Supplementary 1

Cases, UCI and deaths

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.4
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.4.4     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.0
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(stringr)
library(ggpubr)
library(lubridate)
library(data.table)
```

```
##
## Attaching package: 'data.table'
##
## The following objects are masked from 'package:lubridate':
##
##     hour, isoweek, mday, minute, month, quarter, second, wday, week,
##     yday, year
##
## The following objects are masked from 'package:dplyr':
##
##     between, first, last
##
## The following object is masked from 'package:purrr':
##
##     transpose
```

Epidemiological stats

data was retrived from https://github.com/GUIAD-COVID/datos-y-visualizaciones-GUIAD/

```
df <- read.csv("datos-y-visualizaciones-GUIAD/datos/estadisticasUY.csv",
    header = T)
head(df)
```

```
##        fecha dia cantPersonasConInfeccionEnCurso cantCasosNuevosAjustado
## 1 25/03/2020  13                             217                      28
## 2 26/03/2020  14                             238                      21
## 3 27/03/2020  15                             274                      36
## 4 28/03/2020  16                             303                      30
```

```
## 5 29/03/2020  17                              309                       6
## 6 30/03/2020  18                              292                       8
##   cantCasosNuevosConsolidado cantCasosNuevosOriginal acumCasos cantFallecidos
## 1                         28                      28       217             0
## 2                         21                      21       238             0
## 3                         36                      36       274             0
## 4                         30                      30       304             1
## 5                          6                       6       309             0
## 6                          8                       8       320             0
##   acumFallecidos cantCTI cantCI cantRecuperados acumRecuperados cantTest
## 1              0       4      2                0               0      320
## 2              0       4      2                0               0      245
## 3              0       8      0                0               0      451
## 4              1       8      5                0               0      372
## 5              1      10      2                0               0      200
## 6              1      11      1               25              25      299
##   acumTest         DIA Egresades reportadosFueraFecha Positividad
## 1     1858 3_MIERCOLES        NA                   NA       0.088
## 2     2103    4_JUEVES        NA                   NA       0.086
## 3     2554   5_VIERNES        NA                   NA       0.080
## 4     2926    6_SABADO        NA                   NA       0.081
## 5     3126   7_DOMINGO        NA                   NA       0.030
## 6     3425     1_LUNES        NA                   NA       0.027
```

```r
df$fecha <- strptime(as.character(df$fecha), "%d/%m/%Y")
df$fecha <- as.Date(df$fecha)
df <- df %>%
    filter(fecha > "2020-03-01" & fecha < "2021-10-01")

colnames(df)[5] <- c("Cases")
colnames(df)[10] <- c("UCI")
colnames(df)[8] <- c("Deaths")
colnames(df)[19] <- c("Positivity")

dt <- df %>%
    select(fecha, Cases, UCI, Deaths) %>%
    gather(key = "variable", value = "value", -fecha)
head(dt, 3)
```

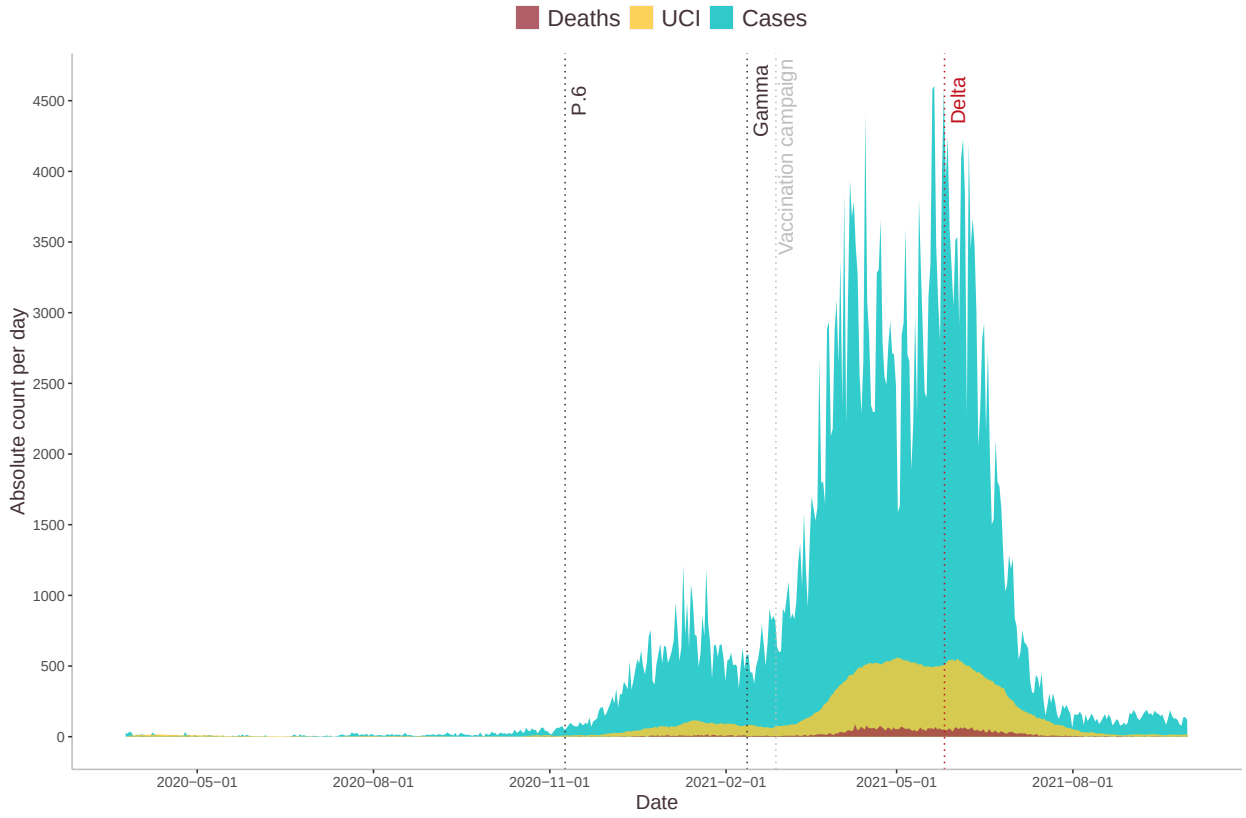
```
##        fecha variable value
## 1 2020-03-25    Cases    28
## 2 2020-03-26    Cases    21
## 3 2020-03-27    Cases    36
```

