Simulated examples for the survival ensemble methods

Select data type

Hnscc ▾

Time point for event prediction:

4

Random seed for calibration and validation

43

K_Outer loop CV (for validation)

5

K_ inner CV folds (model tuning)

3

Simulated data: random seed (generation):

4242

Sample size:

150

Observation time

5

Expected event prevalence by study end

0.5

Expected drop out rate

0.3

Custom data: path to data file

~/Desktop/Study_KCL/PhD P

Predictors to use in the model

"baseline_age_", "genderdun

Time variable name

time

Event indicator variable name

event

Sample statistics	CoxPH	SRF	Ens1: CoxPH->SRF	Ens2: CoxPH in clusters

Ens3: extended CoxPH	Summary	Conclusions

Internally cross-validated results:

Show 10 entries   Search: [   ]

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test	0.7118	0.1069	-0.005	0.7102	0.6989	-0.0011	4
train	0.9469	0.0692	0.3717	0.9253	2.9368	-0.0006	4

Showing 1 to 2 of 2 entries   Previous | 1 | Next

Internally cross-validated Test results for each CV fold:

Show 10 entries   Search: [   ]

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test.1	0.5905	0.1088	-0.3367	0.5902	0.2476	-0.0631	4
test.2	0.7549	0.129	0.1259	0.7666	0.9167	0.0574	4
test.3	0.6799	0.0882	-0.048	0.6677	0.6552	-0.0412	4
test.4	0.6632	0.1386	0.0061	0.6623	0.4145	0.0576	4
test.5	0.8705	0.0701	0.2277	0.8641	1.2606	-0.0162	4

Showing 1 to 5 of 5 entries   Previous | 1 | Next

```
$test
  T    AUCROC          BS   BS_scaled   C_score
1 4 0.5905166 0.10877451 -0.33667366 0.5902367
2 4 0.7548643 0.12900165  0.12586280 0.7666406
3 4 0.6799292 0.08823248 -0.04799256 0.6676558
4 4 0.6631751 0.13862847  0.00609599 0.6623058
5 4 0.8704792 0.07007665  0.22772943 0.8640646
  Calib_slope Calib_alpha test cv_n
1   0.2475892 -0.06308874    1    1
2   0.9166935  0.05742628    1    2
3   0.6552252 -0.04118887    1    3
4   0.4144596  0.05760361    1    4
5   1.2605953 -0.01623409    1    5


$train
  T    AUCROC          BS BS_scaled   C_score Calib_slope
1 4 0.9660783 0.06460099 0.4480782 0.9423697    3.216513
2 4 0.9483360 0.06648426 0.3352217 0.9232035    3.137923
3 4 0.9227046 0.07939590 0.3218427 0.9067214    2.447274
4 4 0.9396541 0.06755440 0.3424735 0.9213343    2.625905
5 4 0.9578064 0.06773626 0.4109068 0.9330769    3.256377
    Calib_alpha test cv_n
1  3.778974e-04    0    1
2 -3.303157e-04    0    2
3  2.997809e-04    0    3
4 -7.725002e-05    0    4
5 -3.290216e-03    0    5


$testaverage
          T        AUCROC            BS     BS_scaled
 4.000000000   0.711792884   0.106942754  -0.004995600
     C_score  Calib_slope   Calib_alpha          test
 0.710180689   0.698912573  -0.001096362   1.000000000


$trainaverage
           T         AUCROC             BS      BS_scaled
 4.0000000000   0.9469158677   0.0691543600   0.3717045699
      C_score    Calib_slope    Calib_alpha           test
 0.9253411470   2.9367984833  -0.0006040206   0.0000000000


$model_list
$model_list[[1]]
$model_list[[1]]$beststats
   mtry nodesize nodedepth time    AUCROC         BS
V1   11       20        50  3.3 0.8220357 0.08680423
   BS_scaled  C_score  Calib_alpha Calib_slope
V1 0.1250119 0.745782 -0.008807957   0.8694262


$model_list[[1]]$allstats
    mtry nodesize nodedepth time    AUCROC         BS
V1    10       15        50  3.3 0.8083523 0.08883880
V2    10       20        50  3.3 0.8123318 0.08729399
V3    10       25        50  3.3 0.8082856 0.08681142
V4    10       30        50  3.3 0.8096172 0.08663047
V5    10       35        50  3.3 0.8094069 0.08677113
```

```
V11    11        20          50   3.3 0.8220357 0.08680423
V21    22        20          50   3.3 0.8014444 0.08974442
V31    36        20          50   3.3 0.8122277 0.08939880
V41    54        20          50   3.3 0.8046262 0.08981925
V51    10        20          50   3.3 0.8123318 0.08729399
       BS_scaled   C_score  Calib_alpha Calib_slope
V1   0.10450340 0.7402528 -0.010261421   0.7754972
V2   0.12007514 0.7429384 -0.009483774   0.8409266
V3   0.12493945 0.7425592 -0.007675700   0.8580647
V4   0.12676339 0.7447709 -0.006789916   0.9005745
V5   0.12534558 0.7431912 -0.006029159   0.9402966
V11  0.12501190 0.7457820 -0.008807957   0.8694262
V21  0.09537473 0.7376935 -0.008590484   0.6870285
V31  0.09885857 0.7443918 -0.012429789   0.7018777
V41  0.09462043 0.7397156 -0.011901157   0.6197212
V51  0.12007514 0.7429384 -0.009483774   0.8409266
```

```
$model_list[[1]]$model
                            Sample size: 361
                       Number of deaths: 48
                        Number of trees: 500
               Forest terminal node size: 20
          Average no. of terminal nodes: 12.642
No. of variables tried at each split: 11
                  Total no. of variables: 108
          Resampling used to grow trees: swor
     Resample size used to grow trees: 228
                               Analysis: RSF
                                 Family: surv
                         Splitting rule: logrank *random*
          Number of random split points: 50
                             (OOB) CRPS: 0.05999152
    (OOB) Requested performance error: 0.2417388
```

```
$model_list[[1]]$vimp10
                    original_firstorder_Maximum
                                  0.020063148
          original_glrlm_LowGrayLevelRunEmphasis
                                  0.012454555
                      original_firstorder_Range
                                  0.011697771
             original_gldm_LowGrayLevelEmphasis
                                  0.009955530
             original_glszm_GrayLevelVariance
                                  0.009589150
             original_shape_Maximum3DDiameter
                                  0.008675532
          original_shape_Maximum2DDiameterColumn
                                  0.006707465
                      original_glcm_JointAverage
                                  0.006533272
     original_glrlm_ShortRunLowGrayLevelEmphasis
                                  0.006473195
original_gldm_LargeDependenceHighGrayLevelEmphasis
                                  0.004391876
```

```
        original_glszm_SmallAreaLowGrayLevelEmphasis
                             0.004087989
               original_glszm_SizeZoneNonUniformity
                             0.004085494
         original_glrlm_LongRunLowGrayLevelEmphasis
                             0.004037348
        original_glrlm_LongRunHighGrayLevelEmphasis
                             0.003898970
                       original_ngtdm_Complexity
                             0.003850995


$model_list[[1]]$model_base
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                                                      coef
original_firstorder_10Percentile                   5.900e+00
original_firstorder_90Percentile                   4.949e+00
original_firstorder_Energy                        -1.118e+01
original_firstorder_Entropy                       -4.575e+01
original_firstorder_InterquartileRange             2.820e+01
original_firstorder_Kurtosis                       4.147e-01
original_firstorder_Maximum                       -1.606e+00
original_firstorder_Mean                          -3.615e+01
original_firstorder_MeanAbsoluteDeviation          2.947e+01
original_firstorder_Median                         2.460e+01
original_firstorder_Minimum                        1.549e+01
original_firstorder_Range                          0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation   -3.551e+01
original_firstorder_RootMeanSquared               -5.487e+00
original_firstorder_Skewness                      -1.059e+00
original_firstorder_TotalEnergy                    0.000e+00
original_firstorder_Uniformity                    -2.321e+01
original_firstorder_Variance                       5.227e+02
original_glcm_Autocorrelation                     -2.789e+01
original_glcm_ClusterProminence                    1.751e+02
original_glcm_ClusterShade                         3.754e+01
original_glcm_ClusterTendency                      2.709e+00
original_glcm_Contrast                             4.003e+02
original_glcm_Correlation                         -3.557e+00
original_glcm_DifferenceAverage                    1.237e+02
original_glcm_DifferenceEntropy                    1.919e+01
original_glcm_DifferenceVariance                  -6.298e+02
original_glcm_Id                                   1.127e+03
original_glcm_Idm                                 -1.009e+03
original_glcm_Idmn                                -1.472e+01
original_glcm_Idn                                  1.349e+01
original_glcm_Imc1                                -1.363e+00
original_glcm_Imc2                                -5.296e+00
original_glcm_InverseVariance                      1.057e+02
original_glcm_JointAverage                         2.005e+00
original_glcm_JointEnergy                          8.888e+00
original_glcm_JointEntropy                        -1.898e+01
original_glcm_MCC                                  1.841e-01
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```
original_glcm_MaximumProbability                        6.502e+00
original_glcm_SumAverage                                0.000e+00
original_glcm_SumEntropy                                6.840e+00
original_glcm_SumSquares                                0.000e+00
original_gldm_DependenceEntropy                         1.102e+01
original_gldm_DependenceNonUniformity                   2.976e+00
original_gldm_DependenceNonUniformityNormalized         2.534e+00
original_gldm_DependenceVariance                       -5.650e+00
original_gldm_GrayLevelNonUniformity                   -1.194e+01
original_gldm_GrayLevelVariance                        -5.953e+02
original_gldm_HighGrayLevelEmphasis                    -2.024e+02
original_gldm_LargeDependenceEmphasis                  -6.959e+01
original_gldm_LargeDependenceHighGrayLevelEmphasis      3.262e+01
original_gldm_LargeDependenceLowGrayLevelEmphasis       2.998e+01
original_gldm_LowGrayLevelEmphasis                      3.422e+01
original_gldm_SmallDependenceEmphasis                   2.022e+01
original_gldm_SmallDependenceHighGrayLevelEmphasis     -2.166e+00
original_gldm_SmallDependenceLowGrayLevelEmphasis      -6.334e+00
original_glrlm_GrayLevelNonUniformity                   9.682e+00
original_glrlm_GrayLevelNonUniformityNormalized         2.834e+00
original_glrlm_GrayLevelVariance                        4.383e+01
original_glrlm_HighGrayLevelRunEmphasis                 1.324e+02
original_glrlm_LongRunEmphasis                          4.595e+00
original_glrlm_LongRunHighGrayLevelEmphasis            -2.081e+00
original_glrlm_LongRunLowGrayLevelEmphasis             -4.287e+00
original_glrlm_LowGrayLevelRunEmphasis                 -1.628e+02
original_glrlm_RunEntropy                               4.339e+01
original_glrlm_RunLengthNonUniformity                   8.819e+00
original_glrlm_RunLengthNonUniformityNormalized         3.858e+01
original_glrlm_RunPercentage                           -8.684e+01
original_glrlm_RunVariance                             -3.316e+00
original_glrlm_ShortRunEmphasis                        -4.608e+01
original_glrlm_ShortRunHighGrayLevelEmphasis            9.602e+01
original_glrlm_ShortRunLowGrayLevelEmphasis             1.222e+02
original_glszm_GrayLevelNonUniformity                  -1.559e+00
original_glszm_GrayLevelNonUniformityNormalized         4.500e+00
original_glszm_GrayLevelVariance                        2.580e+00
original_glszm_HighGrayLevelZoneEmphasis               -1.450e+01
original_glszm_LargeAreaEmphasis                       -1.214e+03
original_glszm_LargeAreaHighGrayLevelEmphasis          -6.876e-01
original_glszm_LargeAreaLowGrayLevelEmphasis            3.585e+00
original_glszm_LowGrayLevelZoneEmphasis                -1.232e+01
original_glszm_SizeZoneNonUniformity                    5.390e+00
original_glszm_SizeZoneNonUniformityNormalized         -1.828e+01
original_glszm_SmallAreaEmphasis                        1.501e+01
original_glszm_SmallAreaHighGrayLevelEmphasis           1.100e+01
original_glszm_SmallAreaLowGrayLevelEmphasis            6.324e+00
original_glszm_ZoneEntropy                              7.657e-01
original_glszm_ZonePercentage                          -3.354e+01
original_glszm_ZoneVariance                             1.215e+03
original_ngtdm_Busyness                                -1.236e+00
original_ngtdm_Coarseness                               1.501e+00
original_ngtdm_Complexity                               9.600e-01
original_ngtdm_Contrast                                -1.271e+01
original_ngtdm_Strength                                 4.916e-01
original_shape_Elongation                               3.230e+00
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original_shape_Flatness                              -3.087e+00
original_shape_LeastAxisLength                         5.996e+00
original_shape_MajorAxisLength                         3.788e+00
original_shape_Maximum2DDiameterColumn               -3.271e+00
original_shape_Maximum2DDiameterRow                  -9.269e-01
original_shape_Maximum2DDiameterSlice                -2.307e+00
original_shape_Maximum3DDiameter                      4.511e+00
original_shape_MeshVolume                             1.887e+02
original_shape_MinorAxisLength                       -3.470e+00
original_shape_Sphericity                             5.975e-01
original_shape_SurfaceArea                           -7.510e+00
original_shape_SurfaceVolumeRatio                     7.590e+01
original_shape_VoxelVolume                           -1.938e+02
                                                      exp(coef)
original_firstorder_10Percentile                      3.651e+02
original_firstorder_90Percentile                      1.410e+02
original_firstorder_Energy                            1.401e-05
original_firstorder_Entropy                           1.355e-20
original_firstorder_InterquartileRange                1.765e+12
original_firstorder_Kurtosis                          1.514e+00
original_firstorder_Maximum                           2.007e-01
original_firstorder_Mean                              1.997e-16
original_firstorder_MeanAbsoluteDeviation             6.305e+12
original_firstorder_Median                            4.820e+10
original_firstorder_Minimum                           5.344e+06
original_firstorder_Range                             1.000e+00
original_firstorder_RobustMeanAbsoluteDeviation       3.780e-16
original_firstorder_RootMeanSquared                   4.141e-03
original_firstorder_Skewness                          3.468e-01
original_firstorder_TotalEnergy                       1.000e+00
original_firstorder_Uniformity                        8.296e-11
original_firstorder_Variance                        1.030e+227
original_glcm_Autocorrelation                         7.743e-13
original_glcm_ClusterProminence                       1.056e+76
original_glcm_ClusterShade                            2.014e+16
original_glcm_ClusterTendency                         1.502e+01
original_glcm_Contrast                              6.848e+173
original_glcm_Correlation                             2.853e-02
original_glcm_DifferenceAverage                       5.296e+53
original_glcm_DifferenceEntropy                       2.164e+08
original_glcm_DifferenceVariance                      3.174e-274
original_glcm_Id                                           Inf
original_glcm_Idm                                     0.000e+00
original_glcm_Idmn                                    4.034e-07
original_glcm_Idn                                     7.243e+05
original_glcm_Imc1                                    2.559e-01
original_glcm_Imc2                                    5.014e-03
original_glcm_InverseVariance                         7.703e+45
original_glcm_JointAverage                            7.423e+00
original_glcm_JointEnergy                             7.246e+03
original_glcm_JointEntropy                            5.709e-09
original_glcm_MCC                                     1.202e+00
original_glcm_MaximumProbability                      6.668e+02
original_glcm_SumAverage                              1.000e+00
original_glcm_SumEntropy                              9.343e+02
original_glcm_SumSquares                              1.000e+00
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original_gldm_DependenceEntropy                            6.106e+04
original_gldm_DependenceNonUniformity                      1.960e+01
original_gldm_DependenceNonUniformityNormalized            1.260e+01
original_gldm_DependenceVariance                           3.516e-03
original_gldm_GrayLevelNonUniformity                       6.523e-06
original_gldm_GrayLevelVariance                           2.856e-259
original_gldm_HighGrayLevelEmphasis                        1.198e-88
original_gldm_LargeDependenceEmphasis                      6.011e-31
original_gldm_LargeDependenceHighGrayLevelEmphasis         1.462e+14
original_gldm_LargeDependenceLowGrayLevelEmphasis          1.043e+13
original_gldm_LowGrayLevelEmphasis                         7.303e+14
original_gldm_SmallDependenceEmphasis                      6.028e+08
original_gldm_SmallDependenceHighGrayLevelEmphasis         1.147e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis          1.775e-03
original_glrlm_GrayLevelNonUniformity                      1.603e+04
original_glrlm_GrayLevelNonUniformityNormalized            1.701e+01
original_glrlm_GrayLevelVariance                           1.088e+19
original_glrlm_HighGrayLevelRunEmphasis                    3.297e+57
original_glrlm_LongRunEmphasis                             9.895e+01
original_glrlm_LongRunHighGrayLevelEmphasis                1.248e-01
original_glrlm_LongRunLowGrayLevelEmphasis                 1.374e-02
original_glrlm_LowGrayLevelRunEmphasis                     1.932e-71
original_glrlm_RunEntropy                                  7.005e+18
original_glrlm_RunLengthNonUniformity                      6.759e+03
original_glrlm_RunLengthNonUniformityNormalized            5.679e+16
original_glrlm_RunPercentage                               1.940e-38
original_glrlm_RunVariance                                 3.630e-02
original_glrlm_ShortRunEmphasis                            9.674e-21
original_glrlm_ShortRunHighGrayLevelEmphasis               5.014e+41
original_glrlm_ShortRunLowGrayLevelEmphasis                1.141e+53
original_glszm_GrayLevelNonUniformity                      2.104e-01
original_glszm_GrayLevelNonUniformityNormalized            9.004e+01
original_glszm_GrayLevelVariance                           1.320e+01
original_glszm_HighGrayLevelZoneEmphasis                   5.061e-07
original_glszm_LargeAreaEmphasis                           0.000e+00
original_glszm_LargeAreaHighGrayLevelEmphasis              5.028e-01
original_glszm_LargeAreaLowGrayLevelEmphasis               3.605e+01
original_glszm_LowGrayLevelZoneEmphasis                    4.479e-06
original_glszm_SizeZoneNonUniformity                       2.192e+02
original_glszm_SizeZoneNonUniformityNormalized             1.155e-08
original_glszm_SmallAreaEmphasis                           3.317e+06
original_glszm_SmallAreaHighGrayLevelEmphasis              6.012e+04
original_glszm_SmallAreaLowGrayLevelEmphasis               5.577e+02
original_glszm_ZoneEntropy                                 2.151e+00
original_glszm_ZonePercentage                              2.710e-15
original_glszm_ZoneVariance                                      Inf
original_ngtdm_Busyness                                    2.907e-01
original_ngtdm_Coarseness                                  4.488e+00
original_ngtdm_Complexity                                  2.612e+00
original_ngtdm_Contrast                                    3.017e-06
original_ngtdm_Strength                                    1.635e+00
original_shape_Elongation                                  2.527e+01
original_shape_Flatness                                    4.565e-02
original_shape_LeastAxisLength                             4.019e+02
original_shape_MajorAxisLength                             4.417e+01
original_shape_Maximum2DDiameterColumn                     3.796e-02
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original_shape_Maximum2DDiameterRow	3.958e-01
original_shape_Maximum2DDiameterSlice	9.956e-02
original_shape_Maximum3DDiameter	9.104e+01
original_shape_MeshVolume	8.593e+81
original_shape_MinorAxisLength	3.110e-02
original_shape_Sphericity	1.818e+00
original_shape_SurfaceArea	5.474e-04
original_shape_SurfaceVolumeRatio	9.139e+32
original_shape_VoxelVolume	6.770e-85
	se(coef)
original_firstorder_10Percentile	1.469e-01
original_firstorder_90Percentile	8.189e-02
original_firstorder_Energy	1.433e-01
original_firstorder_Entropy	1.256e-01
original_firstorder_InterquartileRange	1.328e-01
original_firstorder_Kurtosis	1.188e-01
original_firstorder_Maximum	1.219e-01
original_firstorder_Mean	1.339e-01
original_firstorder_MeanAbsoluteDeviation	1.288e-01
original_firstorder_Median	1.478e-01
original_firstorder_Minimum	1.628e-01
original_firstorder_Range	1.357e-01
original_firstorder_RobustMeanAbsoluteDeviation	1.371e-01
original_firstorder_RootMeanSquared	1.347e-01
original_firstorder_Skewness	1.095e-01
original_firstorder_TotalEnergy	1.433e-01
original_firstorder_Uniformity	1.295e-01
original_firstorder_Variance	2.263e-01
original_glcm_Autocorrelation	1.509e-01
original_glcm_ClusterProminence	9.190e-01
original_glcm_ClusterShade	3.734e-01
original_glcm_ClusterTendency	2.015e-01
original_glcm_Contrast	6.203e-01
original_glcm_Correlation	1.444e-01
original_glcm_DifferenceAverage	1.417e-01
original_glcm_DifferenceEntropy	1.331e-01
original_glcm_DifferenceVariance	7.276e-01
original_glcm_Id	1.243e-01
original_glcm_Idm	1.245e-01
original_glcm_Idmn	2.056e-01
original_glcm_Idn	1.696e-01
original_glcm_Imc1	1.321e-01
original_glcm_Imc2	1.534e-01
original_glcm_InverseVariance	1.173e-01
original_glcm_JointAverage	1.593e-01
original_glcm_JointEnergy	1.165e-01
original_glcm_JointEntropy	1.223e-01
original_glcm_MCC	1.622e-01
original_glcm_MaximumProbability	1.271e-01
original_glcm_SumAverage	1.593e-01
original_glcm_SumEntropy	1.252e-01
original_glcm_SumSquares	2.402e-01
original_gldm_DependenceEntropy	1.206e-01
original_gldm_DependenceNonUniformity	8.766e-02
original_gldm_DependenceNonUniformityNormalized	1.022e-01
original_gldm_DependenceVariance	1.376e-01

original_gldm_GrayLevelNonUniformity	8.995e-02
original_gldm_GrayLevelVariance	2.259e-01
original_gldm_HighGrayLevelEmphasis	1.510e-01
original_gldm_LargeDependenceEmphasis	1.446e-01
original_gldm_LargeDependenceHighGrayLevelEmphasis	1.113e-01
original_gldm_LargeDependenceLowGrayLevelEmphasis	3.944e-01
original_gldm_LowGrayLevelEmphasis	1.640e-01
original_gldm_SmallDependenceEmphasis	1.387e-01
original_gldm_SmallDependenceHighGrayLevelEmphasis	1.229e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis	1.812e-01
original_glrlm_GrayLevelNonUniformity	9.048e-02
original_glrlm_GrayLevelNonUniformityNormalized	1.288e-01
original_glrlm_GrayLevelVariance	2.137e-01
original_glrlm_HighGrayLevelRunEmphasis	1.505e-01
original_glrlm_LongRunEmphasis	8.367e-02
original_glrlm_LongRunHighGrayLevelEmphasis	9.366e-02
original_glrlm_LongRunLowGrayLevelEmphasis	2.326e-01
original_glrlm_LowGrayLevelRunEmphasis	1.748e-01
original_glrlm_RunEntropy	1.330e-01
original_glrlm_RunLengthNonUniformity	1.089e-01
original_glrlm_RunLengthNonUniformityNormalized	1.398e-01
original_glrlm_RunPercentage	1.428e-01
original_glrlm_RunVariance	7.623e-02
original_glrlm_ShortRunEmphasis	1.419e-01
original_glrlm_ShortRunHighGrayLevelEmphasis	1.517e-01
original_glrlm_ShortRunLowGrayLevelEmphasis	1.582e-01
original_glszm_GrayLevelNonUniformity	1.119e-01
original_glszm_GrayLevelNonUniformityNormalized	1.666e-01
original_glszm_GrayLevelVariance	1.415e-01
original_glszm_HighGrayLevelZoneEmphasis	1.443e-01
original_glszm_LargeAreaEmphasis	9.422e-02
original_glszm_LargeAreaHighGrayLevelEmphasis	6.865e-02
original_glszm_LargeAreaLowGrayLevelEmphasis	4.215e-01
original_glszm_LowGrayLevelZoneEmphasis	2.522e-01
original_glszm_SizeZoneNonUniformity	1.279e-01
original_glszm_SizeZoneNonUniformityNormalized	1.586e-01
original_glszm_SmallAreaEmphasis	1.661e-01
original_glszm_SmallAreaHighGrayLevelEmphasis	1.373e-01
original_glszm_SmallAreaLowGrayLevelEmphasis	2.150e-01
original_glszm_ZoneEntropy	1.597e-01
original_glszm_ZonePercentage	1.398e-01
original_glszm_ZoneVariance	9.404e-02
original_ngtdm_Busyness	3.187e-01
original_ngtdm_Coarseness	2.995e-01
original_ngtdm_Complexity	1.785e-01
original_ngtdm_Contrast	4.607e-01
original_ngtdm_Strength	2.509e-01
original_shape_Elongation	1.525e-01
original_shape_Flatness	1.671e-01
original_shape_LeastAxisLength	1.267e-01
original_shape_MajorAxisLength	1.388e-01
original_shape_Maximum2DDiameterColumn	1.303e-01
original_shape_Maximum2DDiameterRow	1.421e-01
original_shape_Maximum2DDiameterSlice	1.311e-01
original_shape_Maximum3DDiameter	1.250e-01
original_shape_MeshVolume	9.455e-02

