WA State HIV Testing Histories - Description of Analysis Sample

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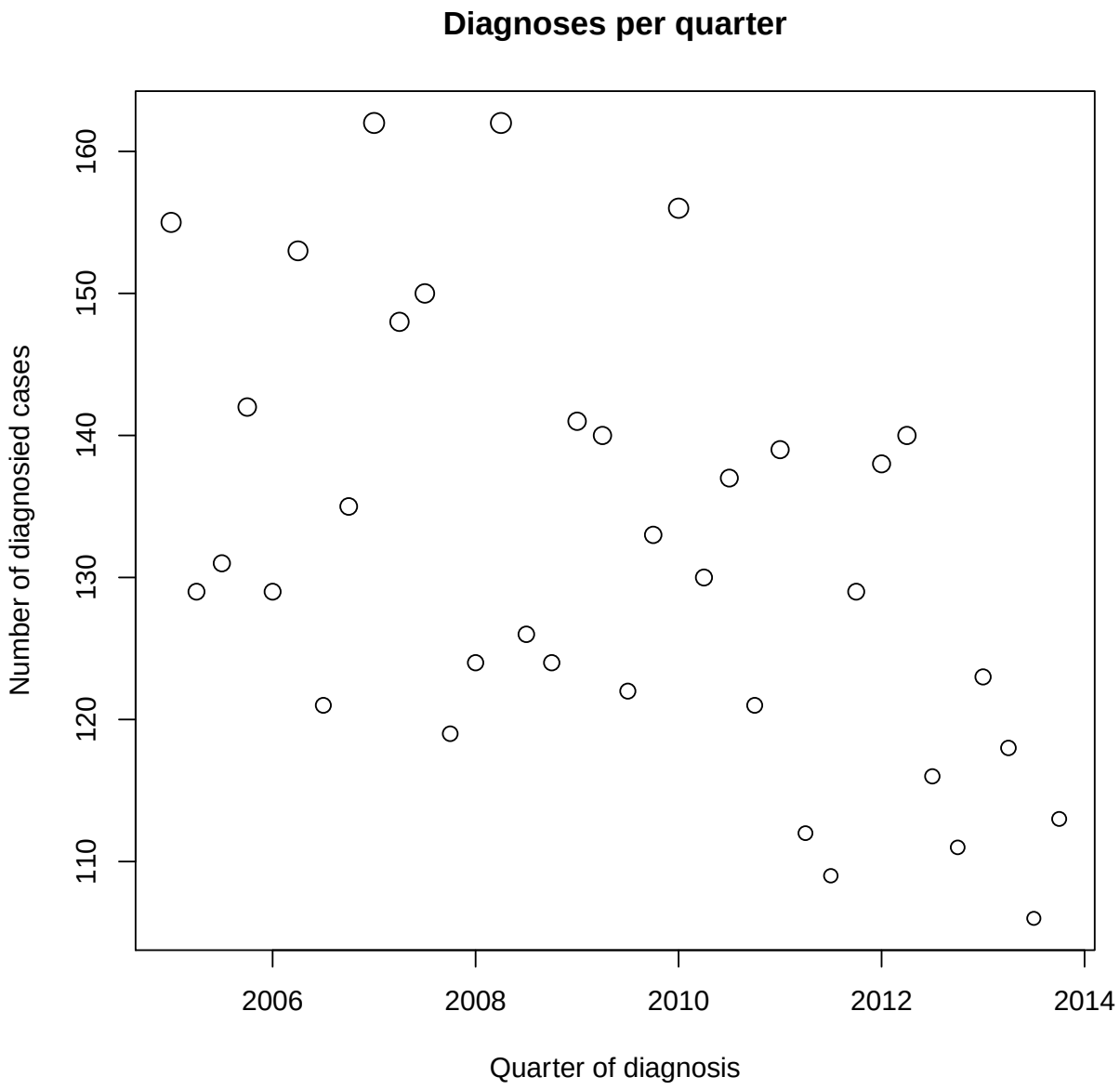
1 Sample Reminder

