Project1

1/15/2017

```
## NULL
```

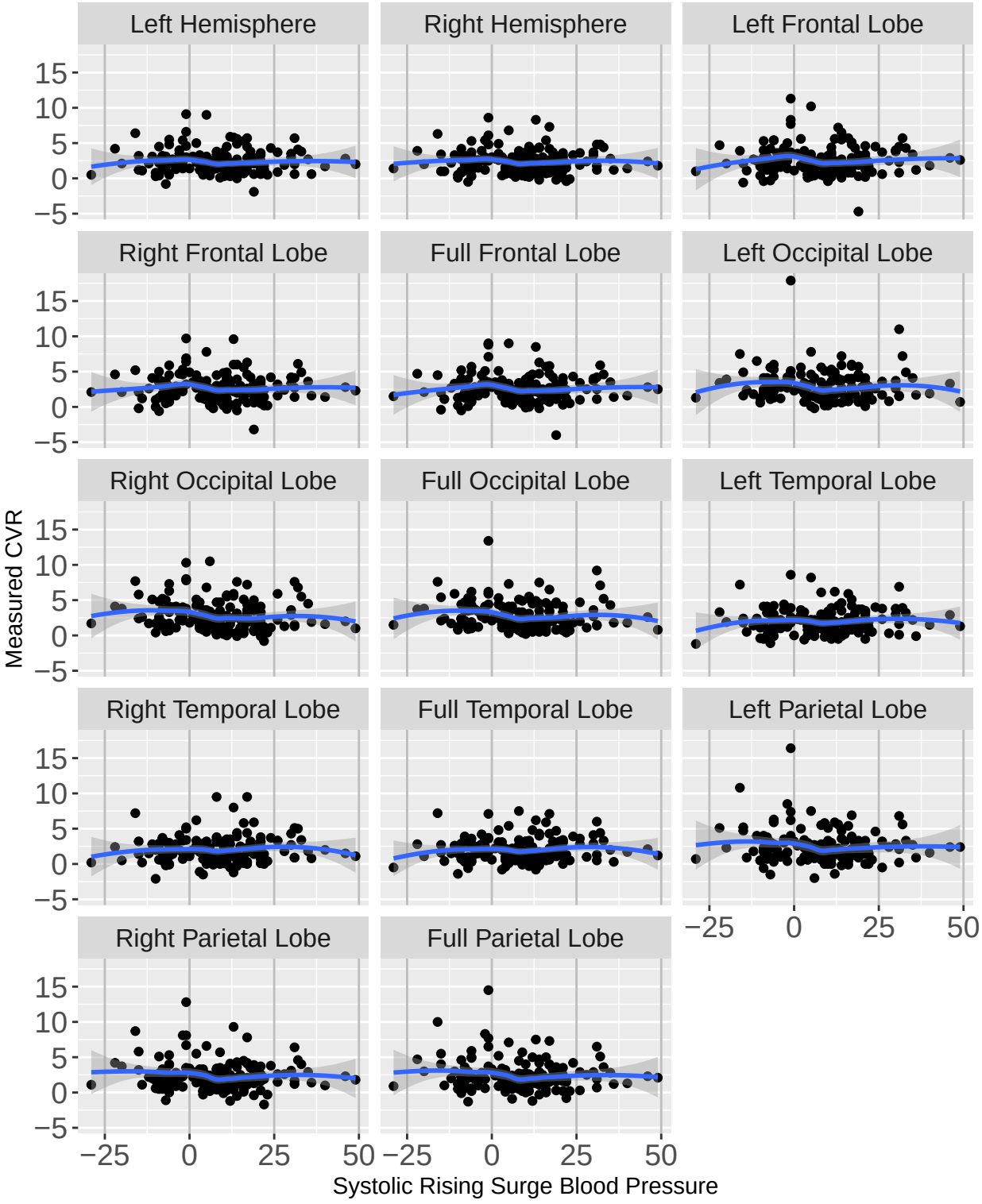
Table 1: Comparison of Demographics for Excluded & Included Data, w/ N=162 and N=174 respectively

