

Package: qiverse.qiplotly (via r-universe)

October 13, 2026

Title Quality Improvement Plotly Charts

Version 0.1.5

Description Defines functions needed to generate SPC and Funnel Plots
in Plotly.

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Config/testthat/edition 3

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

URL <https://github.com/AUS-DOH-Safety-and-Quality/qiverse/qiverse.qiplotly>

BugReports <https://github.com/AUS-DOH-Safety-and-Quality/qiverse/issues>

Depends R (>= 4.3.0)

Imports FunnelPlotR (>= 0.6.0), qiverse.qipatterns, dplyr, plotly,
qicharts2, rlang, tidyr, data.table, RCurl

Suggests testthat (>= 3.0.0)

Remotes AUS-DOH-Safety-and-Quality/qiverse/qiverse.qipatterns

Config/pak/sysreqs cmake make libicu-dev libuv1-dev libssl-dev

Repository <https://aus-doh-safety-and-quality.r-universe.dev>

Date/Publication 2026-10-13 05:53:40 UTC

RemoteUrl <https://github.com/AUS-DOH-Safety-and-Quality/qiverse>

RemoteRef main

RemoteSha 1ff4db8172ea61894a9627246e65e4850155496f

RemoteSubdir qiverse.qiplotly

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fpl_plotly_create	<i>Draw a funnel plot in plotly</i>
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Description

Draw a funnel plot in plotly

Usage

```
fpl_plotly_create(
  numerator,
  denominator,
  group,
  data_type = "PR",
  allow_overdispersion = FALSE,
  multiplier = 1,
  better_is = "Higher",
  title = "",
  group_name = NULL,
  short_group_name = NULL,
  parent_group_name = NULL,
  parent_group_name_label = NA,
  funnel_period_start = NA,
  funnel_period_end = NA,
  y_limit_lower = NA,
  y_limit_upper = NA,
  x_axis_label = NA,
  y_axis_label = NA,
  highlight_group = NULL,
  highlight_outlier = TRUE,
  highlight_outlier_options = list(direction_to_flag = "Deterioration"),
  brand_colour = "#00667B",
  actual_colour = "black",
  annotation_marker_colour = "grey",
  line_width = 3,
  marker_size = 8,
  marker_symbol = "circle",
  y_dp = 1,
  y_format = "Percentage",
  pattern_text_ay = 50,
  pattern_arrow_width = 2,
  pattern_font_size = 15,
  target = NA,
  target_annotation = NA,
  target_options = list(legend_name = "Target", line_colour = "#FF0000", line_width =
    1.5, line_dash = "solid"),
  nhs_colours_enable = TRUE,
```

```

nhs_colours_options = list(improvement_direction = better_is, direction_to_flag =
  "Both", colours = list(neutral = "#490092", improvement = "#00B0F0", deterioration =
    "#E46C0A", common_cause = "#A6A6A6")),
show_legend = FALSE,
legend_font_size = 12,
source_text = "Healthcare Quality Intelligence Unit"
)

```

Arguments

numerator	A vector of the numerator (observed events/counts) values. Used as the numerator of the Y-axis
denominator	A vector of denominator (predicted/population etc.) Used as denominator of the Y-axis and the scale of the x-axis
group	A vector of group names as character or factor. Used to aggregate and group points on plots.
data_type	A string identifying the type of data used for in the plot, the adjustment used and the reference point. One of: "SR" for indirectly standardised ratios such as HSMR, "PR" for proportions, or "RC" for ratios of counts. Default is "PR".
allow_overdispersion	A boolean value to allow the use of overdispersion control limits. Default is FALSE.
multiplier	Scale relative risk and funnel by this factor. Default to 1, but 100 sometime used, e.g. in some hospital mortality ratios.
better_is	A string identifying the direction that is favourable for the indicator. "Higher" for points below the lower control limit to be unfavourable, "Lower" for points above the upper control limit to be unfavourable, and "Neutral" if the direction is not stated. Default is "Higher".
title	A string for the title of the plot.
group_name	A vector of the group names that may differ from the initial group identifiers. I.e. group is an alphanumeric code and group_name is the actual name.
short_group_name	A vector of shortened group names to be displayed for highlighted groups and outlier points.
parent_group_name	A vector of parent group names which are to be displayed in the tooltip. These are the major categories for the groups.
parent_group_name_label	A string for the tooltip label on the parent group name.
funnel_period_start	A date (or character of format #' "yyyy-mm-dd") for the start date of the funnel period.
funnel_period_end	A date (or character of format #' "yyyy-mm-dd") for the end date of the funnel period.