```
original_shape_MinorAxisLength                          1.303e-01
original_shape_Sphericity                               1.536e-01
original_shape_SurfaceArea                              9.923e-02
original_shape_SurfaceVolumeRatio                       1.382e-01
original_shape_VoxelVolume                              9.476e-02
                                                                z
original_firstorder_10Percentile                           40.155
original_firstorder_90Percentile                           60.432
original_firstorder_Energy                                -78.007
original_firstorder_Entropy                              -364.251
original_firstorder_InterquartileRange                    212.403
original_firstorder_Kurtosis                                3.492
original_firstorder_Maximum                               -13.181
original_firstorder_Mean                                 -270.033
original_firstorder_MeanAbsoluteDeviation                 228.834
original_firstorder_Median                                166.451
original_firstorder_Minimum                                95.131
original_firstorder_Range                                   0.000
original_firstorder_RobustMeanAbsoluteDeviation          -258.934
original_firstorder_RootMeanSquared                       -40.723
original_firstorder_Skewness                               -9.670
original_firstorder_TotalEnergy                             0.000
original_firstorder_Uniformity                           -179.288
original_firstorder_Variance                             2310.133
original_glcm_Autocorrelation                            -184.809
original_glcm_ClusterProminence                           190.486
original_glcm_ClusterShade                                100.552
original_glcm_ClusterTendency                              13.444
original_glcm_Contrast                                    645.337
original_glcm_Correlation                                 -24.638
original_glcm_DifferenceAverage                           872.725
original_glcm_DifferenceEntropy                           144.243
original_glcm_DifferenceVariance                         -865.498
original_glcm_Id                                         9069.316
original_glcm_Idm                                       -8108.036
original_glcm_Idmn                                        -71.604
original_glcm_Idn                                          79.561
original_glcm_Imc1                                        -10.316
original_glcm_Imc2                                        -34.530
original_glcm_InverseVariance                             900.523
original_glcm_JointAverage                                 12.586
original_glcm_JointEnergy                                  76.281
original_glcm_JointEntropy                               -155.217
original_glcm_MCC                                           1.135
original_glcm_MaximumProbability                           51.178
original_glcm_SumAverage                                    0.000
original_glcm_SumEntropy                                   54.627
original_glcm_SumSquares                                    0.000
original_gldm_DependenceEntropy                            91.381
original_gldm_DependenceNonUniformity                     33.945
original_gldm_DependenceNonUniformityNormalized           24.800
original_gldm_DependenceVariance                         -41.068
original_gldm_GrayLevelNonUniformity                    -132.741
original_gldm_GrayLevelVariance                         -2635.085
original_gldm_HighGrayLevelEmphasis                     -1340.404
original_gldm_LargeDependenceEmphasis                    -481.366
```

original_gldm_LargeDependenceHighGrayLevelEmphasis	293.167
original_gldm_LargeDependenceLowGrayLevelEmphasis	75.995
original_gldm_LowGrayLevelEmphasis	208.633
original_gldm_SmallDependenceEmphasis	145.729
original_gldm_SmallDependenceHighGrayLevelEmphasis	-17.614
original_gldm_SmallDependenceLowGrayLevelEmphasis	-34.963
original_glrlm_GrayLevelNonUniformity	107.008
original_glrlm_GrayLevelNonUniformityNormalized	21.995
original_glrlm_GrayLevelVariance	205.108
original_glrlm_HighGrayLevelRunEmphasis	880.142
original_glrlm_LongRunEmphasis	54.915
original_glrlm_LongRunHighGrayLevelEmphasis	-22.216
original_glrlm_LongRunLowGrayLevelEmphasis	-18.433
original_glrlm_LowGrayLevelRunEmphasis	-931.539
original_glrlm_RunEntropy	326.181
original_glrlm_RunLengthNonUniformity	80.951
original_glrlm_RunLengthNonUniformityNormalized	276.006
original_glrlm_RunPercentage	-607.950
original_glrlm_RunVariance	-43.497
original_glrlm_ShortRunEmphasis	-324.850
original_glrlm_ShortRunHighGrayLevelEmphasis	632.851
original_glrlm_ShortRunLowGrayLevelEmphasis	772.375
original_glszm_GrayLevelNonUniformity	-13.933
original_glszm_GrayLevelNonUniformityNormalized	27.009
original_glszm_GrayLevelVariance	18.229
original_glszm_HighGrayLevelZoneEmphasis	-100.484
original_glszm_LargeAreaEmphasis	-12883.737
original_glszm_LargeAreaHighGrayLevelEmphasis	-10.017
original_glszm_LargeAreaLowGrayLevelEmphasis	8.505
original_glszm_LowGrayLevelZoneEmphasis	-48.828
original_glszm_SizeZoneNonUniformity	42.143
original_glszm_SizeZoneNonUniformityNormalized	-115.212
original_glszm_SmallAreaEmphasis	90.395
original_glszm_SmallAreaHighGrayLevelEmphasis	80.167
original_glszm_SmallAreaLowGrayLevelEmphasis	29.417
original_glszm_ZoneEntropy	4.795
original_glszm_ZonePercentage	-240.001
original_glszm_ZoneVariance	12915.122
original_ngtdm_Busyness	-3.876
original_ngtdm_Coarseness	5.014
original_ngtdm_Complexity	5.379
original_ngtdm_Contrast	-27.594
original_ngtdm_Strength	1.959
original_shape_Elongation	21.174
original_shape_Flatness	-18.475
original_shape_LeastAxisLength	47.339
original_shape_MajorAxisLength	27.286
original_shape_Maximum2DDiameterColumn	-25.110
original_shape_Maximum2DDiameterRow	-6.525
original_shape_Maximum2DDiameterSlice	-17.601
original_shape_Maximum3DDiameter	36.105
original_shape_MeshVolume	1995.443
original_shape_MinorAxisLength	-26.632
original_shape_Sphericity	3.890
original_shape_SurfaceArea	-75.689
original_shape_SurfaceVolumeRatio	549.129

```
original_shape_VoxelVolume                                 -2045.319
                                                                   p
original_firstorder_10Percentile                          < 2e-16
original_firstorder_90Percentile                          < 2e-16
original_firstorder_Energy                                < 2e-16
original_firstorder_Entropy                               < 2e-16
original_firstorder_InterquartileRange                    < 2e-16
original_firstorder_Kurtosis                              0.000479
original_firstorder_Maximum                               < 2e-16
original_firstorder_Mean                                  < 2e-16
original_firstorder_MeanAbsoluteDeviation                 < 2e-16
original_firstorder_Median                                < 2e-16
original_firstorder_Minimum                               < 2e-16
original_firstorder_Range                                 1.000000
original_firstorder_RobustMeanAbsoluteDeviation           < 2e-16
original_firstorder_RootMeanSquared                       < 2e-16
original_firstorder_Skewness                              < 2e-16
original_firstorder_TotalEnergy                           1.000000
original_firstorder_Uniformity                            < 2e-16
original_firstorder_Variance                              < 2e-16
original_glcm_Autocorrelation                             < 2e-16
original_glcm_ClusterProminence                           < 2e-16
original_glcm_ClusterShade                                < 2e-16
original_glcm_ClusterTendency                             < 2e-16
original_glcm_Contrast                                    < 2e-16
original_glcm_Correlation                                 < 2e-16
original_glcm_DifferenceAverage                           < 2e-16
original_glcm_DifferenceEntropy                           < 2e-16
original_glcm_DifferenceVariance                          < 2e-16
original_glcm_Id                                          < 2e-16
original_glcm_Idm                                         < 2e-16
original_glcm_Idmn                                        < 2e-16
original_glcm_Idn                                         < 2e-16
original_glcm_Imc1                                        < 2e-16
original_glcm_Imc2                                        < 2e-16
original_glcm_InverseVariance                             < 2e-16
original_glcm_JointAverage                                < 2e-16
original_glcm_JointEnergy                                 < 2e-16
original_glcm_JointEntropy                                < 2e-16
original_glcm_MCC                                         0.256461
original_glcm_MaximumProbability                          < 2e-16
original_glcm_SumAverage                                  1.000000
original_glcm_SumEntropy                                  < 2e-16
original_glcm_SumSquares                                  1.000000
original_gldm_DependenceEntropy                           < 2e-16
original_gldm_DependenceNonUniformity                     < 2e-16
original_gldm_DependenceNonUniformityNormalized           < 2e-16
original_gldm_DependenceVariance                          < 2e-16
original_gldm_GrayLevelNonUniformity                      < 2e-16
original_gldm_GrayLevelVariance                           < 2e-16
original_gldm_HighGrayLevelEmphasis                       < 2e-16
original_gldm_LargeDependenceEmphasis                     < 2e-16
original_gldm_LargeDependenceHighGrayLevelEmphasis        < 2e-16
original_gldm_LargeDependenceLowGrayLevelEmphasis         < 2e-16
original_gldm_LowGrayLevelEmphasis                        < 2e-16
original_gldm_SmallDependenceEmphasis                     < 2e-16
```

```
original_gldm_SmallDependenceHighGrayLevelEmphasis    < 2e-16
original_gldm_SmallDependenceLowGrayLevelEmphasis     < 2e-16
original_glrlm_GrayLevelNonUniformity                 < 2e-16
original_glrlm_GrayLevelNonUniformityNormalized       < 2e-16
original_glrlm_GrayLevelVariance                      < 2e-16
original_glrlm_HighGrayLevelRunEmphasis               < 2e-16
original_glrlm_LongRunEmphasis                        < 2e-16
original_glrlm_LongRunHighGrayLevelEmphasis           < 2e-16
original_glrlm_LongRunLowGrayLevelEmphasis            < 2e-16
original_glrlm_LowGrayLevelRunEmphasis                < 2e-16
original_glrlm_RunEntropy                             < 2e-16
original_glrlm_RunLengthNonUniformity                 < 2e-16
original_glrlm_RunLengthNonUniformityNormalized       < 2e-16
original_glrlm_RunPercentage                          < 2e-16
original_glrlm_RunVariance                            < 2e-16
original_glrlm_ShortRunEmphasis                       < 2e-16
original_glrlm_ShortRunHighGrayLevelEmphasis          < 2e-16
original_glrlm_ShortRunLowGrayLevelEmphasis           < 2e-16
original_glszm_GrayLevelNonUniformity                 < 2e-16
original_glszm_GrayLevelNonUniformityNormalized       < 2e-16
original_glszm_GrayLevelVariance                      < 2e-16
original_glszm_HighGrayLevelZoneEmphasis              < 2e-16
original_glszm_LargeAreaEmphasis                      < 2e-16
original_glszm_LargeAreaHighGrayLevelEmphasis         < 2e-16
original_glszm_LargeAreaLowGrayLevelEmphasis          < 2e-16
original_glszm_LowGrayLevelZoneEmphasis               < 2e-16
original_glszm_SizeZoneNonUniformity                  < 2e-16
original_glszm_SizeZoneNonUniformityNormalized        < 2e-16
original_glszm_SmallAreaEmphasis                      < 2e-16
original_glszm_SmallAreaHighGrayLevelEmphasis         < 2e-16
original_glszm_SmallAreaLowGrayLevelEmphasis          < 2e-16
original_glszm_ZoneEntropy                            1.63e-06
original_glszm_ZonePercentage                         < 2e-16
original_glszm_ZoneVariance                           < 2e-16
original_ngtdm_Busyness                               0.000106
original_ngtdm_Coarseness                             5.34e-07
original_ngtdm_Complexity                             7.48e-08
original_ngtdm_Contrast                               < 2e-16
original_ngtdm_Strength                               0.050099
original_shape_Elongation                             < 2e-16
original_shape_Flatness                               < 2e-16
original_shape_LeastAxisLength                        < 2e-16
original_shape_MajorAxisLength                        < 2e-16
original_shape_Maximum2DDiameterColumn                < 2e-16
original_shape_Maximum2DDiameterRow                   6.80e-11
original_shape_Maximum2DDiameterSlice                 < 2e-16
original_shape_Maximum3DDiameter                      < 2e-16
original_shape_MeshVolume                             < 2e-16
original_shape_MinorAxisLength                        < 2e-16
original_shape_Sphericity                             0.000100
original_shape_SurfaceArea                            < 2e-16
original_shape_SurfaceVolumeRatio                     < 2e-16
original_shape_VoxelVolume                            < 2e-16

Likelihood ratio test=201.9  on 107 df, p=8.212e-08
n= 361, number of events= 48
```

```
$model_list[[2]]
$model_list[[2]]$beststats
   mtry nodesize nodedepth time    AUCROC          BS
V2    22       35        50  2.9 0.7533086 0.08353237
    BS_scaled    C_score  Calib_alpha Calib_slope
V2 0.02762382 0.6961789 -0.006143785   0.7015387


$model_list[[2]]$allstats
    mtry nodesize nodedepth time    AUCROC          BS
V1    10       15        50  2.9 0.7391669 0.08470875
V2    10       20        50  2.9 0.7459075 0.08371739
V3    10       25        50  2.9 0.7526276 0.08245072
V4    10       30        50  2.9 0.7527742 0.08218004
V5    10       35        50  2.9 0.7527958 0.08169747
V11   11       35        50  2.9 0.7511447 0.08214963
V21   22       35        50  2.9 0.7533086 0.08353237
V31   36       35        50  2.9 0.7436684 0.08538888
V41   54       35        50  2.9 0.7381756 0.08664147
V51   10       35        50  2.9 0.7527958 0.08169747
        BS_scaled    C_score  Calib_alpha Calib_slope
V1   0.013929855 0.6898228 -0.008337819   0.6059840
V2   0.025470012 0.6978988 -0.005993216   0.6698078
V3   0.040214989 0.7008151 -0.005037716   0.7315879
V4   0.043365896 0.7015629 -0.004197893   0.7686450
V5   0.048983301 0.7006655 -0.003555818   0.8123876
V11  0.043719853 0.6972258 -0.004461205   0.8154776
V21  0.027623818 0.6961789 -0.006143785   0.7015387
V31  0.006012681 0.6901593 -0.010965136   0.5900958
V41 -0.008568281 0.6876542 -0.010275313   0.5090459
V51  0.048983301 0.7006655 -0.003555818   0.8123876


$model_list[[2]]$model
                        Sample size: 361
                   Number of deaths: 40
                    Number of trees: 500
          Forest terminal node size: 35
      Average no. of terminal nodes: 9.61
No. of variables tried at each split: 22
              Total no. of variables: 108
        Resampling used to grow trees: swor
    Resample size used to grow trees: 228
                           Analysis: RSF
                             Family: surv
                      Splitting rule: logrank *random*
       Number of random split points: 50
                        (OOB) CRPS: 0.05568956
   (OOB) Requested performance error: 0.29942426


$model_list[[2]]$vimp10
                original_firstorder_Maximum
                            0.014988039
                 original_ngtdm_Complexity
                            0.013060005
```

```
              original_shape_Maximum3DDiameter
                              0.009650279
             original_glszm_GrayLevelVariance
                              0.008721731
                    original_firstorder_Range
                              0.007298276
      original_shape_Maximum2DDiameterColumn
                              0.006947785
            original_gldm_LowGrayLevelEmphasis
                              0.005191675
       original_glrlm_LowGrayLevelRunEmphasis
                              0.004291326
original_glrlm_ShortRunLowGrayLevelEmphasis
                              0.004117940
        original_shape_Maximum2DDiameterRow
                              0.004050423
             original_shape_MajorAxisLength
                              0.003942476
                  original_shape_Sphericity
                              0.003848098
original_glrlm_LongRunHighGrayLevelEmphasis
                              0.003396211
            original_glcm_ClusterProminence
                              0.003188440
             original_gldm_DependenceVariance
                              0.003063841