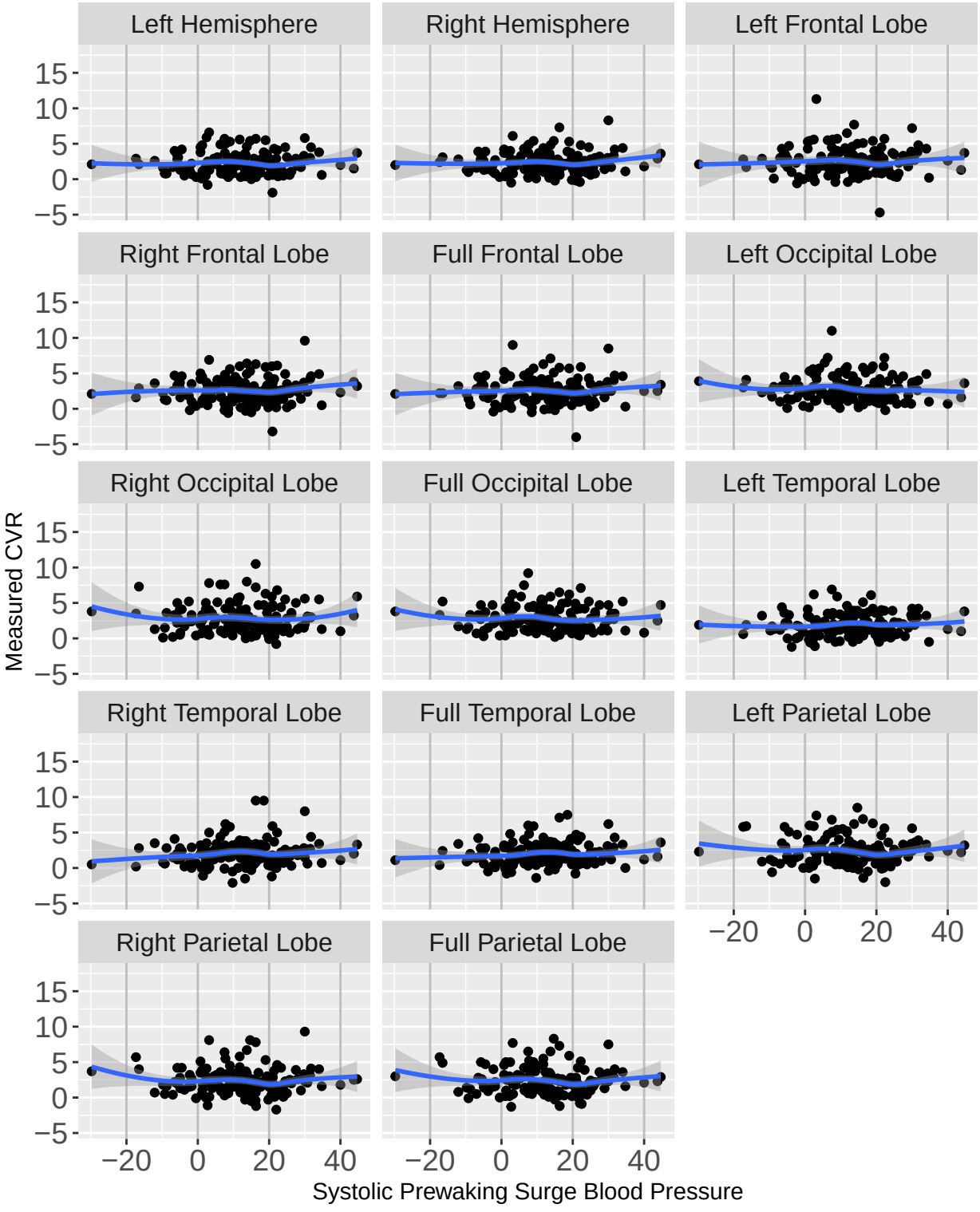
Variable	Excluded	Analyzed Data	P-Value
Diff. in mean SBP, wake - sleep, self-reported periods	14.5 (10.5)	13.4 (9.4)	0.6075
systolic.post.wake.mean minus systolic.pre.wake.mean	11.1 (12.3)	12.3 (12.2)	0.4331
systolic.post.wake.1 minus systolic.pre.wake.1	8.6 (14.2)	8.4 (13.6)	0.8162
ICV (calculated)	1403.7 (144.4)	1364.9 (138.4)	0.0247
Education (years)	16.3 (2.6)	15.5 (2.6)	0.0095
Age at medhx.date, recalculated	73.1 (7.5)	72.7 (7.1)	0.6214
Consensus Decision for Diagnosis			0.1202
– Normal	75 (46%)	101 (58%)	
– MCI	70 (43%)	62 (36%)	
– Dementia	1 (1%)	0 (0%)	
– Ambiguous At Risk	16 (10%)	11 (6%)	
Sex			0.0103
– Male	108 (67%)	91 (52%)	
– Female	54 (33%)	83 (48%)	
Two-level race/ethnicity			0.3688
– Non-Hispanic White	137 (85%)	154 (89%)	
– Other	25 (15%)	20 (11%)	
ApoE4+ (at least one E4 allele)			0.7182
– Yes	58 (36%)	58 (33%)	
– No	104 (64%)	116 (67%)	
Consensus Decision for Diagnosis			0.1202
– Normal	75 (46%)	101 (58%)	
– MCI	70 (43%)	62 (36%)	
– Dementia	1 (1%)	0 (0%)	
– Ambiguous At Risk	16 (10%)	11 (6%)	
Taking at least 1 anti-hypertensive med			0.622
– Yes	85 (52%)	97 (56%)	
– No	77 (48%)	77 (44%)	
Diabetic, determined by a1c, glucose, and/or rx			0.1947
– Yes	35 (22%)	27 (16%)	
– No	127 (78%)	147 (84%)	
Current smoker (or quit in this or last calendar yr)			0.3898
– Yes	5 (3%)	2 (1%)	
– No	157 (97%)	172 (99%)	
CVD, determined from variables in med hx			0.622
– Yes	4 (2%)	7 (4%)	
– No	158 (98%)	167 (96%)	
A-fib, determined by med hx and/or echo and/or cmr rhythm			1
– Yes	9 (6%)	10 (6%)	
– No	151 (93%)	164 (94%)	
LV hypertrophy, determined by sex and scaled LV mass			0.6958
– Yes	9 (6%)	7 (4%)	
– No	153 (94%)	166 (95%)	

