



D24-53266

OrgTRx Standard Operating Procedure

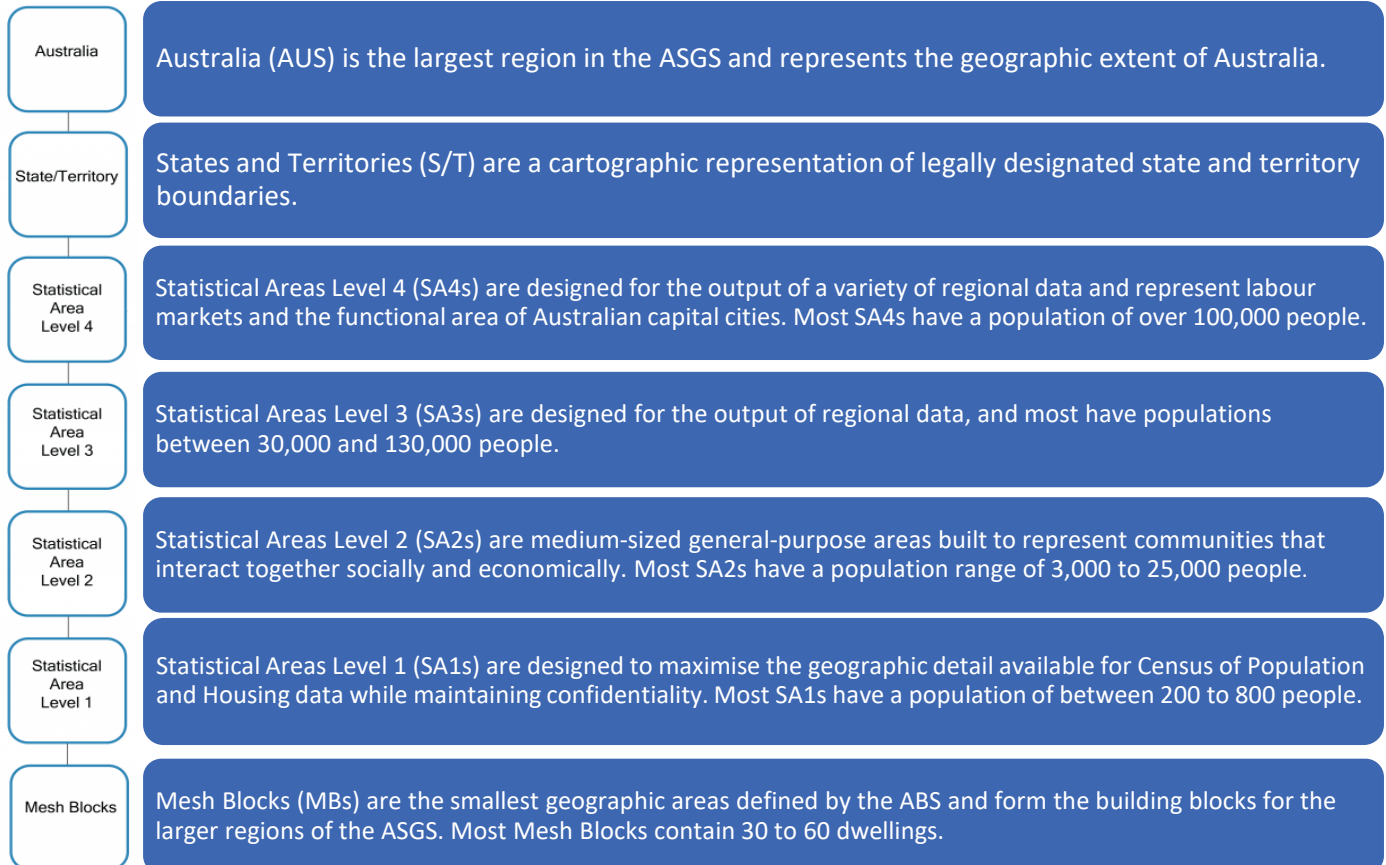
How to use the Statistical Area (SA) Geoanalytics Dashboard in OrgTRx

