R Practical 5: Diagnostic Plots & Final Plot

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Recommended Iteration

Considering the initialization iteration of 10000 without burn-in, and check the maximum of effectiveSize() which indicates the proper effective selection of sample size:

```
max(effectiveSize(sam.coda))
```
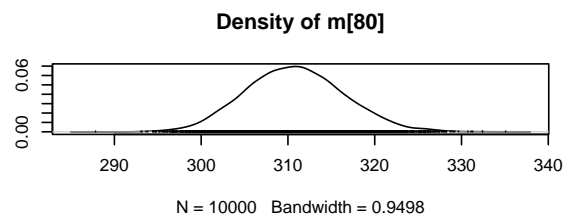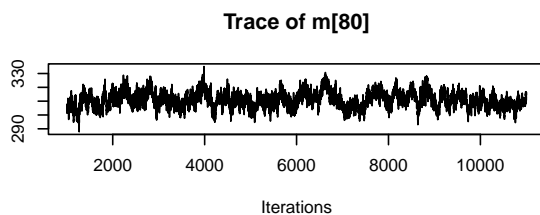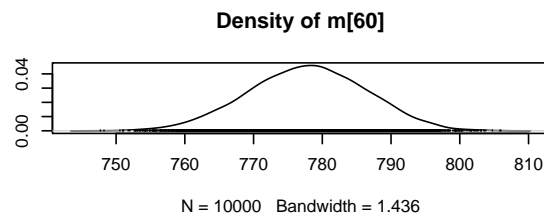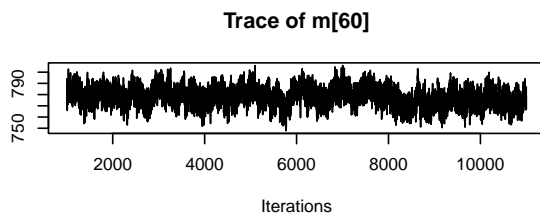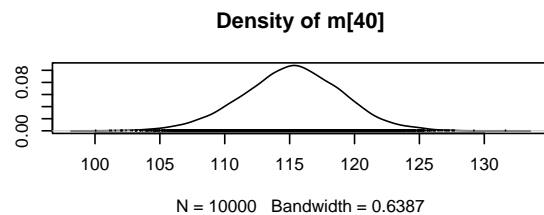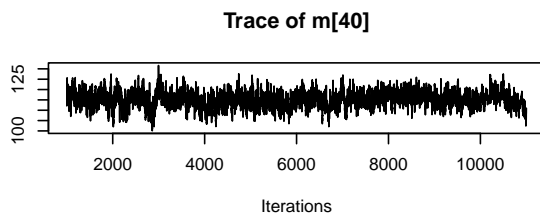
```
## [1] 540.383
```