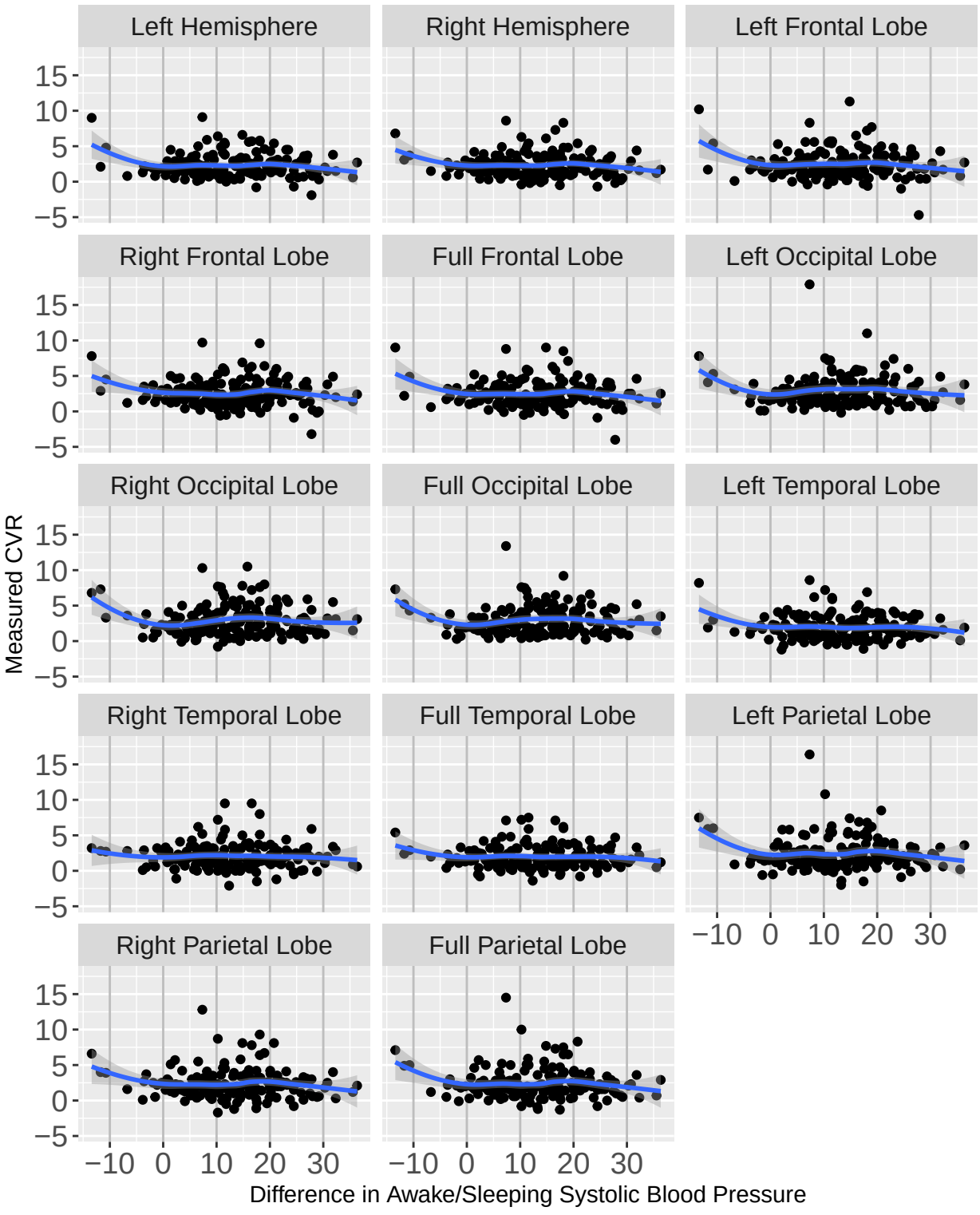
Missingness

