

# Hospital Ranks

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Function called rankall takes two arguments: an outcome name (outcome) and a hospital ranking (num). The function reads the outcome-of-care-measures.csv file and returns a 2-column data frame containing the hospital in each state that has the ranking specified in num.

For example the function call: rankall("heart attack", "best") would return a data frame containing the names of the hospitals that are the best in their respective states for 30-day heart attack death rates. The function should return a best hospital name value for every state (some may be NA). The first column in the data frame is named hospital, which contains the hospital name, and the second column is named state, which contains the 2-character abbreviation for the state name. Hospitals that do not have data on a particular outcome should be excluded from the set of hospitals when deciding the rankings.

Handling ties. The rankall function should handle ties in the 30-day mortality rates in the same way that the rankhospital function handles ties. The function should use the following template.

```
selection<-function(ch,data,num){

newdata<-data[data$State==ch,]
  ranks<-rank(newdata[,3],ties.method='first') #rank function creates ranks to the data column wh
  newdata<-cbind(newdata,ranks) #binding the ranks list to the table
  newdata$Hospital.Name<-as.character(newdata$Hospital.Name)
  newdata$State<-as.character(newdata$State)
  # Below code checks if the user wanted result of best hospital or worst or 10th best or 7th bes
  if(num=="best")
  {

    return(c(newdata[newdata$ranks==1,1],newdata[newdata$ranks==1,2]))

  }
  else if(num=="worst")
  {
    return(c(newdata[newdata$ranks==1,1],newdata[newdata$ranks==1,2]))
  }
  else if(num>nrow(newdata))
  {
    print("NA")
  }
  else{
    return(c(newdata[newdata$ranks==1,1],newdata[newdata$ranks==1,2]))
  }
}

rankall <- function(outcome,num="best")
{
  tbloutcome<-read.csv("outcome-of-care-measures.csv") # table is read
  i<-1
  # if the out come is to check heart attack this if clause gets executed
  if(outcome=="heart attack")
```

```

{
  hospdata<-tbloutcome[,c(2,7,11)] # Choosing related columns from table
  hospdata$Hospital.30.Day.Death..Mortality..Rates.from.Heart.Attack<-as.numeric(as.character(hospdata[,3]))
  good<-complete.cases(hospdata[,3])
  hospdata<-hospdata[good=="TRUE",] # cleaning data from NA values or non applicable values
  hospdata<-hospdata[order(hospdata$Hospital.Name),]
  dup<-duplicated(hospdata[,2])
  StateCode<-hospdata[dup==FALSE,2]
  catch<-data.frame(matrix(NA,nrow=length(StateCode),ncol=2))
  for(i in 1:length(StateCode)){
    j<-i
    catch[i,c(1,2)]<-selection(StateCode[i],hospdata[,num])
  }
  print(catch)
}
else if(outcome == "heart failure")
{
  hospdata<-tbloutcome[,c(2,7,17)]
  hospdata$Hospital.30.Day.Death..Mortality..Rates.from.Heart.Failure<-as.numeric(as.character(hospdata[,3]))
  good<-complete.cases(hospdata[,3])
  hospdata<-hospdata[good=="TRUE",]
  hospdata<-hospdata[order(hospdata$Hospital.Name),]
  dup<-duplicated(hospdata[,2])
  StateCode<-hospdata[dup==FALSE,2]
  catch<-data.frame(matrix(NA,nrow=length(StateCode),ncol=2))
  for(i in 1:length(StateCode)){
    j<-i
    catch[i,c(1,2)]<-selection(StateCode[i],hospdata[,num])
  }
  print(catch)
}
else if(outcome == "pneumonia")
{
  hospdata<-tbloutcome[,c(2,7,23)]
  hospdata$Hospital.30.Day.Death..Mortality..Rates.from.Pneumonia<-as.numeric(as.character(hospdata[,3]))
  good<-complete.cases(hospdata[,3])
  hospdata<-hospdata[good=="TRUE",]
  hospdata<-hospdata[order(hospdata$Hospital.Name),]
  dup<-duplicated(hospdata[,2])
  StateCode<-hospdata[dup==FALSE,2]
  catch<-data.frame(matrix(NA,nrow=length(StateCode),ncol=2))
  for(i in 1:length(StateCode)){
    j<-i
    catch[i,c(1,2)]<-selection(StateCode[i],hospdata[,num])
  }
  print(catch)
}
else{
  print("No such outcome exists ")
}
}

