MicroStrategy user manual

General guide to the use of MicroStrategy in the EBMT Registry

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EBMT Registry

EBMT Clinical Research & Registry Department

Table of Contents

Version history

Version	Release date	Updates
v1.0	May 24th, 2024	First version release
v2.0	September 9th, 2024	- Updated information about MicroStrategy library - Information about using reports added - Updated 'troubleshooting' section
v3.0	January 10, 2025	- Updated introduction - Updated images - Added chapter on using visualisations - Updated 'troubleshooting' section

Introduction

MicroStrategy is a software aimed at enabling data access for the users of the EBMT Registry. Every EBMT Registry user will automatically obtain access to MicroStrategy. The MicroStrategy library is customised for each user based on the scope of data (context) the user has access to. In principle, all data from the context a user has access to can be seen and exported. As a result, MicroStrategy serves as a point to extract data from the EBMT Registry, and it is not a tool designed to allow users to create their own reports and subsets of data.

MicroStrategy has a library to access the data. There is an item (report or data table) for every event that can be added to a patient. Next to that, there are items that have different data points combined such as a HLA specific report, or Graft versus Host Diseases specific report. The library is being updated with new reports regularly.

There might be cases where specific data is required which is not available as a predefined report. In these cases, different items need to be combined. This requires downloading the required data and processing it on a local computer. To do this, certain technical skills such as combining datasets in R, SQL, SPSS or another software of choice are essential. The EBMT Registry team will always be happy to support or to provide such datasets. Reach out to the EBMT Helpdesk (registryhelpdesk@ebmt.org) for more information. Every report that was made by the EBMT Registry team has patient identifiers (long ID, short ID, date of birth, UPN, centre) included with the objective of maximising the usability of the different data sets. The UPN is not in the following reports, and will not be added in the future:

- Long format reports (i.e. the reports per event type)
- OMOP tables
- Data dictionary

While reading this document, it is important to keep in mind that MicroStrategy will automatically adopt the language of your internet browser. For example, if you have your internet browser in French, every menu will appear in French. For the sake of this manual, the screenshots are in English. The language might be different depending on your internet settings. The order of the options in the menu will stay the same.

Reminder: MicroStrategy analytical tool provides access to and enables extraction of sensitive data, thus users are reminded that all possible security measures should be taken to avoid unauthorised access to the data. All users of the EBMT Registry must comply with the EBMT Registry Conditions of Use, Data Protections laws in existence in each individual country, and the General Data Protection Regulations (GDPR 2016/679). Please visit the EBMT website for more information on Data privacy and the EBMT Registry Conditions of Use.

Please note: due to overnight processes, MicroStrategy is not accessible between 20.00 PM and 06.00 AM CET.

How to access

MicroStrategy can be accessed after logging into the EBMT Registry.

1. Click the button MicroStrategy in the EBMT Registry navigation menu (**image 1**), which will open a new tab in your web browser.

Image 1. MicroStrategy button in the EBMT Registry navigation menu

2. The MicroStrategy log-in (sign-in) page (image 2) is loaded in a new browser tab. Click ***Log in with OIDC*** button
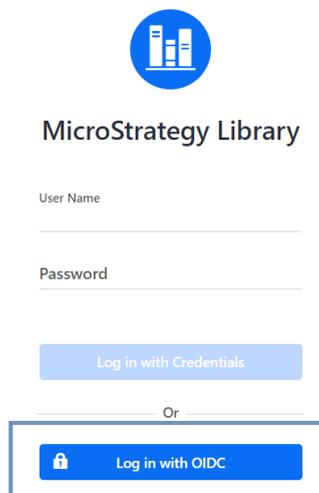
Image 2. Login page for MicroStrategy

The MicroStrategy interface and navigation

After logging in, users will see the MicroStrategy library with grid view by default.

Image 3. example of a MicroStrategy library shown in the grid (gallery) view.