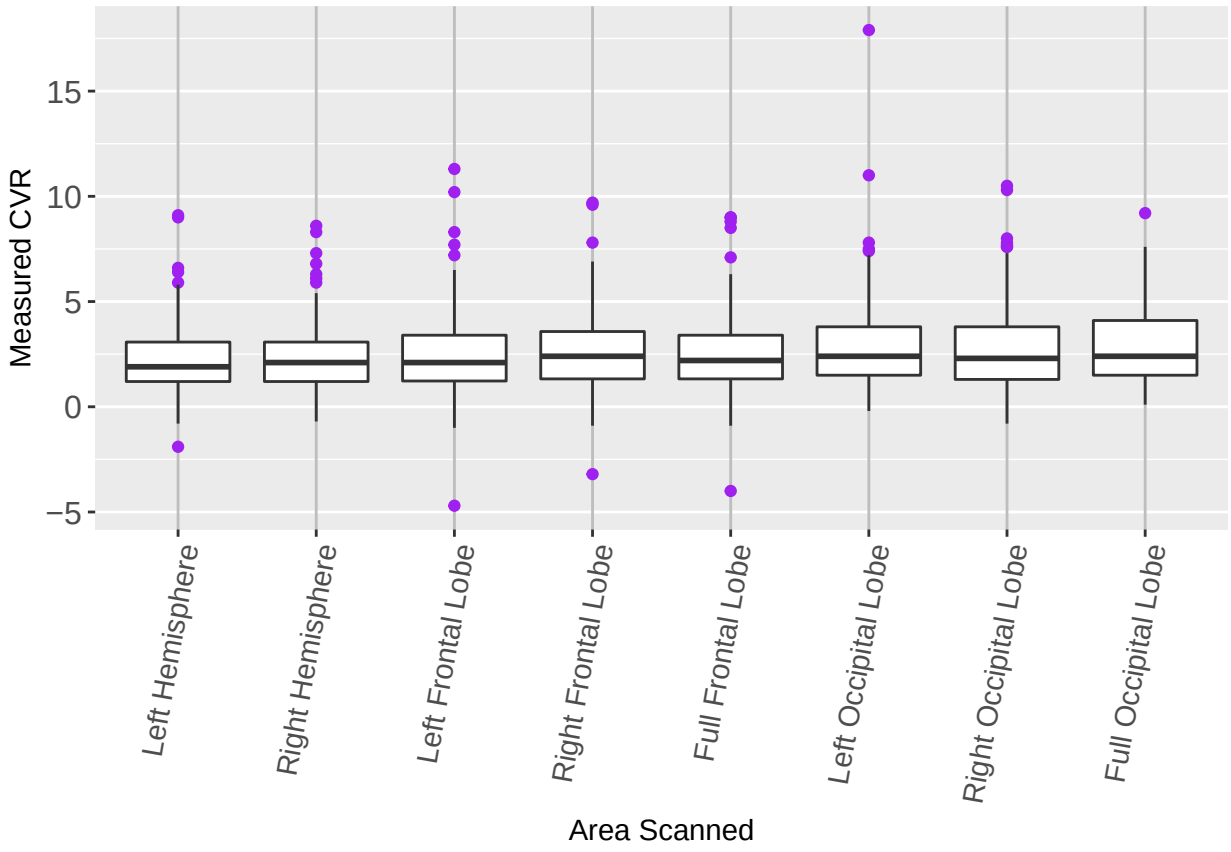
Table 2: Missingness (N=174)