<code>y_limit_lower</code>	A value denoting the y-axis lower limit range
<code>y_limit_upper</code>	A value denoting the y-axis upper limit range
<code>x_axis_label</code>	A value denoting the x-axis label. Usually NA or a specified label.
<code>y_axis_label</code>	A value denoting the y-axis label. Usually NA, a specified label or "Rate", for items which are proportion based with multipliers.
<code>highlight_group</code>	Optional group(s) to highlight individually
<code>highlight_outlier</code>	Boolean, if FALSE do not highlight outliers
<code>highlight_outlier_options</code>	Options to apply if <code>highlight_outlier</code> is TRUE. Default is <code>list(direction_to_flag = "Deterioration")</code> , where <code>direction_to_flag</code> can be "Deterioration", "Improvement" or "Both".
<code>brand_colour</code>	Hex code for the colour of the funnel limits. Default is "#00667b"
<code>actual_colour</code>	Hex code for the colour actual data points. Default is "black"
<code>annotation_marker_colour</code>	Hex code for the colour actual data points. Default is "grey"
<code>line_width</code>	A value denoting the width of the line in pixels (default = 3)
<code>marker_size</code>	A value denoting the size of the markers in pixels (default = 8)
<code>marker_symbol</code>	A value denoting the symbol type. See plotly documentation for further options (default = 'circle')
<code>y_dp</code>	Number of decimal points for the y-axis ticks and hoverinfo. Default is 1
<code>y_format</code>	Set to either "Numeric" or "Percentage" to format the y-axis. Default is "Percentage"
<code>pattern_text_ay</code>	Set the y offset for pattern detection text in pixels (default = 50)
<code>pattern_arrow_width</code>	Set the width of the pattern arrow in pixels (default = 2)
<code>pattern_font_size</code>	Numeric value for the font size of the annotation. Default is 15
<code>target</code>	Set a target value for the SPC chart. If NA, no target will be displayed. (default = NA)
<code>target_annotation</code>	A string to annotate the target line with a text on the plot. A value of NA indicates no annotation. (default = NA)
<code>target_options</code>	A list of parameters to set the target line: • <code>legend_name</code>: A string to set the legend name for the target line • <code>line_colour</code>: A hex code to set the colour of the target line • <code>line_width</code>: A numeric value to set the width of the target line • <code>line_dash</code>: A string to set the dash of the target line. Options are "solid", "dot", "dash", "longdash", "dashdot", "longdashdot" (default = <code>list(legend_name = "Target", line_colour = "#FF0000", line_width = 2, line_dash = "solid")</code>)

nhs_colours_enable	A boolean to enable NHS colours for the SPC chart. (default = TRUE)
nhs_colours_options	A list of parameters to enable NHS colours for the SPC chart. (default = list(improvement_direction = better_is, direction_to_flag = "Both", colours = list(neutral = "#490092", improvement = "#00B0F0", deterioration = "#E46C0A", common_cause = "#A6A6A6"))
show_legend	A boolean to enable legend for the Funnel Plot (default = FALSE)
legend_font_size	A numeric value to set the font size of the legend (default = 12)
source_text	Set source text of the chart. If empty ("") or NA, no source will be displayed (default = "Healthcare Quality Intelligence Unit")

Value

Funnel plot in plotly for the specified indicator

Additional requirements for this function:

The group vector must be a vector of unique values that are associated with a numerator and a denominator. Any summation of numerators and denominators by group must be done prior to input into this function.