In the top bar, there are multiple options to organise the library:

Image 4. MicroStrategy library navigation bar

Number	Function
1	Button to open the MicroStrategy sidebar, where you can quickly go to your recently viewed items or favourites
2	Button to switch from the grid (gallery) view to list view.
3	Offers different sorting options for viewing the contents of the library, such as sorting by date updated, date viewed, etc.
4	Filter icon to filter down on the contents of the library.
5	Search bar to find a specific item in the MicroStrategy library. The filter searches in names of tables or reports, and in column names inside tables and reports
6	Multi-select button to select multiple items at a time. Note that this only works in the grid

	view. In the list view, multiple items can be selected by ticking tick boxes
7	Account button. Here users can change the default language for navigating MicroStrategy or timezone. The accounts are managed by EBMT.

The library contains all **reports** and **data tables** the user has access to. For users with access to multiple contexts in the EBMT Registry, the library will include combined reports and data tables. They can be further filtered if it is required to separate data per CIC.

- A **data table** is a standard table with data (e.g. the patient data table) that can be reviewed or downloaded for future processing. An example of a data table and its icon can be found in **image 5**.

Image 5. Example of a data table and the icon

- A **report** is a combination of a data table and figures, such as histograms (e.g. Status at treatment, HCT Day 100 FU). An example of a report and its icon can be found in **image 6.**
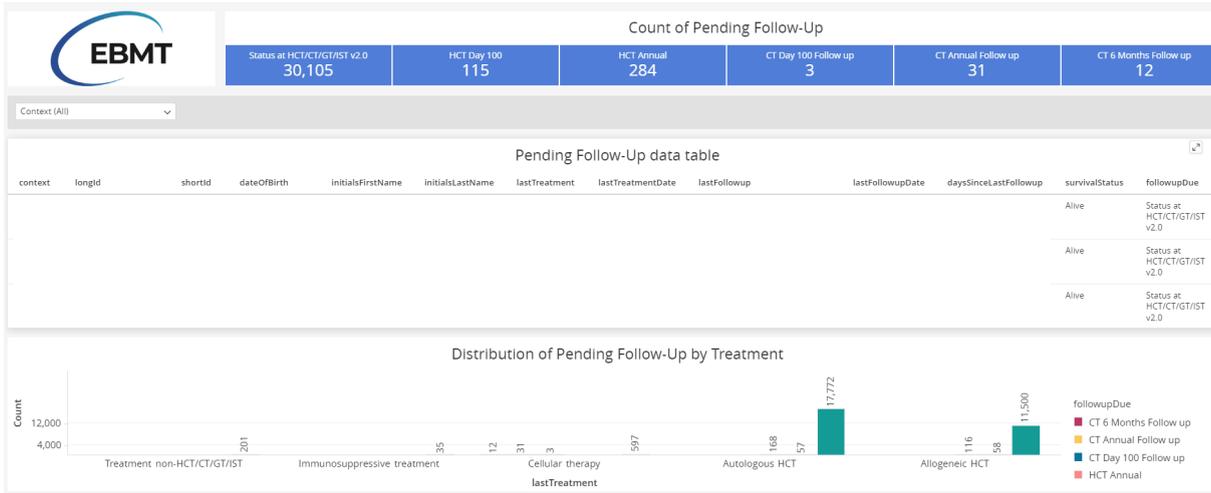
Image 6. Example of a report and the icon

Note: for every event in the EBMT Registry, there is a report available. Every report comes with an introduction page that you can access via the chapter button (see figure 13).

Exploring the library

The content of the library (set of reports and data tables) is managed by the EBMT Registry IT team. The data inside the reports and data tables is refreshed every night. The library is a work in progress; the EBMT Registry team regularly adds new tables or reports based on user requests.

Reminder: there is up to 24 hours delay between the moment the data is registered in the EBMT Registry online application and the moment it is reflected in the MicroStrategy library.

