Model of FMT effect on white blood cell counts.

```
library(nlme)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following object is masked from 'package:nlme':
##
##     collapse
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------- tidyverse 1.2.1 --
```

```
## v ggplot2 3.2.1     v readr   1.3.1
## v tibble  2.1.3     v purrr   0.3.2
## v tidyr   0.8.3     v stringr 1.4.0
## v ggplot2 3.2.1     v forcats 0.4.0
```

```
## -- Conflicts ------------------------------------ tidyverse_conflicts() --
## x dplyr::collapse() masks nlme::collapse()
## x dplyr::filter()   masks stats::filter()
## x dplyr::lag()      masks stats::lag()
```

```
library(tidyr)
library(ggplot2)
```

```
d <- read.csv('../tidy_FMT_WBC_data.csv', header = TRUE, )
length(unique(d$pid))
```

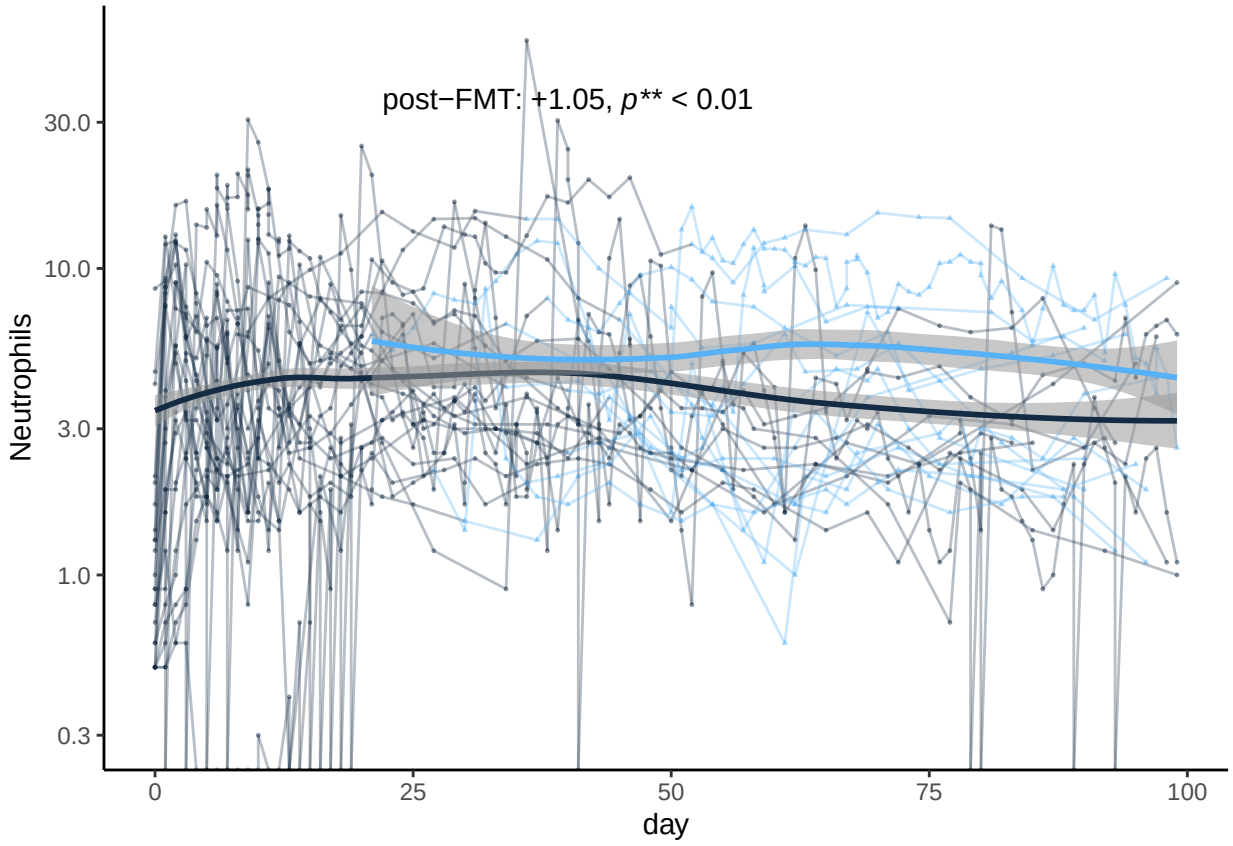
```
## [1] 24
```

```
library(effects)
require(lmerTest)
subsetd <- subset(d, d$in_original_study=='True')
subsetd <- subset(subsetd, subsetd$wbc%in%c('neutrophils'))
subsetd <- subset(subsetd, subsetd$day<100)

# armpost: 1 only iff post randomization and treated with FMT
subsetd$armpost <- subsetd$arm * subsetd$postrandomization

subsetd$dayfactor <- as.factor(subsetd$day)
subsetd$patientfactor <- as.factor(subsetd$patientid)
fitn <- lme(fixed=value~armpost,random=list(~1|dayfactor, ~1|patientfactor),data=subsetd)
```

```
##             numDF denDF   F-value p-value
## (Intercept)     1   879 1175.9041  <.0001
```

```
## armpost         1   879   10.0339  0.0016
```

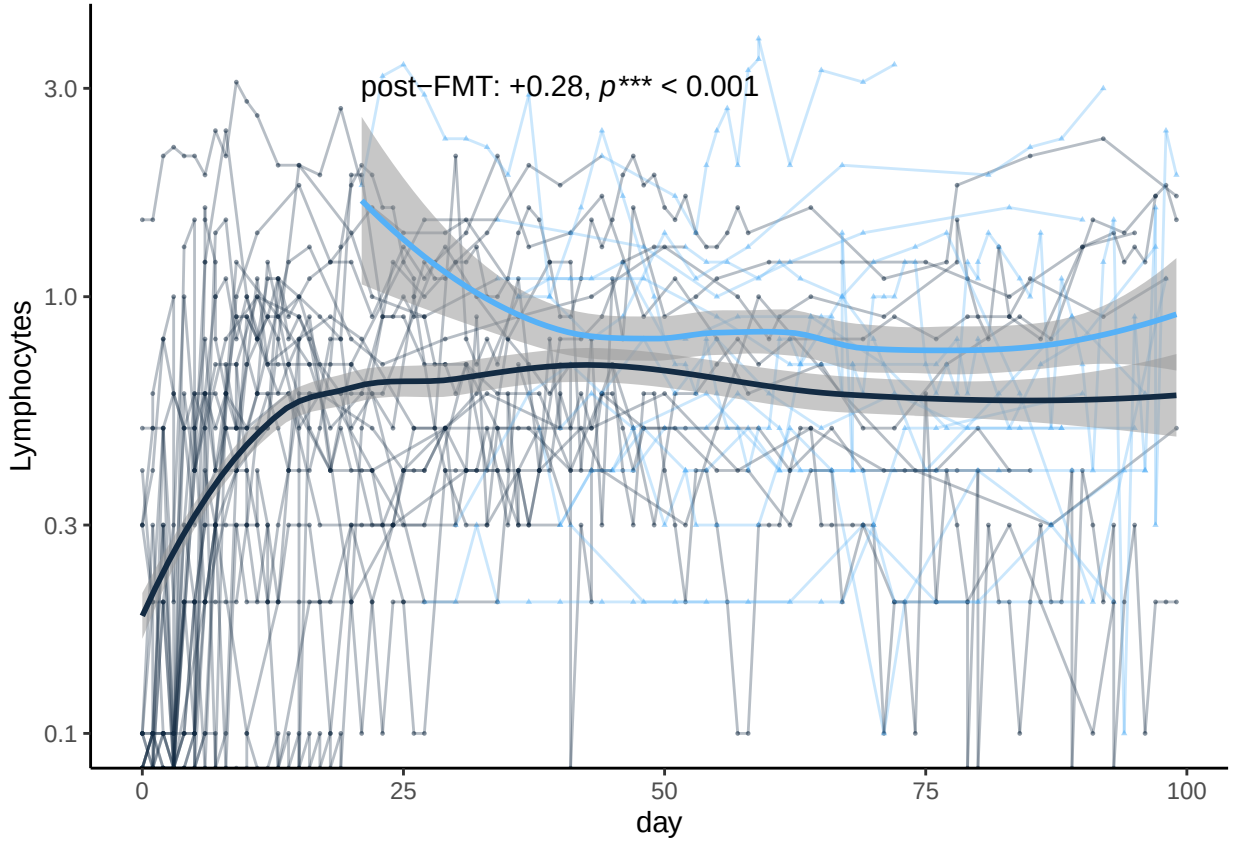
```
## Approximate 95% confidence intervals
##
##  Fixed effects:
##                 lower     est.    upper
## (Intercept) 4.4141966 4.740293 5.066390
## armpost     0.4022348 1.057399 1.712562
## attr(,"label")
## [1] "Fixed effects:"
```




```