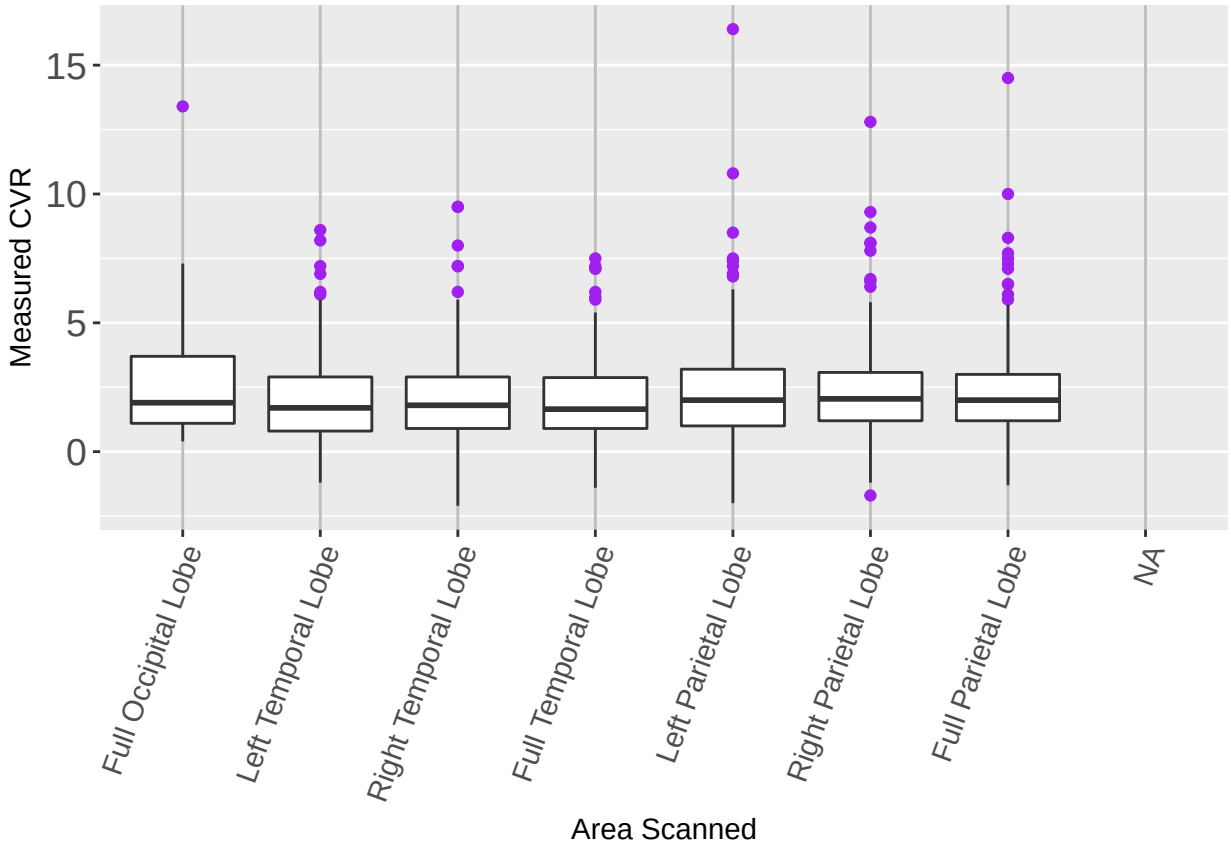
Variable	Missingness
Consensus Decision for Diagnosis	0 (0%)
Sex	0 (0%)
Two-level race/ethnicity	0 (0%)
ApoE4+ (at least one E4 allele)	0 (0%)
Consensus Decision for Diagnosis	0 (0%)
Taking at least 1 anti-hypertensive med	0 (0%)
Diabetic, determined by a1c, glucose, and/or rx	0 (0%)
Current smoker (or quit in this or last calendar yr)	0 (0%)
CVD, determined from variables in med hx	0 (0%)
A-fib, determined by med hx and/or echo and/or cmr rhythm	0 (0%)
LV hypertrophy, determined by sex and scaled LV mass	1 (0.57%)
Age at medhx.date, recalculated	0 (0%)
Education (years)	0 (0%)
ICV (calculated)	0 (0%)
systolic.post.wake.1 minus systolic.pre.wake.1	23 (13.22%)
systolic.post.wake.mean minus systolic.pre.wake.mean	27 (15.52%)
Diff. in mean SBP, wake - sleep, self-reported periods	15 (8.62%)


Left Hemisphere
Right Hemisphere
Left Frontal Lobe
Right Frontal Lobe
Full Frontal Lobe
Left Occipital Lobe
Right Occipital Lobe
Full Occipital Lobe
Left Temporal Lobe
Right Temporal Lobe
Full Temporal Lobe
Left Parietal Lobe
Right Parietal Lobe
Full Parietal Lobe
Measured CVR
15
10
5
0
−5
−25
0
25
50
Systolic Rising Surge Blood Pressure


Left Hemisphere
Right Hemisphere
Left Frontal Lobe
Right Frontal Lobe
Full Frontal Lobe
Left Occipital Lobe
Right Occipital Lobe
Full Occipital Lobe
Left Temporal Lobe
Right Temporal Lobe
Full Temporal Lobe
Left Parietal Lobe
Right Parietal Lobe
Full Parietal Lobe
Measured CVR
15
10
5
0
−5
−20
0
20
40
Systolic Prewaking Surge Blood Pressure


