

# Visualization and Analysis Platform in the Swedish Rheumatology Register for Real-Time Data Feedback

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## Introduction

The Swedish Rheumatology Quality register (SRQ) started in 1995 and is one of the largest register collecting data on rheumatoid arthritis and other rheumatic diseases in the world. The aim of the register has always been to support health care along with collect data for research.

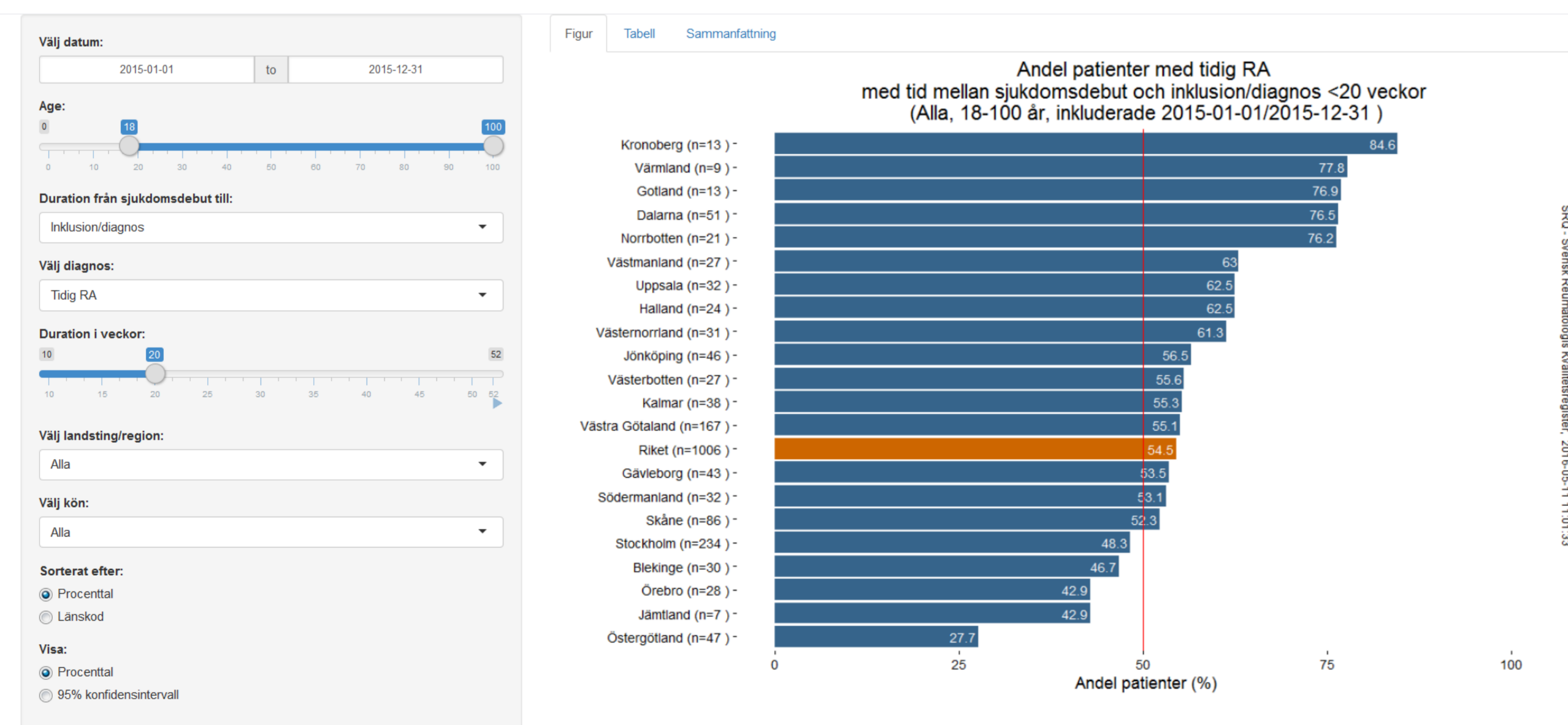
## Objectives

To design and implement a tool connected to the SRQ that allows users to monitoring their local data and results of care in comparison to national data.