$model_list[[2]]$model_base
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef
original_firstorder_10Percentile	-9.137e+01
original_firstorder_90Percentile	1.016e+02
original_firstorder_Energy	-5.892e+01
original_firstorder_Entropy	-2.553e+02
original_firstorder_InterquartileRange	1.359e+02
original_firstorder_Kurtosis	-1.416e-02
original_firstorder_Maximum	-2.010e+01
original_firstorder_Mean	-1.434e+02
original_firstorder_MeanAbsoluteDeviation	1.503e+02
original_firstorder_Median	8.449e+01
original_firstorder_Minimum	1.185e+02
original_firstorder_Range	0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation	-2.953e+02
original_firstorder_RootMeanSquared	-3.857e+01
original_firstorder_Skewness	2.002e+00
original_firstorder_TotalEnergy	0.000e+00
original_firstorder_Uniformity	-7.872e+01
original_firstorder_Variance	1.933e+03
original_glcm_Autocorrelation	-6.561e+02
original_glcm_ClusterProminence	4.128e+02
original_glcm_ClusterShade	1.681e+02
original_glcm_ClusterTendency	-5.094e+00

```
original_glcm_Contrast                                      3.047e+02
original_glcm_Correlation                                  -2.097e+01
original_glcm_DifferenceAverage                             1.213e+02
original_glcm_DifferenceEntropy                             1.451e+02
original_glcm_DifferenceVariance                           -8.233e+02
original_glcm_Id                                            2.526e+03
original_glcm_Idm                                          -2.368e+03
original_glcm_Idmn                                         -3.568e+01
original_glcm_Idn                                           5.169e+01
original_glcm_Imc1                                         -1.144e+01
original_glcm_Imc2                                         -4.150e+01
original_glcm_InverseVariance                               2.237e+02
original_glcm_JointAverage                                  4.160e+01
original_glcm_JointEnergy                                   5.927e+01
original_glcm_JointEntropy                                 -1.957e+02
original_glcm_MCC                                           1.664e+01
original_glcm_MaximumProbability                            1.665e-01
original_glcm_SumAverage                                    0.000e+00
original_glcm_SumEntropy                                    2.330e+02
original_glcm_SumSquares                                    0.000e+00
original_gldm_DependenceEntropy                             7.757e+01
original_gldm_DependenceNonUniformity                       2.762e+01
original_gldm_DependenceNonUniformityNormalized             3.934e+00
original_gldm_DependenceVariance                            3.870e+01
original_gldm_GrayLevelNonUniformity                       -5.308e+01
original_gldm_GrayLevelVariance                            -2.443e+03
original_gldm_HighGrayLevelEmphasis                        -2.246e+01
original_gldm_LargeDependenceEmphasis                      -3.272e+02
original_gldm_LargeDependenceHighGrayLevelEmphasis         -6.803e+01
original_gldm_LargeDependenceLowGrayLevelEmphasis          -1.047e+02
original_gldm_LowGrayLevelEmphasis                         -4.246e+01
original_gldm_SmallDependenceEmphasis                      -6.972e+00
original_gldm_SmallDependenceHighGrayLevelEmphasis          4.693e+01
original_gldm_SmallDependenceLowGrayLevelEmphasis           9.059e+00
original_glrlm_GrayLevelNonUniformity                      -2.790e+00
original_glrlm_GrayLevelNonUniformityNormalized            -7.221e+01
original_glrlm_GrayLevelVariance                            3.792e+02
original_glrlm_HighGrayLevelRunEmphasis                     1.047e+03
original_glrlm_LongRunEmphasis                             -2.999e+01
original_glrlm_LongRunHighGrayLevelEmphasis                -1.173e+01
original_glrlm_LongRunLowGrayLevelEmphasis                 -2.201e+01
original_glrlm_LowGrayLevelRunEmphasis                      5.679e+02
original_glrlm_RunEntropy                                  -7.574e+01
original_glrlm_RunLengthNonUniformity                       4.711e+00
original_glrlm_RunLengthNonUniformityNormalized             6.389e+02
original_glrlm_RunPercentage                               -5.930e+02
original_glrlm_RunVariance                                  4.988e+01
original_glrlm_ShortRunEmphasis                            -3.862e+02
original_glrlm_ShortRunHighGrayLevelEmphasis               -3.096e+02
original_glrlm_ShortRunLowGrayLevelEmphasis                -4.293e+02
original_glszm_GrayLevelNonUniformity                      -9.915e+00
original_glszm_GrayLevelNonUniformityNormalized             5.752e+01
original_glszm_GrayLevelVariance                            1.937e+01
original_glszm_HighGrayLevelZoneEmphasis                    6.040e+01
original_glszm_LargeAreaEmphasis                           -2.139e+03
original_glszm_LargeAreaHighGrayLevelEmphasis               8.375e+00
```

original_glszm_LargeAreaLowGrayLevelEmphasis	6.015e+00
original_glszm_LowGrayLevelZoneEmphasis	-1.259e+01
original_glszm_SizeZoneNonUniformity	3.725e+01
original_glszm_SizeZoneNonUniformityNormalized	1.440e+01
original_glszm_SmallAreaEmphasis	1.605e+01
original_glszm_SmallAreaHighGrayLevelEmphasis	-6.094e+01
original_glszm_SmallAreaLowGrayLevelEmphasis	-6.647e+00
original_glszm_ZoneEntropy	5.688e+01
original_glszm_ZonePercentage	-1.671e+00
original_glszm_ZoneVariance	2.155e+03
original_ngtdm_Busyness	-3.110e+00
original_ngtdm_Coarseness	1.330e+01
original_ngtdm_Complexity	1.241e+01
original_ngtdm_Contrast	-4.235e+01
original_ngtdm_Strength	-1.304e-01
original_shape_Elongation	8.041e+00
original_shape_Flatness	-1.365e+01
original_shape_LeastAxisLength	1.842e+01
original_shape_MajorAxisLength	3.674e+00
original_shape_Maximum2DDiameterColumn	-8.905e+00
original_shape_Maximum2DDiameterRow	2.083e+00
original_shape_Maximum2DDiameterSlice	-6.646e+00
original_shape_Maximum3DDiameter	9.710e+00
original_shape_MeshVolume	1.467e+03
original_shape_MinorAxisLength	8.784e+00
original_shape_Sphericity	-1.474e+01
original_shape_SurfaceArea	1.767e+01
original_shape_SurfaceVolumeRatio	3.324e+01
original_shape_VoxelVolume	-1.490e+03
	exp(coef)
original_firstorder_10Percentile	2.090e-40
original_firstorder_90Percentile	1.355e+44
original_firstorder_Energy	2.590e-26
original_firstorder_Entropy	1.336e-111
original_firstorder_InterquartileRange	1.016e+59
original_firstorder_Kurtosis	9.859e-01
original_firstorder_Maximum	1.863e-09
original_firstorder_Mean	5.272e-63
original_firstorder_MeanAbsoluteDeviation	1.946e+65
original_firstorder_Median	4.944e+36
original_firstorder_Minimum	2.917e+51
original_firstorder_Range	1.000e+00
original_firstorder_RobustMeanAbsoluteDeviation	5.402e-129
original_firstorder_RootMeanSquared	1.771e-17
original_firstorder_Skewness	7.407e+00
original_firstorder_TotalEnergy	1.000e+00
original_firstorder_Uniformity	6.469e-35
original_firstorder_Variance	Inf
original_glcm_Autocorrelation	1.191e-285
original_glcm_ClusterProminence	1.899e+179
original_glcm_ClusterShade	1.048e+73
original_glcm_ClusterTendency	6.136e-03
original_glcm_Contrast	2.038e+132
original_glcm_Correlation	7.783e-10
original_glcm_DifferenceAverage	4.741e+52
original_glcm_DifferenceEntropy	9.947e+62

```
original_glcm_DifferenceVariance                      0.000e+00
original_glcm_Id                                            Inf
original_glcm_Idm                                     0.000e+00
original_glcm_Idmn                                    3.209e-16
original_glcm_Idn                                     2.807e+22
original_glcm_Imc1                                    1.073e-05
original_glcm_Imc2                                    9.485e-19
original_glcm_InverseVariance                         1.389e+97
original_glcm_JointAverage                            1.169e+18
original_glcm_JointEnergy                             5.515e+25
original_glcm_JointEntropy                            9.781e-86
original_glcm_MCC                                     1.688e+07
original_glcm_MaximumProbability                      1.181e+00
original_glcm_SumAverage                              1.000e+00
original_glcm_SumEntropy                             1.597e+101
original_glcm_SumSquares                              1.000e+00
original_gldm_DependenceEntropy                       4.867e+33
original_gldm_DependenceNonUniformity                 9.922e+11
original_gldm_DependenceNonUniformityNormalized       5.114e+01
original_gldm_DependenceVariance                      6.407e+16
original_gldm_GrayLevelNonUniformity                  8.894e-24
original_gldm_GrayLevelVariance                       0.000e+00
original_gldm_HighGrayLevelEmphasis                   1.769e-10
original_gldm_LargeDependenceEmphasis                7.885e-143
original_gldm_LargeDependenceHighGrayLevelEmphasis    2.847e-30
original_gldm_LargeDependenceLowGrayLevelEmphasis     3.327e-46
original_gldm_LowGrayLevelEmphasis                    3.619e-19
original_gldm_SmallDependenceEmphasis                 9.378e-04
original_gldm_SmallDependenceHighGrayLevelEmphasis    2.400e+20
original_gldm_SmallDependenceLowGrayLevelEmphasis     8.599e+03
original_glrlm_GrayLevelNonUniformity                 6.142e-02
original_glrlm_GrayLevelNonUniformityNormalized       4.358e-32
original_glrlm_GrayLevelVariance                     5.064e+164
original_glrlm_HighGrayLevelRunEmphasis                     Inf
original_glrlm_LongRunEmphasis                        9.482e-14
original_glrlm_LongRunHighGrayLevelEmphasis           8.064e-06
original_glrlm_LongRunLowGrayLevelEmphasis            2.760e-10
original_glrlm_LowGrayLevelRunEmphasis               4.166e+246
original_glrlm_RunEntropy                             1.275e-33
original_glrlm_RunLengthNonUniformity                 1.111e+02
original_glrlm_RunLengthNonUniformityNormalized      3.020e+277
original_glrlm_RunPercentage                         2.924e-258
original_glrlm_RunVariance                            4.601e+21
original_glrlm_ShortRunEmphasis                      1.896e-168
original_glrlm_ShortRunHighGrayLevelEmphasis         3.641e-135
original_glrlm_ShortRunLowGrayLevelEmphasis          3.681e-187
original_glszm_GrayLevelNonUniformity                 4.944e-05
original_glszm_GrayLevelNonUniformityNormalized       9.527e+24
original_glszm_GrayLevelVariance                      2.578e+08
original_glszm_HighGrayLevelZoneEmphasis              1.711e+26
original_glszm_LargeAreaEmphasis                      0.000e+00
original_glszm_LargeAreaHighGrayLevelEmphasis         4.339e+03
original_glszm_LargeAreaLowGrayLevelEmphasis          4.096e+02
original_glszm_LowGrayLevelZoneEmphasis               3.413e-06
original_glszm_SizeZoneNonUniformity                  1.509e+16
original_glszm_SizeZoneNonUniformityNormalized        1.798e+06
```

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original_glszm_SmallAreaEmphasis                        9.369e+06
original_glszm_SmallAreaHighGrayLevelEmphasis           3.431e-27
original_glszm_SmallAreaLowGrayLevelEmphasis            1.298e-03
original_glszm_ZoneEntropy                              5.065e+24
original_glszm_ZonePercentage                           1.880e-01
original_glszm_ZoneVariance                                   Inf
original_ngtdm_Busyness                                 4.458e-02
original_ngtdm_Coarseness                               5.982e+05
original_ngtdm_Complexity                               2.449e+05
original_ngtdm_Contrast                                 4.039e-19
original_ngtdm_Strength                                 8.778e-01
original_shape_Elongation                               3.106e+03
original_shape_Flatness                                 1.185e-06
original_shape_LeastAxisLength                          9.971e+07
original_shape_MajorAxisLength                          3.942e+01
original_shape_Maximum2DDiameterColumn                  1.356e-04
original_shape_Maximum2DDiameterRow                     8.027e+00
original_shape_Maximum2DDiameterSlice                   1.299e-03
original_shape_Maximum3DDiameter                        1.648e+04
original_shape_MeshVolume                                     Inf
original_shape_MinorAxisLength                          6.526e+03
original_shape_Sphericity                               3.986e-07
original_shape_SurfaceArea                              4.701e+07
original_shape_SurfaceVolumeRatio                       2.736e+14
original_shape_VoxelVolume                              0.000e+00
                                                         se(coef)
original_firstorder_10Percentile                        1.536e-01
original_firstorder_90Percentile                        2.204e-01
original_firstorder_Energy                              1.586e-01
original_firstorder_Entropy                             1.849e-01
original_firstorder_InterquartileRange                  3.885e-01
original_firstorder_Kurtosis                            1.289e-01
original_firstorder_Maximum                             1.351e-01
original_firstorder_Mean                                1.442e-01
original_firstorder_MeanAbsoluteDeviation               1.800e-01
original_firstorder_Median                              1.553e-01
original_firstorder_Minimum                             1.537e-01
original_firstorder_Range                               1.455e-01
original_firstorder_RobustMeanAbsoluteDeviation         3.694e-01
original_firstorder_RootMeanSquared                     1.794e-01
original_firstorder_Skewness                            1.318e-01
original_firstorder_TotalEnergy                         1.586e-01
original_firstorder_Uniformity                          1.593e-01
original_firstorder_Variance                            2.792e-01
original_glcm_Autocorrelation                           1.594e-01
original_glcm_ClusterProminence                         2.022e+00
original_glcm_ClusterShade                              3.993e-01
original_glcm_ClusterTendency                           2.327e-01
original_glcm_Contrast                                  1.593e+00
original_glcm_Correlation                               1.387e-01
original_glcm_DifferenceAverage                         3.144e-01
original_glcm_DifferenceEntropy                         2.179e-01
original_glcm_DifferenceVariance                        1.684e+00
original_glcm_Id                                        2.119e-01
original_glcm_Idm                                       2.163e-01
original_glcm_Idmn                                      1.688e-01
```

original_glcm_Idn	1.415e-01
original_glcm_Imc1	1.346e-01
original_glcm_Imc2	1.480e-01
original_glcm_InverseVariance	1.541e-01
original_glcm_JointAverage	1.533e-01
original_glcm_JointEnergy	1.467e-01
original_glcm_JointEntropy	1.958e-01
original_glcm_MCC	1.443e-01
original_glcm_MaximumProbability	1.698e-01
original_glcm_SumAverage	1.533e-01
original_glcm_SumEntropy	1.762e-01
original_glcm_SumSquares	2.862e-01
original_gldm_DependenceEntropy	1.549e-01
original_gldm_DependenceNonUniformity	1.172e-01
original_gldm_DependenceNonUniformityNormalized	1.213e-01
original_gldm_DependenceVariance	1.507e-01
original_gldm_GrayLevelNonUniformity	1.367e-01
original_gldm_GrayLevelVariance	2.787e-01
original_gldm_HighGrayLevelEmphasis	1.593e-01
original_gldm_LargeDependenceEmphasis	1.584e-01
original_gldm_LargeDependenceHighGrayLevelEmphasis	1.287e-01
original_gldm_LargeDependenceLowGrayLevelEmphasis	4.667e-01
original_gldm_LowGrayLevelEmphasis	9.790e-02
original_gldm_SmallDependenceEmphasis	1.716e-01
original_gldm_SmallDependenceHighGrayLevelEmphasis	2.148e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis	9.583e-02
original_glrlm_GrayLevelNonUniformity	1.440e-01
original_glrlm_GrayLevelNonUniformityNormalized	1.597e-01
original_glrlm_GrayLevelVariance	2.585e-01
original_glrlm_HighGrayLevelRunEmphasis	1.593e-01
original_glrlm_LongRunEmphasis	9.737e-02
original_glrlm_LongRunHighGrayLevelEmphasis	1.071e-01
original_glrlm_LongRunLowGrayLevelEmphasis	2.182e-01
original_glrlm_LowGrayLevelRunEmphasis	1.006e-01
original_glrlm_RunEntropy	1.616e-01
original_glrlm_RunLengthNonUniformity	1.679e-01
original_glrlm_RunLengthNonUniformityNormalized	1.485e-01
original_glrlm_RunPercentage	1.535e-01
original_glrlm_RunVariance	8.898e-02
original_glrlm_ShortRunEmphasis	1.520e-01
original_glrlm_ShortRunHighGrayLevelEmphasis	1.622e-01
original_glrlm_ShortRunLowGrayLevelEmphasis	8.917e-02
original_glszm_GrayLevelNonUniformity	1.869e-01
original_glszm_GrayLevelNonUniformityNormalized	1.801e-01
original_glszm_GrayLevelVariance	1.576e-01
original_glszm_HighGrayLevelZoneEmphasis	1.594e-01
original_glszm_LargeAreaEmphasis	1.346e-01
original_glszm_LargeAreaHighGrayLevelEmphasis	1.015e-01
original_glszm_LargeAreaLowGrayLevelEmphasis	7.969e-01
original_glszm_LowGrayLevelZoneEmphasis	1.428e-01
original_glszm_SizeZoneNonUniformity	1.616e-01
original_glszm_SizeZoneNonUniformityNormalized	1.471e-01
original_glszm_SmallAreaEmphasis	1.371e-01
original_glszm_SmallAreaHighGrayLevelEmphasis	1.557e-01
original_glszm_SmallAreaLowGrayLevelEmphasis	1.597e-01
original_glszm_ZoneEntropy	1.592e-01

original_glszm_ZonePercentage	1.713e-01
original_glszm_ZoneVariance	1.345e-01
original_ngtdm_Busyness	4.024e-01
original_ngtdm_Coarseness	1.007e-01
original_ngtdm_Complexity	3.800e-01
original_ngtdm_Contrast	7.341e-01
original_ngtdm_Strength	3.191e-01
original_shape_Elongation	1.659e-01
original_shape_Flatness	1.839e-01
original_shape_LeastAxisLength	1.516e-01
original_shape_MajorAxisLength	1.312e-01
original_shape_Maximum2DDiameterColumn	1.134e-01
original_shape_Maximum2DDiameterRow	1.513e-01
original_shape_Maximum2DDiameterSlice	1.418e-01
original_shape_Maximum3DDiameter	1.183e-01
original_shape_MeshVolume	1.576e-01
original_shape_MinorAxisLength	1.188e-01
original_shape_Sphericity	1.700e-01
original_shape_SurfaceArea	1.453e-01
original_shape_SurfaceVolumeRatio	1.455e-01
original_shape_VoxelVolume	1.578e-01
	z
original_firstorder_10Percentile	-594.734
original_firstorder_90Percentile	460.986
original_firstorder_Energy	-371.553
original_firstorder_Entropy	-1380.550
original_firstorder_InterquartileRange	349.741
original_firstorder_Kurtosis	-0.110
original_firstorder_Maximum	-148.763
original_firstorder_Mean	-994.468
original_firstorder_MeanAbsoluteDeviation	835.183
original_firstorder_Median	543.890
original_firstorder_Minimum	770.782
original_firstorder_Range	0.000
original_firstorder_RobustMeanAbsoluteDeviation	-799.449
original_firstorder_RootMeanSquared	-215.007
original_firstorder_Skewness	15.192
original_firstorder_TotalEnergy	0.000
original_firstorder_Uniformity	-494.313
original_firstorder_Variance	6924.383
original_glcm_Autocorrelation	-4115.952
original_glcm_ClusterProminence	204.148
original_glcm_ClusterShade	421.052
original_glcm_ClusterTendency	-21.886
original_glcm_Contrast	191.228
original_glcm_Correlation	-151.226
original_glcm_DifferenceAverage	385.758
original_glcm_DifferenceEntropy	665.747
original_glcm_DifferenceVariance	-488.855
original_glcm_Id	11921.170
original_glcm_Idm	-10947.477
original_glcm_Idmn	-211.302
original_glcm_Idn	365.373
original_glcm_Imc1	-85.035
original_glcm_Imc2	-280.495
original_glcm_InverseVariance	1451.661

original_glcm_JointAverage	271.392
original_glcm_JointEnergy	403.983
original_glcm_JointEntropy	-999.757
original_glcm_MCC	115.298
original_glcm_MaximumProbability	0.981
original_glcm_SumAverage	0.000
original_glcm_SumEntropy	1322.871
original_glcm_SumSquares	0.000
original_gldm_DependenceEntropy	500.903
original_gldm_DependenceNonUniformity	235.706
original_gldm_DependenceNonUniformityNormalized	32.434
original_gldm_DependenceVariance	256.716
original_gldm_GrayLevelNonUniformity	-388.132
original_gldm_GrayLevelVariance	-8765.139
original_gldm_HighGrayLevelEmphasis	-140.958
original_gldm_LargeDependenceEmphasis	-2066.305
original_gldm_LargeDependenceHighGrayLevelEmphasis	-528.784
original_gldm_LargeDependenceLowGrayLevelEmphasis	-224.356
original_gldm_LowGrayLevelEmphasis	-433.746
original_gldm_SmallDependenceEmphasis	-40.629
original_gldm_SmallDependenceHighGrayLevelEmphasis	218.487
original_gldm_SmallDependenceLowGrayLevelEmphasis	94.540
original_glrlm_GrayLevelNonUniformity	-19.378
original_glrlm_GrayLevelNonUniformityNormalized	-452.287
original_glrlm_GrayLevelVariance	1467.280
original_glrlm_HighGrayLevelRunEmphasis	6569.727
original_glrlm_LongRunEmphasis	-307.978
original_glrlm_LongRunHighGrayLevelEmphasis	-109.522
original_glrlm_LongRunLowGrayLevelEmphasis	-100.890
original_glrlm_LowGrayLevelRunEmphasis	5647.322
original_glrlm_RunEntropy	-468.639
original_glrlm_RunLengthNonUniformity	28.062
original_glrlm_RunLengthNonUniformityNormalized	4302.920
original_glrlm_RunPercentage	-3864.054
original_glrlm_RunVariance	560.560
original_glrlm_ShortRunEmphasis	-2541.102
original_glrlm_ShortRunHighGrayLevelEmphasis	-1908.146
original_glrlm_ShortRunLowGrayLevelEmphasis	-4814.307
original_glszm_GrayLevelNonUniformity	-53.053
original_glszm_GrayLevelNonUniformityNormalized	319.411
original_glszm_GrayLevelVariance	122.860
original_glszm_HighGrayLevelZoneEmphasis	378.899
original_glszm_LargeAreaEmphasis	-15886.862
original_glszm_LargeAreaHighGrayLevelEmphasis	82.505
original_glszm_LargeAreaLowGrayLevelEmphasis	7.548
original_glszm_LowGrayLevelZoneEmphasis	-88.120
original_glszm_SizeZoneNonUniformity	230.534
original_glszm_SizeZoneNonUniformityNormalized	97.881
original_glszm_SmallAreaEmphasis	117.047
original_glszm_SmallAreaHighGrayLevelEmphasis	-391.368
original_glszm_SmallAreaLowGrayLevelEmphasis	-41.633
original_glszm_ZoneEntropy	357.258
original_glszm_ZonePercentage	-9.757
original_glszm_ZoneVariance	16019.962
original_ngtdm_Busyness	-7.730
original_ngtdm_Coarseness	132.102