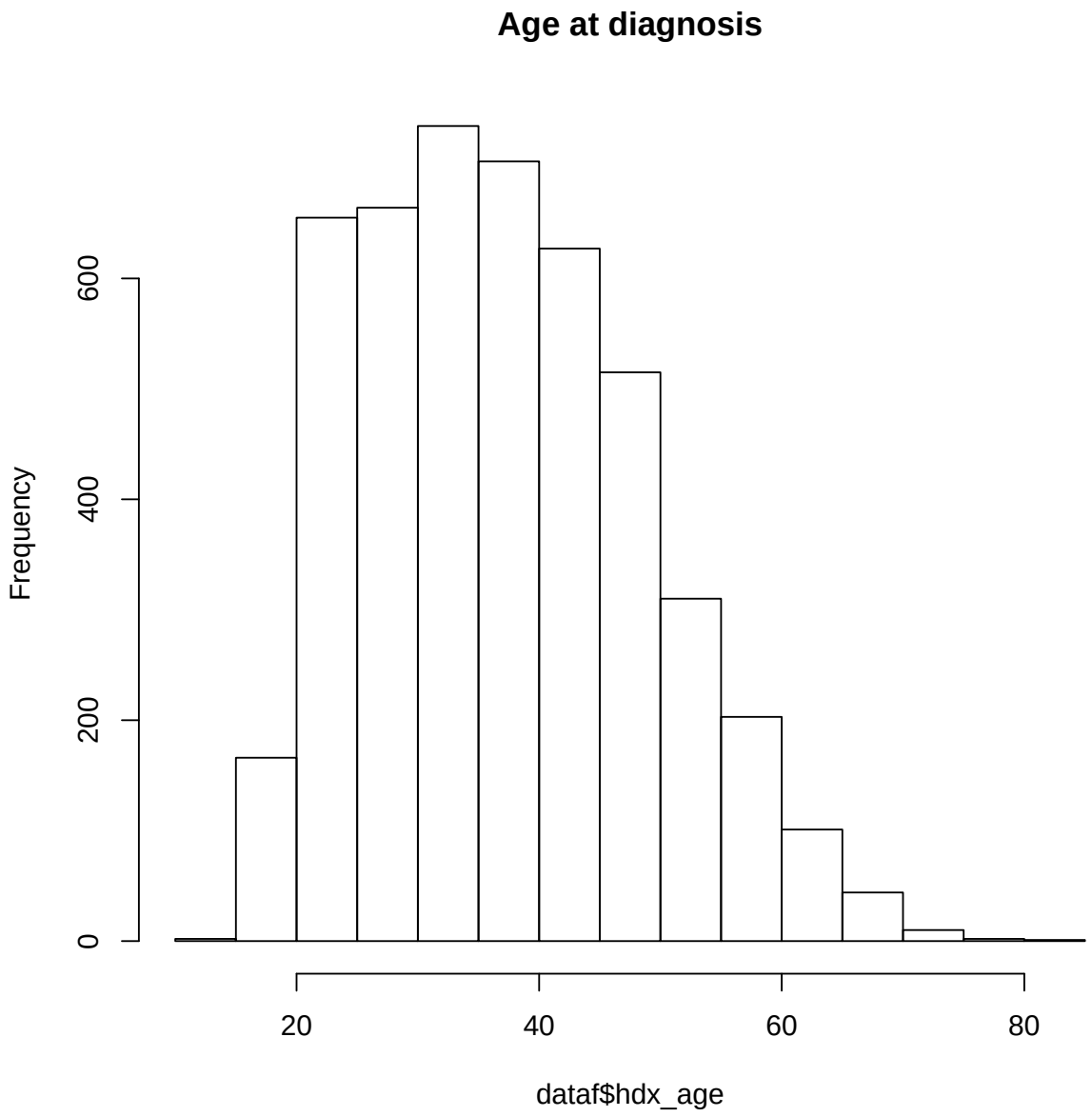
- N = 4744
- Years = 2005 to 2013
- everHadNegTest = TRUE for 2116 (44.6%), FALSE for 589 (12.42%), and NA for 2039 (42.98%)

2 Number of Diagnoses

```
##
##    2005 2005.25  2005.5 2005.75    2006 2006.25  2006.5 2006.75    2007 2007.25
##     155     129     131     142     129     153     121     135     162     148
##  2007.5 2007.75    2008 2008.25  2008.5 2008.75    2009 2009.25  2009.5 2009.75
##     150     119     124     162     126     124     141     140     122     133
##    2010 2010.25  2010.5 2010.75    2011 2011.25  2011.5 2011.75    2012 2012.25
##     156     130     137     121     139     112     109     129     138     140
##  2012.5 2012.75    2013 2013.25  2013.5 2013.75
##     116     111     123     118     106     113
## [1] 4744
```



3 Age at Diagnosis



4 everHadNegTest by subgroups

```
############################################################ everHadNegTest

variables <- c(`Age Group` = "agecat5", `Race/Ethnicity` = "race", `Mode of Transmission` = "mode")

(everHadNegTest_subgrouptab <- tabulate_everHadNegTest(dataf, variables, supercolumn = TRUE))

##          Characteristic     Subgroup    N Column.Percent Percent.Yes Percent.No
## 1             Age Group         <=20  168              4          49         18
## 2                               21-25  655             14          54         12
## 3                               26-30  664             14          52         10
## 4                               31-35  738             16          49         10
## 5                               36-40  706             15          41         11
## 6                               41-45  627             13          43         12
## 7                               46-50  515             11          35         12
## 8                               51-55  310              7          35         16
## 9                               56-60  203              4          37         23
```

```
## 10                            61-65  101              2          23         21
## 11                            66-70   44              1          34         18
## 12                            71-85   13              0          46         15
## 13       Race/Ethnicity        White 2773             58          50         10
## 14                             Black  792             17          35         16
## 15                              Hisp  732             15          39         13
## 16                             Asian  220              5          30         23
## 17                            Native   95              2          28         24
## 18                             Multi  132              3          50         15
## 19 Mode of Transmission          MSM 3135             66          56         10
## 20                            Hetero 1334             28          22         18
## 21                      Blood/Needle  275              6          29         16
##    Percent.Missing
## 1               33
## 2               34
## 3               38
## 4               41
## 5               48
## 6               46
## 7               52
## 8               48
## 9               40
## 10              56
## 11              48
## 12              38
## 13              40
## 14              49
## 15              48
## 16              47
## 17              47
## 18              35
## 19              35
## 20              60
## 21              55
```

```
(everHadNegTest_racebydx <- tabulate_everHadNegTest(dataf, list(c("mode", "race"))))
```

```
##            mode   race    N Column Percent Percent Yes Percent No
## 1           MSM  White 2141             45          57          8
## 2           MSM  Black  281              6          55         12
## 3           MSM   Hisp  461             10          54         11
## 4           MSM  Asian  112              2          49         13
## 5           MSM Native   45              1          44         22
## 6           MSM  Multi   95              2          58         16
## 7        Hetero  White  454             10          27         15
## 8        Hetero  Black  476             10          25         17
## 9        Hetero   Hisp  236              5          12         18
## 10       Hetero  Asian  102              2          12         32
## 11       Hetero Native   39              1          10         31
## 12       Hetero  Multi   27              1          26         15
## 13 Blood/Needle  White  178              4          30         16
## 14 Blood/Needle  Black   35              1          29         20
## 15 Blood/Needle   Hisp   35              1          23         17
## 16 Blood/Needle  Asian    6              0           0         33
## 17 Blood/Needle Native   11              0          27          9
## 18 Blood/Needle  Multi   10              0          40         10
##    Percent Missing
## 1               35
## 2               33
## 3               35
## 4               38
## 5               33
## 6               26
## 7               58
## 8               58
## 9               70
## 10              56
## 11              59
## 12              59
## 13              54
## 14              51
```