General

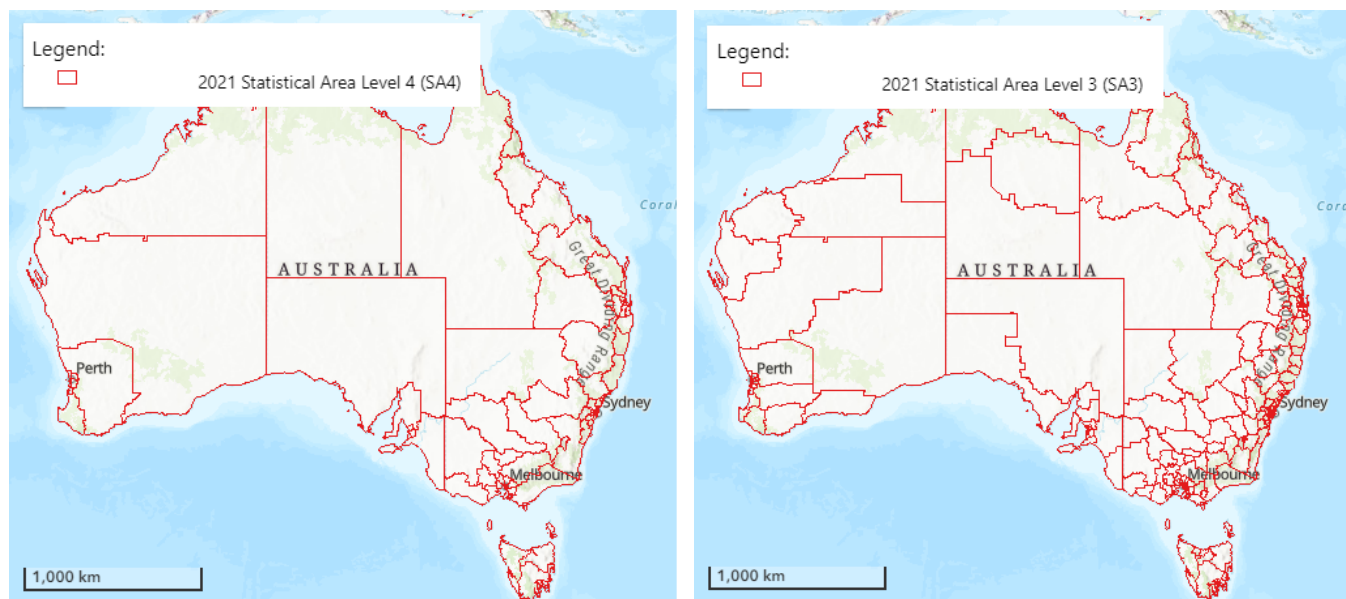
This Standard Operating Procedure provides instructions for OrgTRx users on using the Statistical Area (SA) Geoanalytics Dashboard. This module provides in-depth breakdown of antimicrobial resistance for selected organisms, in reference to geospatial mapping. It uses the Australian Statistical Geography Standard (ASGS) to categorise geographical locations into statistical areas, to provide de-identified location-based analysis of national antimicrobial resistance.

Statistical Area Mapping Methodology

The Main Structure is developed by the Australian Bureau of Statistics (ABS) and is used to release and analyse a broad range of social, demographic, and economic statistics. It is a nested hierarchy of geographies, with each level directly aggregating to the next level.



Below is a graphical display showing the differentiation between SA4 and SA3 borders in Australia.



[ABS Maps | Australian Bureau of Statistics](#) 2021 Statistical Area Geoanalytics Data

Accessing the Dashboard

The Statistical Area Geoanalytics dashboard is found with the following file trail: *Public Dashboards > OrgTRx – Antimicrobial Stewardship > Geoanalytics > Statistical Area Geoanalytics*, as seen in **Figure 1(A)**.

