Plots

Eduardo Yuki Yada

Imports

```
library(tidyverse)
library(yaml)
```

Loading data

```
load('../dataset/processed_data.RData')
load('../dataset/processed_dictionary.RData')

columns_list <- yaml.load_file("./auxiliar/columns_list.yaml")

outcome_column <- params$outcome_column
```

Plots

```
library(lubridate)

medianWithoutNA <- function(x) {
   median(x[which(!is.na(x))])
}

k = 6

df[columns_list$outcome_columns] <- lapply(df[columns_list$outcome_columns], as.numeric)

for (column in setdiff(columns_list$numerical_columns, columns_list$outcome_columns)){
  if (mean(is.na(df[[column]])) > 0.5) next

  df %>%
    mutate(rounded_date_admission_t0 = lubridate::floor_date(date_admission_t0,
                                                             'month')) %>%
    group_by(rounded_date_admission_t0) %>%
    summarise('Mean' = mean(!!sym(column), na.rm = T),
              'Min' = min(!!sym(column), na.rm = T),
              'Median' = medianWithoutNA(!!sym(column)),
              'Max' = max(!!sym(column), na.rm = T)) %>%
    ungroup %>%
    arrange(rounded_date_admission_t0) %>%
    mutate(Mean = zoo::rollmean(Mean, k = k, fill = NA),
           Min = zoo::rollmean(Min, k = k, fill = NA),
           Median = zoo::rollmean(Median, k = k, fill = NA),
           Max = zoo::rollmean(Max, k = k, fill = NA)) %>%
    pivot_longer(!rounded_date_admission_t0, names_to = 'metric') %>%
    ggplot(aes(x = rounded_date_admission_t0, y = value, color = metric)) +
      geom_line() +
      geom_vline(xintercept = lubridate::ymd('2020-03-01'), linetype = "dashed") +
      labs(y = column)-> p
```

```
  print(p)
}
```