```r
fill.order <- factor(dt$variable, levels = c("Cases", "UCI", "Deaths"))

c <- ggplot(dt, aes(x = as.Date(fecha), y = value)) + geom_area(aes(fill = fill.order),
    alpha = 0.8, position = position_dodge(1)) + scale_fill_manual(values = c(Cases = "#00c0c1",
    UCI = "#ffca33", Deaths = "#a03b47")) + theme(axis.line = element_line(colour = "grey"),
    panel.grid.major = element_blank(), panel.grid.minor = element_blank(),
    panel.border = element_blank(), panel.background = element_blank(),
    axis.text.x = element_text(hjust = 0.5, size = 10), axis.text.y = element_text(size = 10),
    axis.title.x = element_text(size = 14), axis.title.y = element_text(size = 14),
    legend.text = element_text(size = 16), text = element_text(color = "#433236"),
    legend.title = element_blank(), legend.position = "top", legend.box.just = "center") +
```

```
    scale_x_date(date_breaks = "3 months") + geom_vline(xintercept = as.numeric(df$fecha[c(230,
    325)]), linetype = 3, color = "#433236") + geom_vline(xintercept = as.numeric(df$fecha[c(428)]),
    linetype = 3, color = "#c1121f") + geom_vline(xintercept = as.numeric(as.Date("2021-02-27")),
    color = "grey", linetype = 3) + annotate("text", x = as.Date("2020-11-16"),
    y = 4500, label = "P.6", angle = 90, size = 5, color = "#433236") +
    annotate("text", x = as.Date("2021-02-19"), y = 4500, label = "Gamma",
        angle = 90, size = 5, color = "#433236") + annotate("text", x = as.Date("2021-06-02"),
    y = 4500, label = "Delta", angle = 90, size = 5, color = "#c1121f") +
    annotate("text", x = as.Date("2021-03-04"), y = 4100, label = "Vaccination campaign",
        angle = 90, size = 5, color = "grey") + xlab("Date") + ylab("Absolute count per day") +
    guides(fill = guide_legend(reverse = TRUE)) + scale_y_continuous(breaks = seq(0,
    5500, by = 500))
c
```

```
## Warning: `position_dodge()` requires non-overlapping x intervals
```




```
png("Supplementary_1.png", res = 800, heigh = 20, width = 25, units = "cm")
c
```

```
## Warning: `position_dodge()` requires non-overlapping x intervals
```

```
dev.off()
```

```
## pdf
##   2
```

Previous to the emergenece of P.6 lineage

```
tab <- df %>%
    filter(fecha > "2020-03-01" & fecha < "2020-11-01")
head(tab)
```

```
##        fecha dia cantPersonasConInfeccionEnCurso cantCasosNuevosAjustado Cases
## 1 2020-03-25  13                             217                      28    28
## 2 2020-03-26  14                             238                      21    21
## 3 2020-03-27  15                             274                      36    36
## 4 2020-03-28  16                             303                      30    30
## 5 2020-03-29  17                             309                       6     6
## 6 2020-03-30  18                             292                       8     8
##   cantCasosNuevosOriginal acumCasos Deaths acumFallecidos UCI cantCI
## 1                      28       217      0              0   4      2
## 2                      21       238      0              0   4      2
## 3                      36       274      0              0   8      0
## 4                      30       304      1              1   8      5
## 5                       6       309      0              1  10      2
## 6                       8       320      0              1  11      1
##   cantRecuperados acumRecuperados cantTest acumTest         DIA Egresades
## 1               0               0      320     1858 3_MIERCOLES        NA
## 2               0               0      245     2103    4_JUEVES        NA
## 3               0               0      451     2554   5_VIERNES        NA
## 4               0               0      372     2926    6_SABADO        NA
## 5               0               0      200     3126   7_DOMINGO        NA
## 6              25              25      299     3425     1_LUNES        NA
##   reportadosFueraFecha Positivity
## 1                   NA      0.088
## 2                   NA      0.086
## 3                   NA      0.080
## 4                   NA      0.081
## 5                   NA      0.030
## 6                   NA      0.027
```