```

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

```
## Warning in rankall("heart failure", "best"): NAs introduced by coercion
```

```
##                                     X1 X2
## 1                                PALMETTO HEALTH BAPTIST SC
## 2                                WILLIS KNIGHTON MEDICAL CENTER LA
## 3                        ESSENTIA HEALTH ST JOSEPH'S MEDICAL CENTER MN
## 4                                FORT DUNCAN MEDICAL CENTER TX
## 5                                PHILADELPHIA VA MEDICAL CENTER PA
## 6                                RUSH UNIVERSITY MEDICAL CENTER IL
## 7                                FAIRVIEW HOSPITAL OH
## 8                                ST CATHERINE HOSPITAL INC IN
## 9                                KINGSBROOK JEWISH MEDICAL CENTER NY
## 10                       CENTINELA HOSPITAL MEDICAL CENTER CA
## 11                       PORTLAND VA MEDICAL CENTER OR
## 12                       FIRSTHEALTH MOORE REGIONAL HOSPITAL NC
## 13                       SOUTH PENINSULA HOSPITAL AK
## 14                       NEBRASKA HEART HOSPITAL NE
## 15                       MERCY MEDICAL CENTER - CEDAR RAPIDS IA
## 16                       HARPER UNIVERSITY HOSPITAL MI
## 17                       HAYS MEDICAL CENTER KS
## 18                       SOUTH CENTRAL REG MED CTR MS
## 19 VA SALT LAKE CITY HEALTHCARE - GEORGE E. WAHLEN VA MEDICAL CENTER UT
## 20                       LOVELACE REGIONAL HOSPITAL - ROSWELL NM
## 21                       ST ALOISIUS MEDICAL CENTER ND
## 22                       AURORA ST LUKES MEDICAL CENTER WI
## 23                       GEORGE H. LANIER MEMORIAL HOSPITAL AL
## 24                       VALLEY REGIONAL HOSPITAL NH
## 25                       ST ELIZABETH'S MEDICAL CENTER MA
## 26                       MEDSTAR GOOD SAMARITAN HOSPITAL MD
## 27                       DOCTORS HOSPITAL GA
## 28                       DUNCAN REGIONAL HOSPITAL, INC OK
## 29                       BANNER GOOD SAMARITAN MEDICAL CENTER AZ
## 30                       VA CENTRAL AR. VETERANS HEALTHCARE SYSTEM LR AR
## 31                       PARKER ADVENTIST HOSPITAL CO
## 32                       MILES MEMORIAL HOSPITAL (LINCOLN COUNTY HEALTHCARE ME
## 33                       SAN LUKE'S MEMORIAL HOSPITAL INC PR
## 34                       WELLMONT HAWKINS COUNTY MEMORIAL HOSPITAL TN
## 35                       EAST ORANGE GENERAL HOSPITAL NJ
## 36                       HARBORVIEW MEDICAL CENTER WA
## 37                       NORTH KANSAS CITY HOSPITAL MO
## 38                       SENTARA POTOMAC HOSPITAL VA
## 39                       FLORIDA HOSPITAL HEARTLAND MEDICAL CENTER FL
## 40                       AVERA HEART HOSPITAL OF SOUTH DAKOTA LLC SD
## 41                       MOUNTAINVIEW HOSPITAL NV
## 42                       WESTLAKE REGIONAL HOSPITAL KY
## 43                       COMMUNITY MEDICAL CENTER INC MT
## 44                       BAYHEALTH - KENT GENERAL HOSPITAL DE
## 45                       SAINT ALPHONSUS MEDICAL CENTER - NAMPA ID
## 46                       FAIRMONT GENERAL HOSPITAL WV
## 47                       SPRINGFIELD HOSPITAL VT
## 48                       YALE-NEW HAVEN HOSPITAL CT
```

```
## 49 CHEYENNE VA MEDICAL CENTER WY
## 50 KUAKINI MEDICAL CENTER HI
## 51 PROVIDENCE HOSPITAL DC
## 52 GOV JUAN F LUIS HOSPITAL & MEDICAL CTR VI
## 53 GUAM MEMORIAL HOSPITAL AUTHORITY GU
## 54 WESTERLY HOSPITAL RI
```