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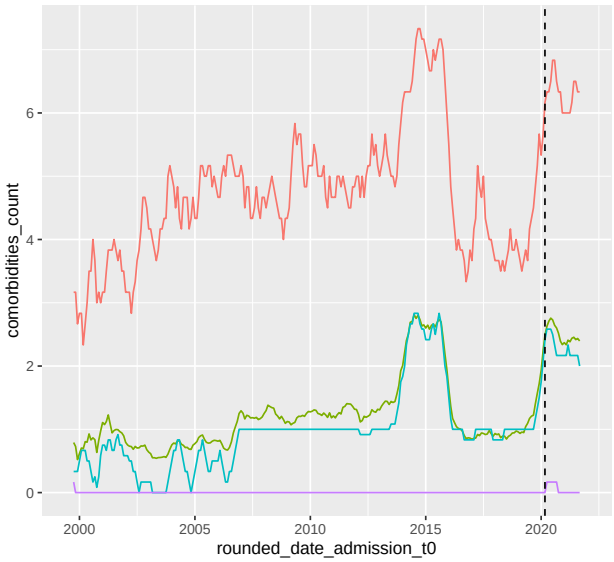
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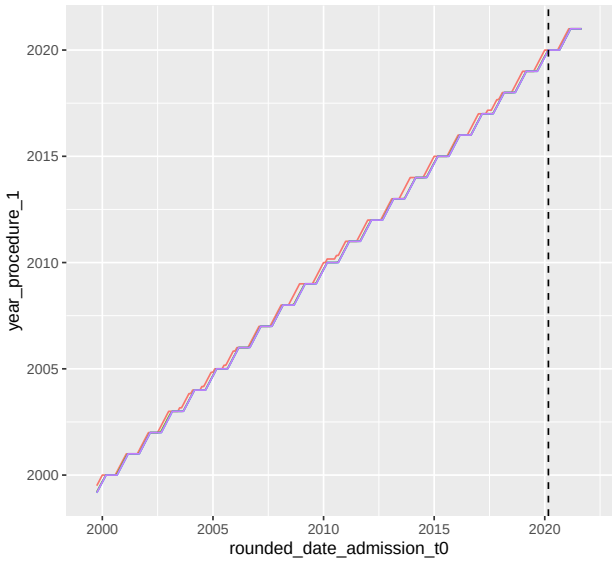
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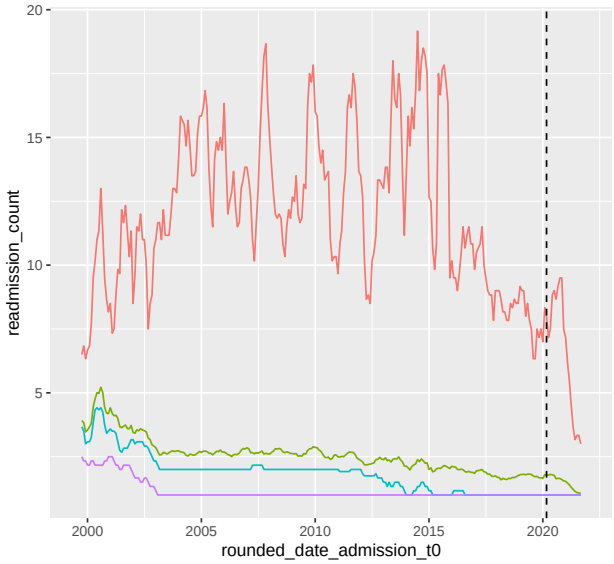
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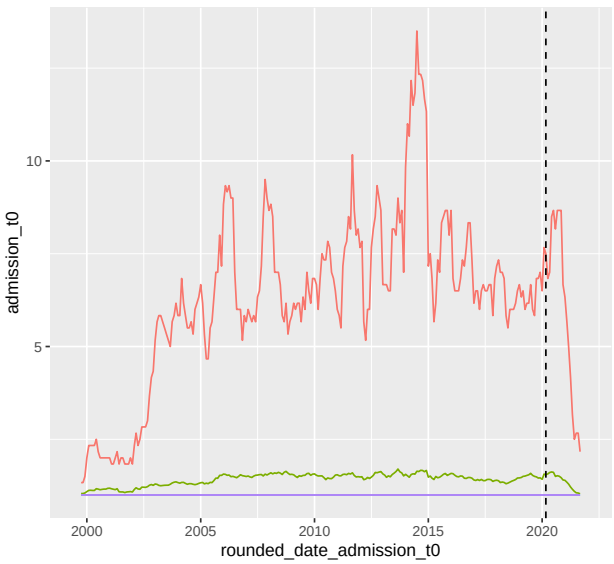
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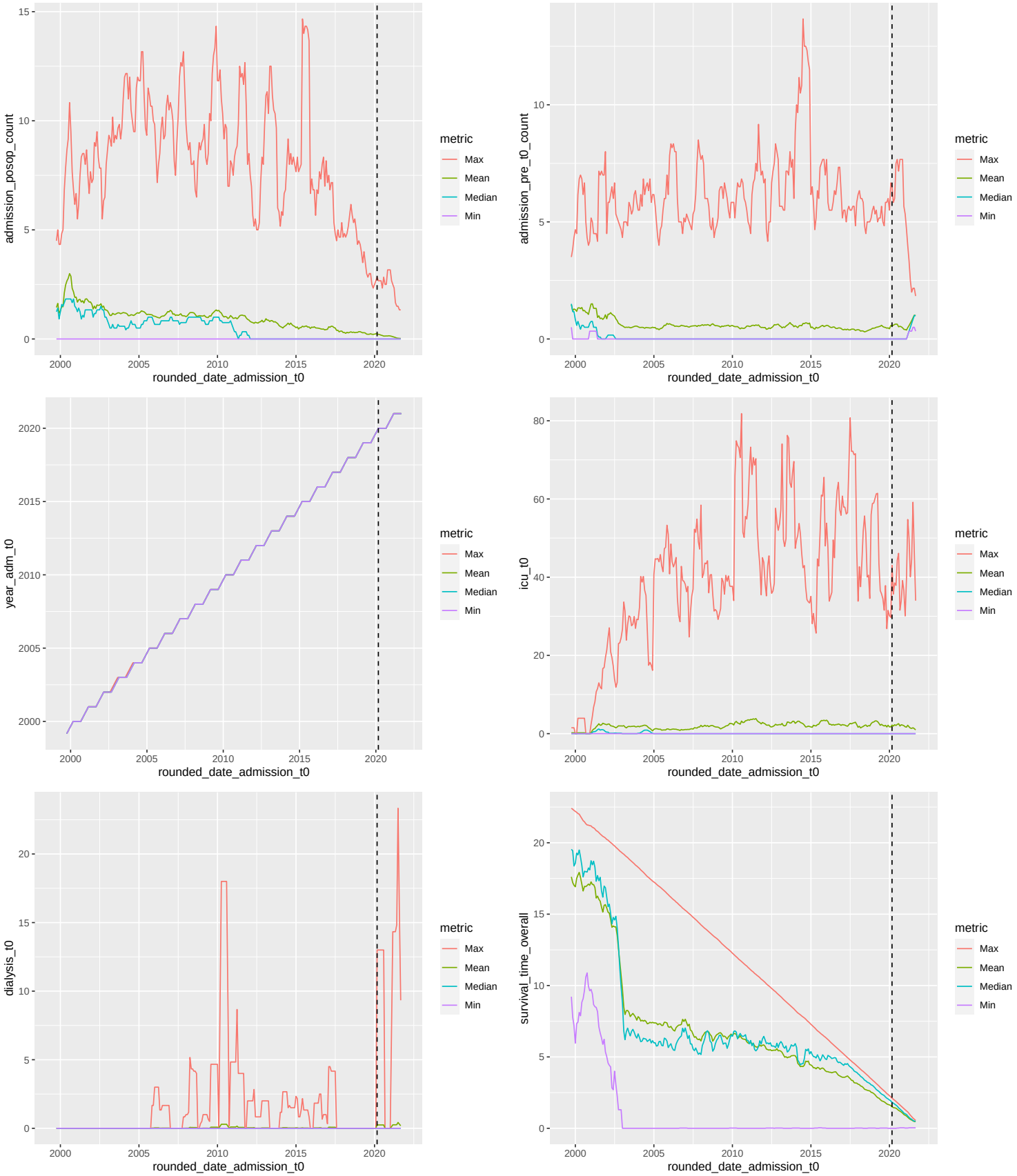
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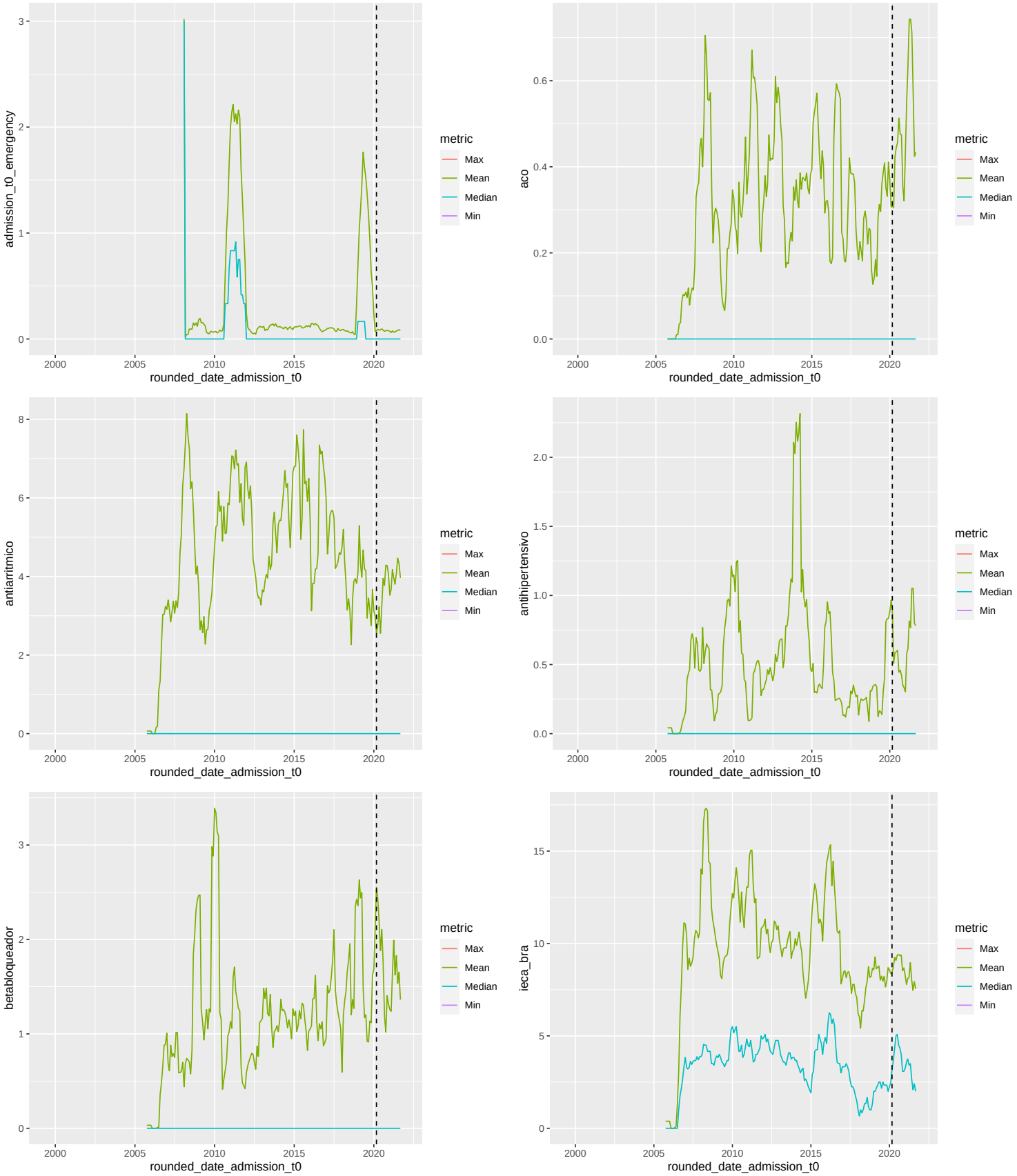
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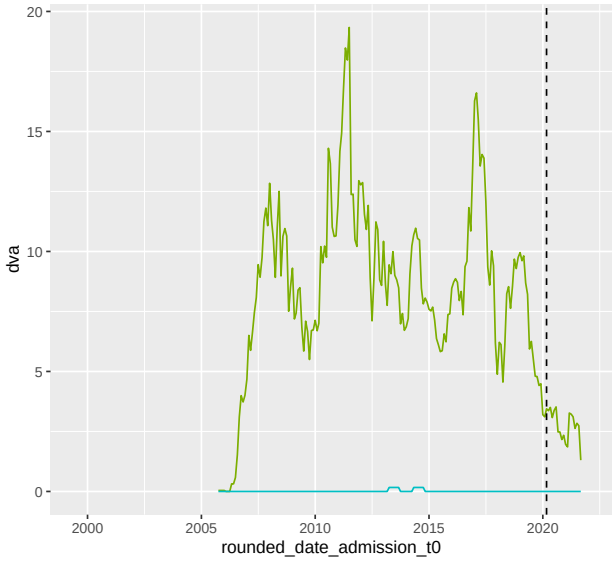
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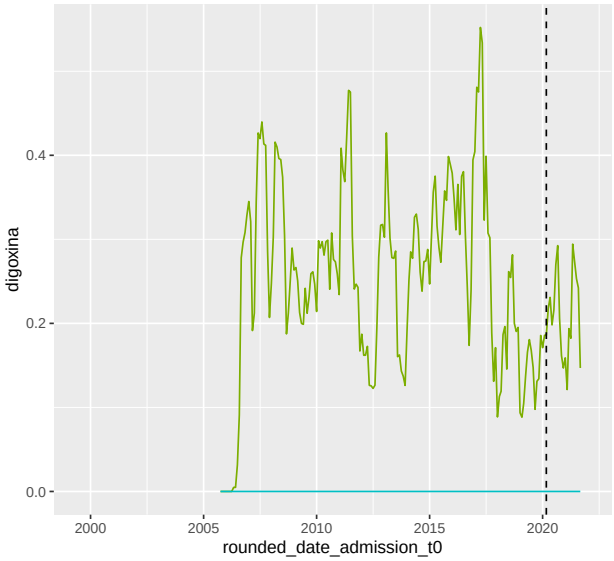
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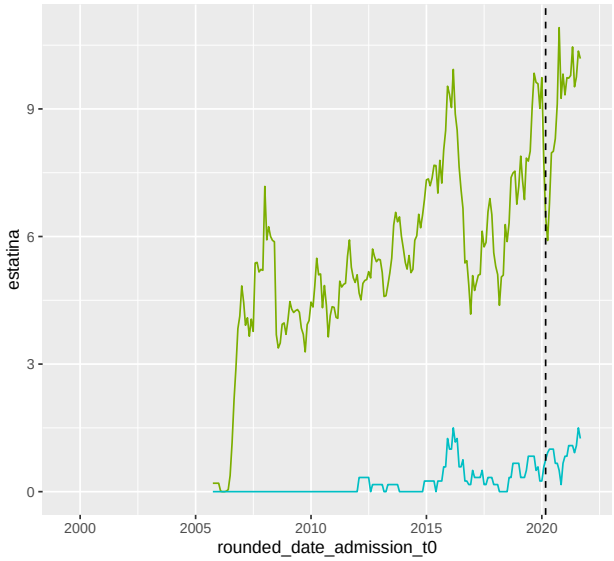
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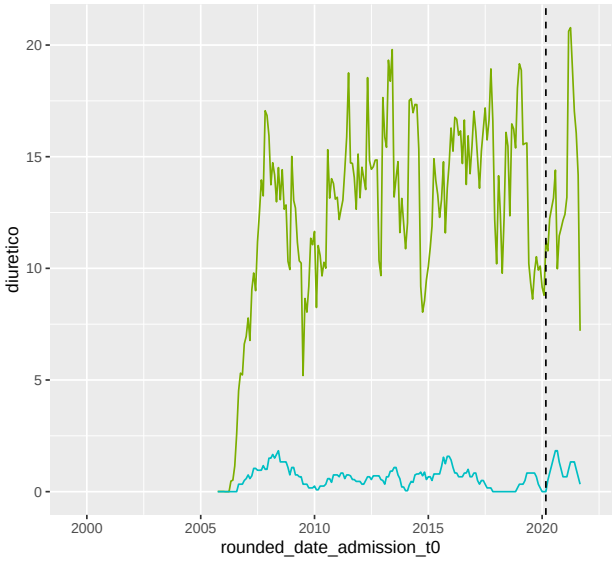
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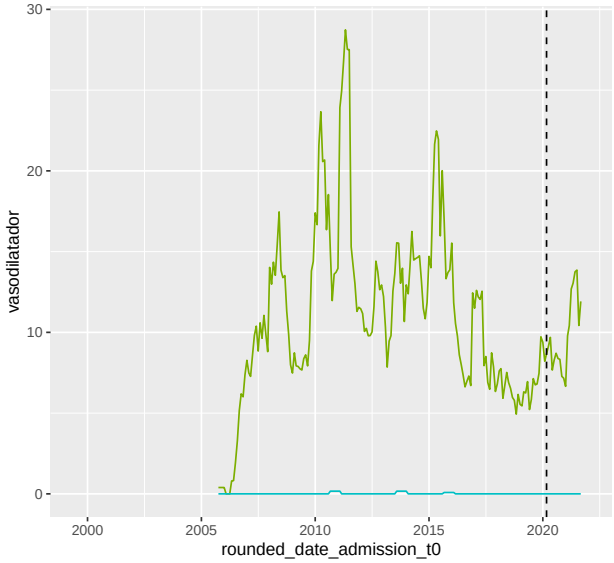
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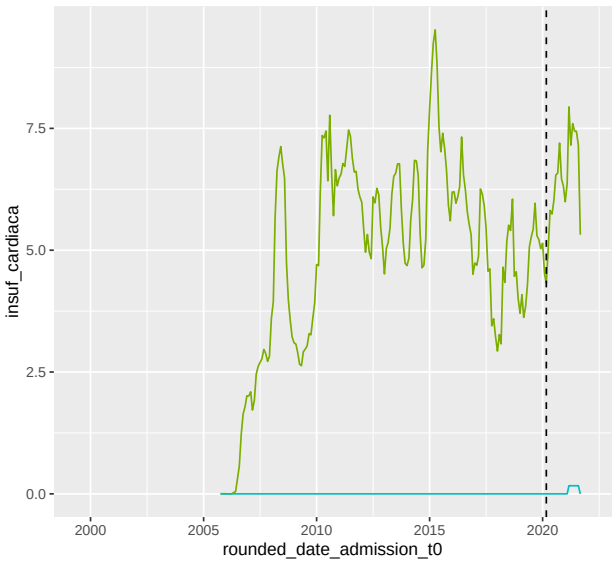
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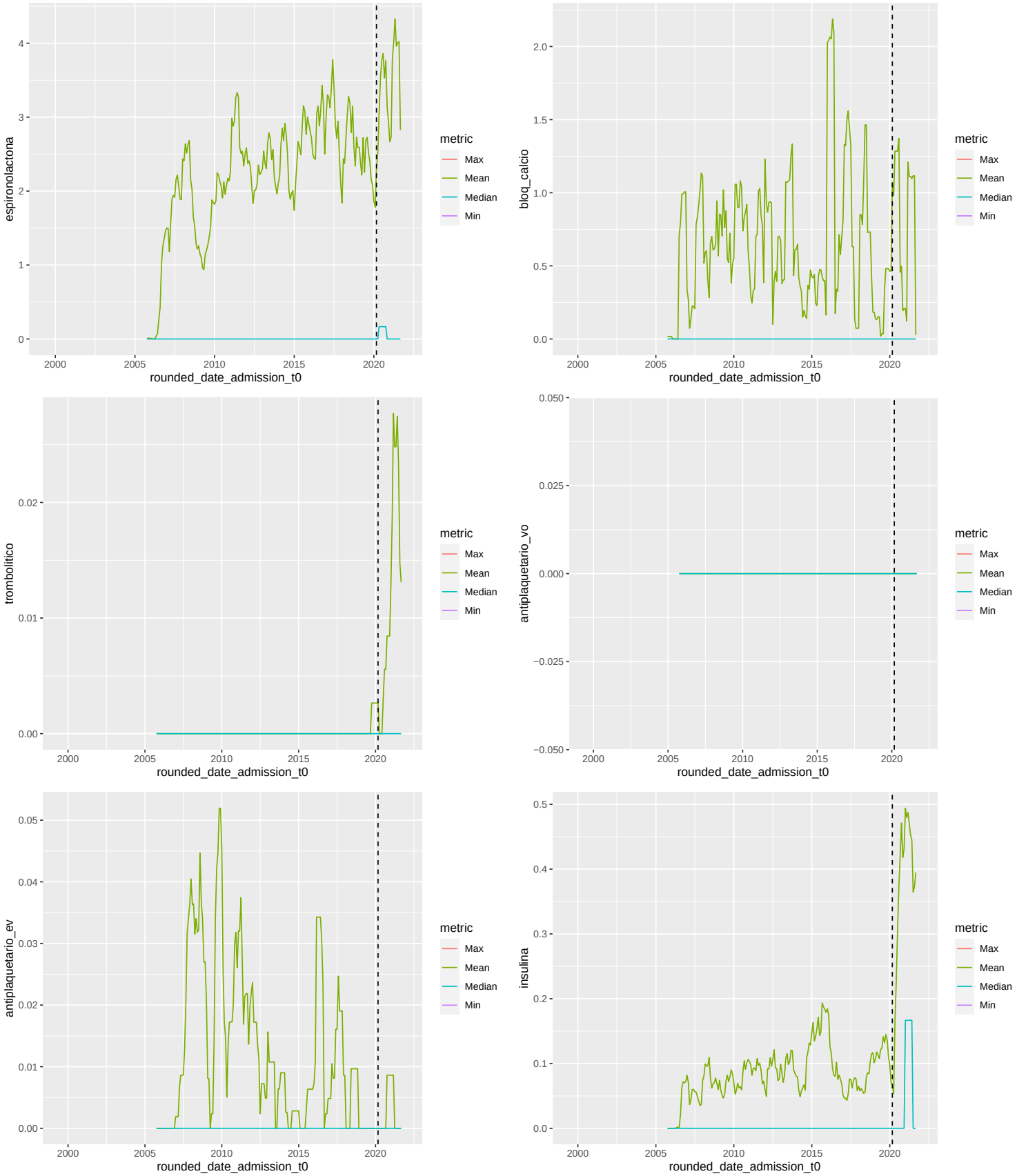
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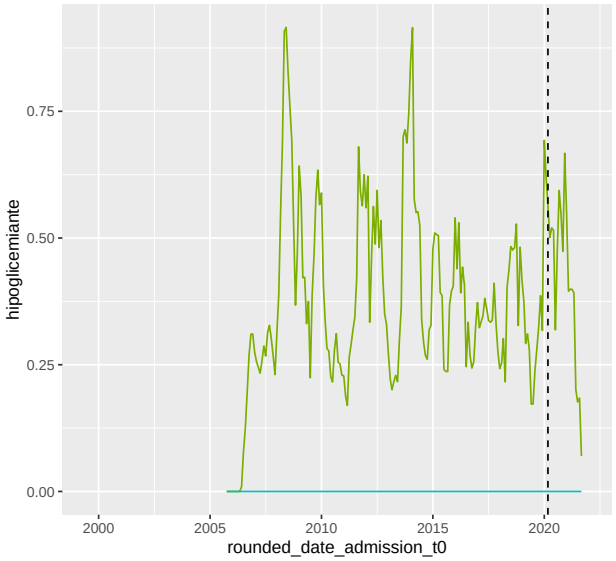
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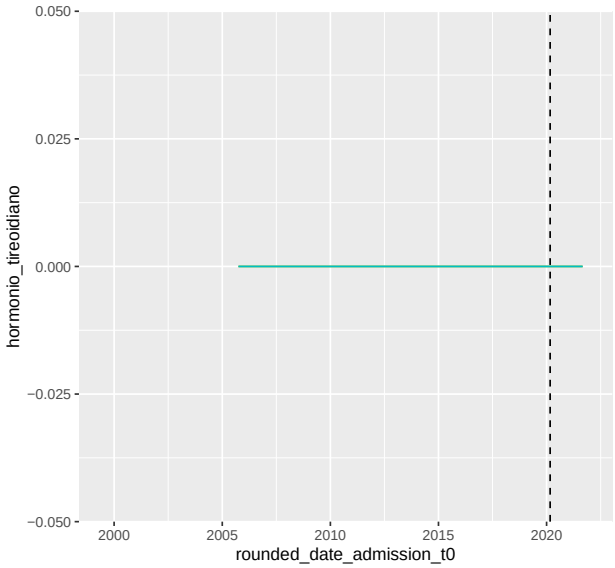
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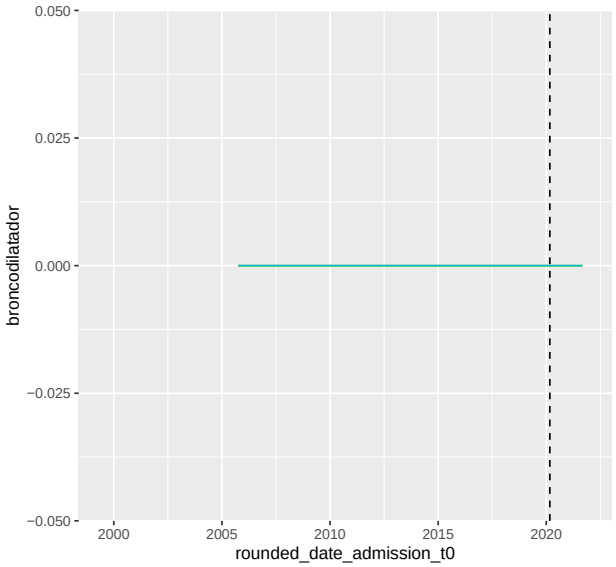
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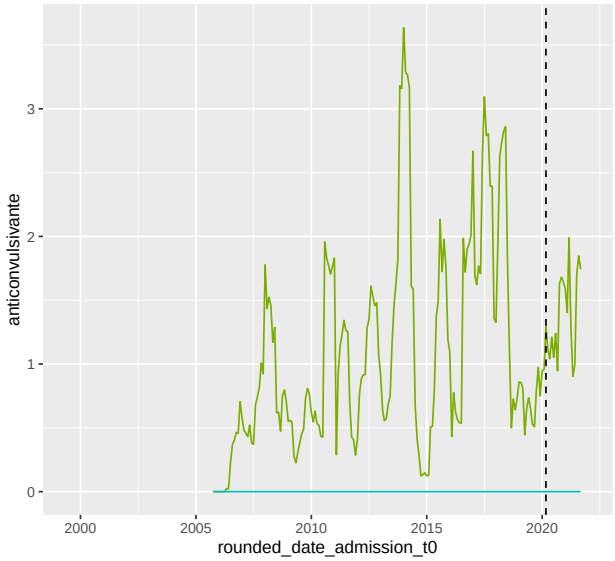
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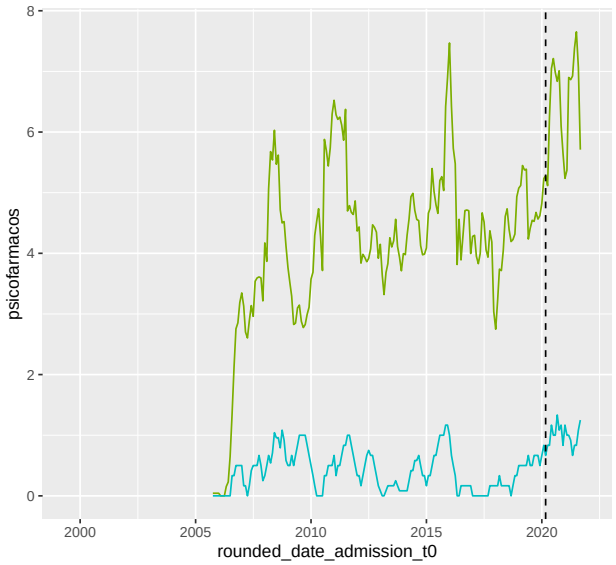
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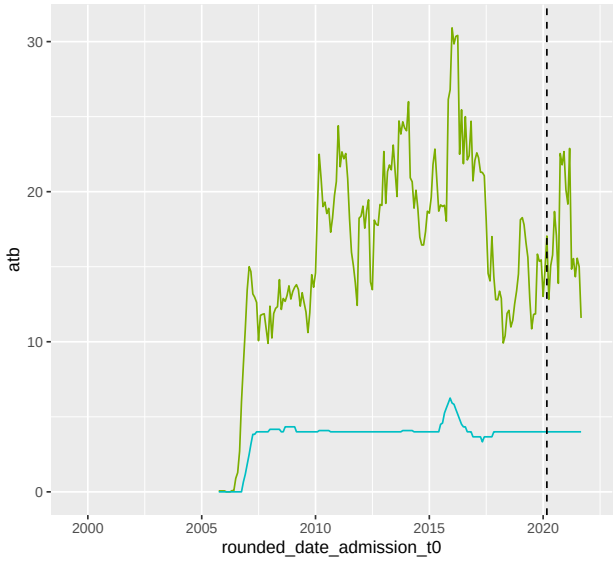
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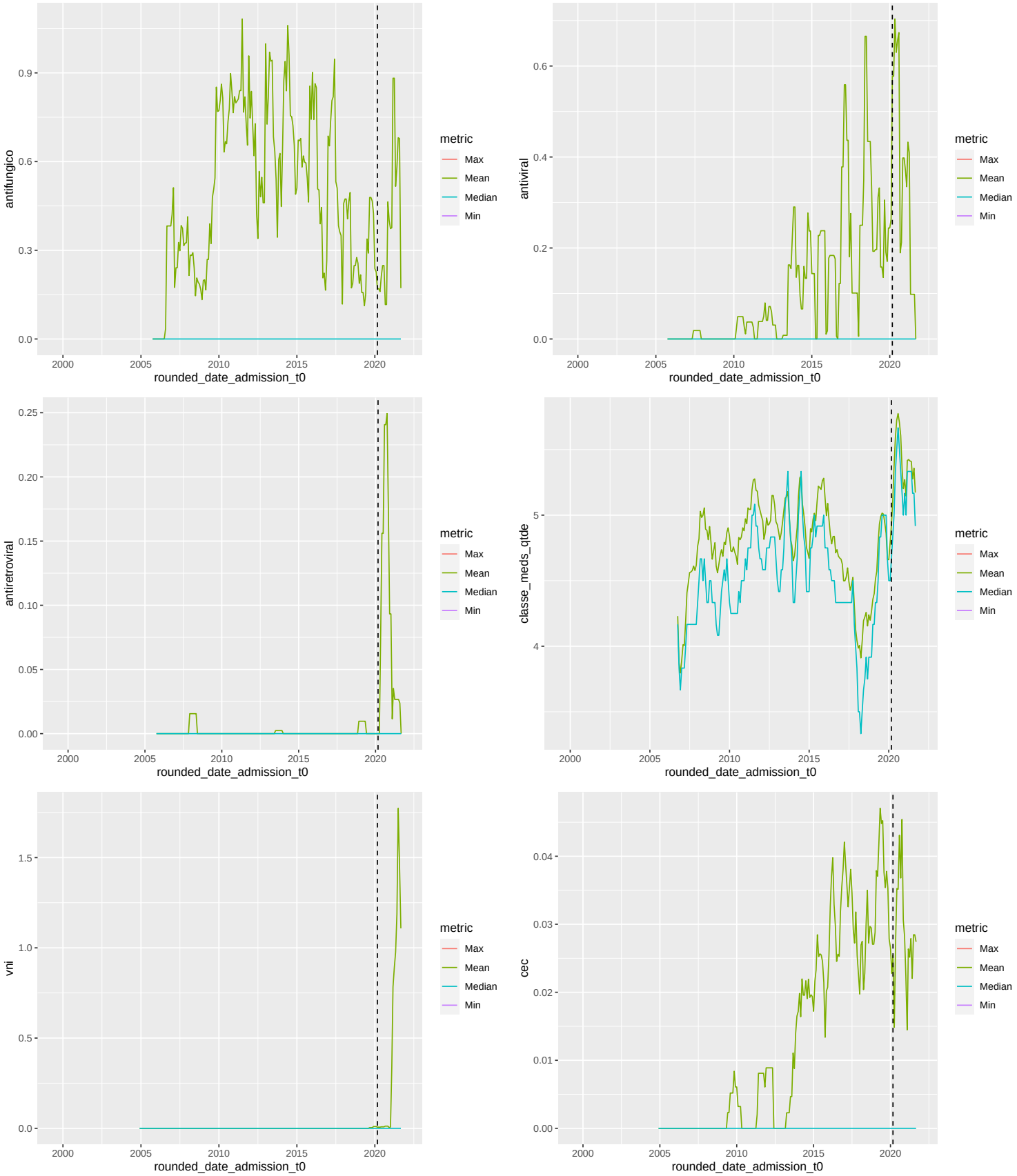