```
colnames(tab)[5] <- c("Cases")
colnames(tab)[10] <- c("UCI")
colnames(tab)[8] <- c("Deaths")

# Cases
mean(tab$Cases)
```

```
## [1] 13.54751
```

```
sd(tab$Cases)
```

```
## [1] 12.65392
```

```
min(tab$Cases)
```

```
## [1] -1
```

```
max(tab$Cases)
```

```
## [1] 65
```

```
# UCI
mean(tab$UCI)
```

```
## [1] 5.113122
```

```
sd(tab$UCI)
```

```
## [1] 3.986438
```

```
min(tab$UCI)
```

```
## [1] 0
```

```
max(tab$UCI)
```

```
## [1] 16
```

```
# Deaths
mean(tab$Deaths)
```

```
## [1] 0.2624434
```

```
sd(tab$Deaths)
```

```
## [1] 0.5080188
```

```
min(tab$Deaths)
```

```
## [1] 0
```

```
max(tab$Deaths)
```

```
## [1] 2
```

After P.6 emergence and before Gamma introduction

```
tab <- df %>%
    filter(fecha > "2020-11-02" & fecha < "2021-02-12")
head(tab)
```

```
##        fecha dia cantPersonasConInfeccionEnCurso cantCasosNuevosAjustado Cases
## 1 2020-11-03 236                             408                      31    31
## 2 2020-11-04 237                             414                      49    49
## 3 2020-11-05 238                             434                      64    64
## 4 2020-11-06 239                             456                      61    61
## 5 2020-11-07 240                             477                      71    71
## 6 2020-11-08 241                             509                      73    73
##   cantCasosNuevosOriginal acumCasos Deaths acumFallecidos UCI cantCI
## 1                      31      3196      1             61   6      2
## 2                      49      3245      0             61   5      2
## 3                      64      3309      0             61   6      1
## 4                      61      3370      0             61   6      3
## 5                      71      3441      0             61   7      2
## 6                      73      3514      1             62   8      2
##   cantRecuperados acumRecuperados cantTest acumTest         DIA Egresades
## 1              69            2727     2650   327794    2_MARTES         0
## 2              43            2770     3081   330875 3_MIERCOLES         0
## 3              44            2814     3271   334146    4_JUEVES         0
## 4              39            2853     3043   337189   5_VIERNES         0
## 5              50            2903     2935   340124    6_SABADO         0
## 6              40            2943     4226   344350   7_DOMINGO         0
##   reportadosFueraFecha Positivity
## 1                   NA      0.012
```

```
## 2                   NA      0.016
## 3                   NA      0.020
## 4                   NA      0.020
## 5                   NA      0.024
## 6                   NA      0.017
```

```
colnames(tab)[5] <- c("Cases")
colnames(tab)[10] <- c("UCI")
colnames(tab)[8] <- c("Deaths")


# Cases
mean(tab$Cases)
```

```
## [1] 435.1782
```

```
sd(tab$Cases)
```

```
## [1] 278.6917
```

```
min(tab$Cases)
```

```
## [1] 31
```

```
max(tab$Cases)
```

```
## [1] 1215
```

```
# UCI
mean(tab$UCI)
```

```
## [1] 54.93069
```

```
sd(tab$UCI)
```

```
## [1] 36.21333
```

```
min(tab$UCI)
```

```
## [1] 5
```

```
max(tab$UCI)
```

```
## [1] 116
```

```
# Deaths
mean(tab$Deaths)
```

```
## [1] 4.594059
```

```
sd(tab$Deaths)
```

```
## [1] 4.128385
```

```
min(tab$Deaths)
```

```
## [1] 0
```

```
max(tab$Deaths)
```

```
## [1] 17
```

After Gamma introduction and before Delta introduction

```
tab <- df %>%
    filter(fecha > "2021-02-13" & fecha < "2021-05-26")
head(tab)
```

```
##        fecha dia cantPersonasConInfeccionEnCurso cantCasosNuevosAjustado Cases
## 1 2021-02-14 339                            5485                     456   456
## 2 2021-02-15 340                            5333                     454   454
## 3 2021-02-16 341                            5119                     376   376
## 4 2021-02-17 342                            5174                     497   497
## 5 2021-02-18 343                            5218                     547   547
## 6 2021-02-19 344                            5416                     636   636
##   cantCasosNuevosOriginal acumCasos Deaths acumFallecidos UCI cantCI
## 1                     456     48909      2            535  84      0
## 2                     454     49360      6            541  81      0
## 3                     376     49725      5            546  80      0
## 4                     497     50208      7            553  71      0
## 5                     547     50752      5            558  71      0
## 6                     636     51377      5            563  72      0
##   cantRecuperados acumRecuperados cantTest acumTest         DIA Egresades
## 1             384           42889     5614   931603   7_DOMINGO         6
## 2             597           43486     3402   935005     1_LUNES         3
## 3             574           44060     5010   940015    2_MARTES        11
## 4             421           44481     6032   946047 3_MIERCOLES        14
## 5             495           44976     6562   952609    4_JUEVES         3
## 6             422           45398     6611   959220   5_VIERNES        11
##   reportadosFueraFecha Positivity
## 1                   NA      0.081
## 2                   NA      0.133
## 3                   NA      0.075
## 4                   NA      0.082
## 5                   NA      0.083
## 6                   NA      0.096
```

