Supplementary Table. Overview table of relevant GSTC Operations and symbology guidelines.

GSTC Category	GSTC Operation	Description of GSTC Operation	Potential applications	Use case and relation to symbology guidelines	Symbol types	Example symbology for use case
Extraction	Time cutting	Taking a temporal slice out of the GSTC.	Placing multiple 'time cuts' side by side to show spatial progression over time, sometimes called 'small multiples' or 'chess map'.	Order: Show progression of disease spread.	Point, Area	Value, Size
				Differentiation: Identify different disease types.	Point, Area	Colour
	Time drilling	A drill of the full temporal scale will be extracted.	Visualizing the temporal trends of specific (sub) regions in a map using symbology, also known as 'Thematic symbol map'. Visualising relative	Proportion: Symbology that changes in size to show e.g. number of cases in different moments. Order: Symbology that changes in size over time to indicate changes	Point, Area	Value, Size

			temporal changes, also known as 'change map'.	(e.g. graph or bar chart).		
				Differentiation: Identify different disease types	Point	Colour
Flattening	Time flattening	Flattening the temporal element into a single slice. E.g. all cases from day 1-7 are displayed on the map.	Showing all cases in order by symbolizing them with e.g. lines or timestamps, e.g. 'Flow maps' or 'Line maps'.	Distance: Spread of disease through different countries. Order: Visualizing the ordering of disease cases.	Line	Value
				Differentiation: Different disease types	Line	Colour
Content transformation	Time interpolation	Interpolating between different moments in time.	Flow maps or line maps, where lines are interpolated between points and thus need to be symbolized to represent this.	Distance, Order	Line	Size, Colour

	Time colouring	Highlighting temporal elements with a certain colour or value	Symbol map where cases have a different hue based on the temporal value to show ordering over time.	Order	Point, Area	Value
	Space colouring	Colouring cases based on their location on the spatial axis.	Highlighting differences between regions. For example, cases that occur in a specific region are coloured differently. Should be used in combination with other symbology to show temporal progression.	Differentiation	Point, Area	Colour
	Difference colouring	Colouring cases based on their value relative to previous values.	Showing differences relative to an earlier value. Often named 'change map'.	Order	Area	Texture

					Point, Area, Line	Value, Size, Texture, Colour
	Time labelling	Labelling points with the temporal element.	Applicable in many spatiotemporal maps.	Order, Distance, Differentiation	Point, Area, Line	Value, Size, Texture, Colour
Geometry Transformation	Space Shifting	Shifting the view, not in terms of map scale or projection, but the shift of the actual visualization	Temporal map series, positioning the different time slices next to each other.	Symbology guidelines are not applicable to operations within the category 'Geometry Transformation'.		
	Rotation	Rotating extractions of data.	Rotating outputs of operations, such as a time drills, to make sure it correctly faces the map reader	Symbology guidelines are not applicable to operations within the category 'Geometry Transformation'.		
	Time Scaling	Scaling the temporal aspect.	Scaling the temporal element to exclude unnecessary data.	Symbology guidelines are not applicable to operations within the category 'Geometry Transformation'.		