Package 'hospitals'

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Type Package

Title Portuguese 'NHS' Hospitals

Version 0.1.0

Description A data set of the Portuguese 'NHS' hospitals.

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URL https://github.com/nhs-pt/hospitals

BugReports https://github.com/nhs-pt/hospitals/issues

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get_hospital_attribute

Get hospital attribute

Description

get_hospital_attribute retrieves one of the variables of hospitals as indicated in x. Hospitals in x can be specified by the: (i) hospital identifier, (ii) acronym, or the (iii) shortened or (iv) full version of the hospital name.

Usage

```
get_hospital_attribute(x, key = "hospital_id", value = "hospital_short_name")
```

Arguments

x	A character vector of values that refer to hospitals, can be either the hospital identifier (e.g. "h0003"), its acronym (e.g. "HB"), the shortened name ("H de Braga") or the full name ("Hospital de Braga,EPE"). Indicate how x should be interpreted with the parameter key.
key	A string indicating the type of values in x: "hospital_id", "hospital_acronym", "hospital_short_name" or "hospital_full_name".
value	A string indicating the hospital attribute to be returned, can be any of the columns of hospitals.

Value

A character vector of hospital attributes.

Examples

```
# Get the short name of a hospital
# (same as get_hospital_attribute('h0001', value = 'hospital_short_name'))
get_hospital_attribute('h0001')

# Or get instead the full name
get_hospital_attribute('h0001', value = 'hospital_full_name')

# Map the hospital short name to its full name
get_hospital_attribute('IPO de Lisboa', key = 'hospital_short_name', value = 'hospital_full_name')
```

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hospitals	*Portuguese NHS hospitals*

Description

A dataset of the Portuguese National Health Service hospitals.

Usage

```
hospitals
```

Format

A data frame with 16 variables:

hospital_id A surrogate identifier created by this R package to identify unambiguously each hospital institution.

hospital_acronym The acronym or initialism of the hospital name.

hospital_legal_status Legal entity status: either an administrative public sector (SPA) entity, a corporate public entity (EPE) or a public-private partnership (PPP) entity. The legal status of SPA and EPE entities can be found in Decree-law 18/2017. For information about the legal status of the PPP entities see Decree-law 23/2020. The Portuguese government may also establish contracts with hospitals owned by social enterprises, namely Private Institutions of Social Solidarity (IPSS). In this case, these hospitals become effectively part of the National Health Service. There are three types of contracts that can be established with IPSS which are regulated by the Decree-law 138/2013: Management Agreement (IPSS-MA), Cooperative Agreement (IPSS-CA) and Convention (IPSS-CN).

hospital_integration The integration level of the hospital institution: a single hospital unit (`'H'`); *Centro Hospitalar* (`'CH'`), comprising two or more individual Hospital units (a case of horizontal integration); and *Unidade Local de Saúde* (`'ULS'`), comprising both Hospital entities and primary care health centres (a case of vertical integration).

hospital_group One of the groups defined by Ordinance 82/2014: I, II, III, IV-a, IV-b or IV-c. This classification is based on the hospital catchment area and the scope of medical specialities provided. Broadly speaking, group I includes local hospitals, group II corresponds to regional hospitals, and group III to central hospitals. Group IV corresponds to specialised hospitals: IV-a, oncology institutes; IV-b, physical medicine and rehabilitation hospitals; and IV-c, psychiatry and mental health hospitals.

hospital_short_name An abbreviated version of the hospital name.

hospital_full_name The name of the hospital.

hospital_region_full_name The name of the Portuguese health region.

hospital_region_short_name A shortened version of hospital_region_full_name.

hospital_vatin VAT identification number (VATIN). In Portuguese, *Número de Identificação de Pessoa Colectiva* (NIPC).

hospital_latitude Latitude of the location of the hospital entity expressed in decimal degrees.

hospital_longitude Longitude of the location of the hospital entity expressed in decimal degrees.

hospital_region_colour Colour associated with the region. These colours are assigned by this package and are provided as a convenience colour palette for plotting in R.

hospital_bh_group One of the groups defined by the project Benchmarking of Hospitals. Source: BH | Grupos e Instituições.

hospital_bh_group_colour Colour associated with the bh_group. These colours are assigned by this package and are provided as a convenience colour palette for plotting in R.

hospital_regex A regular expression that can be used to identify hospitals from their names, even when the names are not exactly as in hospital_full_name.

Details

The concept of *hospital* here adopted is that of a legal entity providing hospital services. Depending on the organisational structure of the entity, it may be a single hospital unit (H), several hospital units that have been merged into one Hospital Centre (CH), or a merge of hospital units and health centres into the so called *Unidades Locais de Saúde (ULS)*; the column hospital_integration indicates which case is which.

Source

The set of hospitals included in this dataset was created by manual inspection of the hospital institutions referred in https://www.sns.gov.pt/institucional/entidades-de-saude/, namely those under the sections: *Serviço Nacional de Saúde—Setor Público Empresarial*, *Serviço Nacional de Saúde—Setor Público Administrativo*, *Hospitais em parceria público-privada (PPP)* and *Hospitais geridos pelas Misericórdias*.

