

Package ‘eq5d’

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Type Package

Title Methods for Analysing 'EQ-5D' Data and Calculating 'EQ-5D' Index Scores

Version 0.12.0

Description EQ-5D is a popular health related quality of life instrument used in the clinical and economic evaluation of health care. Developed by the EuroQol group <<https://euroqol.org/>>, the instrument consists of two components: health state description and evaluation. For the description component a subject self-rates their health in terms of five dimensions; mobility, self-care, usual activities, pain/discomfort, and anxiety/depression using either a three-level (EQ-5D-3L, <<https://euroqol.org/eq-5d-instruments/eq-5d-3l-about/>>) or a five-level (EQ-5D-5L, <<https://euroqol.org/eq-5d-instruments/eq-5d-5l-about/>>) scale. Frequently the scores on these five dimensions are converted to a single utility index using country specific value sets, which can be used in the clinical and economic evaluation of health care as well as in population health surveys. The eq5d package provides methods to calculate index scores from a subject's dimension scores. 29 TTO and 11 VAS EQ-5D-3L value sets including those for countries in Szende et al (2007) <[doi:10.1007/1-4020-5511-0](https://doi.org/10.1007/1-4020-5511-0)> and Szende et al (2014) <[doi:10.1007/978-94-007-7596-1](https://doi.org/10.1007/978-94-007-7596-1)>, 35 EQ-5D-5L EQ-VT value sets from the EuroQol website, the EQ-5D-5L crosswalk value sets developed by van Hout et al. (2012) <[doi:10.1016/j.jval.2012.02.008](https://doi.org/10.1016/j.jval.2012.02.008)>, the crosswalk value set for Russia and reverse crosswalk value sets. Four EQ-5D-Y value sets are also included as are the NICE 'DSU' age-sex based EQ-5D-3L to EQ-5D-5L and EQ-5D-5L to EQ-5D-3L mappings. Methods are also included for the analysis of EQ-5D profiles along with a shiny web tool to enable the calculation, visualisation and automated statistical analysis of EQ-5D data via a web browser using EQ-5D dimension scores stored in CSV or Excel files.

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Encoding UTF-8

LazyData false

Depends R (>= 3.5.0)

Suggests testthat, shiny, DT, mime, readxl, ggplot2, ggiraph, ggiraphExtra, shinycssloaders, shinyWidgets, FSA, PMCMRplus, knitr, rmarkdown, covr

URL <https://github.com/fragla/eq5d>

BugReports <https://github.com/fragla/eq5d/issues>

RoxygenNote 7.1.2

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CW	<i>EQ-5D-5L Crosswalk data</i>
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Description

Crosswalk index value calculation table to calculate EQ-5D-3L indices from EQ-5D-5L data for Denmark, France, Germany, Japan, Netherlands, Russia, Spain, Thailand, UK, USA and Zimbabwe.

Usage

CW

Format

An object of class data.frame with 3125 rows and 11 columns.

Source

van Hout B, Janssen MF, et al. Interim scoring for the EQ-5D-5L: Mapping the EQ-5D-5L to EQ-5D-3L value sets. *Value in Health* 2012 Jul-Aug;15(5):708-15. doi: 10.1016/j.jval.2012.02.008.

[PubMed](#)

Omelyanovskiy V, Musina N, Ratushnyak S, Bezdenezhnykh T, Fediaeva V, Roudijk B, Purba FD. Valuation of the EQ-5D-3L in Russia. *Qual Life Res.* 2021 Mar 13. doi: 10.1007/s11136-021-02804-6. Epub ahead of print. [PubMed](#).

[EQ-5D-5L Crosswalk Index Value Calculator](#)

DSU3L	<i>DSU mapping from EQ-5D-3L to EQ-5D-5L</i>
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Description

Data for age and sex based mapping from EQ-5D-3L dimensions or utility index score to EQ-5D-5L for China, Germany, Japan, Netherlands, South Korea, Spain and UK.

Usage

DSU3L

Format

An object of class data.frame with 2430 rows and 22 columns.

Source

Hernández Alava M, Pudney S, Wailoo A. Estimating the Relationship Between EQ-5D-5L and EQ-5D-3L: Results From an English Population Study [EEPRU Report]. University of Sheffield & University of York. [Article](#)

Hernández-Alava M, Pudney S. Econometric modelling of multiple self-reports of health states: The switch from EQ-5D-3L to EQ-5D-5L in evaluating drug therapies for rheumatoid arthritis. *J Health Econ.* 2017 Sep;55:139-152. doi: 10.1016/j.jhealeco.2017.06.013. Epub 2017 Jul 4. [PubMed](#).

[NICE DSU mapping website.](#)

 DSU5L

DSU mapping from EQ-5D-5L to EQ-5D-3L

Description

Data for age and sex based mapping from EQ-5D-5L dimensions or utility index score to EQ-5D-3L for China, Germany, Japan, Netherlands, South Korea, Spain and UK.

Usage

DSU5L

Format

An object of class `data.frame` with 31250 rows and 22 columns.

