CBC Splines

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```r
suppressPackageStartupMessages({
  library(tidyverse)
  library(sjPlot)
  library(lmerTest)
  library(readxl)
  library(xlsx)
  library(kableExtra)
  library(splines)
  library(redres)
})
```

```r
test <- cont %>% filter(Treatment == 'Control H1N1' |  Treatment == 'Antibiotic H1N1')
```
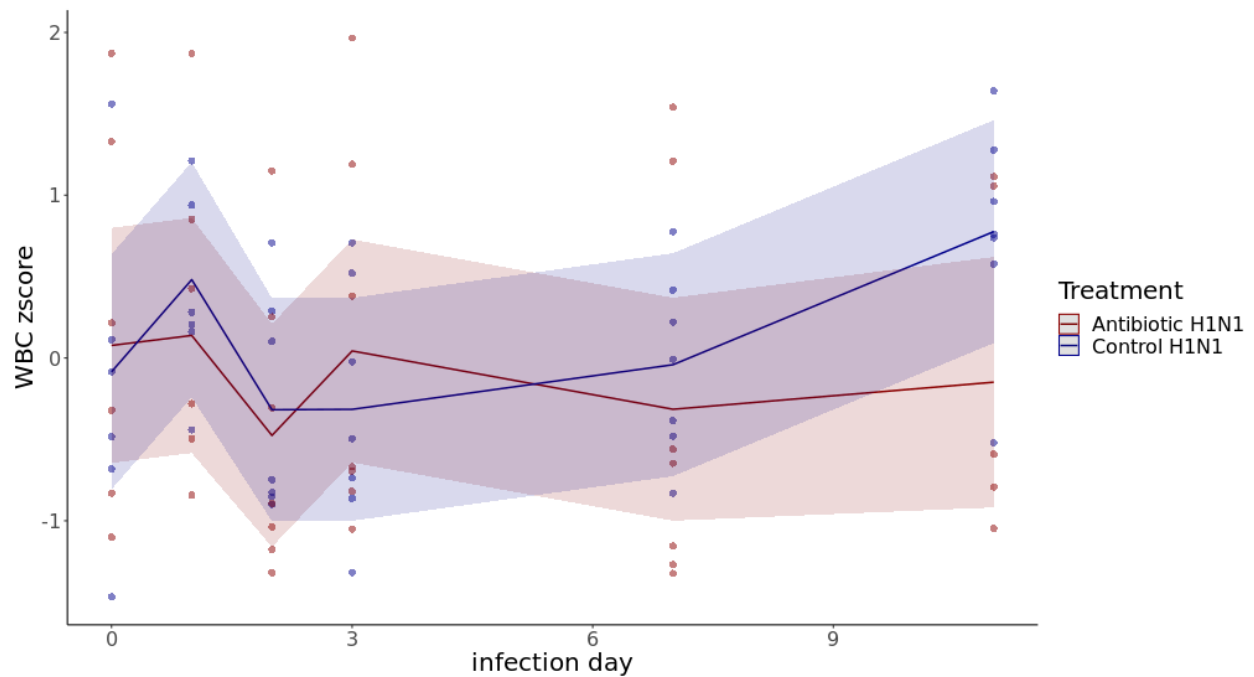
White Blood cells/ul Z-scores

Table 1: Total WBC Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	5.060	1.012	5	54.226	2.099	0.079
Treatment	0.047	0.047	1	39.926	0.097	0.757
ns(infection_day, df = 5):Treatment	3.048	0.610	5	54.226	1.265	0.292

Polymononuclear Cells/ul z-scores
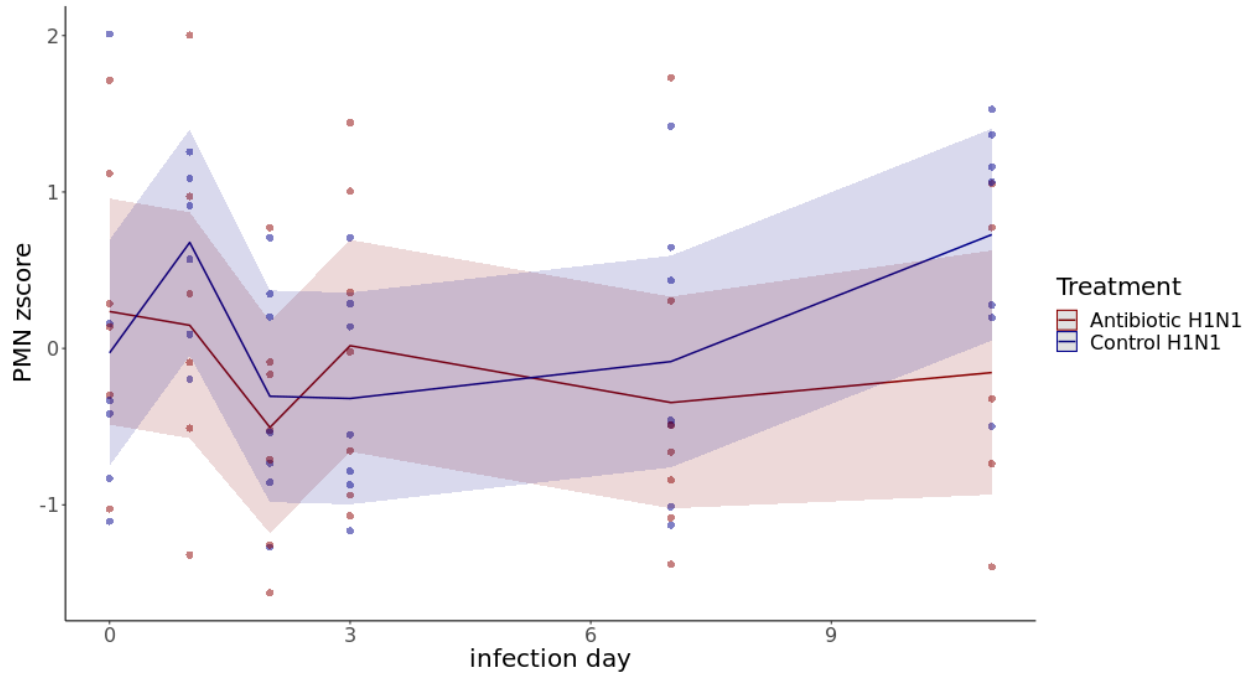
Table 2: PMN Concentration Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	6.299	1.260	5	54.148	2.073	0.083
Treatment	0.157	0.157	1	53.226	0.258	0.614
ns(infection_day, df = 5):Treatment	3.321	0.664	5	54.148	1.093	0.375

Lymphoyctes/ul z-scores
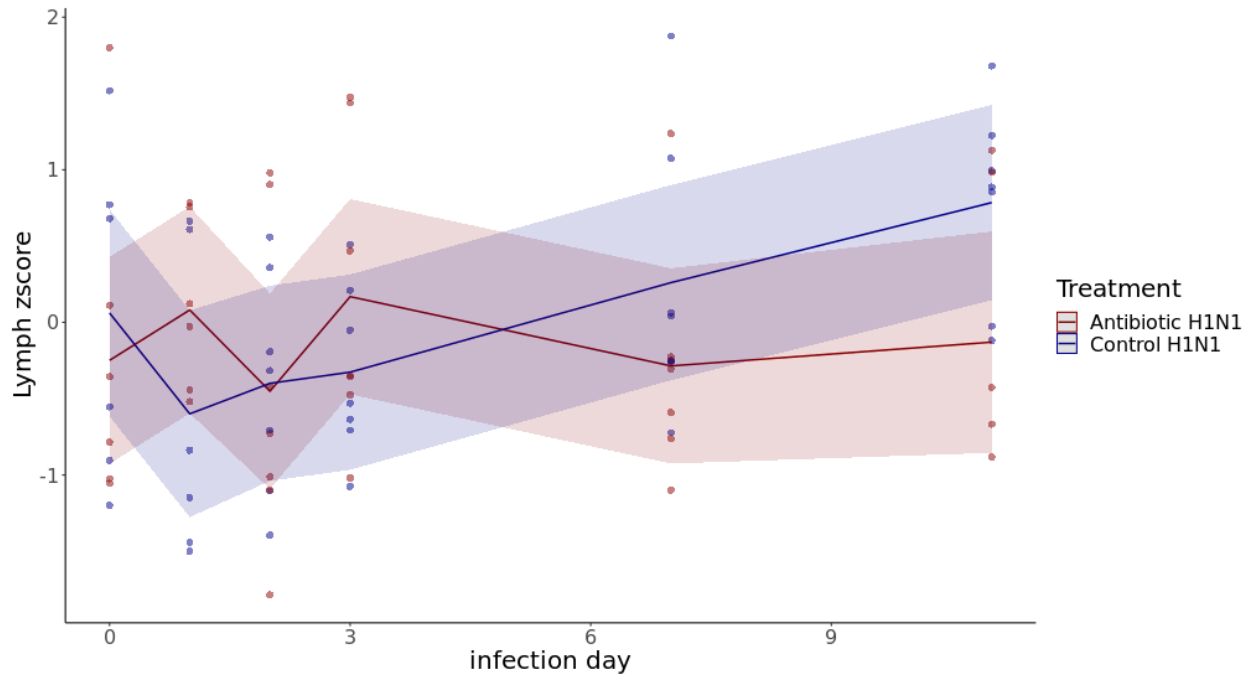
