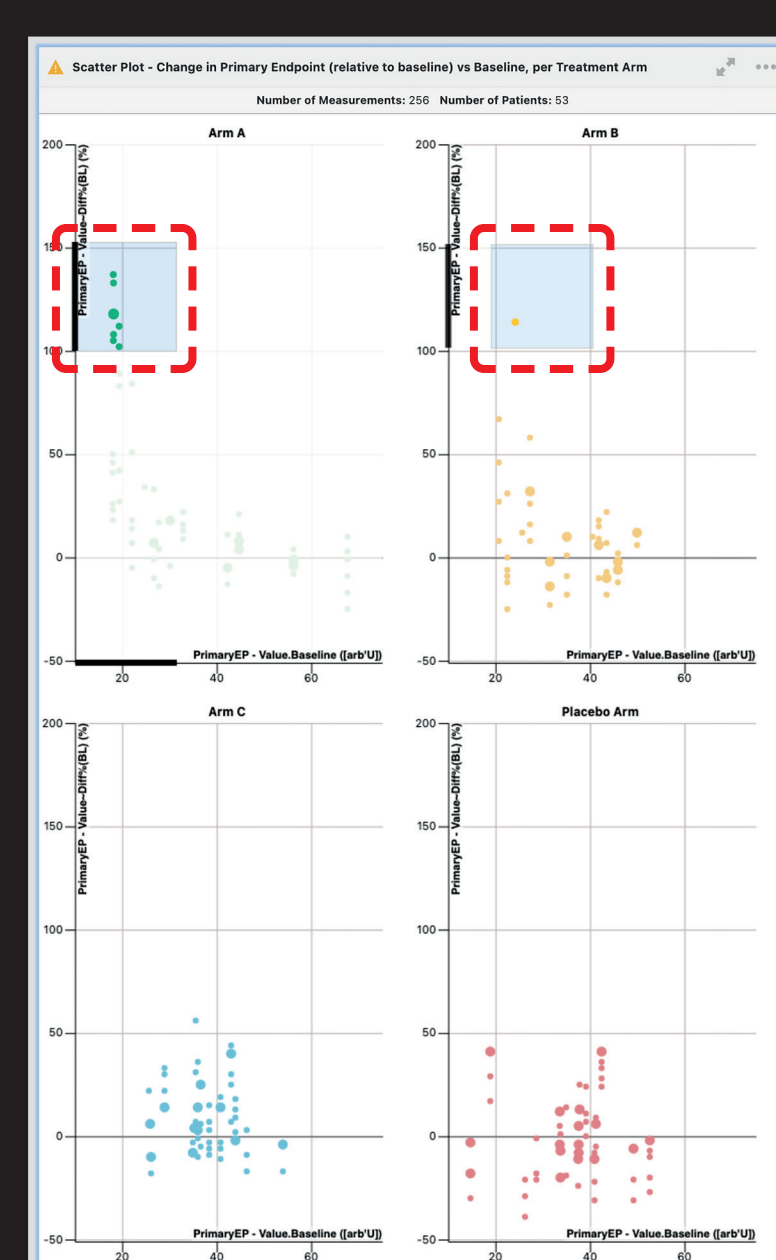
SUBGROUP

Patient

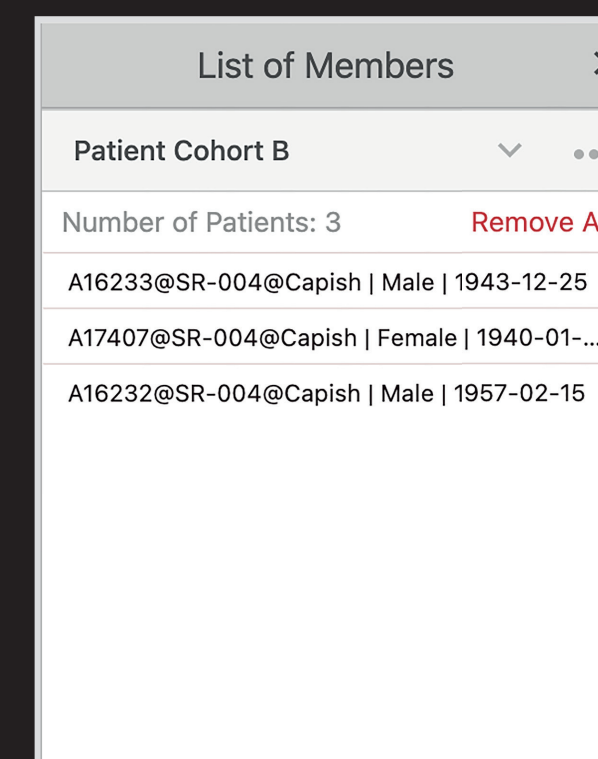
Which patients in the subgroup have a change above 100% in primary endpoint related to the baseline value?

