

Package ‘oncmap’

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Type Package

Title Analyze Data from Electronic Adherence Monitoring Devices

Version 0.1.7

Description

Medication adherence, defined as medication-taking behavior that aligns with the agreed-upon treatment protocol, is critical for realizing the benefits of prescription medications. Medication adherence can be assessed using electronic adherence monitoring devices (EAMDs), pill bottles or boxes that contain a computer chip that records the date and time of each opening (or “actuation”). Before researchers can use EAMD data, they must apply a series of decision rules to transform actuation data into adherence data. The purpose of this R package ('oncmap') is to transform EAMD actuations in the form of a raw .csv file, information about the patient, regimen, and non-monitored periods into two daily adherence values -- Dose Taken and Correct Dose Taken.

Encoding UTF-8

LazyData true

Imports readr, methods, readxl, dplyr, hms, lubridate, zoo

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

Config/testthat/edition 3

RoxygenNote 7.3.1

Depends R (>= 3.60)

VignetteBuilder knitr

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NeedsCompilation no

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adherence_preprocess *Pre-process time data for adherence*

Description

Pre-process time data for adherence

Usage

```
adherence_preprocess(
  timestamps,
  regimen,
  patinfo = list(),
  nonmonit = data.frame()
)
```

Arguments

timestamps	Input timestamps - vector of timestamps
regimen	Regimen - regimen definition
patinfo	Patient info - patient specific information
nonmonit	Non-monitored date intervals

Value

A list of output variables

- all_periods - Processed timestamps into periods applying input parameters.

input_formats	<i>Adherence input format definitions</i>
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Description

Defines input format parameters to apply when reading input files.

Usage

input_formats

Format

One input format per row described by the following variables:

skip_header_lines double Number of lines to skip before reading data
header_line_patientid character Regex to apply to the header line to extract patient ID
patientid_filename logical Patient id is embedded in the filename
deviceid_header character Device ID column in the input data
headers character Comma separated list of expected column headers
patientid_header character Patient ID column in the input data
datetime_header character Actuation Date/Time column in the input data
datetime_format character Actuation Date/Time format
filter character Inclusion/Exclusion filter to apply on the input data
tz_colon_fix logical Fix for when TZ contains with ':'

process_eamd	<i>Process input file and return adherence report</i>
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Description

Process input file and return adherence report

Usage

```
process_eamd(
  infile,
  include_formats = NULL,
  exclude_formats = NULL,
  formats_def = NULL,
  infile_data_output = FALSE,
  regimen = NULL,
  patinfo = NULL,
```

```

    nonmonit = NULL,
    med = "",
    adhstart = NULL,
    adhend = NULL
  )

```

Arguments

infile	Input CSV file name
include_formats	Which formats to include in checking
exclude_formats	Which formats to exclude from checking
formats_def	New formats definition
infile_data_output	Include infile data frame in the result
regimen	Regimen - regimen definition
patinfo	Patient info - patient specific information
nonmonit	Non-monitored date intervals
med	Medication name
adhstart	Report adherence start date
adhend	Report adherence end date

Value

A list containing variables:

- report - Per period adherence statistic
- adh - Summary adherence statistic

Examples

```

input_file <- system.file('extdata', 'sample-data-ecap2.csv', package = 'oncmap')
report <- process_eamd("tests/testthat/ecap1.csv")

```

read_input

Read input file

Description

Read input file

Usage

```
read_input(  
  infile,  
  include_formats = NULL,  
  exclude_formats = NULL,  
  formats_def = NULL,  
  infile_data_output = FALSE  
)
```

Arguments

infile	Input CSV file name
include_formats	Which formats to include in checking
exclude_formats	Which formats to exclude from checking
formats_def	New formats definition
infile_data_output	Include infile data frame in the result

Value

A list of output variables

- format - Detected input format name
- format_def - Detected format definition
- patient_id - Extracted patient_id
- device_id - Extracted device_id
- data - Extracted timestamps
- log - Log of the format detection
- infile_data - Raw input data

Examples

```
input_file <- system.file('extdata', 'sample-data-ecap2.csv', package = 'oncmmap')  
input <- read_input("tests/testthat/ecap1.csv")
```

regimens	<i>Adherence regimens definitions</i>
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Description

Defines built-in regimen definitions.

Usage

```
regimens
```

Format

One regimen per row described by the following variables:

```
name character A name of the regimen
doses_per_period integer Number of doses per period
periods_per_day integer Number of periods per day
min_wait integer Minimum wait time (in seconds) between actuations
days_per_week integer Number of active days per week
weekdays string Specific days per week when active
```

report_adherence	<i>Report standardized output of the adherence processing</i>
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Description

Report standardized output of the adherence processing

Usage

```
report_adherence(
  all_periods,
  timestamps,
  med,
  patinfo = list(),
  adhstart = NULL,
  adhend = NULL
)
```

Arguments

<code>all_periods</code>	output of <code>pre_adherence</code> processing
<code>timestamps</code>	timestamps dataframe from <code>pre_adherence</code> to calculate times and diffs in the report
<code>med</code>	Medication name
<code>patinfo</code>	Patient info - patient specific information
<code>adhstart</code>	Report adherence start date
<code>adhend</code>	Report adherence end date

Value

A list of output variables

- `report` - Per period adherence statistic
- `adh` - Summary adherence statistic

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