

# Draft Graphics

Chaeyoung, Hong Gi, Gloria, John, James

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## Data

```
churchData <- read_csv('data/data.csv')
workingChurchData <- read_survey('data/data.csv', legacy = TRUE)
workingChurchData <- rename(workingChurchData,
                             "Hand Sanitizer?" = "Q15.10",
                             "Social Distancing?" = "Q15.5",
                             "Additional Cleaning?" = "Q15.11",
                             "Removal Touched Item?" = "Q15.15",
                             "Signage of protocols?" = "Q15.4",
                             "Annnouncemeens?" = "Q15.14",
                             "Traffic Control?" = "Q15.12",
                             "Weeks Closed" = "Q30.X...28",
                             "Services Per Week" = "Q29...8") %>%
drop_na(`Specific denom`) %>%
mutate(`Weeks Closed` = parse_number(`Weeks Closed`))
```

## Graph 1: Denomination

```
table(workingChurchData$`Specific denom`)
```

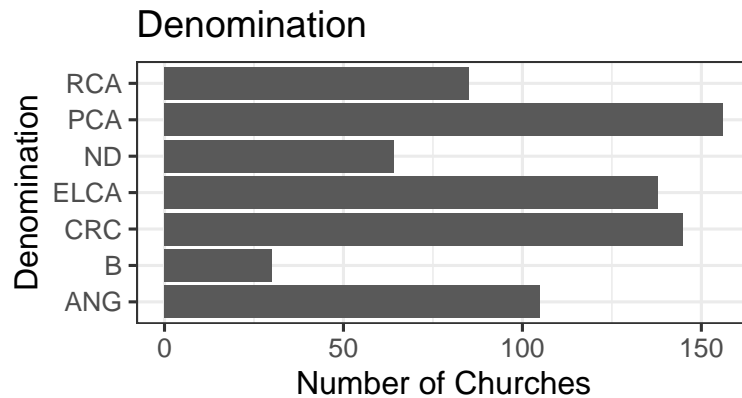
```
##
##      AG      ANG      B      C      CRC CRC RCA      DOC      ECC      ELCA      EVP
##      2      105      30      1      145      3      3      1      138      1
##      LMS      ND      ORC      PCA      PCUSA      RCA      SDA      UMC      WES      X
##      3      64      1      156      1      85      1      2      1      6
```

```
table(workingChurchData$`Grouped Denom`)
```

```
##
##      C      EP EP MP      MP      ORC      X
##      1      403      3      335      1      6
```

```
denomchurch <- filter(workingChurchData, `Specific denom` %in% c("ANG", "B", "CRC", "ELCA", "ND", "PCA"
```

```
gf_bar(~`Specific denom`, data = denomchurch) %>%
  gf_refine(coord_flip()) %>%
  gf_labs(title = "Denomination",
          x = "Denomination",
          y = "Number of Churches")
```



For this graphic, we would have to think further about the title and color of the graph that we want to highlight the main message of the graph. I think It would be helpful to rename the churches abbreviation too (still not a hundred percent sure).

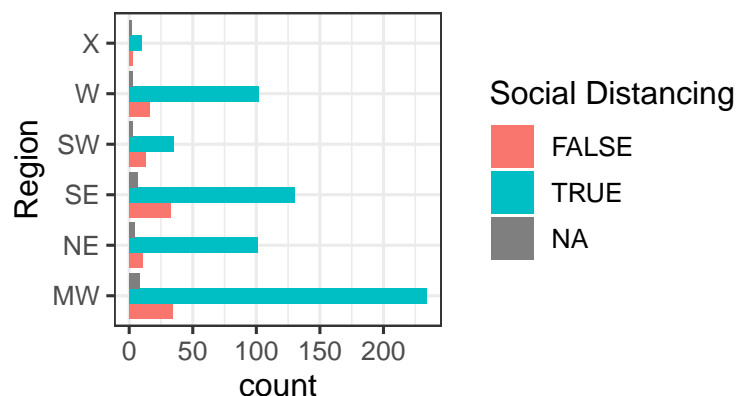
**Interpretation** This graphic shows the number of churches in each denomination that filled out the survey. This is relevant because it can help us understand many other graphs based on how many responses we got from certain denomination. The main observation is that the Presbyterian Church in America had the most results followed by the CRC and Evangelical Lutheran Church in America.