```
colnames(tab)[5] <- c("Cases")
colnames(tab)[10] <- c("UCI")
colnames(tab)[8] <- c("Deaths")

# Cases
mean(tab$Cases)
```

```
## [1] 2184.614
```

```
sd(tab$Cases)
```

```
## [1] 1111.514
```

```
min(tab$Cases)
```

```
## [1] 376
```

```
max(tab$Cases)
```

```
## [1] 4604
```

```
# UCI
mean(tab$UCI)
```

```
## [1] 331.8911
```

```
sd(tab$UCI)
```

```
## [1] 194.7671
```

```
min(tab$UCI)
```

```
## [1] 61
```

```
max(tab$UCI)
```

```
## [1] 559
```

```
# Deaths
mean(tab$Deaths)
```

```
## [1] 34.05941
```

```
sd(tab$Deaths)
```

```
## [1] 24.5458
```

```
min(tab$Deaths)
```

```
## [1] 2
```

```
max(tab$Deaths)
```

```
## [1] 88
```

After Delta introduction

```
tab <- df %>%
    filter(fecha > "2021-05-27" & fecha < "2021-09-30")
head(tab)
```

```
##        fecha dia cantPersonasConInfeccionEnCurso cantCasosNuevosAjustado Cases
## 1 2021-05-28 442                           34158                    4247  4247
## 2 2021-05-29 443                           37675                    3594  3594
## 3 2021-05-30 444                           37226                    3329  3329
## 4 2021-05-31 445                           36654                    3046  3046
## 5 2021-06-01 446                           36634                    3515  3515
## 6 2021-06-02 447                           37171                    3534  3534
##   cantCasosNuevosOriginal acumCasos Deaths acumFallecidos UCI cantCI
## 1                    4247    284579     61           4127 542      0
## 2                    3594    288172     49           4176 539      0
## 3                    3329    291488     37           4213 548      0
## 4                    3046    294503     63           4276 539      0
## 5                    3515    298006     66           4342 537      0
## 6                    3534    301524     52           4394 555      0
##   cantRecuperados acumRecuperados cantTest acumTest         DIA Egresades
## 1            6985          246294    24544  2207057   5_VIERNES        40
## 2              27          246321    21909  2228966    6_SABADO         1
## 3            3728          250049    16377  2245343   7_DOMINGO        13
## 4            3524          253573    16889  2262232     1_LUNES        31
## 5            3457          257030    21699  2283931    2_MARTES        12
## 6            2929          259959    23506  2307437 3_MIERCOLES        16
##   reportadosFueraFecha Positivity
## 1                    0      0.173
```

```
## 2                    0      0.164
## 3                    0      0.203
## 4                    0      0.180
## 5                    0      0.162
## 6                    0      0.150
```

```
colnames(tab)[5] <- c("Cases")
colnames(tab)[10] <- c("UCI")
colnames(tab)[8] <- c("Deaths")

# Cases
mean(tab$Cases)
```

```
## [1] 881.912
```

```
sd(tab$Cases)
```

```
## [1] 1210.273
```

```
min(tab$Cases)
```

```
## [1] 63
```

```
max(tab$Cases)
```

```
## [1] 4247
```

```
# UCI
mean(tab$UCI)
```

```
## [1] 160.976
```

```
sd(tab$UCI)
```

```
## [1] 183.2169
```

```
min(tab$UCI)
```

```
## [1] 10
```

```
max(tab$UCI)
```

```
## [1] 555
```

```
# Deaths
mean(tab$Deaths)
```

```
## [1] 15.904
```

```
sd(tab$Deaths)
```

```
## [1] 19.98
```

```
min(tab$Deaths)
```

```
## [1] -1
```

```
max(tab$Deaths)
```

```
## [1] 67
```

```
dtt <- df %>%
    select(fecha, Positivity) %>%
    gather(key = "variable", value = "value", -fecha)
head(dtt, 3)
```

```
##        fecha   variable value
## 1 2020-03-25 Positivity 0.088
## 2 2020-03-26 Positivity 0.086
## 3 2020-03-27 Positivity 0.080
```

Positivity rate

```
t <- dtt %>%
    filter(fecha > "2020-03-01" & fecha < "2020-11-01")  # Before P.6 emergence
mean(t$value) * 100
```

```
## [1] 1.166516
```

```
sd(t$value) * 100
```

```
## [1] 1.393805
```

```
tt <- dtt %>%
    filter(fecha > "2020-11-02" & fecha < "2021-02-12")  # After P.6 emergence and before Gamma introdu
mean(tt$value) * 100
```

```
## [1] 6.940594
```

```
sd(tt$value) * 100
```

```
## [1] 3.674403
```

```
ttt <- dtt %>%
    filter(fecha > "2021-02-13" & fecha < "2021-05-26")  # After Gamma introduction and before Delta in
mean(ttt$value) * 100
```

```
## [1] 16.32079
```

```
sd(ttt$value) * 100
```

```
## [1] 5.576115
```

```
tttt <- dtt %>%
    filter(fecha > "2021-05-27" & fecha < "2021-09-30")  # After Delta introduction
mean(tttt$value) * 100
```