```
original_ngtdm_Complexity                            32.655
original_ngtdm_Contrast                             -57.692
original_ngtdm_Strength                              -0.409
original_shape_Elongation                            48.478
original_shape_Flatness                             -74.185
original_shape_LeastAxisLength                      121.499
original_shape_MajorAxisLength                       28.012
original_shape_Maximum2DDiameterColumn              -78.503
original_shape_Maximum2DDiameterRow                  13.764
original_shape_Maximum2DDiameterSlice               -46.871
original_shape_Maximum3DDiameter                     82.074
original_shape_MeshVolume                          9305.263
original_shape_MinorAxisLength                       73.962
original_shape_Sphericity                           -86.681
original_shape_SurfaceArea                          121.623
original_shape_SurfaceVolumeRatio                   228.433
original_shape_VoxelVolume                        -9437.327
                                                          p
original_firstorder_10Percentile                    < 2e-16
original_firstorder_90Percentile                    < 2e-16
original_firstorder_Energy                          < 2e-16
original_firstorder_Entropy                         < 2e-16
original_firstorder_InterquartileRange              < 2e-16
original_firstorder_Kurtosis                          0.913
original_firstorder_Maximum                         < 2e-16
original_firstorder_Mean                            < 2e-16
original_firstorder_MeanAbsoluteDeviation           < 2e-16
original_firstorder_Median                          < 2e-16
original_firstorder_Minimum                         < 2e-16
original_firstorder_Range                             1.000
original_firstorder_RobustMeanAbsoluteDeviation     < 2e-16
original_firstorder_RootMeanSquared                 < 2e-16
original_firstorder_Skewness                        < 2e-16
original_firstorder_TotalEnergy                       1.000
original_firstorder_Uniformity                      < 2e-16
original_firstorder_Variance                        < 2e-16
original_glcm_Autocorrelation                       < 2e-16
original_glcm_ClusterProminence                     < 2e-16
original_glcm_ClusterShade                          < 2e-16
original_glcm_ClusterTendency                       < 2e-16
original_glcm_Contrast                              < 2e-16
original_glcm_Correlation                           < 2e-16
original_glcm_DifferenceAverage                     < 2e-16
original_glcm_DifferenceEntropy                     < 2e-16
original_glcm_DifferenceVariance                    < 2e-16
original_glcm_Id                                    < 2e-16
original_glcm_Idm                                   < 2e-16
original_glcm_Idmn                                  < 2e-16
original_glcm_Idn                                   < 2e-16
original_glcm_Imc1                                  < 2e-16
original_glcm_Imc2                                  < 2e-16
original_glcm_InverseVariance                       < 2e-16
original_glcm_JointAverage                          < 2e-16
original_glcm_JointEnergy                           < 2e-16
original_glcm_JointEntropy                          < 2e-16
original_glcm_MCC                                   < 2e-16
```

```
original_glcm_MaximumProbability                        0.327
original_glcm_SumAverage                                1.000
original_glcm_SumEntropy                              < 2e-16
original_glcm_SumSquares                                1.000
original_gldm_DependenceEntropy                       < 2e-16
original_gldm_DependenceNonUniformity                 < 2e-16
original_gldm_DependenceNonUniformityNormalized       < 2e-16
original_gldm_DependenceVariance                      < 2e-16
original_gldm_GrayLevelNonUniformity                  < 2e-16
original_gldm_GrayLevelVariance                       < 2e-16
original_gldm_HighGrayLevelEmphasis                   < 2e-16
original_gldm_LargeDependenceEmphasis                 < 2e-16
original_gldm_LargeDependenceHighGrayLevelEmphasis    < 2e-16
original_gldm_LargeDependenceLowGrayLevelEmphasis     < 2e-16
original_gldm_LowGrayLevelEmphasis                    < 2e-16
original_gldm_SmallDependenceEmphasis                 < 2e-16
original_gldm_SmallDependenceHighGrayLevelEmphasis    < 2e-16
original_gldm_SmallDependenceLowGrayLevelEmphasis     < 2e-16
original_glrlm_GrayLevelNonUniformity                 < 2e-16
original_glrlm_GrayLevelNonUniformityNormalized       < 2e-16
original_glrlm_GrayLevelVariance                      < 2e-16
original_glrlm_HighGrayLevelRunEmphasis               < 2e-16
original_glrlm_LongRunEmphasis                        < 2e-16
original_glrlm_LongRunHighGrayLevelEmphasis           < 2e-16
original_glrlm_LongRunLowGrayLevelEmphasis            < 2e-16
original_glrlm_LowGrayLevelRunEmphasis                < 2e-16
original_glrlm_RunEntropy                             < 2e-16
original_glrlm_RunLengthNonUniformity                 < 2e-16
original_glrlm_RunLengthNonUniformityNormalized       < 2e-16
original_glrlm_RunPercentage                          < 2e-16
original_glrlm_RunVariance                            < 2e-16
original_glrlm_ShortRunEmphasis                       < 2e-16
original_glrlm_ShortRunHighGrayLevelEmphasis          < 2e-16
original_glrlm_ShortRunLowGrayLevelEmphasis           < 2e-16
original_glszm_GrayLevelNonUniformity                 < 2e-16
original_glszm_GrayLevelNonUniformityNormalized       < 2e-16
original_glszm_GrayLevelVariance                      < 2e-16
original_glszm_HighGrayLevelZoneEmphasis              < 2e-16
original_glszm_LargeAreaEmphasis                      < 2e-16
original_glszm_LargeAreaHighGrayLevelEmphasis         < 2e-16
original_glszm_LargeAreaLowGrayLevelEmphasis          4.41e-14
original_glszm_LowGrayLevelZoneEmphasis               < 2e-16
original_glszm_SizeZoneNonUniformity                  < 2e-16
original_glszm_SizeZoneNonUniformityNormalized        < 2e-16
original_glszm_SmallAreaEmphasis                      < 2e-16
original_glszm_SmallAreaHighGrayLevelEmphasis         < 2e-16
original_glszm_SmallAreaLowGrayLevelEmphasis          < 2e-16
original_glszm_ZoneEntropy                            < 2e-16
original_glszm_ZonePercentage                         < 2e-16
original_glszm_ZoneVariance                           < 2e-16
original_ngtdm_Busyness                               1.07e-14
original_ngtdm_Coarseness                             < 2e-16
original_ngtdm_Complexity                             < 2e-16
original_ngtdm_Contrast                               < 2e-16
original_ngtdm_Strength                                 0.683
original_shape_Elongation                             < 2e-16
```

```
original_shape_Flatness                         < 2e-16
original_shape_LeastAxisLength                   < 2e-16
original_shape_MajorAxisLength                   < 2e-16
original_shape_Maximum2DDiameterColumn          < 2e-16
original_shape_Maximum2DDiameterRow             < 2e-16
original_shape_Maximum2DDiameterSlice           < 2e-16
original_shape_Maximum3DDiameter                < 2e-16
original_shape_MeshVolume                       < 2e-16
original_shape_MinorAxisLength                   < 2e-16
original_shape_Sphericity                        < 2e-16
original_shape_SurfaceArea                       < 2e-16
original_shape_SurfaceVolumeRatio               < 2e-16
original_shape_VoxelVolume                       < 2e-16


Likelihood ratio test=311.4  on 107 df, p=< 2.2e-16
n= 361, number of events= 40



$model_list[[3]]
$model_list[[3]]$beststats
   mtry nodesize nodedepth time    AUCROC          BS
V1   11       35        50  2.9 0.7588664 0.09279211
    BS_scaled  C_score  Calib_alpha Calib_slope
V1 0.06338214 0.713853 -0.007200213   0.7486478


$model_list[[3]]$allstats
    mtry nodesize nodedepth time    AUCROC          BS
V1    10       15        50  2.9 0.7442246 0.09599919
V2    10       20        50  2.9 0.7501540 0.09445526
V3    10       25        50  2.9 0.7550204 0.09351700
V4    10       30        50  2.9 0.7544026 0.09314298
V5    10       35        50  2.9 0.7572285 0.09279324
V11   11       35        50  2.9 0.7588664 0.09279211
V21   22       35        50  2.9 0.7439801 0.09555481
V31   36       35        50  2.9 0.7325800 0.09837701
V41   54       35        50  2.9 0.7347806 0.09930519
V51   10       35        50  2.9 0.7572285 0.09279324
       BS_scaled   C_score  Calib_alpha Calib_slope
V1   0.031010831 0.7016093 -0.011765569   0.6089391
V2   0.046594766 0.7050805 -0.009185715   0.6501478
V3   0.056065339 0.7081098 -0.007527494   0.7034010
V4   0.059840589 0.7081729 -0.006615968   0.7186720
V5   0.063370803 0.7089303 -0.006362222   0.7494737
V11  0.063382137 0.7138530 -0.007200213   0.7486478
V21  0.035496273 0.7043547 -0.009519190   0.6163637
V31  0.007009704 0.6935311 -0.009631407   0.4788352
V41 -0.002359002 0.6950142 -0.014497214   0.4315477
V51  0.063370803 0.7089303 -0.006362222   0.7494737


$model_list[[3]]$model
                        Sample size: 361
                   Number of deaths: 48
                    Number of trees: 500
            Forest terminal node size: 35
        Average no. of terminal nodes: 10.546
No. of variables tried at each split: 11
```

```
                   Total no. of variables: 108
            Resampling used to grow trees: swor
         Resample size used to grow trees: 228
                                  Analysis: RSF
                                    Family: surv
                            Splitting rule: logrank *random*
              Number of random split points: 50
                               (OOB) CRPS: 0.06235314
       (OOB) Requested performance error: 0.28238783
```

```
$model_list[[3]]$vimp10
      original_glrlm_LowGrayLevelRunEmphasis
                            0.008805187
original_glrlm_ShortRunLowGrayLevelEmphasis
                            0.008550331
           original_glszm_GrayLevelVariance
                            0.007013705
        original_gldm_LowGrayLevelEmphasis
                            0.005120315
original_glrlm_LongRunHighGrayLevelEmphasis
                            0.004774434
                  original_firstorder_Range
                            0.004390496
                        original_glcm_Idmn
                            0.004230340
          original_shape_Maximum3DDiameter
                            0.004187397
              original_firstorder_Maximum
                            0.004138032
          original_gldm_DependenceVariance
                            0.004092218
            original_glcm_Autocorrelation
                            0.003910723
     original_shape_Maximum2DDiameterColumn
                            0.003841004
                original_glcm_JointAverage
                            0.003792221
      original_glrlm_RunLengthNonUniformity
                            0.003495364
              original_firstorder_Minimum
                            0.003470713
```

```
$model_list[[3]]$model_base
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef
original_firstorder_10Percentile	2.772e+01
original_firstorder_90Percentile	1.082e+01
original_firstorder_Energy	-1.645e+01
original_firstorder_Entropy	6.994e+01
original_firstorder_InterquartileRange	-5.901e+01
original_firstorder_Kurtosis	-7.485e+00

```
original_firstorder_Maximum                                    1.069e+00
original_firstorder_Mean                                      -5.096e+01
original_firstorder_MeanAbsoluteDeviation                      5.266e+00
original_firstorder_Median                                     2.724e+01
original_firstorder_Minimum                                    3.131e+01
original_firstorder_Range                                      0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation                8.025e+01
original_firstorder_RootMeanSquared                           -1.841e+01
original_firstorder_Skewness                                   2.404e+00
original_firstorder_TotalEnergy                                0.000e+00
original_firstorder_Uniformity                                 5.439e+01
original_firstorder_Variance                                   3.764e+03
original_glcm_Autocorrelation                                 -3.397e+02
original_glcm_ClusterProminence                                8.985e+02
original_glcm_ClusterShade                                    -7.149e+01
original_glcm_ClusterTendency                                 -1.863e+02
original_glcm_Contrast                                        -3.916e+02
original_glcm_Correlation                                     -2.275e+00
original_glcm_DifferenceAverage                                5.947e+02
original_glcm_DifferenceEntropy                               -6.472e+01
original_glcm_DifferenceVariance                              -5.680e+02
original_glcm_Id                                               3.583e+03
original_glcm_Idm                                             -3.132e+03
original_glcm_Idmn                                            -2.276e+01
original_glcm_Idn                                              1.477e+01
original_glcm_Imc1                                             1.631e+01
original_glcm_Imc2                                            -7.699e+00
original_glcm_InverseVariance                                  3.014e+02
original_glcm_JointAverage                                    -2.258e+00
original_glcm_JointEnergy                                     -6.585e+01
original_glcm_JointEntropy                                    -6.515e+01
original_glcm_MCC                                              5.960e-01
original_glcm_MaximumProbability                               9.207e+00
original_glcm_SumAverage                                       0.000e+00
original_glcm_SumEntropy                                       4.777e+01
original_glcm_SumSquares                                       0.000e+00
original_gldm_DependenceEntropy                                6.546e+00
original_gldm_DependenceNonUniformity                        -3.214e+01
original_gldm_DependenceNonUniformityNormalized               7.076e+01
original_gldm_DependenceVariance                               5.449e+00
original_gldm_GrayLevelNonUniformity                         -9.545e+00
original_gldm_GrayLevelVariance                              -3.817e+03
original_gldm_HighGrayLevelEmphasis                           4.589e+02
original_gldm_LargeDependenceEmphasis                         6.088e+01
original_gldm_LargeDependenceHighGrayLevelEmphasis           -1.272e+00
original_gldm_LargeDependenceLowGrayLevelEmphasis            -3.628e+01
original_gldm_LowGrayLevelEmphasis                            3.015e+02
original_gldm_SmallDependenceEmphasis                        -1.253e+02
original_gldm_SmallDependenceHighGrayLevelEmphasis            5.708e+01
original_gldm_SmallDependenceLowGrayLevelEmphasis             9.132e+00
original_glrlm_GrayLevelNonUniformity                         1.601e+01
original_glrlm_GrayLevelNonUniformityNormalized               2.920e+01
original_glrlm_GrayLevelVariance                              8.631e+01
original_glrlm_HighGrayLevelRunEmphasis                       2.290e+01
original_glrlm_LongRunEmphasis                               -5.683e+01
original_glrlm_LongRunHighGrayLevelEmphasis                  -1.373e+01
```

original_glrlm_LongRunLowGrayLevelEmphasis	-2.770e+01
original_glrlm_LowGrayLevelRunEmphasis	-9.890e+01
original_glrlm_RunEntropy	1.395e+01
original_glrlm_RunLengthNonUniformity	6.671e+01
original_glrlm_RunLengthNonUniformityNormalized	-9.676e+01
original_glrlm_RunPercentage	-6.537e+01
original_glrlm_RunVariance	4.267e+01
original_glrlm_ShortRunEmphasis	1.395e+02
original_glrlm_ShortRunHighGrayLevelEmphasis	-1.399e+02
original_glrlm_ShortRunLowGrayLevelEmphasis	-1.648e+02
original_glszm_GrayLevelNonUniformity	-1.796e+01
original_glszm_GrayLevelNonUniformityNormalized	-1.241e+00
original_glszm_GrayLevelVariance	3.866e+00
original_glszm_HighGrayLevelZoneEmphasis	2.571e+01
original_glszm_LargeAreaEmphasis	-2.985e+02
original_glszm_LargeAreaHighGrayLevelEmphasis	1.369e+01
original_glszm_LargeAreaLowGrayLevelEmphasis	4.574e+00
original_glszm_LowGrayLevelZoneEmphasis	-1.549e+01
original_glszm_SizeZoneNonUniformity	1.343e+01
original_glszm_SizeZoneNonUniformityNormalized	-9.607e+01
original_glszm_SmallAreaEmphasis	1.181e+02
original_glszm_SmallAreaHighGrayLevelEmphasis	-2.393e+01
original_glszm_SmallAreaLowGrayLevelEmphasis	4.418e+00
original_glszm_ZoneEntropy	-4.869e+00
original_glszm_ZonePercentage	3.414e+01
original_glszm_ZoneVariance	3.064e+02
original_ngtdm_Busyness	-2.822e+00
original_ngtdm_Coarseness	2.086e+00
original_ngtdm_Complexity	1.816e+00
original_ngtdm_Contrast	-4.752e+00
original_ngtdm_Strength	8.962e+00
original_shape_Elongation	1.166e+01
original_shape_Flatness	-1.676e+01
original_shape_LeastAxisLength	3.454e+01
original_shape_MajorAxisLength	1.028e+01
original_shape_Maximum2DDiameterColumn	-3.527e+00
original_shape_Maximum2DDiameterRow	-3.984e+00
original_shape_Maximum2DDiameterSlice	-3.510e+00
original_shape_Maximum3DDiameter	-2.068e+00
original_shape_MeshVolume	-6.064e+02
original_shape_MinorAxisLength	-1.375e+01
original_shape_Sphericity	-1.637e-01
original_shape_SurfaceArea	-1.776e+01
original_shape_SurfaceVolumeRatio	1.077e+02
original_shape_VoxelVolume	5.628e+02
	exp(coef)
original_firstorder_10Percentile	1.092e+12
original_firstorder_90Percentile	5.009e+04
original_firstorder_Energy	7.149e-08
original_firstorder_Entropy	2.362e+30
original_firstorder_InterquartileRange	2.365e-26
original_firstorder_Kurtosis	5.613e-04
original_firstorder_Maximum	2.913e+00
original_firstorder_Mean	7.420e-23
original_firstorder_MeanAbsoluteDeviation	1.937e+02
original_firstorder_Median	6.793e+11

```
original_firstorder_Minimum                                  3.949e+13
original_firstorder_Range                                    1.000e+00
original_firstorder_RobustMeanAbsoluteDeviation              7.111e+34
original_firstorder_RootMeanSquared                          1.010e-08
original_firstorder_Skewness                                 1.106e+01
original_firstorder_TotalEnergy                              1.000e+00
original_firstorder_Uniformity                               4.175e+23
original_firstorder_Variance                                      Inf
original_glcm_Autocorrelation                              2.871e-148
original_glcm_ClusterProminence                                  Inf
original_glcm_ClusterShade                                   8.925e-32
original_glcm_ClusterTendency                               1.181e-81
original_glcm_Contrast                                     8.728e-171
original_glcm_Correlation                                    1.028e-01
original_glcm_DifferenceAverage                            1.837e+258
original_glcm_DifferenceEntropy                             7.834e-29
original_glcm_DifferenceVariance                           2.084e-247
original_glcm_Id                                                 Inf
original_glcm_Idm                                            0.000e+00
original_glcm_Idmn                                           1.309e-10
original_glcm_Idn                                            2.593e+06
original_glcm_Imc1                                           1.210e+07
original_glcm_Imc2                                           4.531e-04
original_glcm_InverseVariance                               7.684e+130
original_glcm_JointAverage                                   1.046e-01
original_glcm_JointEnergy                                    2.516e-29
original_glcm_JointEntropy                                   5.069e-29
original_glcm_MCC                                            1.815e+00
original_glcm_MaximumProbability                            9.972e+03
original_glcm_SumAverage                                     1.000e+00
original_glcm_SumEntropy                                     5.572e+20
original_glcm_SumSquares                                     1.000e+00
original_gldm_DependenceEntropy                             6.964e+02
original_gldm_DependenceNonUniformity                       1.106e-14
original_gldm_DependenceNonUniformityNormalized             5.358e+30
original_gldm_DependenceVariance                            2.325e+02
original_gldm_GrayLevelNonUniformity                        7.152e-05
original_gldm_GrayLevelVariance                             0.000e+00
original_gldm_HighGrayLevelEmphasis                         2.010e+199
original_gldm_LargeDependenceEmphasis                       2.763e+26
original_gldm_LargeDependenceHighGrayLevelEmphasis          2.803e-01
original_gldm_LargeDependenceLowGrayLevelEmphasis           1.761e-16
original_gldm_LowGrayLevelEmphasis                          8.465e+130
original_gldm_SmallDependenceEmphasis                       3.940e-55
original_gldm_SmallDependenceHighGrayLevelEmphasis          6.159e+24
original_gldm_SmallDependenceLowGrayLevelEmphasis           9.250e+03
original_glrlm_GrayLevelNonUniformity                       8.999e+06
original_glrlm_GrayLevelNonUniformityNormalized             4.807e+12
original_glrlm_GrayLevelVariance                            3.049e+37
original_glrlm_HighGrayLevelRunEmphasis                     8.778e+09
original_glrlm_LongRunEmphasis                              2.093e-25
original_glrlm_LongRunHighGrayLevelEmphasis                 1.086e-06
original_glrlm_LongRunLowGrayLevelEmphasis                  9.324e-13
original_glrlm_LowGrayLevelRunEmphasis                      1.118e-43
original_glrlm_RunEntropy                                   1.148e+06
original_glrlm_RunLengthNonUniformity                       9.408e+28
```

