Descriptive Plots

Load Packages

```r
library(tidyverse)
library(forcats)
library(scales)
```

Load Cleaned Opioid Overdose Paramedic Data

```r
load("/home2/wburr/Shawn_Chris/dat/OpOD_PCCP.rda")
```

Editing the Data

```r
edited_OpOD_PCCP <- sub("^$",
                        "Not Specified",
                        OpOD_PCCP$Receiving.Facility.Destination)

edited_OpOD_PCCP <- OpOD_PCCP[!(OpOD_PCCP$Gender == ""), ]

# Save the edited dataset

save(file = "/home2/wburr/Shawn_Chris/shawn_work/edited_OpOD_PCCP.rda", edited_OpOD_PCCP)
```

Plotting Demographics

Sending Facility / Pick-Up Locations

```
pickup_table <- edited_OpOD_PCCP |> group_by(fct_infreq(PickupLocationDescription)) |> count
pickup_table
```

```
# A tibble: 20 x 2
# Groups:   fct_infreq(PickupLocationDescription) [20]
   `fct_infreq(PickupLocationDescription)`     n
   <fct>                                   <int>
 1 House/Town House                          302
 2 Apartment/Condo. Building                 192
 3 Street/Highway/Road                       121
 4 Other (Describe in Remarks)                91
 5 Office Building                            19
 6 Single Store/Strip Mall                    18
 7 Restaurant/Bar                             14
 8 Fairground/Park                            13
 9 Hotel                                      11
10 Indoor Shopping Mall                        9
11 Jail/Prison                                 7
12 Sports Facility/Arena                       7
13 Medical Office/Clinic                       3
14 School/College/University                   3
15 Farm                                        2
16 Nursing Outpost                             2
17 Retirement Home                             2
18 Airport/Heliport                            1
19 Long-Term Care Home                         1
20 Store/Strip Mall, < 3 Stories               1
```

```
pickup_location_plot <- ggplot(edited_OpOD_PCCP,
                        aes(x = fct_infreq(PickupLocationDescription),
                            y = (..count..)/sum(..count..))) +
  geom_bar() +
  geom_text(aes(label = paste0(round((..count..)/sum(..count..) , 3) * 100, "%")),
            stat = "count",
            vjust = -0.1,
            size = 3) +
  scale_y_continuous(labels = scales::percent_format(),
```

```
                    breaks = seq(0, 0.4, 0.05))+
  labs(title = "PCCP Opioid Overdose Calls - Sending Facility/Pick-Up Locations",
       y = "Percent of Calls",
       x = "Sending Facility/Pick-Up Location") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/Pickup_Plot.png",
       width = 10,
       height = 6)

pickup_location_plot
```