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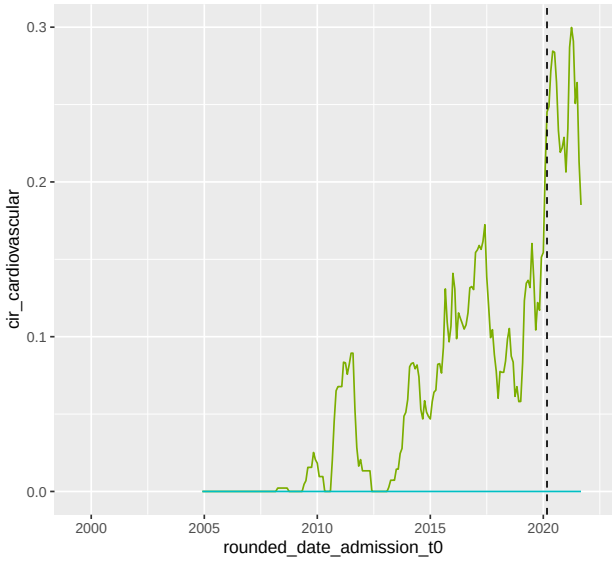
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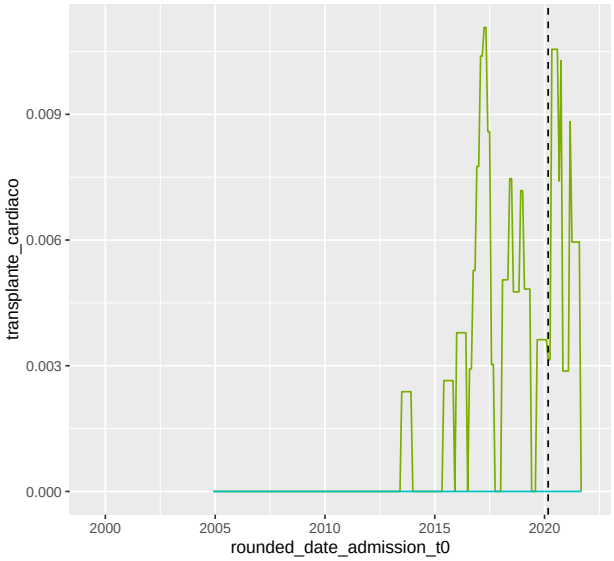
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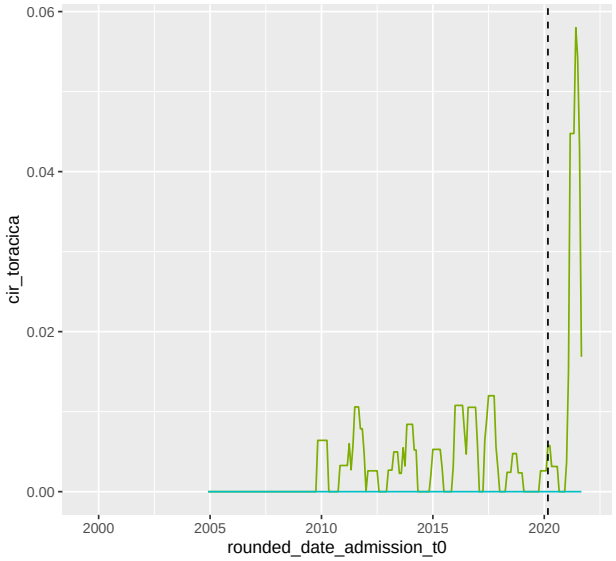
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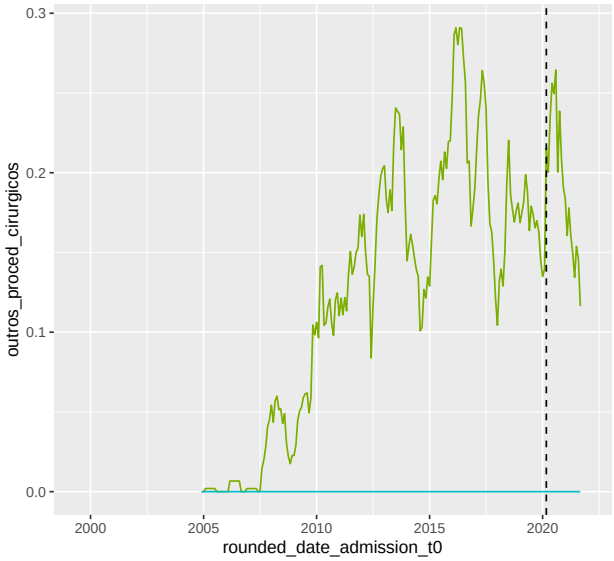
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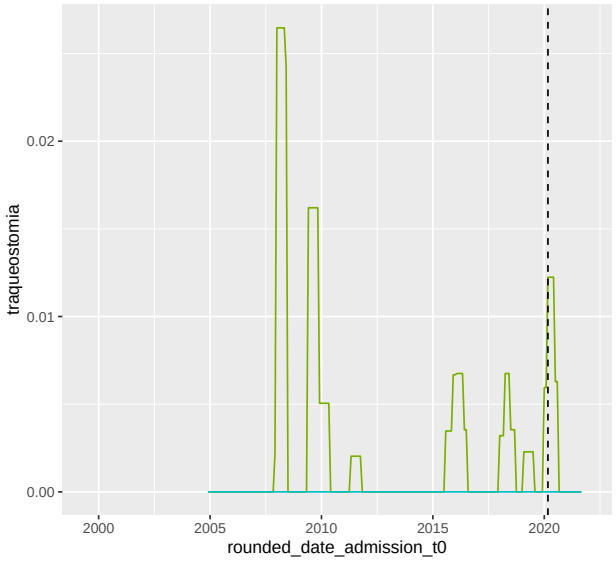
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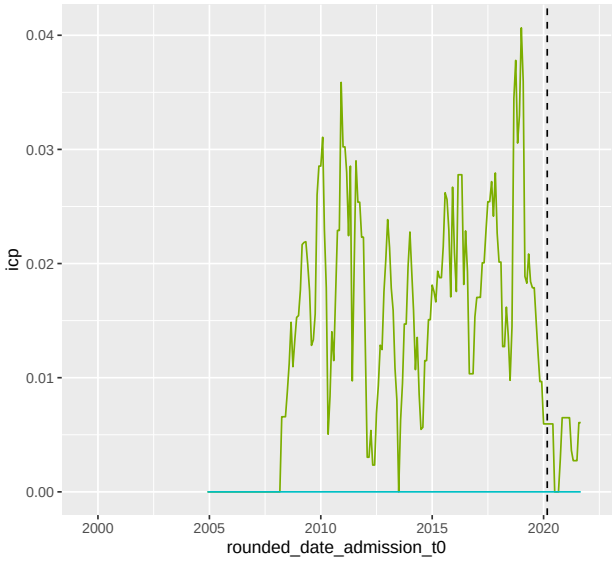
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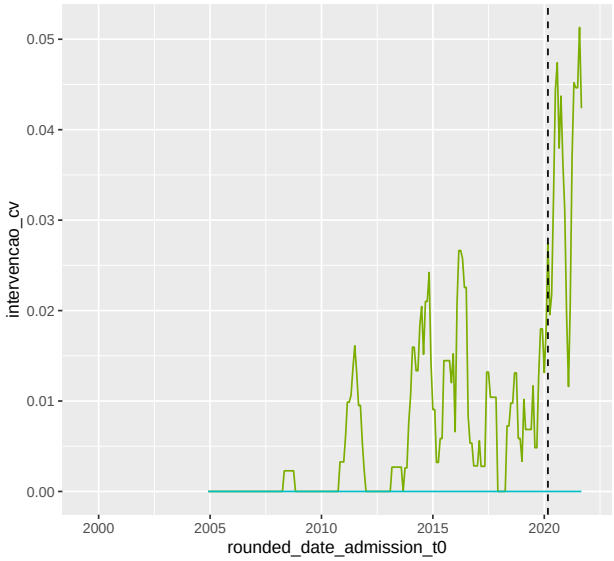
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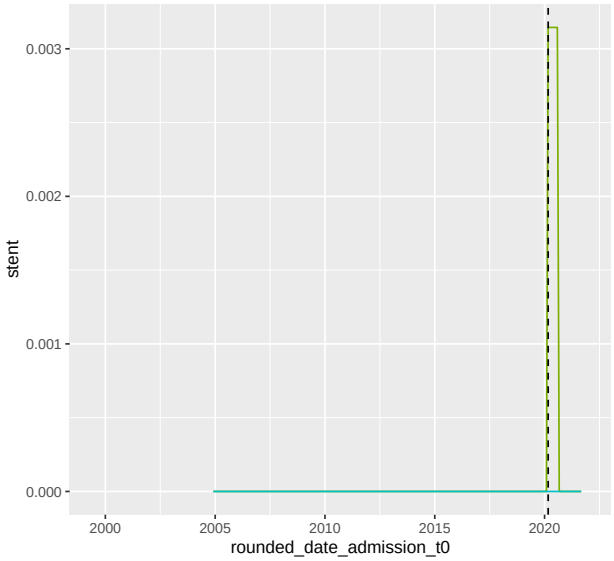
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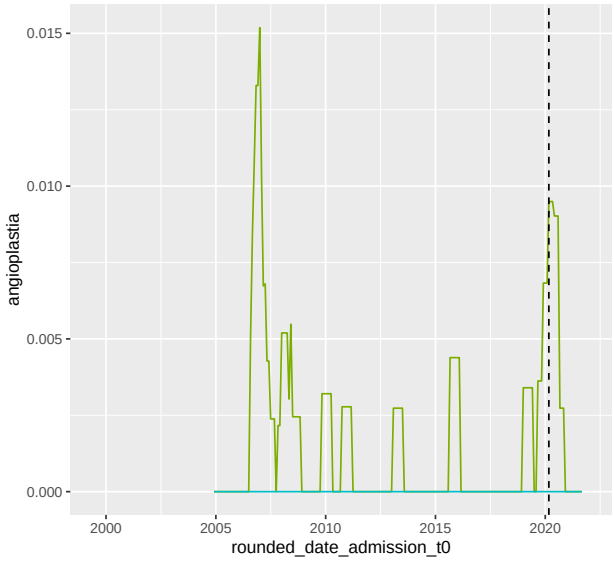
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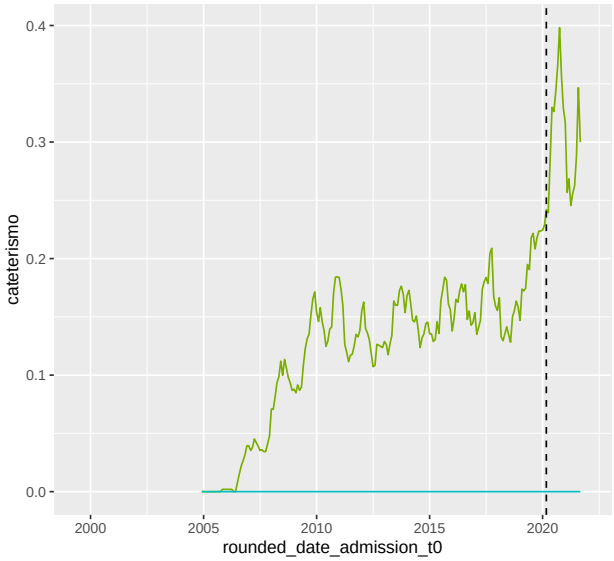
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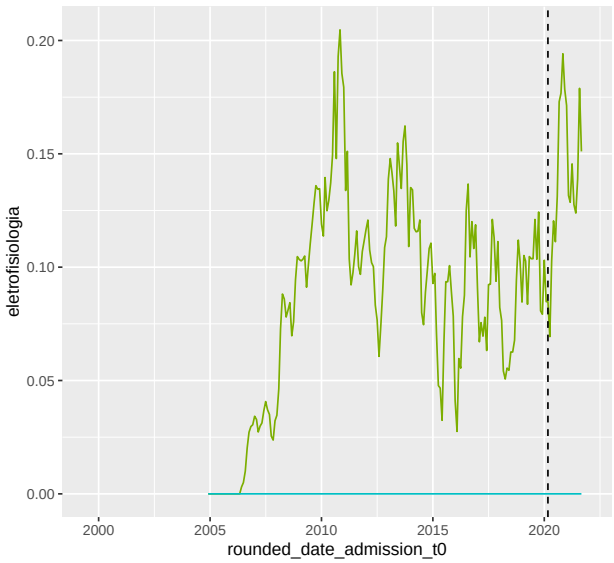
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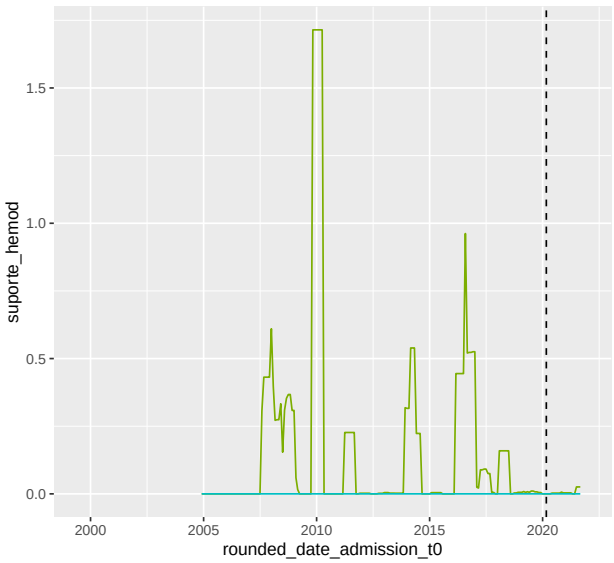
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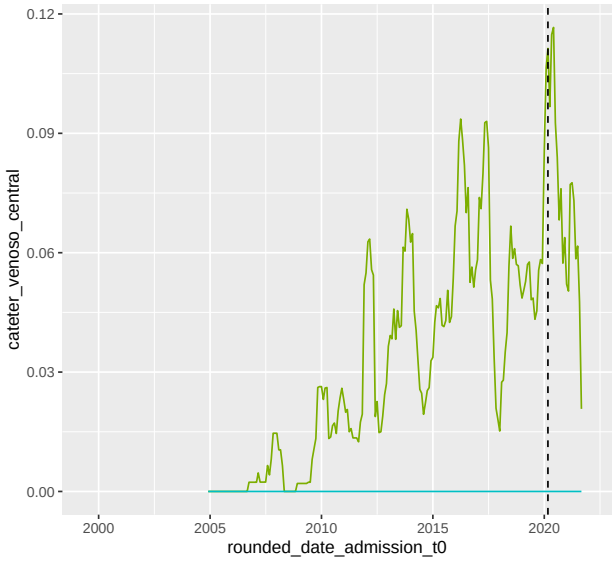
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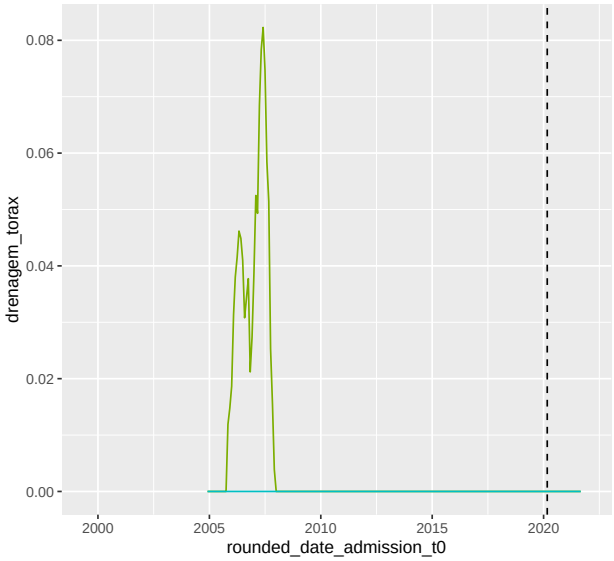
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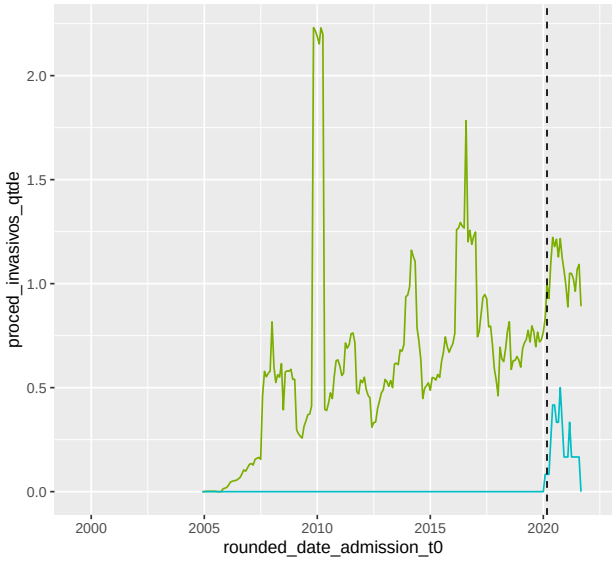
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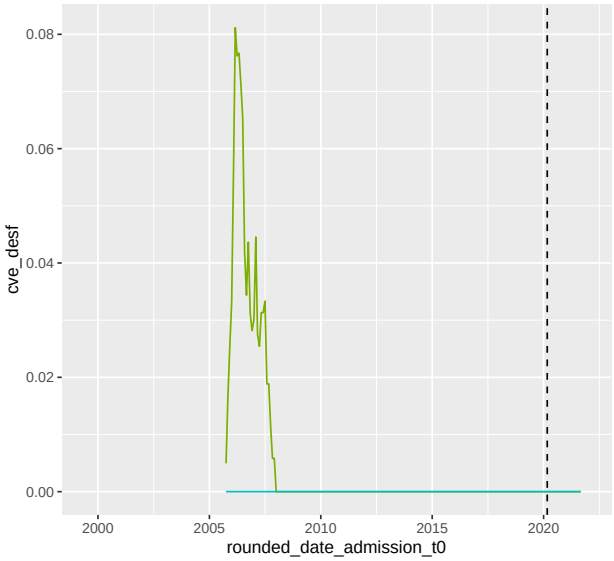
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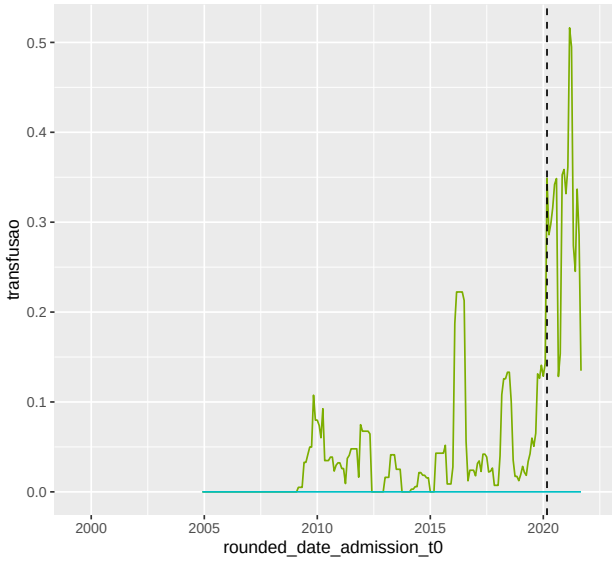
transfusao
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0.0
2000
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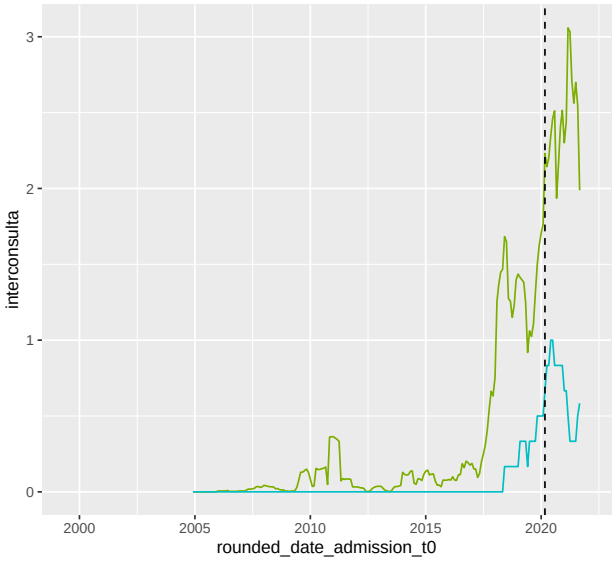
2010
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min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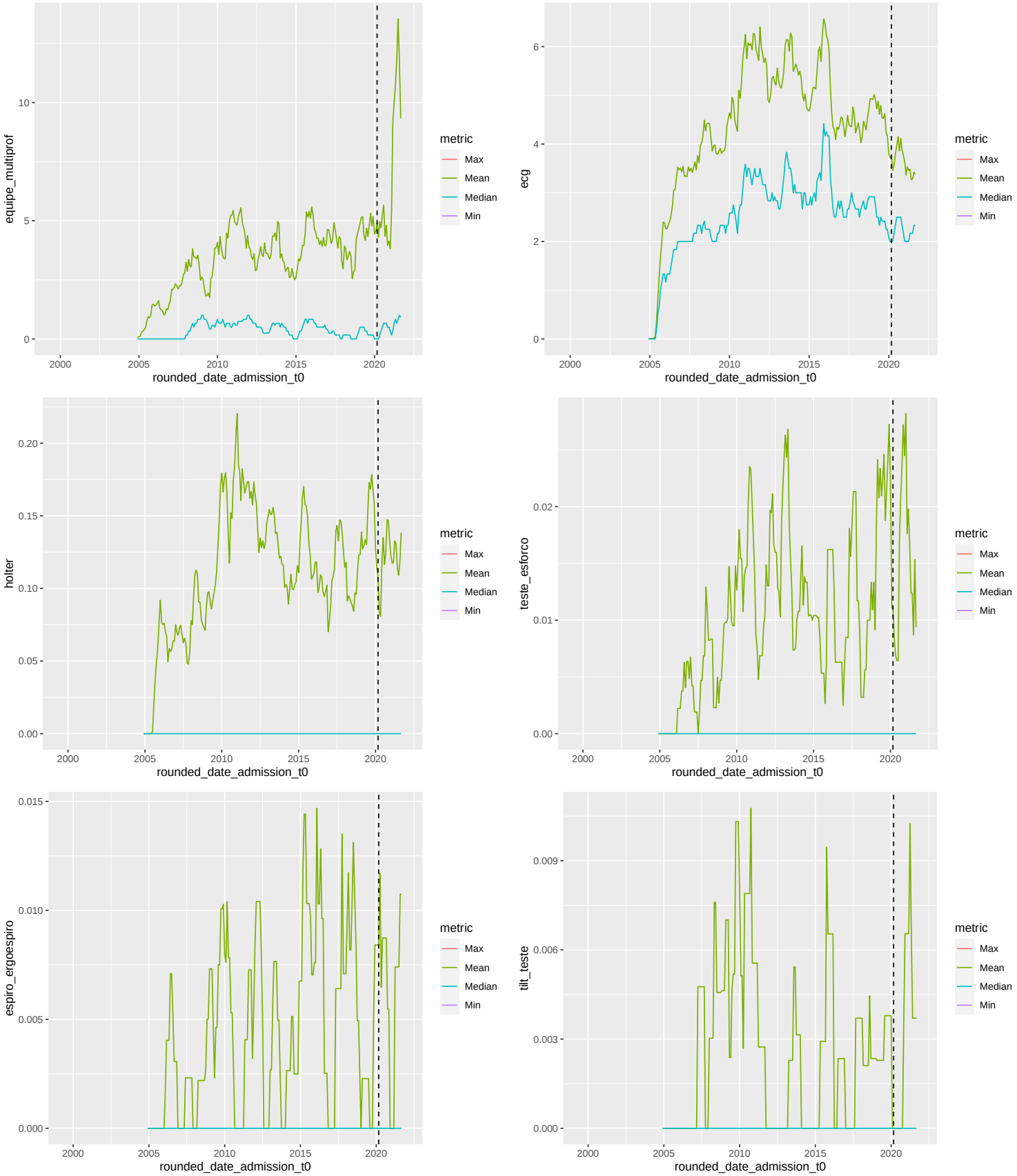
metric
Max
Mean
Median
Min