```
## [1] 5.7832
```

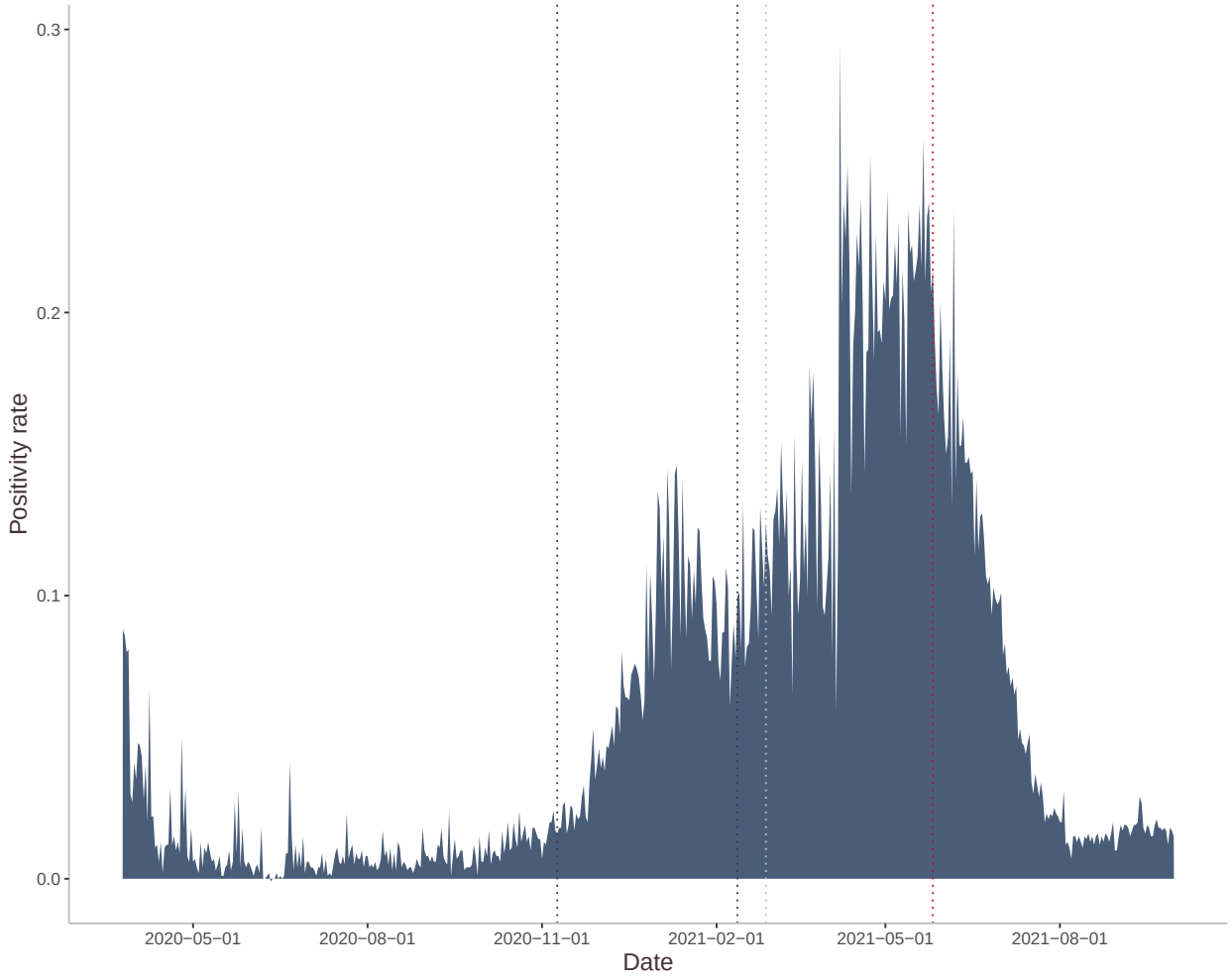
```
sd(tttt$value) * 100
```

```
## [1] 5.680282
```

```
cc <- ggplot(dtt, aes(x = as.Date(fecha), y = value)) + geom_area(aes(fill = variable),
    alpha = 0.8, position = position_dodge(1)) + scale_fill_manual(values = c("#1d3557")) +
    theme(axis.line = element_line(colour = "grey"), panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(), panel.border = element_blank(),
        panel.background = element_blank(), axis.text.x = element_text(hjust = 0.5,
            size = 10), axis.text.y = element_text(size = 10), axis.title.x = element_text(size = 14),
        axis.title.y = element_text(size = 14), legend.text = element_text(size = 16),
        text = element_text(color = "#433236"), legend.title = element_blank(),
        legend.position = "none", legend.box.just = "center") + scale_x_date(date_breaks = "3 months") +
    geom_vline(xintercept = as.numeric(df$fecha[c(230, 325)]), linetype = 3,
        color = "#433236") + geom_vline(xintercept = as.numeric(df$fecha[c(428)]),
    linetype = 3, color = "#c1121f") + geom_vline(xintercept = as.numeric(as.Date("2021-02-27")),
    color = "grey", linetype = 3) + xlab("Date") + ylab("Positivity rate") +
```