Source

Hernández Alava M, Pudney S, Wailoo A. Estimating the Relationship Between EQ-5D-5L and EQ-5D-3L: Results From an English Population Study [EEPRU Report]. University of Sheffield & University of York. [Article](#)

Hernández-Alava M, Pudney S. Econometric modelling of multiple self-reports of health states: The switch from EQ-5D-3L to EQ-5D-5L in evaluating drug therapies for rheumatoid arthritis. *J Health Econ.* 2017 Sep;55:139-152. doi: 10.1016/j.jhealeco.2017.06.013. Epub 2017 Jul 4. [PubMed](#).

[NICE DSU mapping website.](#)

eq5d *Calculate EQ-5D index scores*

Description

Wrapper for eq5d3l and eq5d5l. Calculate EQ-5D index scores for EQ-5D-3L and EQ-5D-5L. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5d(scores, version, type, country, ignore.invalid, ...)
```

Arguments

<code>scores</code>	numeric or data.frame with names/colnames MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression. Alternatively an EQ-5D score can be provided in five digit format e.g. 12321.
<code>version</code>	string of value "3L", "5L" or "Y" to indicate instrument version.
<code>type</code>	string specifying method type used in deriving value set scores. Options are TTO or VAS for EQ-5D-3L, VT for EQ-5D-5L, CW for EQ-5D-5L crosswalk conversion valuesets, RCW for EQ-5D-3L reverse crosswalk conversion valuesets and DSU for the NICE Decision Support Unit age-sex based EQ-5D-3L to EQ-5D-5L and EQ-5D-5L to EQ-5D-3L mappings
<code>country</code>	string of value set country name used.
<code>ignore.invalid</code>	logical to indicate whether to ignore dimension data with invalid, incomplete or missing data.
<code>...</code>	character vectors for column names when using a data.frame. Use "dimensions" (default <code>c("MO", "SC", "UA", "PD" and "AD")</code>), "five.digit" (default "State") or "utility", "age", "sex" and "bwidth" (defaults "Utility", "Age", "Sex" and "bwidth") for NICE DSU mapping. When a single NICE DSU score is being calculated "age", "sex" and "bwidth" are also used. See eq5dmap for valid options.

Value

a numeric vector of utility index scores.

Examples

```
eq5d(scores=c(MO=1,SC=2,UA=3,PD=4,AD=5), type="VT",
      country="Indonesia", version="5L")
eq5d(scores=c(MO=3,SC=2,UA=3,PD=2,AD=3),
      type="TTO", version="3L", country="Germany")

eq5d(0.922, country="UK", version="5L", type="DSU",
     age=18, sex="male")
```

```

scores.df <- data.frame(
  MO=c(1,2,3,4,5), SC=c(1,5,4,3,2),
  UA=c(1,5,2,3,1), PD=c(1,3,4,3,4), AD=c(1,2,NA,2,1)
)
eq5d(scores.df, country="Canada", version="5L", type="VT", ignore.invalid=TRUE)

eq5d(scores=12321, type="TTO", version="3L", country="UK")

scores.df2 <- data.frame(
  state=c(11111,12121,23232,33333)
)

eq5d(scores=scores.df2, type="TTO", version="3L", country="UK", five.digit="state")

eq5d(scores=scores.df2$state, type="TTO", version="3L", country="UK")

```

eq5d3l

Calculate EQ-5D-3L index scores

Description

Calculate indices for EQ-5D-3L value sets. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5d3l(scores, type = "TTO", country = "UK")
```

Arguments

<code>scores</code>	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
<code>type</code>	3L values set type. Either TTO or VAS.
<code>country</code>	value set country.

Value

calculated utility index score.

Examples

```

eq5d3l(scores=c(MO=1,SC=2,UA=3,PD=1,AD=3), type="VAS", country="UK")
eq5d3l(scores=c(MO=3,SC=2,UA=3,PD=2,AD=3), type="TTO", country="Germany")

```

eq5d5l *Calculate EQ-5D-5L index scores*

Description

Calculate indices for EQ-5D-5L value sets. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5d5l(scores, country = "England")
```

Arguments

<code>scores</code>	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
<code>country</code>	value set country.

Value

calculated utility index score.

Examples

```
eq5d5l(scores=c(MO=1,SC=2,UA=3,PD=4,AD=5), country="England")
eq5d5l(scores=c(MO=3,SC=2,UA=5,PD=2,AD=3), country="Netherlands")
```

eq5dcf *Calculate the cumulative frequency profile of an EQ-5D dataset*

Description

Calculate the frequency, percentage, cumulative frequency and cumulative percentage for each profile in an EQ-5D dataset.

Usage

```
eq5dcf(data, version, ignore.invalid, ...)
```

Arguments

<code>data</code>	data.frame with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
<code>version</code>	string of value "3L" or "5L" to indicate instrument version.
<code>ignore.invalid</code>	whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
<code>...</code>	character vector, specifying "dimensions" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

a data.frame or list of data.frames of counts/percentages. Columns contain dimensions names and rows the EQ-5D score.

eq5dcw	<i>Calculate EQ-5D-5L crosswalk index scores</i>
--------	--

Description

Calculate indices for EQ-5D-5L indices by mapping them onto EQ-5D-3L value sets. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5dcw(scores, country = "UK")
```

Arguments

scores	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
country	value set country.

