SimOb Inject 15 - Stratified analysis

## 1. Install packages and load libraries

# Load the required libraries into the current R session:  
pacman::p\_load(rio,   
 here,   
 tidyverse,   
 skimr,  
 plyr,  
 janitor,  
 lubridate,  
 gtsummary,   
 flextable,  
 officer,  
 epikit,   
 apyramid,   
 scales,  
 EpiStats)

## 2. Import your data

# Import the raw data set:   
copdata <- rio::import(here::here("data", "Copenhagen\_clean2.rds"))

## 3. Risk Ratio

### a) Pasta as exposure of interest, stratified by having eaten veal

stratall <- copdata %>%   
 # Mutate across to convert cases to numeric:  
 mutate(across(.cols = case,   
 .fns = ~ as.numeric(.)))  
  
vealstrata <- csinter(x = stratall,   
 cases = "case",   
 exposure = "pasta",   
 by = "veal")

**Pasta stratified by veal: stratum-specific risk ratios**

# Extract second data.frame with summary results:  
vealstrata\_ssrr <- vealstrata$df1 %>%   
 # Convert to a flextable:  
 flextable::qflextable()  
  
# Print table:  
vealstrata\_ssrr

| CSInter case - pasta by(veal) | Total | Cases | Risk % | P.est. | Stats | 95%CI-ll | 95%CI-ul |
| --- | --- | --- | --- | --- | --- | --- | --- |
| veal = 1 | 338 |  | NA | Risk difference | 0.22 | -0.11 | 0.56 |
| Exposed | 330 | 198 | 60.00 | Risk Ratio | 1.60 | 0.65 | 3.93 |
| Unexposed | 8 | 3 | 37.50 | Attrib.risk.exp | 0.38 | -0.54 | 0.75 |
|  |  |  | NA | Attrib.risk.pop | 0.37 | NA | NA |
| veal = 0 | 36 |  | NA | Risk difference | 0.14 | -0.25 | 0.53 |
| Exposed | 8 | 4 | 50.00 | Risk Ratio | 1.40 | 0.60 | 3.28 |
| Unexposed | 28 | 10 | 35.71 | Attrib.risk.exp | 0.29 | -0.68 | 0.70 |
|  |  |  | NA | Attrib.risk.pop | 0.08 | NA | NA |
| Missing / Missing % | 3 | 0.8% | NA |  | NA | NA | NA |

**Pasta stratified by veal: MH-adjusted risk ratio**

# Extract second data.frame with summary results:  
vealstrata\_mhrr <- vealstrata$df2 %>%   
 # Convert to a flextable:  
 flextable::qflextable()  
  
# Print table:  
vealstrata\_mhrr

| Point Estimate | Chi2 | p.value | Stats | 95%CI-ll | 95%CI-ul |
| --- | --- | --- | --- | --- | --- |
| Woolf test of homogeneity | 0.04 | 0.833 | NA | NA | NA |
| Crude RR for pasta | NA |  | 1.65 | 1.06 | 2.58 |
| MH RR pasta adjusted for veal | NA |  | 1.51 | 0.80 | 2.85 |
| Adjusted/crude relative change | NA |  | -8.54 | NA | NA |

### b) Veal as exposure of interest, stratified by having eaten pasta

# Pass data to the csinter function:  
pastastrata <- csinter(x = stratall,   
 cases = "case",   
 exposure = "veal",   
 by = "pasta")

### c) Champagne as exposure of interest, stratified by having eaten pasta

# Pass data to the csinter function:  
champstrata <- csinter(x = stratall,   
 cases = "case",   
 exposure = "champagne",   
 by = "pasta")