```
    guides(fill = guide_legend(reverse = TRUE))
cc
```

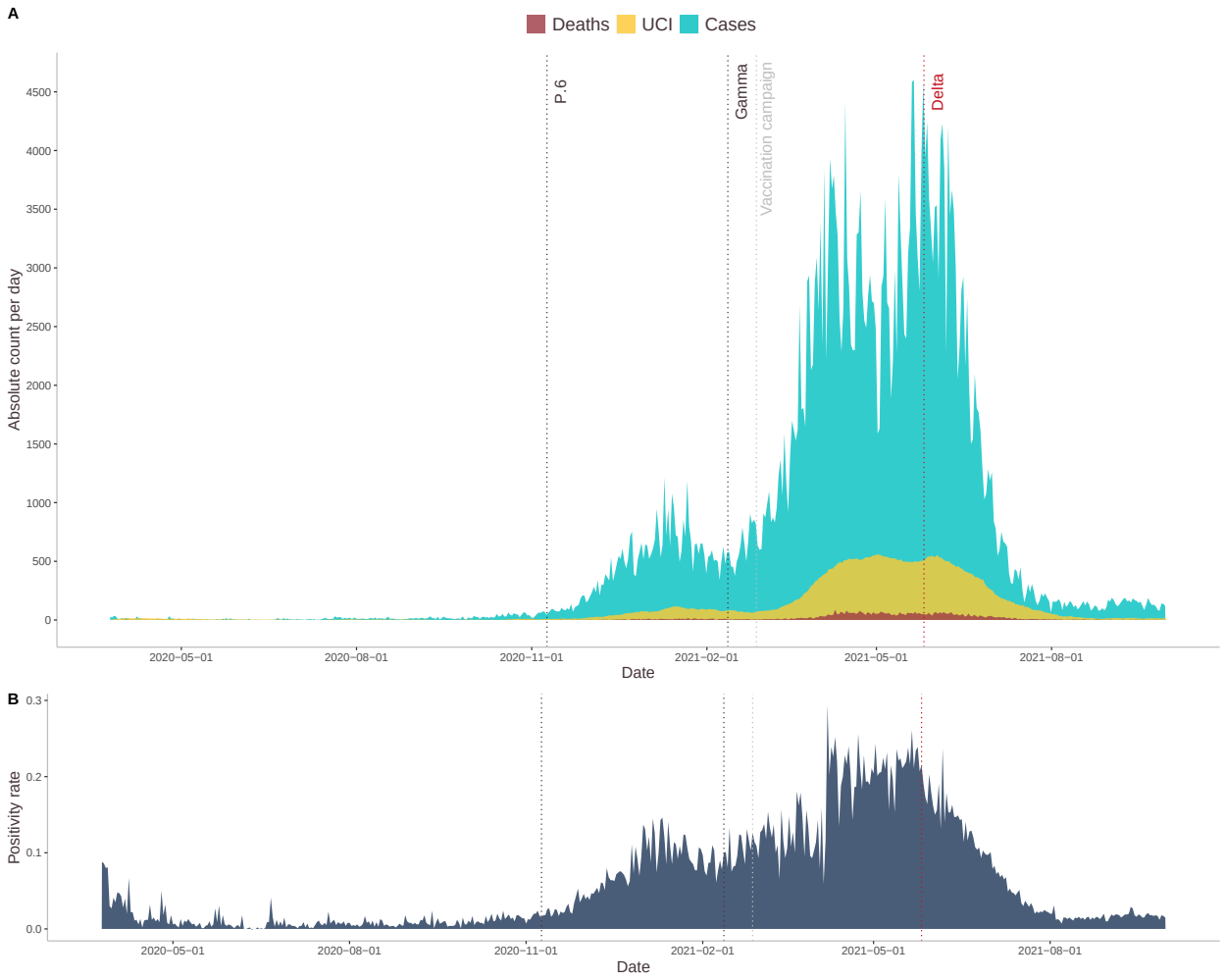
```
## Warning: `position_dodge()` requires non-overlapping x intervals
```




```
fig <- ggarrange(c, cc, widths = c(0.7, 0.3), heights = c(0.7, 0.3), nrow = 2,
    labels = c("A", "B"))
```

```
## Warning: `position_dodge()` requires non-overlapping x intervals
## `position_dodge()` requires non-overlapping x intervals
```

```
fig
```




```
png("Supplementary_1_both.png", res = 800, heigh = 30, width = 25, units = "cm")
fig
dev.off()
```

```
## pdf
##   2
```

Vaccination campaign

Data was retrived from https://catalogodatos.gub.uy/dataset/vacunacion-por-covid-19/resource/5c549ba0-126b-45e0-b43f-b0eea72cf2cf

```
df <- read.table("actos_vacunales.csv", header = T, sep = ";")

sino <- select(df, Fecha, X1era.Dosis.Sinovac, X2da.Dosis.Sinovac, X3era.Dosis.Sinovac,
    X4ta.Dosis.Sinovac)
head(sino)
```

```
##        Fecha X1era.Dosis.Sinovac X2da.Dosis.Sinovac X3era.Dosis.Sinovac
## 1 21/11/2023                   0                   0                   0
## 2 20/11/2023                   0                   0                   0
## 3 19/11/2023                   0                   0                   0
## 4 18/11/2023                   0                   0                   0
```

```
## 5 17/11/2023                   0                   0                   0
## 6 16/11/2023                   0                   0                   0
##   X4ta.Dosis.Sinovac
## 1                  0
## 2                  0
## 3                  0
## 4                  0
## 5                  0
## 6                  0
```

