Minireport tesi

AP

## Obiettivo

Questo report contiene alcune analisi e tabelle utili alla tesi, in particolare:

1. n pat (cohort size) and time span
2. tot days, min/max I/II/II quartile days/pat
3. tot SBT, min/max/ I/II/III quartile SBT/paz
4. min/max I/II/III quartile SBT riusciti / SBT provati per paziente (e overall)

Ma anche, per la parte dei metodi “Describe the basic statistics of the dataset, particularly of the response variable. These include the ratio of positive to negative classes for a classification problem and the distribution of the response variable for regression problem”.

## Caricamento pacchetti

When you click the **Render** button a document will be generated that includes both content and the output of embedded code. You can embed code like this:

if (!interactive()) {  
 options(tidyverse.quiet = TRUE)  
}  
library(tidyverse)  
library(targets)  
library(gtsummary)  
library(networkD3)

e i targets

tar\_visnetwork(TRUE, exclude = starts\_with("gg") | contains("Plot"))

here() starts at C:/Users/corrado.lanera/Documents/GitHub/ubep/weaning

baseline <- tar\_read(pt\_names) |>  
 select("id\_univoco", "type", "sesso", "anni\_eta", "reason",  
 "vm\_inizio", "vm\_fine") |>  
 mutate(reason = reason |>  
 fct\_recode(  
 "Sepsis" = "Sepsi",  
 "Pneumonia" = "Polmonite",  
 "Post-surgical complications" = "Complicanze Postoperatorie",  
 "Heart Failure" = "Scompenso Cardiaco",  
 "COPD exacerbation" = "BPCO Riacutizzata",  
 "Other" = "Altro (specificare)",  
 "Trauma - Polytrauma" = "Trauma - Politrauma"  
 # ARDS doesn't need recoding  
 ))  
daily <- tar\_read(pt\_registry) |>  
 select("id\_univoco", "type", "data\_lettura", "giorno\_studio",   
 "sbt") |>  
 # sbt :=  
 # - se stubato = `-1`,  
 # - se sbt non provato = `0`,  
 # - se sbt riuscito = `1`,  
 # - se sbt fallito = `2`  
 mutate(sbt = sbt |>  
 as.character() |>  
 fct\_recode(  
 "Already extubated" = "-1",  
 "Readiness Testing failure" = "0",  
 "SBT success" = "1",  
 "SBT failure" = "2"  
 )  
 )

## Pazienti totali nello studio

baseline |>  
 select(-id\_univoco, -starts\_with("vm")) |>  
 tbl\_summary(  
 label = list( type ~ "Ventilation mode",  
 sesso ~ "Gender",  
 anni\_eta ~ "Age (years)",  
 reason ~ "Reason for MV")  
 )

Table printed with `knitr::kable()`, not {gt}. Learn why at  
https://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
To suppress this message, include `message = FALSE` in the code chunk header.

| **Characteristic** | **N = 178** |
| --- | --- |
| Ventilation mode |  |
| nava | 89 (50%) |
| psv | 89 (50%) |
| Gender |  |
| M | 116 (65%) |
| F | 62 (35%) |
| Age (years) | 72 (63, 78) |
| Reason for MV |  |
| Sepsis | 26 (15%) |
| Pneumonia | 35 (20%) |
| Post-surgical complications | 20 (11%) |
| Other | 18 (10%) |
| Heart Failure | 31 (17%) |
| COPD exacerbation | 22 (12%) |
| ARDS | 15 (8.4%) |
| Trauma - Polytrauma | 11 (6.2%) |

baseline |>  
 select(starts\_with("vm")) |>  
 tbl\_summary(  
 label = list(  
 vm\_inizio ~ "MV start",  
 vm\_fine ~ "MV end"  
 ),  
 statistic = ~ "{min}, {max}"  
 )

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https://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
To suppress this message, include `message = FALSE` in the code chunk header.

| **Characteristic** | **N = 178** |
| --- | --- |
| MV start | 2013-07-03, 2015-03-08 |
| MV end | 2013-07-13, 2015-04-13 |