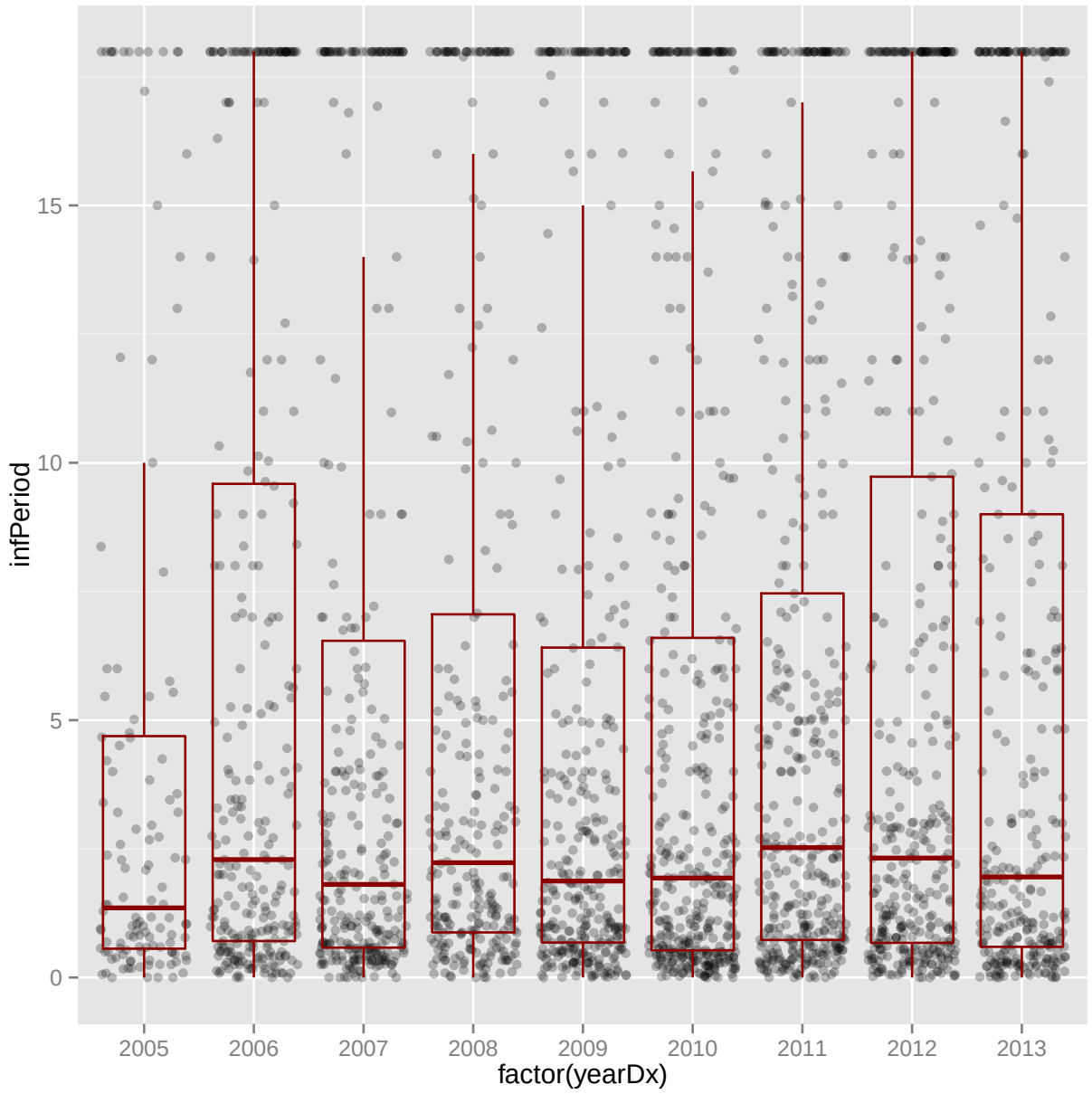
```
## 15              60
## 16              67
## 17              64
## 18              50
```