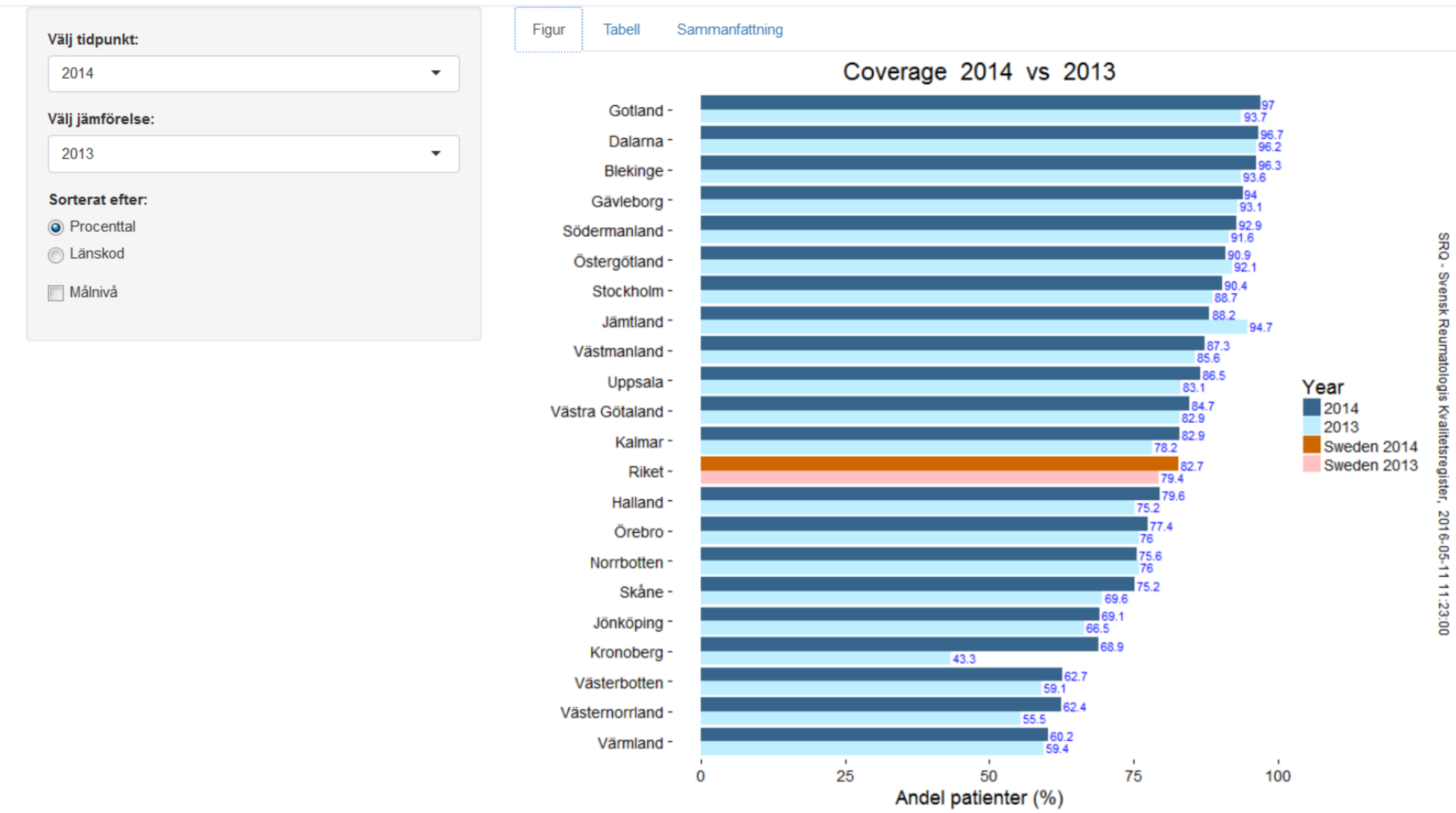
## Method

We designed a Visualization and Analysis Platform (VAP) based on R language, using the web framework of Shiny (© RStudio, Inc.). The platform is based on predefined types of analyses such as flexible tabular presentations, cross-sectional and longitudinal comparisons. A user interface with reactive programming was implemented to control the appearance of interactive graphs and tables, and to explore the changes in outcome measures.

**Figure 1.** Percentage of patients with Early RA with less than 20 weeks between disease onset and diagnosis. Filters includes time period, age, diagnosis, duration, gender and visualization options. The red vertical line is the indicator goal.



