epiChart

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4/2/2020

Load data from the simulations

```
#load + concatenate the csvs
df <- list.files(path = "epi_csvs",full.names = TRUE) %>%
  lapply(read_csv) %>%
  bind_rows

#create summary dataframe
new_df <- df %>%
  group_by(X1) %>%
  summarise(Susceptible = sum(S), Exposed = sum(E), Infected = sum(I), Recovered = sum(R))
```

Cross-check some total figures

```
#Check num susceptible at beginning and end
print(paste0("The number of susceptible individuals at t = 0 was: ", new_df$Susceptible[1]))
```

```
## [1] "The number of susceptible individuals at t = 0 was: 19406411"
```

```
print(paste0("The number of susceptible individuals after one year was: ", new_df$Susceptible[366]))
```

```
## [1] "The number of susceptible individuals after one year was: 3032455.10294221"
```

```
print(paste0("The total number of incidences was: ", new_df$Susceptible[1] - new_df$Susceptible[366]))
```

```
## [1] "The total number of incidences was: 16373955.8970578"
```

```
#Check num exposed at beginning and end
print(paste0("The number of exposed individuals at t = 0 was: ", new_df$Exposed[1]))
```

```
## [1] "The number of exposed individuals at t = 0 was: 0"
```

```
print(paste0("The number of exposed individuals at the end of one year was: ", new_df$Exposed[366]))
```

```
## [1] "The number of exposed individuals at the end of one year was: 7.43973062747278e-15"
```

```
#Check num infected at beginning and end
print(paste0("The number of infected individuals at t = 0 was: ", new_df$Infected[1]))
```

```
## [1] "The number of infected individuals at t = 0 was: 241"
```

```
print(paste0("The number of infected individuals at the end of one year was: ", new_df$Infected[366]))
```

```
## [1] "The number of infected individuals at the end of one year was: 1.27968695363689e-14"
```

Make chart

```
longData <- melt(new_df, id = c("X1"))

longData$variable <- factor(longData$variable,
                            levels = c("Susceptible", "Recovered","Exposed", "Infected"))
```

```
options(scipen=10000)
ggplot(data=longData %>% arrange(variable),
       aes(x=X1, y=value, fill=variable, color=variable, alpha=variable)) +
  geom_bar(stat="identity", position = "identity") +
  scale_colour_manual(values=c("lightblue4", "red", "gray94", "indianred4")) +
  scale_fill_manual(values=c("lightblue4", "red", "gray94", "indianred4")) +
  scale_alpha_manual(values=c(.4, .5, .6, .7, .8)) +
  xlab("Day (from t=0)") +
  ylab("Number of people") +
  ggtitle("Number of susceptible, exposed, infected, and recovered individuals over time in current scen
```