5 TID by everHadNegTest

```
## $stats
##   Group Min. 1st Qu. Median   Mean 3rd Qu.  Max. IsNA    N Percent Missing
## 1 FALSE    1 12.0000 17.980 15.010  17.980 17.98    0  589               0
## 2    NA   NA      NA     NA    NaN      NA    NA 2039 2039             100
## 3  TRUE    0  0.4959  1.185  2.515   3.062 17.98    0 2116               0
##
## $oneway
##
##  One-way analysis of means (not assuming equal variances)
##
## data:  infPeriod and Group
## F = 3647.57, num df = 1.000, denom df = 757.033, p-value < 2.2e-16
```

6 TID Over Time

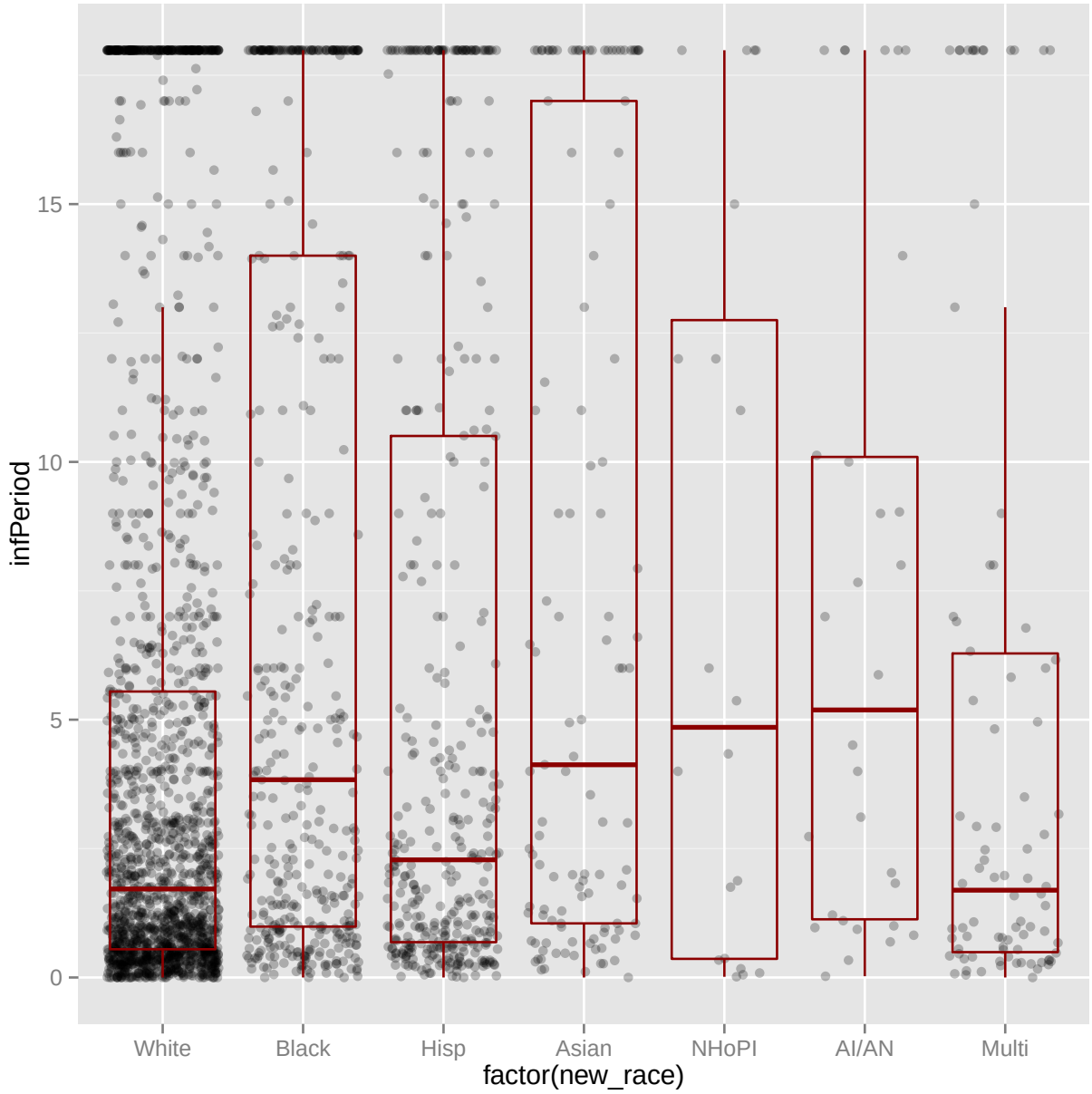
```
## $stats
##   Group Min. 1st Qu. Median  Mean 3rd Qu.  Max. IsNA   N Percent Missing
## 1  2005    0  0.5596  1.352 4.210   4.690 17.98  437 557           78.46
## 2  2006    0  0.7082  2.290 5.842   9.590 17.98  275 538           51.12
## 3  2007    0  0.5808  1.808 5.016   6.541 17.98  284 579           49.05
## 4  2008    0  0.8760  2.230 5.334   7.055 17.98  274 536           51.12
## 5  2009    0  0.6795  1.874 4.900   6.410 17.98  205 536           38.25
## 6  2010    0  0.5267  1.933 4.907   6.599 17.98  140 544           25.74
## 7  2011    0  0.7288  2.523 5.267   7.463 17.98  116 489           23.72
## 8  2012    0  0.6740  2.321 5.670   9.729 17.98  148 505           29.31
## 9  2013    0  0.5959  1.953 5.509   9.000 17.98  160 460           34.78
##
## $oneway
##
##  One-way analysis of means (not assuming equal variances)
##
## data:  infPeriod and Group
## F = 1.308, num df = 8.000, denom df = 971.386, p-value = 0.2355

## Warning:  Removed 2039 rows containing non-finite values (stat_boxplot).
## Warning:  Removed 2039 rows containing missing values (geom_point).
```



