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 *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 ':'

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")
```

---

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

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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