A table or report is represented by a square (grid view, image 7) or row (list view, image 8) in the library.

Image 7. Grid view of items in MicroStrategy.

Image 8. List view of items in MicroStrategy.

In grid view, pressing the ⓘ (information icon, number 3 in **image 9**) will show more quick actions with the item. In the list view the same result can be achieved by putting the cursor on the report without clicking (**image 10**).
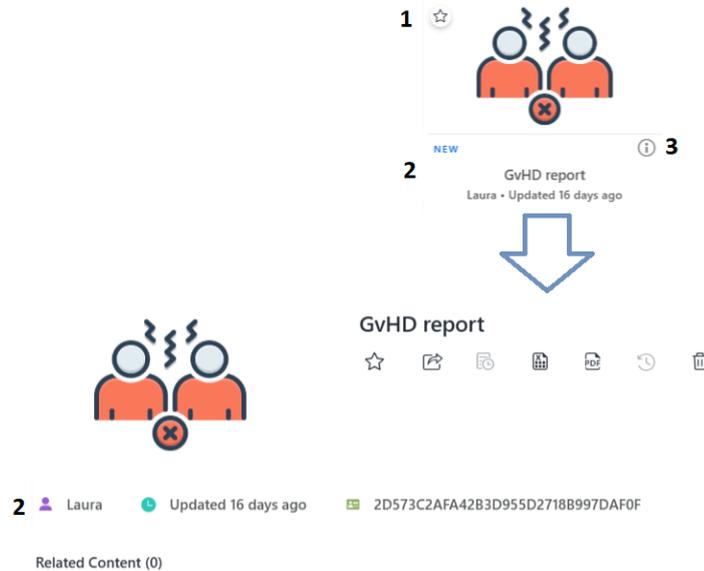
Image 9. Example of a report in grid view (top) and view after clicking the ⓘ (information) icon (bottom).

Name ↓A z		Certified	Owner	Date Updated					
Registry	BMF report		Ignacio	23 hours ago					

Name ↓A z		Certified	Owner	Date Updated					
Registry	BMF report **2**		Ignacio	23 hours ago	ⓘ	↗	PDF	↺	☆
					3	**4**	**6**	**7**	**1**
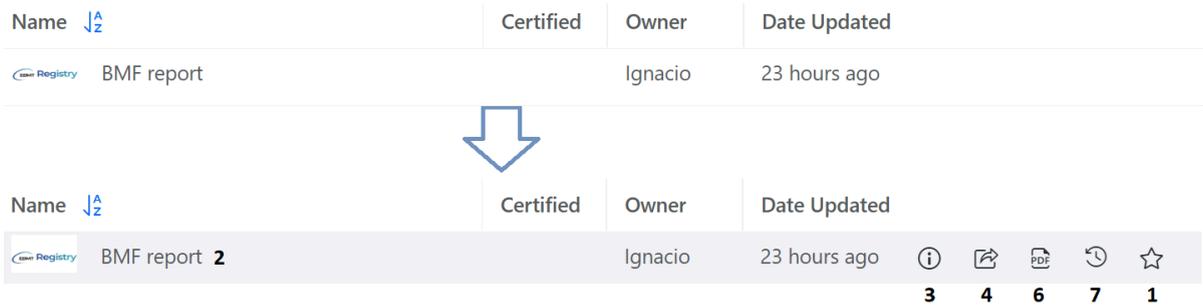
Image 10. List view of a report (top) and item options in list view after putting the cursor on the report (bottom).

