Package 'tmpm'

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Type Package

Title Trauma Mortality Prediction Model

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Description Trauma Mortality prediction for ICD-9, ICD-10, and AIS lexicons in
long or wide format based on Dr. Alan Cook's tmpm mortality model.

Depends reshape2, stats

License GPL-2

LazyData TRUE

NeedsCompilation no

Repository CRAN

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R topics documented:

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marcTable *marcTable, default Lexicon for tmpm 1.0.3*

Description

A data.frame containing the master lexicon for the tmpm package. Contains the index of ais,
ICD-9, and ICD-10 trauma codes as well as their respective marc weights within the tmpm model
separated by body region.

1

Usage

```
marcTable
```

Format

A data frame with 10767 observations on the following 4 variables.

lexi The trauma code lexicon, a factor with levels `ais` `icdIX` `icdX`.

index A unique index value for each entry, a factor with 10767 levels.

marc Marc weights used in the tmpm model. A numeric vector

bodyregion Body region where the injury occured. A factor with levels 1 2 3 4 5 6 7 8 9 A C E F
H S

References

Glance, LG, Osler, TM, Mukamel, DB, et al. TMPM-ICD9 A Trauma Mortality Prediction Model
Based on ICD-9-CM Codes. *Ann Surg* 2009; 249:1032-1039.

Osler, T, Glance, L, Buzas, JS, et al. A Trauma Mortality Prediction Model Based on the Anatomic
Injury Scale. *Ann surg* 2008; 247:1041-1048.

Examples

```
#  lexi index    marc       bodyregion
#1  ais 110099 -0.06503967          1
#2  ais 110202  0.13577652          1
#3  ais 110402  0.06703821          1
#4  ais 110600  0.12536530          1
#5  ais 110602 -0.01852628          1
#6  ais 110604  0.27072704          1
```

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tmpm   *Trauma Mortality Prediction Model*

Description

An R port for the tmpm trauma mortality prediction model using the ICD-9, ICD-10, or AIS lexicon
in long or wide format. Based upon the `tmpm` package created by Alan Cook, MD for STATA

Usage

```
tmpm(Pdat,ILex = 1,ICs = marcTable,Long = FALSE)
```

Arguments

Pdat	An R object, usually a `data.frame`. May come in either a wide or long format. Patient ID's must be present in the first column, followed by the diagnosis column(s) that contain diagnosis codes in either the ICD-9, ICD-10, or AIS lexicon. The wide format may have multiple Dx columns for each patient containing their respective diagnosis codes while the long format should contain 3 columns of patient ID, Dx, and diagnosis code.
ILex	An `integer` value used to select which lexicon to use for the tmpm analysis. AIS is the default lexicon and may be selected by the entry of 1. The ICD-9 lexicon may be selected by 9, and the ICD-10 may be selected 10.
ICs	An R object, usually a `data.frame`. The "master" diagnosis lexicon that may contain the diagnosis codes for the ICD-9, ICD-10, and AIS lexicons. This is already included and will default to the obhect `marcTable` if no other object is specified. Must contain 4 columns containing the lexicon, index, corresponding marc value, and body region value.
Long	A `logical` object. Allows the user to specify the format of the Pdat object. Default is wide format. `Long = TRUE` must be specified to analyze data of long format.

Value

The tmpm algorithm will return a `data.frame` that contains the original dataset in wide format with an added last column containing the calcualted probability of death for each patient.

Note

Uses the Trauma Mortality prediction model created by Turner Osler, MD, MSc and Laurent Glance, MD.

Based upon the tmpm package written in STATA by Alan Cook, MD

Author(s)

Cody Moore

Alan Cook, MD

References

Glance, LG, Osler, TM, Mukamel, DB, et al. TMPM-ICD9 A Trauma Mortality Prediction Model Based on ICD-9-CM Codes. *Ann Surg* 2009; 249:1032-1039.

Osler, T, Glance, L, Buzas, JS, et al. A Trauma Mortality Prediction Model Based on the Anatomic Injury Scale. *Ann surg* 2008; 247:1041-1048.

Examples

```
## To evaluate ICD-9 patient data in wide format

    #inc_key  dx1     dx2 dx3     dx4
```

```
#1 10000007 821.11 822 815.03 823.00
#2 10011410 881.00 891 822.10 813.42

a <- data.frame(matrix(c(10000007,821.11,822,815.03,823,
          10011410,881,891,822.1,813.42),nrow = 2,byrow = TRUE))
names(a) <- c("inc_key","dx1","dx2","dx3","dx4")
b <- tmpm(a,9)

## If the dataset is in long format

    #inc_key  variable value
#1 10000007       dx1 821.11
#2 10011410       dx1 881.00
#3 10000007       dx2 822.00
#4 10011410       dx2 891.00
#5 10000007       dx3 815.03
#6 10011410       dx3 822.10
#7 10000007       dx4 823.00
#8 10011410       dx4 813.42

c <- melt(a,id = "inc_key")
d <- tmpm(c,9,Long = TRUE)
```

Index