equipe_multiprof
rounded_date_admission_t0
ecg
holter
teste_esforco
espiro_ergoespiro
tilt_teste
metric
Max
Mean
Median
Min

polissonografia
0.010
0.005
0.000
2000
2005
2010
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min
metodos_graficos_qtde
6
4
2
0
laboratorio
125
100
75
50
25
cultura
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citologia
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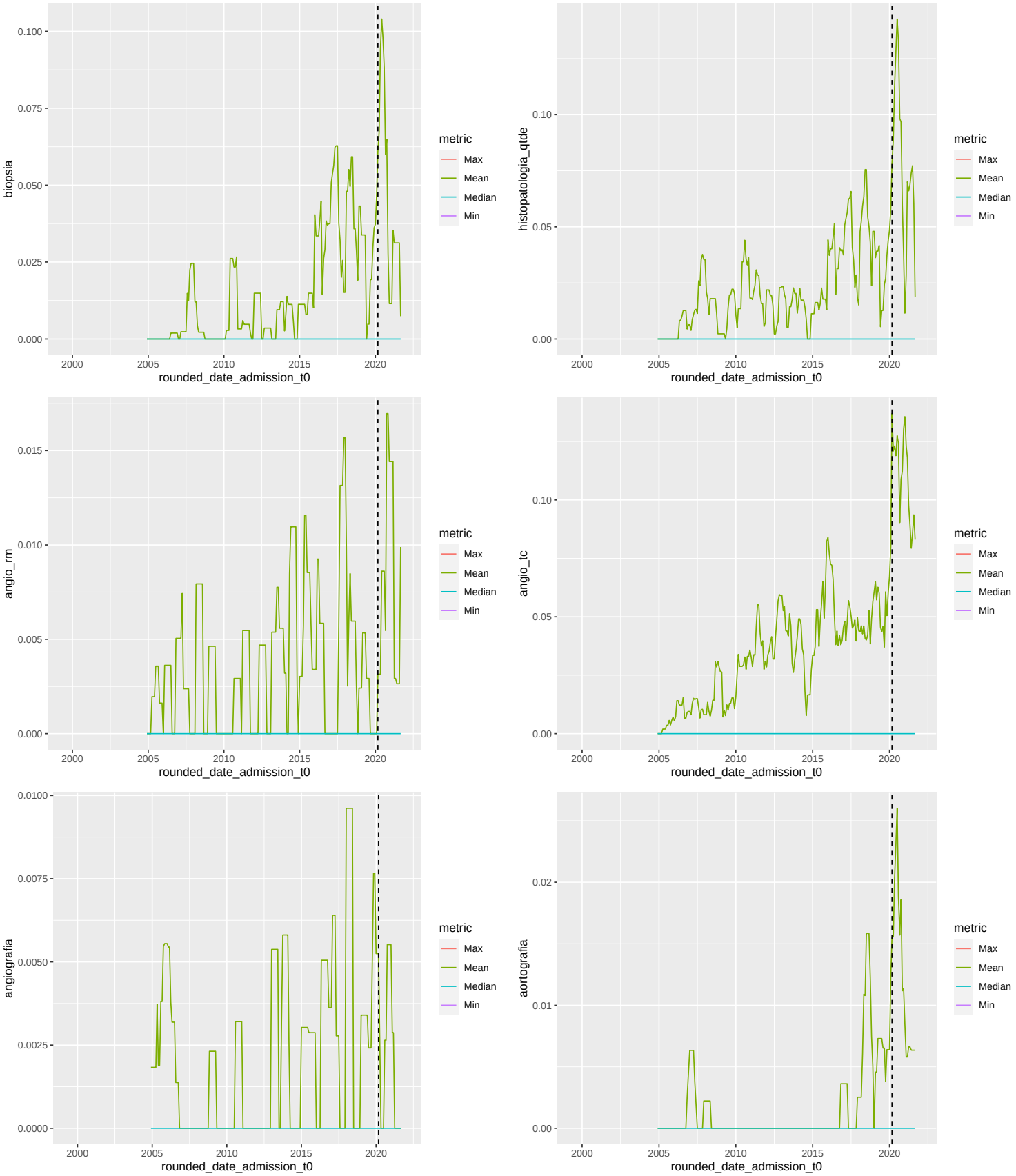
0.00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metric
Max
Mean
Median
Min
histopatologia_qtde
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0.00
angio_rm
0.015
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angiografia
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0.0075
0.0050
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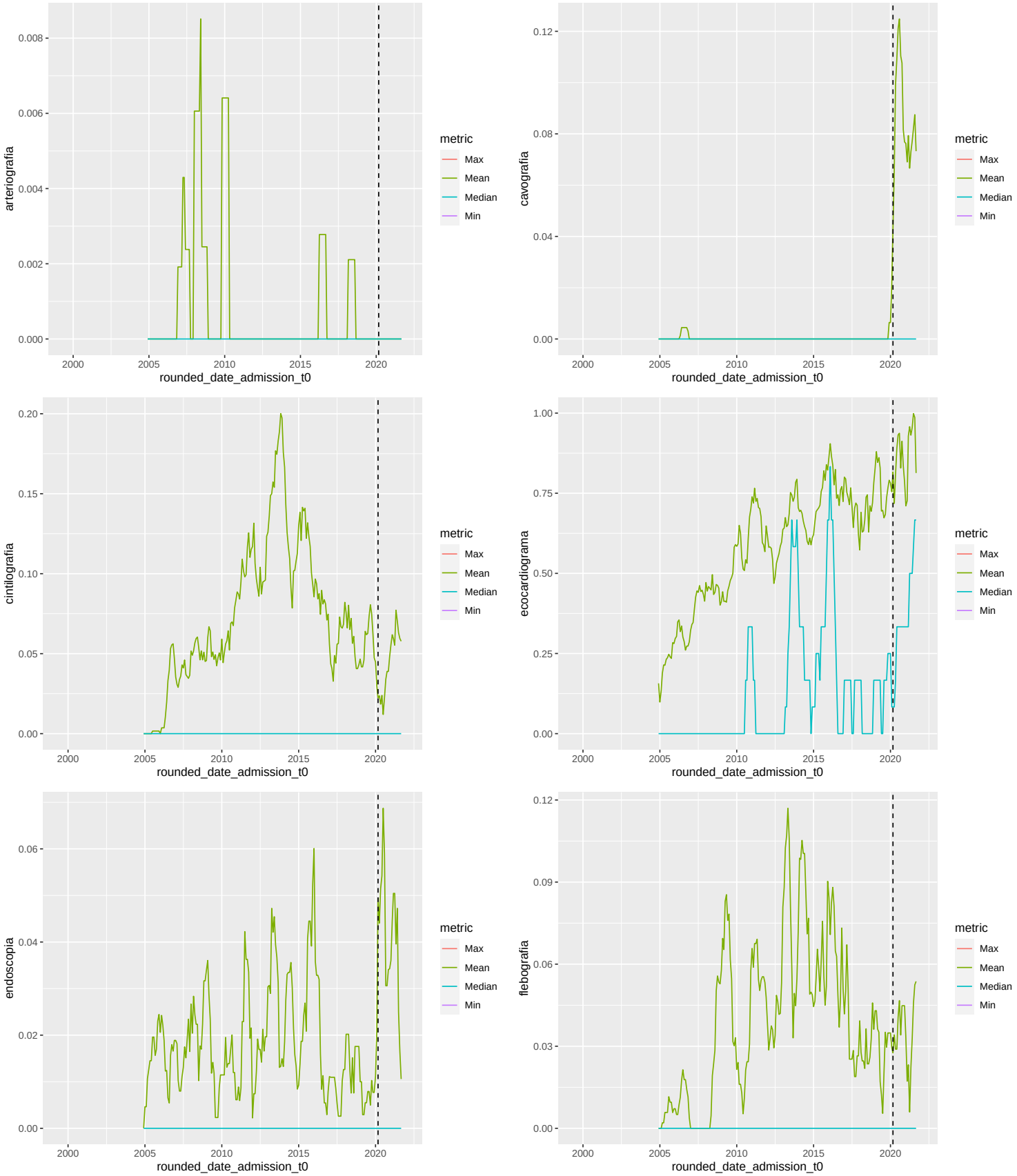
0.01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rounded_date_admission_t0
metric
Max
Mean
Median
Min
cavografia
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0.08
0.04
0.00
cintilografia
0.20
0.15
0.10
0.05
0.00
ecocardiograma
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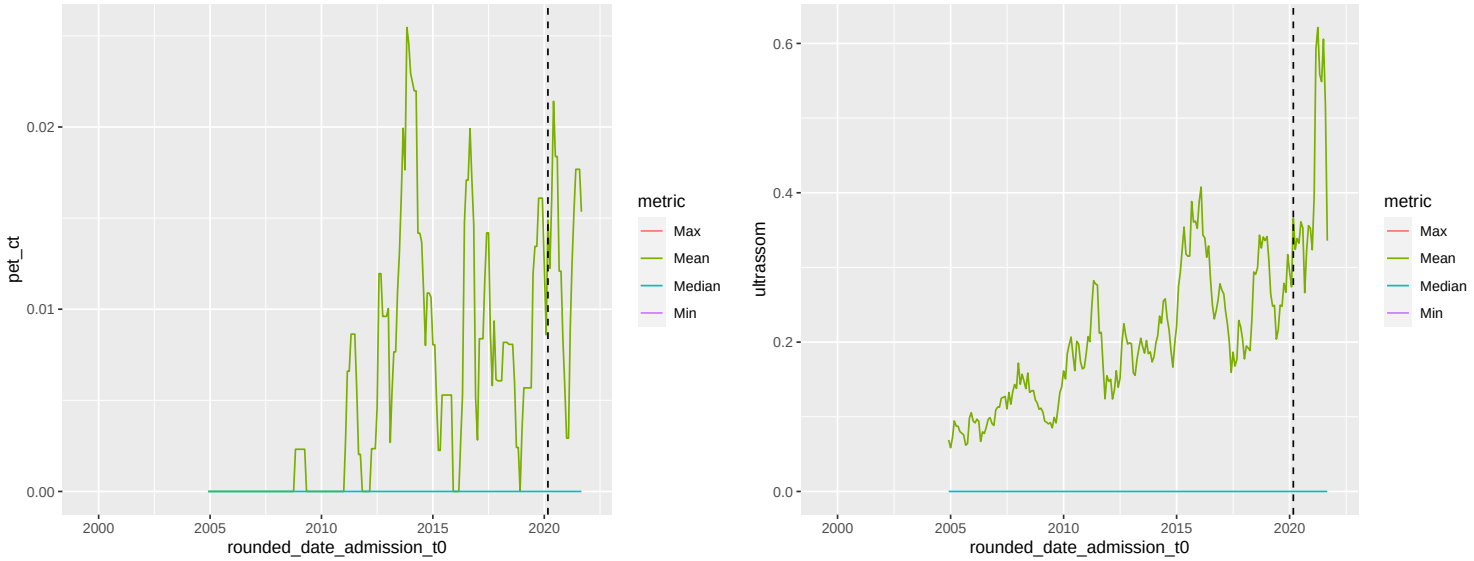
0.50
0.25
endoscopia
0.06
0.04
0.02
flebografia
0.09
0.03


pet_ct
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rounded_date_admission_t0
metric
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Median
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ultrassom
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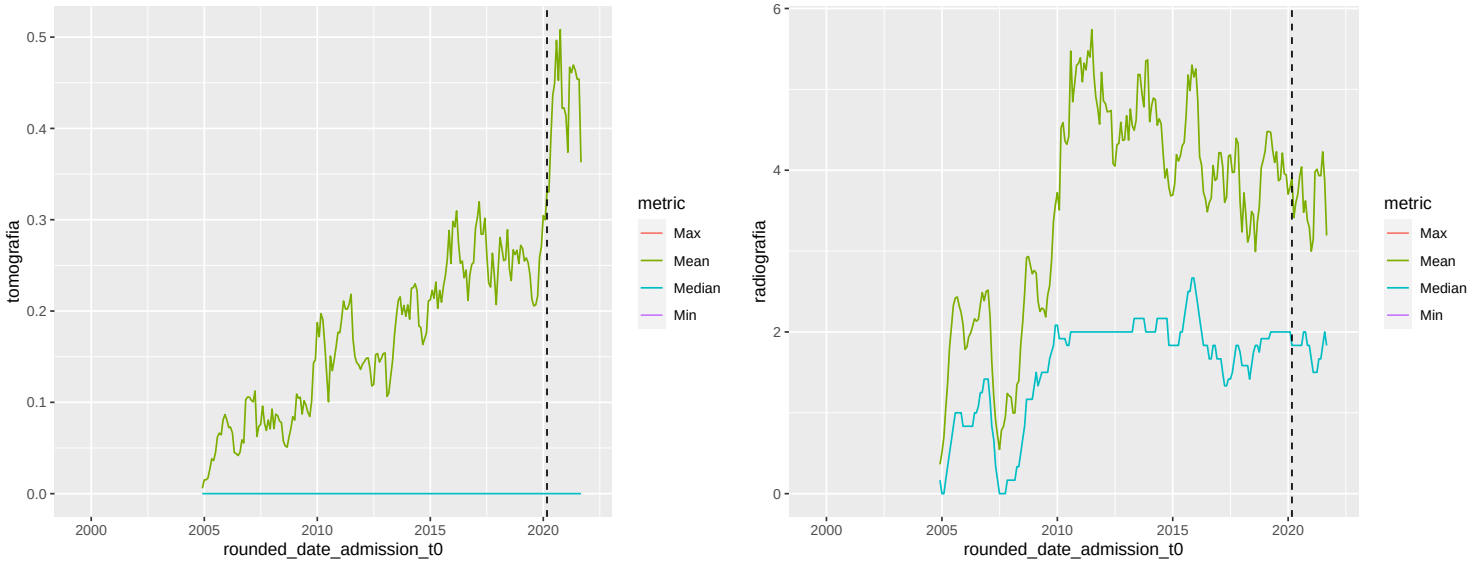
rounded_date_admission_t0
metric
Max
Mean
Median
Min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metric
Max
Mean
Median
Min

