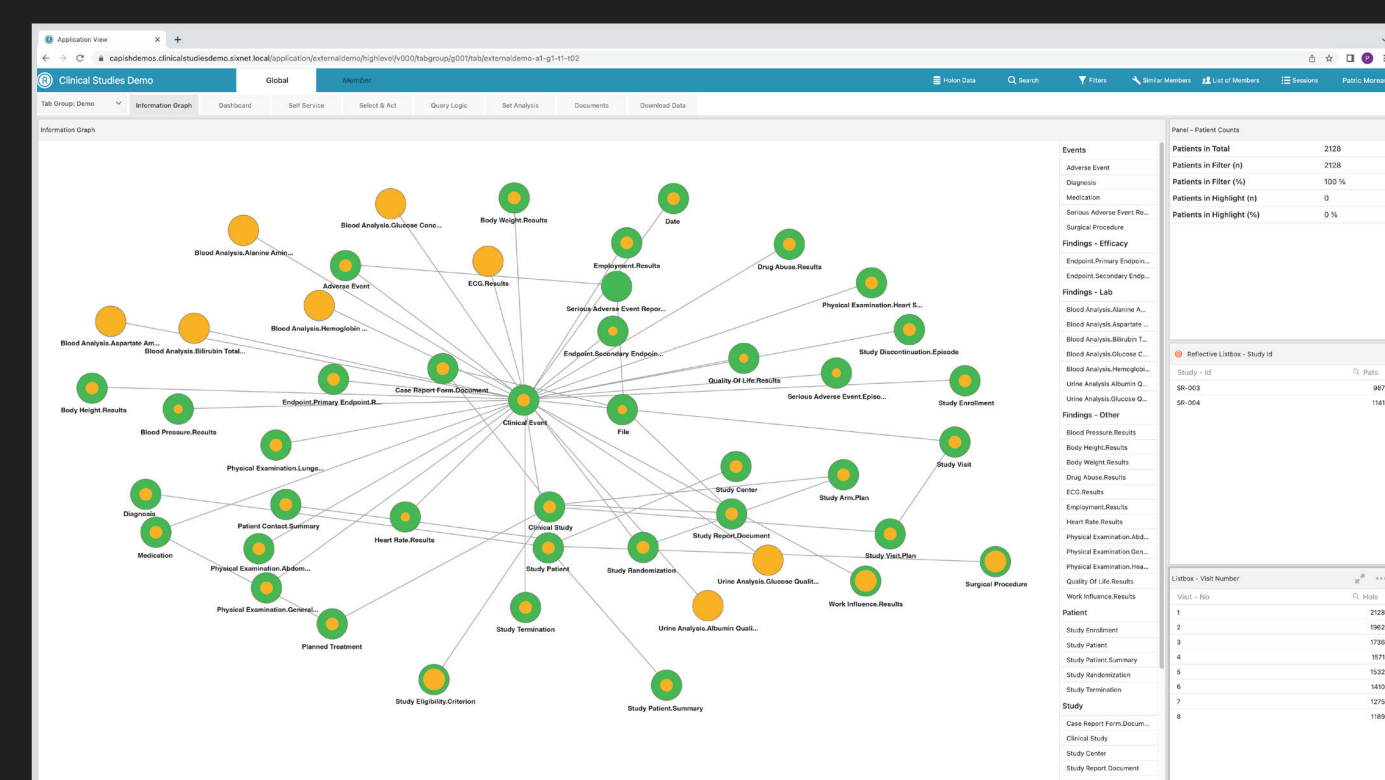


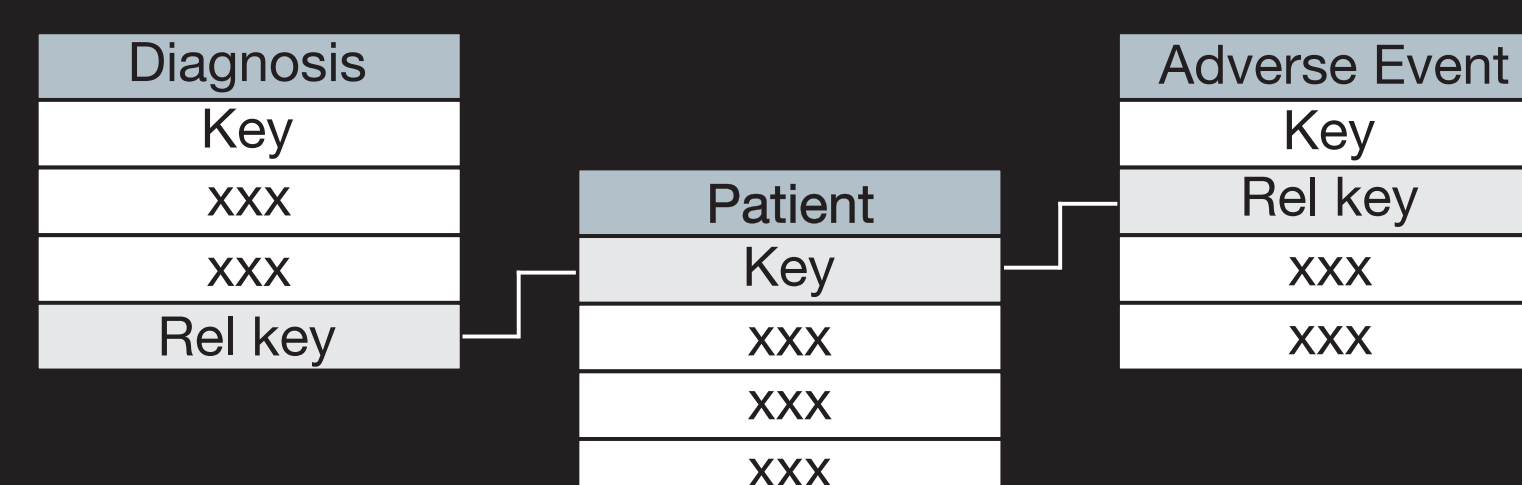
Clinical trials and medical data often have many dimensions, as they seek to represent and understand the complexities of biological processes. In such cases, graph databases can be a more effective option than relational databases for handling complex and unstructured data. With a powerful interface, graph databases allow users to take advantage of the latest data storage and retrieval technologies to easily run queries across the entire database, rather than just on particular tables.