What adverse events have each of these patients reported?

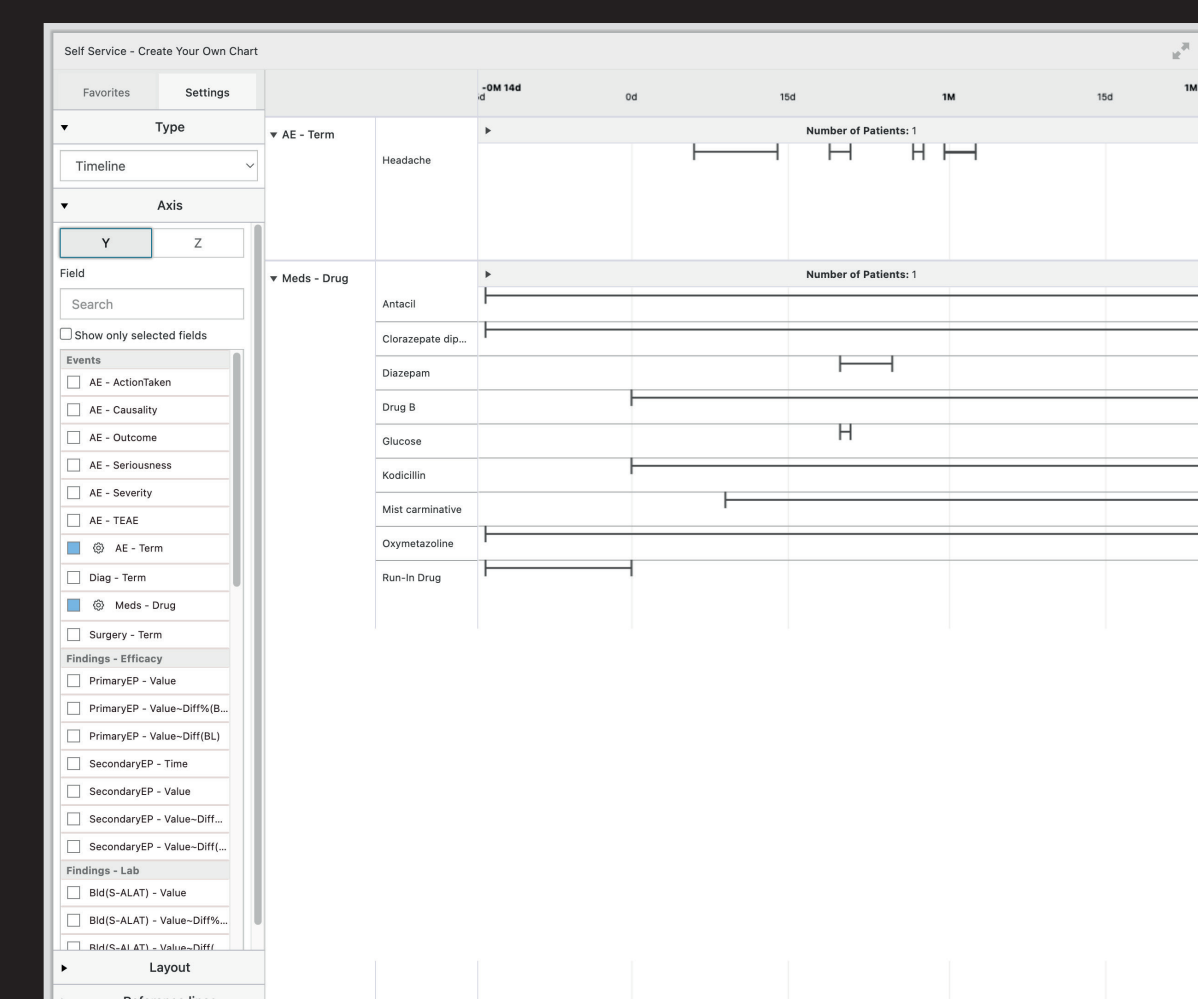
And when were they experienced in relation to medications received?