original_glrlm_RunLengthNonUniformityNormalized	9.467e-43
original_glrlm_RunPercentage	4.078e-29
original_glrlm_RunVariance	3.410e+18
original_glrlm_ShortRunEmphasis	3.717e+60
original_glrlm_ShortRunHighGrayLevelEmphasis	1.749e-61
original_glrlm_ShortRunLowGrayLevelEmphasis	2.558e-72
original_glszm_GrayLevelNonUniformity	1.588e-08
original_glszm_GrayLevelNonUniformityNormalized	2.891e-01
original_glszm_GrayLevelVariance	4.777e+01
original_glszm_HighGrayLevelZoneEmphasis	1.469e+11
original_glszm_LargeAreaEmphasis	2.257e-130
original_glszm_LargeAreaHighGrayLevelEmphasis	8.786e+05
original_glszm_LargeAreaLowGrayLevelEmphasis	9.690e+01
original_glszm_LowGrayLevelZoneEmphasis	1.868e-07
original_glszm_SizeZoneNonUniformity	6.820e+05
original_glszm_SizeZoneNonUniformityNormalized	1.890e-42
original_glszm_SmallAreaEmphasis	2.038e+51
original_glszm_SmallAreaHighGrayLevelEmphasis	4.058e-11
original_glszm_SmallAreaLowGrayLevelEmphasis	8.289e+01
original_glszm_ZoneEntropy	7.684e-03
original_glszm_ZonePercentage	6.744e+14
original_glszm_ZoneVariance	1.173e+133
original_ngtdm_Busyness	5.949e-02
original_ngtdm_Coarseness	8.049e+00
original_ngtdm_Complexity	6.148e+00
original_ngtdm_Contrast	8.635e-03
original_ngtdm_Strength	7.802e+03
original_shape_Elongation	1.157e+05
original_shape_Flatness	5.241e-08
original_shape_LeastAxisLength	9.988e+14
original_shape_MajorAxisLength	2.923e+04
original_shape_Maximum2DDiameterColumn	2.940e-02
original_shape_Maximum2DDiameterRow	1.862e-02
original_shape_Maximum2DDiameterSlice	2.989e-02
original_shape_Maximum3DDiameter	1.264e-01
original_shape_MeshVolume	4.440e-264
original_shape_MinorAxisLength	1.068e-06
original_shape_Sphericity	8.490e-01
original_shape_SurfaceArea	1.928e-08
original_shape_SurfaceVolumeRatio	6.055e+46
original_shape_VoxelVolume	2.688e+244
	se(coef)
original_firstorder_10Percentile	2.085e+01
original_firstorder_90Percentile	1.519e+01
original_firstorder_Energy	6.347e+00
original_firstorder_Entropy	8.826e+01
original_firstorder_InterquartileRange	4.126e+01
original_firstorder_Kurtosis	2.945e+00
original_firstorder_Maximum	2.613e+00
original_firstorder_Mean	4.101e+01
original_firstorder_MeanAbsoluteDeviation	5.160e+01
original_firstorder_Median	2.038e+01
original_firstorder_Minimum	2.390e+01
original_firstorder_Range	0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation	5.326e+01
original_firstorder_RootMeanSquared	1.078e+01

original_firstorder_Skewness	1.849e+00
original_firstorder_TotalEnergy	0.000e+00
original_firstorder_Uniformity	4.023e+01
original_firstorder_Variance	1.610e+03
original_glcm_Autocorrelation	3.911e+02
original_glcm_ClusterProminence	3.370e+02
original_glcm_ClusterShade	7.469e+01
original_glcm_ClusterTendency	6.782e+01
original_glcm_Contrast	7.364e+02
original_glcm_Correlation	2.864e+00
original_glcm_DifferenceAverage	2.940e+02
original_glcm_DifferenceEntropy	5.020e+01
original_glcm_DifferenceVariance	4.803e+02
original_glcm_Id	1.584e+03
original_glcm_Idm	1.334e+03
original_glcm_Idmn	1.013e+01
original_glcm_Idn	9.482e+00
original_glcm_Imc1	9.441e+00
original_glcm_Imc2	1.010e+01
original_glcm_InverseVariance	1.416e+02
original_glcm_JointAverage	3.698e+01
original_glcm_JointEnergy	3.291e+01
original_glcm_JointEntropy	5.420e+01
original_glcm_MCC	2.458e+00
original_glcm_MaximumProbability	3.504e+00
original_glcm_SumAverage	0.000e+00
original_glcm_SumEntropy	5.074e+01
original_glcm_SumSquares	0.000e+00
original_gldm_DependenceEntropy	2.674e+01
original_gldm_DependenceNonUniformity	1.631e+01
original_gldm_DependenceNonUniformityNormalized	2.104e+01
original_gldm_DependenceVariance	1.716e+01
original_gldm_GrayLevelNonUniformity	7.471e+00
original_gldm_GrayLevelVariance	1.597e+03
original_gldm_HighGrayLevelEmphasis	4.828e+02
original_gldm_LargeDependenceEmphasis	7.341e+01
original_gldm_LargeDependenceHighGrayLevelEmphasis	1.692e+01
original_gldm_LargeDependenceLowGrayLevelEmphasis	4.368e+01
original_gldm_LowGrayLevelEmphasis	1.367e+02
original_gldm_SmallDependenceEmphasis	5.322e+01
original_gldm_SmallDependenceHighGrayLevelEmphasis	2.228e+01
original_gldm_SmallDependenceLowGrayLevelEmphasis	1.222e+01
original_glrlm_GrayLevelNonUniformity	9.186e+00
original_glrlm_GrayLevelNonUniformityNormalized	1.575e+01
original_glrlm_GrayLevelVariance	6.311e+01
original_glrlm_HighGrayLevelRunEmphasis	2.234e+02
original_glrlm_LongRunEmphasis	4.869e+01
original_glrlm_LongRunHighGrayLevelEmphasis	7.794e+00
original_glrlm_LongRunLowGrayLevelEmphasis	9.462e+00
original_glrlm_LowGrayLevelRunEmphasis	1.418e+02
original_glrlm_RunEntropy	5.303e+01
original_glrlm_RunLengthNonUniformity	2.487e+01
original_glrlm_RunLengthNonUniformityNormalized	8.140e+01
original_glrlm_RunPercentage	1.186e+02
original_glrlm_RunVariance	3.966e+01
original_glrlm_ShortRunEmphasis	6.087e+01

```
original_glrlm_ShortRunHighGrayLevelEmphasis          7.703e+01
original_glrlm_ShortRunLowGrayLevelEmphasis           1.601e+02
original_glszm_GrayLevelNonUniformity                 7.114e+00
original_glszm_GrayLevelNonUniformityNormalized       5.107e+00
original_glszm_GrayLevelVariance                      7.867e+00
original_glszm_HighGrayLevelZoneEmphasis              3.249e+01
original_glszm_LargeAreaEmphasis                      6.396e+02
original_glszm_LargeAreaHighGrayLevelEmphasis         5.557e+00
original_glszm_LargeAreaLowGrayLevelEmphasis          1.282e+01
original_glszm_LowGrayLevelZoneEmphasis               2.088e+01
original_glszm_SizeZoneNonUniformity                  8.675e+00
original_glszm_SizeZoneNonUniformityNormalized        3.113e+01
original_glszm_SmallAreaEmphasis                      3.664e+01
original_glszm_SmallAreaHighGrayLevelEmphasis         1.772e+01
original_glszm_SmallAreaLowGrayLevelEmphasis          1.127e+01
original_glszm_ZoneEntropy                            6.920e+00
original_glszm_ZonePercentage                         2.983e+01
original_glszm_ZoneVariance                           6.388e+02
original_ngtdm_Busyness                               7.769e+00
original_ngtdm_Coarseness                             2.741e+00
original_ngtdm_Complexity                             9.990e+00
original_ngtdm_Contrast                               2.011e+01
original_ngtdm_Strength                               3.854e+00
original_shape_Elongation                             4.716e+00
original_shape_Flatness                               6.665e+00
original_shape_LeastAxisLength                        1.388e+01
original_shape_MajorAxisLength                        4.288e+00
original_shape_Maximum2DDiameterColumn                2.703e+00
original_shape_Maximum2DDiameterRow                   2.409e+00
original_shape_Maximum2DDiameterSlice                 2.527e+00
original_shape_Maximum3DDiameter                      5.101e+00
original_shape_MeshVolume                             3.937e+02
original_shape_MinorAxisLength                        6.705e+00
original_shape_Sphericity                             7.419e+00
original_shape_SurfaceArea                            5.799e+00
original_shape_SurfaceVolumeRatio                     6.021e+01
original_shape_VoxelVolume                            3.919e+02
                                                           z
original_firstorder_10Percentile                      1.330
original_firstorder_90Percentile                      0.712
original_firstorder_Energy                           -2.592
original_firstorder_Entropy                           0.792
original_firstorder_InterquartileRange               -1.430
original_firstorder_Kurtosis                         -2.542
original_firstorder_Maximum                           0.409
original_firstorder_Mean                             -1.243
original_firstorder_MeanAbsoluteDeviation             0.102
original_firstorder_Median                            1.337
original_firstorder_Minimum                           1.310
original_firstorder_Range                               NaN
original_firstorder_RobustMeanAbsoluteDeviation       1.507
original_firstorder_RootMeanSquared                  -1.708
original_firstorder_Skewness                          1.300
original_firstorder_TotalEnergy                         NaN
original_firstorder_Uniformity                        1.352
original_firstorder_Variance                          2.338
```

```
original_glcm_Autocorrelation                                  -0.869
original_glcm_ClusterProminence                                 2.666
original_glcm_ClusterShade                                     -0.957
original_glcm_ClusterTendency                                  -2.748
original_glcm_Contrast                                         -0.532
original_glcm_Correlation                                      -0.794
original_glcm_DifferenceAverage                                 2.023
original_glcm_DifferenceEntropy                                -1.289
original_glcm_DifferenceVariance                               -1.183
original_glcm_Id                                                2.262
original_glcm_Idm                                              -2.348
original_glcm_Idmn                                             -2.245
original_glcm_Idn                                               1.557
original_glcm_Imc1                                              1.727
original_glcm_Imc2                                             -0.762
original_glcm_InverseVariance                                   2.128
original_glcm_JointAverage                                     -0.061
original_glcm_JointEnergy                                      -2.001
original_glcm_JointEntropy                                     -1.202
original_glcm_MCC                                               0.242
original_glcm_MaximumProbability                                2.628
original_glcm_SumAverage                                           NaN
original_glcm_SumEntropy                                        0.942
original_glcm_SumSquares                                          NaN
original_gldm_DependenceEntropy                                 0.245
original_gldm_DependenceNonUniformity                          -1.970
original_gldm_DependenceNonUniformityNormalized                 3.363
original_gldm_DependenceVariance                                0.318
original_gldm_GrayLevelNonUniformity                          -1.278
original_gldm_GrayLevelVariance                               -2.390
original_gldm_HighGrayLevelEmphasis                            0.951
original_gldm_LargeDependenceEmphasis                          0.829
original_gldm_LargeDependenceHighGrayLevelEmphasis -0.075
original_gldm_LargeDependenceLowGrayLevelEmphasis  -0.830
original_gldm_LowGrayLevelEmphasis                             2.205
original_gldm_SmallDependenceEmphasis                         -2.354
original_gldm_SmallDependenceHighGrayLevelEmphasis  2.562
original_gldm_SmallDependenceLowGrayLevelEmphasis   0.747
original_glrlm_GrayLevelNonUniformity                          1.743
original_glrlm_GrayLevelNonUniformityNormalized               1.854
original_glrlm_GrayLevelVariance                              1.368
original_glrlm_HighGrayLevelRunEmphasis                       0.102
original_glrlm_LongRunEmphasis                               -1.167
original_glrlm_LongRunHighGrayLevelEmphasis                  -1.762
original_glrlm_LongRunLowGrayLevelEmphasis                   -2.928
original_glrlm_LowGrayLevelRunEmphasis                       -0.697
original_glrlm_RunEntropy                                     0.263
original_glrlm_RunLengthNonUniformity                        2.682
original_glrlm_RunLengthNonUniformityNormalized             -1.189
original_glrlm_RunPercentage                                -0.551
original_glrlm_RunVariance                                    1.076
original_glrlm_ShortRunEmphasis                              2.291
original_glrlm_ShortRunHighGrayLevelEmphasis                -1.816
original_glrlm_ShortRunLowGrayLevelEmphasis                 -1.030
original_glszm_GrayLevelNonUniformity                       -2.524
original_glszm_GrayLevelNonUniformityNormalized            -0.243
```

original_glszm_GrayLevelVariance	0.491
original_glszm_HighGrayLevelZoneEmphasis	0.792
original_glszm_LargeAreaEmphasis	-0.467
original_glszm_LargeAreaHighGrayLevelEmphasis	2.463
original_glszm_LargeAreaLowGrayLevelEmphasis	0.357
original_glszm_LowGrayLevelZoneEmphasis	-0.742
original_glszm_SizeZoneNonUniformity	1.549
original_glszm_SizeZoneNonUniformityNormalized	-3.086
original_glszm_SmallAreaEmphasis	3.224
original_glszm_SmallAreaHighGrayLevelEmphasis	-1.350
original_glszm_SmallAreaLowGrayLevelEmphasis	0.392
original_glszm_ZoneEntropy	-0.704
original_glszm_ZonePercentage	1.144
original_glszm_ZoneVariance	0.480
original_ngtdm_Busyness	-0.363
original_ngtdm_Coarseness	0.761
original_ngtdm_Complexity	0.182
original_ngtdm_Contrast	-0.236
original_ngtdm_Strength	2.325
original_shape_Elongation	2.472
original_shape_Flatness	-2.515
original_shape_LeastAxisLength	2.488
original_shape_MajorAxisLength	2.398
original_shape_Maximum2DDiameterColumn	-1.305
original_shape_Maximum2DDiameterRow	-1.654
original_shape_Maximum2DDiameterSlice	-1.389
original_shape_Maximum3DDiameter	-0.405
original_shape_MeshVolume	-1.540
original_shape_MinorAxisLength	-2.051
original_shape_Sphericity	-0.022
original_shape_SurfaceArea	-3.064
original_shape_SurfaceVolumeRatio	1.789
original_shape_VoxelVolume	1.436

	p
original_firstorder_10Percentile	0.183634
original_firstorder_90Percentile	0.476174
original_firstorder_Energy	0.009534
original_firstorder_Entropy	0.428142
original_firstorder_InterquartileRange	0.152672
original_firstorder_Kurtosis	0.011038
original_firstorder_Maximum	0.682378
original_firstorder_Mean	0.213995
original_firstorder_MeanAbsoluteDeviation	0.918715
original_firstorder_Median	0.181365
original_firstorder_Minimum	0.190170
original_firstorder_Range	NaN
original_firstorder_RobustMeanAbsoluteDeviation	0.131871
original_firstorder_RootMeanSquared	0.087655
original_firstorder_Skewness	0.193581
original_firstorder_TotalEnergy	NaN
original_firstorder_Uniformity	0.176374
original_firstorder_Variance	0.019410
original_glcm_Autocorrelation	0.385054
original_glcm_ClusterProminence	0.007669
original_glcm_ClusterShade	0.338467
original_glcm_ClusterTendency	0.006000