## Graph 2: Region

```
table(workingChurchData$`QR: Region`)
```

```
##
## MW NE SE SW W X
## 276 116 170 51 121 15
```

```
gf_bar(~`QR: Region`, data = workingChurchData,
  fill = ~`Social Distancing?`,
  position = 'dodge') %>%
  gf_refine(coord_flip()) %>%
  gf_labs(x = "Region") %>%
  gf_theme(scale_fill_discrete('Social Distancing'))
```



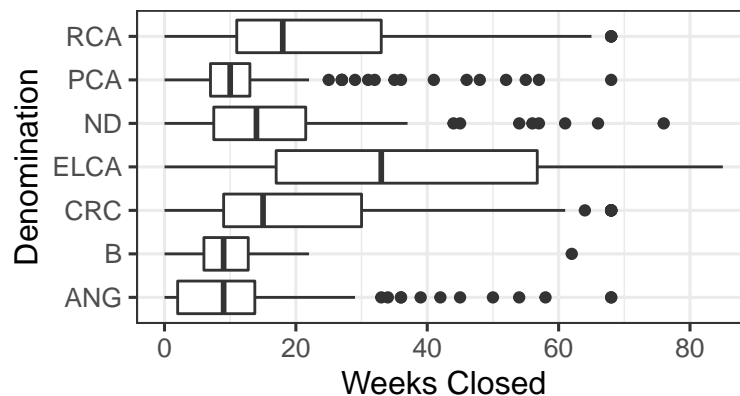
One thing that we will need to take in consideration is the abbreviation for each region and whether or not we would need to explain each one individually. We will need to add the title and subtitle.

**Interpretation** This graphic shows the region of churches and whether or not they participated in “social distancing” within their church. This is relevant because it helps us understand regionally how people felt about the effectiveness and use of social distancing. We decided to include the use of NA because it shows that certain areas didn’t even entertain the idea of “social distancing”. The main observation is that the the Midwest has the most churches that practiced social distancing, however, we need to take into account what this graph doesn’t show which is that the Midwest has the most responses which makes it look like there are the most there.

**Graph 3: Population or denomination of how long does church closed**

```
denomchurchweek <- denomchurch %>%
  group_by(`Specific denom`) %>%
  summarize(meanweek = mean(`Weeks Closed`, na.rm = TRUE))

gf_boxplot(`Specific denom` ~ `Weeks Closed`, data = denomchurch) %>%
  gf_labs(x = "Weeks Closed", y = "Denomination")
```

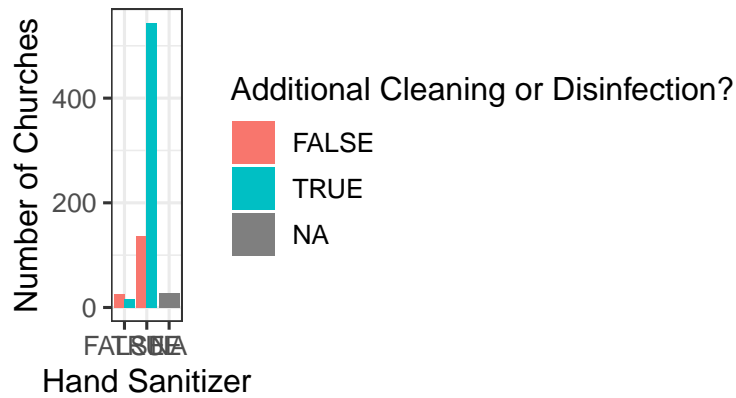


Again, we would think whether it would be best to change the abbreviation or not.