Both views make use of the same icon sets:

Number	Function
1 ☆	Star button to add the report or table to your favourites. This functionality is useful when more items are released by the registry team.
2 ◆	Information about the item you are looking at: the title; creator, and date you last viewed the item
3 ⓘ	Button to make more information as in number 2 visible.
4 ↗	Share button. This allows you to send the table or dossier to a colleague as an email attachment or via a link. This only works with people that also have an EBMT Registry account.
5 📊	Button to export the item into an Excel file without having to open it first
6 PDF	Button to export the item into a PDF file without having to open it first
7 ↺	Reset button, this will remove all applied filters
8 🗑	Delete button, this will delete the item from your overview. If you delete an item but want to re-access, you will have to contact the helpdesk to ask to re-share. **For this reason, we recommend not pressing the delete button.**

Checking out reports

Once you have opened one of the available reports, you will see multiple things. The contents of the report vary, but every report will have the following sections:

- Number of patients, representing the total number of patients in the reports that make up this report

- A data table, with all the data with regard to the topic of the report in your context of the EBMT Registry according to the context of your login credentials. The width of each column can be adjusted, if needed.

- Data visualisations, depending on the reports you opened, can be circle diagrams, line charts or bar charts giving quick overviews of the data in the report. Putting the mouse on a chunk of the pie chart or on one of the bars in the bar chart will show more information about the subcategory. The visualisations can be found in the data table chapter.
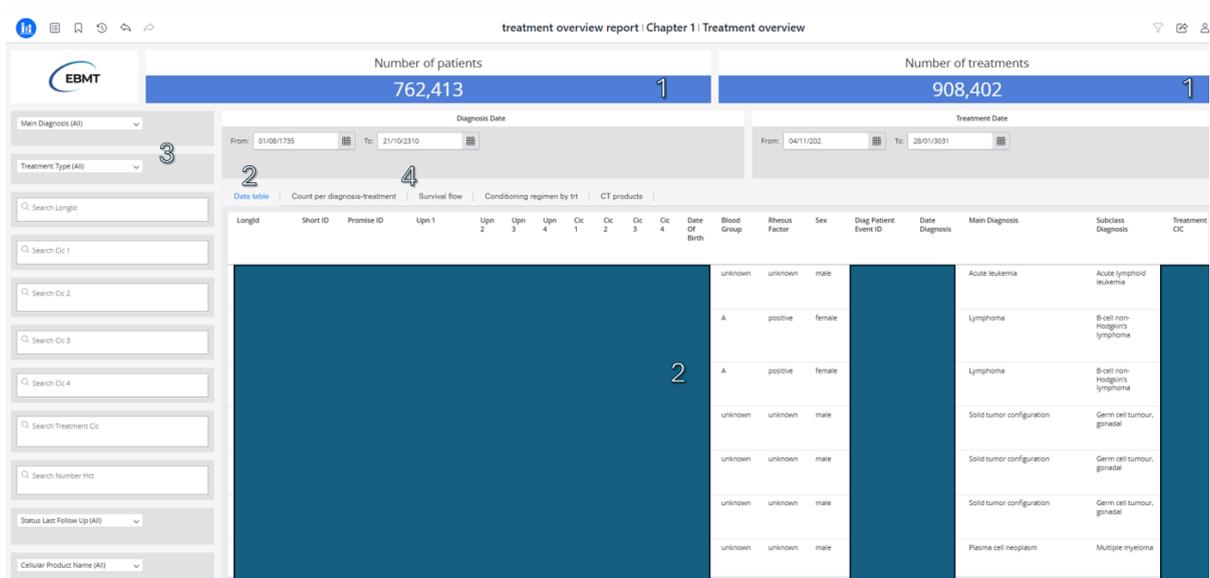
Image 11. Example of a report in MicroStrategy with a patient and treatment count (1), data table (2), filter options (3) and visualisations (4).

Each of these sections can be made bigger or smaller, using the arrows icon ⤢ that appears on the right upper corner of the report section (image 12) after hovering the mouse on it.

