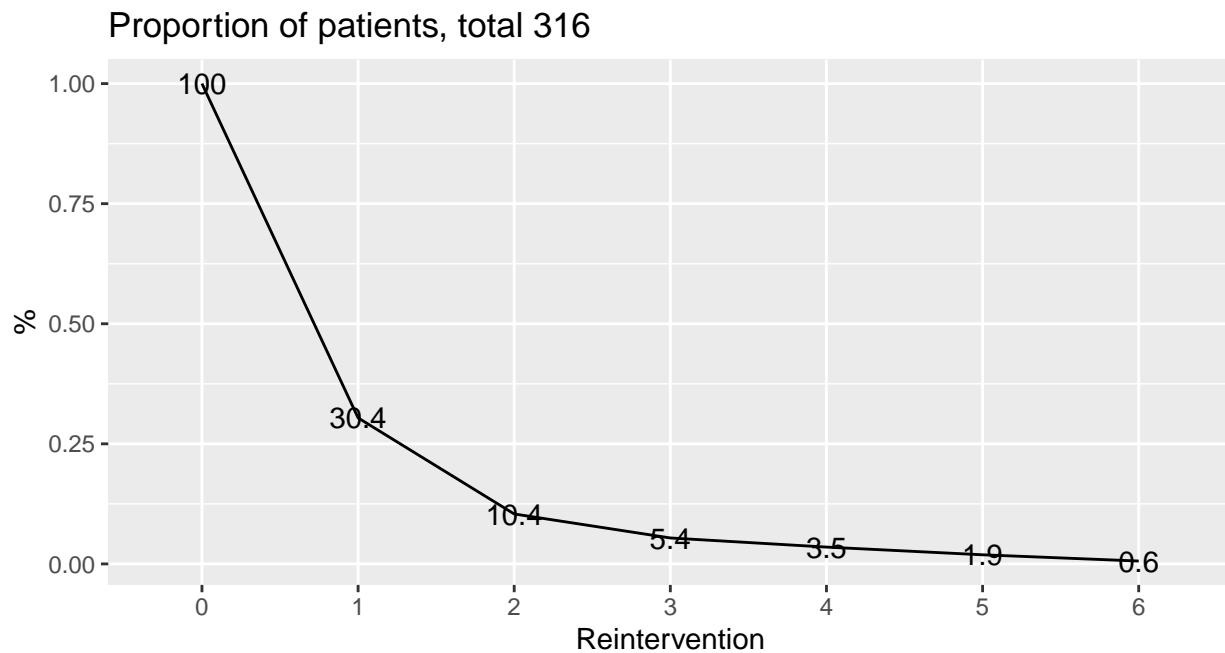# Reinterventions exploration

The analysis follows with 2Y FU. Number of patients 316

Proportion of reinterventions

```
first_reintervention = time_evolution[as.character(reintervention) == '1'][, .N, .(year_first_reinterven
first_reintervention
```

```
##     year_first_reintervention  N
## 1:                          0 45
## 2:                          1 16
## 3:                          4  9
## 4:                          5  5
## 5:                          6  3
## 6:                          3  7
## 7:                          7  2
## 8:                          2  9
```

```
##     reintervention   N proportion
## 1:               0 316      1.000
## 2:               1  96      0.304
## 3:               2  33      0.104
## 4:               3  17      0.054
## 5:               4  11      0.035
## 6:               5   6      0.019
## 7:               6   2      0.006
```

Proportion of patients, total 316

Patients with 2y FU, reinterventions

Notes: - reintervention means that at least has that number of reinterventions

all reinterventions

```
##    reintervention   N prop
## 1:              0 316 65.7
## 2:              1  96 20.0
## 3:              2  33  6.9
## 4:              3  17  3.5
## 5:              4  11  2.3
## 6:              5   6  1.2
## 7:              6   2  0.4
```

reinterventions before 2Y

```
##    reintervention   N prop
## 1:              0 316 78.6
## 2:              1  61 15.2
## 3:              2  16  4.0
## 4:              3   7  1.7
## 5:              4   2  0.5
```

reinterventions before 5Y

```
##    reintervention   N prop
## 1:              0 316 69.3
## 2:              1  86 18.9
```

```
## 3:                    2 30  6.6
## 4:                    3 14  3.1
## 5:                    4  6  1.3
## 6:                    5  3  0.7
## 7:                    6  1  0.2
```

Patients with 5y FU, reinterventions

all reinterventions

```
##     reintervention   N prop
## 1:               0 240 64.0
## 2:               1  79 21.1
## 3:               2  26  6.9
## 4:               3  13  3.5
## 5:               4  10  2.7
## 6:               5   5  1.3
## 7:               6   2  0.5
```