Value

calculated utility index score.

Examples

```
eq5dcw(scores=c(MO=1,SC=2,UA=5,PD=1,AD=3), country="UK")
eq5dcw(scores=c(MO=3,SC=5,UA=5,PD=2,AD=3), country="Germany")
```

eq5dds	<i>Analyse the descriptive system of an EQ-5D dataset</i>
--------	---

Description

Analyses the descriptive components of an EQ-5D dataset producing summary information either as counts or as percentages.

Usage

```
eq5dds(data, version, counts = FALSE, by = NULL, ...)
```


Arguments

data	data.frame with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
version	string of value "3L" or "5L" to indicate instrument version.
counts	logical show absolute counts in the summary table. Default is FALSE, which shows percentages for each EQ-5D dimension.
by	character specifying the column in the data.frame by which to group the results.
...	character vector, specifying "dimensions" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

a data.frame or list of data.frames of counts/percentages. Columns contain dimensions names and rows the EQ-5D score.

Examples

```
dat <- data.frame(
  matrix(
    sample(1:3,5*12, replace=TRUE),12,5,
    dimnames=list(1:12,c("MO","SC","UA","PD","AD"))
  ),
  Sex=rep(c("Male", "Female"))
)

eq5dds(dat, version="3L")
eq5dds(dat, version="3L", counts=TRUE)

eq5dds(dat, version="3L", by="Sex")
```

 eq5dmap

Calculate utility index scores by mapping between EQ-5D-3L and EQ-5D-5L

Description

Conditional prediction of the utility values of 5L scores onto 3L value sets and 3L scores onto 5L value sets from observed or specified values conditional on age and gender using the NICE Decision Support Unit's models (see [NICE DSU's website](#) for more information).

Usage

```
eq5dmap(scores, country, version, age, sex, bwidth = 0)
```

Arguments

scores	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression. or a utility index score
country	value set country
version	string of value "3L" or "5L" to indicate starting instrument version.
age	age in years (18-100), or age category (1: 18-34, 2: 35-44, 3: 45-54, 4: 55-64, 5: 65-100)
sex	Male or Female
bwidth	bandwidth score for approximate scores (< 0.8: 0.2, 0.8-0.951: 0.1, 0.951-1: small, but large enough to include 1)

Details

Available value sets can be viewed using the function `valuesets`.

Value

calculated utility index score.

Examples

```
eq5dmap(c(MO=1,SC=2,UA=3,PD=4,AD=5), "UK", "5L", 30, "female")
eq5dmap(0.922, "UK", "5L", 18, "male")
eq5dmap(0.715, "UK", "5L", 50, "male", bwidth = 0.0001)
```

eq5drcw

Calculate EQ-5D-3L reverse crosswalk index scores

Description

Calculate indices for EQ-5D-3L indices by mapping them onto EQ-5D-5L value sets. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5drcw(scores, country = "UK")
```

Arguments

scores	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
country	value set country.

Value

calculated utility index score.

Examples

```
eq5drcw(scores=c(M0=1,SC=2,UA=3,PD=2,AD=1), country="Netherlands")  
eq5drcw(scores=c(M0=3,SC=3,UA=3,PD=3,AD=3), country="Germany")
```

eq5dy

Calculate EQ-5D-Y index scores

Description

Calculate indices for EQ-5D-Y value sets. Available value sets can be viewed using the function `valuesets`.

Usage

```
eq5dy(scores, country = NULL)
```

Arguments

<code>scores</code>	numeric with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
<code>country</code>	value set country.

Value

calculated utility index score.

Examples

```
eq5dy(scores=c(M0=3,SC=3,UA=3,PD=3,AD=3), country="Slovenia")
```

`getDimensionsFromHealthStates`*Get individual dimension scores from their five digit health states*

Description

Get a data.frame of individual dimension scores from their five digit health states.

Usage

```
getDimensionsFromHealthStates(scores, ignore.invalid = TRUE, version = "5L")
```

Arguments

`scores` a vector of five digit scores
`ignore.invalid` whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
`version` 3L, 5L or Y. Used for validating scores when `ignore.invalid` is FALSE.

Value

A data.frame of individual dimension scores.

Examples

```
getDimensionsFromHealthStates(c("12345", "54321"), version="5L")
```

`getHealthStates`*Get all five digit health state scores*

Description

Get all five digit health state scores for either EQ-5D-3L, EQ-5D-5L or EQ-5D-Y

Usage

```
getHealthStates(version)
```

Arguments

`version` the EQ-5D version. Either 3L or 5L.

Value

A character vector of five digit health states.

Examples

```
getHealthStates("3L")
getHealthStates("5L")
getHealthStates("Y")
```

```
getHealthStatesFromDimensions
```

Get five digit health states from dimension scores

Description

Merge MO, SC, UA, PD and AD dimension scores to get five digit health states.

Usage

```
getHealthStatesFromDimensions(  
  scores,  
  version = "5L",  
  ignore.invalid = TRUE,  
  dimensions = .getDimensionNames()  
)
```

Arguments

scores	a data.frame containing each dimension in a column
version	3L, 5L or Y. Used for validating scores when ignore.invalid is FALSE.
ignore.invalid	whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
dimensions	character vector specifying "dimensions" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

A character vector of individual dimension scores.

Examples

