

Package: VOWR (via r-universe)

May 21, 2026

Title Vital Operational Waiting Risk for Healthcare Systems

Version 0.1.0

Description Provides tools for analysing monthly Referral-to-Treatment (RTT) panel data in healthcare systems. The package supports provider profiling, waiting-time risk classification, risk visualisation, and survival-based threshold-breach modelling. It is designed for applied statisticians, operational researchers, and healthcare analysts interested in identifying high-risk provider trajectories and monitoring deterioration in elective-care performance.

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Encoding UTF-8

LazyData true

RoxygenNote 7.3.3

Imports dplyr, ggplot2, survival, stats, utils, survminer

Suggests testthat (>= 3.0.0),

Config/testthat/edition 3

URL <https://github.com/zerish12/VOWR>

BugReports <https://github.com/zerish12/VOWR/issues>

Config/pak/sysreqs cmake make libicu-dev libjpeg-dev libpng-dev libxml2-dev libssl-dev

Repository <https://zerish12.r-universe.dev>

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plot_km_by_delay	<i>Kaplan-Meier plot by group</i>
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Description

Kaplan-Meier plot by group

Usage

```
plot_km_by_delay(data, time, event, group)
```

Arguments

data	A data frame.
time	Name of duration/time variable.
event	Name of event variable: 1 = event occurred, 0 = censored.
group	Name of grouping variable.

Value

A survminer ggsvplot object.

vowr_cox_model	<i>Estimate Cox proportional hazards model for threshold breach</i>
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Description

Estimate Cox proportional hazards model for threshold breach

Usage

```
vowr_cox_model(surv_profile)
```

Arguments

surv_profile Data frame from vowr_survival_merge()

Value

A fitted Cox proportional hazards model

vowr_flag	<i>Flag high-risk providers</i>
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Description

Flag high-risk providers

Usage

```
vowr_flag(profile, wait_threshold = 18, vol_percentile = 0.9)
```

Arguments

profile A data frame produced by vowr_profile()
wait_threshold The mean wait time threshold (default 18 weeks)
vol_percentile The percentile for volatility (default 0.90)

Value

The profile data frame with a 'risk_flag' column

vowr_import	<i>Import and validate RTT data</i>
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Description

Import and validate RTT data

Usage

```
vowr_import(path = NULL)
```

Arguments

path	Optional path to an NHS RTT CSV file. If NULL, the example data included in the package is loaded.
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Value

A cleaned data frame

vowr_km_by_risk	<i>Kaplan-Meier plot by provider risk group</i>
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Description

Kaplan-Meier plot by provider risk group

Usage

```
vowr_km_by_risk(surv_profile)
```

Arguments

surv_profile	Data frame from <code>vowr_survival_merge()</code>
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Value

A survminer Kaplan-Meier plot object

vowr_plot	<i>Visualize provider risk distribution</i>
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Description

Visualize provider risk distribution

Usage

```
vowr_plot(flagged_data)
```

Arguments

flagged_data A data frame produced by `vowr_flag()`

Value

A ggplot object

vowr_profile	<i>Profile NHS provider performance</i>
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Description

Profile NHS provider performance

Usage

```
vowr_profile(data)
```

Arguments

data A data frame from `vowr_import()`

Value

A summary table of mean, median, and volatility

vowr_survival	<i>Estimate time-to-breach survival model</i>
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Description

Estimate time-to-breach survival model

Usage

```
vowr_survival(data, threshold = 18)
```

Arguments

data	A data frame from <code>vowr_import()</code>
threshold	The mean wait weeks threshold (default 18)

Value

A list containing the survival object and plot data

vowr_survival_merge	<i>Merge survival output with provider profile and risk flags</i>
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Description

Merge survival output with provider profile and risk flags

Usage

```
vowr_survival_merge(surv_result, profile, flagged)
```

Arguments

surv_result	Output from <code>vowr_survival()</code>
profile	Output from <code>vowr_profile()</code>
flagged	Output from <code>vowr_flag()</code>

Value

A provider-level survival analysis data frame

vowr_workflow	<i>Run complete VOWR workflow</i>
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Description

Run complete VOWR workflow

Usage

```
vowr_workflow(data, wait_threshold = 18, vol_percentile = 0.9)
```

Arguments

`data` A data frame from `vowr_import()`
`wait_threshold` Waiting-time breach threshold. Default is 18 weeks.
`vol_percentile` Volatility percentile for risk flagging. Default is 0.90.

Value

A list containing profile, flagged data, risk plot, survival output, survival profile, Cox model, and Kaplan-Meier plot by risk group.

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