reinterventions before 5y

```
##     reintervention   N prop
## 1:               0 240 68.2
## 2:               1  70 19.9
## 3:               2  24  6.8
## 4:               3  10  2.8
## 5:               4   5  1.4
## 6:               5   2  0.6
## 7:               6   1  0.3
```
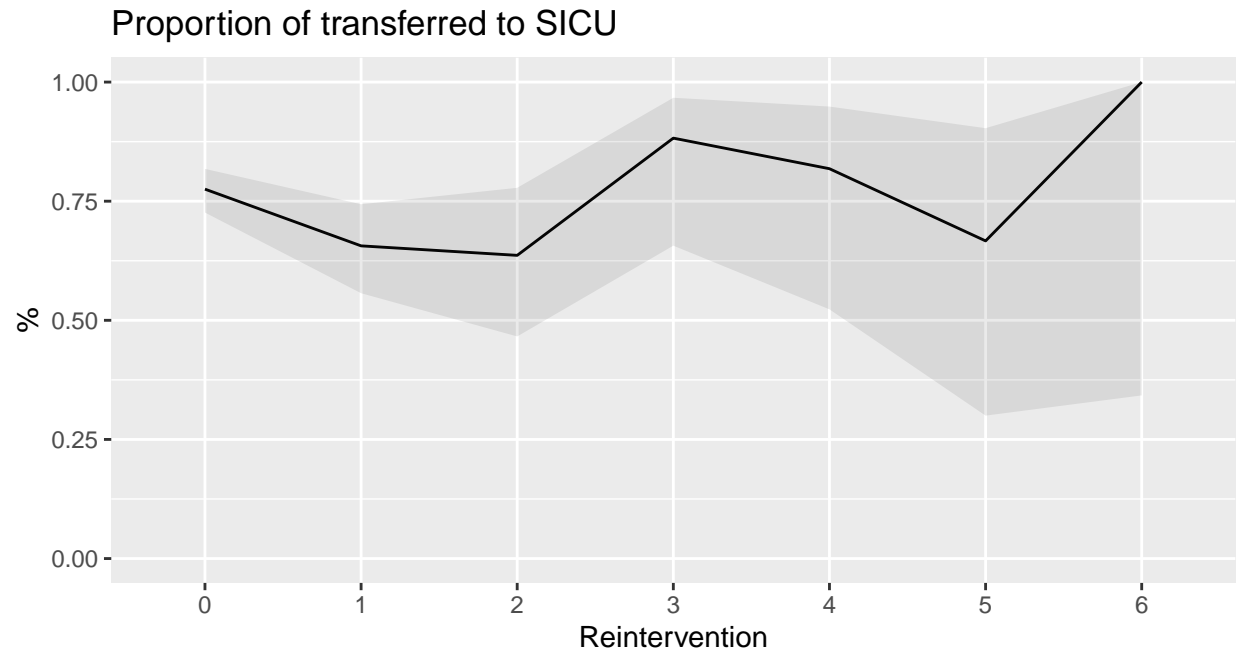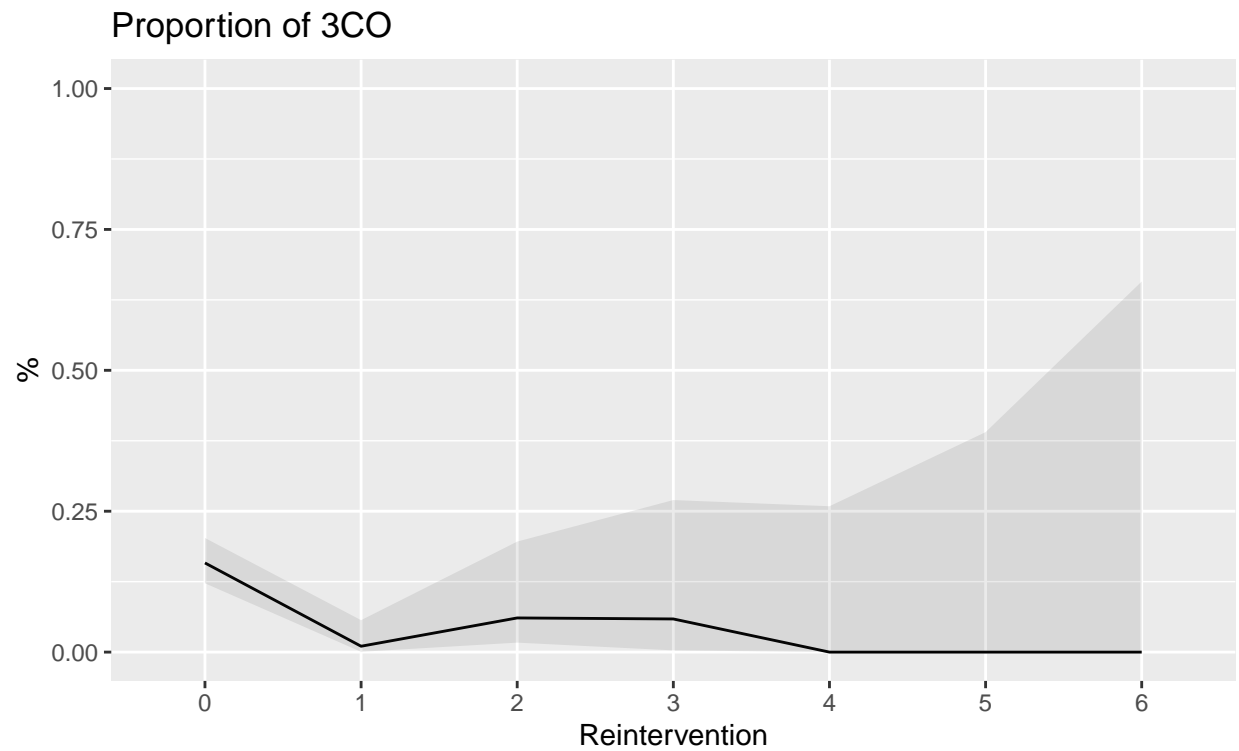
The analysis follows with 2Y FU

Proportion of SICU transfers

```
##     reintervention  prop   N    sd
## 1:               0 0.775 316 0.023
## 2:               1 0.656  96 0.048
## 3:               2 0.636  33 0.084
## 4:               3 0.882  17 0.078
## 5:               4 0.818  11 0.116
## 6:               5 0.667   6 0.192
## 7:               6 1.000   2 0.000
```