```
scores <- data.frame(MO=c(1,1,1,1,1),SC=c(1,2,1,2,1),  
                    UA=c(1,2,3,2,1),PD=c(3,2,1,2,3),AD=c(3,3,3,3,3))  
getHealthStatesFromDimensions(scores, version="5L")
```

lfs	<i>Calculate the Level Frequency Score for an EQ-5D profile</i>
-----	---

Description

Calculate the Levels Frequency Score for a single or number of EQ-5D profiles

Usage

```
lfs(scores, version, ignore.invalid, ...)
```

Arguments

scores	data.frame with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
version	string of value "3L", "5L" or "Y" to indicate instrument version.
ignore.invalid	whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
...	character vector, specifying "dimensions" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

a data.frame or list of data.frames of counts/percentages. Columns contain dimensions names and rows the EQ-5D score.

lss	<i>Calculate the Level Sum Score for an EQ-5D profile</i>
-----	---

Description

Calculate the Levels Sum Score for a single or number of EQ-5D profiles

Usage

```
lss(scores, version, ignore.invalid, ...)
```

Arguments

scores	data.frame with names MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression.
version	string of value "3L" or "5L" to indicate instrument version.
ignore.invalid	whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
...	character vector, specifying "dimensions" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

a data.frame or list of data.frames of counts/percentages. Columns contain dimensions names and rows the EQ-5D score.

pchc

Calculate the Paretian Classification of Health Change

Description

Calculate the Paretian Classification of Health Change (PCHC) for two EQ-5D datasets.

Usage

```
pchc(
  pre,
  post,
  version = "5L",
  no.problems = TRUE,
  totals = TRUE,
  by.dimension = FALSE,
  ignore.invalid = TRUE,
  dimensions = .getDimensionNames()
)
```

Arguments

pre	data.frame, numeric or character. For data.frame default column names should be MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression. Vector using five digit format can also be used.
post	data.frame, numeric or character. For data.frame default column names should be MO, SC, UA, PD and AD representing Mobility, Self-care, Usual activities, Pain/discomfort and Anxiety/depression. Vector using five digit format can also be used.
version	string of value "3L" or "5L" to indicate instrument version.
no.problems	boolean. Summarise 11111 "No change" subjects in a "No problems" group.
totals	boolean. Include a summary total.
by.dimension	boolean. Summarise results by each EQ-5D dimension rather than by the whole dataset.
ignore.invalid	boolean whether to ignore invalid scores. TRUE returns NA, FALSE throws an error.
dimensions	character vector, specifying "dimension" column names. Defaults are "MO", "SC", "UA", "PD" and "AD".

Value

a data.frame or list of data.frames of changes according to PCHC. contain dimensions names and rows the EQ-5D score.

RCW	<i>EQ-5D-3L Reverse Crosswalk data</i>
-----	--

Description

Reverse Crosswalk index value table to calculate EQ-5D-5L indices from EQ-5D-3L data for England, Germany, Netherlands and USA. Table uses the values of van Hout et al from the EuroQol analysis tools webpage.

Usage

RCW

Format

An object of class data.frame with 243 rows and 4 columns.

Source

[Reverse crosswalk datasets](#)

shiny_eq5d	<i>Launch shiny EQ-5D interface</i>
------------	-------------------------------------

Description

shiny_eq5d launches a shiny interface for browser based EQ-5D calculations.

Usage

```
shiny_eq5d(display.mode = "normal")
```

Arguments

display.mode The display mode to be passed to [runApp](#)

Examples