There is also shown a menu icon ⋮ that allows data of this section to be exported, or to view and export the data that generated the visualisation. Please note, that here the icon only appears when the user moves the mouse arrow within a report section to the top right corner.
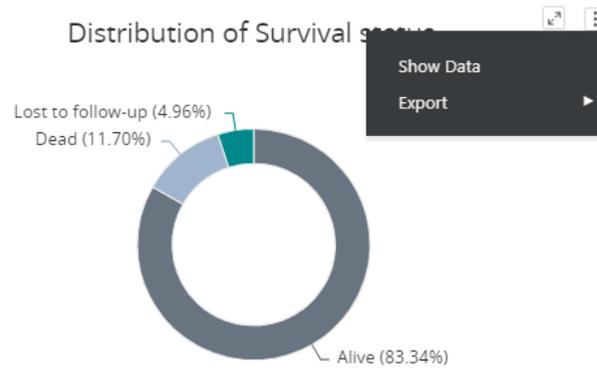
Image 12. Close up of a visualisation in MicroStrategy.

In the upper bar of the report, different functionalities can be applied (figure 13).

Image 13. Functionalities in the menu bar in a MicroStrategy report.

Number	Function
1	Button to bring you back to the MicroStrategy library overview
2	Shows the table of contents for the report. The table of contents can be used to navigate from the information to the report itself and vice versa. Reports that combine data from different events, such as "treatment overview", start with a page with background information about the data in the report.
3	Bookmarks button, to quickly access parts of reports
4	Reset button to remove any filters you may have applied
5	Undo button to revert changes
6	Redo button to repeat an action

Above the data table, you can find different options to customise or filter the data in the report. At the top, there is a filter to adjust the time period for the data in the table (1 in **image 14**). This way you can limit the results to only the period you are interested in. Below that (2 in **image 14**) you can filter down on contexts, if you have access to multiple contexts in the EBMT Registry.

Image 14. Functionalities to filter in the reports in MicroStrategy.

The filters or searches that you apply here, will be applied to all data in the report. This might result in the visualisations not being generated anymore, for example if you make a filter that does not cover any of the patients in the visualisation.

Viewing and organising data in data tables and in reports

Right-clicking in the headers of the data table area of the report will allow you to perform different actions (**image 15**):
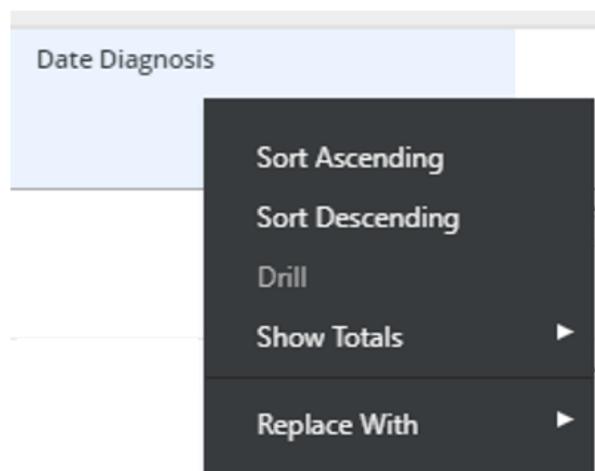
Image 15. Dropdown menu for options in data tables and reports.

- **Sort Ascending**: sorts the table based on the values in this column, from smallest to largest

- **Sort Descending**: sorts the table based on the values in this column, from largest to smallest

- **Show Totals**: this functionality is not applicable for reports in the EBMT Registry environment.

- **Replace With**: this allows you to change the order of columns in the table, by replacing one with another. If the data table has hidden columns (columns that are added, but not visible in the table), these will also appear. Hidden columns are columns that are for example used by the IT

team to generate the report, or are hidden in smaller versions of certain reports (such as the 'Reduced treatment overview').