## Giorni nello studio

daily |>  
 group\_by(id\_univoco) |>  
 summarise(giorno\_finale = max(giorno\_studio)) |>  
 select(giorno\_finale) |>  
 tbl\_summary(  
 label = giorno\_finale ~ "Day of study",  
 statistic = ~ "{median} (range: {min}, {max}) (IQR: {p25}, {p75})",  
 # digits = ~ 2  
 )

Table printed with `knitr::kable()`, not {gt}. Learn why at  
https://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html  
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| **Characteristic** | **N = 190** |
| --- | --- |
| Day of study | 6 (range: 0, 77) (IQR: 4, 9) |

## SBT nello studio

daily |>  
 filter( sbt %in% c("SBT success", "SBT failure")) |>  
 mutate( sbt = fct\_drop(sbt)) |>  
 group\_by(id\_univoco) |>  
 count(sbt) |>  
 # pivot\_wider(names\_from = sbt,  
 # values\_from = n,  
 # values\_fill = 0) |>  
 ungroup() |>  
 select(-id\_univoco) |>  
 tbl\_summary(   
 by = sbt,  
 statistic = ~ "{median} (range: {min}, {max}) (IQR: {p25}, {p75})",  
 # digits = ~ 2  
 ) |>  
 add\_overall( col\_label = "Totale")

Table printed with `knitr::kable()`, not {gt}. Learn why at  
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| **Characteristic** | Totale | **SBT success**, N = 165 | **SBT failure**, N = 49 |
| --- | --- | --- | --- |
| n | 1 (range: 1, 23) (IQR: 1, 1) | 1 (range: 1, 3) (IQR: 1, 1) | 1 (range: 1, 23) (IQR: 1, 3) |

## Analisi dell’outcome variable

sbt\_yes <- daily |> filter(sbt == "SBT success") |>  
 tally() |> as.integer()  
sbt\_no <- daily |> filter(sbt == "SBT failure") |>  
 tally() |> as.integer()  
rt\_yes <- sbt\_yes + sbt\_no  
rt\_no <- daily |> filter(sbt == "Readiness Testing failure") |>   
 tally() |> as.integer()  
all\_attempts <- rt\_yes + rt\_no  
  
# collater input  
diagram\_links <- tribble(  
 ~source, ~target, ~value,  
 "all attempts", "RT success", rt\_yes,  
 "all attempts", "RT failure", rt\_no,  
 "RT success", "SBT success", sbt\_yes,  
 "RT success", "SBT failure", sbt\_no  
)  
  
diagram\_nodes <- tibble(  
 name = c(  
 as.character(diagram\_links[["source"]]),   
 as.character(diagram\_links[["target"]])) |>  
 unique()  
)  
  
diagram\_links[["IDsource"]] <- match(  
 diagram\_links[["source"]], diagram\_nodes[["name"]])-1   
diagram\_links[["IDtarget"]] <- match(  
 diagram\_links[["target"]], diagram\_nodes[["name"]])-1  
  
# prepare colour scale  
ColourScal ='d3.scaleOrdinal() .range(["#FDE725FF","#B4DE2CFF","#6DCD59FF","#35B779FF","#1F9E89FF","#26828EFF","#31688EFF","#3E4A89FF","#482878FF","#440154FF"])'  
  
sankeyNetwork(Links = diagram\_links,  
 Nodes = diagram\_nodes,  
 Source = "IDsource",   
 Target = "IDtarget",  
 Value = "value",  
 NodeID = "name",   
 sinksRight=FALSE,  
 colourScale = ColourScal,  
 nodeWidth=30, fontSize=15, nodePadding=20)

Links is a tbl\_df. Converting to a plain data frame.

Nodes is a tbl\_df. Converting to a plain data frame.

daily |>  
 select(sbt) |>  
 tbl\_summary(  
 label = sbt ~ "Daily attempt"  
 )

Table printed with `knitr::kable()`, not {gt}. Learn why at  
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| **Characteristic** | **N = 1,929** |
| --- | --- |
| Daily attempt |  |
| Already extubated | 371 (19%) |
| Readiness Testing failure | 1,216 (63%) |
| SBT success | 182 (9.4%) |
| SBT failure | 160 (8.3%) |