```
## Not run:
shiny_eq5d()
shiny_eq5d(display.mode="normal")
```

```
## End(Not run)
```


TTO

*EQ-5D-3L TTO value set data***Description**

Coefficients for the estimation of the EQ-5D-3L index values based on TTO valuation studies for Argentina, Australia, Brazil, Canada, Chile, China, Denmark, Ecuador, France, Germany, Hungary, Italy, Japan, Netherlands, Poland, Portugal, Russia, Singapore, South Korea, Spain, Sri Lanka, Sweden, Taiwan, Thailand, Trinidad and Tobago, Tunisia, UK, USA and Zimbabwe.

Usage

TTO

Format

An object of class `data.frame` with 63 rows and 29 columns.

Source

Szende, A., Oppe, M., & de Charro, F. (2007), Comparative review of Time Trade-Off value sets. In Szende, A., Oppe, M., & Devlin, N. (Ed.), *EQ-5D Value Sets: Inventory, Comparative Review and User Guide* (pp. 27-28). Dordrecht, The Netherlands: Springer.

Janssen, B., Szende, A., & Ramos-Goñi JM. (2014), Data and Methods. Szende, A., Janssen, B., & Cabasés, J. (Ed.), In *Self-Reported Population Health: An International Perspective based on EQ-5D* (p 13). Dordrecht, The Netherlands: Springer.

Australia: Viney R, Norman R, King MT, Cronin P, Street DJ, Knox S, Ratcliffe J. Time trade-off derived EQ-5D weights for Australia. *Value Health*. 2011 Sep-Oct;14(6):928-36. doi: 10.1016/j.jval.2011.04.009. [PubMed](#)

Brazil: Viegas Andrade M, Noronha K, Kind P, Maia AC, Miranda de Menezes R, De Barros Reis C, Nepomuceno Souza M, Martins D, Gomes L, Nichele D, Calazans J, Mascarenhas T, Carvalho L, Lins C. Societal Preferences for EQ-5D Health States from a Brazilian Population Survey. *Value in Health Regional Issues* 2013;2(3):405–412. [PubMed](#)

Canada: Bansback N, Tsuchiya A, Brazier J, Anis A. Canadian valuation of EQ-5D health states: preliminary value set and considerations for future valuation studies. *PLoS One*. 2012;7(2):e31115. [PubMed](#)

Chile: Zarate V, Kind P, Valenzuela P, Vignau A, Olivares-Tirado P, Munoz A. Social valuation of EQ-5D health states: the Chilean case. *Value in Health*. 2011 Dec;14(8):1135-41. [PubMed](#)

China: Liu GG, Wu H, Li M, Gao C, Luo N. Chinese time trade-off values for EQ-5D health states. *Value Health*. 2014 Jul;17(5):597-604. doi: 10.1016/j.jval.2014.05.007. Epub 2014 Jul 23. [PubMed](#)

Ecuador: Lucio R, Flores V, Granja M, Mata G. Resultados de la encuesta de valoración social de los estados de salud de 1Años de vida ajustados por calidad (QALY'S). 2019. [Link](#)

- Hungary:** Rencz F, Brodzsky V, Gulácsi L, Golicki D, Ruzsa G, Pickard AS, Law EH, Péntek M. Parallel Valuation of the EQ-5D-3L and EQ-5D-5L by Time Trade-Off in Hungary. *Value Health*. 2020 Sep;23(9):1235-1245. doi: 10.1016/j.jval.2020.03.019. Epub 2020 Aug 12. [PubMed](#)
- Poland:** Golicki D, Jakubczyk M, Niewada M, Wrona W, Busschbach JJ. Valuation of EQ-5D health states in Poland: first TTO-based social value set in Central and Eastern Europe. *Value in Health*. 2010;13(2):289-97. [PubMed](#)
- Portugal:** Ferreira LN, Ferreira PL, Pereira LN, Oppe M. The valuation of the EQ-5D in Portugal. *Qual Life Res*. 2014 Mar;23(2):413-23. doi: 10.1007/s11136-013-0448-z. Epub 2013 Jun 8. [PubMed](#)
- Russia:** Omelyanovskiy V, Musina N, Ratushnyak S, Bezdenezhnykh T, Fediaeva V, Roudijk B, Purba FD. Valuation of the EQ-5D-3L in Russia. *Qual Life Res*. 2021 Mar 13. doi: 10.1007/s11136-021-02804-6. Epub ahead of print. [PubMed](#)
- Singapore:** Luo N, Wang P, Thumboo J, Lim YW, Vrijhoef HJ. Valuation of EQ-5D-3L health states in Singapore: modeling of time trade-off values for 80 empirically observed health states. *Pharmacoeconomics*. 2014 May;32(5):495-507. doi: 10.1007/s40273-014-0142-1. [PubMed](#)
- Sri Lanka:** Kularatna S, Whitty JA, Johnson NW, Jayasinghe R, Scuffham PA. Valuing EQ-5D health states for Sri Lanka. *Qual Life Res*. 2015 Jul;24(7):1785-93. doi:10.1007/s11136-014-0906-2. Epub 2014 Dec 28. PubMed PMID: [PubMed](#)
- Sweden:** Burström K, Sun S, Gerdtham UG, Henriksson M, Johannesson M, Levin LÅ, Zethraeus N. Swedish experience-based value sets for EQ-5D health states. *Qual Life Res*. 2014 Mar;23(2):431-42. doi: 10.1007/s11136-013-0496-4. [PubMed](#)
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- Trinidad and Tobago:** Bailey H, Stolk E, Kind P. Toward Explicit Prioritization for the Caribbean: An EQ-5D Value Set for Trinidad and Tobago. *Value Health Reg Issues*. 2016 Dec;11:60-67. doi: 10.1016/j.vhri.2016.07.010. [PubMed](#)
- Tunisia:** Chemli J, Drira C, Felfel H, Roudijk B, Al Sayah F, Kouki M, Kooli A, Razgallah Khrouf M. Valuing health-related quality of life using a hybrid approach: Tunisian value set for the EQ-5D-3L. *Qual Life Res*. 2021 Jan 14. doi: 10.1007/s11136-020-02730-z. Epub ahead of print. [PubMed](#)

valuesets

Get the available EQ-5D value sets.

Description

valuesets returns a data.frame of the available EQ-5D value sets in the eq5d package.

Usage