NOTE: This dashboard contains a large amount of graphical information and can be slow to load. When opened, the following display appears (as seen in **Figure 1**).

Figure 1: Statistical Area Geoanalytics dashboard

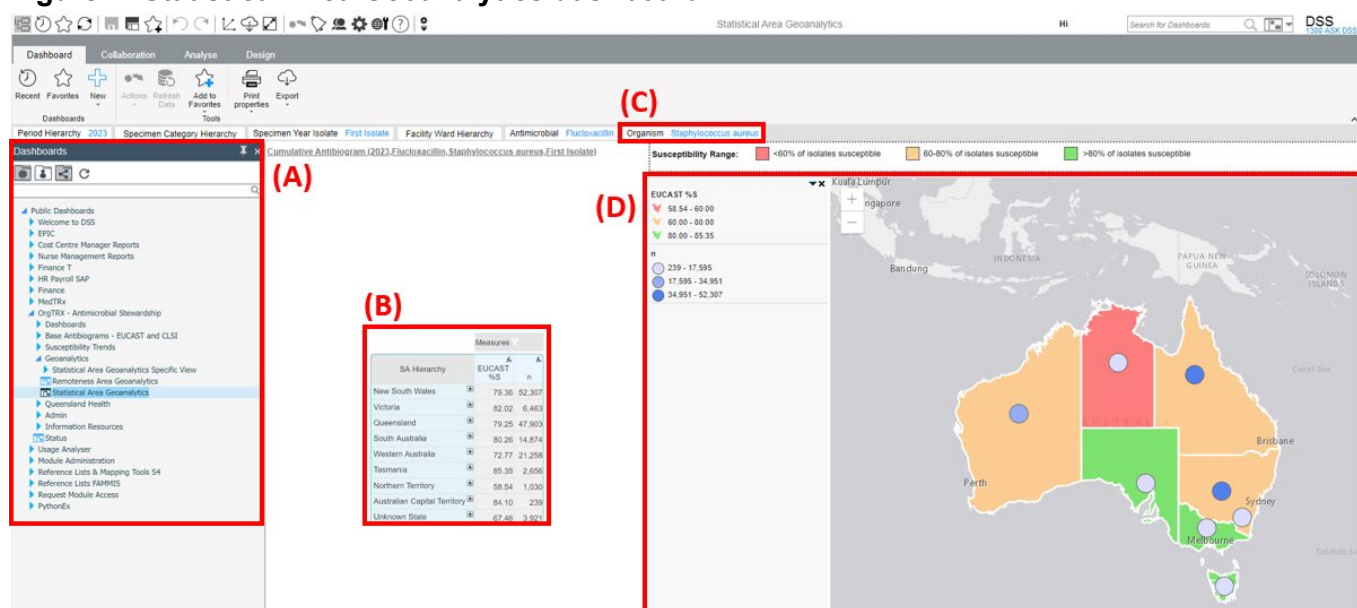


Figure 1A: Public dashboard navigation pane. Figure 1B: Data table. Figure 1C: Slicer menu – Organism option. Figure 1D: Graphical map display.

About the Dashboards

The geospatial dashboard displays data by converting patient postcode into statistical area (SA) to provide a location-based analysis of antimicrobial resistance trends. Jurisdictions can only view information which was submitted by facilities where the data was contributed to OrgTRx.

For example: A patient resides in Queensland but presents at The Royal Adelaide Hospital - the data will only be viewable to user who have access to The Royal Adelaide Hospital data.

The display consists of two main panels – the data table (**Figure 1B**), and the graphical map display (**Figure 1D**). The data table numerically displays the data counts (n), and the corresponding EUCAST susceptibility percentage (EUCAST %S). The graphical map display represents the number of data counts as a circle, with the colour scaling from light blue (fewer data points) to dark blue (many data points). These circles represent the number of isolates captured by all parameters as determined by the slicers.

The EUCAST %S is scaled in the same format as all other antibiograms on OrgTRx, with <60% as red, 60-80% as yellow, and >80% as green. Its boundaries are outlined in accordance with the ASGS statistical area structure as described above in Statistical Area Mapping Methodology. Data are only included where there were at least 30 isolates for each analysis.