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original_glcm_Contrast                                    0.594906
original_glcm_Correlation                                 0.427049
original_glcm_DifferenceAverage                           0.043110
original_glcm_DifferenceEntropy                           0.197312
original_glcm_DifferenceVariance                          0.236932
original_glcm_Id                                          0.023712
original_glcm_Idm                                         0.018859
original_glcm_Idmn                                        0.024746
original_glcm_Idn                                         0.119353
original_glcm_Imc1                                        0.084081
original_glcm_Imc2                                        0.445867
original_glcm_InverseVariance                             0.033350
original_glcm_JointAverage                                0.951313
original_glcm_JointEnergy                                 0.045409
original_glcm_JointEntropy                                0.229320
original_glcm_MCC                                         0.808441
original_glcm_MaximumProbability                          0.008599
original_glcm_SumAverage                                       NaN
original_glcm_SumEntropy                                  0.346437
original_glcm_SumSquares                                       NaN
original_gldm_DependenceEntropy                           0.806603
original_gldm_DependenceNonUniformity                     0.048804
original_gldm_DependenceNonUniformityNormalized           0.000771
original_gldm_DependenceVariance                          0.750860
original_gldm_GrayLevelNonUniformity                      0.201362
original_gldm_GrayLevelVariance                           0.016838
original_gldm_HighGrayLevelEmphasis                       0.341853
original_gldm_LargeDependenceEmphasis                     0.406921
original_gldm_LargeDependenceHighGrayLevelEmphasis 0.940081
original_gldm_LargeDependenceLowGrayLevelEmphasis  0.406257
original_gldm_LowGrayLevelEmphasis                        0.027471
original_gldm_SmallDependenceEmphasis                     0.018575
original_gldm_SmallDependenceHighGrayLevelEmphasis 0.010410
original_gldm_SmallDependenceLowGrayLevelEmphasis  0.454992
original_glrlm_GrayLevelNonUniformity                     0.081303
original_glrlm_GrayLevelNonUniformityNormalized           0.063753
original_glrlm_GrayLevelVariance                          0.171400
original_glrlm_HighGrayLevelRunEmphasis                   0.918360
original_glrlm_LongRunEmphasis                            0.243185
original_glrlm_LongRunHighGrayLevelEmphasis               0.078061
original_glrlm_LongRunLowGrayLevelEmphasis                0.003416
original_glrlm_LowGrayLevelRunEmphasis                    0.485598
original_glrlm_RunEntropy                                 0.792437
original_glrlm_RunLengthNonUniformity                     0.007311
original_glrlm_RunLengthNonUniformityNormalized           0.234563
original_glrlm_RunPercentage                              0.581560
original_glrlm_RunVariance                                0.281924
original_glrlm_ShortRunEmphasis                           0.021946
original_glrlm_ShortRunHighGrayLevelEmphasis              0.069363
original_glrlm_ShortRunLowGrayLevelEmphasis               0.303211
original_glszm_GrayLevelNonUniformity                     0.011587
original_glszm_GrayLevelNonUniformityNormalized           0.808029
original_glszm_GrayLevelVariance                          0.623079
original_glszm_HighGrayLevelZoneEmphasis                  0.428637
original_glszm_LargeAreaEmphasis                          0.640682
original_glszm_LargeAreaHighGrayLevelEmphasis             0.013783
```

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original_glszm_LargeAreaLowGrayLevelEmphasis            0.721309
original_glszm_LowGrayLevelZoneEmphasis                 0.458065
original_glszm_SizeZoneNonUniformity                    0.121497
original_glszm_SizeZoneNonUniformityNormalized          0.002028
original_glszm_SmallAreaEmphasis                        0.001264
original_glszm_SmallAreaHighGrayLevelEmphasis           0.176983
original_glszm_SmallAreaLowGrayLevelEmphasis            0.695071
original_glszm_ZoneEntropy                              0.481733
original_glszm_ZonePercentage                           0.252431
original_glszm_ZoneVariance                             0.631451
original_ngtdm_Busyness                                 0.716434
original_ngtdm_Coarseness                               0.446652
original_ngtdm_Complexity                               0.855746
original_ngtdm_Contrast                                 0.813222
original_ngtdm_Strength                                 0.020048
original_shape_Elongation                               0.013420
original_shape_Flatness                                 0.011899
original_shape_LeastAxisLength                          0.012844
original_shape_MajorAxisLength                          0.016474
original_shape_Maximum2DDiameterColumn                  0.191963
original_shape_Maximum2DDiameterRow                     0.098206
original_shape_Maximum2DDiameterSlice                   0.164876
original_shape_Maximum3DDiameter                        0.685188
original_shape_MeshVolume                               0.123485
original_shape_MinorAxisLength                          0.040301
original_shape_Sphericity                               0.982393
original_shape_SurfaceArea                              0.002187
original_shape_SurfaceVolumeRatio                       0.073593
original_shape_VoxelVolume                              0.150953


Likelihood ratio test=247.5  on 107 df, p=3.836e-13
n= 361, number of events= 48



$model_list[[4]]
$model_list[[4]]$beststats
   mtry nodesize nodedepth time    AUCROC          BS
V5   10       30        50 3.1 0.7678388 0.08191559
     BS_scaled   C_score  Calib_alpha Calib_slope
V5 0.07361466 0.7278592 -0.002844504   0.7926165


$model_list[[4]]$allstats
   mtry nodesize nodedepth time    AUCROC          BS
V1   10       15        50 3.1 0.7602697 0.08321738
V2   10       20        50 3.1 0.7608874 0.08300318
V3   10       25        50 3.1 0.7607269 0.08259782
V4   10       30        50 3.1 0.7678388 0.08191559
V5   10       35        50 3.1 0.7665710 0.08176579
V11  11       30        50 3.1 0.7631123 0.08210626
V21  22       30        50 3.1 0.7634669 0.08316447
V31  36       30        50 3.1 0.7644084 0.08395157
V41  54       30        50 3.1 0.7640097 0.08474569
V51  10       30        50 3.1 0.7678388 0.08191559
     BS_scaled   C_score  Calib_alpha Calib_slope
V1  0.05889266 0.7178152 -0.007984552   0.6726286
V2  0.06131504 0.7212610 -0.005455016   0.7135028
```

```
V3  0.06589928 0.7222874 -0.003941519   0.7549913
V4  0.07361466 0.7278592 -0.002844504   0.7926165
V5  0.07530877 0.7273460 -0.002634537   0.8249558
V11 0.07145832 0.7248534 -0.005048551   0.7687994
V21 0.05949102 0.7299120 -0.005081660   0.6675303
V31 0.05058968 0.7263930 -0.005765490   0.6094436
V41 0.04160900 0.7302419 -0.009240307   0.6067582
V51 0.07361466 0.7278592 -0.002844504   0.7926165


$model_list[[4]]$model
                          Sample size: 360
                     Number of deaths: 41
                      Number of trees: 500
            Forest terminal node size: 30
        Average no. of terminal nodes: 10.09
No. of variables tried at each split: 10
               Total no. of variables: 108
         Resampling used to grow trees: swor
    Resample size used to grow trees: 228
                             Analysis: RSF
                               Family: surv
                        Splitting rule: logrank *random*
         Number of random split points: 50
                           (OOB) CRPS: 0.05393577
    (OOB) Requested performance error: 0.26629279


$model_list[[4]]$vimp10
                    original_glszm_GrayLevelVariance
                              0.011756720
                         original_firstorder_Range
                              0.008301261
                               original_glcm_Idmn
                              0.008085168
        original_glrlm_LongRunHighGrayLevelEmphasis
                              0.006733094
                       original_firstorder_Maximum
                              0.006493826
   original_glszm_GrayLevelNonUniformityNormalized
                              0.006385598
           original_glrlm_LowGrayLevelRunEmphasis
                              0.005626575
              original_glszm_SizeZoneNonUniformity
                              0.004869926
original_gldm_LargeDependenceHighGrayLevelEmphasis
                              0.004813248
        original_glrlm_ShortRunLowGrayLevelEmphasis
                              0.004805400
                        original_firstorder_Energy
                              0.004221467
       original_glszm_SmallAreaHighGrayLevelEmphasis
                              0.003863291
       original_glszm_LargeAreaHighGrayLevelEmphasis
                              0.003799731
                     original_glcm_Autocorrelation
                              0.003702055
```

```
                         original_glcm_Idn
                           0.003649688


$model_list[[4]]$model_base
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef
original_firstorder_10Percentile	2.960e+00
original_firstorder_90Percentile	3.526e-01
original_firstorder_Energy	-7.371e-01
original_firstorder_Entropy	-2.582e+01
original_firstorder_InterquartileRange	1.481e+00
original_firstorder_Kurtosis	4.341e-01
original_firstorder_Maximum	2.691e-01
original_firstorder_Mean	-1.872e+00
original_firstorder_MeanAbsoluteDeviation	1.220e+01
original_firstorder_Median	-7.229e-01
original_firstorder_Minimum	1.014e+01
original_firstorder_Range	0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation	1.166e-01
original_firstorder_RootMeanSquared	-2.108e+00
original_firstorder_Skewness	5.727e-01
original_firstorder_TotalEnergy	0.000e+00
original_firstorder_Uniformity	-9.457e+00
original_firstorder_Variance	4.677e+02
original_glcm_Autocorrelation	-6.582e+01
original_glcm_ClusterProminence	-3.445e+00
original_glcm_ClusterShade	-1.195e+00
original_glcm_ClusterTendency	-4.464e+00
original_glcm_Contrast	1.976e+02
original_glcm_Correlation	-3.892e+00
original_glcm_DifferenceAverage	-1.834e+01
original_glcm_DifferenceEntropy	2.589e+00
original_glcm_DifferenceVariance	-1.799e+02
original_glcm_Id	5.752e+01
original_glcm_Idm	-7.627e+01
original_glcm_Idmn	-2.229e+00
original_glcm_Idn	-5.497e-01
original_glcm_Imc1	-4.354e+00
original_glcm_Imc2	-2.722e-01
original_glcm_InverseVariance	4.018e+00
original_glcm_JointAverage	1.045e+01
original_glcm_JointEnergy	3.959e-01
original_glcm_JointEntropy	-9.359e+00
original_glcm_MCC	6.271e-01
original_glcm_MaximumProbability	2.384e+00
original_glcm_SumAverage	0.000e+00
original_glcm_SumEntropy	6.646e+00
original_glcm_SumSquares	0.000e+00
original_gldm_DependenceEntropy	-4.882e+00
original_gldm_DependenceNonUniformity	6.606e+00
original_gldm_DependenceNonUniformityNormalized	-8.894e-01
original_gldm_DependenceVariance	-2.716e+00

```
original_gldm_GrayLevelNonUniformity                      -7.835e-01
original_gldm_GrayLevelVariance                           -4.568e+02
original_gldm_HighGrayLevelEmphasis                        8.309e+01
original_gldm_LargeDependenceEmphasis                     -7.511e+00
original_gldm_LargeDependenceHighGrayLevelEmphasis         1.219e+01
original_gldm_LargeDependenceLowGrayLevelEmphasis         -9.661e+00
original_gldm_LowGrayLevelEmphasis                        -7.169e+00
original_gldm_SmallDependenceEmphasis                      1.547e+01
original_gldm_SmallDependenceHighGrayLevelEmphasis        -8.169e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis          5.826e+00
original_glrlm_GrayLevelNonUniformity                      6.051e-01
original_glrlm_GrayLevelNonUniformityNormalized            4.871e+00
original_glrlm_GrayLevelVariance                          -8.751e+00
original_glrlm_HighGrayLevelRunEmphasis                   -5.527e+01
original_glrlm_LongRunEmphasis                             1.296e+01
original_glrlm_LongRunHighGrayLevelEmphasis               -1.747e+00
original_glrlm_LongRunLowGrayLevelEmphasis                 3.070e+00
original_glrlm_LowGrayLevelRunEmphasis                     5.894e+01
original_glrlm_RunEntropy                                  2.406e+01
original_glrlm_RunLengthNonUniformity                      4.952e+00
original_glrlm_RunLengthNonUniformityNormalized           -2.063e+01
original_glrlm_RunPercentage                              -1.736e+01
original_glrlm_RunVariance                                -1.761e+01
original_glrlm_ShortRunEmphasis                            1.850e+01
original_glrlm_ShortRunHighGrayLevelEmphasis               4.396e+01
original_glrlm_ShortRunLowGrayLevelEmphasis               -4.793e+01
original_glszm_GrayLevelNonUniformity                      8.616e-01
original_glszm_GrayLevelNonUniformityNormalized            2.374e+00
original_glszm_GrayLevelVariance                           6.992e-01
original_glszm_HighGrayLevelZoneEmphasis                  -2.150e+01
original_glszm_LargeAreaEmphasis                          -1.064e+02
original_glszm_LargeAreaHighGrayLevelEmphasis              3.540e-02
original_glszm_LargeAreaLowGrayLevelEmphasis               1.858e+00
original_glszm_LowGrayLevelZoneEmphasis                   -4.816e+00
original_glszm_SizeZoneNonUniformity                       1.695e+00
original_glszm_SizeZoneNonUniformityNormalized            -4.991e+00
original_glszm_SmallAreaEmphasis                           2.421e+00
original_glszm_SmallAreaHighGrayLevelEmphasis              1.458e+01
original_glszm_SmallAreaLowGrayLevelEmphasis              -2.321e-01
original_glszm_ZoneEntropy                                 2.467e+00
original_glszm_ZonePercentage                             -2.251e+01
original_glszm_ZoneVariance                                1.082e+02
original_ngtdm_Busyness                                   -2.848e+00
original_ngtdm_Coarseness                                  5.281e-01
original_ngtdm_Complexity                                 -2.983e+00
original_ngtdm_Contrast                                   -8.163e+00
original_ngtdm_Strength                                    2.794e-01
original_shape_Elongation                                  1.190e+00
original_shape_Flatness                                   -1.102e+00
original_shape_LeastAxisLength                             2.393e+00
original_shape_MajorAxisLength                             6.482e-01
original_shape_Maximum2DDiameterColumn                    -1.591e+00
original_shape_Maximum2DDiameterRow                        2.450e-01
original_shape_Maximum2DDiameterSlice                     -8.457e-01
original_shape_Maximum3DDiameter                           3.192e+00
original_shape_MeshVolume                                  2.821e+02
```

original_shape_MinorAxisLength	-1.258e+00
original_shape_Sphericity	6.896e-01
original_shape_SurfaceArea	-3.724e+00
original_shape_SurfaceVolumeRatio	2.979e+01
original_shape_VoxelVolume	-2.916e+02
	exp(coef)
original_firstorder_10Percentile	1.930e+01
original_firstorder_90Percentile	1.423e+00
original_firstorder_Energy	4.785e-01
original_firstorder_Entropy	6.127e-12
original_firstorder_InterquartileRange	4.399e+00
original_firstorder_Kurtosis	1.544e+00
original_firstorder_Maximum	1.309e+00
original_firstorder_Mean	1.538e-01
original_firstorder_MeanAbsoluteDeviation	1.994e+05
original_firstorder_Median	4.854e-01
original_firstorder_Minimum	2.534e+04
original_firstorder_Range	1.000e+00
original_firstorder_RobustMeanAbsoluteDeviation	1.124e+00
original_firstorder_RootMeanSquared	1.214e-01
original_firstorder_Skewness	1.773e+00
original_firstorder_TotalEnergy	1.000e+00
original_firstorder_Uniformity	7.816e-05
original_firstorder_Variance	1.336e+203
original_glcm_Autocorrelation	2.605e-29
original_glcm_ClusterProminence	3.192e-02
original_glcm_ClusterShade	3.028e-01
original_glcm_ClusterTendency	1.152e-02
original_glcm_Contrast	6.768e+85
original_glcm_Correlation	2.040e-02
original_glcm_DifferenceAverage	1.089e-08
original_glcm_DifferenceEntropy	1.331e+01
original_glcm_DifferenceVariance	7.731e-79
original_glcm_Id	9.581e+24
original_glcm_Idm	7.520e-34
original_glcm_Idmn	1.076e-01
original_glcm_Idn	5.771e-01
original_glcm_Imc1	1.285e-02
original_glcm_Imc2	7.617e-01
original_glcm_InverseVariance	5.559e+01
original_glcm_JointAverage	3.455e+04
original_glcm_JointEnergy	1.486e+00
original_glcm_JointEntropy	8.619e-05
original_glcm_MCC	1.872e+00
original_glcm_MaximumProbability	1.085e+01
original_glcm_SumAverage	1.000e+00
original_glcm_SumEntropy	7.699e+02
original_glcm_SumSquares	1.000e+00
original_gldm_DependenceEntropy	7.581e-03
original_gldm_DependenceNonUniformity	7.399e+02
original_gldm_DependenceNonUniformityNormalized	4.109e-01
original_gldm_DependenceVariance	6.613e-02
original_gldm_GrayLevelNonUniformity	4.568e-01
original_gldm_GrayLevelVariance	4.061e-199
original_gldm_HighGrayLevelEmphasis	1.217e+36
original_gldm_LargeDependenceEmphasis	5.469e-04

original_gldm_LargeDependenceHighGrayLevelEmphasis	1.964e+05
original_gldm_LargeDependenceLowGrayLevelEmphasis	6.374e-05
original_gldm_LowGrayLevelEmphasis	7.704e-04
original_gldm_SmallDependenceEmphasis	5.209e+06
original_gldm_SmallDependenceHighGrayLevelEmphasis	4.418e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis	3.391e+02
original_glrlm_GrayLevelNonUniformity	1.831e+00
original_glrlm_GrayLevelNonUniformityNormalized	1.305e+02
original_glrlm_GrayLevelVariance	1.583e-04
original_glrlm_HighGrayLevelRunEmphasis	9.873e-25
original_glrlm_LongRunEmphasis	4.233e+05
original_glrlm_LongRunHighGrayLevelEmphasis	1.743e-01
original_glrlm_LongRunLowGrayLevelEmphasis	2.155e+01
original_glrlm_LowGrayLevelRunEmphasis	3.975e+25
original_glrlm_RunEntropy	2.821e+10
original_glrlm_RunLengthNonUniformity	1.414e+02
original_glrlm_RunLengthNonUniformityNormalized	1.100e-09
original_glrlm_RunPercentage	2.879e-08
original_glrlm_RunVariance	2.244e-08
original_glrlm_ShortRunEmphasis	1.082e+08
original_glrlm_ShortRunHighGrayLevelEmphasis	1.240e+19
original_glrlm_ShortRunLowGrayLevelEmphasis	1.528e-21
original_glszm_GrayLevelNonUniformity	2.367e+00
original_glszm_GrayLevelNonUniformityNormalized	1.074e+01
original_glszm_GrayLevelVariance	2.012e+00
original_glszm_HighGrayLevelZoneEmphasis	4.591e-10
original_glszm_LargeAreaEmphasis	6.421e-47
original_glszm_LargeAreaHighGrayLevelEmphasis	1.036e+00
original_glszm_LargeAreaLowGrayLevelEmphasis	6.411e+00
original_glszm_LowGrayLevelZoneEmphasis	8.100e-03
original_glszm_SizeZoneNonUniformity	5.446e+00
original_glszm_SizeZoneNonUniformityNormalized	6.796e-03
original_glszm_SmallAreaEmphasis	1.126e+01
original_glszm_SmallAreaHighGrayLevelEmphasis	2.149e+06
original_glszm_SmallAreaLowGrayLevelEmphasis	7.929e-01
original_glszm_ZoneEntropy	1.179e+01
original_glszm_ZonePercentage	1.671e-10
original_glszm_ZoneVariance	9.893e+46
original_ngtdm_Busyness	5.794e-02
original_ngtdm_Coarseness	1.696e+00
original_ngtdm_Complexity	5.064e-02
original_ngtdm_Contrast	2.849e-04
original_ngtdm_Strength	1.322e+00
original_shape_Elongation	3.288e+00
original_shape_Flatness	3.322e-01
original_shape_LeastAxisLength	1.094e+01
original_shape_MajorAxisLength	1.912e+00
original_shape_Maximum2DDiameterColumn	2.038e-01
original_shape_Maximum2DDiameterRow	1.278e+00
original_shape_Maximum2DDiameterSlice	4.293e-01
original_shape_Maximum3DDiameter	2.434e+01
original_shape_MeshVolume	3.175e+122
original_shape_MinorAxisLength	2.843e-01
original_shape_Sphericity	1.993e+00
original_shape_SurfaceArea	2.413e-02
original_shape_SurfaceVolumeRatio	8.638e+12

original_shape_VoxelVolume	2.385e-127
	se(coef)
original_firstorder_10Percentile	1.315e-01
original_firstorder_90Percentile	9.475e-02
original_firstorder_Energy	7.491e-02
original_firstorder_Entropy	1.394e-01
original_firstorder_InterquartileRange	1.479e-01
original_firstorder_Kurtosis	1.384e-01
original_firstorder_Maximum	1.361e-01
original_firstorder_Mean	1.327e-01
original_firstorder_MeanAbsoluteDeviation	1.266e-01
original_firstorder_Median	1.501e-01
original_firstorder_Minimum	1.667e-01
original_firstorder_Range	1.410e-01
original_firstorder_RobustMeanAbsoluteDeviation	1.513e-01
original_firstorder_RootMeanSquared	1.318e-01
original_firstorder_Skewness	1.480e-01
original_firstorder_TotalEnergy	7.491e-02
original_firstorder_Uniformity	1.580e-01
original_firstorder_Variance	1.980e-01
original_glcm_Autocorrelation	1.622e-01
original_glcm_ClusterProminence	4.524e-01
original_glcm_ClusterShade	2.735e-01
original_glcm_ClusterTendency	1.721e-01
original_glcm_Contrast	4.022e-01
original_glcm_Correlation	1.559e-01
original_glcm_DifferenceAverage	1.506e-01
original_glcm_DifferenceEntropy	1.446e-01
original_glcm_DifferenceVariance	4.220e-01
original_glcm_Id	1.420e-01
original_glcm_Idm	1.407e-01
original_glcm_Idmn	1.704e-01
original_glcm_Idn	1.522e-01
original_glcm_Imc1	1.508e-01
original_glcm_Imc2	1.739e-01
original_glcm_InverseVariance	1.522e-01
original_glcm_JointAverage	1.613e-01
original_glcm_JointEnergy	1.722e-01
original_glcm_JointEntropy	1.368e-01
original_glcm_MCC	1.814e-01
original_glcm_MaximumProbability	1.616e-01
original_glcm_SumAverage	1.613e-01
original_glcm_SumEntropy	1.410e-01
original_glcm_SumSquares	2.011e-01
original_gldm_DependenceEntropy	1.512e-01
original_gldm_DependenceNonUniformity	1.200e-01
original_gldm_DependenceNonUniformityNormalized	1.669e-01
original_gldm_DependenceVariance	1.600e-01
original_gldm_GrayLevelNonUniformity	1.068e-01
original_gldm_GrayLevelVariance	1.978e-01
original_gldm_HighGrayLevelEmphasis	1.622e-01
original_gldm_LargeDependenceEmphasis	1.647e-01
original_gldm_LargeDependenceHighGrayLevelEmphasis	1.299e-01
original_gldm_LargeDependenceLowGrayLevelEmphasis	2.943e-01
original_gldm_LowGrayLevelEmphasis	1.112e-01
original_gldm_SmallDependenceEmphasis	1.655e-01

original_gldm_SmallDependenceHighGrayLevelEmphasis	1.430e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis	1.298e-01
original_glrlm_GrayLevelNonUniformity	1.089e-01
original_glrlm_GrayLevelNonUniformityNormalized	1.516e-01
original_glrlm_GrayLevelVariance	1.899e-01
original_glrlm_HighGrayLevelRunEmphasis	1.616e-01
original_glrlm_LongRunEmphasis	1.961e-01
original_glrlm_LongRunHighGrayLevelEmphasis	1.362e-01
original_glrlm_LongRunLowGrayLevelEmphasis	2.079e-01
original_glrlm_LowGrayLevelRunEmphasis	1.157e-01
original_glrlm_RunEntropy	1.509e-01
original_glrlm_RunLengthNonUniformity	1.076e-01
original_glrlm_RunLengthNonUniformityNormalized	1.642e-01
original_glrlm_RunPercentage	1.640e-01
original_glrlm_RunVariance	2.024e-01
original_glrlm_ShortRunEmphasis	1.643e-01
original_glrlm_ShortRunHighGrayLevelEmphasis	1.632e-01
original_glrlm_ShortRunLowGrayLevelEmphasis	1.043e-01
original_glszm_GrayLevelNonUniformity	1.142e-01
original_glszm_GrayLevelNonUniformityNormalized	1.740e-01
original_glszm_GrayLevelVariance	1.413e-01
original_glszm_HighGrayLevelZoneEmphasis	1.530e-01
original_glszm_LargeAreaEmphasis	1.144e-01
original_glszm_LargeAreaHighGrayLevelEmphasis	8.544e-02
original_glszm_LargeAreaLowGrayLevelEmphasis	3.212e-01
original_glszm_LowGrayLevelZoneEmphasis	1.785e-01
original_glszm_SizeZoneNonUniformity	9.519e-02
original_glszm_SizeZoneNonUniformityNormalized	1.536e-01
original_glszm_SmallAreaEmphasis	1.471e-01
original_glszm_SmallAreaHighGrayLevelEmphasis	1.450e-01
original_glszm_SmallAreaLowGrayLevelEmphasis	2.181e-01
original_glszm_ZoneEntropy	1.639e-01
original_glszm_ZonePercentage	1.643e-01
original_glszm_ZoneVariance	1.142e-01
original_ngtdm_Busyness	3.147e-01
original_ngtdm_Coarseness	1.067e-01
original_ngtdm_Complexity	1.780e-01
original_ngtdm_Contrast	3.274e-01
original_ngtdm_Strength	2.971e-01
original_shape_Elongation	1.508e-01
original_shape_Flatness	1.692e-01
original_shape_LeastAxisLength	1.309e-01
original_shape_MajorAxisLength	1.455e-01
original_shape_Maximum2DDiameterColumn	1.431e-01
original_shape_Maximum2DDiameterRow	1.304e-01
original_shape_Maximum2DDiameterSlice	1.439e-01
original_shape_Maximum3DDiameter	1.419e-01
original_shape_MeshVolume	1.015e-01
original_shape_MinorAxisLength	1.469e-01
original_shape_Sphericity	1.815e-01
original_shape_SurfaceArea	1.041e-01
original_shape_SurfaceVolumeRatio	1.611e-01
original_shape_VoxelVolume	1.016e-01
	z
original_firstorder_10Percentile	22.504
original_firstorder_90Percentile	3.721