Examples

```
## Not run:
# Minimal Example

fpl_plotly_create(
  numerator = (sapply(1:5, function(x) rpois(5, x * 20 * 0.6)) |> c() -
    (runif(25) * 10) |> round(0)) |>
    sapply(function(x) ifelse(x<0, 0, x)),
  denominator = sapply(1:5, function(x) rpois(5, x * 20)) |> c(),
  group = paste0('Q', 1:25),
  data_type = 'PR',
  multiplier = 1,
  better_is = "Higher",
  title = "Test Indicator",
  y_format = "Percentage",
  x_axis_label = "This is X Axis",
  y_axis_label = "This is Y Axis"
)

# Full Example
fpl_plotly_create(
  numerator = (sapply(1:5, function(x) rpois(5, x * 20 * 0.6)) |> c() -
    (runif(25) * 10) |> round(0)) |>
    sapply(function(x) ifelse(x<0, 0, x)),
  denominator = sapply(1:5, function(x) rpois(5, x * 20)) |> c(),
  group = paste0('Q', 1:25),
  data_type = 'PR',
  multiplier = 1,
  better_is = "Higher",
```

```

title = "Test Indicator",
group_name = c("Alfa", "Bravo", "Charlie", "Delta", "Echo", "Foxtrot",
               "Golf", "Hotel", "India", "Juliett", "Kilo", "Lima", "Mike",
               "November", "Oscar", "Papa", "Quebec", "Romeo", "Sierra",
               "Tango", "Uniform", "Victor", "Whiskey", "X-ray", "Yankee"),
short_group_name = LETTERS[1:25],
parent_group_name = "Code Words",
parent_group_name_label = "Category",
funnel_period_start = '2021-07-01',
funnel_period_end = '2022-06-30',
y_limit_lower = NA,
y_limit_upper = 85,
x_axis_label = "This is X Axis",
y_axis_label = "This is Y Axis",
highlight_group = c('Q2', 'Q5'),
highlight_outlier = TRUE,
nhs_colours_enable = TRUE,
show_legend = FALSE,
legend_font_size = 12,
y_format = "Percentage",
source_text = 'Healthcare Quality Intelligence Unit'
)

## End(Not run)

```

spc_plotly_create	<i>Draw a statistical process control chart in plotly</i>
-------------------	---

Description

Draw a statistical process control chart in plotly

Usage

```

spc_plotly_create(
  x,
  numerator,
  denominator = NULL,
  data_type = "p",
  multiplier = 1,
  better_is = "Lower",
  title = "",
  spc_period_start = NA,
  spc_period_end = NA,
  x_axis_label = NA,
  y_axis_label = NA,
  brand_colour = "#00667B",
  actual_colour = "black",
  annotation_marker_colour = "grey",

```

```

    line_width = 2,
    marker_size = 10,
    y_dp = 1,
    y_format = "Percentage",
    x_format = "%b %Y",
    patterns = "Yes",
    pattern_text_ay = 50,
    pattern_arrow_width = 2,
    pattern_font_size = 25,
    trend_size = 5,
    shift_size = 7,
    target = NA,
    target_annotation = NA,
    target_options = list(legend_name = "Target", line_colour = "#FF0000", line_width = 2,
        line_dash = "solid"),
    nhs_colours_enable = TRUE,
    nhs_colours_options = list(improvement_direction = better_is, direction_to_flag =
        "Both", colours = list(neutral = "#490092", improvement = "#00B0F0", deterioration =
        "#E46C0A", common_cause = "#A6A6A6")),
    nhs_icons_enable = FALSE,
    nhs_icons_options = list(flag_last_point_only = FALSE, sizex = 0.075, sizey = 0.15),
    show_legend = FALSE,
    legend_font_size = 12,
    source_text = "Healthcare Quality Intelligence Unit"
)

```

Arguments

x	A vector of the x-axis for the SPC chart. Usually dates.
numerator	A vector of the numerator (observed events/counts) values. Used as the numerator of the Y-axis
denominator	A vector of denominator (predicted/population etc.) Used as denominator of the Y-axis and the scale of the x-axis. Only required when necessary.
data_type	A string identifying the type of data used for in the plot, the adjustment used and the reference point. One of: "i" for indirectly standardised ratios, "p" for proportions, "r" for ratios of counts, "run" for run charts, "g" for geometric charts and "t" for time charts. Default is "p".
multiplier	Scale relative risk and funnel by this factor. Default to 1.
better_is	A string identifying the direction that is favourable for the indicator. "Higher" for points below the lower control limit to be unfavourable, "Lower" for points above the upper control limit to be unfavourable, and "Neutral" if the direction is not stated. Default is "Higher".
title	A string for the title of the plot.
spc_period_start	A date (or character of format #' yyyy-mm-dd') for the start date of the SPC period.