PCCP Opioid Overdose Calls – Sending Facility/Pick–Up Loca
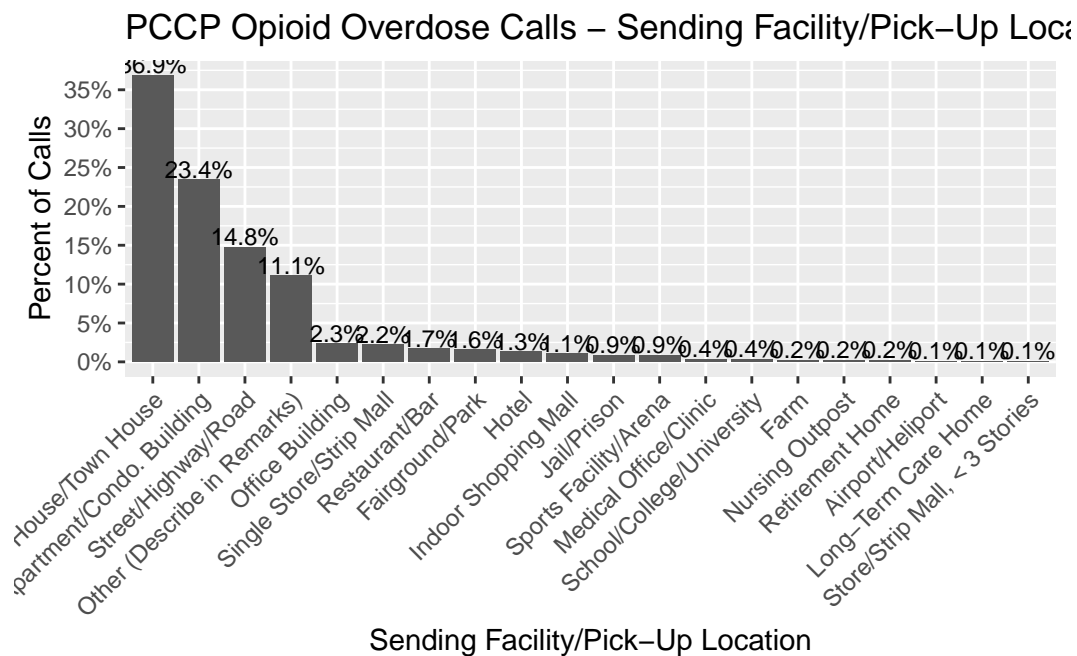
Recieving Facility / Destination

```
destination_table <- edited_OpOD_PCCP |> group_by(fct_infreq(Receiving.Facility.Destination))
destination_table
```

```
# A tibble: 6 x 2
# Groups:   fct_infreq(Receiving.Facility.Destination) [6]
  `fct_infreq(Receiving.Facility.Destination)`        n
  <fct>                                            <int>
```

```
1 "Peterborough Regional Health Centre"            681
2 ""                                               117
3 "Campbellford Memorial Hospital"                  11
4 "Coroner-East Region, Kingston Office"             8
5 "Bancroft Hospital"                                1
6 "Northumberland Hills Health Center"              1
```

```r
destination_plot <- ggplot(edited_OpOD_PCCP,
                           aes(x = fct_infreq(Receiving.Facility.Destination),
                               y = (..count..)/sum(..count..))) +
  geom_bar() +
  geom_text(aes(label = paste0(round((..count..)/sum(..count..) , 3) * 100, "%")),
            stat = "count",
            vjust = -0.1) +
  scale_y_continuous(labels = scales::percent_format(),
                     breaks = seq(0, 1, by = 0.1)) +
  labs(title = "PCCP Opioid Overdose Calls - Recieving Facility/Destination",
       y = "Percent of Calls",
       x = "Recieving Facility/Destination") +
  scale_x_discrete(labels = label_wrap(16))

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/destination_plot.p
       height = 5)

destination_plot
```