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

```
## Warning in rankall("heart attack", "best"): NAs introduced by coercion
```

```
## X1 X2
## 1 ST MARYS HOSPITAL MN
## 2 CYPRESS FAIRBANKS MEDICAL CENTER TX
## 3 DOYLESTOWN HOSPITAL PA
## 4 ST VINCENT HEART CENTER OF INDIANA LLC IN
## 5 JEWISH HOSPITAL, LLC OH
## 6 NYU HOSPITALS CENTER NY
## 7 SAINT JOSEPH HOSPITAL IL
## 8 GLENDALE ADVENTIST MEDICAL CENTER CA
## 9 PORTLAND VA MEDICAL CENTER OR
## 10 MUSC MEDICAL CENTER SC
## 11 CAROLINAS MEDICAL CENTER-NORTHEAST NC
## 12 PROVIDENCE ALASKA MEDICAL CENTER AK
## 13 FAITH REGIONAL HEALTH SERVICES NE
## 14 MARY GREELEY MEDICAL CENTER IA
## 15 MUNSON MEDICAL CENTER MI
## 16 SANFORD MEDICAL CENTER FARGO ND
## 17 WESLEY MEDICAL CENTER MS
## 18 CATHOLIC MEDICAL CENTER NH
## 19 BETH ISRAEL DEACONESS MEDICAL CENTER MA
## 20 JOHNS HOPKINS HOSPITAL, THE MD
## 21 BELLIN MEMORIAL HSPTL WI
## 22 MAYO CLINIC HOSPITAL AZ
## 23 ARKANSAS HEART HOSPITAL AR
## 24 ST MARYS HOSPITAL AND MEDICAL CENTER CO
## 25 YORK HOSPITAL ME
## 26 HOSPITAL DR CAYETANO COLL Y TOSTE PR
## 27 CRESTWOOD MEDICAL CENTER AL
## 28 STEPHENS COUNTY HOSPITAL GA
## 29 METHODIST MEDICAL CENTER OF OAK RIDGE TN
## 30 EAST ORANGE GENERAL HOSPITAL NJ
## 31 PROVIDENCE SACRED HEART MEDICAL CENTER WA
## 32 BOONE HOSPITAL CENTER MO
## 33 CHESAPEAKE REGIONAL MEDICAL CENTER VA
## 34 MOUNT SINAI MEDICAL CENTER FL
## 35 AVERA HEART HOSPITAL OF SOUTH DAKOTA LLC SD
## 36 ST ELIZABETH MEDICAL CENTER NORTH KY
## 37 ST FRANCIS MEDICAL CENTER LA
## 38 BAYHEALTH - KENT GENERAL HOSPITAL DE
## 39 MONONGALIA COUNTY GENERAL HOSPITAL WV
## 40 BENEFIS HOSPITALS INC MT
## 41 FLETCHER ALLEN HOSPITAL OF VERMONT VT
```

```
## 42          WATERBURY HOSPITAL CT
## 43          ST VINCENT HOSPITAL NM
## 44    SUNRISE HOSPITAL AND MEDICAL CENTER NV
## 45          HILO MEDICAL CENTER HI
## 46          WYOMING MEDICAL CENTER WY
## 47          KANSAS HEART HOSPITAL KS
## 48    OKLAHOMA HEART HOSPITAL SOUTH OK
## 49    DIXIE REGIONAL MEDICAL CENTER UT
## 50          PORTNEUF MEDICAL CENTER ID
## 51          PROVIDENCE HOSPITAL DC
## 52    ROY LESTER SCHNEIDER HOSPITAL,THE VI
## 53    GUAM MEMORIAL HOSPITAL AUTHORITY GU
## 54          MIRIAM HOSPITAL RI
```

```
rankall("pneumonia","best")
```

```
## Warning in rankall("pneumonia", "best"): NAs introduced by coercion
```

```
##          X1 X2
## 1    CAROLINA PINES REGIONAL MEDICAL CENTER SC
## 2          WILLIS KNIGHTON MEDICAL CENTER LA
## 3          MERCY HOSPITAL MN
## 4    UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT TYLER TX
## 5          KANE COMMUNITY HOSPITAL PA
## 6          LAKE FOREST HOSPITAL IL
## 7          MARY GREELEY MEDICAL CENTER IA
## 8    GRANDVIEW HOSPITAL & MEDICAL CENTER OH
## 9          INDIANA UNIVERSITY HEALTH IN
## 10         MAIMONIDES MEDICAL CENTER NY
## 11         CEDARS-SINAI MEDICAL CENTER CA
## 12         PORTLAND VA MEDICAL CENTER OR
## 13          REX HOSPITAL NC
## 14    YUKON KUSKOKWIM DELTA REG HOSPITAL AK
## 15         BOX BUTTE GENERAL HOSPITAL NE
## 16         EXETER HOSPITAL INC NH
## 17    BEAUMONT HOSPITAL, GROSSE POINTE MI
## 18    COMMUNITY HOSPITAL, ONAGA AND ST MARYS CAMPUS KS
## 19         GREENWOOD LEFLORE HOSPITAL MS
## 20          LDS HOSPITAL UT
## 21    LOVELACE WESTSIDE HOSPITAL NM
## 22    MERCY HOSPITAL OF VALLEY CITY ND
## 23         BELLIN MEMORIAL HSPTL WI
## 24    MARSHALL MEDICAL CENTER NORTH AL
## 25         FALMOUTH HOSPITAL MA
## 26    GREATER BALTIMORE MEDICAL CENTER MD
## 27         PIEDMONT FAYETTE HOSPITAL GA
## 28         HILLCREST HOSPITAL CUSHING OK
## 29         MAYO CLINIC HOSPITAL AZ
## 30         STONE COUNTY MEDICAL CENTER AR
## 31    EXEMPLA LUTHERAN MEDICAL CENTER CO
## 32    MILES MEMORIAL HOSPITAL (LINCOLN COUNTY HEALTHCARE ME
## 33          HOSPITAL ORIENTE PR
## 34    UNITED REGIONAL MEDICAL CENTER TN
```

