Package 'oncmap'

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Type Package

Title Analyze Data from Electronic Adherence Monitoring Devices

Version 0.1.5

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.

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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

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.

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input_formats | *Adherence input format definitions*

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 ':'

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process_eamd | *Process input file and return adherence report*

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")
```

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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 = 'oncmap')
input <- read_input("tests/testthat/ecap1.csv")
```

---

regimens *Adherence regimens definitions*

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

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report_adherence *Report standarized output of the adherence processing*

Description

Report standarized output of the adherence processing

Usage

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

Arguments

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

Value

A list of output variables

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

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