The dashboard in its current state uses the following options to filter available in the slicer menu:

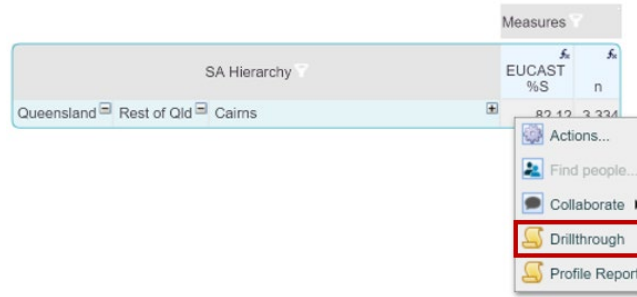
- **Period Hierarchy:** Used to filter period of testing dates. Can be adjusted from days to years. Hold *shift-left click* to select a timeframe.
- **Specimen Category Hierarchy:** A multi-level specimen category hierarchy which can be used to filter between all specimen categories, all excluding infection control screens, infection control screens only, or expanded to select only a specific specimen category.
- **Specimen Year Isolate:** This filter is used to describe whether samples are to include only the first isolation from a patient per year (first isolate) or all isolations from each patient (remaining isolates).
- **Facility Ward Hierarchy:** A multi-level facility ward hierarchy moving from Jurisdiction > District > Facility > Sub Facility > Ward.

NOTE: For this dashboard, the facility ward hierarchy filters for centre of presentation, whereas the graphical map will display this same data for place of residence.

- **Antimicrobial:** Used to filter for a particular antimicrobial.
- **Organism:** Organism selection is chosen through a tree structure.

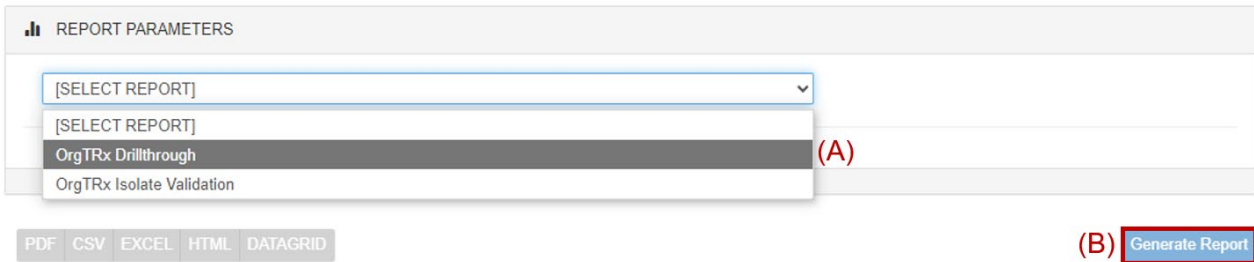
Data can be drilled down to individual order numbers by *right clicking* on the result belonging to the specific susceptible percentage and location, seen in **Figure 2**.

Figure 2: Drill through on a data set



After selecting “drillthrough”, select “OrgTRx Drillthrough” in **Figure 3(A)** from the drop-down menu and then click on “generate report” in **Figure 3(B)**. This report will download as an CSV document and can be viewed to see individual order information for the data being represented in the cube. Individual order numbers can be further investigated in the appropriate laboratory information software (LIS) by users with access.