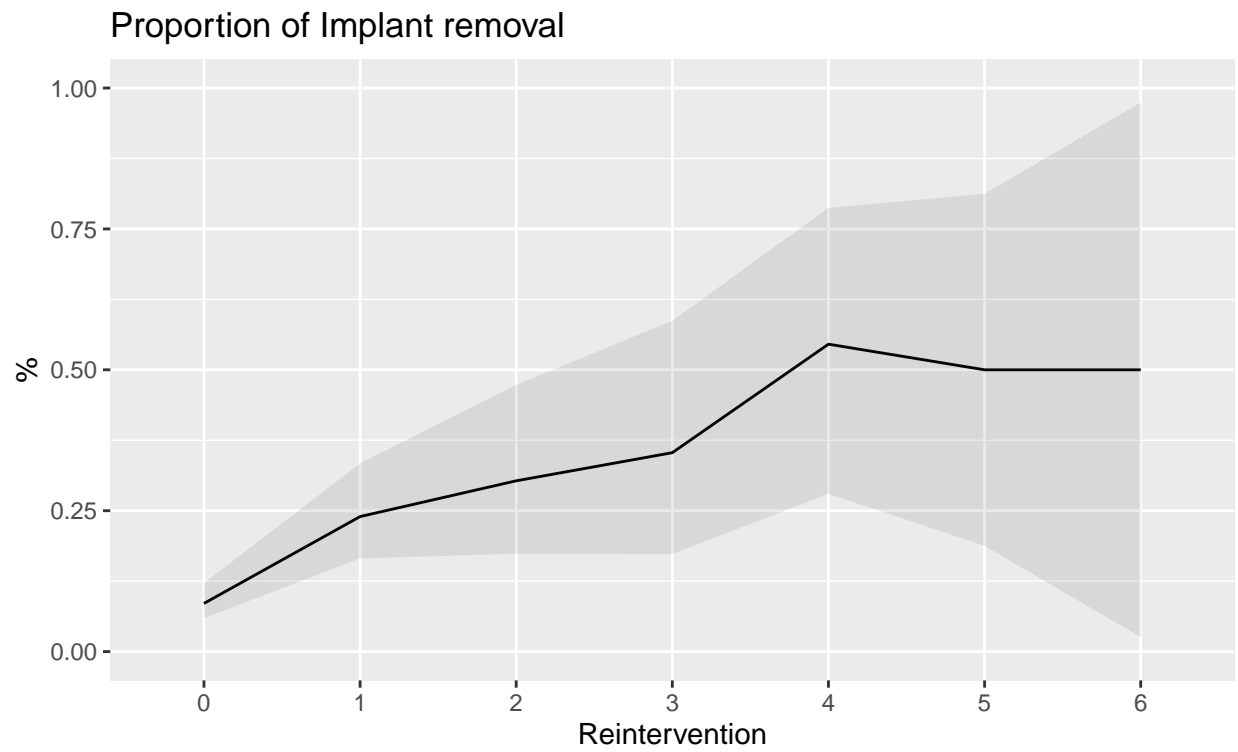## Proportion of transferred to SICU


```
##               Estimate Std. Error    t value      Pr(>|t|)
## (Intercept)    0.75860485 0.02356547 32.191368 6.772330e-120
## reintervention -0.03040114 0.02594984 -1.171535  2.419904e-01
```
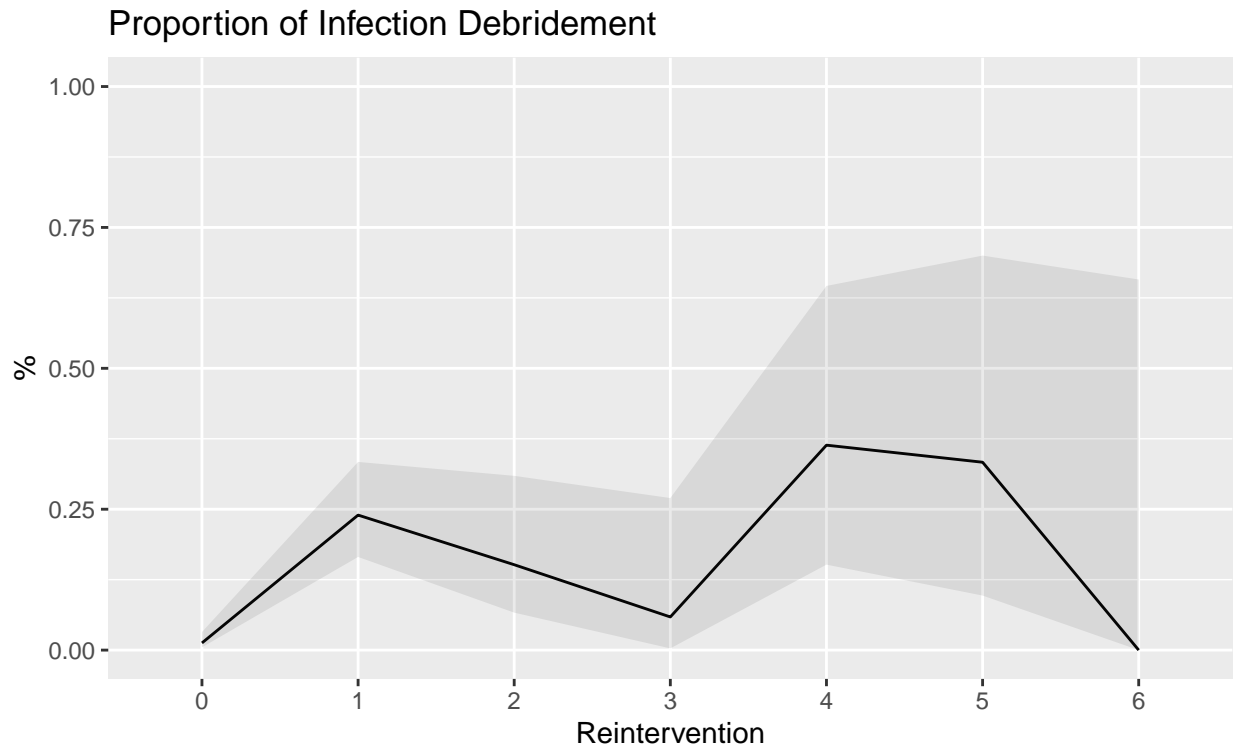
Evolution of surgeries
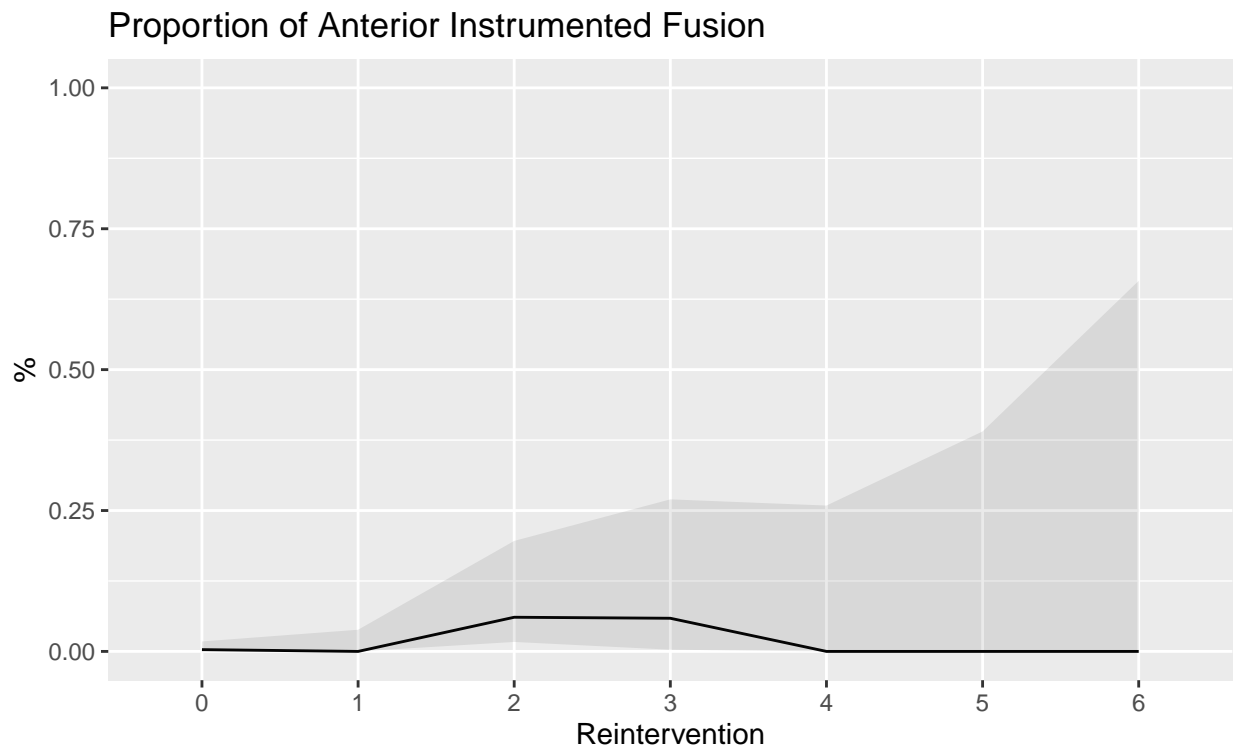
Proportion of 3CO

```
                 Estimate Std. Error    t value       Pr(>|t|)
(Intercept)     0.14442837 0.01720220   8.395926 5.766478e-16
reintervention -0.05974604 0.01894272  -3.154037 1.715731e-03
```