```
tail(sino)
```

```
##          Fecha X1era.Dosis.Sinovac X2da.Dosis.Sinovac X3era.Dosis.Sinovac
## 993 04/03/2021                8985                   8                   0
## 994 03/03/2021               21304                   8                   0
## 995 02/03/2021               14729                   5                   1
## 996 01/03/2021               18032                   4                   0
## 997 28/02/2021                   3                   0                   0
## 998 27/02/2021                 372                   0                   0
##     X4ta.Dosis.Sinovac
## 993                  0
## 994                  0
## 995                  0
## 996                  0
## 997                  0
## 998                  0
```

```
colnames(sino) <- c("Fecha", "Primera", "Segunda", "Tercera", "Cuarta")
sino$tipo <- c("Sinovac")


pfizer <- select(df, Fecha, X1era.Dosis.Pfizer, X2da.Dosis.Pfizer, X3era.Dosis.Pfizer,
    X4ta.Dosis.Pfizer)
head(pfizer)
```

```
##        Fecha X1era.Dosis.Pfizer X2da.Dosis.Pfizer X3era.Dosis.Pfizer
## 1 21/11/2023                  0                  0                  0
## 2 20/11/2023                  2                  1                  0
## 3 19/11/2023                  0                  0                  0
## 4 18/11/2023                  0                  0                  0
## 5 17/11/2023                  0                  1                  0
## 6 16/11/2023                 11                  9                 13
##   X4ta.Dosis.Pfizer
## 1                 0
## 2                 3
## 3                 0
## 4                 0
## 5                 6
## 6                25
```

```
colnames(pfizer) <- c("Fecha", "Primera", "Segunda", "Tercera", "Cuarta")
pfizer$tipo <- c("Pfizer")

astra <- select(df, Fecha, X1era.Dosis.Astrazeneca, X2da.Dosis.Astrazeneca,
    X3era.Dosis.Astrazeneca, X4ta.Dosis.Astrazeneca)
head(astra)
```

```
##        Fecha X1era.Dosis.Astrazeneca X2da.Dosis.Astrazeneca
## 1 21/11/2023                       0                       0
## 2 20/11/2023                       0                       0
## 3 19/11/2023                       0                       0
## 4 18/11/2023                       0                       0
## 5 17/11/2023                       0                       0
## 6 16/11/2023                       0                       0
##   X3era.Dosis.Astrazeneca X4ta.Dosis.Astrazeneca
## 1                       0                      0
## 2                       0                      0
## 3                       0                      0
## 4                       0                      0
## 5                       0                      0
## 6                       0                      0
```

```
colnames(astra) <- c("Fecha", "Primera", "Segunda", "Tercera", "Cuarta")
astra$tipo <- c("AstraZeneca")


tab <- as.data.frame(rbind(sino, pfizer, astra))
tab$Fecha2 <- dmy(tab$Fecha)
head(tab)
```

```
##        Fecha Primera Segunda Tercera Cuarta    tipo     Fecha2
## 1 21/11/2023       0       0       0      0 Sinovac 2023-11-21
## 2 20/11/2023       0       0       0      0 Sinovac 2023-11-20
## 3 19/11/2023       0       0       0      0 Sinovac 2023-11-19
## 4 18/11/2023       0       0       0      0 Sinovac 2023-11-18
## 5 17/11/2023       0       0       0      0 Sinovac 2023-11-17
## 6 16/11/2023       0       0       0      0 Sinovac 2023-11-16
```