7 TID by Race

```
## $stats
##   Group    Min. 1st Qu. Median  Mean 3rd Qu.  Max. IsNA    N Percent Missing
## 1 White 0.00000  0.5479  1.716 4.509   5.547 17.98 1109 2773           39.99
## 2 Black 0.00000  0.9863  3.836 7.038  14.000 17.98  387  792           48.86
## 3  Hisp 0.00000  0.6849  2.282 5.667  10.500 17.98  349  732           47.68
## 4 Asian 0.00000  1.0490  4.126 7.450  17.000 17.98  103  220           46.82
## 5 NHoPI 0.01370  0.3616  4.852 7.315  12.750 17.98   13   33           39.39
## 6 AI/AN 0.02466  1.1290  5.189 7.130  10.100 17.98   32   62           51.61
## 7 Multi 0.00000  0.4918  1.693 4.758   6.285 17.98   46  132           34.85
##
## $oneway
##
##  One-way analysis of means (not assuming equal variances)
##
## data:  infPeriod and Group
## F = 11.1283, num df = 6.000, denom df = 146.815, p-value = 3.258e-10
```

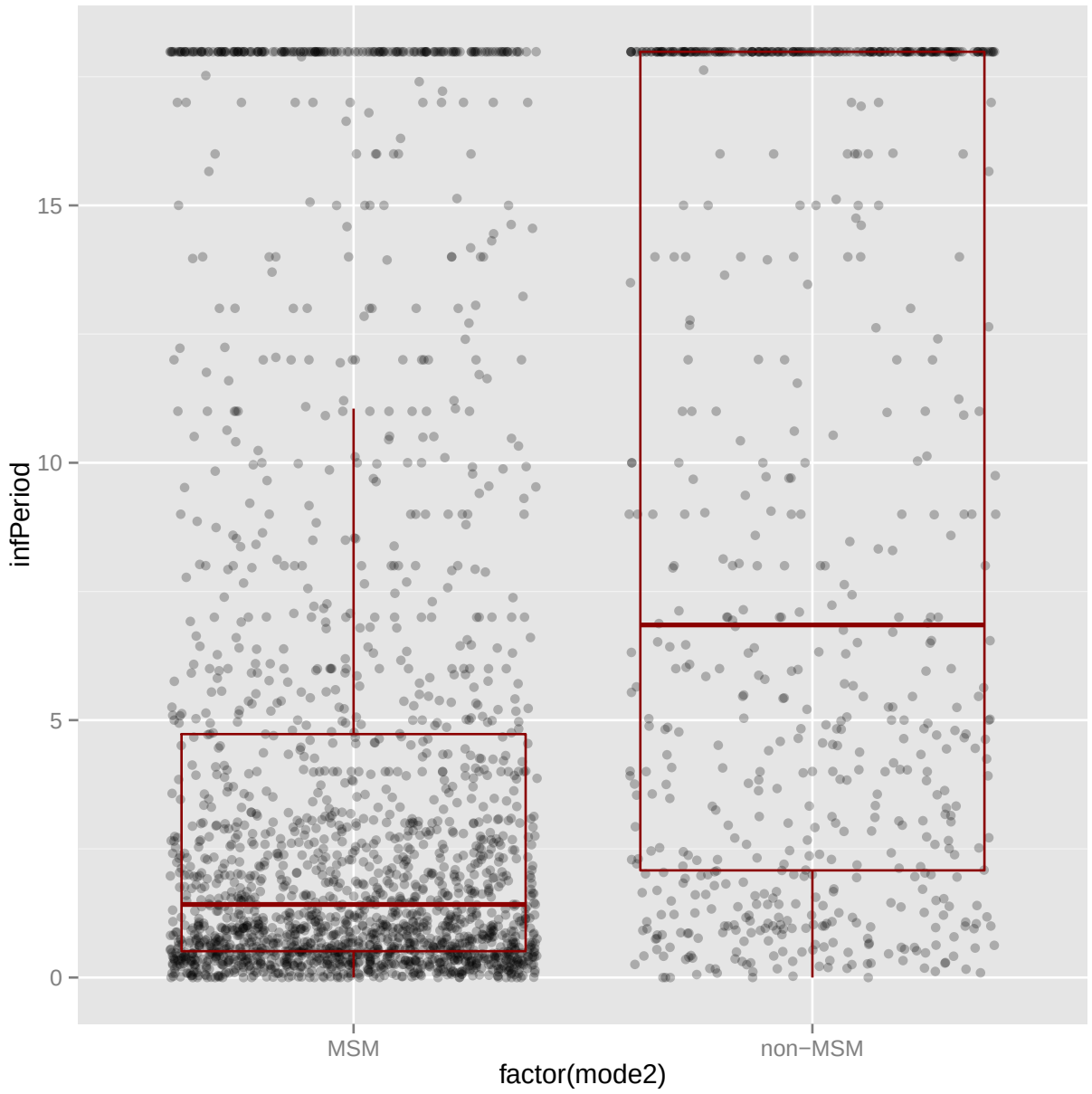
```
## Warning:  Removed 2039 rows containing non-finite values (stat_boxplot).
## Warning:  Removed 2039 rows containing missing values (geom_point).
```