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



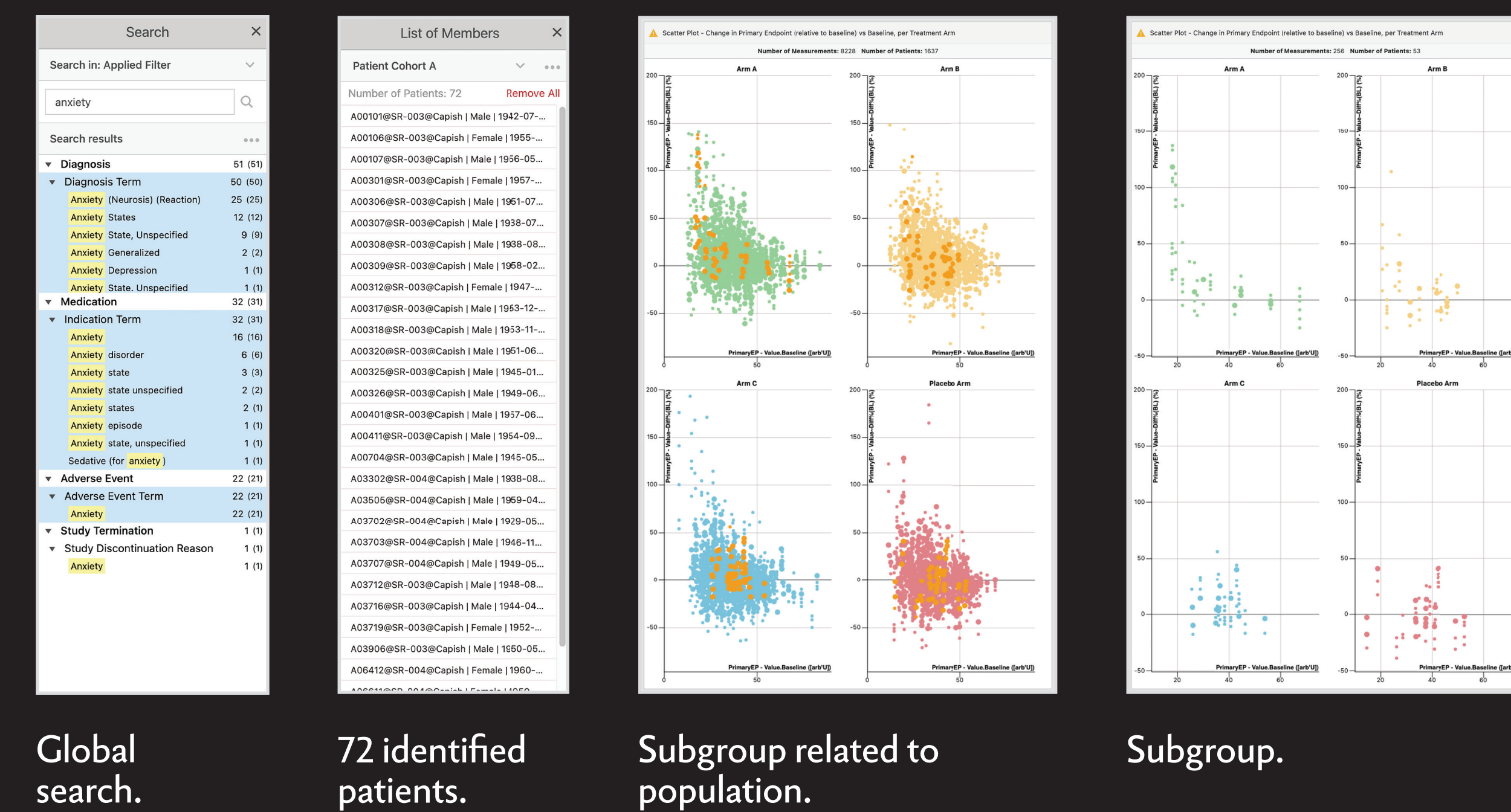
A relational database is a collection of tables of data arranged in rows and columns, each with a specific design called a schema. The schema must be carefully designed beforehand. To show connections between data, extra tables are added to the schema. If new relationships or elements need to be added,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