Select values of interest.



3 identified patients.



Patient view.



SUMMARY

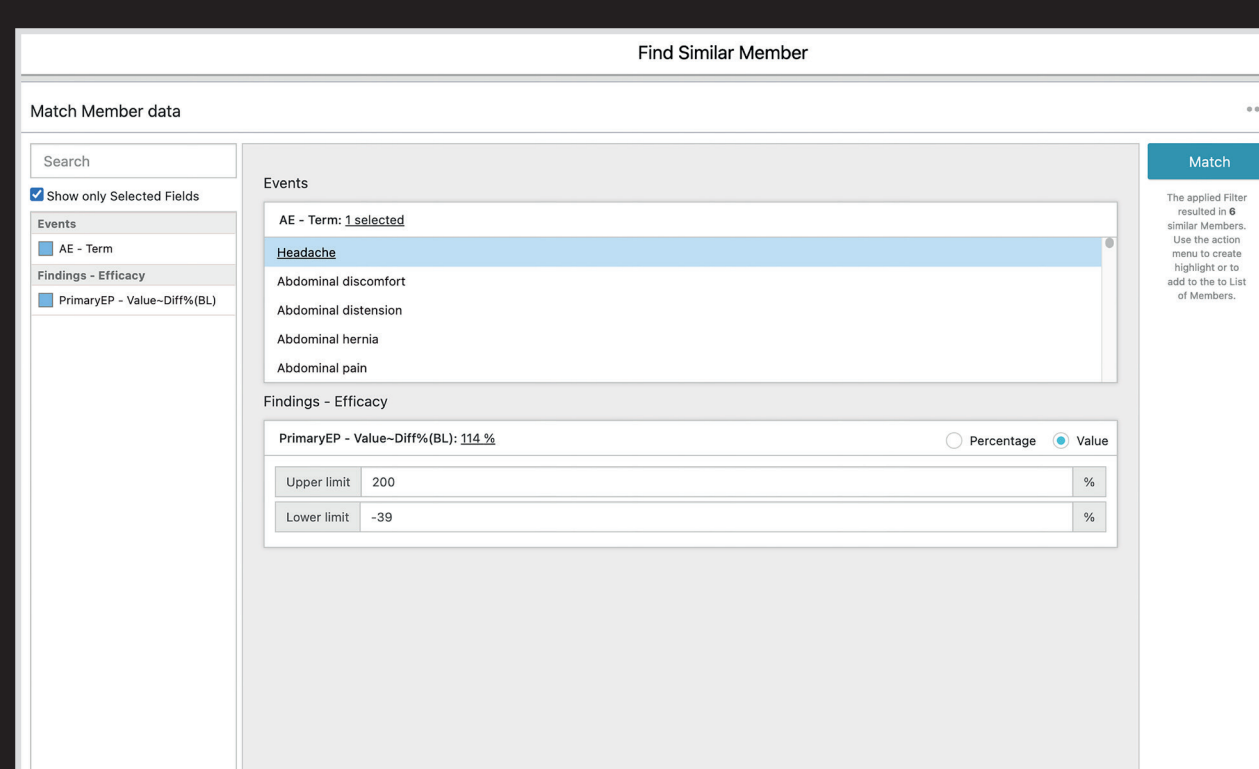
A global search for anxiety will return results from any field within the database. By selecting specific results or multiple hits, we can create a list of patients, a subgroup, with identified anxiety. This list allows us to further investigate the data and create new subgroups for exploration.