## PCCP Opioid Overdose Calls – Recieving Facility/Destination
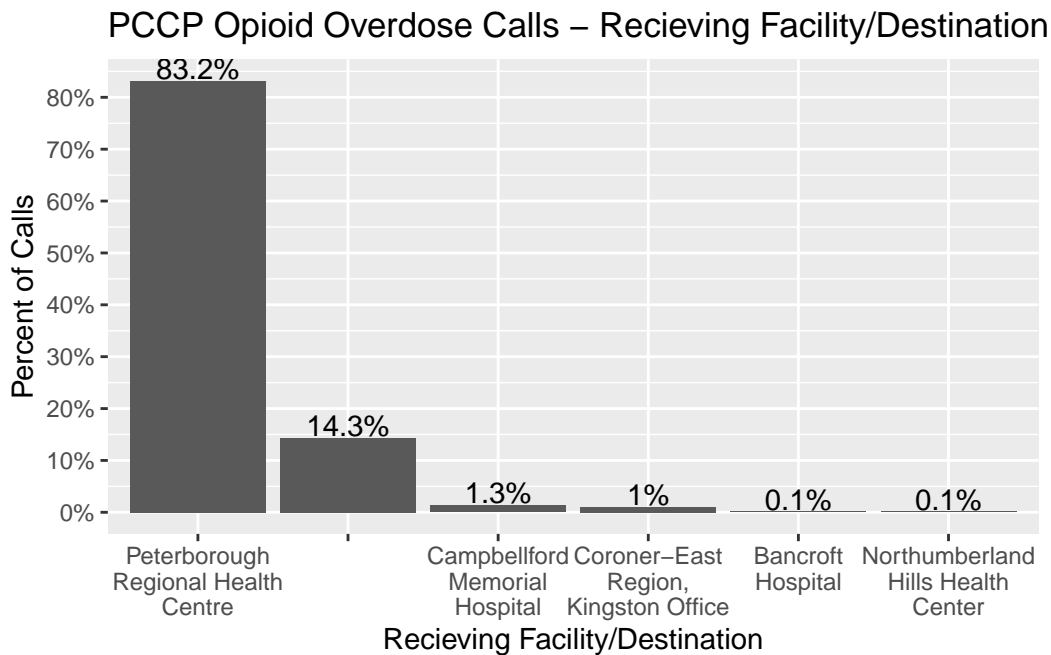


**Age**

```
age_plot <- ggplot(edited_OpOD_PCCP,
                   aes(x = Age)) +
  geom_histogram(binwidth = 5,
                 aes(y = (..count..)/sum(..count..))) +
  scale_y_continuous(labels = scales::percent_format(),
                     limits = c(0, 0.25)) +
  scale_x_continuous(breaks = seq(0, 100, by= 10)) +
  labs(title = "PCCP Opioid Overdose Calls - Age Distribution",
       y = "Percentage of Calls")

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/age_plot.png",
       height = 5)

age_plot
```