Figure 3: The report parameters on OrgTRx



Defining Statistical Area

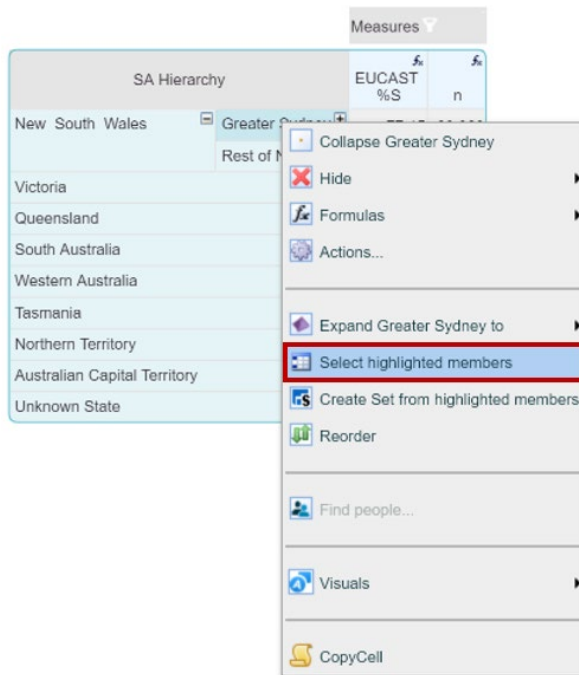
Data displayed in the rendered map are controlled using an adjustable pivot table in **Figure 4**. By clicking the plus (+) symbol next to the location in **Figure 4(A)** smaller regions of the SA hierarchy can be defined (State/Territory → greater capital city area → SA4 → SA3). The levels of the SA hierarchy can be hidden by clicking the minus (-) symbol in **Figure 4(B)**. To single out a specific location to see represented on the map, right click on the name of your chosen location in the table and select “Select highlighted members”, as seen in **Figure 5**.

Figure 4: Pivot table with the SA hierarchy

SA Hierarchy	Measures	
	EUCAST %S	n
New South Wales	79.36	52,309
Victoria	82.02	6,463
Queensland	79.25	47,903
South Australia	80.26	14,874
Western Australia	72.77	21,258
Tasmania	85.35	2,656
Northern Territory	58.54	1,030
Australian Capital Territory	84.10	239
Unknown State	67.46	3,921

SA Hierarchy	Measures	
	EUCAST %S	n
New South Wales	77.15	23,923
Greater Sydney	81.22	28,384
Rest of NSW	82.02	6,463
Victoria	79.25	47,903
Queensland	80.26	14,874
South Australia	72.77	21,258
Western Australia	85.35	2,656
Tasmania	58.54	1,030
Northern Territory	84.10	239
Australian Capital Territory	67.46	3,921
Unknown State		

Figure 5: Example of defining to view a particular location in the SA hierarchy

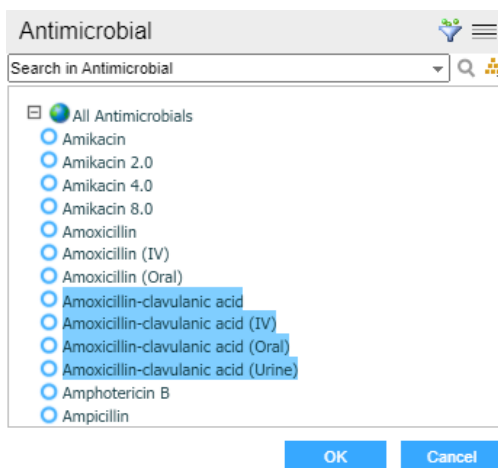


Defining Antimicrobial

Define antimicrobial by right clicking on the “Antimicrobial” selection in the slicer menu and making the selection.

NOTE: Certain antimicrobials have multiple subcategories dependent on interpretive and reporting guidelines for each individual jurisdiction.

Figure 6: Amoxicillin-clavulanic acid has four differentiations in OrgTRx

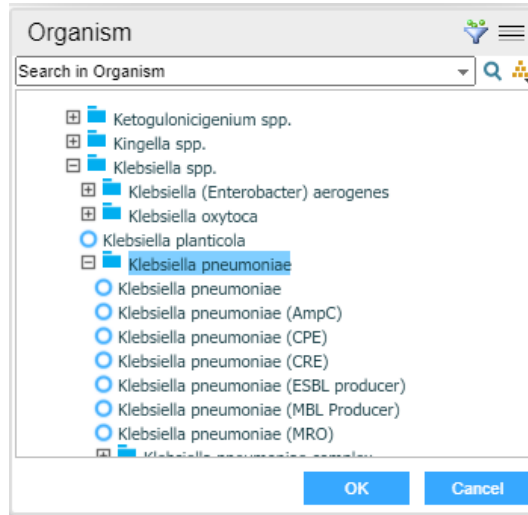


Defining Organism

The displayed organism can be changed by clicking the “Organism” button in the slicer menu, as seen in **Figure 1(C)**. Please note that organism choice is specific.