Right clicking in any of the cells in the data table will give you the following options (**image 16**):
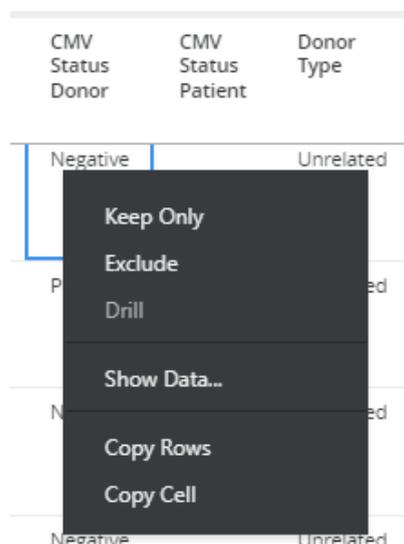
Image 16. Dropdown menu for options in cells in data tables.

- **Keep only**: filters the data table on all rows that have an identical value in the cell you selected. For example, if you select a cell in the diagnosis date column, right click and press 'keep only', only the rows in the table that have the same diagnosis date will stay. This can be used for filtering on certain treatments, diagnoses or drugs inside the data table. You could also apply this to the longId column to filter on a specific patient.

  - The 'Keep only' conditions can be combined, for example you can 'keep only' on a diagnosis classification and then 'keep only' on a diagnosis date.

- **Exclude**: excludes all rows with the value that you selected to exclude. For example, if you select a subclassification of a diagnosis and press 'Exclude', all rows in the table with that subclassification will disappear.

  - The 'Exclude' conditions can be combined.

- **Show data**: shows you all data that meets the value of the cell you selected in a popup. For example, if you want to quickly only export patients with sickle cell disease from the haemoglobinopathies report, you right-click a cell with 'Sickle cell disease' as classification and you get a popup of all sickle cell patients and the option to export as Excel or PDF.

  - In the popup you can press 'Add data'. This only adds counts if said variables are available under the Metric; not actual data. However, by default, the only count available is a total count of all rows available in the data table. There may be cases where some variables

are available under this option. However, those are simply residual variables not used during the report creation. This button is not designed to add your own data to the existing tables or to combine different tables across dossiers in MicroStrategy.

- **Copy rows**: copies the data in this row and the column headers of the table.

- **Copy cell**: copies the content of the selected cell.

Right clicking in the visualisations will allow you to add trend lines, change grid lines, and to add a reference line (e.g. add the average).

Using visualisations

Most MicroStrategy reports have visualisations (**image 11**). Visualisations can be found in the data table chapter of the report. These visualisations are made by the Registry IT team and visible to all users. Besides providing a quick overview of the reported data, the visualisations can also be used for data analysis.

For all reports with visualisations, there is a 'Count per diagnosis' (by treatment, complication, etc. depending on the report), which is represented via a treemap chart. The treemap chart shows the proportion of a specific diagnosis per category, like in the example of **image 17** (taken from 'treatment overview report') the proportion of each diagnosis per treatment type. Every square represents the amount of a certain subdiagnosis treated with the treatment type that the area represents. All sizes are proportional to the number of times a certain diagnosis is registered as indication diagnosis for the treatment type.
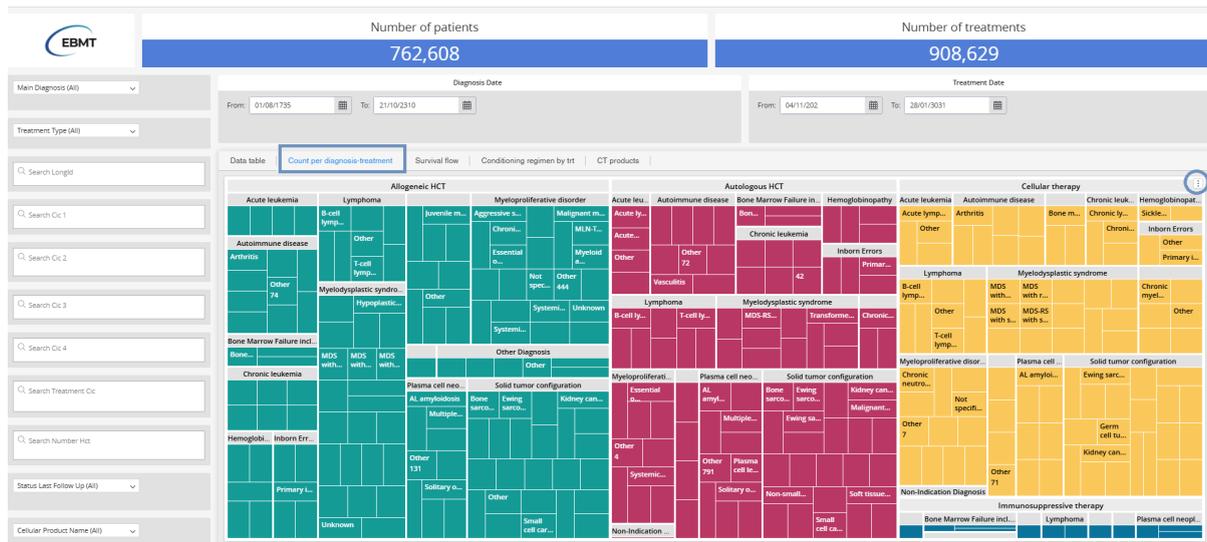
Image 17. Example of a treemap chart, taken from the treatment overview report.