Left Hemisphere
Right Hemisphere
Left Frontal Lobe
Right Frontal Lobe
Full Frontal Lobe
Left Occipital Lobe
Right Occipital Lobe
Full Occipital Lobe
Left Temporal Lobe
Right Temporal Lobe
Full Temporal Lobe
Left Parietal Lobe
Right Parietal Lobe
Full Parietal Lobe
Measured CVR
15
10
5
0
−5
−10
0
10
20
30
Difference in Awake/Sleeping Systolic Blood Pressure


Measured CVR
15
10
5
0
−5
Left Hemisphere
Right Hemisphere
Left Frontal Lobe
Right Frontal Lobe
Full Frontal Lobe
Left Occipital Lobe
Right Occipital Lobe
Full Occipital Lobe
Area Scanned


Measured CVR
15
10
5
0
Full Occipital Lobe
Left Temporal Lobe
Right Temporal Lobe
Full Temporal Lobe
Left Parietal Lobe
Right Parietal Lobe
Full Parietal Lobe
NA
Area Scanned

```
toPredict <- c("systolic.rising.surge", "systolic.prewaking.surge",
               "noc.sys.diff")
levels(crvdata$enrolled.dx) <- c("Normal","MCI", "Ambiguous At Risk", "Ambiguous At Risk")
impute <- aregImpute(~ systolic.rising.surge + systolic.prewaking.surge + noc.sys.diff +
                       enrolled.dx + sex + raceethnicity + apoe4pos + enrolled.dx + education +
                       htnrx + icv + left.hemisphere + right.hemisphere, data = crvdata,
                     match = "closest")
```

```
## Iteration 1
Iteration 2
Iteration 3
Iteration 4
Iteration 5
Iteration 6
Iteration 7
Iteration 8
```

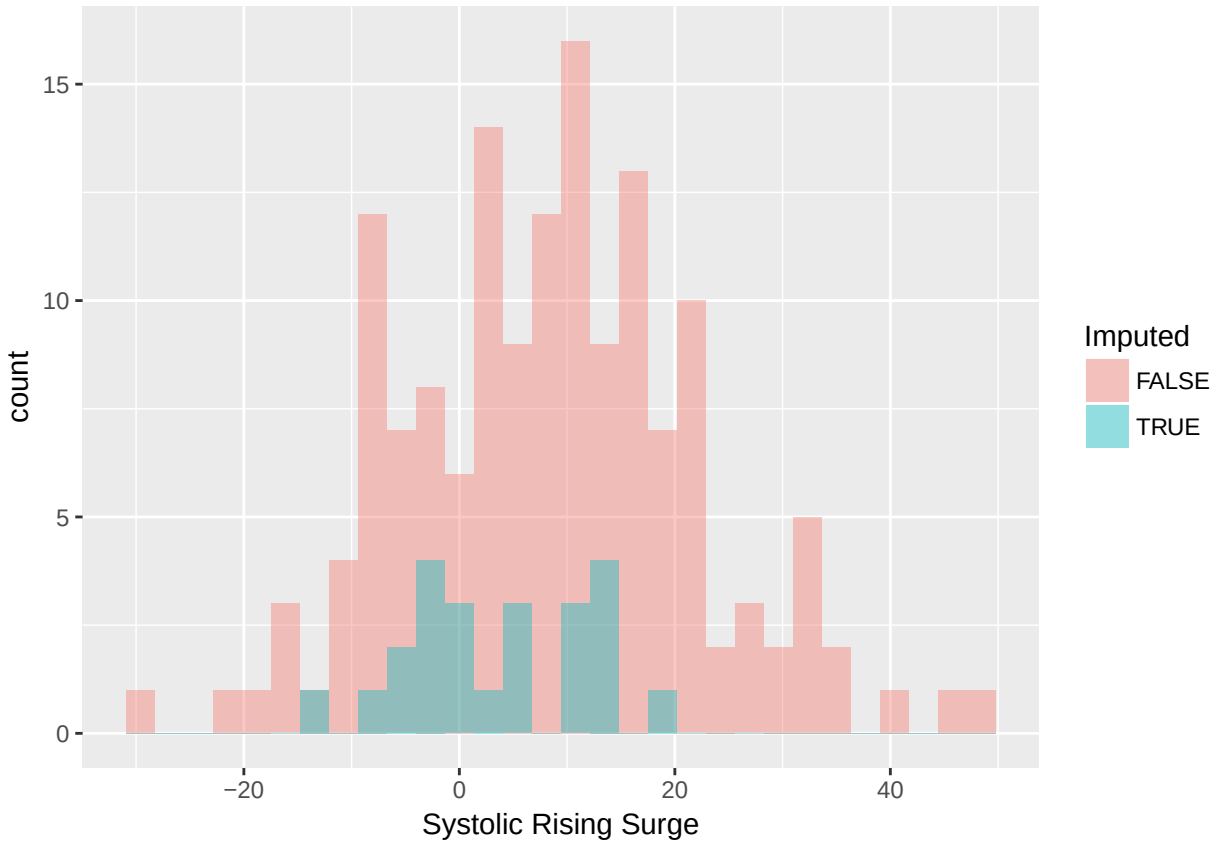
```
crvdata$sys.rising.impute <- crvdata$systolic.rising.surge
crvdata$sys.prewaking.impute <- crvdata$systolic.prewaking.surge
crvdata$noc.diff.impute <- crvdata$noc.sys.diff

crvdata$noc.diff.impute[is.na(crvdata$noc.diff.impute)] <- rowMeans(impute$imputed$noc.sys.diff[,])
crvdata$sys.rising.impute[is.na(crvdata$sys.rising.impute)] <- rowMeans(impute$imputed$systolic.rising.s
crvdata$sys.prewaking.impute[is.na(crvdata$sys.prewaking.impute)] <- rowMeans(impute$imputed$systolic.pr

ggplot(crvdata, aes(x=sys.rising.impute, fill = is.na(systolic.rising.surge))) +
  geom_histogram(alpha=0.4, position="identity") +
  xlab("Systolic Rising Surge") + scale_fill_discrete(name = "Imputed")
```