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.

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?



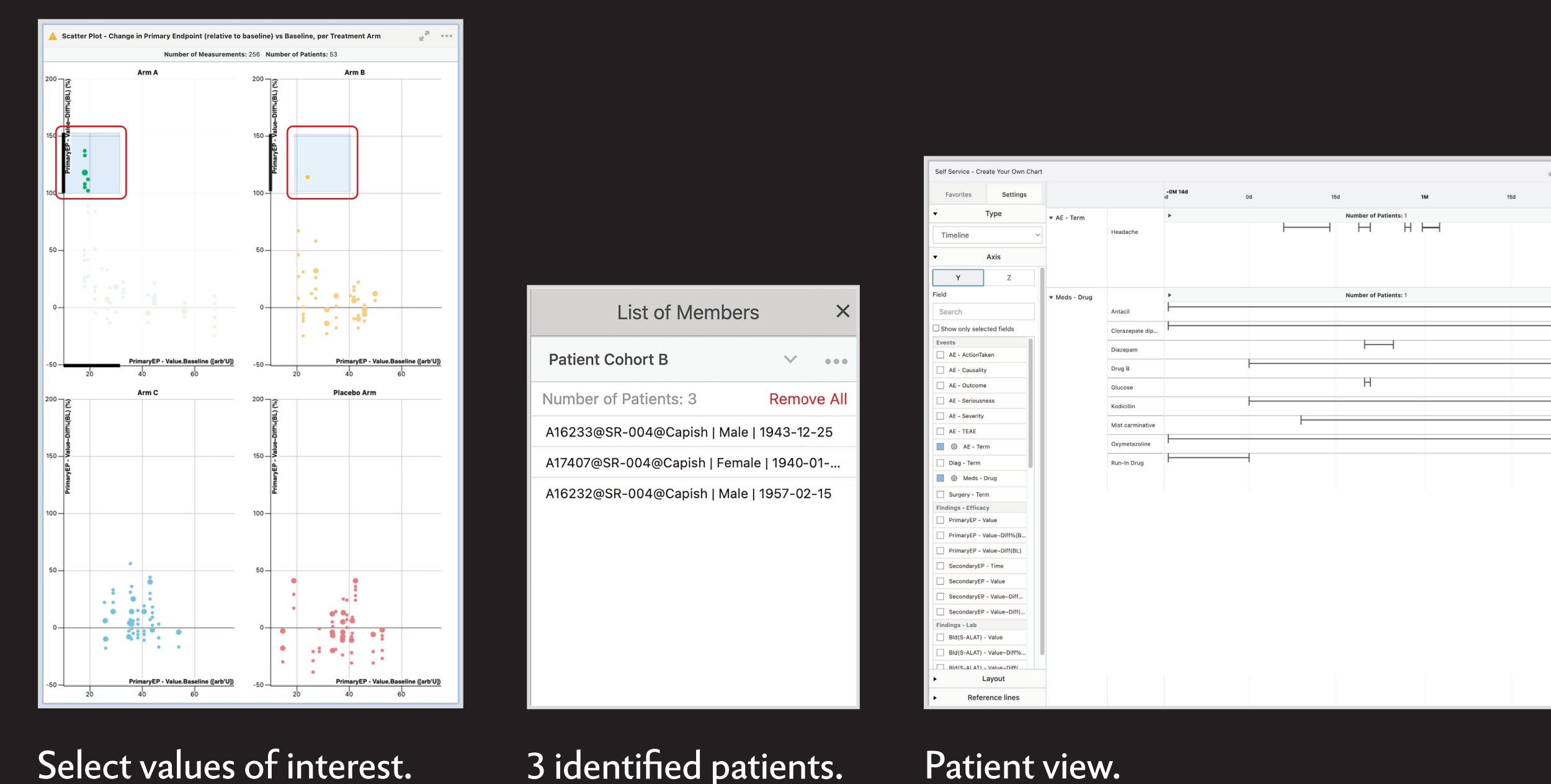
SUBGROUP

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?