**Figure 2.** SRQ coverage



## Results

A web-based platform for live visualization of data was developed and linked to the SRQ, a register containing ca. 75,000 patients and 500,000 registered visits, as long as 60,000 prescriptions of biological treatments. The users are able to control the specifics of the data analysis using a flexible interface, and it can visualize the results in a graph as long as in a table, that can easily be download. An explanation of the graph is included (sammanfattning), to support the users in the understanding of what is represented. The VAP tool has been used to visualize data on the so called Open Comparison diagrams, 5 quality indicators that have been discussed at national level and that have been used to evaluate performances of care across counties in Sweden.

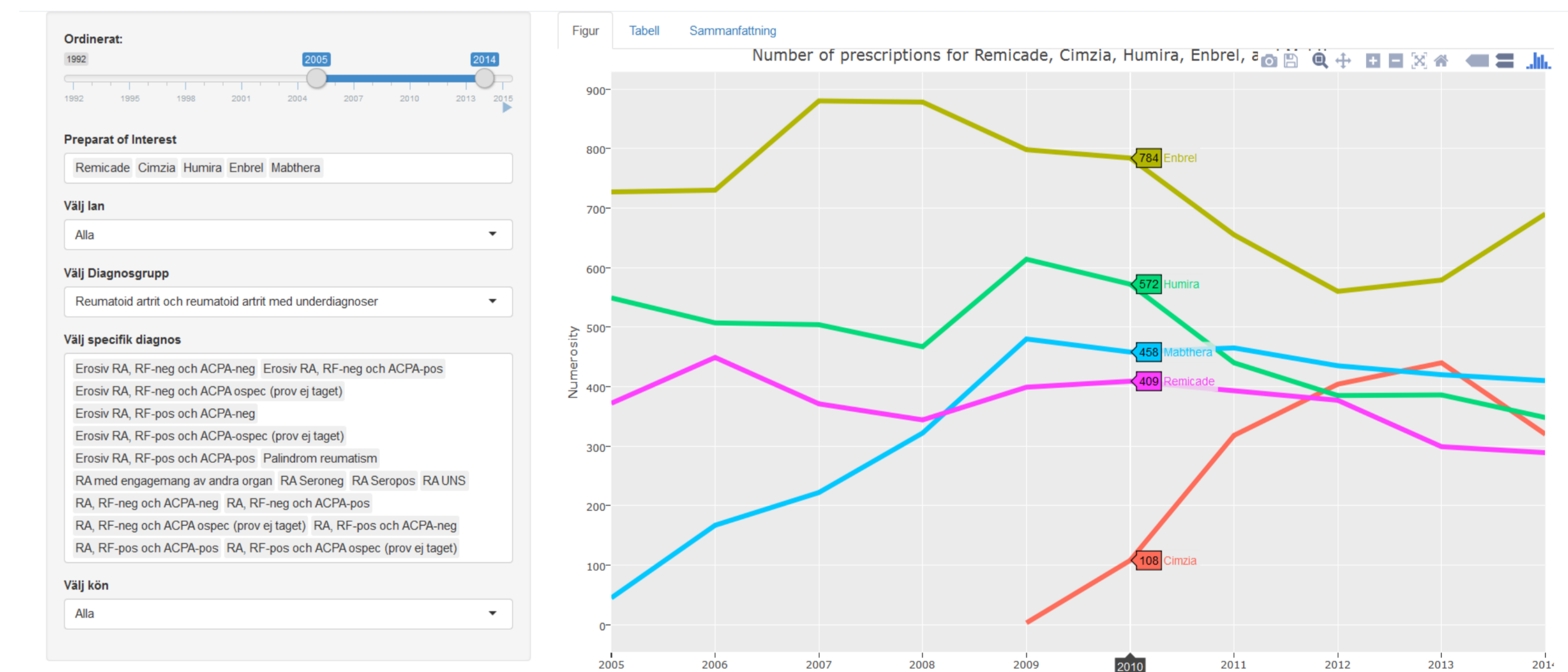


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## Conclusions

The VAP is a flexible tool for visualization and analysis of real-time data and it is aimed to satisfy the growing request by clinicians, patients, researchers, care providers and pharma companies on rheumatology data. Moreover, the VAP tool by its nature allows the possibility of fast changes in this structure, following the changes in everyday rheumatology care in real-time.

**Figure 3.** Number of starts of biologics treatment between 2005 and 2014.



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