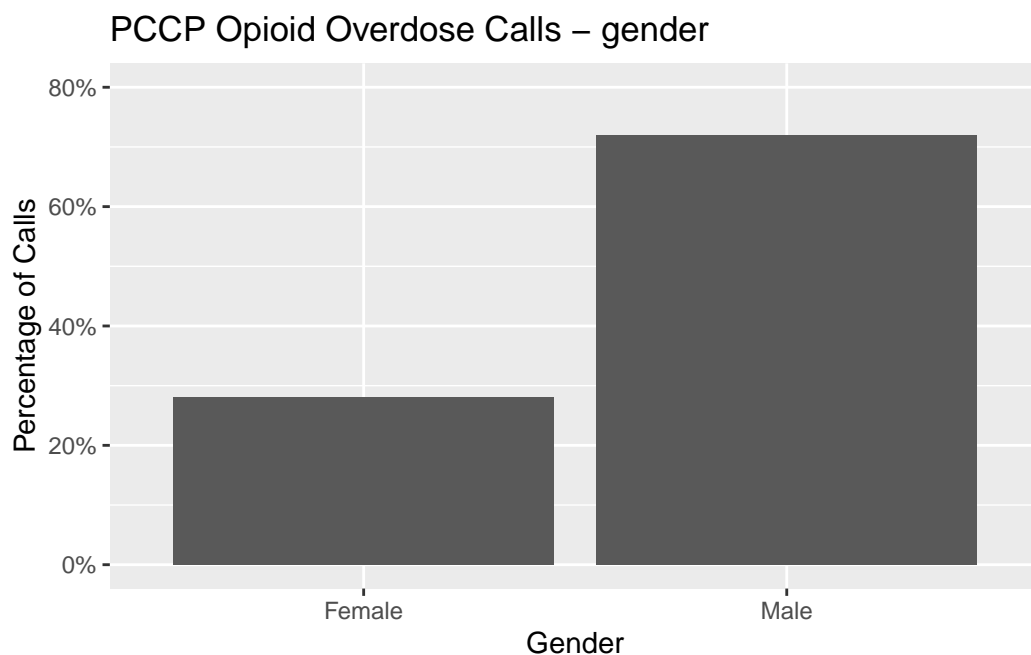## PCCP Opioid Overdose Calls – Age Distribution
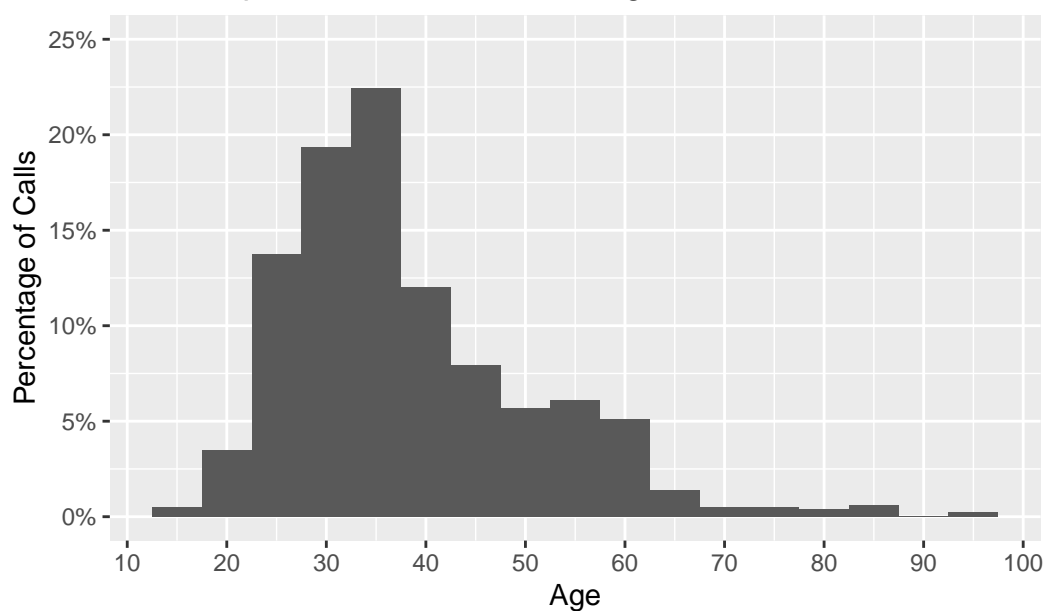
Sex

```
gender_plot <- ggplot(edited_OpOD_PCCP,
                      aes(x = Gender)) +
  geom_bar(aes(y = (..count..)/sum(..count..))) +
  scale_y_continuous(labels = scales::percent_format(),
                     limits = c(0, 0.8)) +
  scale_x_discrete(labels = c("Female", "Male")) +
  labs(title = "PCCP Opioid Overdose Calls - gender",
       y = "Percentage of Calls",
       x = "Gender")

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/gender_plot.png",
       height = 4,
       width = 5)

gender_plot
```