The treemap chart can be useful to get a quick overview of the data reported by a centre. By pressing the menu icon ⋮ (circled in the right upper corner of **image 17**), 'Show data' can be clicked, which will provide a popup with for every treatment type, the diagnosis subclassification and the count of patients. This information can be exported in Excel, PDF or CSV format.

The Excel file will contain data organised in the following columns:

Treatment Type	Subclass Diagnosis	Main Diagnosis	count long ID

By filtering in the exported Excel file, one can easily get an overview of the amount of treatments performed, either in total or split per diagnosis.

Most reports made by the Registry IT team also include a **Sankey diagram**. A Sankey diagram provides an overview of how data is connected. For example, in the treatment overview report, the Sankey diagram shows the flow from diagnosis to treatment, and from treatment to survival status (**image 18**). The data behind the visualisation can be exported using the menu icon ⋮ (same steps as described above for the treemap chart data export).
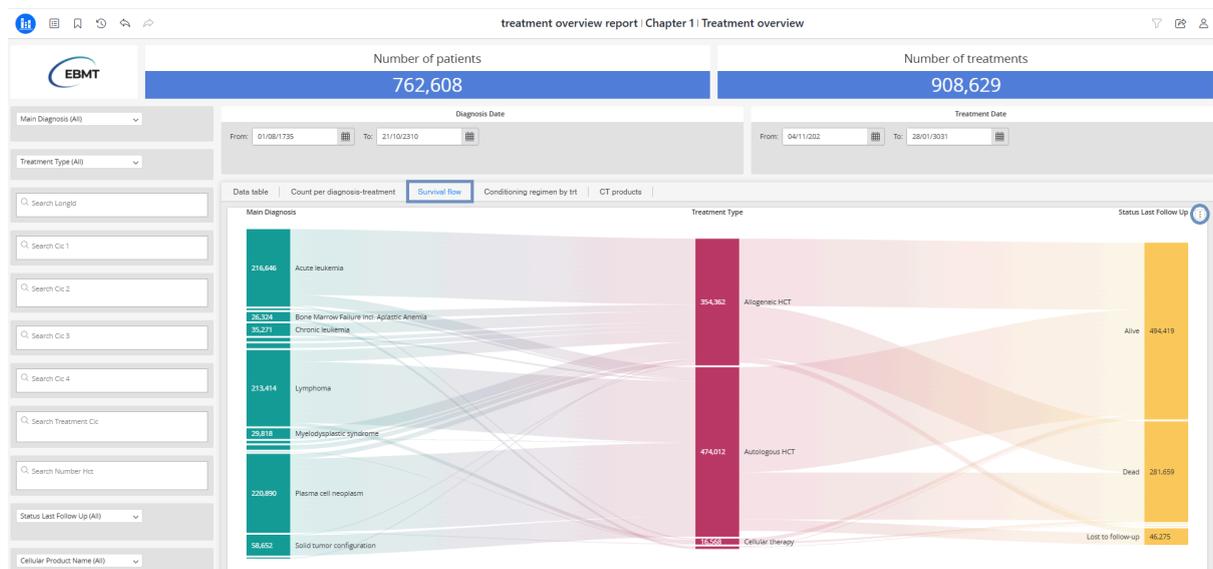
Image 18. Example of a Sankey diagram, taken from the treatment overview report.