```
tab <- select(tab, Fecha2, tipo, Primera, Segunda, Tercera, Cuarta)
long <- melt(setDT(tab), id.vars = c("tipo", "Fecha2"), variable.name = "dosis")
long <- as.data.frame(long)
head(long)
```

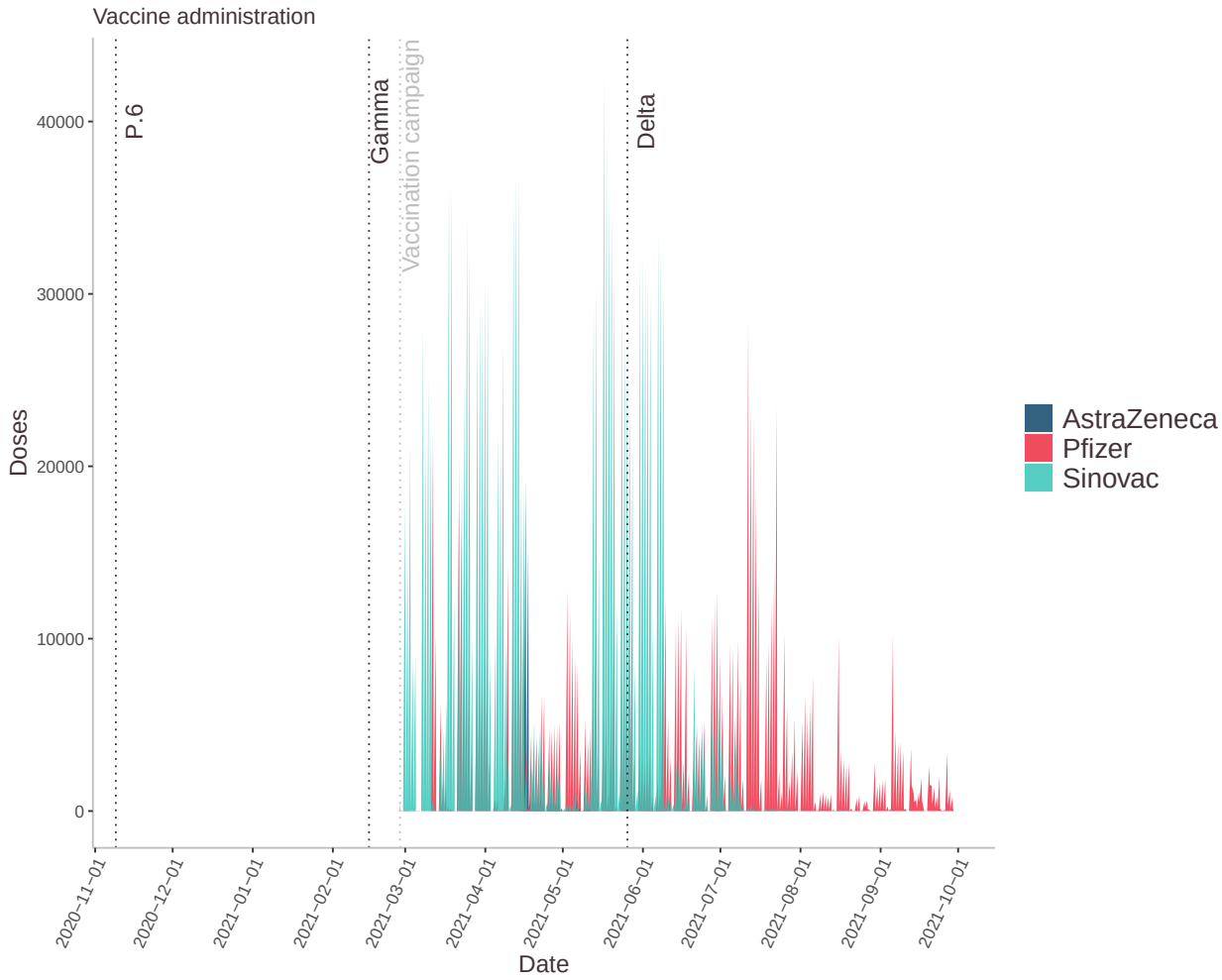
```
##      tipo     Fecha2   dosis value
## 1 Sinovac 2023-11-21 Primera     0
## 2 Sinovac 2023-11-20 Primera     0
## 3 Sinovac 2023-11-19 Primera     0
## 4 Sinovac 2023-11-18 Primera     0
## 5 Sinovac 2023-11-17 Primera     0
## 6 Sinovac 2023-11-16 Primera     0
```

```
long <- long %>%
    filter(Fecha2 > "2020-03-01" & Fecha2 < "2021-09-30")

d <- ggplot(long, aes(x = Fecha2, y = value, fill = tipo)) + geom_area(aes(fill = tipo),
    alpha = 0.8, position = position_dodge(0.5)) + scale_fill_manual(values = c(Sinovac = "#2ec4b6",
    Pfizer = "#ef233c", AstraZeneca = "#033f63")) + theme(axis.line = element_line(colour = "grey"),
    panel.grid.major = element_blank(), panel.grid.minor = element_blank(),
    panel.border = element_blank(), panel.background = element_blank(),
    axis.text.x = element_text(angle = 65, hjust = 1, size = 10), axis.text.y = element_text(size = 10),
    axis.title.x = element_text(size = 14), axis.title.y = element_text(size = 14),
    legend.text = element_text(size = 16), text = element_text(color = "#433236"),
    legend.title = element_blank(), legend.position = "right", legend.box.just = "center") +
```

```
    scale_x_date(date_breaks = "1 months") + geom_vline(xintercept = as.numeric(as.Date("2020-11-09")),
    color = "#433236", linetype = 3) + geom_vline(xintercept = as.numeric(as.Date("2021-02-15")),
    color = "#433236", linetype = 3) + geom_vline(xintercept = as.numeric(as.Date("2021-05-26")),
    color = "#433236", linetype = 3) + geom_vline(xintercept = as.numeric(as.Date("2021-02-27")),
    color = "grey", linetype = 3) + annotate("text", x = as.Date("2020-11-16"),
    y = 40000, label = "P.6", angle = 90, size = 5, color = "#433236") +
    annotate("text", x = as.Date("2021-02-19"), y = 40000, label = "Gamma",
        angle = 90, size = 5, color = "#433236") + annotate("text", x = as.Date("2021-06-02"),
    y = 40000, label = "Delta", angle = 90, size = 5, color = "#433236") +
    annotate("text", x = as.Date("2021-03-03"), y = 38000, label = "Vaccination campaign",
        angle = 90, size = 5, color = "grey") + ggtitle("Vaccine administration") +
    xlab("Date") + ylab("Doses")
d
```

```
## Warning: `position_dodge()` requires non-overlapping x intervals
```




```
png("vaccination.png", res = 800, height = 20, width = 25, units = "cm")
d
```

```
## Warning: `position_dodge()` requires non-overlapping x intervals
```

```
dev.off()
```

```
## pdf
##   2
```