PCCP Opioid Overdose Calls – gender

Age and Sex

```
age_gender_plot <- ggplot(edited_OpOD_PCCP,
                    aes(x = Gender,
                        y = Age)) +
  geom_boxplot() +
  scale_y_continuous(breaks = seq(0, 100, by= 10)) +
  scale_x_discrete(labels = c("Female", "Male")) +
  labs(title = "PCCP Opioid Overdose Calls - Age and Gender")

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/age_gender_plot.p
       height = 5)

age_gender_plot
```

PCCP Opioid Overdose Calls – Age and Gender
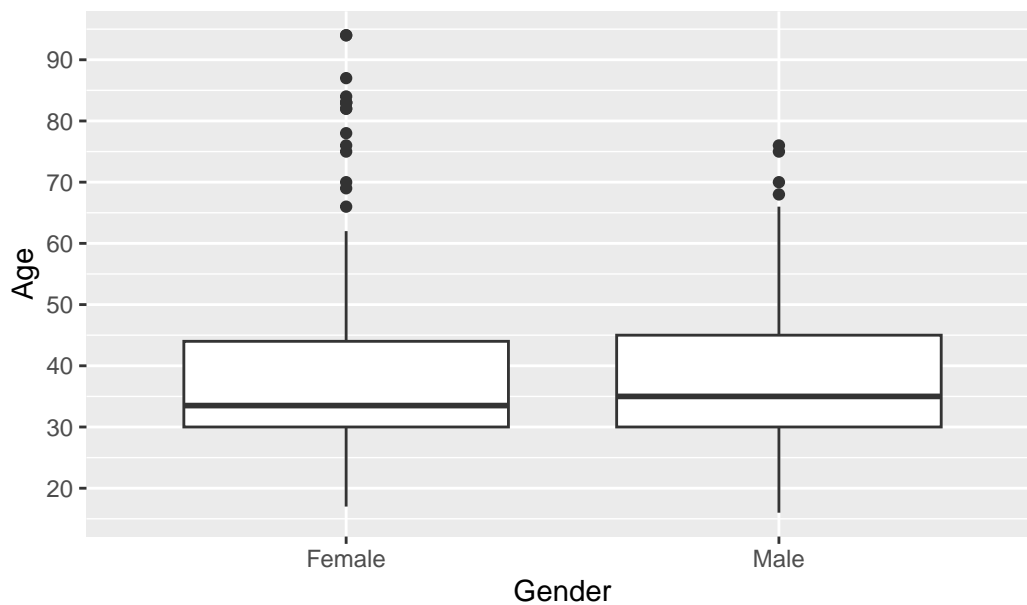
Calls per Year

```
yearly_call_table <- edited_OpOD_PCCP |> group_by(year(Date.Good)) |> count()
yearly_call_table
```

```
# A tibble: 5 x 2
# Groups:   year(Date.Good) [5]
  `year(Date.Good)`     n
             <dbl> <int>
1             2016    33
2             2017   129
3             2018   194
4             2019   200
5             2020   263
```
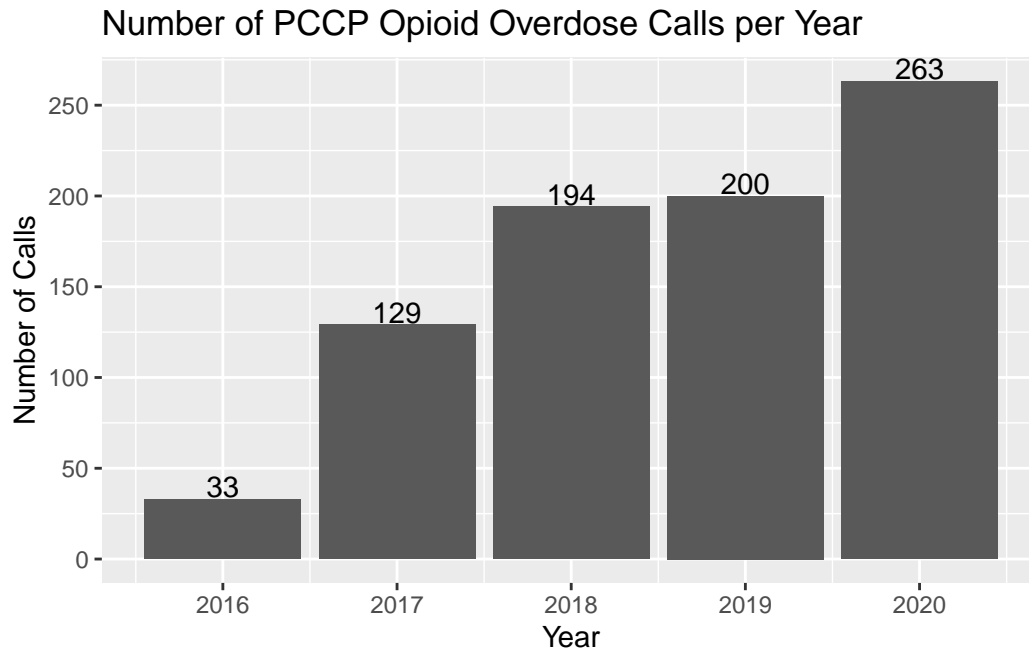
```
call_year_plot_bar <- ggplot(edited_OpOD_PCCP,
                      aes(x = year(Date.Good))) +
  geom_bar(stat = "count") +
  geom_text(stat = "count",
            aes(label = ..count..),
            vjust = -0.1) +
```

```
  scale_y_continuous(breaks = seq(0,300, by = 50))  +
  labs(title = "Number of PCCP Opioid Overdose Calls per Year",
       x = "Year",
       y = "Number of Calls")

call_year_plot_bar
```

Number of PCCP Opioid Overdose Calls per Year


```
ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/call_year_plot_ba
       height = 5)

call_year_plot_line <- ggplot(edited_OpOD_PCCP,
                         aes(x = year(Date.Good))) +
  geom_line(stat = "count") +
  scale_y_continuous(breaks = seq(0,300, by = 50))  +
  labs(title = "Number of PCCP Opioid Overdose Calls per Year",
       x = "Year",
       y = "Number of Calls")

ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/call_year_plot_lin
       height = 5)

call_year_plot_line
```