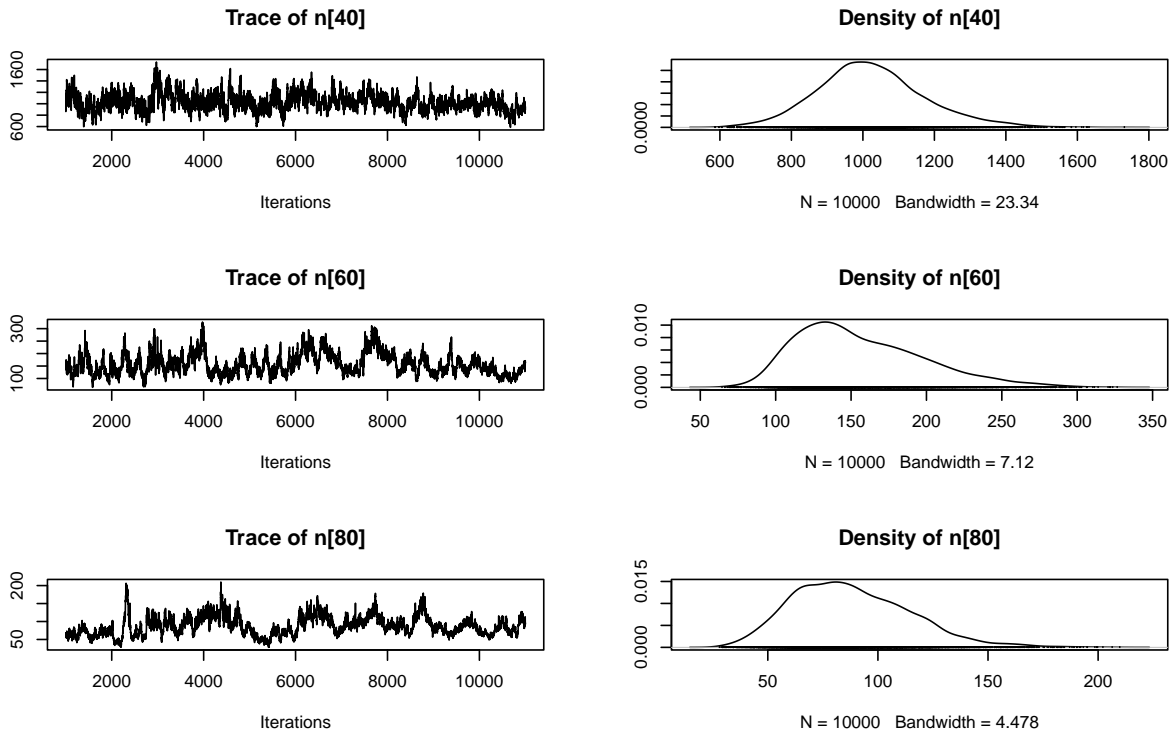Hence to set the iteration to around 1000 or even slightly less is reasonable.

Recommended Burn-in

By showing the trace plots as following:
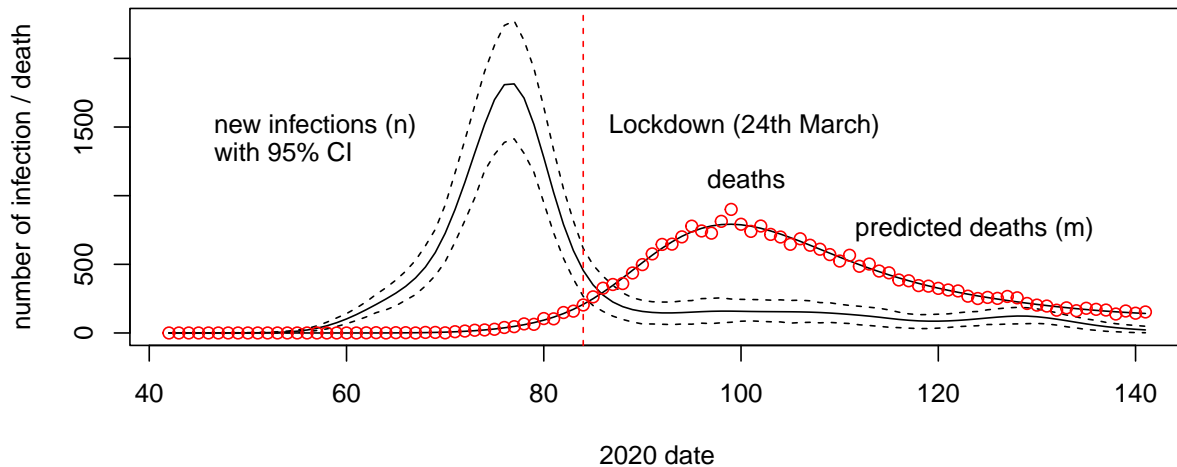
```
plot(sam.coda[[1]][,c(40,60,80)])
```



```
plot(sam.coda[[1]][,c(160,180,200)])
```

Trace of n[40] · **Density of n[40]**
N = 10000   Bandwidth = 23.34

Trace of n[60] · **Density of n[60]**
N = 10000   Bandwidth = 7.12

Trace of n[80] · **Density of n[80]**
N = 10000   Bandwidth = 4.478

Notice that in most cases, since just considering around 1000 iterations, the first 200 or 300 samples are not stable enough, so a 'burn-in' of around 200 or 300 may be reasonable.

```
finalplot()
```


From the final plot we find that there is a lag (duration) between infection and death number, and the lockdown may ensure the decrease of cases in the late period.

2