```
valuesets(type = NULL, version = NULL, country = NULL)
```

Arguments

type	string EQ-5D value set type. TTO or VAS for EQ-5D-3L, VT for EQ-5D-5L, CW for EQ-5D-5L crosswalk conversion dataset, or DSU for NICE Decision Support Unit's EQ-5D-5L to EQ-5D-3L and EQ-5D-3L to EQ-5D-5L mappings.
version	string either 3L or 5L.
country	string one of the countries for which there is a value set.

Value

A data.frame containing the EQ-5D version, value set type and country

Examples

```
valuesets()
valuesets(type="TTO")
valuesets(version="5L")
valuesets(country="UK")
```

VAS	<i>EQ-5D-3L VAS value set data</i>
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Description

Coefficients for the estimation of the EQ-5D-3L index values based on VAS valuation studies for Belgium, Denmark, Europe, Finland, Germany, Iran, Malaysia, New Zealand, Slovenia, Spain and UK.

Usage

```
VAS
```

Format

An object of class data.frame with 21 rows and 11 columns.

Source

Oppe, M., Szende, A., & de Charro, F. (2007), Comparative review of Visual Analogue Scale value sets. In Szende, A., Oppe, M., & Devlin, N. (Ed.), EQ-5D Value Sets: Inventory, Comparative Review and User Guide (pp. 37-38). Dordrecht, The Netherlands: Springer.

Iran: Goudarzi R, Zeraati H, Akbari Sari A, Rashidian A, Mohammad K. Population-Based Preference Weights for the EQ-5D Health States Using the Visual Analogue Scale (VAS) in Iran. Iran Red Crescent Med J. 2016 Feb 13;18(2):e21584. doi: 10.5812/ircmj.21584. [PubMed](#)

Malaysia: Yusof FA, Goh A, Azmi S. Estimating an EQ-5D value set for Malaysia using time trade-off and visual analogue scale methods. Value Health. 2012 Jan-Feb;15(1 Suppl):S85-90. doi: 10.1016/j.jval.2011.11.024. [PubMed](#)

VT

*EQ-5D-5L VT value set data***Description**

EQ-5D-5L VT value set calculation data for Belgium, Canada, China, Denmark, Egypt, England, Ethiopia, France, Germany, Hong Kong, Hungary, India, Indonesia, Ireland, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Peru, Poland, Portugal, South Korea, Spain, Sweden, Taiwan, Thailand, Uganda, Uruguay, USA, Vietnam and Western Preference Pattern (WePP).

Usage

VT

Format

An object of class `data.frame` with 35 rows and 36 columns.

Source

1. **Belgium:** Bouckaert N, Gerkens S, Devriese S, Cleemput I. An EQ-5D-5L value set for Belgium – How to value health-related quality of life? Health Services Research (HSR) Brussels: Belgian Health Care Knowledge Centre (KCE). 2021. KCE Reports 342. D/2021/10.273/19. [PDF](#)
2. **Canada:** Xie F, Pullenayegum E, Gaebel K, Bansback N, Bryan S, Ohinmaa A, Poissant L, Johnson JA. A Time Trade-off-derived Value Set of the EQ-5D-5L for Canada. *Med Care*. 2016;54(1):98-105. [PubMed](#)
3. **China:** Luo N, Liu G, Li M, Guan H, Jin X, Rand-Hendriksen K. Estimating an EQ-5D-5L Value Set for China. *Value in Health*. 2017 Apr;20(4):662-669. doi: 10.1016/j.jval.2016.11.016. Epub 2017 Feb 9. [PubMed](#)
4. **Denmark:** Jensen CE, Sørensen SS, Gudex C, Jensen MB, Pedersen KM, Ehlers LH. The Danish EQ-5D-5L Value Set: A Hybrid Model Using cTTO and DCE Data. *Appl Health Econ Health Policy*. 2021 Feb 2. doi: 10.1007/s40258-021-00639-3. Epub ahead of print. [PubMed](#)
5. **England:** Devlin N, Shah K, Feng Y, Mulhern B, van Hout B. Valuing health-related quality of Life: An EQ-5D-5L Value Set for England. *Health Economics*. 2018 Jan;27(1):1-22 [PubMed](#)
6. **Egypt:** Al Shabasy S, Abbassi M, Finch A, Roudijk B, Baines D, Farid S. The EQ-5D-5L Valuation Study in Egypt. *Pharmacoeconomics*. 2021 Nov 17:1–15. doi: 10.1007/s40273-021-01100-y. Epub ahead of print. [PubMed](#)
7. **Ethiopia:** Welie AG, Gebretekla GB, Stolk E, Mukuria C, Krahn MD, Enquoselassie F, Fenta TG. Valuing Health State: An EQ-5D-5L Value Set for Ethiopians. *Value Health Reg Issues*. 2019 Nov 1;22:7-14. doi: 10.1016/j.vhri.2019.08.475. [PubMed](#)