## Number of PCCP Opioid Overdose Calls per Year
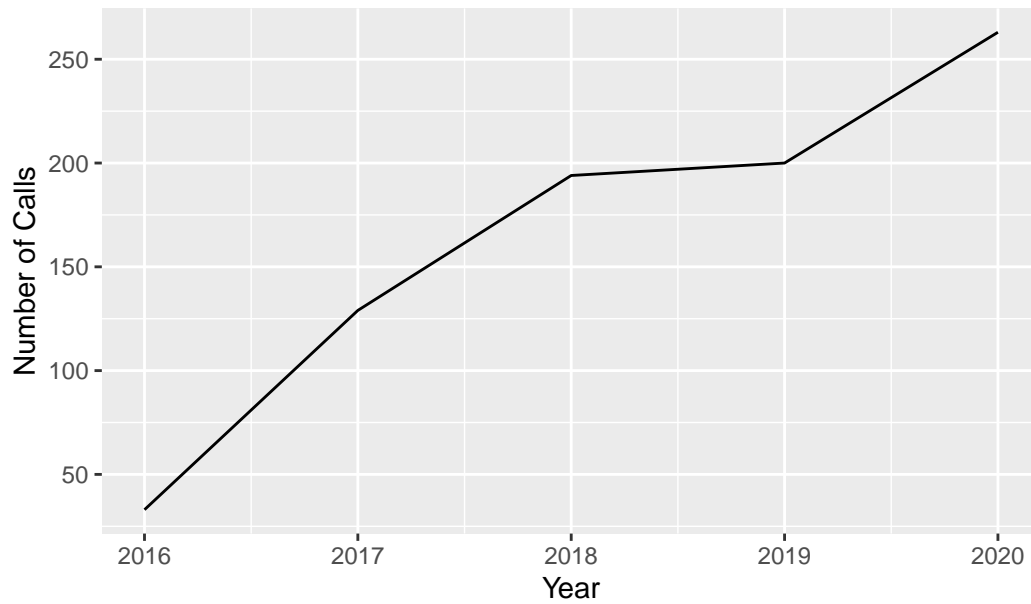
Calls per Month

```
monthly_call_table <- edited_OpOD_PCCP |> group_by(year(Date.Good), month(Date.Good)) |> cour
monthly_call_table
```

```
# A tibble: 59 x 3
# Groups:   year(Date.Good), month(Date.Good) [59]
   `year(Date.Good)` `month(Date.Good)`     n
             <dbl>              <dbl> <int>
 1            2016                  1     1
 2            2016                  2     2
 3            2016                  3     2
 4            2016                  4     2
 5            2016                  5     2
 6            2016                  6     4
 7            2016                  7     1
 8            2016                  8     3
 9            2016                 10     4
10            2016                 11     6
# i 49 more rows
```

```
monthly_call_bar <- ggplot(edited_OpOD_PCCP,
                           aes(month(Date.Good, label=TRUE))) +
  geom_bar(stat = "count") +
  facet_wrap(year(Date.Good)~.,
             ncol=5) +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.3)) +
  labs(title = "Number of PCCP Opioid Overdose Calls per Month",
       x = "Month",
       y = "Number of Calls")


monthly_call_bar
```