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Median
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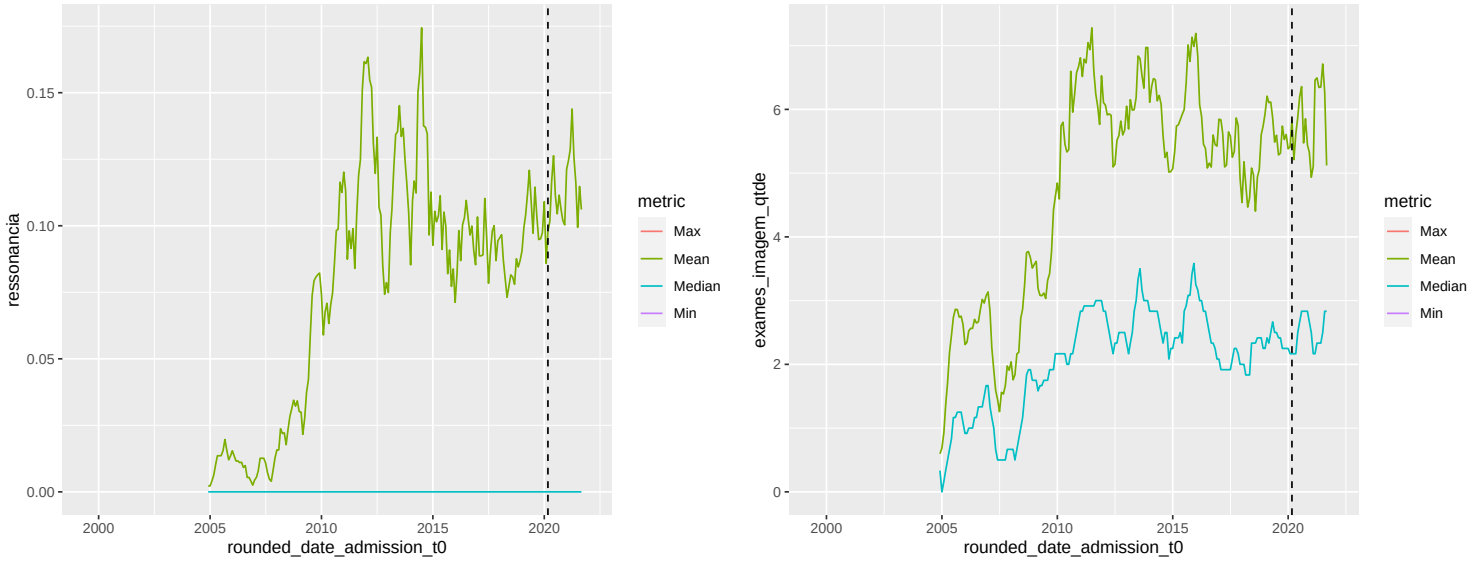
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rounded_date_admission_t0
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Mean
Median
Min

exames_imagem_qtde
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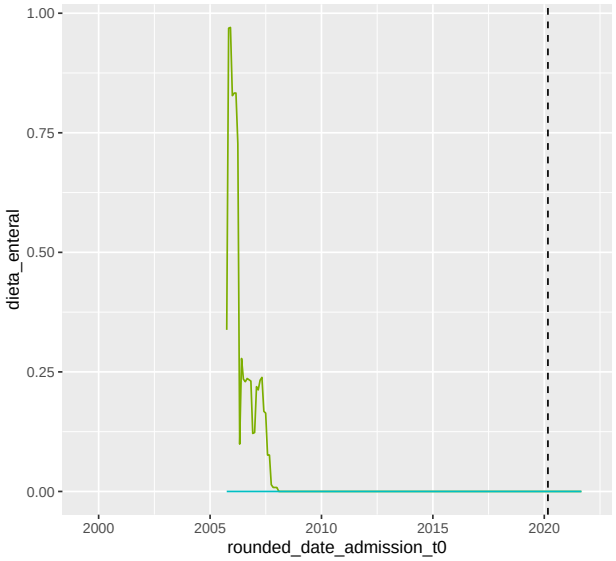
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min


dieta_enteral
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0.00
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2005
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2015
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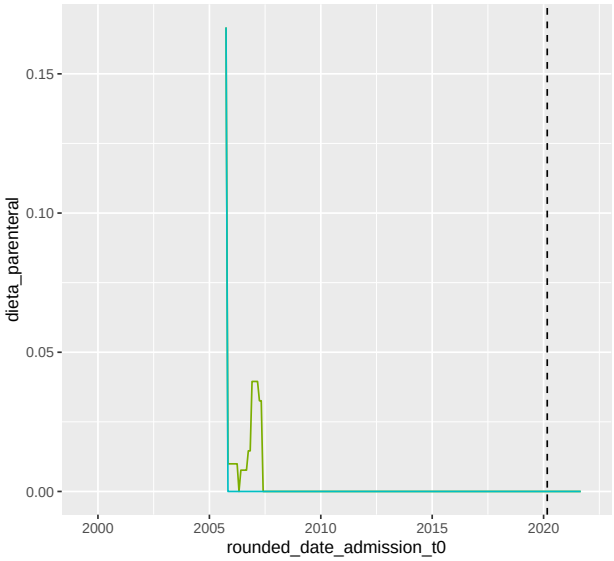
Max
Mean
Median
Min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0.00
2000
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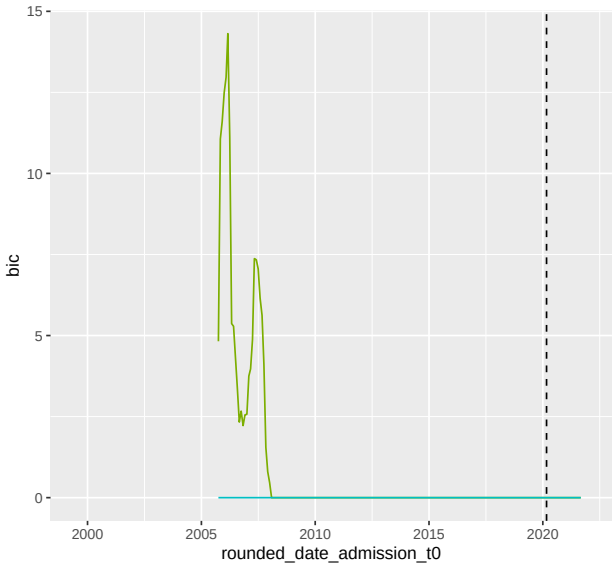
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min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2015
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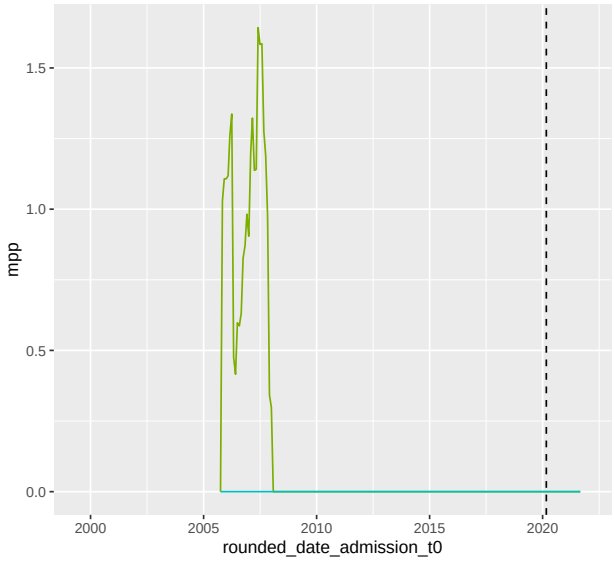
rounded_date_admission_t0
metric
Max
Mean
Median
Min


mpp
1.5
1.0
0.5
0.0
2000
2005
2010
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min

n_procedure_t0
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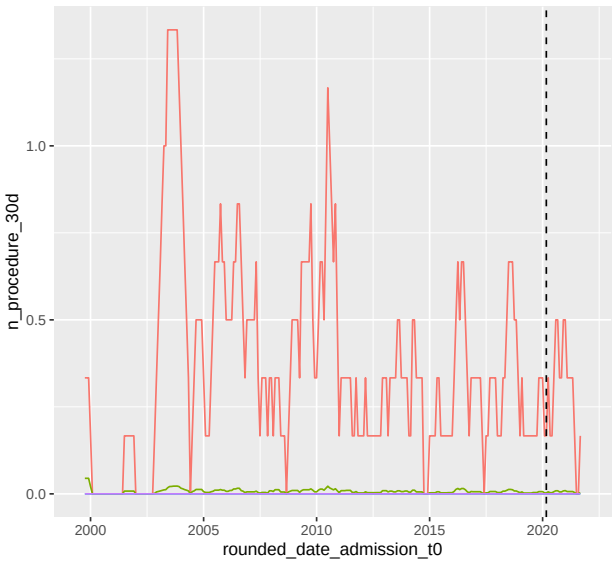
2.0
1.5
1.0
2000
2005
2010
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min


n_procedure_30d
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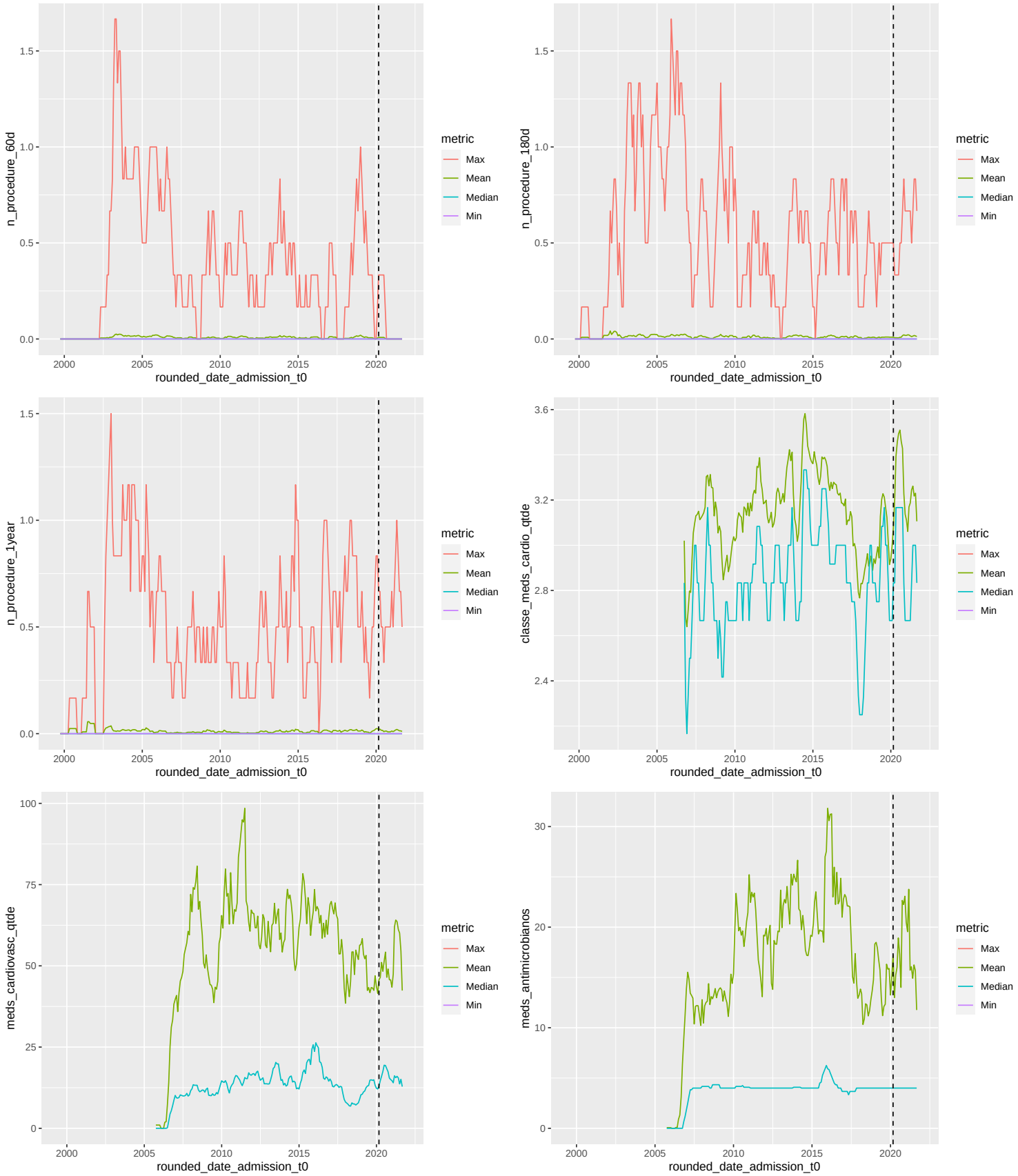
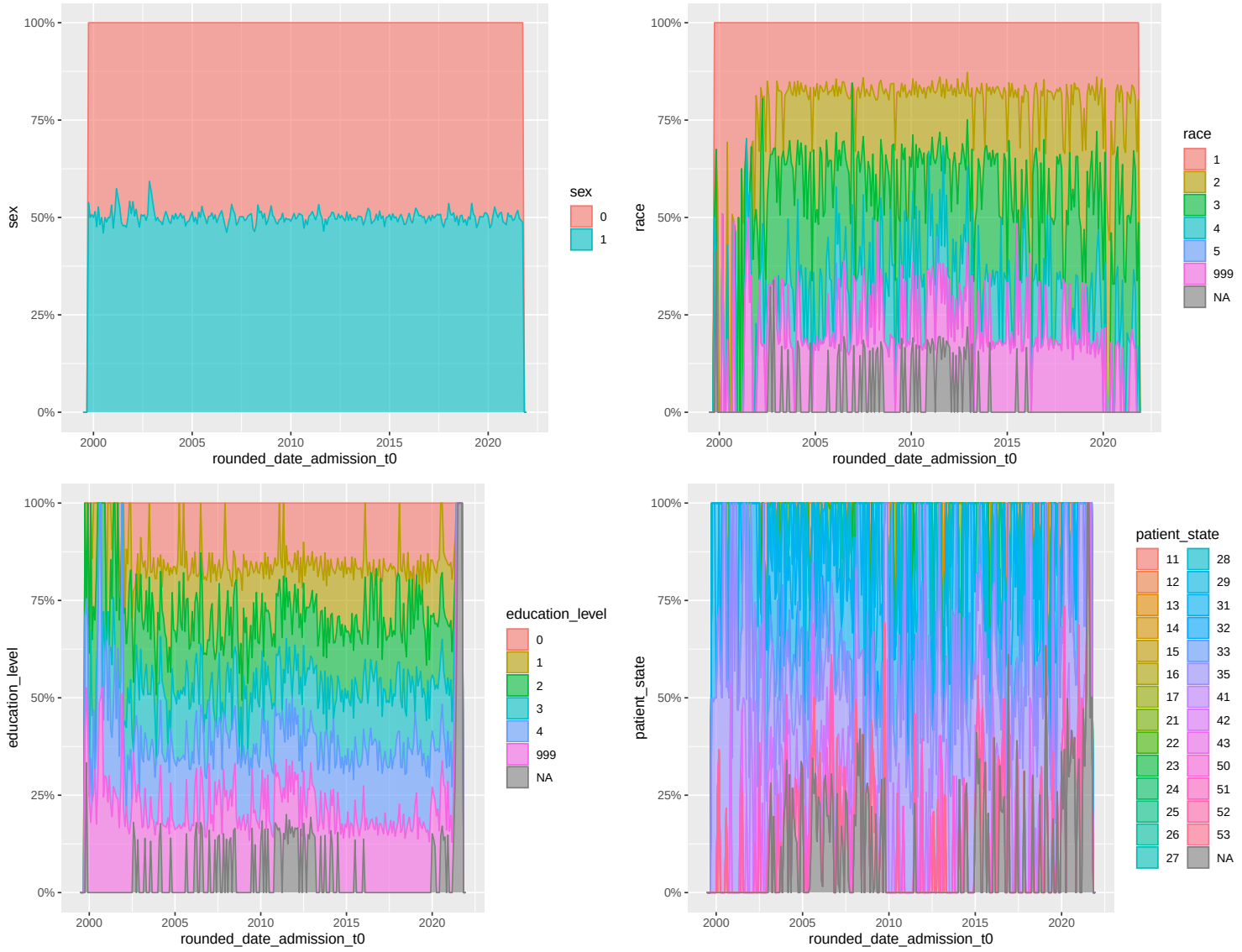
2005
2010
2015
2020
rounded_date_admission_t0
metric
Max
Mean
Median
Min

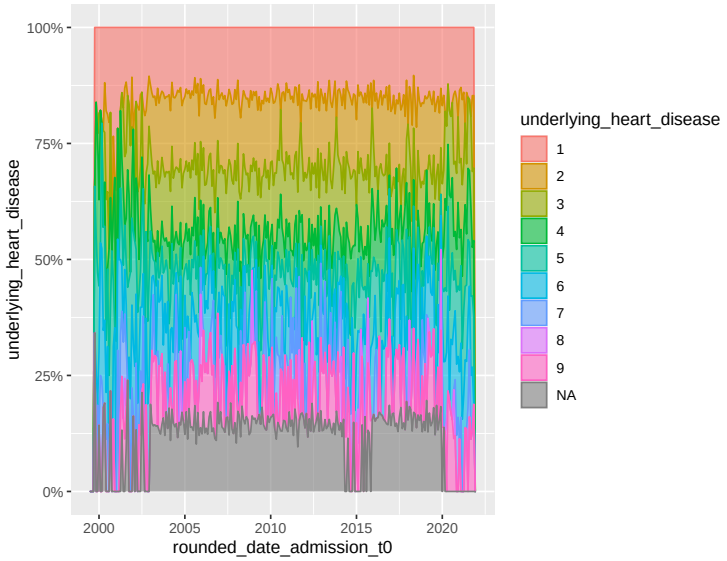


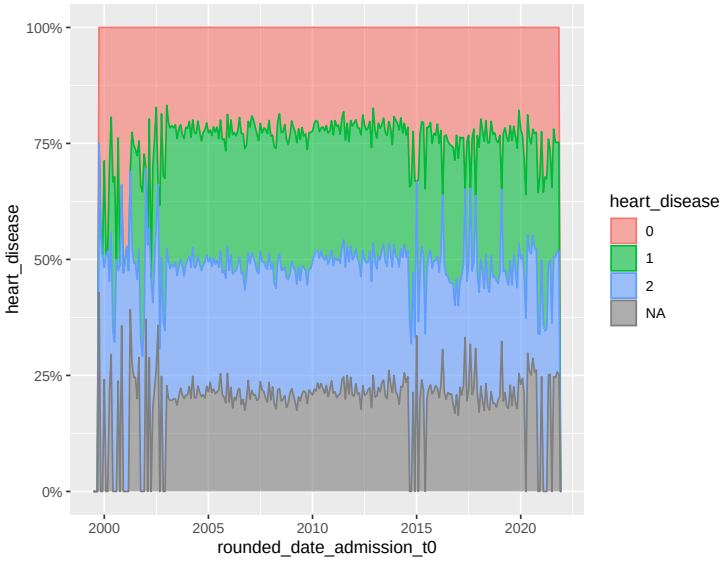

```
column <- 'death_intraop_2'

df[columns_list$outcome_columns] <- lapply(df[columns_list$outcome_columns], factor)

for (column in c(columns_list$categorical_columns, columns_list$outcome_columns)){
  if (mean(is.na(df[[column]])) > 0.5) next
  if (length(unique(df[[column]])) > 10) print(column)
```

```
  df %>%
    mutate(rounded_date_admission_t0 = lubridate::floor_date(date_admission_t0,
                                                             'month')) %>%
    group_by(rounded_date_admission_t0, !!sym(column)) %>%
    summarise(N = n()) %>%
    ungroup %>%
    arrange(rounded_date_admission_t0) %>%
    mutate(N = zoo::rollmean(N, k = k, fill = NA)) %>%
    group_by(rounded_date_admission_t0) %>%
    mutate(percentage = N / sum(N)) %>%
    ungroup %>%
    tidyr::complete(rounded_date_admission_t0, !!sym(column),
                    fill = list(N = 0, percentage = 0)) %>%
    ggplot(aes(x = rounded_date_admission_t0, y = percentage,
               color = !!sym(column), fill = !!sym(column))) +
      geom_area(alpha=0.6) +
      scale_y_continuous(labels = scales::percent) +
      labs(y = column)-> p

  print(p)
}
```

```
## [1] "patient_state"
```




underlying_heart_disease
1
2
3
4
5
6
7
8
9
NA
underlying_heart_disease
100%
75%
50%
25%
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0


heart_disease
0
1
2
NA
heart_disease
100%
75%
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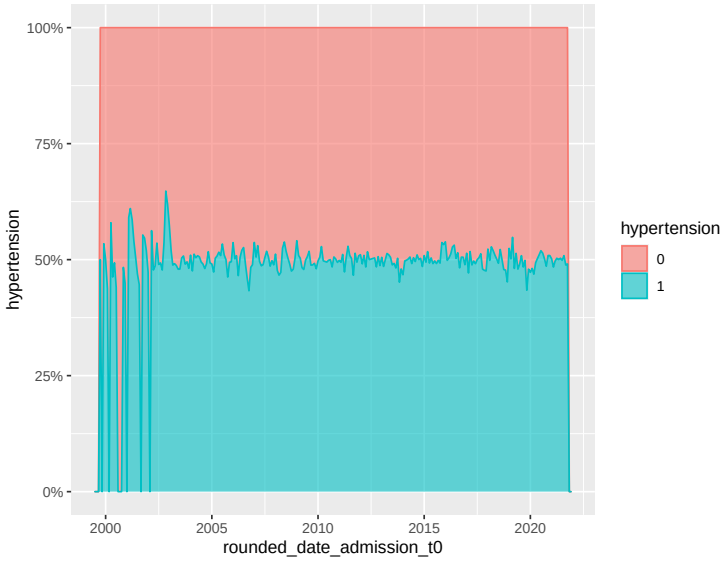
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0