8. **France:** Andrade LF, Ludwig K, Goni JMR, Oppe M, de Pouvourville G. A French Value Set for the EQ-5D-5L. *Pharmacoeconomics*. 2020 Jan 8. doi: 10.1007/s40273-019-00876-4. [PubMed](#)

9. **Germany:** Ludwig K, Graf von der Schulenburg JM, Greiner W. German Value Set for the EQ-5D-5L. *Pharmacoeconomics*. 2018 Feb;36(6):663-674. doi: 10.1007/s40273-018-0615-8. [PubMed](#)
10. **HongKong:** Wong ELY, Ramos-Goñi JM, Cheung AWL, Wong AYK, Rivero-Arias O. Assessing the Use of a Feedback Module to Model EQ-5D-5L Health States Values in Hong Kong. *Patient*. 2018 Apr;11(2):235-247. doi: 10.1007/s40271-017-0278-0. [PubMed](#)
11. **Hungary:** Rencz F, Brodsky V, Gulácsi L, Golicki D, Ruzsa G, Pickard AS, Law EH, Péntek M. Parallel Valuation of the EQ-5D-3L and EQ-5D-5L by Time Trade-Off in Hungary. *Value Health*. 2020 Sep;23(9):1235-1245. doi: 10.1016/j.jval.2020.03.019. Epub 2020 Aug 12. [PubMed](#)
12. **India:** Jyani G, Sharma A, Prinja S, Kar SS, Trivedi M, Patro BK, Goyal A, Purba FD, Finch AP, Rajsekar K, Raman S, Stolk E, Kaur M. Development of an EQ-5D Value Set for India Using an Extended Design (DEVINE) Study: The Indian 5-Level Version EQ-5D Value Set. *Value Health*. 2022 Jul;25(7):1218-1226. doi: 10.1016/j.jval.2021.11.1370. Epub 2022 Jan 5. [PubMed](#)
13. **Indonesia:** Purba FD, Hunfeld JAM, Iskandarsyah A, Fitriana TS, Sadarjoen SS, Ramos-Goñi JM, Passchier J, Busschbach JJ. The Indonesian EQ-5D-5L Value Set. *Pharmacoeconomics*. 2017 Nov;35(11):1153-1165. doi: 10.1007/s40273-017-0538-9. [PubMed](#)
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16. **Japan:** Shiroiwa T, Ikeda S, Noto S, Igarashi A, Fukuda T, Saito S, Shimosuma K. Comparison of Value Set Based on DCE and/or TTO Data: Scoring for EQ-5D-5L Health States in Japan. *Value in Health*. 2016 Jul-Aug;19(5):648-54. [PubMed](#)
17. **Malaysia:** Shafie AA; Vasan Thakumar A; Lim CJ; Luo N; Rand-Hendriksen K; Yusof FA. EQ-5D-5L Valuation for the Malaysian Population. *Pharmacoeconomics*. 2019 May;37(5):715-725. doi: 10.1007/s40273-018-0758-7. [PubMed](#)
18. **Mexico:** Gutierrez-Delgado C, Galindo-Suárez RM, Cruz-Santiago C, Shah K, Papadimitropoulos M, Feng Y, Zamora B, Devlin N. EQ-5D-5L Health-State Values for the Mexican Population. *Appl Health Econ Health Policy*. 2021 Nov;19(6):905-914. doi: 10.1007/s40258-021-00658-0. Epub 2021 Jun 26. [PubMed](#)
19. **Netherlands:** Versteegh MM, Vermeulen KM, Evers SM, de Wit GA, Prenger R, Stolk EA. Dutch Tariff for the Five-Level Version of EQ-5D. *Value in Health*. 2016 Jun;19(4):343-52. doi: 10.1016/j.jval.2016.01.003. [PubMed](#)
20. **New Zealand:** Sullivan T, Hansen P, Ombler F, Derrett S, Devlin N. A new tool for creating personal and social EQ-5D-5L value sets, including valuing 'dead'. *Soc Sci Med*. 2020 Feb;246:112707. doi: 10.1016/j.socscimed.2019.112707. Epub 2019 Nov 30. [PubMed](#)
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22. **Philippines** Miguel RTD, Rivera AS, Cheng KJG, Rand K, Purba FD, Luo N, Zarsuelo MA, Genuino-Marfori AJ, Florentino-Fariñas I, Guerrero AM, Lam HY. Estimating the EQ-5D-5L

- value set for the Philippines. *Qual Life Res.* 2022 May 9. doi: 10.1007/s11136-022-03143-w. [PubMed](#)
23. **Poland** Golicki D, Jakubczyk M, Niewada M, Wrona W, Busschbach JJ. Valuation of EQ-5D health states in Poland: first TTO-based social value set in Central and Eastern Europe. *Value Health.* 2010 Mar-Apr;13(2):289-97. doi: 10.1111/j.1524-4733.2009.00596.x. [PubMed](#)
 24. **Portugal** Ferreira PL, Antunes P, Ferreira LN, Pereira LN, Ramos-Goñi JM. A hybrid modelling approach for eliciting health state preferences: the Portuguese EQ-5D-5L value set. *Qual Life Res.* 2019 Jun 14. doi: 10.1007/s11136-019-02226-5. [PubMed](#)