The other visualisations in MicroStrategy reports vary, to keep the visualisation relevant for the data that is being presented. Users can find bar charts, histograms and circle diagrams. In the future, new shapes to present data may be added.

Troubleshooting

The data I just entered is not visible yet

Keep in mind that changes in permissions or new users can take up to 24 hours to be refreshed in MicroStrategy. As a result, a new user of the EBMT Registry will not have access to the tool until the following working day. Additionally, data that is added during a workday will not appear in MicroStrategy immediately.

> *What to do?* Please refresh the web page. If the problem persists, please try to access the report or data table the next day. If the error persists for more than a day, please contact the Registry Helpdesk team.

"Server error" appears

If MicroStrategy overnight update is not over, the users will see the Authentication error while trying to access the MicroStrategy tool. This error may also appear in relation to connection (internet) issues.
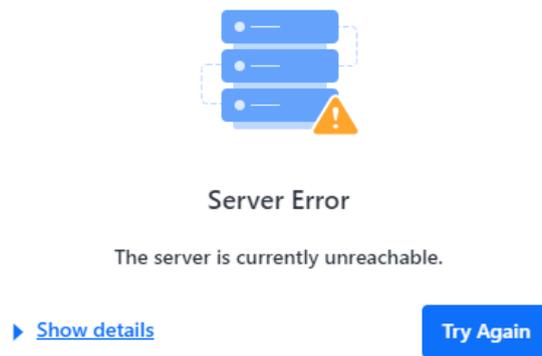
Image 19. Example of an error that might appear in MicroStrategy if the system is being updated with new data.

> *What to do?* Please try to enter MicroStrategy at a later moment. Once the overnight update is complete, MicroStrategy becomes accessible automatically. If the error persists for more than a day, please contact the Registry Helpdesk team.

The dates in the date filter have an odd format

If the dates in the date filter as shown in **image 14** have an unusual format (for example, MM-DD-YYYY), this is due to configurations in MicroStrategy based on your internet browser settings. The system applies these configurations by itself. The filter format is displayed in the default date format of the language of the internet browser used to open the library of MicroStrategy.

What to do? Go to your browser settings. In Google Chrome, this is on the right upper corner of the window (icon: ⋮), select "Settings", go to "Languages" in the left menu, and select English (United Kingdom) as first option and **not** English (United States).

In Windows Edge, the settings can also be found in the menu (icon: ⋯) on the right upper corner of the window. Go to "Settings", and to "Languages" in the menu on the left. Select English (United Kingdom) as first option and **not** English (United States).

That change should be sufficient and after re-opening the browser, MicroStrategy should display the correct format. Keep in mind different languages will have different default configurations which may affect the date format displayed in the filters.

The short patient IDs in export my export are different from those in the EBMT Registry

The shortIDs are generated randomly in hexadecimal format. This means that its values per character can take the form of: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F. This format is correct upon export, and it's then misinterpreted by the software used to open the file, like Excel. This is solved by forcing the format of this column in Excel (or other software) into a string type.

I cannot find the UPN in the report

Not all reports have the patient UPN. This is because of the data used for the creation of the reports. The UPN is not in the following reports, and will not be added in the future:

- Long format reports (i.e. the reports per event type)
- OMOP tables
- Data dictionary