**Interpretation** In graph three there are individual boxplots for each of the denominations who filled out the survey representing how many weeks their church was closed. Boxplots divide into the quartiles and also show the median and each denomination has a different median showing. Most denominations have some outliers but for the most part are compact showing that the range is close. We can learn the trends of different denominations based on how they compare to others.

**Graph 4**

```
gf_bar(~ `Hand Sanitizer?`,
  fill = ~`Additional Cleaning?`,
  data = workingChurchData,
  position = "dodge") %>%
  gf_labs(x = "Hand Sanitizer",
    y = "Number of Churches",
    fill = "Additional Cleaning or Disinfection?")
```

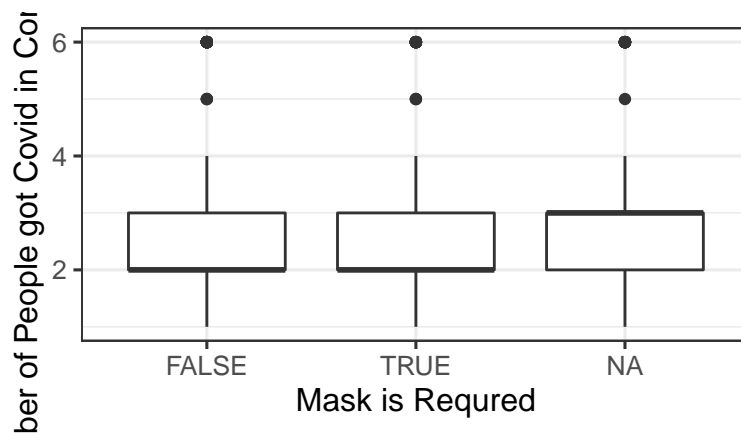


For this graph, there is a lot of NA that we found so we still need to take into consideration about filling the NAs or removing them. When the graph is knitted, the axis label clash together, we would need to make adjustments for that too.

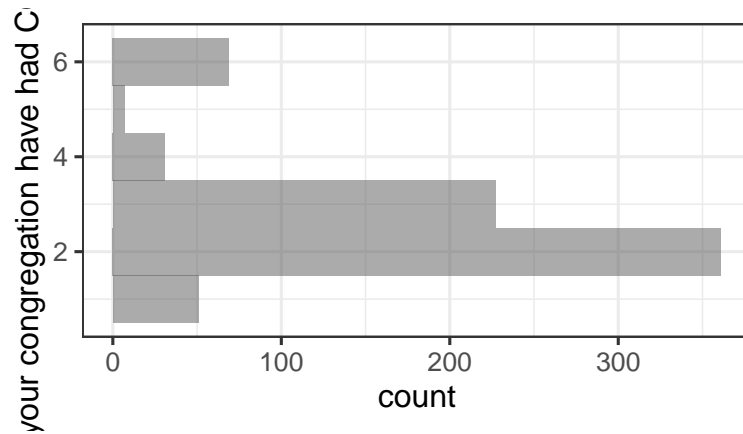
**Interpretation** A majority of churches use hand sanitizer as a health prevention factor. Churches who have reported using additional cleaning or disinfection are significantly more likely to use hand sanitizer.

**Graph 5: Congregation required to wear mask all times and How many people in the congregation that have Covid (Q22) and services**

```
gf_boxplot(Q22 ~ Q30.2, data = workingChurchData) %>%
  gf_labs(y = "Number of People got Covid in Congregation",
    x = "Mask is Required")
```



```
gf_histogram(~Q22, data = workingChurchData, bins = 6)|>
  gf_refine(coord_flip())
```



For the first graph, We will have to think about what to do with the NAs since there is quite a number of it. We will have to finalize all the labels and the bins of the second graph into consideration. Adding titles and thinking of the scales and future details of it too.

For the Covid variable, since there is no 0 option, we might have to consider whether the NAs mean that there is none or they just didn't fill the information out.

**Interpretation** 5a. Throughout the churches, church who required a Mask and doesn't have the same maximal number of people that got COVID in the congregation.

5b. From the graph, most of the churches have at least 2 people who got COVID among the congregation.