Proportion of Implant removal

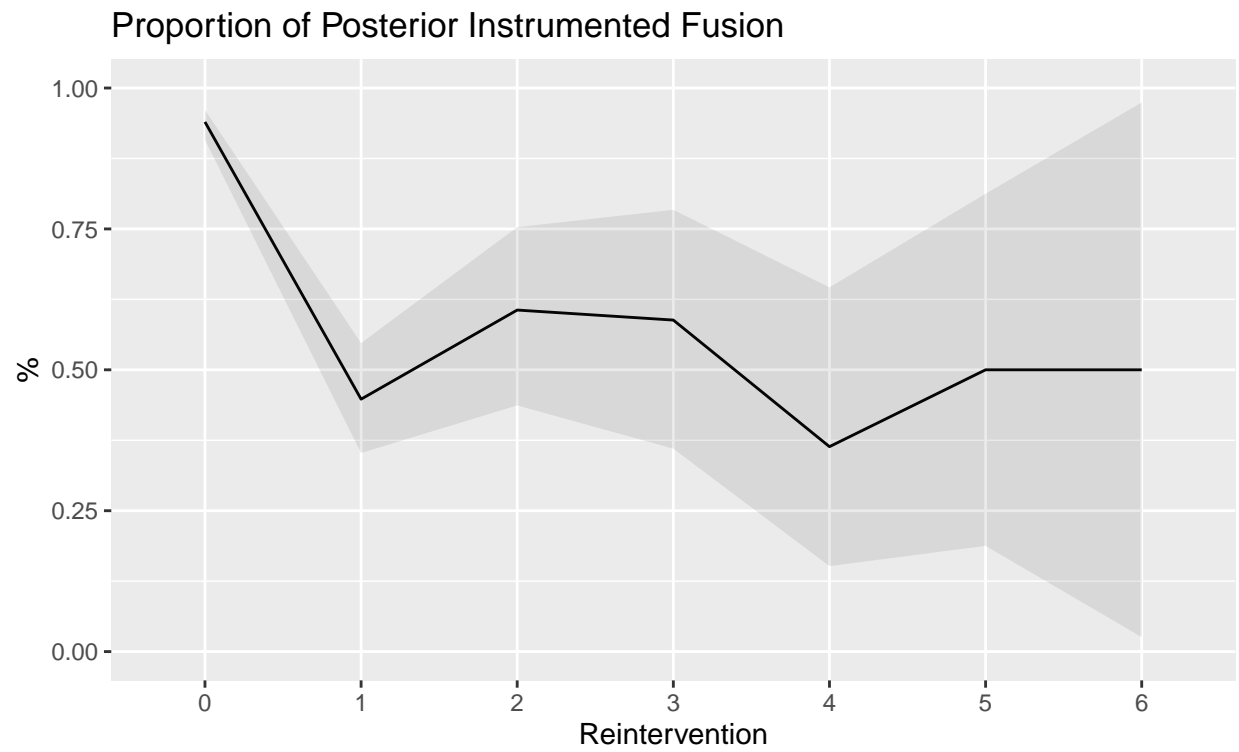
```
                 Estimate Std. Error   t value       Pr(>|t|)
(Intercept)     0.09301738 0.01837601  5.061892 6.014443e-07
reintervention  0.10810314 0.02023530  5.342304 1.446294e-07
```
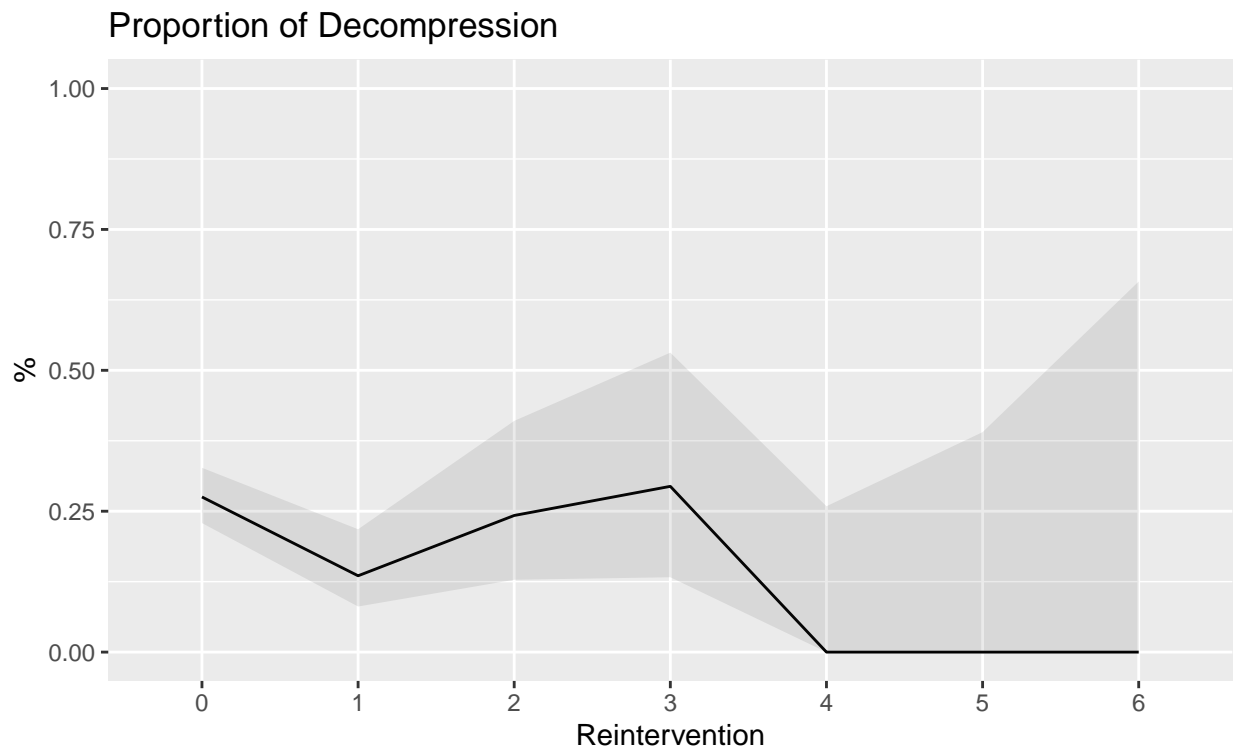
Proportion of Infection Debridement

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.03754219	0.01358573	2.763354	5.950532e-03
reintervention	0.07350003	0.01496034	4.912991	1.249093e-06

Proportion of Anterior Instrumented Fusion
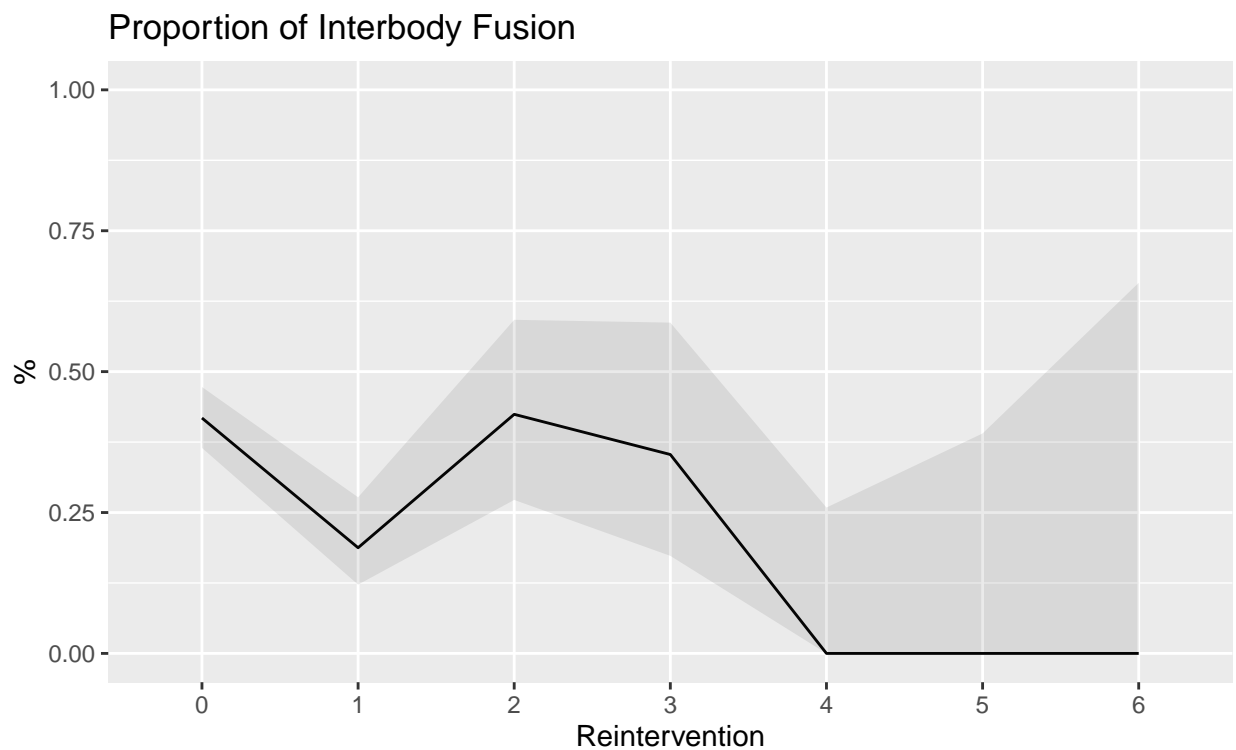
```
                  Estimate  Std. Error    t value    Pr(>|t|)
(Intercept)     0.0002525774 0.004954002 0.05098453 0.95935998
reintervention  0.0182314987 0.005455250 3.34200963 0.00089958
```