|       |   |
|-------|---|
| ## 35 | ENGLEWOOD HOSPITAL AND MEDICAL CENTER NJ  |
| ## 36 | EVERGREEN HOSPITAL MEDICAL CENTER WA      |
| ## 37 | LIBERTY HOSPITAL MO                       |
| ## 38 | NORTON COMMUNITY HOSPITAL VA              |
| ## 39 | MOUNT SINAI MEDICAL CENTER FL             |
| ## 40 | SIOUX FALLS VA MEDICAL CENTER SD          |
| ## 41 | SPRING VALLEY HOSPITAL MEDICAL CENTER NV  |
| ## 42 | CASEY COUNTY HOSPITAL KY                  |
| ## 43 | BENEFIS HOSPITALS INC MT                  |
| ## 44 | BEEBE MEDICAL CENTER DE                   |
| ## 45 | ST LUKES WOOD RIVER MEDICAL CENTER ID     |
| ## 46 | WEIRTON MEDICAL CENTER WV                 |
| ## 47 | RUTLAND REGIONAL MEDICAL CENTER VT        |
| ## 48 | SAINT MARYS HOSPITAL CT                   |
| ## 49 | CHEYENNE VA MEDICAL CENTER WY             |
| ## 50 | PALI MOMI MEDICAL CENTER HI               |
| ## 51 | WASHINGTON HOSPITAL CENTER DC             |
| ## 52 | GOV JUAN F LUIS HOSPITAL & MEDICAL CTR VI |
| ## 53 | GUAM MEMORIAL HOSPITAL AUTHORITY GU       |
| ## 54 | NEWPORT HOSPITAL RI                       |