Table 3: Lymphocyte Concentration Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	3.967	0.793	5	54.783	1.721	0.145
Treatment	0.186	0.186	1	45.138	0.404	0.528
ns(infection_day, df = 5):Treatment	5.754	1.151	5	54.783	2.496	0.042

Monocytes/ul z-scores
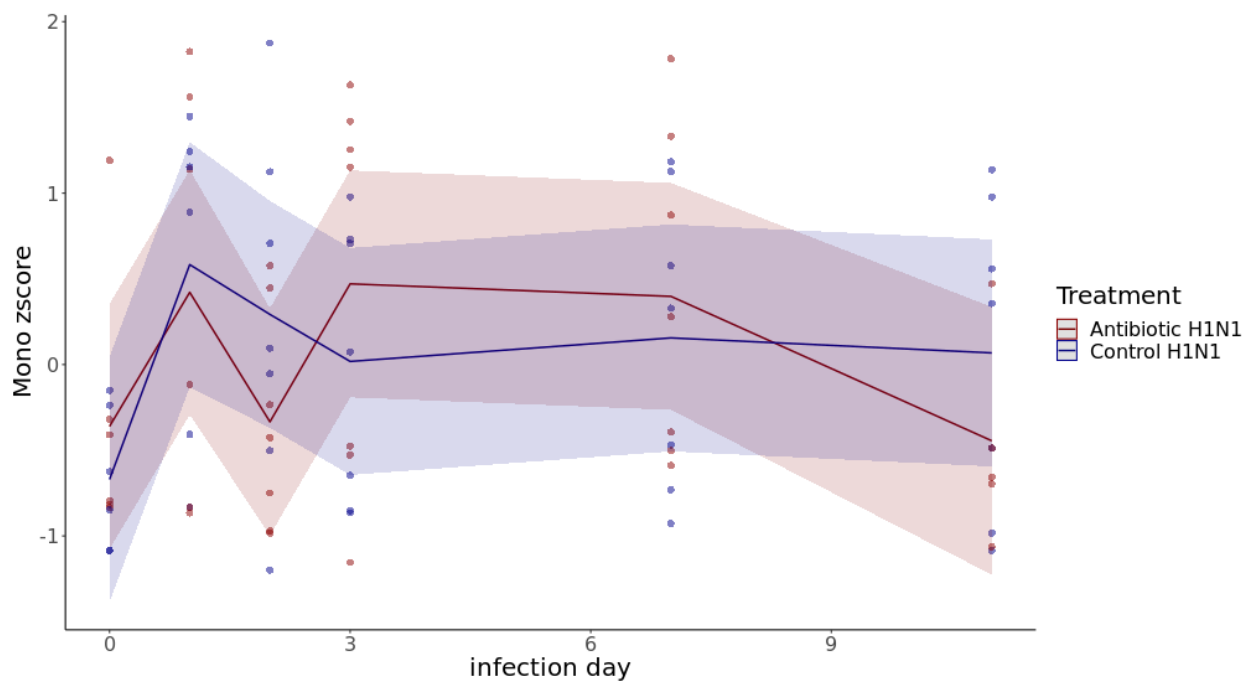
Table 4: Monocyte Concentration Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	8.259	1.652	5	54.924	2.234	0.064
Treatment	0.267	0.267	1	64.988	0.361	0.550
ns(infection_day, df = 5):Treatment	3.387	0.677	5	54.924	0.916	0.477

Eosinophils/ul z scores
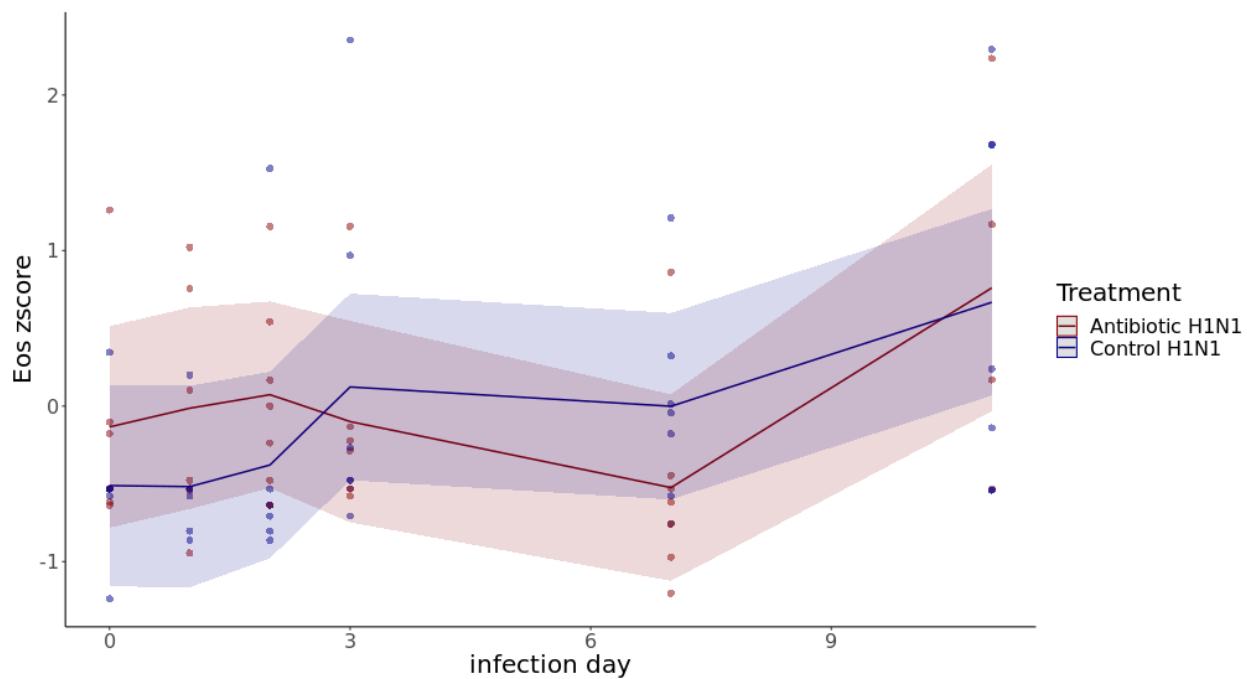
Table 5: Eosinophil Concentration Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	8.178	1.636	5	64	2.497	0.040
Treatment	0.427	0.427	1	64	0.651	0.423
ns(infection_day, df = 5):Treatment	2.850	0.570	5	64	0.870	0.506

Neutrophil to Lymphocte ratio z scores

Table 6: Neutrophil to Lymphocyte Ratio Z score

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
ns(infection_day, df = 5)	7.687	1.537	5	54.118	2.417	0.048