```
original_firstorder_Energy                                     -9.841
original_firstorder_Entropy                                  -185.184
original_firstorder_InterquartileRange                        10.015
original_firstorder_Kurtosis                                   3.136
original_firstorder_Maximum                                    1.977
original_firstorder_Mean                                     -14.105
original_firstorder_MeanAbsoluteDeviation                     96.358
original_firstorder_Median                                    -4.814
original_firstorder_Minimum                                   60.831
original_firstorder_Range                                      0.000
original_firstorder_RobustMeanAbsoluteDeviation               0.771
original_firstorder_RootMeanSquared                          -15.992
original_firstorder_Skewness                                   3.869
original_firstorder_TotalEnergy                                0.000
original_firstorder_Uniformity                               -59.865
original_firstorder_Variance                                2362.552
original_glcm_Autocorrelation                               -405.864
original_glcm_ClusterProminence                               -7.614
original_glcm_ClusterShade                                    -4.368
original_glcm_ClusterTendency                               -25.934
original_glcm_Contrast                                       491.335
original_glcm_Correlation                                    -24.973
original_glcm_DifferenceAverage                            -121.726
original_glcm_DifferenceEntropy                              17.899
original_glcm_DifferenceVariance                           -426.204
original_glcm_Id                                            405.116
original_glcm_Idm                                          -542.232
original_glcm_Idmn                                          -13.083
original_glcm_Idn                                            -3.611
original_glcm_Imc1                                          -28.866
original_glcm_Imc2                                           -1.565
original_glcm_InverseVariance                               26.398
original_glcm_JointAverage                                  64.801
original_glcm_JointEnergy                                    2.299
original_glcm_JointEntropy                                 -68.431
original_glcm_MCC                                            3.457
original_glcm_MaximumProbability                            14.756
original_glcm_SumAverage                                     0.000
original_glcm_SumEntropy                                    47.143
original_glcm_SumSquares                                     0.000
original_gldm_DependenceEntropy                            -32.279
original_gldm_DependenceNonUniformity                      55.069
original_gldm_DependenceNonUniformityNormalized             -5.331
original_gldm_DependenceVariance                           -16.976
original_gldm_GrayLevelNonUniformity                        -7.340
original_gldm_GrayLevelVariance                          -2310.039
original_gldm_HighGrayLevelEmphasis                        512.415
original_gldm_LargeDependenceEmphasis                      -45.598
original_gldm_LargeDependenceHighGrayLevelEmphasis          93.853
original_gldm_LargeDependenceLowGrayLevelEmphasis          -32.824
original_gldm_LowGrayLevelEmphasis                         -64.494
original_gldm_SmallDependenceEmphasis                       93.464
original_gldm_SmallDependenceHighGrayLevelEmphasis          -5.711
original_gldm_SmallDependenceLowGrayLevelEmphasis           44.892
original_glrlm_GrayLevelNonUniformity                        5.555
original_glrlm_GrayLevelNonUniformityNormalized             32.121
```

```
original_glrlm_GrayLevelVariance                          -46.084
original_glrlm_HighGrayLevelRunEmphasis                  -341.989
original_glrlm_LongRunEmphasis                            66.080
original_glrlm_LongRunHighGrayLevelEmphasis              -12.828
original_glrlm_LongRunLowGrayLevelEmphasis                14.766
original_glrlm_LowGrayLevelRunEmphasis                   509.299
original_glrlm_RunEntropy                                159.494
original_glrlm_RunLengthNonUniformity                     46.031
original_glrlm_RunLengthNonUniformityNormalized         -125.604
original_glrlm_RunPercentage                            -105.843
original_glrlm_RunVariance                               -87.027
original_glrlm_ShortRunEmphasis                          112.625
original_glrlm_ShortRunHighGrayLevelEmphasis             269.433
original_glrlm_ShortRunLowGrayLevelEmphasis             -459.586
original_glszm_GrayLevelNonUniformity                      7.545
original_glszm_GrayLevelNonUniformityNormalized           13.645
original_glszm_GrayLevelVariance                           4.947
original_glszm_HighGrayLevelZoneEmphasis                -140.500
original_glszm_LargeAreaEmphasis                        -930.128
original_glszm_LargeAreaHighGrayLevelEmphasis              0.414
original_glszm_LargeAreaLowGrayLevelEmphasis               5.785
original_glszm_LowGrayLevelZoneEmphasis                  -26.979
original_glszm_SizeZoneNonUniformity                      17.804
original_glszm_SizeZoneNonUniformityNormalized           -32.487
original_glszm_SmallAreaEmphasis                          16.460
original_glszm_SmallAreaHighGrayLevelEmphasis            100.564
original_glszm_SmallAreaLowGrayLevelEmphasis              -1.064
original_glszm_ZoneEntropy                                15.055
original_glszm_ZonePercentage                           -137.006
original_glszm_ZoneVariance                              947.408
original_ngtdm_Busyness                                   -9.051
original_ngtdm_Coarseness                                  4.949
original_ngtdm_Complexity                                -16.761
original_ngtdm_Contrast                                  -24.936
original_ngtdm_Strength                                    0.940
original_shape_Elongation                                  7.892
original_shape_Flatness                                   -6.512
original_shape_LeastAxisLength                            18.280
original_shape_MajorAxisLength                             4.456
original_shape_Maximum2DDiameterColumn                   -11.115
original_shape_Maximum2DDiameterRow                        1.878
original_shape_Maximum2DDiameterSlice                     -5.876
original_shape_Maximum3DDiameter                          22.492
original_shape_MeshVolume                               2779.567
original_shape_MinorAxisLength                            -8.564
original_shape_Sphericity                                  3.799
original_shape_SurfaceArea                               -35.783
original_shape_SurfaceVolumeRatio                        184.892
original_shape_VoxelVolume                             -2869.596
                                                               p
original_firstorder_10Percentile                         < 2e-16
original_firstorder_90Percentile                        0.000198
original_firstorder_Energy                               < 2e-16
original_firstorder_Entropy                              < 2e-16
original_firstorder_InterquartileRange                   < 2e-16
original_firstorder_Kurtosis                            0.001713
```

original_firstorder_Maximum	0.048004
original_firstorder_Mean	< 2e-16
original_firstorder_MeanAbsoluteDeviation	< 2e-16
original_firstorder_Median	1.48e-06
original_firstorder_Minimum	< 2e-16
original_firstorder_Range	1.000000
original_firstorder_RobustMeanAbsoluteDeviation	0.440619
original_firstorder_RootMeanSquared	< 2e-16
original_firstorder_Skewness	0.000109
original_firstorder_TotalEnergy	1.000000
original_firstorder_Uniformity	< 2e-16
original_firstorder_Variance	< 2e-16
original_glcm_Autocorrelation	< 2e-16
original_glcm_ClusterProminence	2.66e-14
original_glcm_ClusterShade	1.26e-05
original_glcm_ClusterTendency	< 2e-16
original_glcm_Contrast	< 2e-16
original_glcm_Correlation	< 2e-16
original_glcm_DifferenceAverage	< 2e-16
original_glcm_DifferenceEntropy	< 2e-16
original_glcm_DifferenceVariance	< 2e-16
original_glcm_Id	< 2e-16
original_glcm_Idm	< 2e-16
original_glcm_Idmn	< 2e-16
original_glcm_Idn	0.000305
original_glcm_Imc1	< 2e-16
original_glcm_Imc2	0.117504
original_glcm_InverseVariance	< 2e-16
original_glcm_JointAverage	< 2e-16
original_glcm_JointEnergy	0.021506
original_glcm_JointEntropy	< 2e-16
original_glcm_MCC	0.000547
original_glcm_MaximumProbability	< 2e-16
original_glcm_SumAverage	1.000000
original_glcm_SumEntropy	< 2e-16
original_glcm_SumSquares	1.000000
original_gldm_DependenceEntropy	< 2e-16
original_gldm_DependenceNonUniformity	< 2e-16
original_gldm_DependenceNonUniformityNormalized	9.78e-08
original_gldm_DependenceVariance	< 2e-16
original_gldm_GrayLevelNonUniformity	2.14e-13
original_gldm_GrayLevelVariance	< 2e-16
original_gldm_HighGrayLevelEmphasis	< 2e-16
original_gldm_LargeDependenceEmphasis	< 2e-16
original_gldm_LargeDependenceHighGrayLevelEmphasis	< 2e-16
original_gldm_LargeDependenceLowGrayLevelEmphasis	< 2e-16
original_gldm_LowGrayLevelEmphasis	< 2e-16
original_gldm_SmallDependenceEmphasis	< 2e-16
original_gldm_SmallDependenceHighGrayLevelEmphasis	1.12e-08
original_gldm_SmallDependenceLowGrayLevelEmphasis	< 2e-16
original_glrlm_GrayLevelNonUniformity	2.78e-08
original_glrlm_GrayLevelNonUniformityNormalized	< 2e-16
original_glrlm_GrayLevelVariance	< 2e-16
original_glrlm_HighGrayLevelRunEmphasis	< 2e-16
original_glrlm_LongRunEmphasis	< 2e-16
original_glrlm_LongRunHighGrayLevelEmphasis	< 2e-16

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original_glrlm_LongRunLowGrayLevelEmphasis            < 2e-16
original_glrlm_LowGrayLevelRunEmphasis                < 2e-16
original_glrlm_RunEntropy                             < 2e-16
original_glrlm_RunLengthNonUniformity                 < 2e-16
original_glrlm_RunLengthNonUniformityNormalized       < 2e-16
original_glrlm_RunPercentage                          < 2e-16
original_glrlm_RunVariance                            < 2e-16
original_glrlm_ShortRunEmphasis                       < 2e-16
original_glrlm_ShortRunHighGrayLevelEmphasis          < 2e-16
original_glrlm_ShortRunLowGrayLevelEmphasis           < 2e-16
original_glszm_GrayLevelNonUniformity               4.51e-14
original_glszm_GrayLevelNonUniformityNormalized       < 2e-16
original_glszm_GrayLevelVariance                    7.55e-07
original_glszm_HighGrayLevelZoneEmphasis              < 2e-16
original_glszm_LargeAreaEmphasis                      < 2e-16
original_glszm_LargeAreaHighGrayLevelEmphasis       0.678648
original_glszm_LargeAreaLowGrayLevelEmphasis        7.25e-09
original_glszm_LowGrayLevelZoneEmphasis               < 2e-16
original_glszm_SizeZoneNonUniformity                  < 2e-16
original_glszm_SizeZoneNonUniformityNormalized        < 2e-16
original_glszm_SmallAreaEmphasis                      < 2e-16
original_glszm_SmallAreaHighGrayLevelEmphasis         < 2e-16
original_glszm_SmallAreaLowGrayLevelEmphasis        0.287194
original_glszm_ZoneEntropy                            < 2e-16
original_glszm_ZonePercentage                         < 2e-16
original_glszm_ZoneVariance                           < 2e-16
original_ngtdm_Busyness                               < 2e-16
original_ngtdm_Coarseness                           7.45e-07
original_ngtdm_Complexity                             < 2e-16
original_ngtdm_Contrast                               < 2e-16
original_ngtdm_Strength                             0.347027
original_shape_Elongation                           2.96e-15
original_shape_Flatness                             7.42e-11
original_shape_LeastAxisLength                        < 2e-16
original_shape_MajorAxisLength                      8.33e-06
original_shape_Maximum2DDiameterColumn                < 2e-16
original_shape_Maximum2DDiameterRow                 0.060327
original_shape_Maximum2DDiameterSlice               4.21e-09
original_shape_Maximum3DDiameter                      < 2e-16
original_shape_MeshVolume                             < 2e-16
original_shape_MinorAxisLength                        < 2e-16
original_shape_Sphericity                           0.000145
original_shape_SurfaceArea                            < 2e-16
original_shape_SurfaceVolumeRatio                     < 2e-16
original_shape_VoxelVolume                            < 2e-16


Likelihood ratio test=152.5  on 107 df, p=0.002555
n= 360, number of events= 41



$model_list[[5]]
$model_list[[5]]$beststats
   mtry nodesize nodedepth time      AUCROC          BS
V3   36       25        50  2.9 0.7104649 0.1001676
     BS_scaled   C_score Calib_alpha Calib_slope
V3 -0.03371372 0.6671795 -0.01273317   0.4802442
```

```
$model_list[[5]]$allstats
    mtry nodesize nodedepth time   AUCROC          BS
V1   10       15        50  2.9 0.7025773 0.09945580
V2   10       20        50  2.9 0.7046136 0.09770040
V3   10       25        50  2.9 0.7078916 0.09667952
V4   10       30        50  2.9 0.7033093 0.09664975
V5   10       35        50  2.9 0.7023334 0.09628744
V11  11       25        50  2.9 0.7034005 0.09660093
V21  22       25        50  2.9 0.7036749 0.09935315
V31  36       25        50  2.9 0.7104649 0.10016759
V41  54       25        50  2.9 0.6962607 0.10322200
V51  10       25        50  2.9 0.7078916 0.09667952
        BS_scaled   C_score  Calib_alpha Calib_slope
V1  -0.026368071 0.6601282 -0.010678872   0.5220824
V2  -0.008252650 0.6601923 -0.007552643   0.5655618
V3   0.002282655 0.6624359 -0.006120078   0.6080943
V4   0.002589860 0.6596154 -0.005732171   0.6179576
V5   0.006328902 0.6586538 -0.005525848   0.6454607
V11  0.003093697 0.6577564 -0.006779652   0.5846161
V21 -0.025308748 0.6642949 -0.008885029   0.5235958
V31 -0.033713725 0.6671795 -0.012733174   0.4802442
V41 -0.065234700 0.6549359 -0.014024237   0.4067751
V51  0.002282655 0.6624359 -0.006120078   0.6080943


$model_list[[5]]$model
                        Sample size: 361
                   Number of deaths: 47
                    Number of trees: 500
           Forest terminal node size: 25
      Average no. of terminal nodes: 14.196
No. of variables tried at each split: 36
               Total no. of variables: 108
       Resampling used to grow trees: swor
    Resample size used to grow trees: 228
                           Analysis: RSF
                             Family: surv
                      Splitting rule: logrank *random*
       Number of random split points: 50
                          (OOB) CRPS: 0.0679014
    (OOB) Requested performance error: 0.32199859



$model_list[[5]]$vimp10
                          original_glcm_Idmn
                                 0.014567894
          original_glrlm_LowGrayLevelRunEmphasis
                                 0.012356981
              original_gldm_LowGrayLevelEmphasis
                                 0.008811431
              original_shape_MajorAxisLength
                                 0.008632579
               original_firstorder_Maximum
                                 0.008091244
      original_glrlm_ShortRunLowGrayLevelEmphasis
                                 0.007107992
```

```
                  original_shape_Maximum2DDiameterColumn
                                             0.007011701
               original_glszm_LowGrayLevelZoneEmphasis
                                             0.006997435
   original_gldm_LargeDependenceHighGrayLevelEmphasis
                                             0.006994841
                        original_gldm_DependenceVariance
                                             0.006231697
                             original_firstorder_Range
                                             0.005698445
                             original_shape_Sphericity
                                             0.005099836
                original_glrlm_RunLengthNonUniformity
                                             0.004314611
                      original_glszm_GrayLevelVariance
                                             0.003802989
                         original_ngtdm_Complexity
                                             0.003215001


$model_list[[5]]$model_base
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                                                       coef
original_firstorder_10Percentile                  2.537e+02
original_firstorder_90Percentile                  1.216e+02
original_firstorder_Energy                       -5.394e+01
original_firstorder_Entropy                       7.815e+01
original_firstorder_InterquartileRange           -2.031e+02
original_firstorder_Kurtosis                      6.668e+00
original_firstorder_Maximum                      -1.525e+00
original_firstorder_Mean                         -7.775e+02
original_firstorder_MeanAbsoluteDeviation        -2.501e+02
original_firstorder_Median                        4.026e+02
original_firstorder_Minimum                       3.091e+02
original_firstorder_Range                         0.000e+00
original_firstorder_RobustMeanAbsoluteDeviation   3.580e+02
original_firstorder_RootMeanSquared               1.933e+01
original_firstorder_Skewness                      6.335e+00
original_firstorder_TotalEnergy                   0.000e+00
original_firstorder_Uniformity                   -3.577e+01
original_firstorder_Variance                      1.928e+04
original_glcm_Autocorrelation                    -7.756e+02
original_glcm_ClusterProminence                   4.921e+03
original_glcm_ClusterShade                        7.546e+02
original_glcm_ClusterTendency                    -1.140e+02
original_glcm_Contrast                            7.476e+03
original_glcm_Correlation                        -2.884e+01
original_glcm_DifferenceAverage                  -6.436e+01
original_glcm_DifferenceEntropy                   3.400e+02
original_glcm_DifferenceVariance                 -8.295e+03
original_glcm_Id                                  3.395e+03
original_glcm_Idm                                -2.906e+03
original_glcm_Idmn                               -1.074e+02
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```
original_glcm_Idn                                        1.041e+02
original_glcm_Imc1                                       -7.310e+01
original_glcm_Imc2                                       -7.217e+01
original_glcm_InverseVariance                            3.255e+02
original_glcm_JointAverage                               1.837e+02
original_glcm_JointEnergy                                -2.245e+01
original_glcm_JointEntropy                               -3.632e+02
original_glcm_MCC                                        1.453e+01
original_glcm_MaximumProbability                         4.959e+01
original_glcm_SumAverage                                 0.000e+00
original_glcm_SumEntropy                                 1.391e+02
original_glcm_SumSquares                                 0.000e+00
original_gldm_DependenceEntropy                          1.813e+02
original_gldm_DependenceNonUniformity                    -8.487e+01
original_gldm_DependenceNonUniformityNormalized          2.102e+02
original_gldm_DependenceVariance                         -1.788e+01
original_gldm_GrayLevelNonUniformity                     9.643e+00
original_gldm_GrayLevelVariance                          -2.041e+04
original_gldm_HighGrayLevelEmphasis                      -3.778e+02
original_gldm_LargeDependenceEmphasis                    5.606e+02
original_gldm_LargeDependenceHighGrayLevelEmphasis       1.757e+02
original_gldm_LargeDependenceLowGrayLevelEmphasis        -1.584e+02
original_gldm_LowGrayLevelEmphasis                       -9.875e+01
original_gldm_SmallDependenceEmphasis                    -1.713e+02
original_gldm_SmallDependenceHighGrayLevelEmphasis       2.023e+01
original_gldm_SmallDependenceLowGrayLevelEmphasis        -7.487e+00
original_glrlm_GrayLevelNonUniformity                    1.048e+02
original_glrlm_GrayLevelNonUniformityNormalized          5.979e+01
original_glrlm_GrayLevelVariance                         7.530e+02
original_glrlm_HighGrayLevelRunEmphasis                  6.944e+02
original_glrlm_LongRunEmphasis                           -2.665e+02
original_glrlm_LongRunHighGrayLevelEmphasis              -5.263e+01
original_glrlm_LongRunLowGrayLevelEmphasis               -8.931e+01
original_glrlm_LowGrayLevelRunEmphasis                   9.725e+02
original_glrlm_RunEntropy                                4.715e+01
original_glrlm_RunLengthNonUniformity                    2.708e+02
original_glrlm_RunLengthNonUniformityNormalized          -1.821e+02
original_glrlm_RunPercentage                             9.787e+02
original_glrlm_RunVariance                               2.188e+02
original_glrlm_ShortRunEmphasis                          -2.366e+02
original_glrlm_ShortRunHighGrayLevelEmphasis             5.670e+02
original_glrlm_ShortRunLowGrayLevelEmphasis              -7.002e+02
original_glszm_GrayLevelNonUniformity                    -3.030e+01
original_glszm_GrayLevelNonUniformityNormalized          7.505e+01
original_glszm_GrayLevelVariance                         5.345e+01
original_glszm_HighGrayLevelZoneEmphasis                 -4.450e+01
original_glszm_LargeAreaEmphasis                         -3.671e+03
original_glszm_LargeAreaHighGrayLevelEmphasis            8.432e+00
original_glszm_LargeAreaLowGrayLevelEmphasis             -6.121e+01
original_glszm_LowGrayLevelZoneEmphasis                  -7.579e+01
original_glszm_SizeZoneNonUniformity                     1.964e+01
original_glszm_SizeZoneNonUniformityNormalized           -8.359e+01
original_glszm_SmallAreaEmphasis                         1.129e+02
original_glszm_SmallAreaHighGrayLevelEmphasis            -3.683e+01
original_glszm_SmallAreaLowGrayLevelEmphasis             5.704e+01
original_glszm_ZoneEntropy                               4.558e+01
```

```
original_glszm_ZonePercentage                       9.315e+01
original_glszm_ZoneVariance                         3.708e+03
original_ngtdm_Busyness                             1.652e+01
original_ngtdm_Coarseness                          -1.165e+01
original_ngtdm_Complexity                          -1.007e+01
original_ngtdm_Contrast                             8.718e+01
original_ngtdm_Strength                            -4.112e+01
original_shape_Elongation                           3.659e+01
original_shape_Flatness                            -3.366e+01
original_shape_LeastAxisLength                      5.629e+01
original_shape_MajorAxisLength                      4.536e+01
original_shape_Maximum2DDiameterColumn             -2.273e+01
original_shape_Maximum2DDiameterRow                -2.547e+00
original_shape_Maximum2DDiameterSlice              -2.621e+01
original_shape_Maximum3DDiameter                    2.304e+01
original_shape_MeshVolume                           7.311e+03
original_shape_MinorAxisLength                     -2.343e+01
original_shape_Sphericity                          -4.570e+00
original_shape_SurfaceArea                         -7.155e+01
original_shape_SurfaceVolumeRatio                  -4.887e+01
original_shape_VoxelVolume                         -7.570e+03
                                                    exp(coef)
original_firstorder_10Percentile                   1.541e+110
original_firstorder_90Percentile                   6.527e+52
original_firstorder_Energy                         3.733e-24
original_firstorder_Entropy                        8.755e+33
original_firstorder_InterquartileRange             6.145e-89
original_firstorder_Kurtosis                       7.868e+02
original_firstorder_Maximum                        2.176e-01
original_firstorder_Mean                           0.000e+00
original_firstorder_MeanAbsoluteDeviation          2.397e-109
original_firstorder_Median                         7.233e+174
original_firstorder_Minimum                        1.734e+134
original_firstorder_Range                          1.000e+00
original_firstorder_RobustMeanAbsoluteDeviation    3.003e+155
original_firstorder_RootMeanSquared                2.472e+08
original_firstorder_Skewness                       5.640e+02
original_firstorder_TotalEnergy                    1.000e+00
original_firstorder_Uniformity                     2.920e-16
original_firstorder_Variance                             Inf
original_glcm_Autocorrelation                      0.000e+00
original_glcm_ClusterProminence                          Inf
original_glcm_ClusterShade                               Inf
original_glcm_ClusterTendency                      3.183e-50
original_glcm_Contrast                                   Inf
original_glcm_Correlation                          2.991e-13
original_glcm_DifferenceAverage                    1.123e-28
original_glcm_DifferenceEntropy                    4.533e+147
original_glcm_DifferenceVariance                   0.000e+00
original_glcm_Id                                         Inf
original_glcm_Idm                                  0.000e+00
original_glcm_Idmn                                 2.339e-47
original_glcm_Idn                                  1.651e+45
original_glcm_Imc1                                 1.795e-32
original_glcm_Imc2                                 4.532e-32
original_glcm_InverseVariance                      2.301e+141
```

```
original_glcm_JointAverage                              5.870e+79
original_glcm_JointEnergy                               1.771e-10
original_glcm_JointEntropy                             1.807e-158
original_glcm_MCC                                       2.044e+06
original_glcm_MaximumProbability                        3.441e+21
original_glcm_SumAverage                                1.000e+00
original_glcm_SumEntropy                                2.666e+60
original_glcm_SumSquares                                1.000e+00
original_gldm_DependenceEntropy                         5.740e+78
original_gldm_DependenceNonUniformity                   1.380e-37
original_gldm_DependenceNonUniformityNormalized         1.887e+91
original_gldm_DependenceVariance                        1.723e-08
original_gldm_GrayLevelNonUniformity                    1.542e+04
original_gldm_GrayLevelVariance                         0.000e+00
original_gldm_HighGrayLevelEmphasis                    8.000e-165
original_gldm_LargeDependenceEmphasis                  2.809e+243
original_gldm_LargeDependenceHighGrayLevelEmphasis      2.088e+76
original_gldm_LargeDependenceLowGrayLevelEmphasis       1.691e-69
original_gldm_LowGrayLevelEmphasis                      1.303e-43
original_gldm_SmallDependenceEmphasis                   4.112e-75
original_gldm_SmallDependenceHighGrayLevelEmphasis      6.137e+08
original_gldm_SmallDependenceLowGrayLevelEmphasis       5.603e-04
original_glrlm_GrayLevelNonUniformity                   3.405e+45
original_glrlm_GrayLevelNonUniformityNormalized         9.273e+25
original_glrlm_GrayLevelVariance                             Inf
original_glrlm_HighGrayLevelRunEmphasis                3.781e+301
original_glrlm_LongRunEmphasis                         1.746e-116
original_glrlm_LongRunHighGrayLevelEmphasis             1.386e-23
original_glrlm_LongRunLowGrayLevelEmphasis              1.638e-39
original_glrlm_LowGrayLevelRunEmphasis                       Inf
original_glrlm_RunEntropy                               3.000e+20
original_glrlm_RunLengthNonUniformity                  3.901e+117
original_glrlm_RunLengthNonUniformityNormalized         8.140e-80
original_glrlm_RunPercentage                                 Inf
original_glrlm_RunVariance                              1.045e+95
original_glrlm_ShortRunEmphasis                        1.824e-103
original_glrlm_ShortRunHighGrayLevelEmphasis           1.783e+246
original_glrlm_ShortRunLowGrayLevelEmphasis             8.366e-305
original_glszm_GrayLevelNonUniformity                   6.947e-14
original_glszm_GrayLevelNonUniformityNormalized         3.931e+32
original_glszm_GrayLevelVariance                        1.641e+23
original_glszm_HighGrayLevelZoneEmphasis                4.709e-20
original_glszm_LargeAreaEmphasis                        0.000e+00
original_glszm_LargeAreaHighGrayLevelEmphasis           4.590e+03
original_glszm_LargeAreaLowGrayLevelEmphasis            2.609e-27
original_glszm_LowGrayLevelZoneEmphasis                 1.214e-33
original_glszm_SizeZoneNonUniformity                    3.399e+08
original_glszm_SizeZoneNonUniformityNormalized          4.961e-37
original_glszm_SmallAreaEmphasis                        1.106e+49
original_glszm_SmallAreaHighGrayLevelEmphasis           1.013e-16
original_glszm_SmallAreaLowGrayLevelEmphasis            5.902e+24
original_glszm_ZoneEntropy                              6.245e+19
original_glszm_ZonePercentage                           2.847e+40
original_glszm_ZoneVariance                                  Inf
original_ngtdm_Busyness                                 1.490e+07
original_ngtdm_Coarseness                               8.759e-06
```