For example: To select all *Klebsiella pneumoniae* – including any coded variants – it’s important to select the parent folder when available, as this will encompass all coding variations that are mapped in OrgTRx.

Figure 7: Organism list in slicer expanded with selection of all *K. pneumoniae* isolates including coded variants (e.g. CPE, CRE, ESBL producing etc).



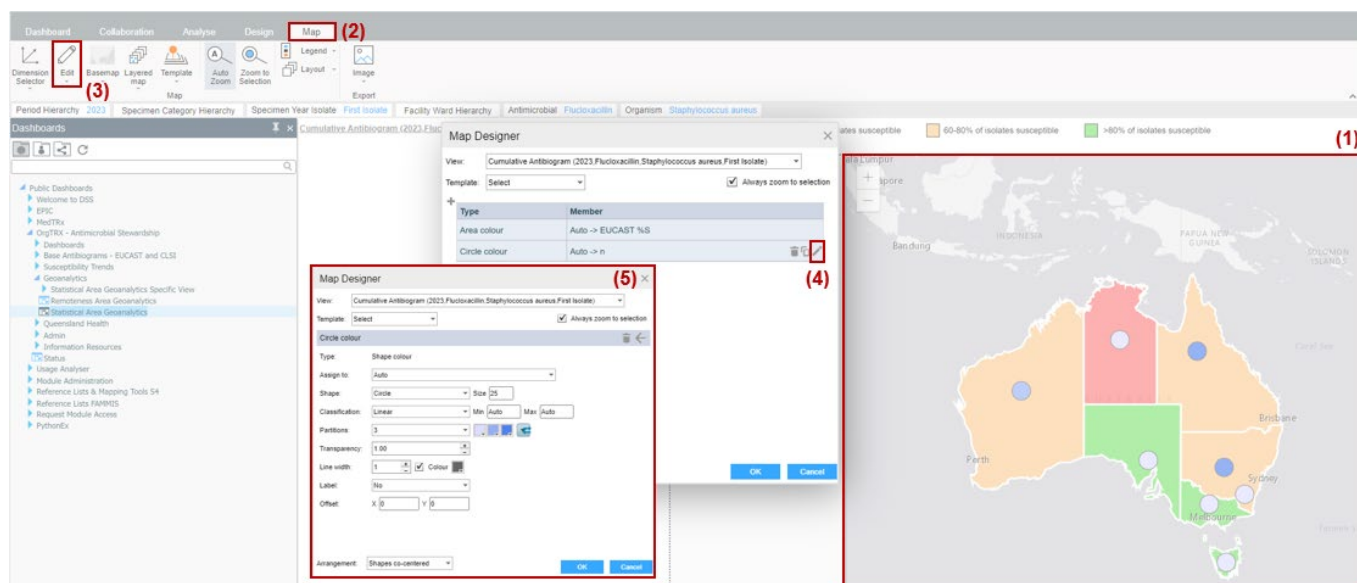
Additional Formatting Options

Both parameters (the count “n” and the susceptibility percentage “EUCAST %S”) of the graphical map display can be customised or removed, as this section will outline.