Number of PCCP Opioid Overdose Calls per Month
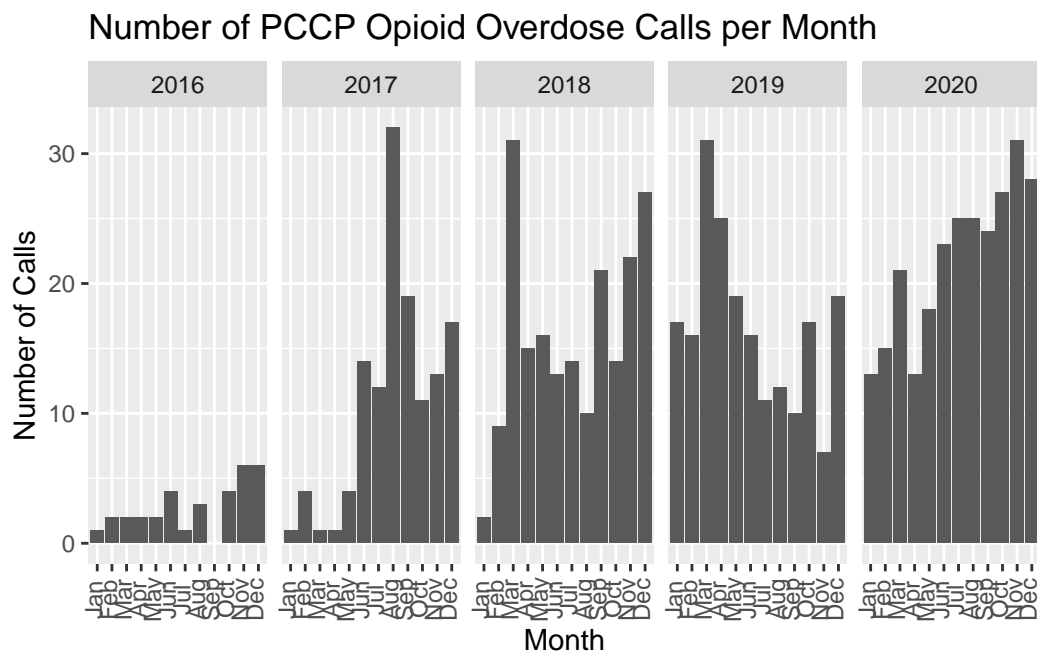

```
ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/monthly_call_barp
       height = 5)

monthly_call_line <- ggplot(edited_OpOD_PCCP,
                            aes(month(Date.Good, label=TRUE),
                                group = year(Date.Good),
                                color = as.factor(Call.Year))) +
  geom_line(stat = "count") +
  scale_y_continuous(breaks = seq(0, 30, by = 5)) +
  labs(title = "Number of PCCP Opioid Overdose Calls per Month",
       x = "Month",
```
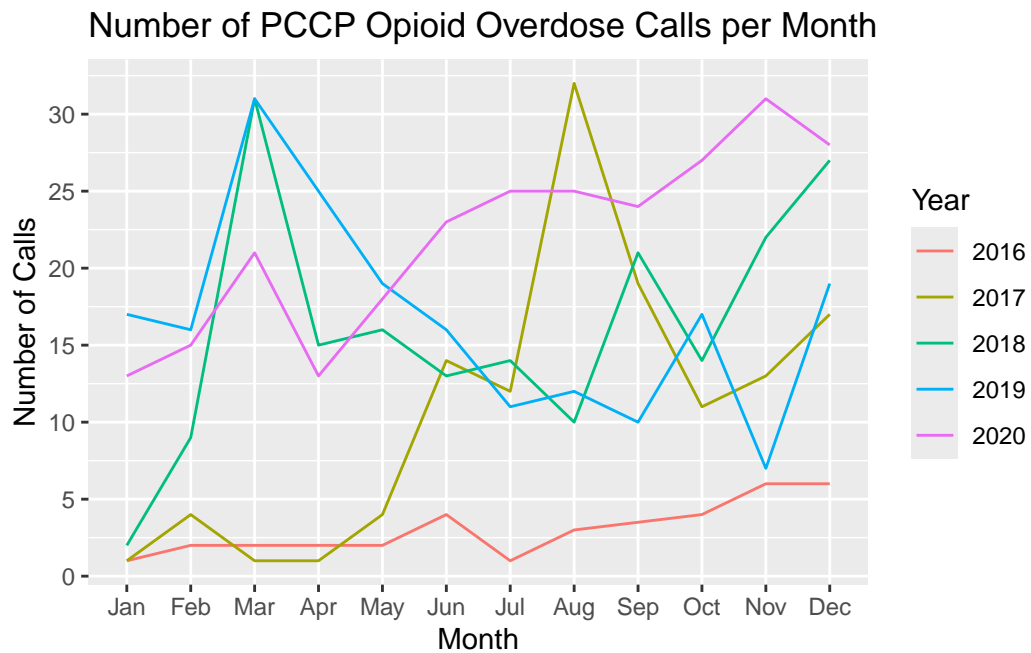
```
      y = "Number of Calls") +
  scale_color_discrete(name = "Year")

monthly_call_line
```

Number of PCCP Opioid Overdose Calls per Month


```
ggsave(file = "/home2/wburr/Shawn_Chris/shawn_work/Descriptive_Stats_Plots/monthly_call_line
        height = 5)
```