Proportion of Posterior Instrumented Fusion


```
                 Estimate Std. Error    t value       Pr(>|t|)
(Intercept)     0.8947441 0.01981796  45.148139 3.874080e-171
reintervention -0.2036233 0.02182315  -9.330611  4.475134e-19
```

Proportion of Decompression


```
               Estimate Std. Error    t value      Pr(>|t|)
(Intercept)    0.2577897 0.02323080 11.096892 1.625333e-25
reintervention -0.0286331 0.02558131 -1.119298 2.635973e-01
```

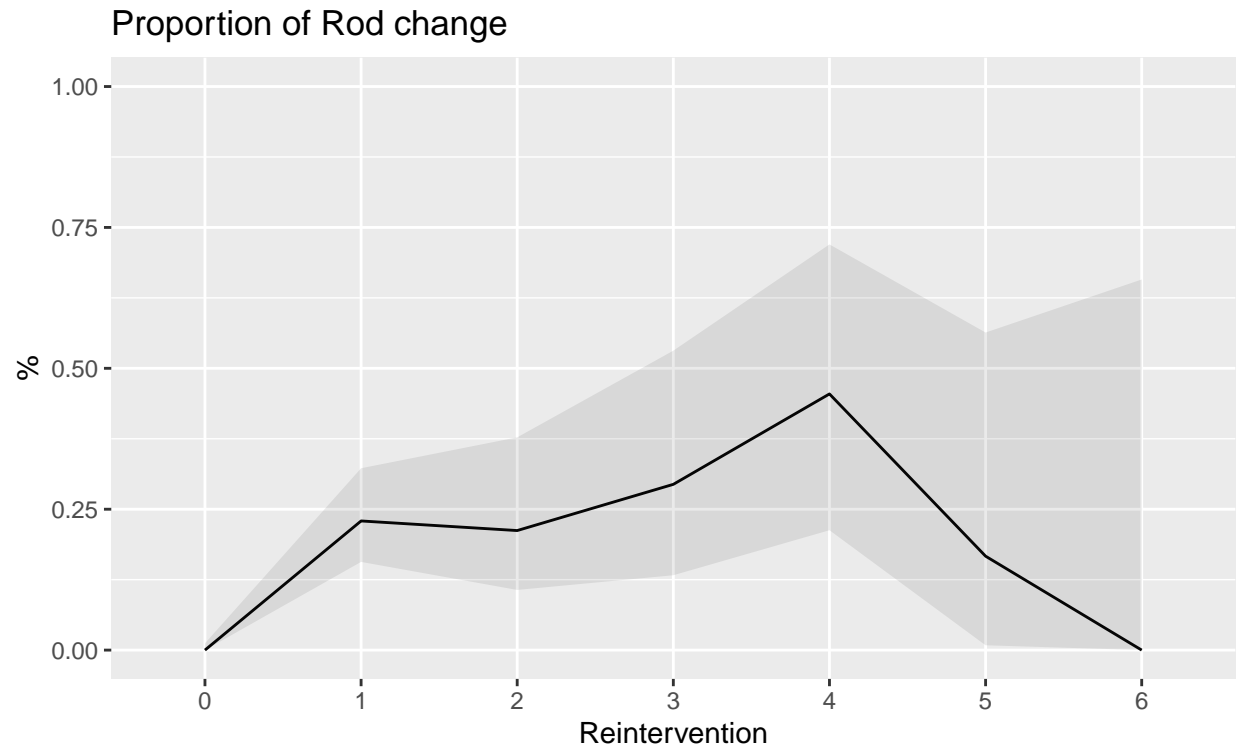## Proportion of Interbody Fusion
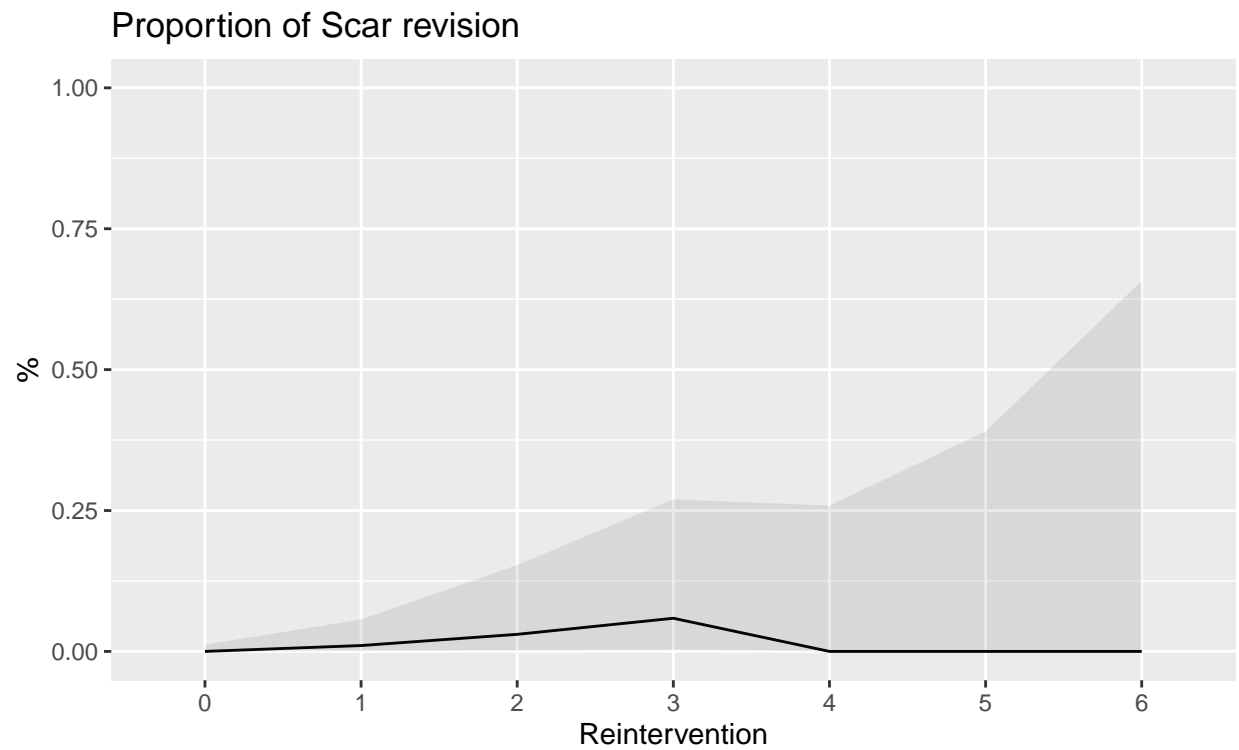
```
                Estimate Std. Error    t value       Pr(>|t|)
(Intercept)     0.39140318 0.02600978 15.048309 6.656922e-42
reintervention -0.05083695 0.02864146 -1.774943 7.656858e-02
```