hypertension
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1
hypertension
100%
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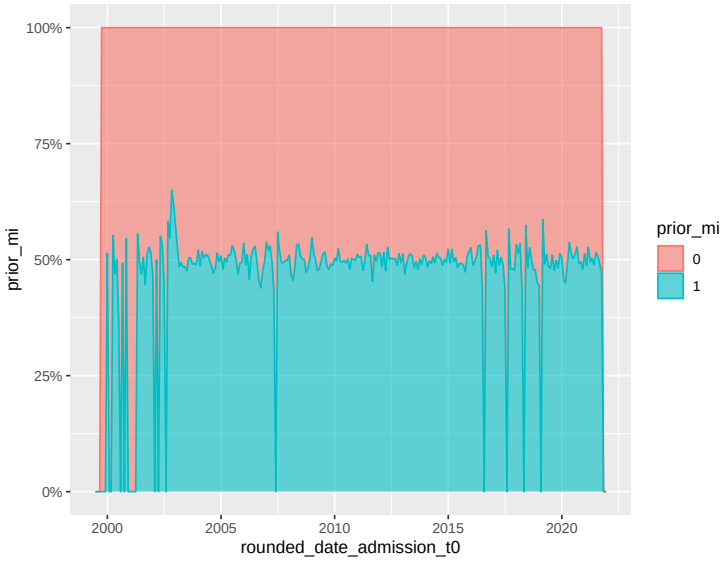
2000
2005
2010
2015
2020
rounded_date_admission_t0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prior_mi
100%
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2015
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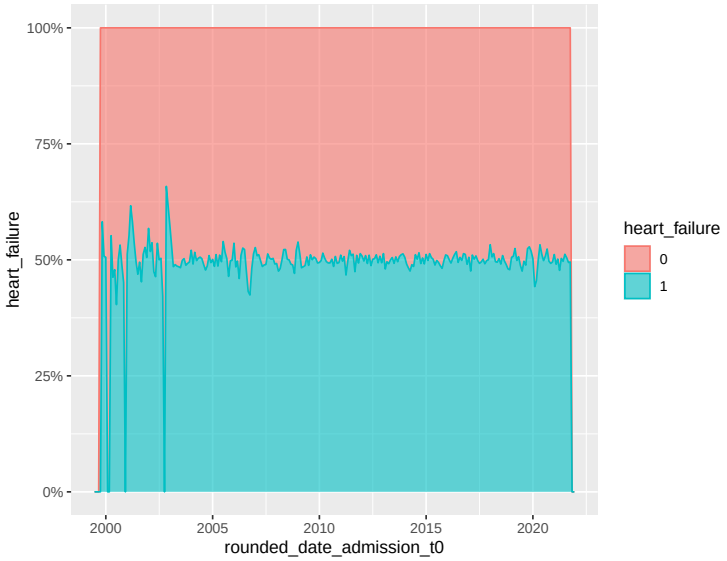
rounded_date_admission_t0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heart_failure
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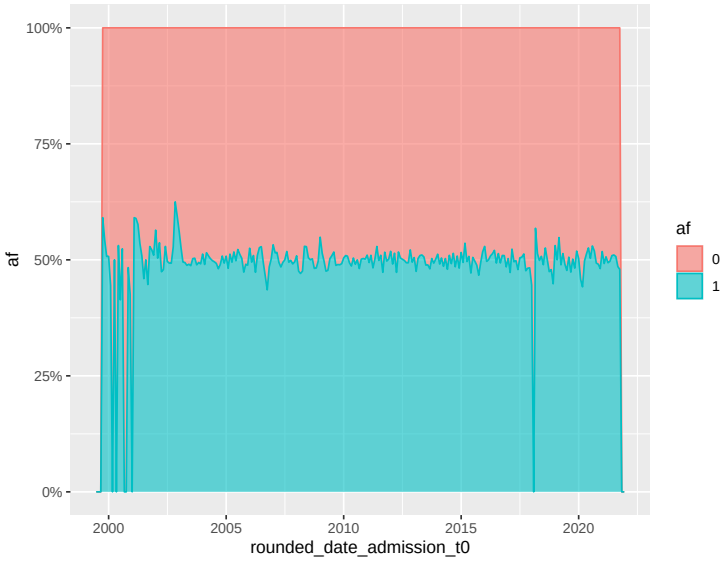
2020
rounded_date_admission_t0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af
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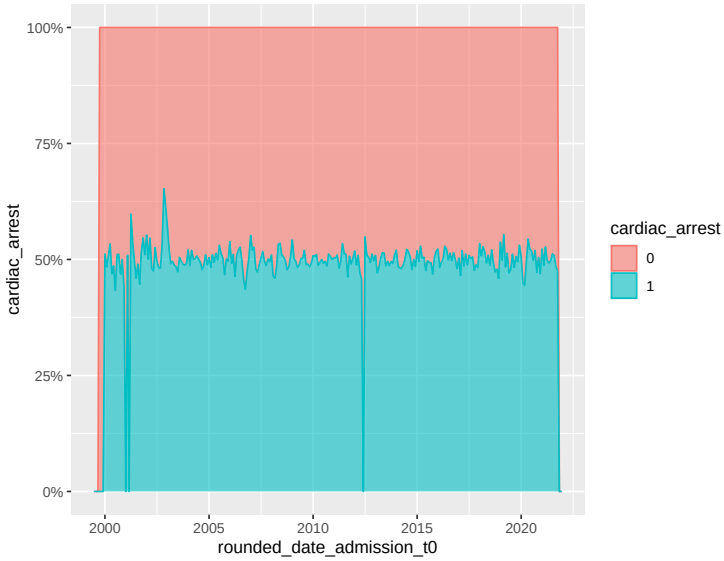
rounded_date_admission_t0


cardiac_arrest
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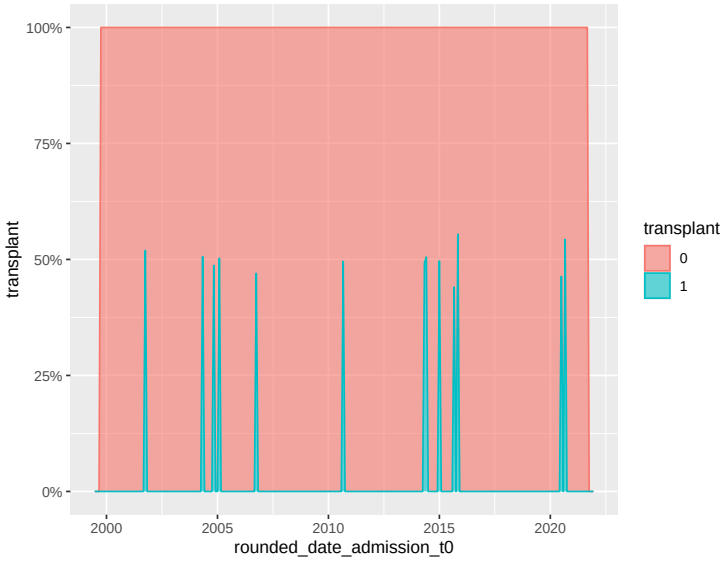
transplant
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2005
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2020
rounded_date_admission_t0
transplant
0
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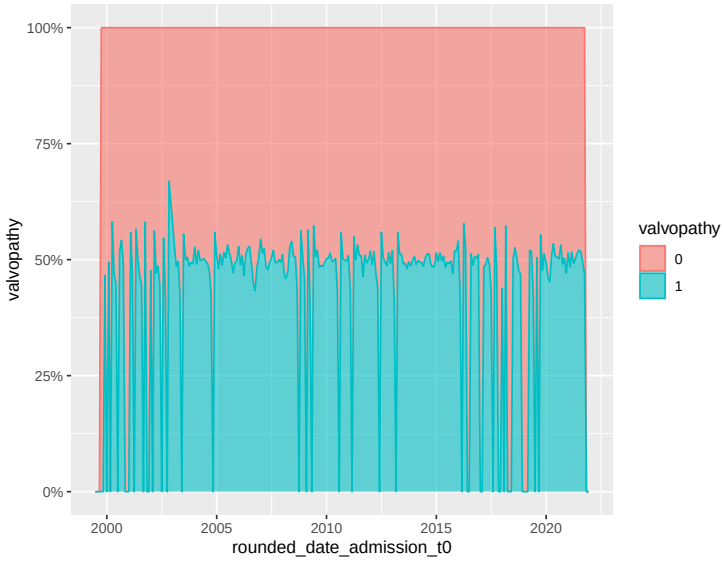
valvopathy
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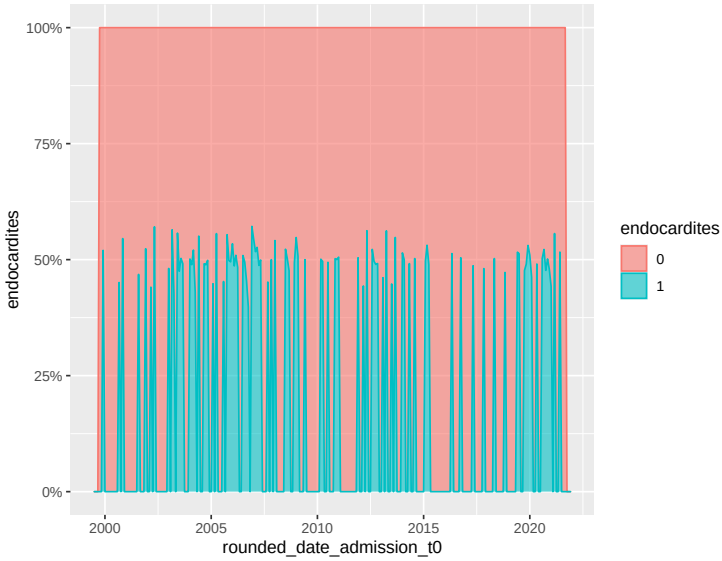
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2020
rounded_date_admission_t0
endocardites
0
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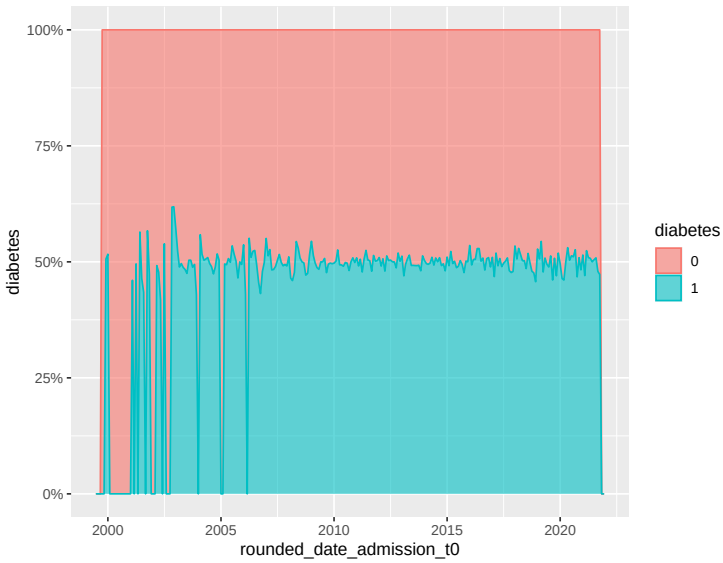
diabetes
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2020
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diabetes
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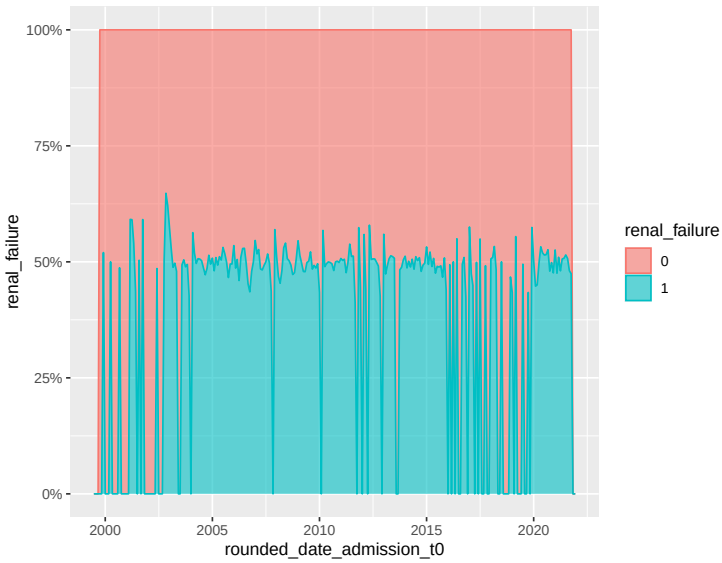
renal_failure
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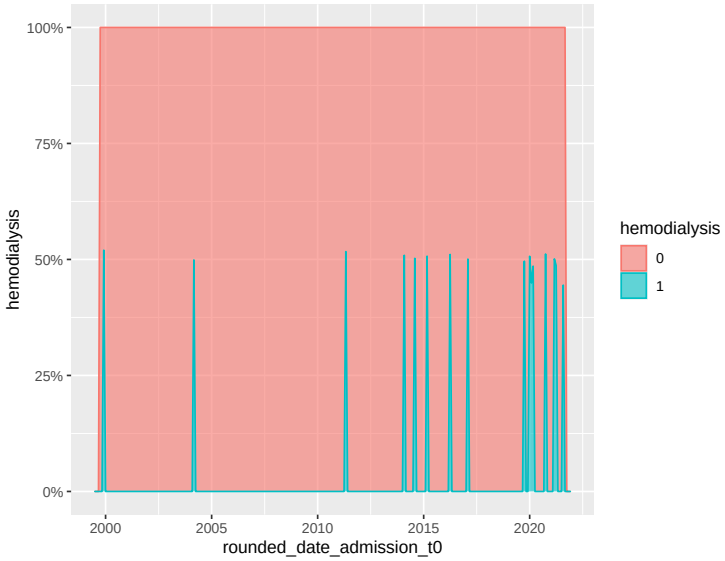
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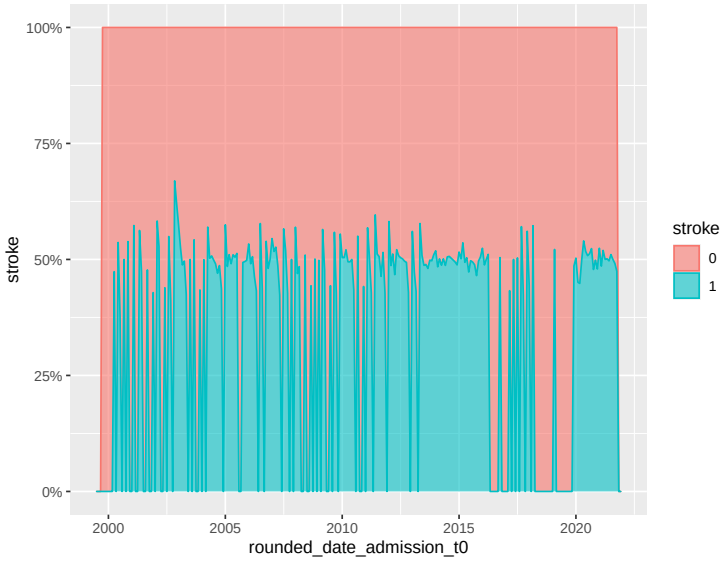
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2020
rounded_date_admission_t0
stroke
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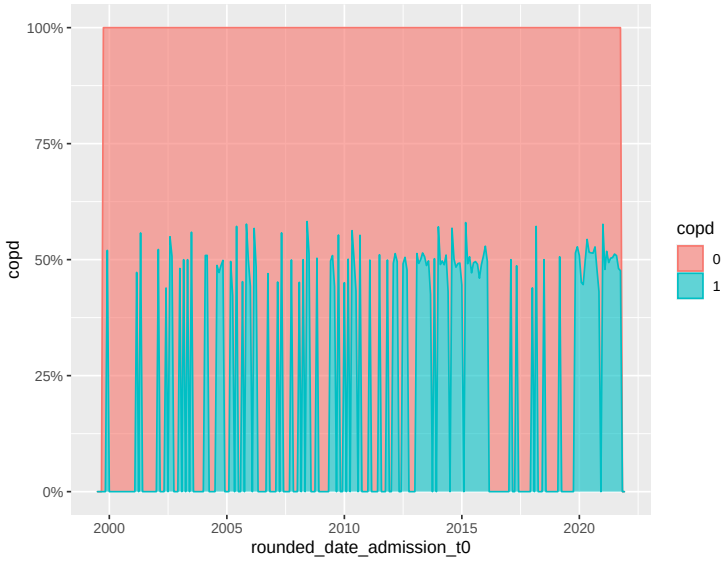
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rounded_date_admission_t0
copd
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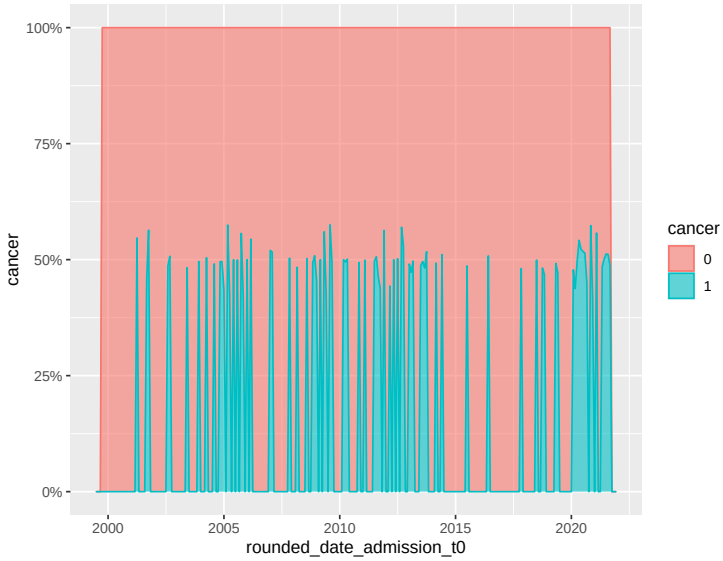
cancer
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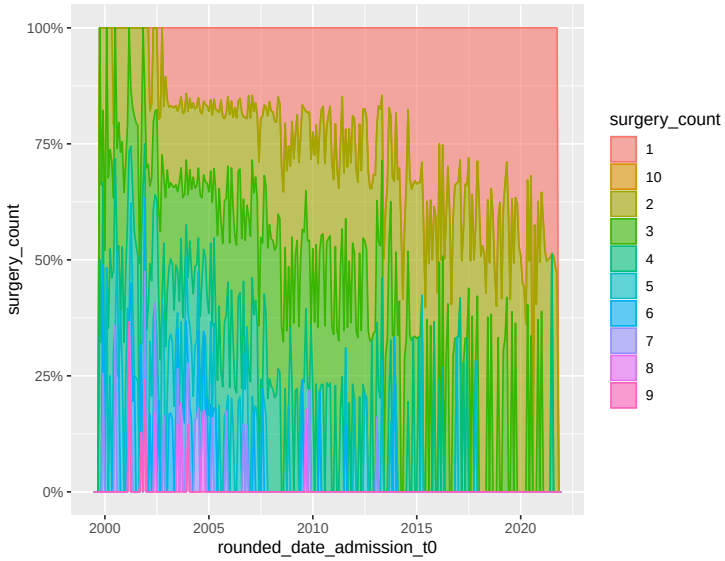
2020
rounded_date_admission_t0
cancer
0
1


