

MERS and Societal Learning

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Is there evidence that shows societal learning following the MERS epidemic?

We have data collected on the MERS cases in the recent epidemic and can use the data we have to see if the infectious period shortens as society learns strategies to contain the spread of the virus. To do this, we first need to manipulate our dataset a bit to get the data in a useful format for answering this question:

```
mers <- read.csv("CopyOfcases.csv")
#we need to correct some errors
mers$hospitalized[890]
```

```
## [1] 2012-02-20
## 527 Levels: ??? 2007-xx-xx 2010-??-?? 2012-02-20 2012-04-04 ... xx/3/15
mers$hospitalized[890] <- c('2015-02-20')
mers <- mers[-471,]
class(mers$onset)#ask R what class of data is onset date?
```

```
## [1] "factor"
#it is a factor; we need to reclassify as a date
#correct from factors to dates using lubridate
library(lubridate)
```

```
##
## Attaching package: 'lubridate'
## The following object is masked from 'package:base':
##
##      date
```

```
mers$onset2 <- ymd(mers$onset)
mers$hospitalized2 <- ymd(mers$hospitalized)
```

```
## Warning: 5 failed to parse.
```

```
class(mers$onset2)
```

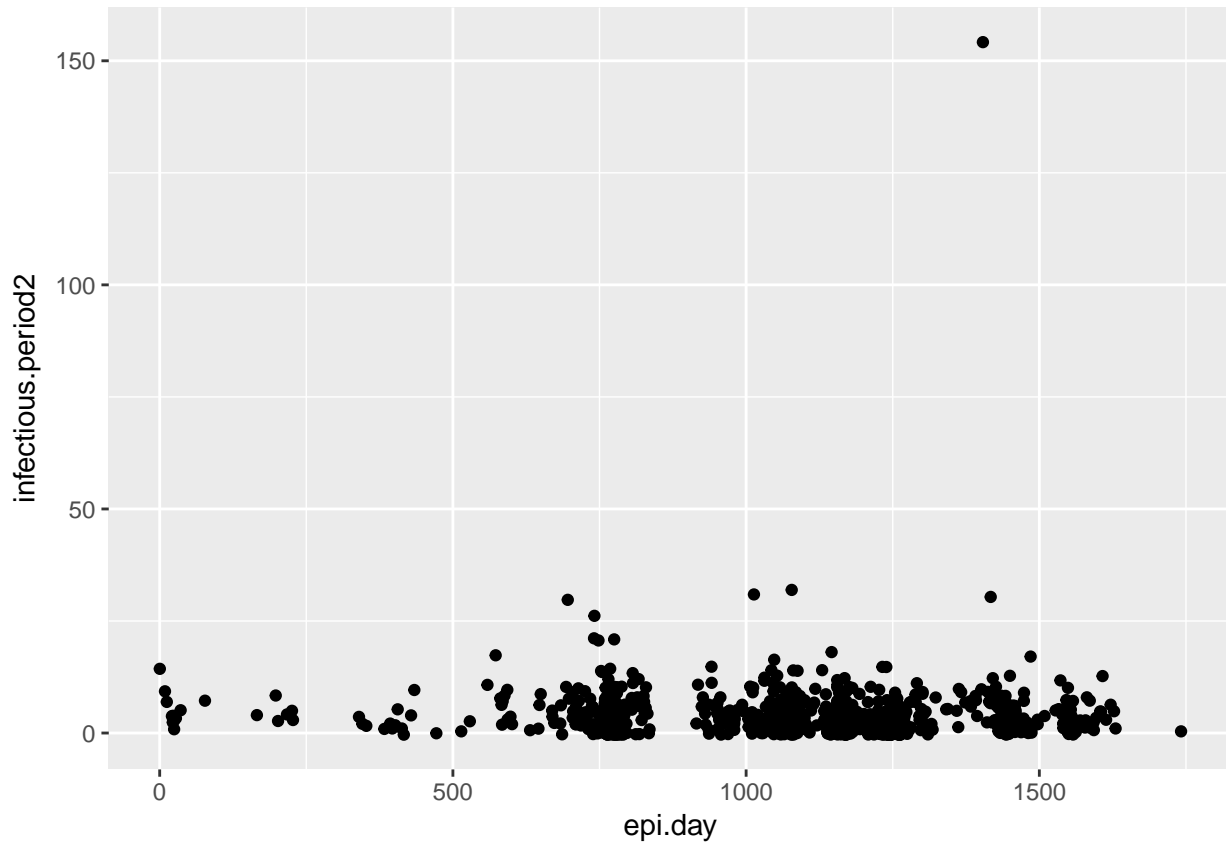
```
## [1] "Date"
#find days elapsed since start of epidemic
day0 <- min(na.omit(mers$onset2))#na.omit skips performing the calculation for blank values
#create a new, numeric value for the "epidemic day" for each case.
mers$epi.day <- as.numeric(mers$onset2 - day0)
mers$infectious.period <- mers$hospitalized2-mers$onset2 # calculate "raw" infectious period
class(mers$infectious.period) # these data are class "difftime"
```

```
## [1] "difftime"
```

```
mers$infectious.period <- as.numeric(mers$infectious.period, units = "days") #convert to days
mers$infectious.period2 <-ifelse(mers$infectious.period<0,0,mers$infectious.period) #get rid of negativ
```

Now we can plot the data to see if the infectious period shortens as the epidemic progresses, which would be evidence of societal learning.

```
## Warning: Removed 727 rows containing missing values (geom_point).
```



Do different countries react differently?

```
## Warning: Removed 728 rows containing missing values (geom_point).
```