Proportion of Osteotomy


```
                Estimate Std. Error    t value       Pr(>|t|)
(Intercept)     0.4283943 0.02481717 17.262011 7.674182e-52
reintervention -0.1686299 0.02732818 -6.170548 1.493920e-09
```

Proportion of Rod change


```
               Estimate Std. Error  t value      Pr(>|t|)
(Intercept)    0.01600422 0.01310363 1.221359 2.225759e-01
reintervention 0.12491102 0.01442946 8.656669 8.242488e-17
```

Proportion of Scar revision

```
                 Estimate  Std. Error    t value      Pr(>|t|)
(Intercept)    -0.001033271 0.004291487 -0.2407723 0.8098388625
reintervention  0.016325687 0.004725702  3.4546586 0.0006020275
```
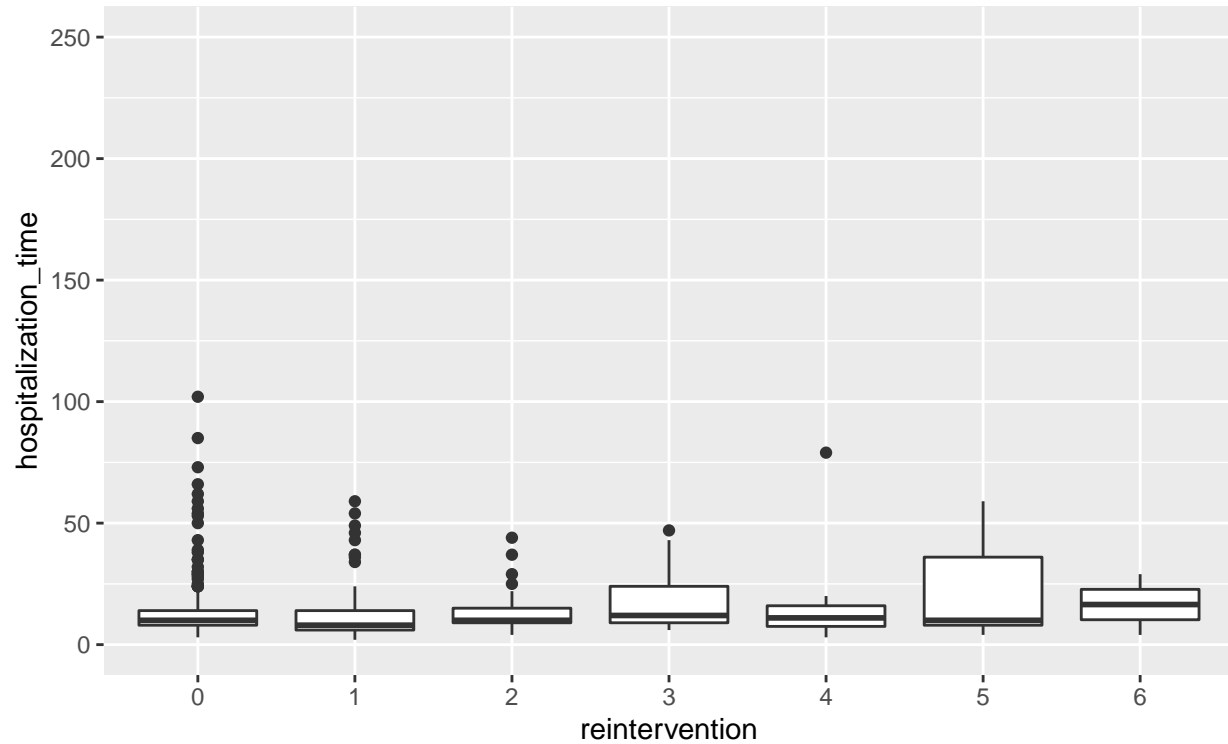
Hospitalization Time

Basic stats hospitalization time

```
     type    index       ur
1: Mean 13.22785 14.05488
2:   Sd 11.48437 12.57822
```

t-test mean comparison p-values index vs ur

```
[1] 0.4822906
```



```
##    reintervention 0%    25%   50%    75% 100%
## 1:              0  3  8.00  10.0 14.00  102
## 2:              1  2  6.00   8.0 14.00   59
## 3:              2  4  9.00  10.0 15.00   44
## 4:              3  6  9.00  12.0 24.00   47
## 5:              4  3  7.50  11.0 16.00   79
## 6:              5  4  8.00  10.0 36.00   59
## 7:              6  4 10.25  16.5 22.75   29
```

```
##                 Estimate Std. Error    t value     Pr(>|t|)
```

```
## (Intercept)     12.9811256  0.6146343 21.120080 1.027286e-69
## reintervention  0.6982159  0.6768233  1.031607 3.027982e-01
```