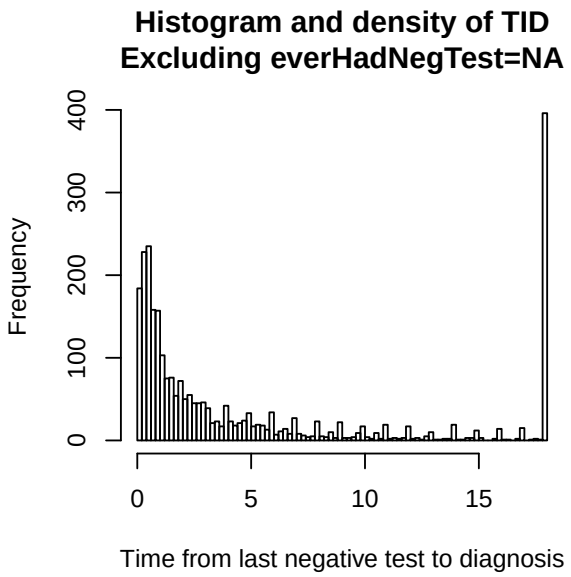
8 TID by Mode2

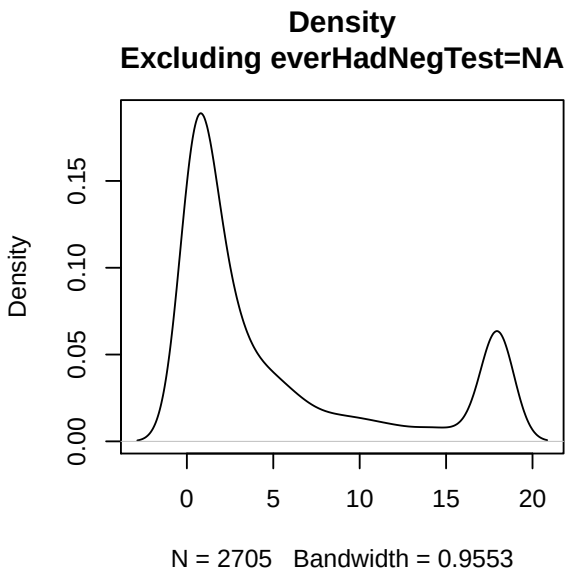
```
############################################################## MODE2

summarize_infPeriod(dataf$infPeriod, bygroup = dataf$mode2)

## $stats
##     Group Min. 1st Qu. Median  Mean 3rd Qu.  Max. IsNA    N Percent Missing
## 1     MSM    0   0.511  1.419 4.002   4.729 17.98 1088 3135           34.70
## 2 non-MSM    0   2.082  6.849 9.078  17.980 17.98  951 1609           59.11
##
## $oneway
##
##  One-way analysis of means (not assuming equal variances)
```

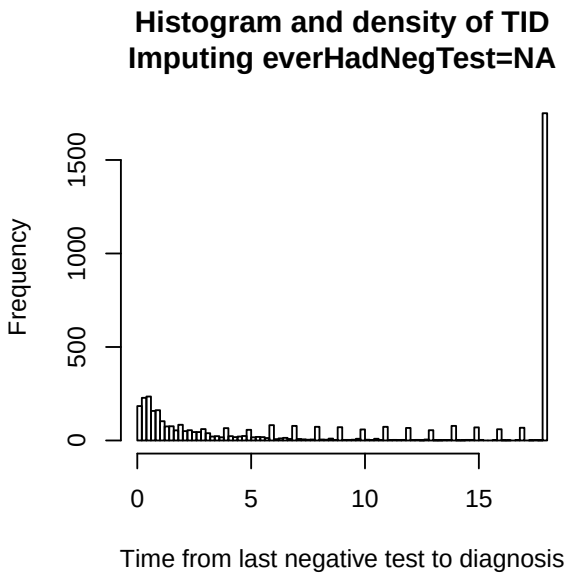
```
##
## data:  infPeriod and Group
## F = 278.1611, num df = 1.000, denom df = 918.046, p-value < 2.2e-16

# MSM vs non-MSM counts and % of all diagnoses
table(dataf$mode2)

##
##     MSM non-MSM
##    3135    1609

table(dataf$mode2)/nrow(dataf)

##
##       MSM   non-MSM
## 0.6608347 0.3391653

# Missing TID (is.na(infPeriod)) by mode2
table(dataf$mode2, is.na(dataf$infPeriod))

##
##           FALSE TRUE
##   MSM      2047 1088
##   non-MSM   658  951

(missTIDmode2 <- table(dataf$mode2, is.na(dataf$infPeriod)))

##
##           FALSE TRUE
##   MSM      2047 1088
##   non-MSM   658  951

# % of mode2 cases comprising non-missing TID (is.na=FALSE) and missing
# (is.na=TRUE)
missTIDmode2/colSums(missTIDmode2)

##
##               FALSE      TRUE
##   MSM     0.7567468 0.4022181
##   non-MSM 0.3227072 0.4664051

ggplot(aes(y = infPeriod, x = factor(mode2)), data = dataf) + geom_jitter(alpha = 0.25) +
    geom_boxplot(color = "darkred", fill = NA, outlier.size = 0)

## Warning:  Removed 2039 rows containing non-finite values (stat_boxplot).
## Warning:  Removed 2039 rows containing missing values (geom_point).
```