Here are the sources per variable (column) in the dataset:

hospital_id Own work.

hospital_acronym Own work.

hospital_legal_status Obtained from https://www.sns.gov.pt/institucional/entidades-de-saude/ as the hospitals were grouped according to its legal status. In the case of the partnerships with IPSS, the information on the precise type of contract was obtained from inspection of the contracts themselves. In all cases they are Cooperative Agreements (IPSS-CA):

Hospital Luciano de Castro, Anadia data-raw/source/Acordo_Cooperacao_Hospital_Jose_Luciano_Castro_-Anadia1.pdf

Hospital São José, Fafe data-raw/source/Acordo_Coop_Hosp_Sao_Jose_Fafe.pdf

Hospital de São Paulo, Serpa data-raw/source/Acordo_Cooperacao_-Hospital_Sao_Paulo_Serpa.pdf

hospital_integration The classification in Hospital unit (H), Hospital Centre (CH) or Unidade Local de Saúde (ULS) could be easily inferred from the name of the hospitals. Hospital Centres always start with *Centro Hospitalar* (CH), and ULS hospitals always start with *Unidade Local de Saúde* (ULS). The remaining hospitals are therefore single Hospital (H) units.

hospital_group **Hospitals mentioned in Ordinance 82/2014** For the majority of the hospitals this grouping was obtained from the ordinance where these are first defined, i.e., the table annexed to Ordinance 82/2014.

Instituto de Oftalmologia Dr. Gama Pinto The hospital *Instituto de Oftalmologia Dr. Gama Pinto* was not assigned to any group in the Ordinance 82/2014. But given that this hospital is exclusively specialised in ophthalmology, we have decided to assign it generically to group IV (for specialised hospitals), following the criteria given in Ordinance 82/2014.

Hospital Dr. Francisco Zagalo, Ovar The hospital *Hospital Dr. Francisco Zagalo, Ovar* was not assigned to any group in the Ordinance 82/2014. It was included in group I however in a work by Luís Pereira, which we followed, see Table 15 in the Appendix 1, page 71 of data-raw/source/Pereira.Unpublished.2019.pdf.

Hospital Luciano de Castro, Anadia The hospital *Hospital Luciano de Castro, Anadia* was not assigned to any group in the Ordinance 82/2014. It was included in group I however in a work by Luís Pereira, which we followed, see Table 15 in the Appendix 1, page 71 of data-raw/source/Pereira.Unpublished.2019.pdf.

hospital_short_name Own work.

hospital_full_name Obtained from https://www.sns.gov.pt/institucional/entidades-de-saude/.

hospital_region_full_name Obtained from Decree-law 11/93.

hospital_region_short_name Own work.

hospital_vatin From the search engine https://codigopostal.ciberforma.pt/ and from data-raw/source/Infarmed_lista_hospitais.pdf.

hospital_latitude **and** hospital_longitude By searching each hospital in Google Maps and retrieving its coordinates.

hospital_region_colour Own work.

hospital_bh_group The ACSS groups defined in the project Hospitals' Benchmarking were collected from these sources:

ACSS Hospitals' Benchmarking website ACSS BH | Grupos e Instituições

Relatório de Benchmarking | hospitais EPE e PPP Page 7 of data-raw/source/Lourenco.TechReport.2013.pdf

Termos de Referência para contratualização de cuidados desaúde no SNS para 2021 Page 25 of data-raw/source/ACSS.TechReport.2020.pdf

hospital_bh_group_colour Own work.

hospital_regex Own work.

Examples

```
hospitals
```

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normalise	*Normalise hospital names*

Description

normalise tries to match provided hospital names to the Portuguese NHS hospitals, i.e. to those hospitals included in the data set hospitals, thus allowing conversion to standard hospital names. By default, it returns the shortened version of the hospital name: column hospital_short_name in hospitals. Use the return argument to return a different variable, see below for possible values.

Usage

```
normalise(
  nm,
  return = c("hospital_short_name", "hospital_full_name", "hospital_id",
    "hospital_acronym"),
  unmatched_as_na = TRUE
)

normalize(
  nm,
  return = c("hospital_short_name", "hospital_full_name", "hospital_id",
    "hospital_acronym"),
  unmatched_as_na = TRUE
)
```

Arguments

nm   A character vector of hospital names.

return   A string indicating the hospital attribute to be returned: either hospital_short_name
                        (default), hospital_full_name, hospital_id or hospital_acronym. These
                        hospital variables are documented in hospitals.

unmatched_as_na
                        A logical indicating whether unmatched hospital names are returned as NA (TRUE,
                        the default) or as originally supplied in nm (FALSE).

Details

The method behind normalise for matching hospital names is based on an heuristic that uses a
minimal set of keywords to identify the hospital. This is implemented by using regular expressions.
The regular expressions are provided in data set hospitals, column hospital_regex. Moreover,
the method is case insensitive and is pretty tolerant to variations in the name as long as one of
the critical keywords is found in the name. Note however that the regular expressions have been
designed such that matches are mutually exclusive. So the same hospital name will never match
more than one hospital of the data set hospitals.

normalise is aware of deprecated hospital names, and will map those old designations to the new
hospital names, e.g., Hospital do Alto Ave is correctly mapped to Hospital da Senhora da Oliveira,
Guimarães, EPE.

normalise is lenient with typos associated with accented characters, so, e.g., both expressions
'Hospital de São João' and 'Hospital de Sao Joao' will correctly match to the same hospital: CHU
de São João.

Value

A character vector.

Examples

```
# Match hospital with a single keyword
normalise('Matosinhos')

# The same, but return now the full name
normalise('Matosinhos', 'hospital_full_name')

# Get instead the hospital identifier
normalise('Matosinhos', 'hospital_id')

# Or even just the acronym (useful for labelling in plots)
normalise('Matosinhos', 'hospital_acronym')

# Find hospitals from their old names
# "Hospital do Alto Ave" is the old name for 'Hospital da Senhora da Oliveira, Guimarães, EPE'
normalise('Hospital do Alto Ave', 'hospital_full_name')

# `normalise()` is vectorised over `nm`
normalise(nm = c('medio tejo', 'oeste', 'guarda'))
```

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