PATIENT

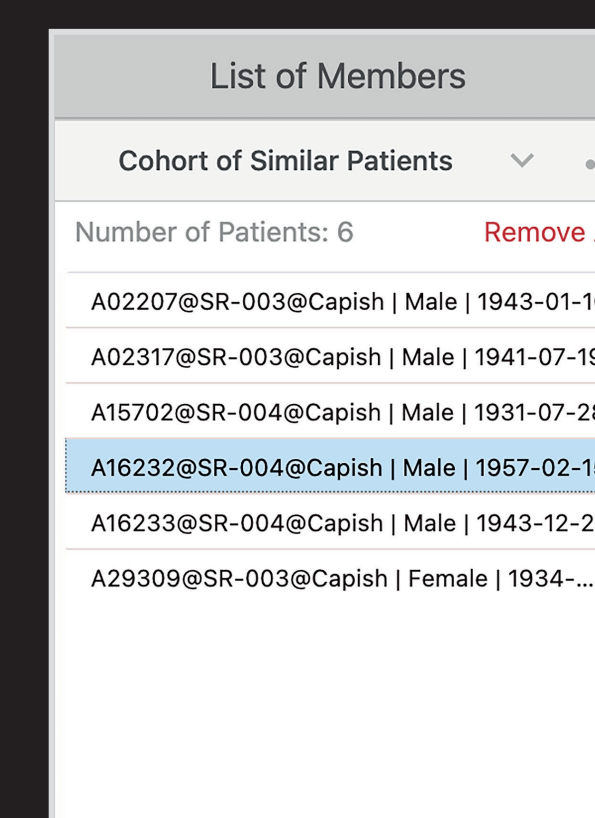
New Subgroup

The selected patient in the patient view above has headache and change of primary endpoint value above 75%.

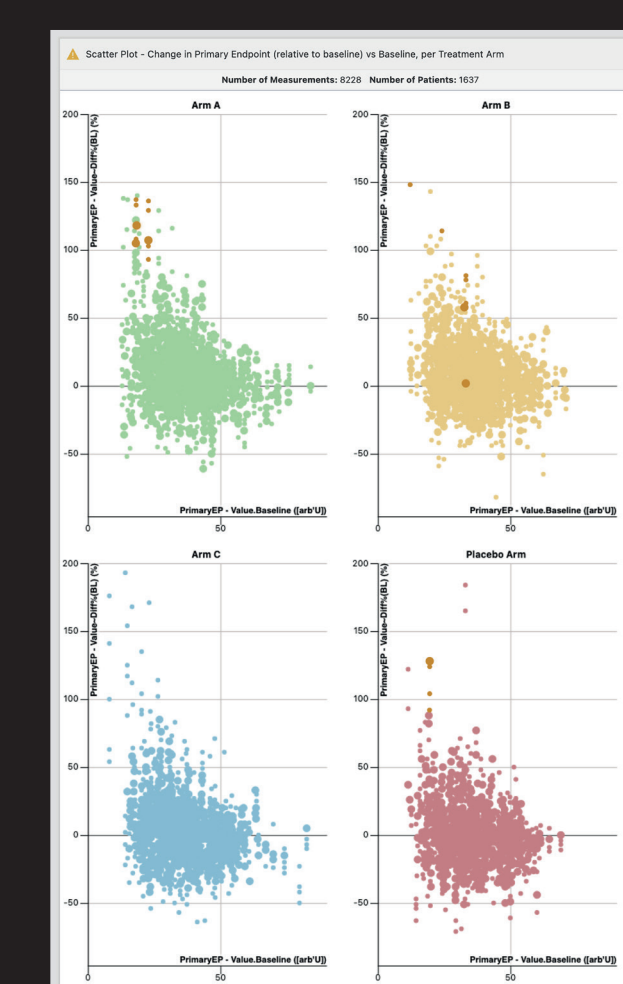
What other patients have similar values and how do they compare to the full study population?



Find similar patients.



5 additional patients.



New subgroup highlighted.

CONCLUSION

With an innovative solution, it is possible for the end-user to easily gather a significant amount of information and discover new patients of interest without support from programmers. This is a prime example of how a graph database can be more efficient than a traditional relational data-

base. It eliminates the need for complex joins and allows for more flexible searching and complex querying of the entire database. More comprehensive analyses and insights from the data can be achieved.

catharina.dahlbo@capish.com
eva.kelty@capish.com

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