

# Package ‘CARBayesdata’

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**Type** Package

**Title** Data Used in the Vignettes Accompanying the CARBayes and CARBayesST Packages

**Version** 2.0

**Date** 2016-06-10

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## Description

Spatio-temporal data from Scotland used in the vignettes accompanying the CARBayes (spatial modelling) and CARBayesST (spatio-temporal modelling) packages. For the CARBayes vignette the data include the Scottish lip cancer data and property price and respiratory hospitalisation data from the Greater Glasgow and Clyde health board. For the CARBayesST vignette the data include spatio-temporal data on property sales and respiratory hospitalisation and air pollution from the Greater Glasgow and Clyde health board.

**License** GPL (>= 2)

**Depends** R (>= 2.10.0)

**Imports** sp, shapefiles

**LazyLoad** yes

**NeedsCompilation** no

**Repository** CRAN

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CARBayesdata-package *Data Used in the Vignettes Accompanying the CARBayes and CAR-BayesST Packages*

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## Description

Spatio-temporal data from Scotland used in the vignettes accompanying the CARBayes (spatial modelling) and CARBayesST (spatio-temporal modelling) packages. For the CARBayes vignette the data include the Scottish lip cancer data and property price and respiratory hospitalisation datas from the Greater Glasgow and Clyde health board. For the CARBayesST vignette the data include spatio-temporal data on property sales and respiratory hospitalisation and air pollution from the Greater Glasgow and Clyde health board.

## Details

Package: CARBayesdata  
Type: Package  
Version: 2.0  
Date: 2016-06-10  
License: GPL (>= 2)

## Author(s)

Maintainer: Duncan Lee <Duncan.Lee@glasgow.ac.uk>

## Examples

```
library(shapefiles)
library(sp)

## Read in the spatial data for the Greater Glasgow and Clyde Health Board
data(GGHB.IG)

## Read in the Scottish Lipcancer dataframe and shapefile components
data(lipdata)
data(lipdbf)
data(lipshp)

## Read in the respiratory hospitalisation and pollution data
data(pollutionhealthdata)

## Read in the property price data
data(pricedata)
```

```
## Read in the respiratory hospitalisation data
data(respiratorydata)

## Read in the property sales data
data(salesdata)
```

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GGHB.IG

*Spatial polygon information for the Greater Glasgow and Clyde health board*

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### **Description**

A `SpatialPolygonsDataFrame` object containing the spatial polygon information for the set of 271 Intermediate Geographies (IG) that make up the Greater Glasgow and Clyde health board in Scotland. This study region is used in worked examples in the vignettes accompanying the `CARBayes` and `CARBayesST` packages.

### **Usage**

```
data(GGHB.IG)
```

### **Format**

A `SpatialPolygonsDataFrame` object, where the dataframe component contains 271 observations on the following variables.

`easting` Easting coordinate of the centroid of each IG in metres.

`northing` Northing coordinate of the centroid of each IG in metres.

### **Source**

These data were provided by the Scottish Government via <http://statistics.gov.scot>.

### **Examples**

```
library(sp)
data(GGHB.IG)
```

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lipdata	<i>Lip cancer data for Scotland</i>
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**Description**

These purely spatial data summarise overall lip cancer cases and possible covariate risk factors for the period 1975 to 1986, for 56 districts in Scotland. These data are used in a worked example in the vignette accompanying the CARBayes package.

**Usage**

```
data(lipdata)
```

**Format**

A data.frame object containing 56 observations on the following 5 variables.

observed The number of recorded lip cancer cases in each district.

expected The expected number of lip cancer cases in each district computed using indirect standardisation using Scotland-wide disease rates.

pcaff The percentage of the workforce in each district employed in agriculture, fishing and forestry.

latitude The latitude of the centroid of each district.

longitude The longitude of the centroid of each district.

**Examples**

```
data(lipdata)
```

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lipdbf	<i>Shapefile (.dbf) for the 56 districts in Scotland for the lip cancer data</i>
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**Description**

lipdbf contains the .dbf component of the shapefile for the 56 districts in Scotland for the lip cancer data. These data are used in a worked example in the vignette accompanying the CARBayes package.

**Usage**

```
data(lipdbf)
```

**Examples**

```
library(shapefiles)  
data(lipdbf)
```

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lipshp	<i>Shapefile (.shp) for the 56 districts in Scotland for the lip cancer data</i>
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**Description**

lipshp contains the .shp component of the shapefile for the 56 districts in Scotland for the lip cancer data. These data are used in a worked example in the vignette accompanying the CARBayes package.