Treatment	0.000	0.000	1	55.136	0.000	0.997
ns(infection_day, df = 5):Treatment	2.105	0.421	5	54.118	0.662	0.654

Session Information

```
## R version 3.6.3 (2020-02-29)
## Platform: x86_64-conda-linux-gnu (64-bit)
## Running under: Ubuntu 18.04.6 LTS
##
## Matrix products: default
## BLAS/LAPACK: /srv/conda/envs/notebook/lib/libopenblasp-r0.3.21.so
##
## locale:
##  [1] LC_CTYPE=en_US.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=en_US.UTF-8        LC_COLLATE=en_US.UTF-8
##  [5] LC_MONETARY=en_US.UTF-8    LC_MESSAGES=en_US.UTF-8
##  [7] LC_PAPER=en_US.UTF-8       LC_NAME=en_US.UTF-8
##  [9] LC_ADDRESS=en_US.UTF-8     LC_TELEPHONE=en_US.UTF-8
## [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=en_US.UTF-8
##
```

```
## attached base packages:
## [1] splines    stats     graphics  grDevices utils     datasets  methods
## [8] base
##
## other attached packages:
##  [1] redres_0.0.0.9    kableExtra_1.3.4 xlsx_0.6.5        readxl_1.3.1
##  [5] lmerTest_3.1-3    lme4_1.1-27       Matrix_1.3-3     sjPlot_2.8.8
##  [9] forcats_0.5.1     stringr_1.4.0     dplyr_1.0.6       purrr_0.3.4
## [13] readr_1.4.0       tidyr_1.1.3       tibble_3.1.2      ggplot2_3.3.3
## [17] tidyverse_1.3.1
##
## loaded via a namespace (and not attached):
##  [1] nlme_3.1-152       fs_1.5.0          lubridate_1.7.10
##  [4] insight_0.14.0     webshot_0.5.2     httr_1.4.2
##  [7] numDeriv_2016.8-1.1 tools_3.6.3       backports_1.2.1
## [10] DT_0.18            utf8_1.2.1        R6_2.5.0
## [13] sjlabelled_1.1.8   DBI_1.1.1         colorspace_2.0-1
## [16] withr_2.5.0        tidyselect_1.1.1  emmeans_1.6.0
## [19] compiler_3.6.3     performance_0.7.2 cli_3.5.0
## [22] rvest_1.0.0        xml2_1.3.2        labeling_0.4.2
## [25] bayestestR_0.9.0   checkmate_2.1.0   scales_1.1.1
## [28] DEoptimR_1.0-11    robustbase_0.95-0 mvtnorm_1.1-1
## [31] systemfonts_1.0.2  digest_0.6.27     minqa_1.2.4
## [34] rmarkdown_2.19     svglite_2.0.0     qqplotr_0.0.5
## [37] pkgconfig_2.0.3    htmltools_0.5.4   dbplyr_2.1.1
## [40] fastmap_1.1.0      htmlwidgets_1.5.3 