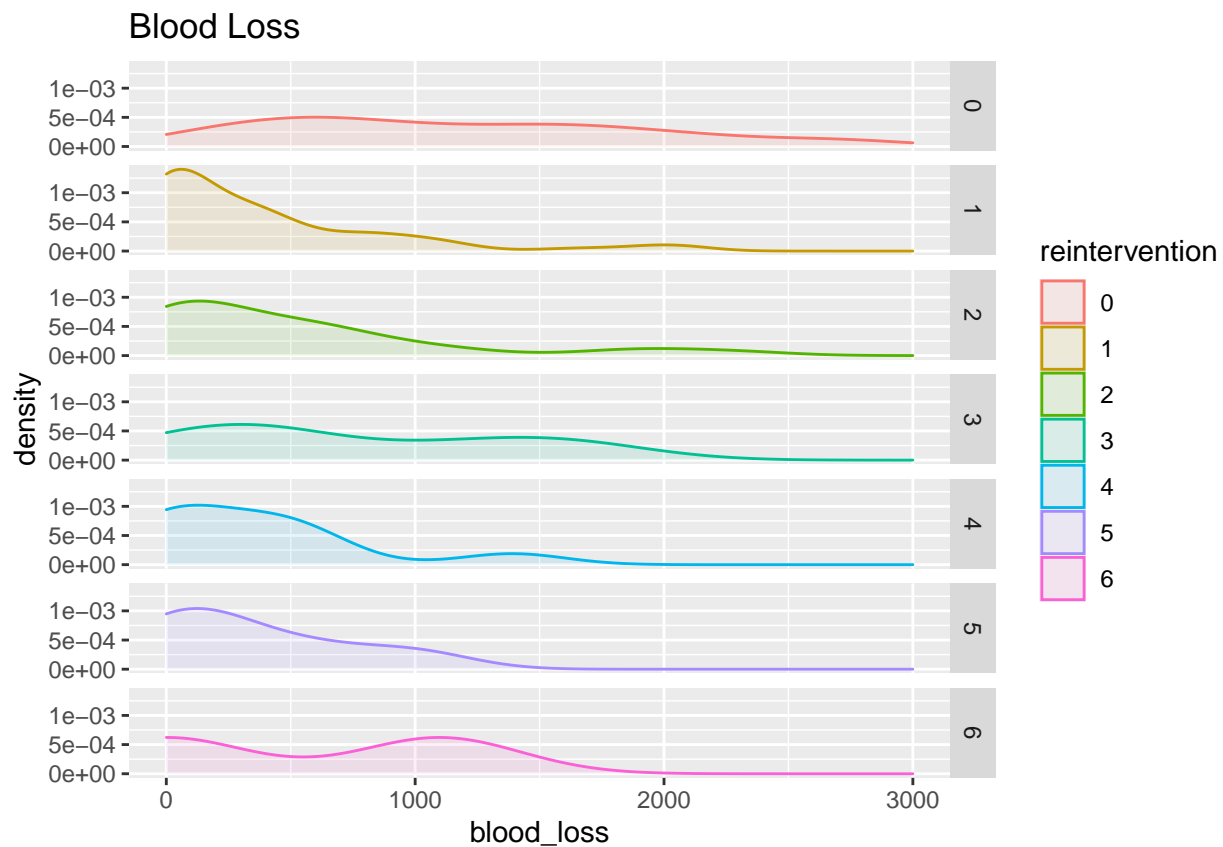Note: linear model only up to 3 reinterventions (included)

Blood Loss

Basic stats blood loss

```
    type    index         ur
1: Mean 1555.871 475.1569
2:   Sd 1339.169 624.7945
```

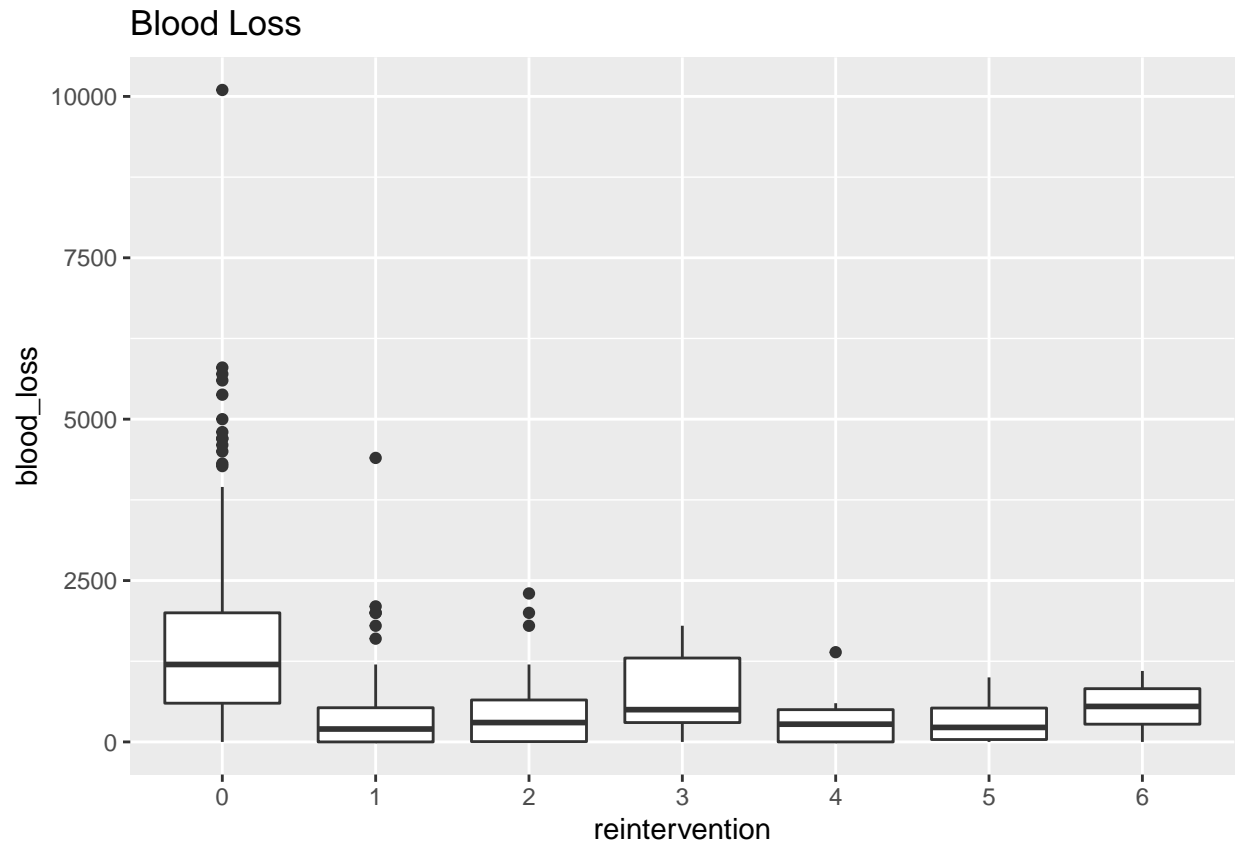**t-test mean comparison p-values index vs ur**

```
[1] 3.09048e-23
```