**Usage**

```
data(lipshp)
```

**Examples**

```
library(shapefiles)
data(lipshp)
```

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pollutionhealthdata	<i>Respiratory hospitalisation, air pollution and covariate data for the Greater Glasgow and Clyde health board between 2007 and 2011.</i>
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**Description**

A data.frame object containing spatio-temporal data on respiratory hospitalisations, air pollution concentrations and socio-economic deprivation covariates for the 271 Intermediate Geographies (IG) that make up the Greater Glasgow and Clyde health board in Scotland. Yearly data are available between 2007 and 2011 inclusive. These data are used in a worked example in the vignette accompanying the CARBayesST package.

**Usage**

```
data(pollutionhealthdata)
```

**Format**

A data.frame object containing 1355 observations on the following 7 variables.

IG The unique identifier for each IG.

year The year the data relate to.

observed The observed numbers of hospitalisations due to respiratory disease in each IG and year.

expected The expected numbers of hospitalisations due to respiratory disease in each IG and year computed using indirect standardisation from Scotland-wide respiratory hospitalisation rates.

pm10 Average particulate matter (less than 10 microns) concentrations in each IG and year.

jsa The percentage of working age people who are in receipt of Job Seekers Allowance, a benefit paid to unemployed people looking for work, in each IG and year.

price Average property price (in thousands) in each IG and year.

**Source**

These data were provided by the Scottish Government via <http://statistics.gov.scot>.

**Examples**

```
data(pollutionhealthdata)
```

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pricedata

*Property price data for the Greater Glasgow and Clyde health board*

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**Description**

A data.frame object containing purely spatial data on median property prices in 2008 and possible covariates for 270 of the 271 Intermediate Geographies (IG) that make up the Greater Glasgow and Clyde health board in Scotland. Data for one IG have been removed due to it having an extreme outlying observation. These data are used in a worked example in the vignette accompanying the CARBayes package.

**Usage**

```
data(pricedata)
```

**Format**

A data.frame object containing 270 observations on the following 7 variables.

IG The unique identifier for each IG.

price Median property price in each IG.

crime The crime rate (number of crimes per 10,000 people) in each IG.

rooms The median number of rooms in a property in each IG.

sales The percentage of properties that sold in each IG in a year.

driveshop The average time taken to drive to a shopping centre in minutes.

type The predominant property type in each IG with levels: detached, flat, semi, terrace.

**Source**

These data were provided by the Scottish Government via <http://statistics.gov.scot>.

**Examples**

```
data(pricedata)
```

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respiratorydata	<i>Respiratory hospitalisation data for the Greater Glasgow and Clyde health board</i>
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**Description**

A data.frame object containing purely spatial data on hospital admissions due to respiratory disease in 2010 for the 134 Intermediate Geographies (IG) to the north of the river Clyde in the Greater Glasgow and Clyde health board. These data are used in a worked example in the vignette accompanying the CARBayes package.

**Usage**

```
data(respiratorydata)
```

**Format**

A data.frame object containing 134 observations on the following 5 variables.

IG The unique identifier for each IG.

observed The observed numbers of hospitalisations due to respiratory disease in each IG.

expected The expected numbers of hospitalisations due to respiratory disease in each IG computed using indirect standardisation from Scotland-wide respiratory hospitalisation rates.

incomedep The percentage of people in each IG who are defined to be income deprived.

SMR The standardised morbidity ratio (SMR, observed / expected) for respiratory hospitalisation in each IG.

**Source**

These data were provided by the Scottish Government via <http://statistics.gov.scot>.

**Examples**

```
data(respiratorydata)
```

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salesdata	<i>Property sales data for the Greater Glasgow and Clyde health board between 2003 and 2013.</i>
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**Description**

A data.frame object containing spatio-temporal data on property sales and the total number of properties for the 271 Intermediate Geographies (IG) that make up the Greater Glasgow and Clyde health board in Scotland. Yearly data are available between 2003 and 2013 inclusive. These data are used in a worked example in the vignette accompanying the CARBayesST package.

**Usage**

```
data(salesdata)
```

**Format**

A data.frame object containing 2981 observations on the following 4 variables.

IG The unique identifier for each IG.

year The year the data relate to.

sales The number of property sales in each IG and year.

stock The number of properties in each IG and year.

**Source**

These data were provided by the Scottish Government via <http://statistics.gov.scot>.

**Examples**

```
data(salesdata)
```



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