

Interactive Oncology Tumor Dashboard

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ABSTRACT

The tumor dashboard is an interactive and dynamic data visualization tool which allows the understanding of individual tumor time-course from oncology clinical data. This dashboard aims to facilitate both data exploration and data quality check by summarizing tumor information for each patient or group of patients. It displays the Sum of Longest Diameters (SLD), the Target Lesions (TL) and RECIST criteria, such as Overall Response (OR), Best Overall Response (BOR) and the appearance of new lesions. Graphical representation of this information is also available within the application for the entire population. Data and graphics are mutually linked which improve the user's interactivity. Depending on the project needs, the dashboard can be easily customized by adding new data or visualizations and those visualizations can be tailored with the graphical interface.

INTRODUCTION

Nowadays with clinical trials, pharmaceutical companies are collecting a massive amount of data. In oncology, a key element of those data is related to the tumor progression of each patient. All these collected information are usually summarized in one essential time-point such as the BOR, the Progression Free Survival (PFS) or the Duration of Response, in order to assess treatment efficacy and safety. However, it is important to understand all the different information needed to derive these time-points. The goal of this dashboard is to describe and interactively review the best way possible all the available data related to tumor growth in an individual and population level.

DATA

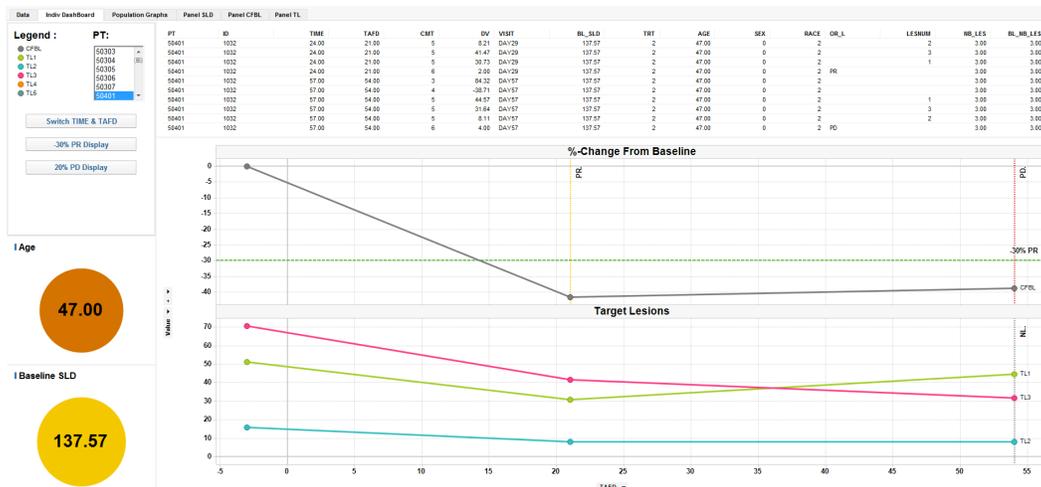
This dashboard uses a pooled dataset from different SDTM domains from clinical study data. The dataset structure is time dependent and each row represents a new event. Events can be defined as treatment dose, tumor measurement (TL which then are derived as SLD), appearance of new lesion, OR assessment, etc.

INDIVIDUAL VIZUALISATION

The first page of the dashboard focuses on visualization of single patient data. The list of all available Patient ID allows selecting different patients one by one. Once a patient is selected, the tumor related information for the patient is automatically displayed through different layouts (graphics, table, patient baseline information).

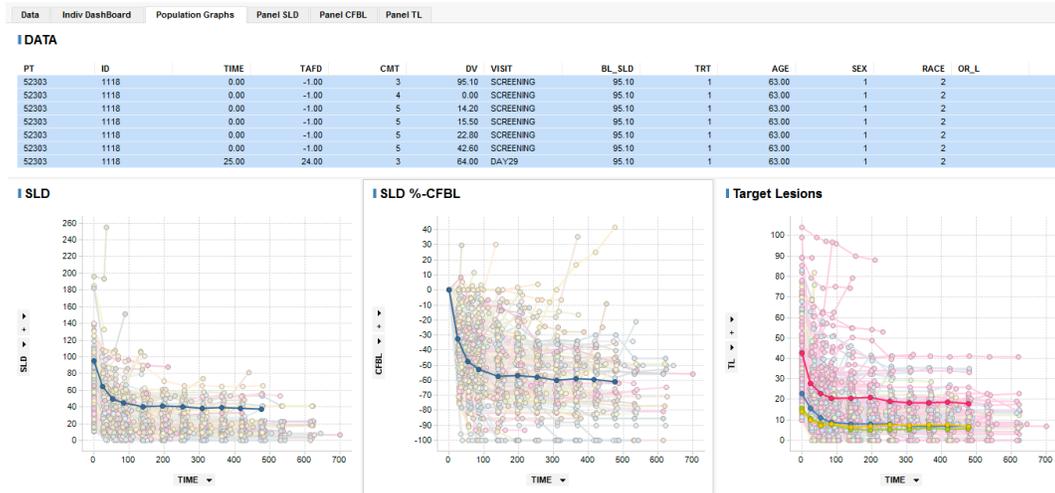
The user can interact with the visualization on the top left part. Baseline covariates are displayed on the bottom left part. The top right part shows the data of the selected patient and the bottom part is the graphical time-course of the tumor data available for this patient. The graphic is divided in 2 parts:

- SLD %-Change from Baseline with color coded vertical lines for OR
- Different target lesions with vertical lines for new lesions



POPULATION VIZUALISATION

The dashboard contains a page second focusing on the entire studied population where the user can interact with the dashboard to highlight a specific patient through different graphs and compare his profiles to the population trend.



CONCLUSION

This dashboard uses oncology clinical data to display and visualize interactively individual and population tumor data. It is a nice and user-friendly tool which helps the data exploration.

The next step would be to add new elements to the visualization such as non-measurable tumor information, the different method of identification, CNS BOR, pharmacokinetic (PK) exposure etc. and to allow a complete customization of the graphics generated.

RECOMMENDED READING

E.A. Eisenhauer, P. Therasse, J. Bogaerts et al., New response evaluation criteria in solid tumours: Revised RECIST guideline (version 1.1), 2009

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