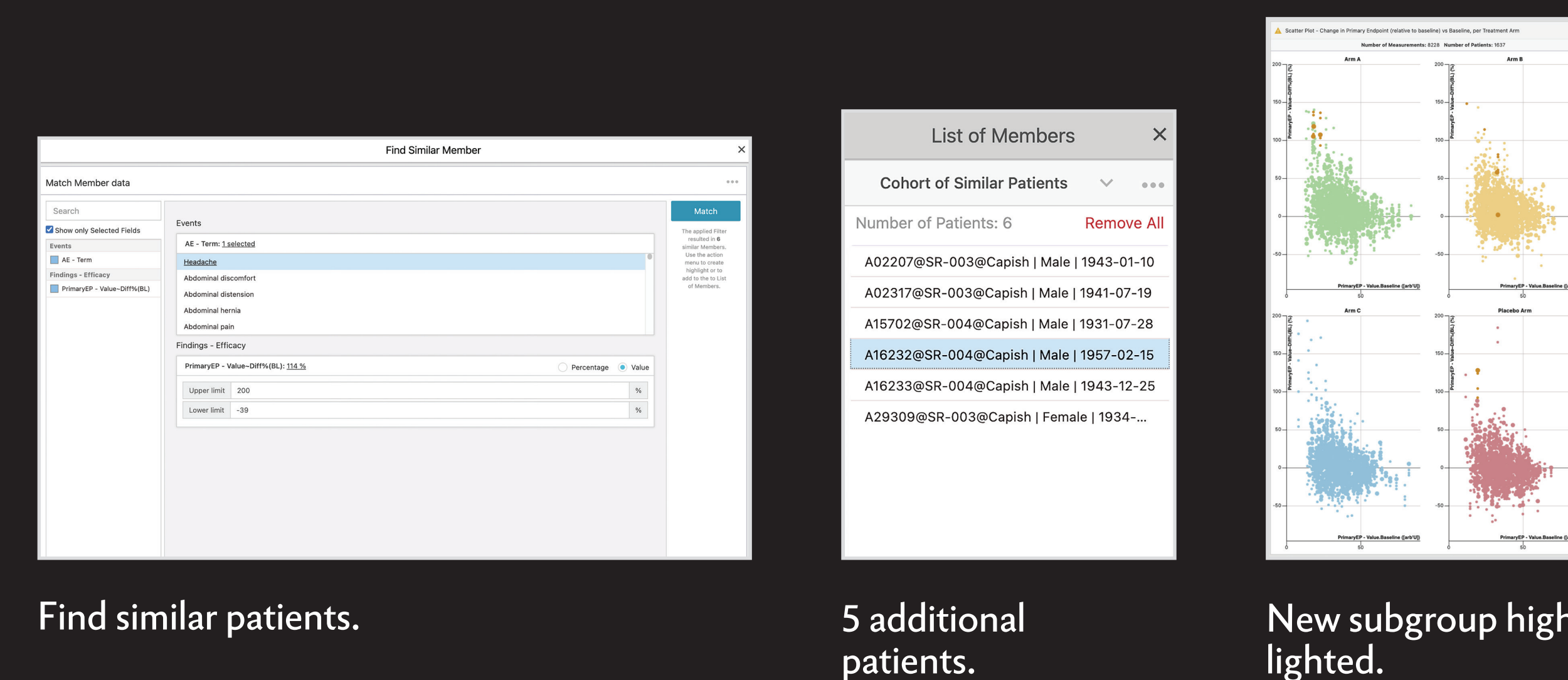
And when were they experienced in relation to medications received?



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?



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.

Conclusion

With a well-designed workflow, it is possible to easily gather a significant amount of information and discover new patients of interest. This is a prime example of how a graph database can be more efficient than a traditional relational database. It eliminates the need for complex joins and allows for more flexible searching capabilities. With this type of database, it is possible to quickly gain an overview of the data and create and explore subgroups, as well as search the entire database for specific patients or events.