library(effects)
require(lmerTest)
subsetd <- subset(d, d$in_original_study=='True')
subsetd <- subset(subsetd, subsetd$wbc%in%c('lymphocytes'))
subsetd <- subset(subsetd, subsetd$day<100)

# armpost: 1 only iff post randomization and treated with FMT
subsetd$armpost <- subsetd$arm * subsetd$postrandomization

subsetd$dayfactor <- as.factor(subsetd$day)
subsetd$patientfactor <- as.factor(subsetd$patientid)

fitn <- lme(fixed=value~armpost,random=list(~1|dayfactor, ~1|patientfactor),data=subsetd)
```

```
##             numDF denDF  F-value p-value
## (Intercept)     1   879 977.1451  <.0001
## armpost         1   879  37.0730  <.0001
```

```
## Approximate 95% confidence intervals
##
##  Fixed effects:
##                 lower      est.     upper
## (Intercept) 0.5945065 0.6455064 0.6965064
## armpost     0.1868893 0.2757873 0.3646852
## attr(,"label")
## [1] "Fixed effects:"
```




```
library(effects)
require(lmerTest)
subsetd <- subset(d, d$in_original_study=='True')
subsetd <- subset(subsetd, subsetd$wbc%in%c('monocytes'))
subsetd <- subset(subsetd, subsetd$day<100)

# armpost: 1 only iff post randomization and treated with FMT
subsetd$armpost <- subsetd$arm * subsetd$postrandomization

subsetd$dayfactor <- as.factor(subsetd$day)
subsetd$patientfactor <- as.factor(subsetd$patientid)

fitn <- lme(fixed=value~armpost,random=list(~1|dayfactor, ~1|patientfactor),data=subsetd)
#summary(fitn)
```

```
##             numDF denDF  F-value p-value
## (Intercept)     1   879 448.2228  <.0001
## armpost         1   879  13.2694   3e-04
```

```
## Approximate 95% confidence intervals
##
##  Fixed effects:
##                  lower      est.     upper
## (Intercept) 0.7975934 0.8992194 1.0008454
## armpost     0.1385629 0.3004339 0.4623049
## attr(,"label")
## [1] "Fixed effects:"
```