Impact of Reinterventions solution

Controling Variables

```
cat(controlling_vars %>% as.yaml())
```

```
- Age
- Gender
- Site
- Prior Spine Surgery
- ASA classification
- 3CO
- Pelvic Fixation
- Number of Posterior Instrumented Levels
- SPOs
- BMI_First Visit
- Osteoporosis / osteopenia
- LGap
- Global Tilt
- ideal LL
- Lordosis (top of L1-S1)
- RLL
- ODI - Score (%)_First Visit
- SRS22 - SRS Total score_First Visit
- SF36 - PCS_First Visit
- SF36 - MCS_First Visit
- Major curve Cobb angle
```

Definition of final_status

```
get_surgery_status <- function(status){
  final_status <- 'Resolved without sequelae'
  if( 'Not resolved' %in% status){
    final_status <- 'Not resolved or with sequelae'
  }else if('Resolved with sequelae' %in% status){
    final_status <- 'Not resolved or with sequelae'
  }
  final_status
}
```

Impact of final status and number of reinterventions associated to a surgery in 5Y HRQL Gain (odi neg / others pos)

```
index_dates <- clinical_data[, .(`Code of the patient`, `st1. Date of Stage 1`)]

complications_0 %>%
  merge(index_dates,  by='Code of the patient') %>%
  .[, diff_years:=difftime(`Date of Reoperation`, `st1. Date of Stage 1`, units = "days")/365] %>%
  .[diff_years < y_] %>%
  .[`Code of the patient` %in% valid_patients] %>%
  .[`Reoperation Due to Complication` == 'Yes'] %>%
  .[!is.na(`Date of Reoperation`)] %>%
  .[, .(
    final_status = get_surgery_status(`Status of the complication`),
    reinterventions = `Date of Reoperation` %>% uniqueN),
    .(`Complication associated to surgery`, `Code of the patient` )] ->
  complicated_surgeries

complicated_surgeries_n <- complicated_surgeries[, `Complication associated to surgery`] %>% uniqueN
index_surgeries <- complicated_surgeries[, `Code of the patient` %>% uniqueN]
```

- Surgeries that followed with complications before 5y with valid patients: 96
- Index surgeries that followed with complications before 5y with valid patients: 73
- Valid patients: 258

```
                  final_status  N
1:      Resolved without sequelae 89
2: Not resolved or with sequelae  7
```

Patients with final status 'unsolved' or 'with sequelae' in any re-intervention 6

5Y. ODI - Score (%) Gain (odi neg / others pos)