spc_period_end	A date (or character of format #' "yyyy-mm-dd") for the end date of the SPC period.
x_axis_label	A value denoting the x-axis label. Usually NA or a specified label.
y_axis_label	A value denoting the y-axis label. Usually NA, a specified label or "Rate", for items which are proportion based with multipliers.
brand_colour	Hex code for the colour of the funnel limits
actual_colour	Hex code for the colour actual data points
annotation_marker_colour	Hex code for the colour actual data points
line_width	A value denoting the width of the line in pixels (default = 2)
marker_size	A value denoting the size of the markers in pixels (default = 10)
y_dp	Number of decimal points for the y-axis ticks and hoverinfo
y_format	Set to either "Numeric" or "Percentage" to format the y-axis
x_format	The format for the x-axis. Default is "%b %Y".
patterns	Either set to "Yes", "No" or as a dataframe with only a single row with the columns "Astro", "Trend", "TwoInThree", "Shift". This is the output of the runPat function in qiverse.qipatterns, or a filtered pattern dataframe. The "Yes" option automatically applies this function to the data. The "No" option does not display any patterns. (default = "Yes")
pattern_text_ay	Set the y offset for pattern detection text in pixels (default = 50)
pattern_arrow_width	Set the width of the pattern arrow in pixels (default = 2)
pattern_font_size	Numeric value for the font size of the annotation. Default is 25
trend_size	Set the number of points required for a trend to be detected (default = 5)
shift_size	Set the number of points required for a shift to be detected (default = 7)
target	Set a target value for the SPC chart. If NA, no target will be displayed. (default = NA)
target_annotation	A string to annotate the target line with a text on the plot. A value of NA indicates no annotation. (default = NA)
target_options	A list of parameters to set the target line: • legend_name: A string to set the legend name for the target line • line_colour: A hex code to set the colour of the target line • line_width: A numeric value to set the width of the target line • line_dash: A string to set the dash of the target line. Options are "solid", "dot", "dash", "longdash", "dashdot", "longdashdot" (default = list(legend_name = "Target", line_colour = "#FF0000", line_width = 2, line_dash = "solid"))
nhs_colours_enable	A boolean to enable NHS colours for the SPC chart. (default = TRUE)

nhs_colours_options	A list of parameters to enable NHS colours for the SPC chart. (default = list(improvement_direction = better_is, direction_to_flag = "Both", colours = list(neutral = "#490092", improvement = "#00B0F0", deterioration = "#E46C0A", common_cause = "#A6A6A6"))
nhs_icons_enable	A boolean to enable NHS icons for the SPC chart. This option is only available if nhs_colours_enable is TRUE. (default = FALSE)
nhs_icons_options	A list of options for the NHS icons: • flag_last_point_only: A boolean to enable flagging of the last point only when determining the NHS icons. (default = FALSE) • sizex: A numeric value to set the size of the NHS icons as a proportion of the plot's width. (default = 0.075) • sizey: A numeric value to set the size of the NHS icons as a proportion of the plot's height. (default = 0.15) (default = list(flag_last_point_only = FALSE, sizex = 0.075, sizey = 0.15))
show_legend	A boolean to enable legend for the SPC Chart (default = FALSE)
legend_font_size	A numeric value to set the font size of the legend (default = 12)
source_text	Set source text of the chart. If empty ("") or NA, no source will be displayed (default = "Healthcare Quality Intelligence Unit")

Value

Statistical process control chart in plotly for the specific indicator and groups.

Additional requirements for this function:

NA

Examples

```
## Not run:
spc_plotly_create(
  x = seq(from = as.Date('2019-02-01'),
    to = as.Date('2022-01-01'),
    by = 'month')-1,
  numerator = c(20,25,17,22,18,18,30,29,18,23,17,18,
    15,17,19,21,30,19,15,17,22,24,20,13,
    14,18,14,21,17,27,24,30,25,24,26,24),
  denominator = c(86,91,99,110,96,110,96,97,105,87,94,89,
    102,106,107,95,106,132,95,117,97,99,108,106,
    101,96,96,98,105,117,94,77,97,90,106,107),
  data_type = 'p',
  multiplier = 1,
  better_is = "Lower",
  title = paste0("Example Indicator", " - ", "Hospital"),
  spc_period_start = "2019-01-01",
  spc_period_end = "2021-12-31",
  x_axis_label = "Date",
```

```
y_axis_label = "Proportion",
brand_colour = "#00667B",
actual_colour = "black",
annotation_marker_colour = "grey",
y_dp = 1,
y_format = "Percentage",
x_format = "%b %Y",
patterns = "Yes",
pattern_text_ay = 50,
trend_size = 5,
shift_size = 7,
nhs_colours_enable = TRUE,
show_legend = FALSE,
legend_font_size = 12,
source_text = 'Healthcare Quality Intelligence Unit'
)

## End(Not run)
```

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