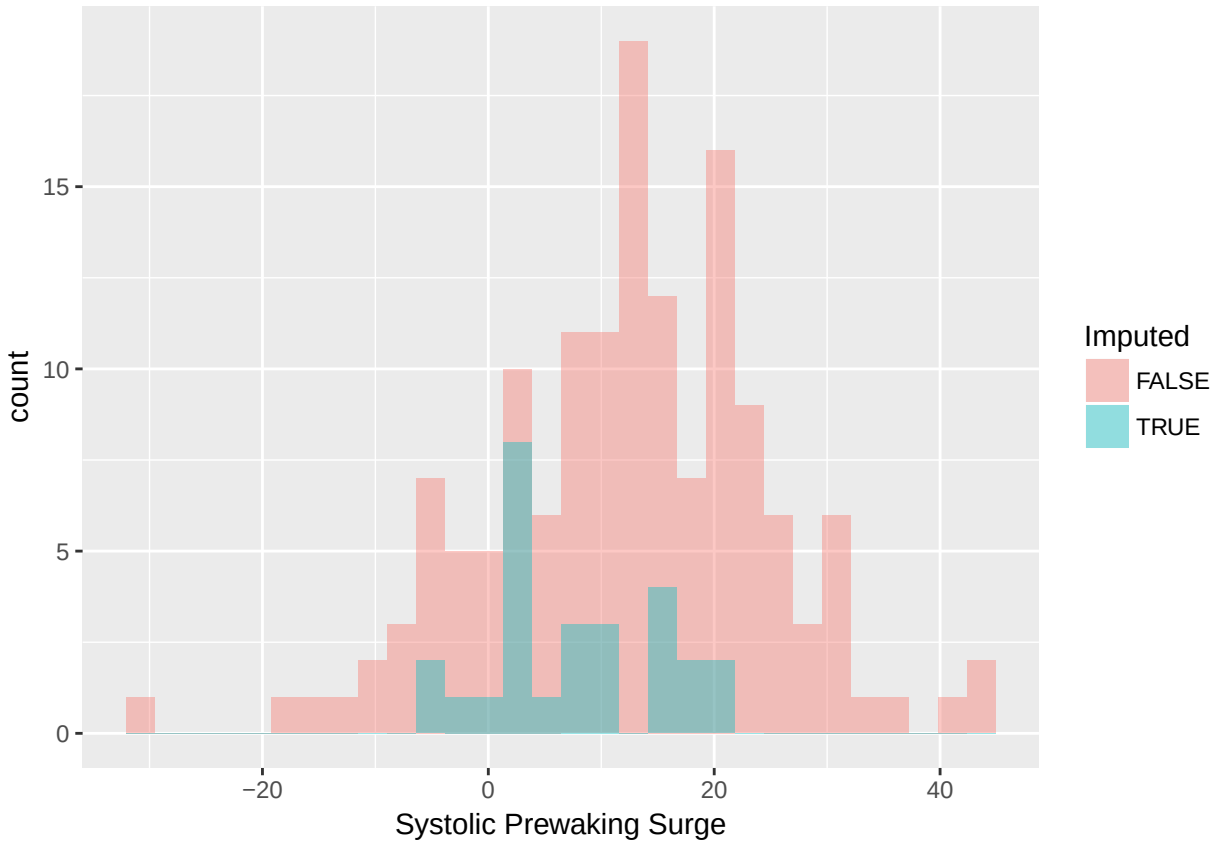
```
## Don't know how to automatically pick scale for object of type labelled/integer. Defaulting to continu
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



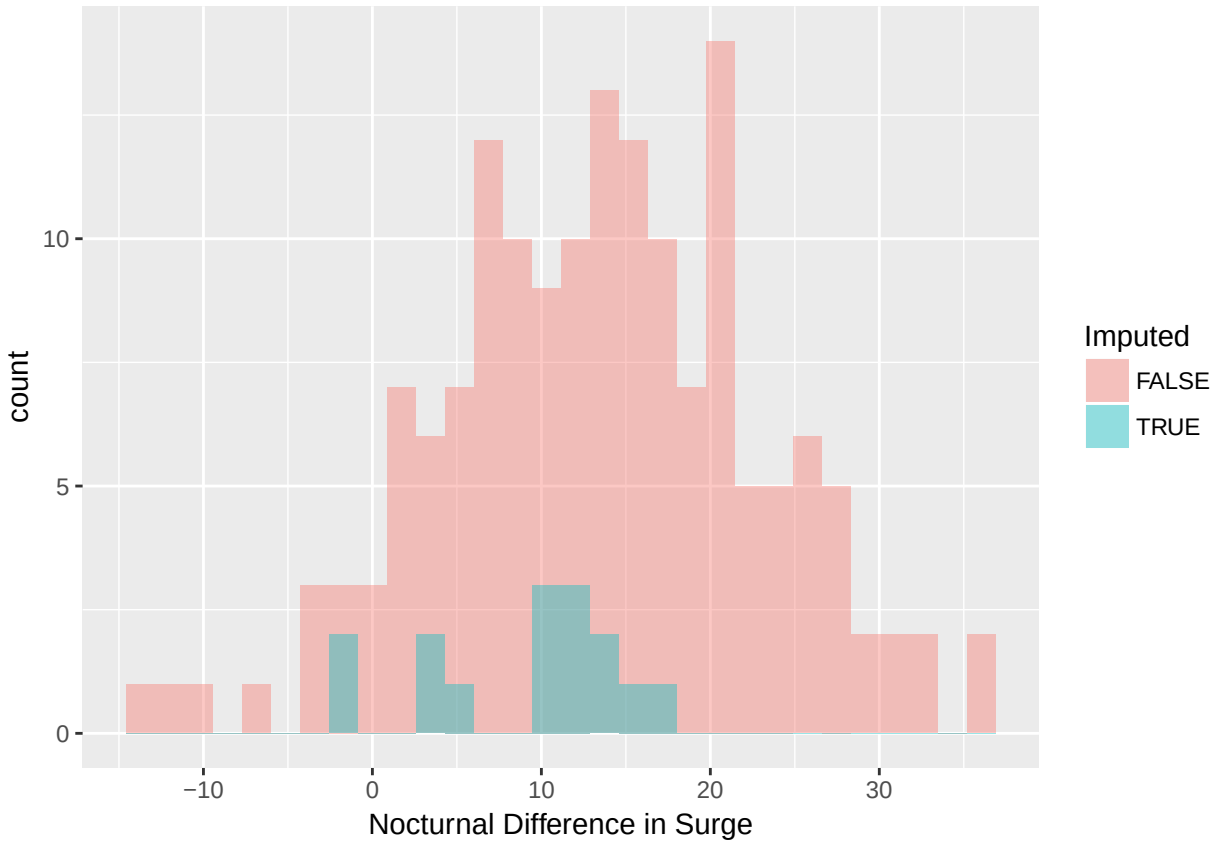

```
ggplot(crvdata, aes(x=sys.prewaking.impute, fill = is.na(systolic.prewaking.surge))) +
  geom_histogram(alpha=0.4, position="identity") +
  xlab("Systolic Prewaking Surge") + scale_fill_discrete(name = "Imputed")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
ggplot(crvdata, aes(x=noc.diff.impute, fill = is.na(noc.sys.diff))) +
  geom_histogram(alpha=0.4, position="identity") +
  xlab("Nocturnal Difference in Surge") + scale_fill_discrete(name = "Imputed")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```


count
10
5
0
−10
0
10
20
30
Nocturnal Difference in Surge
Imputed
FALSE
TRUE