	Estimate	Pr(>|t|)
(Intercept)	21.35874	0.29897
Age	-0.18472	0.09184
GenderMale	-4.79718	0.12126
SiteBOR Op	4.42970	0.26086
SiteIST Op	-5.96152	0.31798
SiteMAD Op	4.28100	0.29034
SiteZUR Op	0.98490	0.81511
'Prior Spine Surgery'Yes	-0.11328	0.96746
'ASA classification'	1.24214	0.60490
'3CO'Yes	-4.44351	0.22890
'Pelvic Fixation'Yes	2.29677	0.48972
'Number of Posterior Instrumented Levels'	-0.40622	0.23701
SPOs	-0.67432	0.38930
'BMI_First Visit'	0.32663	0.26957
'Osteoporosis / osteopenia'Yes	1.48059	0.64331
LGap	-0.15685	0.11537
'Global Tilt'	0.31959	0.02547

```
'ideal LL'                                     -0.06774  0.73213
'ODI - Score (%)_First Visit'                  -0.49879  0.00009
'SRS22 - SRS Total score_First Visit'          -3.36986  0.40645
'SF36 - PCS_First Visit'                         0.04780  0.83080
'SF36 - MCS_First Visit'                        -0.08765  0.54621
'Major curve Cobb angle'                        -0.01379  0.83968
'Not resolved or with sequelae'                  9.06272  0.06755
'Resolved without sequelae'                      4.11937  0.00469


                          Variable Estimate Pr(>|t|)      2.5 %     97.5 %
1 'Not resolved or with sequelae'  9.06272  0.06755 -0.6612699 18.786707
2     'Resolved without sequelae'  4.11937  0.00469  1.2811932  6.957553
  Relative Impact np_p-value
1      -0.967820      0.2971
2      -0.439913      0.0087


5Y. SRS22 - SRS Subtotal score Gain (odi neg / others pos)


                                               Estimate Pr(>|t|)
(Intercept)                                     3.00479  0.00097
Age                                             0.00520  0.27962
GenderMale                                      0.13756  0.31132
SiteBOR Op                                      0.07057  0.68109
SiteIST Op                                      0.46228  0.07737
SiteMAD Op                                     -0.21113  0.23058
SiteZUR Op                                     -0.15199  0.41175
'Prior Spine Surgery'Yes                        0.13350  0.26919
'ASA classification'                           -0.09546  0.36301
'3CO'Yes                                       -0.08235  0.60936
'Pelvic Fixation'Yes                           -0.01331  0.92737
'Number of Posterior Instrumented Levels'  0.00938  0.53128
SPOs                                            0.03510  0.30698
'BMI_First Visit'                              -0.02356  0.06825
'Osteoporosis / osteopenia'Yes                 -0.01943  0.88981
LGap                                           -0.00079  0.85547
'Global Tilt'                                  -0.00803  0.19872
'ideal LL'                                     -0.00170  0.84494
'ODI - Score (%)_First Visit'                  -0.00747  0.17405
'SRS22 - SRS Total score_First Visit'          -0.65467  0.00027
'SF36 - PCS_First Visit'                         0.00139  0.88604
'SF36 - MCS_First Visit'                         0.00949  0.13545
'Major curve Cobb angle'                        -0.00004  0.98959
'Not resolved or with sequelae'                 -0.50954  0.00668
'Resolved without sequelae'                     -0.14097  0.02663


                          Variable Estimate Pr(>|t|)       2.5 %        97.5 %
1 'Not resolved or with sequelae' -0.50954  0.00668 -0.8759088 -0.14317451
2     'Resolved without sequelae' -0.14097  0.02663 -0.2654051 -0.01652714
  Relative Impact np_p-value
1      -0.8235584      0.0611
2      -0.2278467      0.0143


5Y. SF36 - MCS Gain (odi neg / others pos)
```

```
                                             Estimate Pr(>|t|)
(Intercept)                                  17.76914  0.18383
Age                                           0.01187  0.86512
GenderMale                                   -1.48144  0.44922
SiteBOR Op                                    1.16955  0.64360
SiteIST Op                                    4.81414  0.21879
SiteMAD Op                                   -1.04095  0.68860
SiteZUR Op                                   -2.96357  0.27478
'Prior Spine Surgery'Yes                      0.74361  0.67028
'ASA classification'                          0.59752  0.69764
'3CO'Yes                                     -0.09986  0.96592
'Pelvic Fixation'Yes                         -2.88941  0.17526
'Number of Posterior Instrumented Levels'     0.33240  0.12612
SPOs                                          0.26765  0.59011
'BMI_First Visit'                            -0.02657  0.88783
'Osteoporosis / osteopenia'Yes               -0.59379  0.77165
LGap                                          0.01286  0.83663
'Global Tilt'                                -0.05771  0.51910
'ideal LL'                                    0.06844  0.59028
'ODI - Score (%)_First Visit'                 0.01205  0.87834
'SRS22 - SRS Total score_First Visit'         4.92665  0.05554
'SF36 - PCS_First Visit'                     -0.08763  0.53411
'SF36 - MCS_First Visit'                     -0.65050  0.00000
'Major curve Cobb angle'                     -0.04175  0.33753
'Not resolved or with sequelae'              -3.94828  0.13973
'Resolved without sequelae'                  -2.19259  0.01708


                          Variable Estimate Pr(>|t|)     2.5 %      97.5 %
1 'Not resolved or with sequelae' -3.94828  0.13973 -9.200984  1.3044255
2     'Resolved without sequelae' -2.19259  0.01708 -3.989565 -0.3956078
  Relative Impact np_p-value
1     -1.0604864     0.1012
2     -0.5889177     0.0318


5Y. SF36 - PCS Gain (odi neg / others pos)


                                             Estimate Pr(>|t|)
(Intercept)                                  42.81519  0.00026
Age                                           0.02961  0.62425
GenderMale                                    0.99455  0.55593
SiteBOR Op                                    0.62099  0.77613
SiteIST Op                                    3.47033  0.30352
SiteMAD Op                                   -1.59769  0.47568
SiteZUR Op                                    1.15835  0.62068
'Prior Spine Surgery'Yes                      0.72586  0.63016
'ASA classification'                         -1.98116  0.13779
'3CO'Yes                                      1.42904  0.47828
'Pelvic Fixation'Yes                         -0.73835  0.68715
'Number of Posterior Instrumented Levels'    -0.01809  0.92302
SPOs                                          0.14753  0.73078
'BMI_First Visit'                            -0.20418  0.20950
'Osteoporosis / osteopenia'Yes                1.46353  0.41139
LGap                                          0.01412  0.79272
```

```
'Global Tilt'                          -0.06734  0.38273
'ideal LL'                             -0.00789  0.94266
'ODI - Score (%)_First Visit'          -0.14139  0.03863
'SRS22 - SRS Total score_First Visit'  -0.06183  0.97770
'SF36 - PCS_First Visit'               -0.68349  0.00000
'SF36 - MCS_First Visit'                0.05817  0.46253
'Major curve Cobb angle'               -0.03027  0.42062
'Not resolved or with sequelae'        -4.06482  0.07798
'Resolved without sequelae'            -1.25350  0.11179


                    Variable Estimate Pr(>|t|)     2.5 %     97.5 %
1 'Not resolved or with sequelae' -4.06482  0.07798 -8.589852 0.4602199
2     'Resolved without sequelae' -1.25350  0.11179 -2.801451 0.2944421
  Relative Impact np_p-value
1      -0.7852552     0.0066
2      -0.2421552     0.1481
```