

607 Week 5

Benson

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Read dataset

```
vaccination_DS <- read.csv(file="https://raw.githubusercontent.com/Benson90/607-Week-5/main/israeli_vaccination_DS.csv")  
#test reading file  
vaccination_DS[1:9,]
```

```
##           Age Population..           X           Severe.Cases  
## 1           Not Vax\n% Fully Vax\n% Not Vax\nper 100K\n\nnp  
## 2      <50      1,116,834      3,501,118              43  
## 3              23.3%              73.0%  
## 4      >50      186,078      2,133,516              171  
## 5              7.9%              90.4%  
## 6  
## 7  
## 8  
## 9 Definitions  
##           X.1           Efficacy  
## 1 Fully Vax\nper 100K vs. severe disease  
## 2              11  
## 3  
## 4              290  
## 5  
## 6  
## 7  
## 8  
## 9
```

Retrive dataset into dataframe

```
vaccination_DS <- vaccination_DS[c(2,4),c(1:5)] %>%  
  cbind(vaccination_DS[c(3,5),c(2:3)])  
  
names(vaccination_DS) <- c('age','not_vax','fully_vax','not_vax_severe','fully_vax_severe', 'not_vax_percent')  
  
vaccination_DS
```

```
##   age   not_vax fully_vax not_vax_severe fully_vax_severe not_vax_percent
```

```
## 2 <50 1,116,834 3,501,118          43          11          23.3%
## 4 >50  186,078 2,133,516          171         290           7.9%
##   fully_vax_percent
## 2              73.0%
## 4              90.4%
```

Data type transformation

```
vaccination_DS <- vaccination_DS %>%
  transmute(
    age,
    not_vax = as.integer(str_replace_all(not_vax, ',', '')),
    fully_vax = as.integer(str_replace_all(fully_vax, ',', '')),
    not_vax_severe = as.integer(not_vax_severe),
    fully_vax_severe = as.integer(fully_vax_severe),
    not_vax_percent = as.numeric(str_replace(not_vax_percent, '%', '')),
    fully_vax_percent = as.numeric(str_replace(fully_vax_percent, '%', ''))
  )
vaccination_DS
```

```
##   age not_vax fully_vax not_vax_severe fully_vax_severe not_vax_percent
## 2 <50 1116834   3501118           43           11          23.3
## 4 >50 186078   2133516          171          290           7.9
##   fully_vax_percent
## 2              73.0
## 4              90.4
```

Add variable into data frame

```
vaccination_DS <- vaccination_DS %>%
  mutate(population = round((not_vax + fully_vax)/(not_vax_percent+fully_vax_percent))) %>%
  mutate(not_vax_severe_percent = round(not_vax_severe*100000/not_vax,2)) %>%
  mutate(fully_vax_severe_percent = round(fully_vax_severe*100000/fully_vax,2)) %>%
  mutate(Efficacy_vs_severe_desease_percent = round((1-(fully_vax_severe_percent/not_vax_severe_percent))) %>%
  mutate(severe_cases_not_vax_vs_fully_vax = round(not_vax_severe_percent/fully_vax_severe_percent,2))

vaccination_DS
```

```
##   age not_vax fully_vax not_vax_severe fully_vax_severe not_vax_percent
## 2 <50 1116834   3501118           43           11          23.3
## 4 >50 186078   2133516          171          290           7.9
##   fully_vax_percent population not_vax_severe_percent fully_vax_severe_percent
## 2              73.0      47954              3.85              0.31
## 4              90.4      23597             91.90             13.59
##   Efficacy_vs_severe_desease_percent severe_cases_not_vax_vs_fully_vax
## 2              91.95              12.42
## 4              85.21              6.76
```

```
sum(vaccination_DS$population)
```

```
## [1] 71551
```

Question:

(1) Do you have enough information to calculate the total population? What does this total population represent?

- Yes, I have enough information to calculate the total population using the proportion method. This total population includes people who are not vaccinated, fully vaccinated, and not defined.

(2) Calculate the Efficacy vs. Disease; Explain your results.

- The results show efficacy vs. severe disease percent is high in both age ranges, which means the vaccine effectively prevents severe disease.

(3) From your calculation of efficacy vs. disease, are you able to compare the rate of severe cases in unvaccinated individuals to that in vaccinated individuals?

- Yes, I am able to compare the rate of severe cases in unvaccinated individuals to that in vaccinated individuals by using severe cases in unvaccinated individuals percentage divide severe cases in vaccinated individuals percentage.