surgery_count
100%
75%
50%
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0%
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2020
rounded_date_admission_t0
surgery_count
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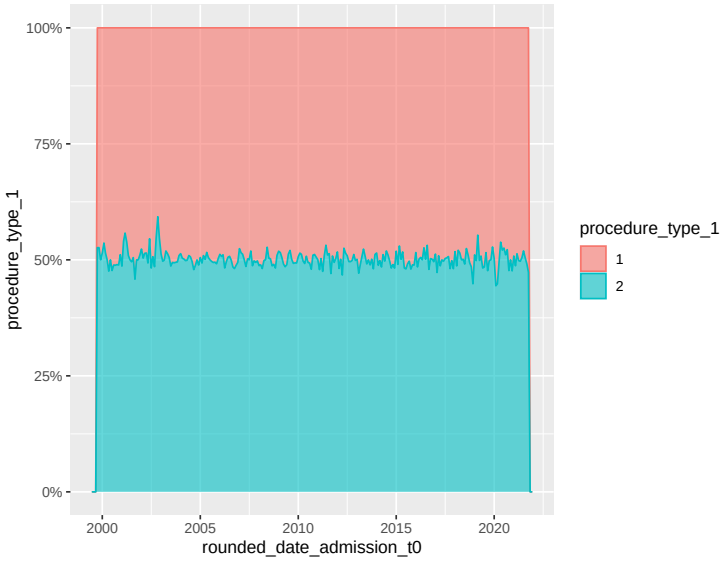
9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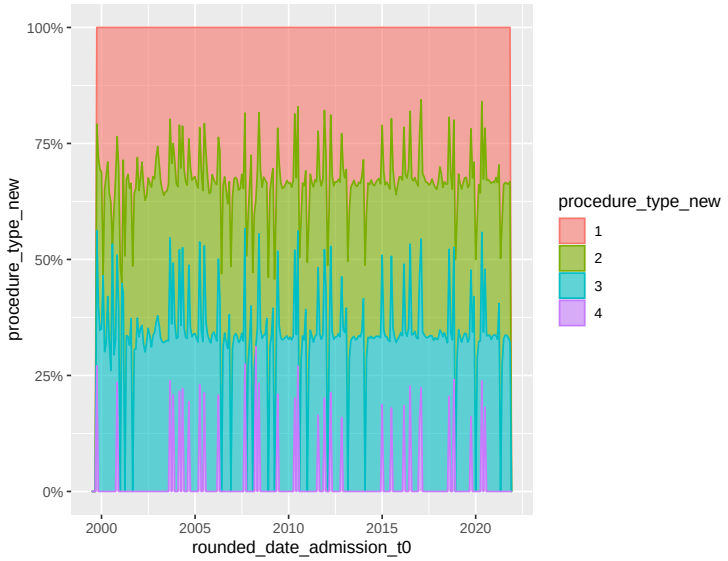
100%
75%
50%
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0%
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2015
2020
rounded_date_admission_t0
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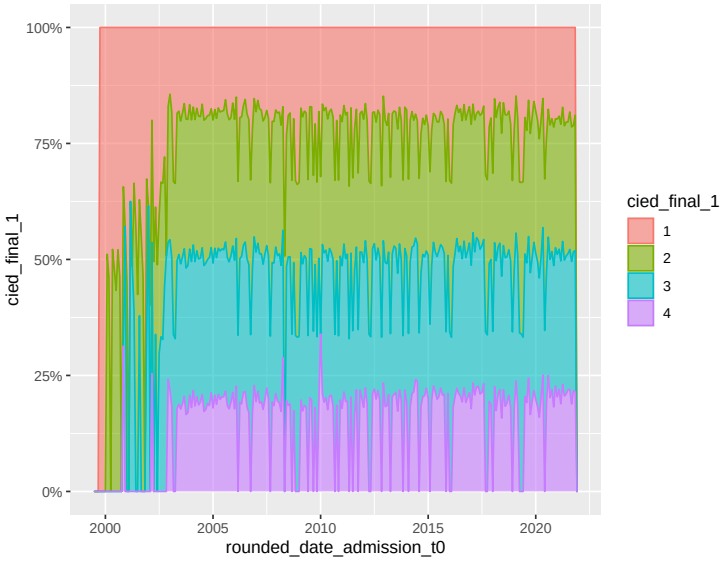
3
4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75%
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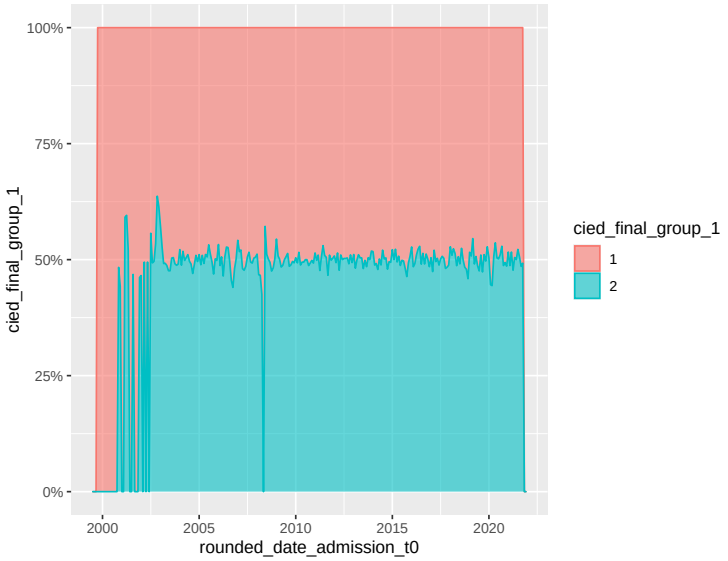
cied_final_1
2000
2005
2010
2015
2020
rounded_date_admission_t0
cied_final_1
1
2
3
4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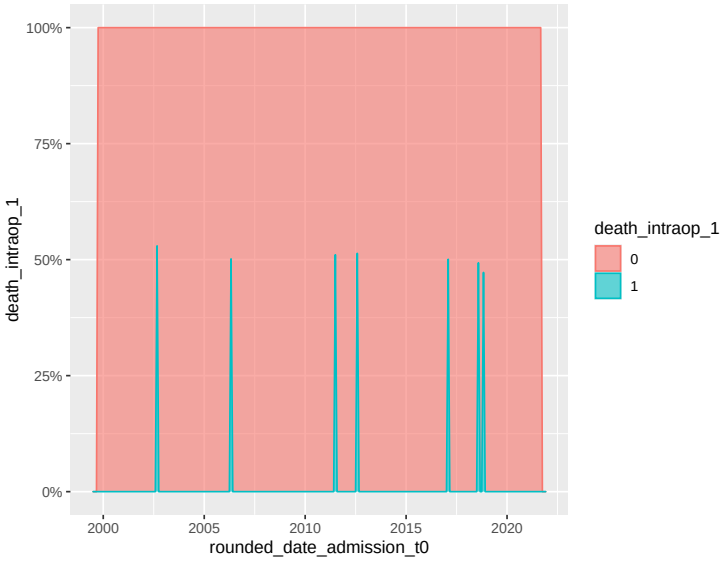
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2020
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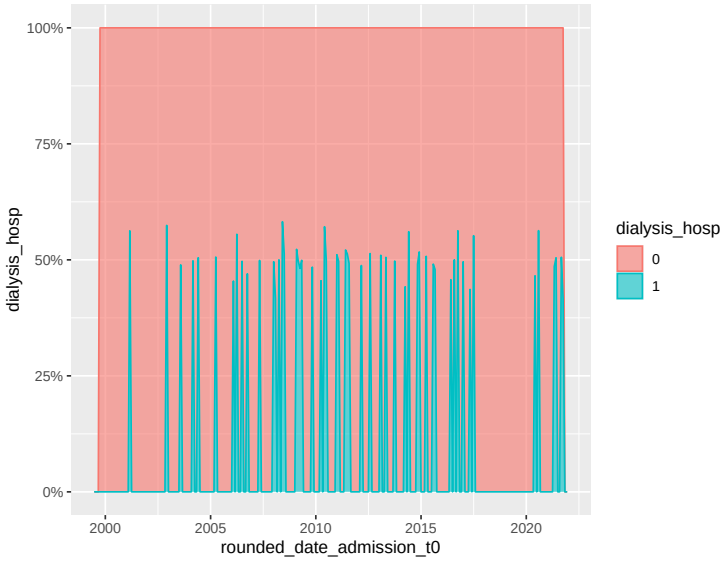
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2020
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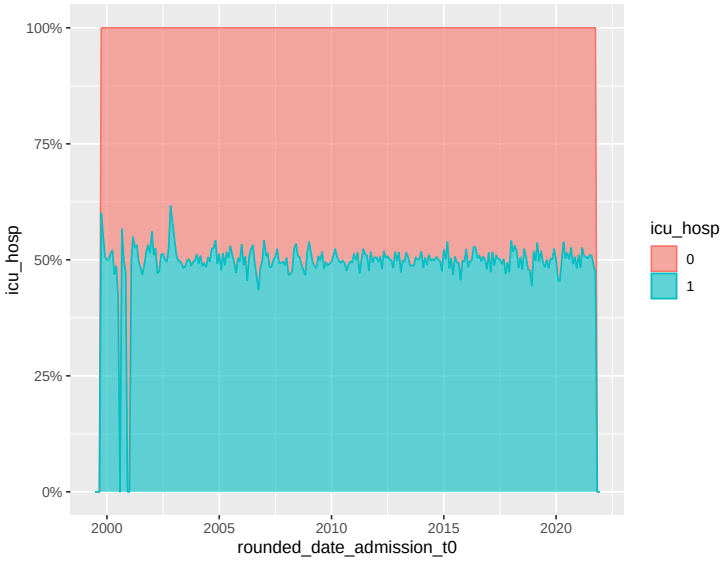
100%
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25%
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icu_hosp
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2005
2010
2015
2020
rounded_date_admission_t0
icu_hosp
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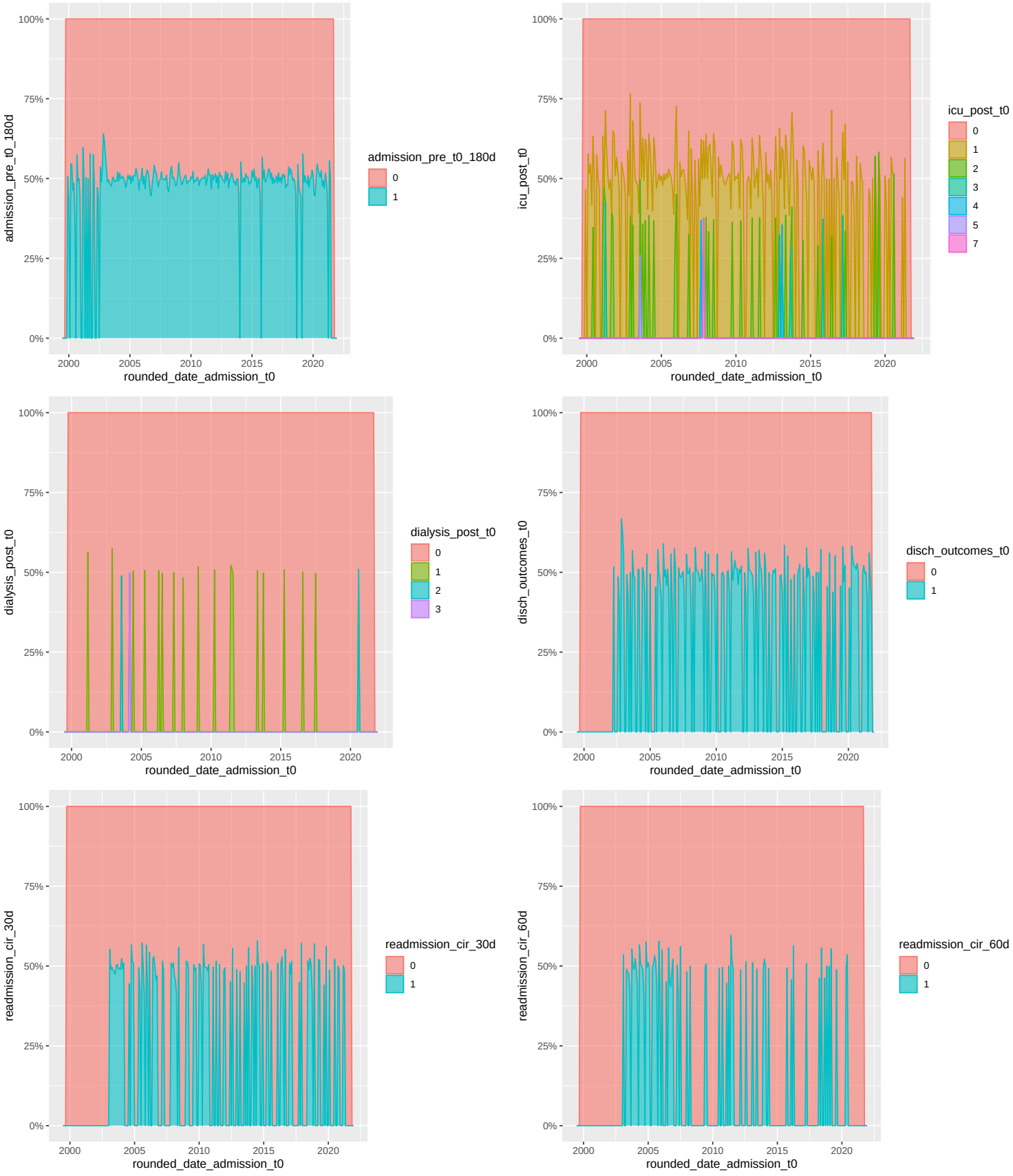
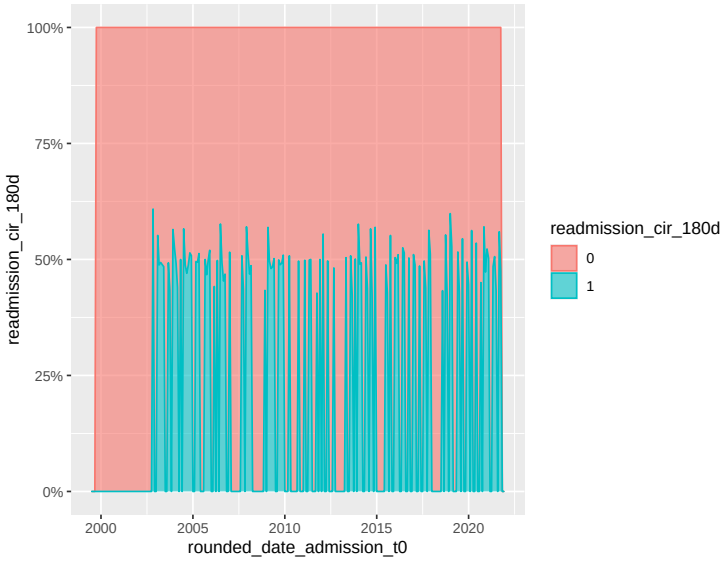
1


admission_pre_t0_180d
100%
75%
50%
25%
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0
admission_pre_t0_180d
0
1
icu_post_t0
0
1
2
3
4
5
7
dialysis_post_t0
disch_outcomes_t0
readmission_cir_30d
readmission_cir_60d


readmission_cir_180d
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75%
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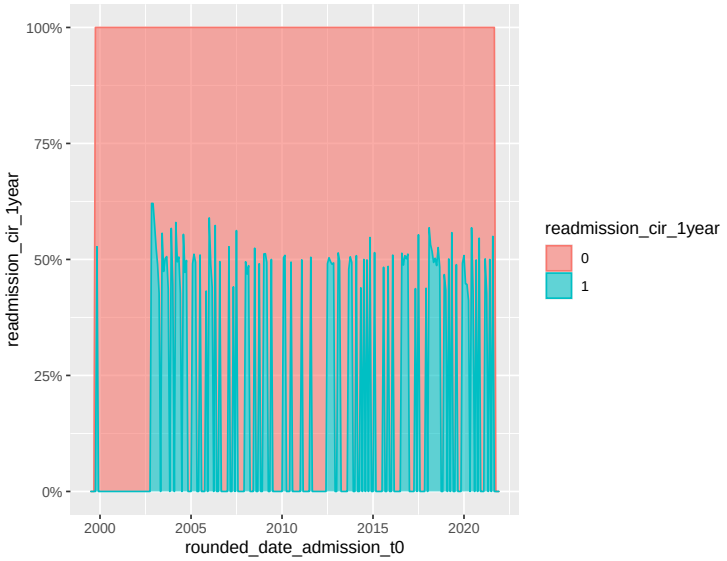
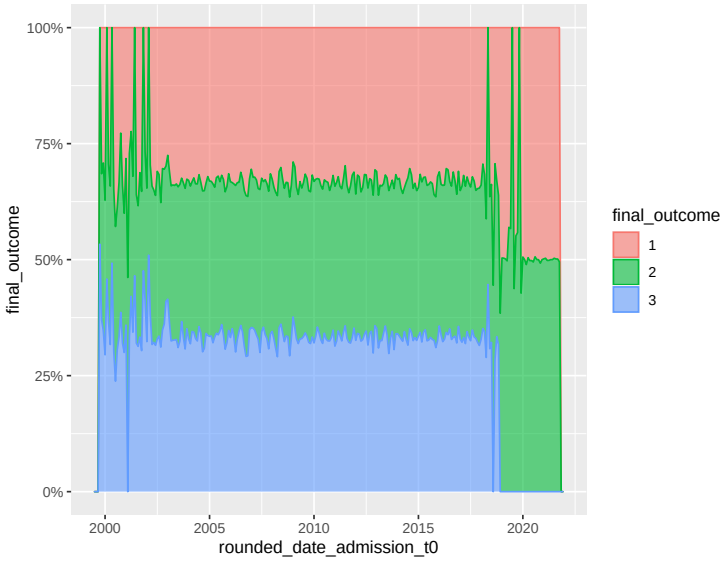
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0
readmission_cir_180d
0
1


readmission_cir_1year
100%
75%
50%
25%
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0
readmission_cir_1year
0
1


