

Programing Assignment 3

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1 Plot the 30-day mortality rates for heart attack

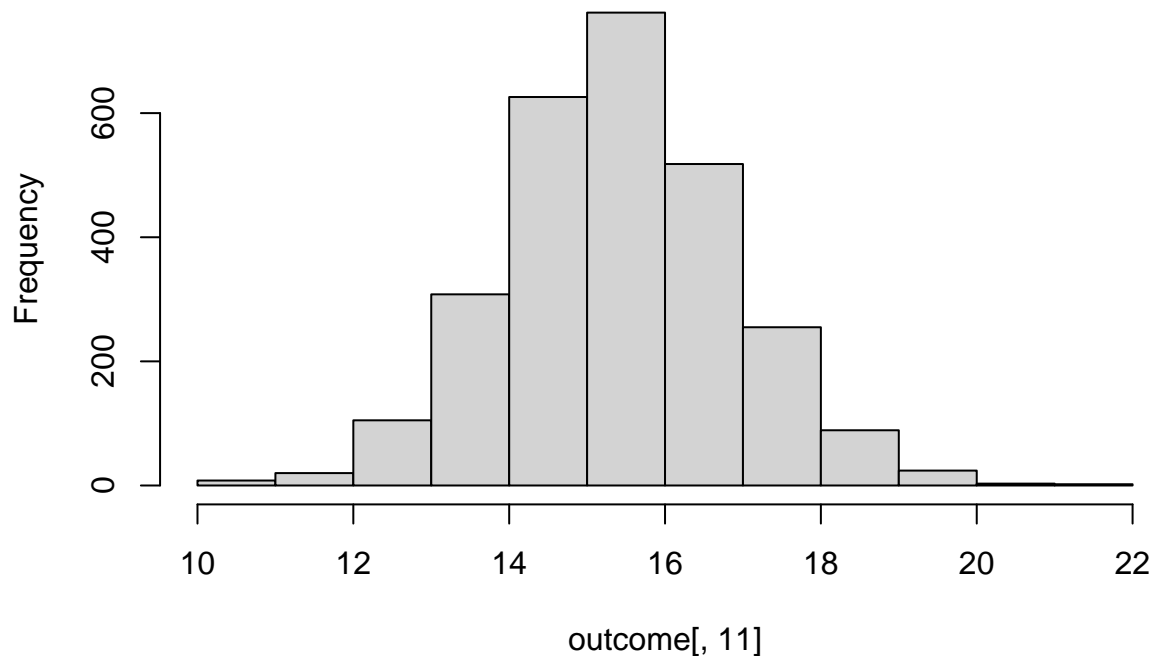
Read the outcome data into R via the `read.csv` function and look at the first few rows.

```
outcome <- read.csv("outcome-of-care-measures.csv", colClasses = "character")
```

There are many columns in this dataset. You can see how many by typing `ncol(outcome)` (you can see the number of rows with the `nrow` function). In addition, you can see the names of each column by typing `names(outcome)` (the names are also in the PDF document.)

To make a simple histogram of the 30-day death rates from heart attack (column 11 in the outcome dataset),

Histogram of outcome[, 11]



run:

Because we originally read the data in as character (by specifying `colClasses = "character"` we need to coerce the column to be numeric. You may get a warning about NAs being introduced but that is okay.

2 Finding the best hospital in a state

```
source('best.R')

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
best('TX', "heart attack")
```

```
## [1] "CYPRESS FAIRBANKS MEDICAL CENTER"
```

```
best("TX", "heart failure")
```

```
## [1] "FORT DUNCAN MEDICAL CENTER"
```

```
best("MD", "heart attack")
```

```
## [1] "JOHNS HOPKINS HOSPITAL, THE"
```

```
best("MD", "pneumonia")
```

```
## [1] "GREATER BALTIMORE MEDICAL CENTER"
```

```
best("BB", "heart attack")
```

```
## Error in best("BB", "heart attack"): Invalid State
```

```
best("NY", "hert attack")
```

```
## Error in best("NY", "hert attack"): Invalid Outcome
```