 25. **Romania** Olariu E, Mohammed W, Oluboyede Y, Caplescu R, Niculescu-Aron IG, Paveliu MS, Vale L. EQ-5D-5L: a value set for Romania. *Eur J Health Econ.* 2022 Jun 10. doi: 10.1007/s10198-022-01481-7. Epub ahead of print. [PubMed](#)
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 27. **Spain:** Ramos-Goñi JM, Craig B, Oppe M, Ramallo-Fariña Y, Pinto-Prades JL, Luo N, Rivero-Arias O. Handling data quality issues to estimate the Spanish EQ-5D-5L Value Set using a hybrid interval regression approach. *Value in Health* 2018 May;21(5):596-604. doi: 10.1016/j.jval.2017.10.023. [PubMed](#)
 28. **Sweden:** Burström K, Teni FS, Gerdtham UG, Leidl R, Helgesson G, Rolfson O, Henriksson M. Experience-Based Swedish TTO and VAS Value Sets for EQ-5D-5L Health States. *Pharmacoeconomics.* 2020 Apr 20. doi: 10.1007/s40273-020-00905-7. [PubMed](#)
 29. **Taiwan:** Lin HW, Li CI, Lin FJ, Chang JY, Gau CS, Luo N, Pickard AS, Ramos Goñi JM, Tang CH, Hsu CN. Valuation of the EQ-5D-5L in Taiwan. *PLoS One.* 2018; 13(12):: e0209344. doi: 10.1371/journal.pone.0209344. [PubMed](#)
 30. **Thailand** Pattanaphesaj J, Thavorncharoensap M, Ramos-Goñi JM, Tongsiri S, Ingsrisawang L, Teerawattananon Y. The EQ-5D-5L Valuation study in Thailand. *Expert Review of Pharmacoeconomics & Outcomes Research.* 2018 Oct;18(5):551-558. doi: 10.1080/14737167.2018.1494574 [PubMed](#)
 31. **Uganda** Yang F, Katumba KR, Roudijk B, Yang Z, Revill P, Griffin S, Ochanda PN, Lamorde M, Greco G, Seeley J, Sculpher M. Developing the EQ-5D-5L Value Set for Uganda Using the 'Lite' Protocol. *Pharmacoeconomics.* 2021 Nov 29:1–13. doi: 10.1007/s40273-021-01101-x. [PubMed](#)
 32. **Uruguay:** Augustovski F, Rey-Ares L, Irazola V, Garay OU, Gianneo O, Fernández G, Morales M, Gibbons L, Ramos-Goñi JM. An EQ-5D-5L value set based on Uruguayan population preferences. *Qual Life Res.* 2016 Feb;25(2):323-33. doi: 10.1007/s11136-015-1086-4. [PubMed](#)
 33. **USA:** Pickard AS, Law EH, Jiang R, Pullenayegum E, Shaw JW, Xie F, Oppe M, Boye KS, Chapman RH, Gong CL, Balch A, Busschbach JJV. United States Valuation of EQ-5D-5L Health States Using an International Protocol. *Value in Health.* 2019 Aug;22(8):931-941. doi: 10.1016/j.jval.2019.02.009. [PubMed](#)
 34. **Vietnam:** Mai VQ, Sun S, Minh HV, Luo N, Giang KB, Lindholm L, Sahlen KG. An EQ-5D-5L Value Set for Vietnam. *Qual Life Res.* 2020;29(7):1923-1933. doi:10.1007/s11136-020-02469-7. [PubMed](#)
 35. **WePP:** Olsen JA, Lamu AN, Cairns J. In search of a common currency: A comparison of seven EQ-5D-5L value sets. *Health Econ.* 2018 Jan;27(1):39-49. doi: 10.1002/hec.3606. Epub 2017 Oct 24. [PubMed](#).

Y

*EQ-5D-Y value set data***Description**

EQ-5D-Y value set calculation data for Japan and Slovenia.

Usage

Y

Format

An object of class `data.frame` with 12 rows and 4 columns.

Source

1. **Germany:** Kreimeier S, Mott D, Ludwig K, Greiner W; IMPACT HTA HRQoL Group. EQ-5D-Y Value Set for Germany. *Pharmacoeconomics*. 2022 May 23:1–13. doi: 10.1007/s40273-022-01143-9. Epub ahead of print. [PubMed](#)
2. **Japan:** Shiroiwa T, Ikeda S, Noto S, Fukuda T, Stolk E. Valuation Survey of EQ-5D-Y Based on the International Common Protocol: Development of a Value Set in Japan. *Med Decis Making*. 2021 Mar 23:272989X211001859. doi: 10.1177/0272989X211001859. Epub ahead of print. [PubMed](#)
3. **Slovenia:** Prevolnik Rupel V, Ogorevc M; IMPACT HTA HRQoL Group. EQ-5D-Y Value Set for Slovenia. *Pharmacoeconomics*. 2021 Feb 10. doi: 10.1007/s40273-020-00994-4. Epub ahead of print. [PubMed](#)
4. **Spain:** Ramos-Goñi JM, Oppe M, Estévez-Carrillo A, Rivero-Arias O; IMPACT HTA HRQoL Group. Accounting for Unobservable Preference Heterogeneity and Evaluating Alternative Anchoring Approaches to Estimate Country-Specific EQ-5D-Y Value Sets: A Case Study Using Spanish Preference Data. *Value in Health*. 2021 Dec 04. doi: 10.1016/j.jval.2021.10.013.

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