rlang_1.0.6
## [43] rstudioapi_0.13    shiny_1.7.4       farver_2.1.0
## [46] generics_0.1.0     jsonlite_1.7.2    magrittr_2.0.1
## [49] parameters_0.13.0  Rcpp_1.0.9        munsell_0.5.0
## [52] fansi_0.4.2        lifecycle_1.0.0   stringi_1.6.2
## [55] yaml_2.2.1         snakecase_0.11.0  brio_1.1.2
## [58] MASS_7.3-54        grid_3.6.3        promises_1.2.0.1
## [61] sjmisc_2.8.7       crayon_1.4.1      lattice_0.20-44
## [64] cowplot_1.1.1      ggeffects_1.1.0   haven_2.4.1
## [67] xlsxjars_0.6.1     sjstats_0.18.1    hms_1.1.0
## [70] knitr_1.33         pillar_1.6.1      boot_1.3-28
## [73] estimability_1.3   effectsize_0.4.4-1 reprex_2.0.0
## [76] glue_1.4.2         evaluate_0.14     modelr_0.1.8
## [79] httpuv_1.6.7       vctrs_0.3.8       nloptr_1.2.2.2
## [82] testthat_3.1.6     cellranger_1.1.0  gtable_0.3.0
## [85] assertthat_0.2.1   xfun_0.36         mime_0.10
## [88] xtable_1.8-4       broom_0.7.6       later_1.2.0
## [91] viridisLite_0.4.0  rJava_1.0-4       tinytex_0.31
## [94] ellipsis_0.3.2
```