3 Ranking hospitals by outcome in a state

```
source('rankhospital.R')

rankhospital("TX", "heart failure", 4)
```

```
## [1] "DETAR HOSPITAL NAVARRO"
```

```
rankhospital("MD", "heart attack", "worst")
```

```
## [1] "HARFORD MEMORIAL HOSPITAL"
```

```
rankhospital("MN", "heart attack", 5000)
```

```
## [1] NA
```

4 Ranking hospitals in all states

```
source('rankall.R')
```

```
head(rankall("heart attack", 20), 10)
```

```
##                hospital state
## AK                <NA>      AK
## AL      D W MCMILLAN MEMORIAL HOSPITAL  AL
## AR    ARKANSAS METHODIST MEDICAL CENTER  AR
## AZ  JOHN C LINCOLN DEER VALLEY HOSPITAL  AZ
## CA                SHERMAN OAKS HOSPITAL  CA
## CO                SKY RIDGE MEDICAL CENTER  CO
## CT                MIDSTATE MEDICAL CENTER  CT
## DC                <NA>      DC
## DE                <NA>      DE
## FL      SOUTH FLORIDA BAPTIST HOSPITAL  FL
```

```
tail(rankall("pneumonia", "worst"), 3)
```

```
##                hospital state
## WI MAYO CLINIC HEALTH SYSTEM - NORTHLAND, INC  WI
## WV                PLATEAU MEDICAL CENTER  WV
## WY      NORTH BIG HORN HOSPITAL DISTRICT  WY
```

```
tail(rankall("heart failure"), 10)
```

```
##                hospital state
## TN      WELLMONT HAWKINS COUNTY MEMORIAL HOSPITAL  TN
## TX                FORT DUNCAN MEDICAL CENTER  TX
## UT VA SALT LAKE CITY HEALTHCARE - GEORGE E. WAHLEN VA MEDICAL CENTER  UT
## VA                SENTARA POTOMAC HOSPITAL  VA
## VI      GOV JUAN F LUIS HOSPITAL & MEDICAL CTR  VI
## VT                SPRINGFIELD HOSPITAL  VT
## WA                HARBORVIEW MEDICAL CENTER  WA
## WI      AURORA ST LUKES MEDICAL CENTER  WI
## WV      FAIRMONT GENERAL HOSPITAL  WV
## WY      CHEYENNE VA MEDICAL CENTER  WY
```

Assignment Questions

```
source('rankhospital.R')
source('best.R')
source('rankall.R')

best("SC", "heart attack")
```

```
## [1] "MUSC MEDICAL CENTER"
```

```
best("NY", "pneumonia")
```

```
## [1] "MAIMONIDES MEDICAL CENTER"
```

```
best("AK", "pneumonia")
```

```
## [1] "YUKON KUSKOKWIM DELTA REG HOSPITAL"
```

```
rankhospital("NC", "heart attack", "worst")
```

```
## [1] "WAYNE MEMORIAL HOSPITAL"
```

```
rankhospital("WA", "heart attack", 7)
```

```
## [1] "YAKIMA VALLEY MEMORIAL HOSPITAL"
```

```
rankhospital("TX", "pneumonia", 10)
```

```
## [1] "SETON SMITHVILLE REGIONAL HOSPITAL"
```

```
rankhospital("NY", "heart attack", 7)
```

```
## [1] "BELLEVUE HOSPITAL CENTER"
```

```
r <- rankall("heart attack", 4)
as.character(subset(r, state == "HI")$hospital)
```

```
## [1] "CASTLE MEDICAL CENTER"
```

```
r <- rankall("pneumonia", "worst")
as.character(subset(r, state == "NJ")$hospital)
```

```
## [1] "BERGEN REGIONAL MEDICAL CENTER"
```

```
r <- rankall("heart failure", 10)
as.character(subset(r, state == "NV")$hospital)
```

```
## [1] "RENOWN SOUTH MEADOWS MEDICAL CENTER"
```