final_outcome
100%
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25%
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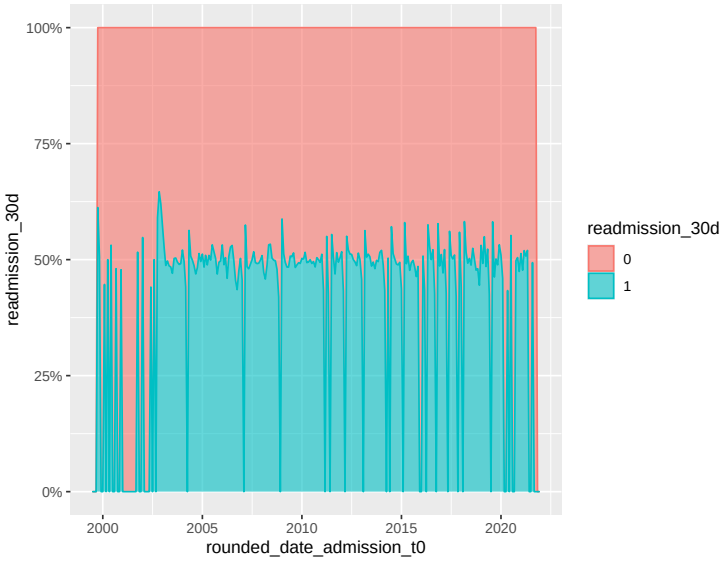
2000
2005
2010
2015
2020
rounded_date_admission_t0
final_outcome
1
2
3


readmission_30d
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2005
2010
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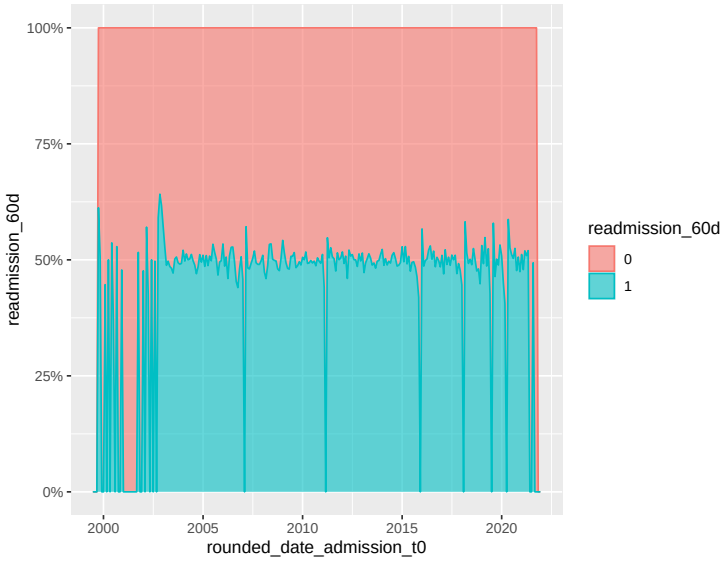
2020
rounded_date_admission_t0
readmission_30d
0
1


readmission_60d
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75%
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25%
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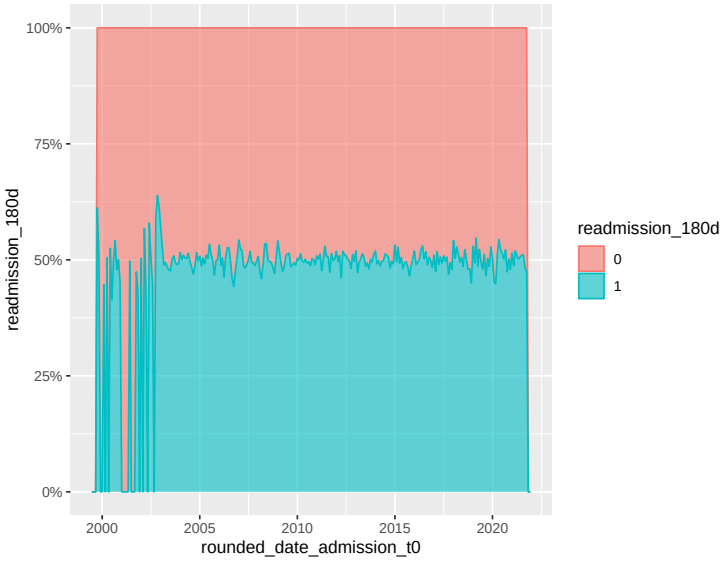
2000
2005
2010
2015
2020
rounded_date_admission_t0
readmission_60d
0
1


readmission_180d
100%
75%
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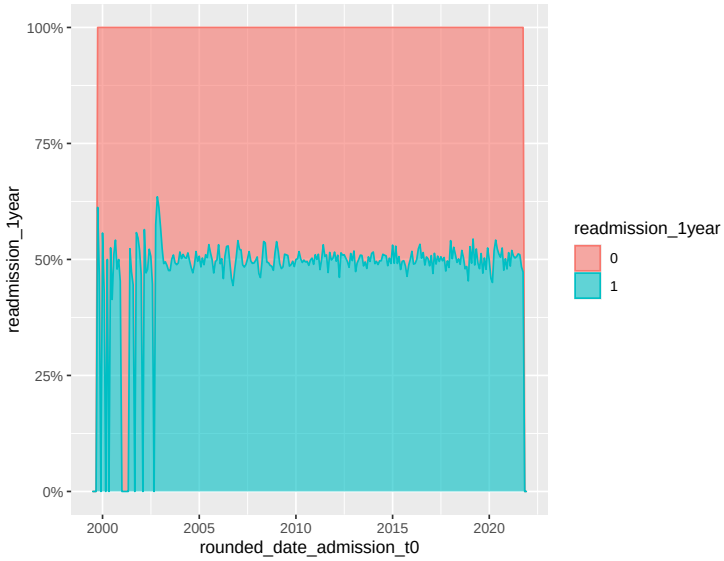
2000
2005
2010
2015
2020
rounded_date_admission_t0
readmission_180d
0
1


readmission_1year
100%
75%
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25%
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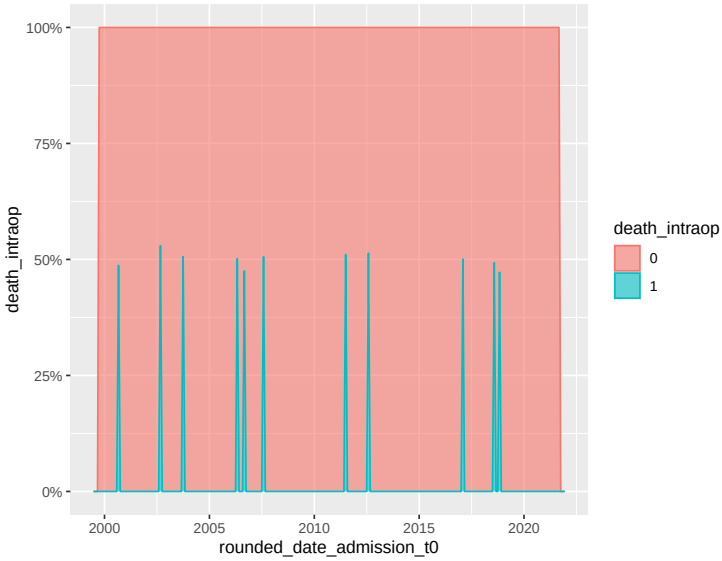
2000
2005
2010
2015
2020
rounded_date_admission_t0
readmission_1year
0
1


death_intraop
100%
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2000
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rounded_date_admission_t0
death_intraop
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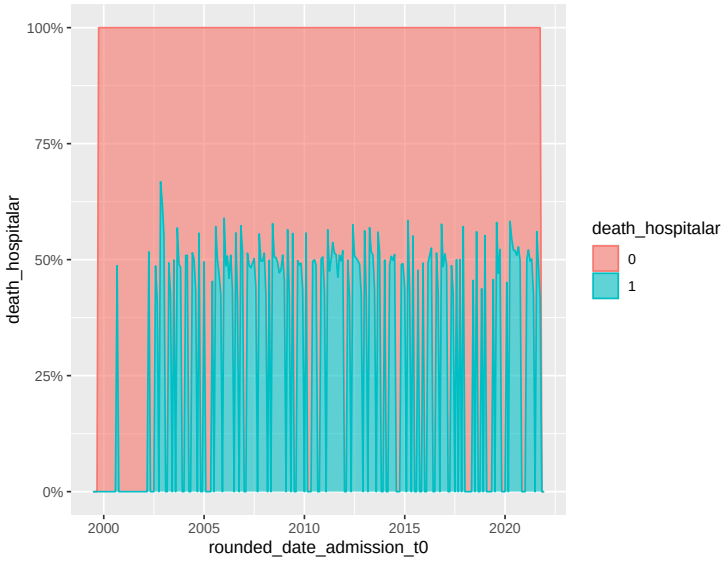
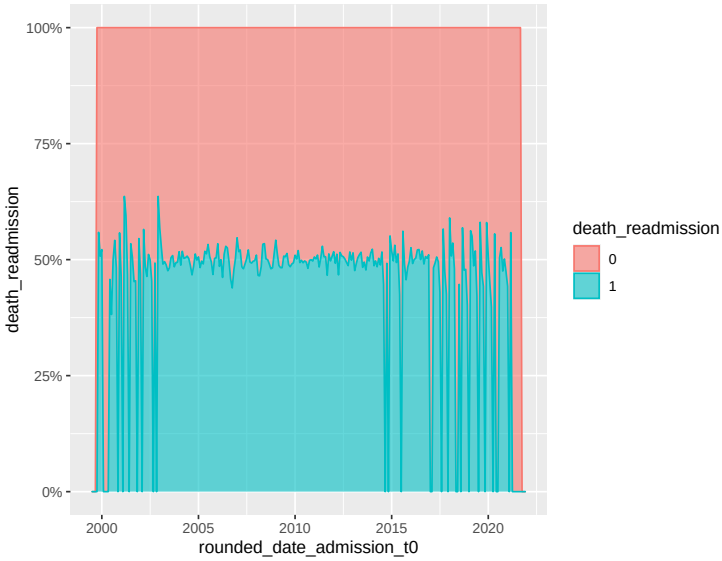
1


death_hospitalar
100%
75%
50%
25%
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0
death_hospitalar
0
1


death_readmission
100%
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2000
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rounded_date_admission_t0
death_readmission
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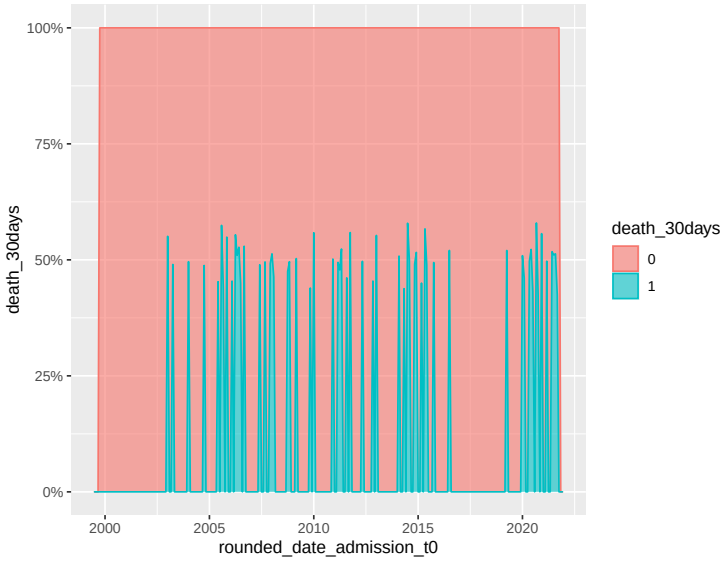
1


death_30days
100%
75%
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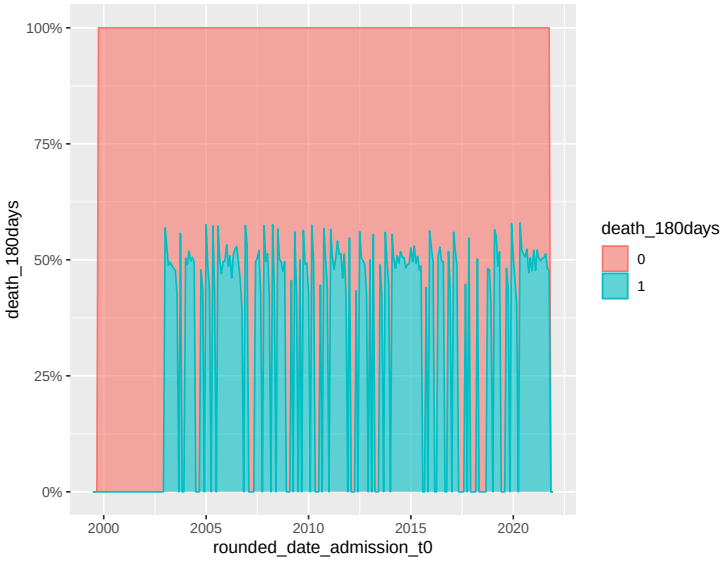
25%
0%
2000
2005
2010
2015
2020
rounded_date_admission_t0
death_30days
0
1


death_180days
100%
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25%
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2000
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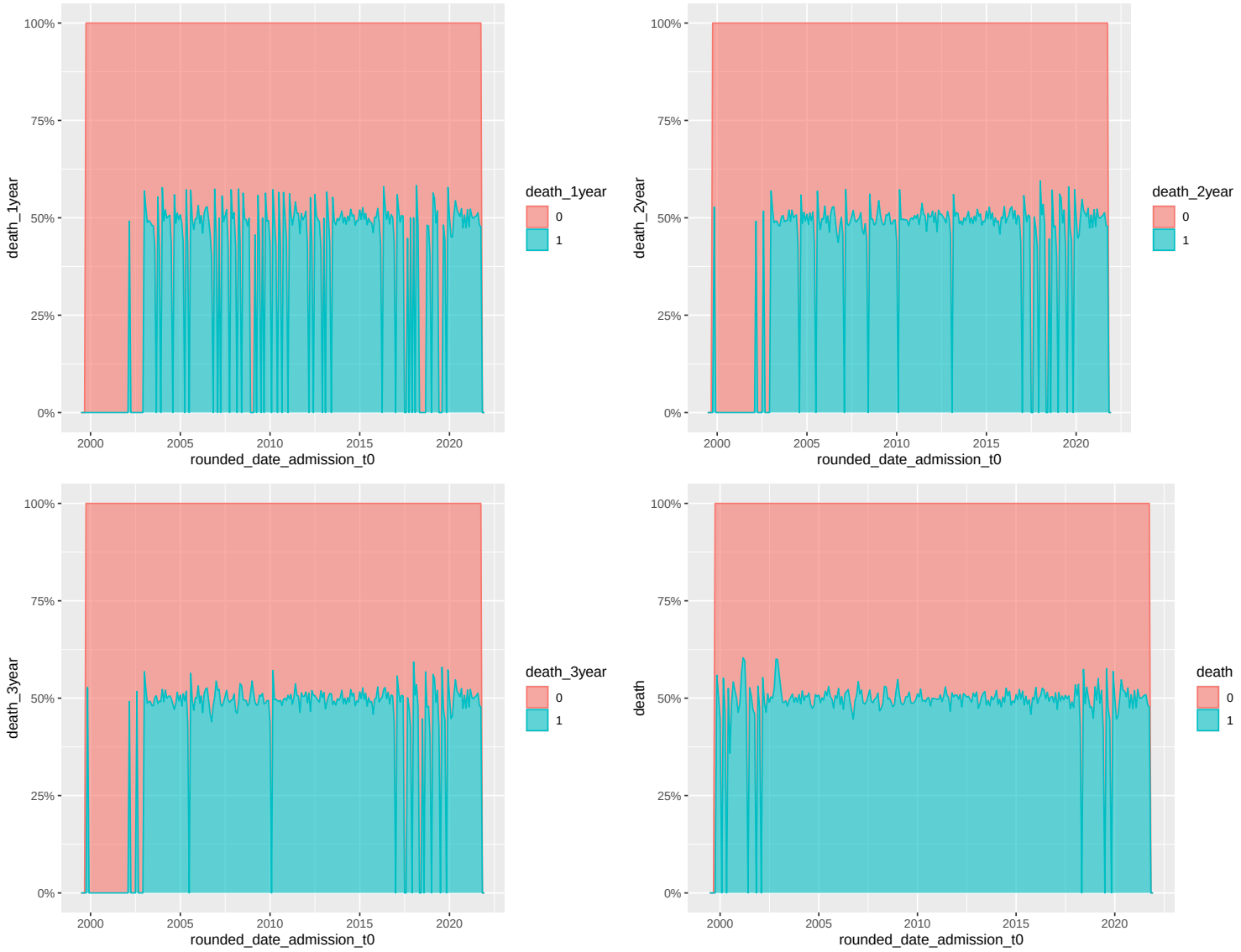
2010
2015
2020
rounded_date_admission_t0
death_180days
0
1




```
df %>%
  mutate(rounded_date_admission_t0 = lubridate::floor_date(date_admission_t0,
                                                           'month')) %>%
  filter(rounded_date_admission_t0 <= lubridate::ymd('2021-08-01'),
         rounded_date_admission_t0 <= lubridate::ymd('2021-01-01')) %>%
  .$aco %>%
  max(na.rm=T)
```

```
## [1] 98
```

```
column <- 'aco'
df %>%
    mutate(rounded_date_admission_t0 = lubridate::floor_date(date_admission_t0,
                                                             'month')) %>%
    group_by(rounded_date_admission_t0) %>%
    summarise('Mean' = mean(!!sym(column), na.rm = T),
              'Min' = min(!!sym(column), na.rm = T),
              'Median' = medianWithoutNA(!!sym(column)),
              'Max' = max(!!sym(column), na.rm = T)) %>%
    ungroup %>%
    arrange(rounded_date_admission_t0) %>%
    mutate(Mean = zoo::rollmean(Mean, k = k, fill = NA),
           Min = zoo::rollmean(Min, k = k, fill = NA),
           Median = zoo::rollmean(Median, k = k, fill = NA),
           Max = zoo::rollmean(Max, k = k, fill = NA)) %>%
  filter(rounded_date_admission_t0 <= lubridate::ymd('2021-12-01'),
```

```
        rounded_date_admission_t0 >= lubridate::ymd('2021-01-01'))
```

```
## # A tibble: 12 x 5
##    rounded_date_admission_t0   Mean   Min Median   Max
##    <date>                     <dbl> <dbl>  <dbl> <dbl>
##  1 2021-01-01                 0.435   NaN      0   NaN
##  2 2021-02-01                 0.556   NaN      0   NaN
##  3 2021-03-01                 0.633   NaN      0   NaN
##  4 2021-04-01                 0.742   NaN      0   NaN
##  5 2021-05-01                 0.744   NaN      0   NaN
##  6 2021-06-01                 0.713   NaN      0   NaN
##  7 2021-07-01                 0.575   NaN      0   NaN
##  8 2021-08-01                 0.424   NaN      0   NaN
##  9 2021-09-01                 0.434   NaN      0   NaN
## 10 2021-10-01                NA        NA     NA    NA
## 11 2021-11-01                NA        NA     NA    NA
## 12 2021-12-01                NA        NA     NA    NA
```