Editing the “n” number count in the graphical map display

Users may want to update the appearance of the preset circular “n” to suit their needs. To edit the circle shape, size, transparency, or colouring classifications, *Left click the graphical map display > Map > Edit > Hover over the ‘Type’ you wish to edit > Select the pencil ‘Edit’, as below in Figure 8.*

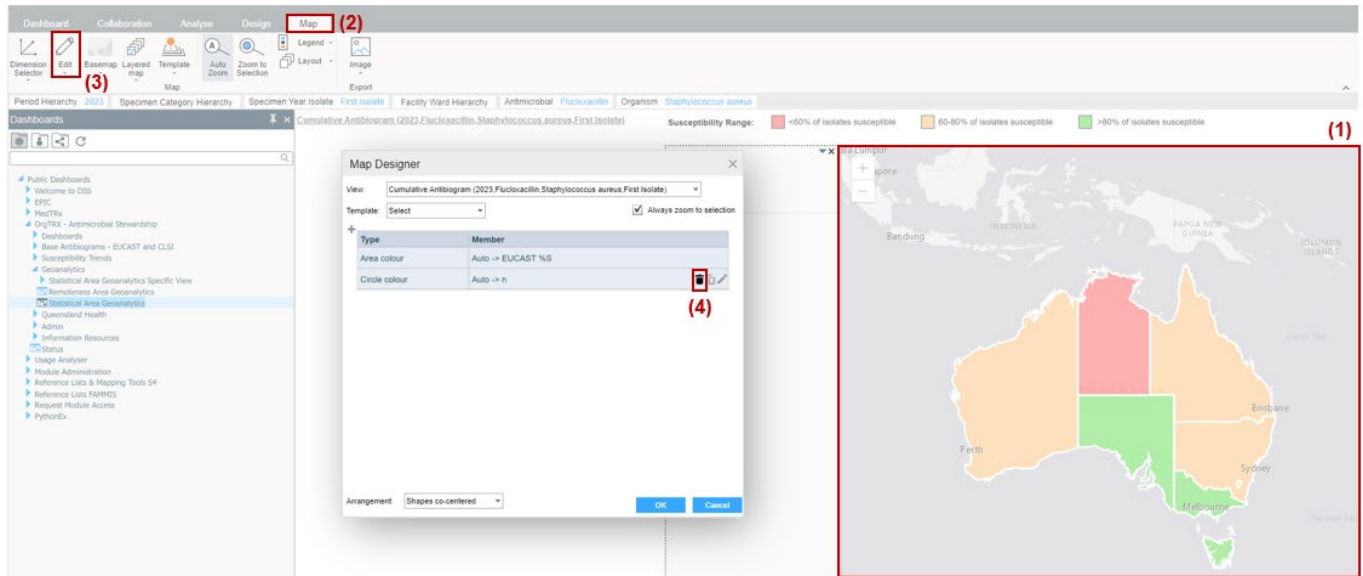
Figure 8: Editing the “n” number count



Deleting the “n” number count in the graphical map display

Users may want to remove the “n” circle count in the graphical map display, so that only the EUCAST %S Area colours are visible. To delete this “n” circle count, *Left click the graphical map display > Map > Edit > Hover over the ‘Circle colour’ > Select the rubbish bin ‘Delete’, as below in Figure 9.*