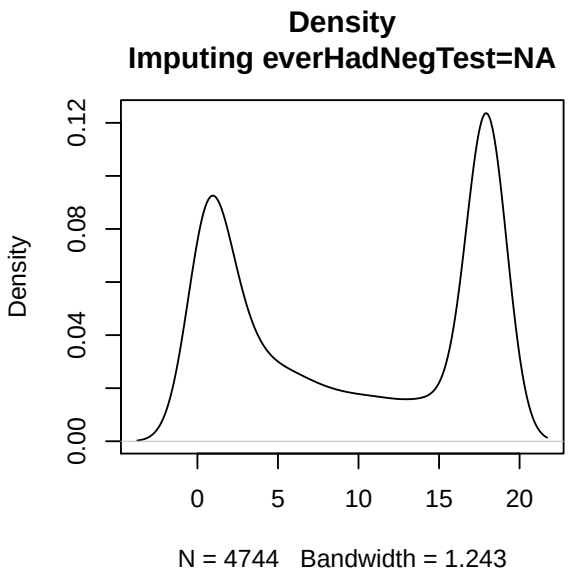


9 TID Density, Upper Bound (Infection at Last Neg Test)

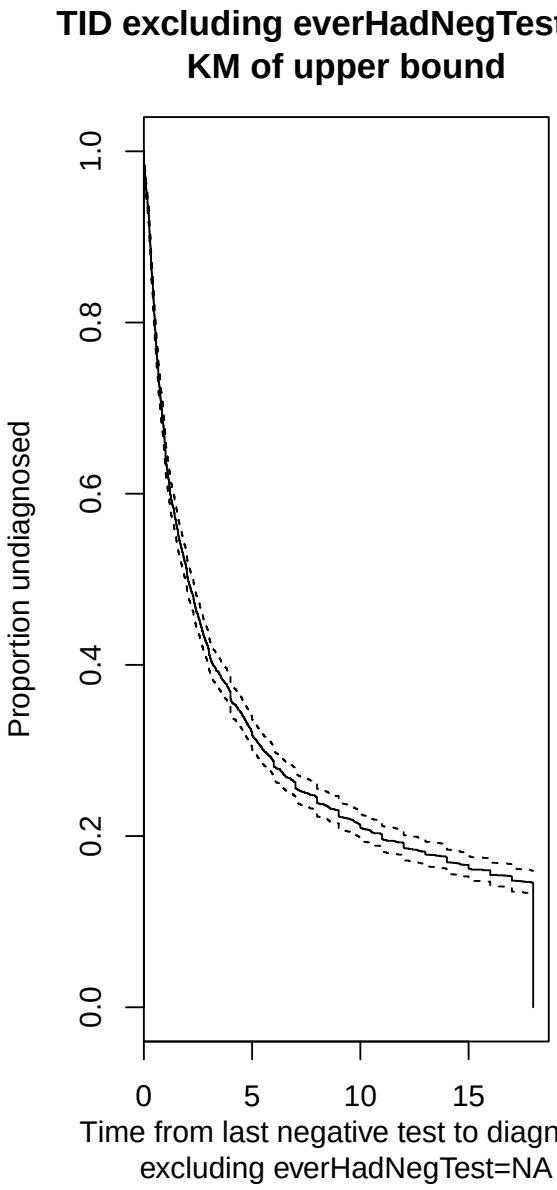


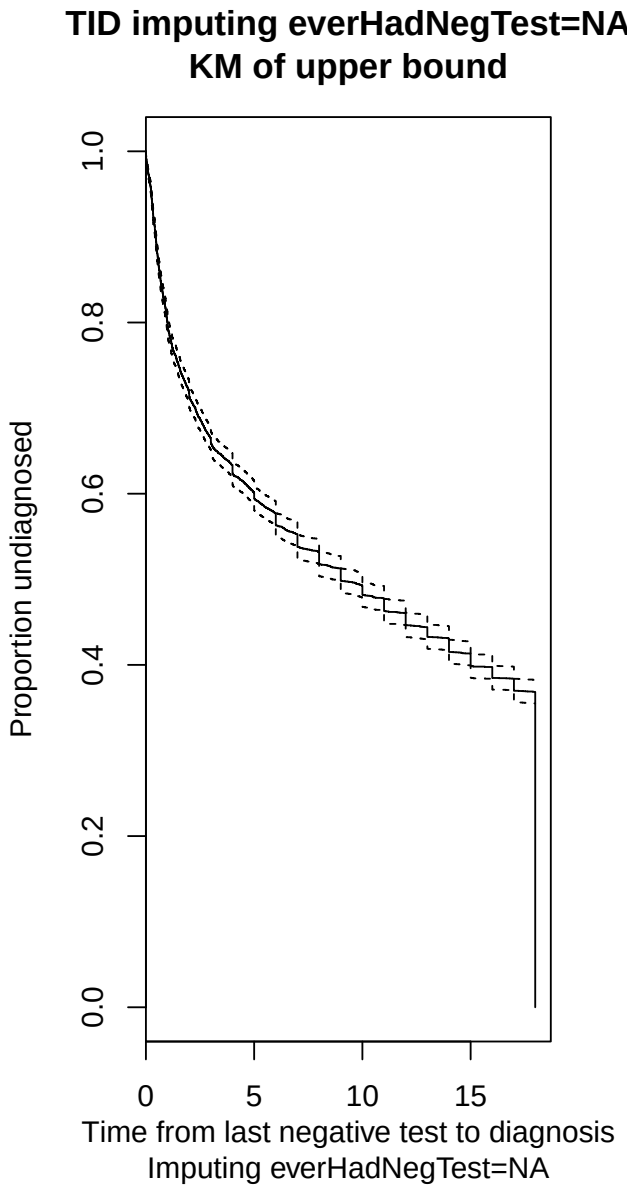




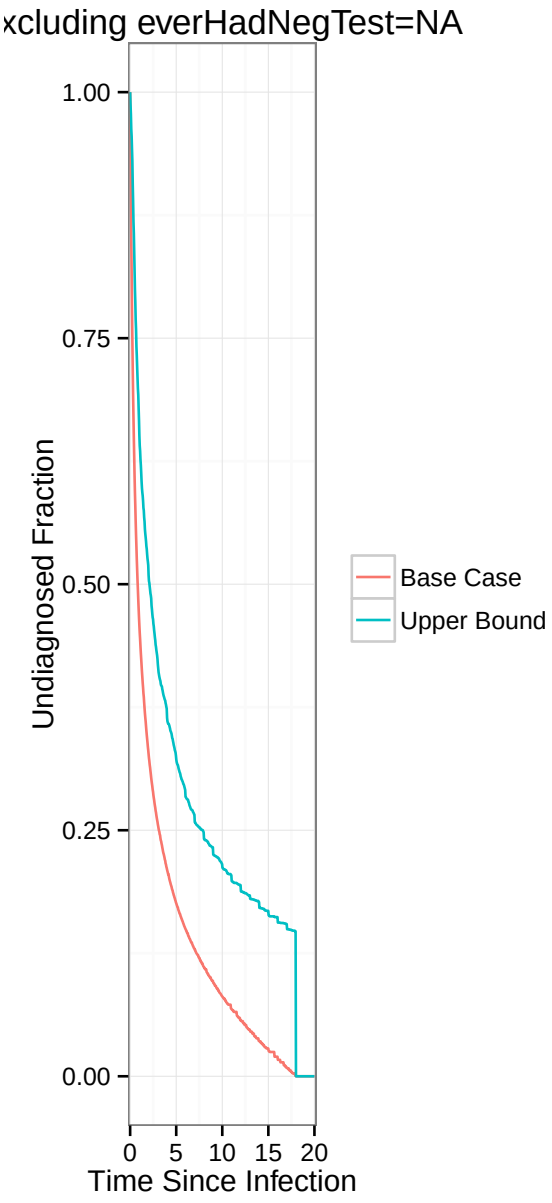


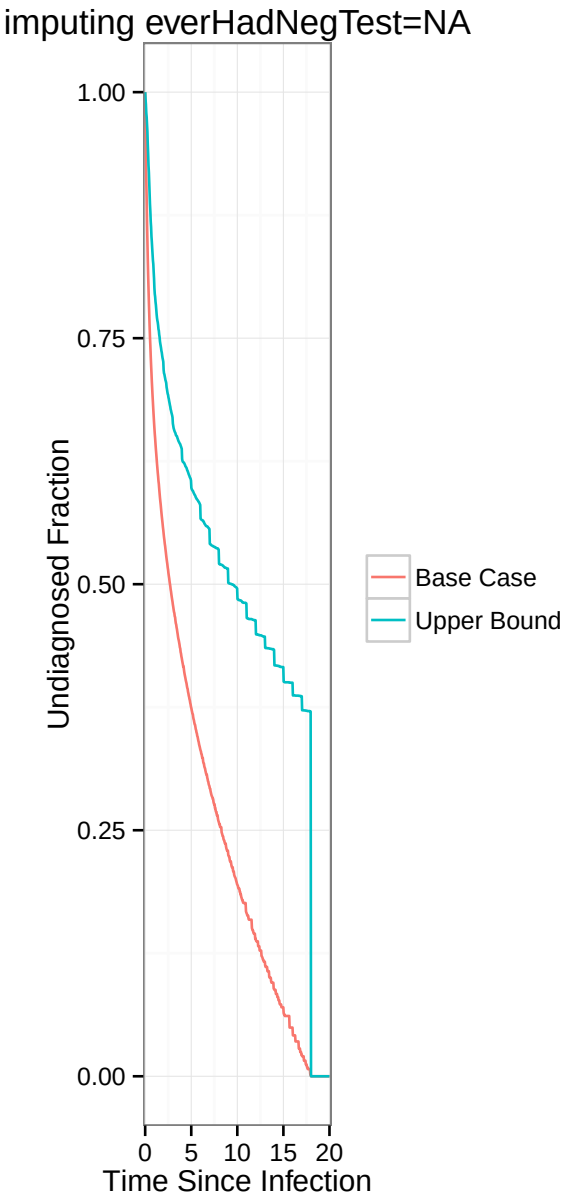
10 TID Survival Curve, Upper Bound





11 TID Survival Curve, Base Case and Upper Bound


xcluding everHadNegTest=NA
1.00
0.75
0.50
0.25
0.00
Undiagnosed Fraction
0
5
10
15
20
Time Since Infection
Base Case
Upper Bound


imputing everHadNegTest=NA
1.00
0.75
0.50
0.25
0.00
Undiagnosed Fraction
0
5
10
15
20
Time Since Infection
Base Case
Upper Bound