Warning: Removed 123 rows containing non-finite values (stat_density).


```
              Estimate Std. Error    t value      Pr(>|t|)
(Intercept)    1432.4807   73.27728 19.548769 8.735783e-59
reintervention -493.1295   73.67881 -6.692963 8.230533e-11
```

```
Warning: Removed 95 rows containing non-finite values (stat_boxplot).
```
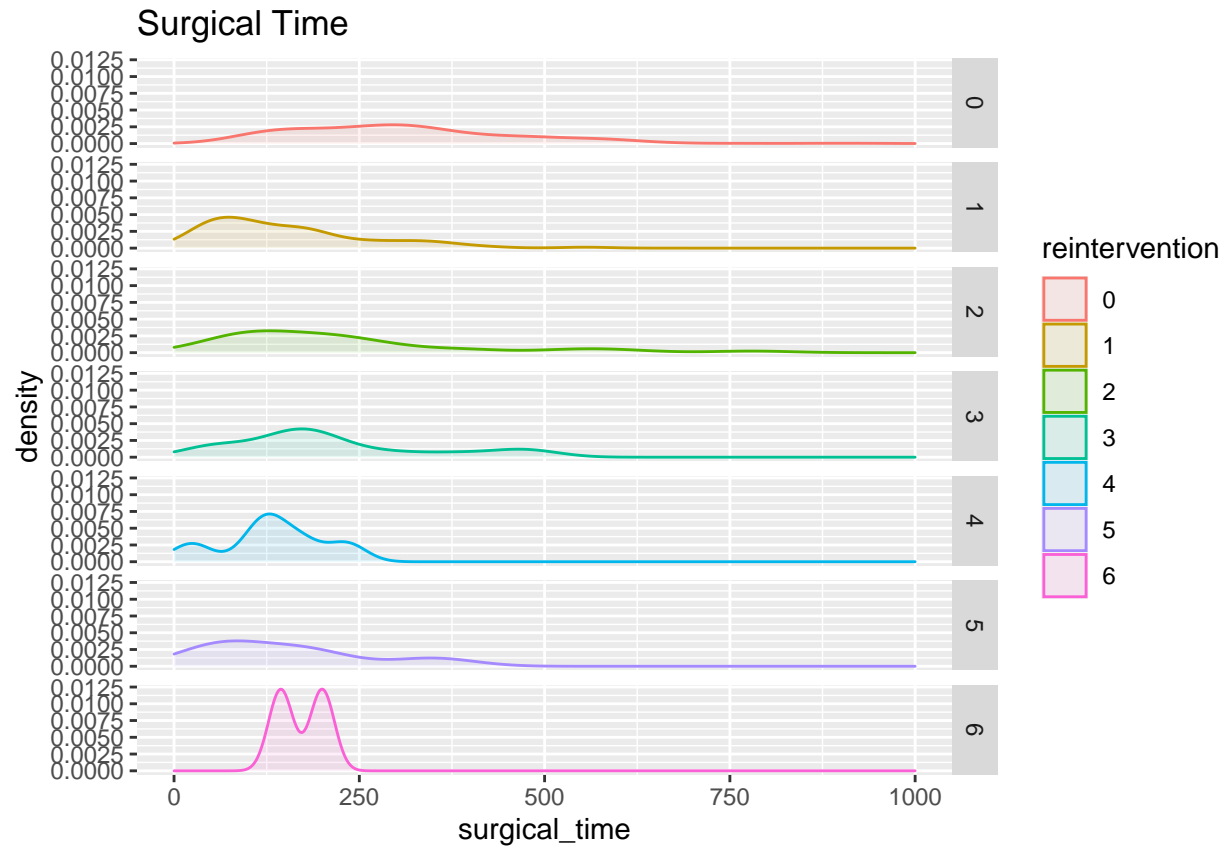
Blood Loss

Surgical Time

Basic stats surgical time

```
    type    index         ur
1: Mean 312.3079 173.7419
2:   Sd 162.0614 128.6802
```
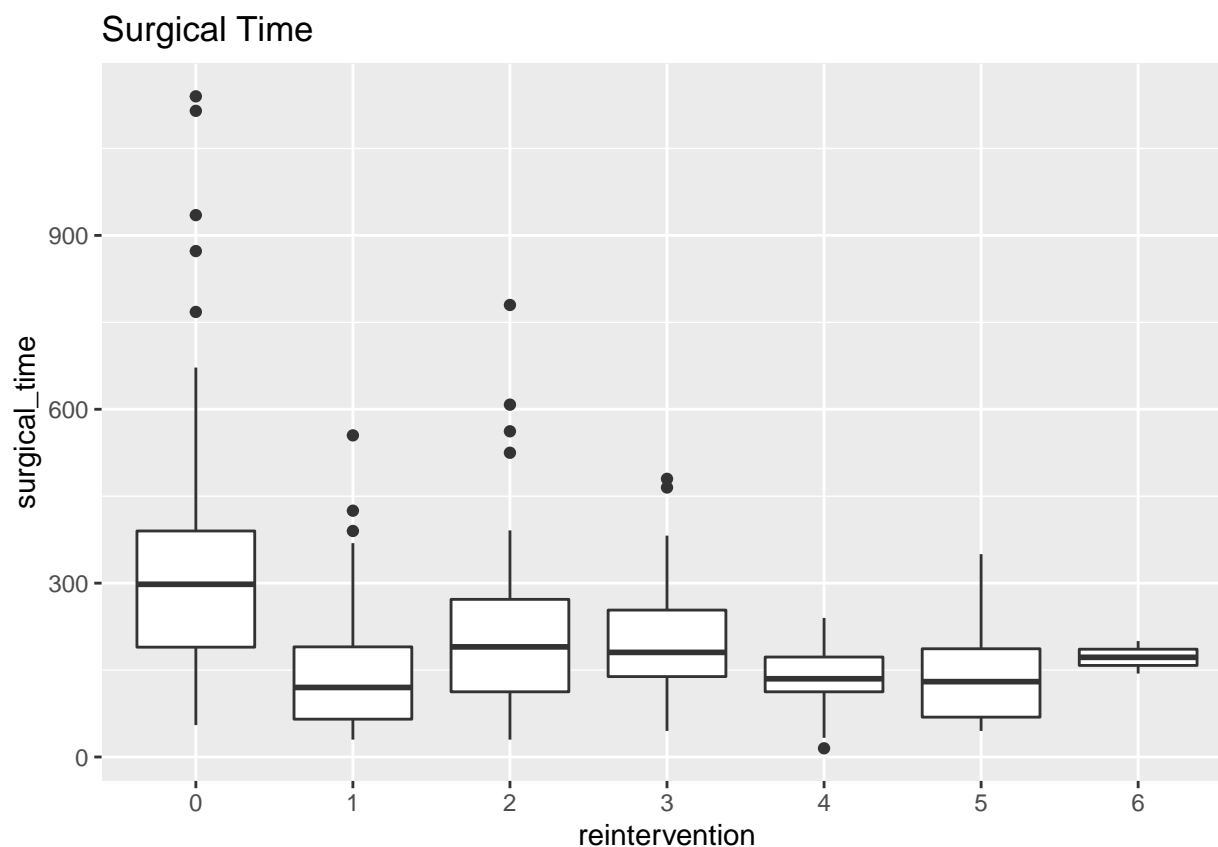
t-test mean comparison p-values index vs ur

```
[1] 3.3953e-21
```

```
Warning: Removed 13 rows containing non-finite values (stat_density).
```

Surgical Time

```
               Estimate Std. Error    t value       Pr(>|t|)
(Intercept)    297.93887    8.654935 34.424161 4.986917e-128
reintervention -58.95215    9.687257 -6.085536  2.490690e-09
```

Warning: Removed 11 rows containing non-finite values (stat_boxplot).

Surgical Time

Note: linear model only up to 3 reinterventions (included)

Anterior Instrumented Fusion

```
Warning in prop.test(c(sum(val_index), sum(val_ur)), c(len(val_index),
len(val_ur))): Chi-squared approximation may be incorrect
```

```
   type       index          ur       pval
1: Mean 0.003164557 0.01818182 0.2329155
```

Posterior Instrumented Fusion

```
   type     index        ur       pval
1: Mean 0.9398734 0.4909091 1.69115e-29
```

Interbody Fusion

```
   type     index       ur       pval
1: Mean 0.4177215 0.230303 6.848991e-05
```

Decompression

```
    type     index        ur        pval
1: Mean 0.2753165 0.1575758 0.005465884
```

Osteotomy

```
    type     index        ur         pval
1: Mean 0.4556962 0.1090909 4.923243e-14
```

Implant removal

```
    type      index        ur         pval
1: Mean 0.08544304 0.2969697 3.499262e-09
```

Infection debridement

```
    type      index        ur         pval
1: Mean 0.01265823 0.2121212 1.068264e-13
```