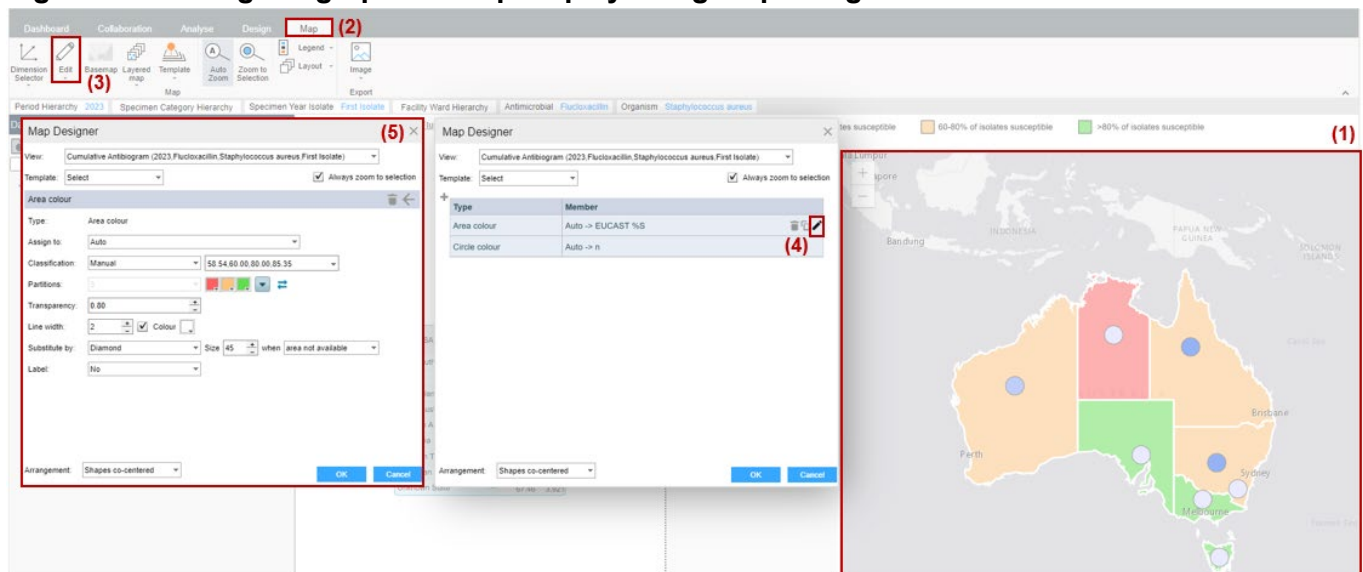
Figure 9: Removing the “n” number count



Adjusting the classification of colour scaling in the graphical map display

The following descriptions are available to assist users to apply additional formatting. Make selections by selecting (*left click*) the graphical map display, and then selecting *Map > Edit > Hover over the ‘Type’ you wish to edit > Select the pencil ‘Edit’, as below in Figure 10.*

Figure 10: Editing the graphical map display using map designer



Use **Classification** and **Colour** to define the colour scheme. Classification determines how the values on the map will be distributed among the colours. Choose one of the following methods:

Manual: This is the current default that the colour coding is preset to. Open the dropdown and click on the numbers to open a drop-down menu to select the number of partitions. Set/change the interval for each colour.

Linear: With this method you can use 3, 5, 7 or 9 colours, and the range of values will be divided into equal-sized sub-ranges among the colours. You can manually set the lowest and the highest values. Values lower than the minimum will be represented by the colour representing the minimum, and values higher than the maximum will be represented by the colour representing the maximum.

Linear by interval: With this method you can use 3, 5, 7 or 9 colours. Here you specify an interval by which to equally divide the range of values. The interval is a value (not the number of intervals). You can also manually set the lowest value. NECTO will order members by values and separate them according to the interval value, determining the number of partitions automatically based on the interval.

Threshold: With this method you can use only two colours. The threshold for distributing the values between the two colours is determined automatically. You can change the threshold by entering a percentage value.

Quantile: With this method you can use 2, 3, 5, 7 or 9 colours, and each partition will contain an equal number of items to be presented.

Natural breaks: With this method you can use 2, 3, 5, 7 or 9 colours. Partitions will be based on natural groupings inherent in the data. NECTO identifies break points by picking the partition breaks that best group similar values and maximizes the differences between partitions using Jenks natural breaks optimization.

STD (Standard Deviation): With this method you can use 2, 3, 5, 7 or 9 colours. It will show you how much an item's value varies from the mean. NECTO will calculate the mean values and the standard deviations from the mean. Partition breaks are then created using these values. You can set the size of the median partition in **Partitions**.

Continuous: With this method you can use only 2 or 3 colours. The values will be distributed continuously between the lowest value and the highest.

Percentile: Open the dropdown and select the number of partitions. Set/change the intervals in terms of percents.

Support

If you have any problems using or accessing this OrgTRx feature, support is available via: orgtrx-support@health.qld.gov.au.