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original_ngtdm_Complexity                          4.214e-05
original_ngtdm_Contrast                            7.252e+37
original_ngtdm_Strength                            1.389e-18
original_shape_Elongation                          7.807e+15
original_shape_Flatness                            2.403e-15
original_shape_LeastAxisLength                      2.796e+24
original_shape_MajorAxisLength                      4.984e+19
original_shape_Maximum2DDiameterColumn             1.344e-10
original_shape_Maximum2DDiameterRow                7.830e-02
original_shape_Maximum2DDiameterSlice              4.124e-12
original_shape_Maximum3DDiameter                   1.013e+10
original_shape_MeshVolume                                 Inf
original_shape_MinorAxisLength                      6.654e-11
original_shape_Sphericity                          1.036e-02
original_shape_SurfaceArea                         8.398e-32
original_shape_SurfaceVolumeRatio                  5.981e-22
original_shape_VoxelVolume                         0.000e+00
                                                    se(coef)
original_firstorder_10Percentile                   3.043e-01
original_firstorder_90Percentile                   8.815e-02
original_firstorder_Energy                         1.694e-01
original_firstorder_Entropy                        1.293e-01
original_firstorder_InterquartileRange             1.401e-01
original_firstorder_Kurtosis                       1.243e-01
original_firstorder_Maximum                        1.364e-01
original_firstorder_Mean                           1.664e-01
original_firstorder_MeanAbsoluteDeviation          1.693e-01
original_firstorder_Median                         1.464e-01
original_firstorder_Minimum                        1.513e-01
original_firstorder_Range                          1.446e-01
original_firstorder_RobustMeanAbsoluteDeviation    1.480e-01
original_firstorder_RootMeanSquared                1.689e-01
original_firstorder_Skewness                       1.132e-01
original_firstorder_TotalEnergy                    1.694e-01
original_firstorder_Uniformity                     1.282e-01
original_firstorder_Variance                       3.647e-01
original_glcm_Autocorrelation                      1.463e-01
original_glcm_ClusterProminence                    6.016e+00
original_glcm_ClusterShade                         1.032e+00
original_glcm_ClusterTendency                      3.679e-01
original_glcm_Contrast                             8.143e-01
original_glcm_Correlation                          1.526e-01
original_glcm_DifferenceAverage                    1.465e-01
original_glcm_DifferenceEntropy                    1.329e-01
original_glcm_DifferenceVariance                   1.078e+00
original_glcm_Id                                   1.226e-01
original_glcm_Idm                                  1.227e-01
original_glcm_Idmn                                 1.617e-01
original_glcm_Idn                                  1.364e-01
original_glcm_Imc1                                 1.414e-01
original_glcm_Imc2                                 1.645e-01
original_glcm_InverseVariance                      1.237e-01
original_glcm_JointAverage                         1.451e-01
original_glcm_JointEnergy                          1.185e-01
original_glcm_JointEntropy                         1.234e-01
original_glcm_MCC                                  1.773e-01
```

original_glcm_MaximumProbability	1.299e-01
original_glcm_SumAverage	1.451e-01
original_glcm_SumEntropy	1.288e-01
original_glcm_SumSquares	4.165e-01
original_gldm_DependenceEntropy	1.193e-01
original_gldm_DependenceNonUniformity	8.564e-02
original_gldm_DependenceNonUniformityNormalized	1.061e-01
original_gldm_DependenceVariance	1.509e-01
original_gldm_GrayLevelNonUniformity	9.765e-02
original_gldm_GrayLevelVariance	3.645e-01
original_gldm_HighGrayLevelEmphasis	1.465e-01
original_gldm_LargeDependenceEmphasis	1.558e-01
original_gldm_LargeDependenceHighGrayLevelEmphasis	1.327e-01
original_gldm_LargeDependenceLowGrayLevelEmphasis	4.065e-01
original_gldm_LowGrayLevelEmphasis	1.132e-01
original_gldm_SmallDependenceEmphasis	1.454e-01
original_gldm_SmallDependenceHighGrayLevelEmphasis	1.335e-01
original_gldm_SmallDependenceLowGrayLevelEmphasis	1.137e-01
original_glrlm_GrayLevelNonUniformity	9.010e-02
original_glrlm_GrayLevelNonUniformityNormalized	1.249e-01
original_glrlm_GrayLevelVariance	3.285e-01
original_glrlm_HighGrayLevelRunEmphasis	1.462e-01
original_glrlm_LongRunEmphasis	8.882e-02
original_glrlm_LongRunHighGrayLevelEmphasis	1.050e-01
original_glrlm_LongRunLowGrayLevelEmphasis	2.666e-01
original_glrlm_LowGrayLevelRunEmphasis	1.147e-01
original_glrlm_RunEntropy	1.308e-01
original_glrlm_RunLengthNonUniformity	9.839e-02
original_glrlm_RunLengthNonUniformityNormalized	1.463e-01
original_glrlm_RunPercentage	1.500e-01
original_glrlm_RunVariance	8.149e-02
original_glrlm_ShortRunEmphasis	1.500e-01
original_glrlm_ShortRunHighGrayLevelEmphasis	1.466e-01
original_glrlm_ShortRunLowGrayLevelEmphasis	1.021e-01
original_glszm_GrayLevelNonUniformity	1.044e-01
original_glszm_GrayLevelNonUniformityNormalized	1.636e-01
original_glszm_GrayLevelVariance	1.962e-01
original_glszm_HighGrayLevelZoneEmphasis	1.489e-01
original_glszm_LargeAreaEmphasis	1.072e-01
original_glszm_LargeAreaHighGrayLevelEmphasis	8.833e-02
original_glszm_LargeAreaLowGrayLevelEmphasis	4.284e-01
original_glszm_LowGrayLevelZoneEmphasis	1.563e-01
original_glszm_SizeZoneNonUniformity	1.136e-01
original_glszm_SizeZoneNonUniformityNormalized	1.492e-01
original_glszm_SmallAreaEmphasis	1.398e-01
original_glszm_SmallAreaHighGrayLevelEmphasis	1.517e-01
original_glszm_SmallAreaLowGrayLevelEmphasis	1.844e-01
original_glszm_ZoneEntropy	1.539e-01
original_glszm_ZonePercentage	1.427e-01
original_glszm_ZoneVariance	1.070e-01
original_ngtdm_Busyness	3.304e-01
original_ngtdm_Coarseness	9.572e-02
original_ngtdm_Complexity	1.940e-01
original_ngtdm_Contrast	4.862e-01
original_ngtdm_Strength	2.795e-01
original_shape_Elongation	1.504e-01

original_shape_Flatness	1.603e-01
original_shape_LeastAxisLength	1.198e-01
original_shape_MajorAxisLength	1.192e-01
original_shape_Maximum2DDiameterColumn	1.150e-01
original_shape_Maximum2DDiameterRow	1.260e-01
original_shape_Maximum2DDiameterSlice	1.253e-01
original_shape_Maximum3DDiameter	1.098e-01
original_shape_MeshVolume	9.541e-02
original_shape_MinorAxisLength	1.286e-01
original_shape_Sphericity	1.627e-01
original_shape_SurfaceArea	9.967e-02
original_shape_SurfaceVolumeRatio	1.398e-01
original_shape_VoxelVolume	9.550e-02

	z
original_firstorder_10Percentile	833.65
original_firstorder_90Percentile	1379.55
original_firstorder_Energy	-318.40
original_firstorder_Entropy	604.62
original_firstorder_InterquartileRange	-1449.47
original_firstorder_Kurtosis	53.63
original_firstorder_Maximum	-11.19
original_firstorder_Mean	-4672.61
original_firstorder_MeanAbsoluteDeviation	-1477.69
original_firstorder_Median	2751.02
original_firstorder_Minimum	2043.07
original_firstorder_Range	0.00
original_firstorder_RobustMeanAbsoluteDeviation	2419.39
original_firstorder_RootMeanSquared	114.43
original_firstorder_Skewness	55.98
original_firstorder_TotalEnergy	0.00
original_firstorder_Uniformity	-279.06
original_firstorder_Variance	52861.62
original_glcm_Autocorrelation	-5302.60
original_glcm_ClusterProminence	818.04
original_glcm_ClusterShade	731.33
original_glcm_ClusterTendency	-309.79
original_glcm_Contrast	9180.38
original_glcm_Correlation	-189.04
original_glcm_DifferenceAverage	-439.15
original_glcm_DifferenceEntropy	2559.16
original_glcm_DifferenceVariance	-7691.66
original_glcm_Id	27681.77
original_glcm_Idm	-23671.14
original_glcm_Idmn	-663.93
original_glcm_Idn	763.47
original_glcm_Imc1	-516.93
original_glcm_Imc2	-438.63
original_glcm_InverseVariance	2631.70
original_glcm_JointAverage	1265.64
original_glcm_JointEnergy	-189.52
original_glcm_JointEntropy	-2942.45
original_glcm_MCC	81.97
original_glcm_MaximumProbability	381.81
original_glcm_SumAverage	0.00
original_glcm_SumEntropy	1080.05
original_glcm_SumSquares	0.00

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original_gldm_DependenceEntropy                            1520.64
original_gldm_DependenceNonUniformity                      -991.05
original_gldm_DependenceNonUniformityNormalized            1981.57
original_gldm_DependenceVariance                           -118.44
original_gldm_GrayLevelNonUniformity                         98.75
original_gldm_GrayLevelVariance                         -55974.57
original_gldm_HighGrayLevelEmphasis                       -2578.90
original_gldm_LargeDependenceEmphasis                      3597.74
original_gldm_LargeDependenceHighGrayLevelEmphasis         1323.79
original_gldm_LargeDependenceLowGrayLevelEmphasis          -389.59
original_gldm_LowGrayLevelEmphasis                         -872.43
original_gldm_SmallDependenceEmphasis                     -1178.19
original_gldm_SmallDependenceHighGrayLevelEmphasis          151.62
original_gldm_SmallDependenceLowGrayLevelEmphasis           -65.84
original_glrlm_GrayLevelNonUniformity                      1163.56
original_glrlm_GrayLevelNonUniformityNormalized            478.84
original_glrlm_GrayLevelVariance                           2292.05
original_glrlm_HighGrayLevelRunEmphasis                    4749.75
original_glrlm_LongRunEmphasis                            -3001.06
original_glrlm_LongRunHighGrayLevelEmphasis                -501.23
original_glrlm_LongRunLowGrayLevelEmphasis                 -335.04
original_glrlm_LowGrayLevelRunEmphasis                     8480.08
original_glrlm_RunEntropy                                   360.48
original_glrlm_RunLengthNonUniformity                      2752.04
original_glrlm_RunLengthNonUniformityNormalized           -1245.12
original_glrlm_RunPercentage                               6525.68
original_glrlm_RunVariance                                 2684.96
original_glrlm_ShortRunEmphasis                           -1577.59
original_glrlm_ShortRunHighGrayLevelEmphasis               3868.34
original_glrlm_ShortRunLowGrayLevelEmphasis               -6854.75
original_glszm_GrayLevelNonUniformity                      -290.32
original_glszm_GrayLevelNonUniformityNormalized            458.70
original_glszm_GrayLevelVariance                           272.42
original_glszm_HighGrayLevelZoneEmphasis                   -298.97
original_glszm_LargeAreaEmphasis                         -34256.75
original_glszm_LargeAreaHighGrayLevelEmphasis               95.45
original_glszm_LargeAreaLowGrayLevelEmphasis              -142.87
original_glszm_LowGrayLevelZoneEmphasis                    -484.91
original_glszm_SizeZoneNonUniformity                       172.93
original_glszm_SizeZoneNonUniformityNormalized            -560.24
original_glszm_SmallAreaEmphasis                           807.79
original_glszm_SmallAreaHighGrayLevelEmphasis             -242.76
original_glszm_SmallAreaLowGrayLevelEmphasis               309.32
original_glszm_ZoneEntropy                                 296.09
original_glszm_ZonePercentage                              652.58
original_glszm_ZoneVariance                              34649.53
original_ngtdm_Busyness                                     49.99
original_ngtdm_Coarseness                                 -121.67
original_ngtdm_Complexity                                  -51.92
original_ngtdm_Contrast                                    179.30
original_ngtdm_Strength                                   -147.09
original_shape_Elongation                                  243.28
original_shape_Flatness                                   -209.95
original_shape_LeastAxisLength                             469.95
original_shape_MajorAxisLength                             380.49
original_shape_Maximum2DDiameterColumn                    -197.71
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original_shape_Maximum2DDiameterRow                    -20.22
original_shape_Maximum2DDiameterSlice                 -209.22
original_shape_Maximum3DDiameter                       209.75
original_shape_MeshVolume                            76632.70
original_shape_MinorAxisLength                        -182.24
original_shape_Sphericity                              -28.09
original_shape_SurfaceArea                            -717.89
original_shape_SurfaceVolumeRatio                     -349.54
original_shape_VoxelVolume                          -79265.10
                                                            p
original_firstorder_10Percentile                       <2e-16
original_firstorder_90Percentile                       <2e-16
original_firstorder_Energy                             <2e-16
original_firstorder_Entropy                            <2e-16
original_firstorder_InterquartileRange                 <2e-16
original_firstorder_Kurtosis                           <2e-16
original_firstorder_Maximum                            <2e-16
original_firstorder_Mean                               <2e-16
original_firstorder_MeanAbsoluteDeviation              <2e-16
original_firstorder_Median                             <2e-16
original_firstorder_Minimum                            <2e-16
original_firstorder_Range                                   1
original_firstorder_RobustMeanAbsoluteDeviation        <2e-16
original_firstorder_RootMeanSquared                    <2e-16
original_firstorder_Skewness                           <2e-16
original_firstorder_TotalEnergy                             1
original_firstorder_Uniformity                         <2e-16
original_firstorder_Variance                           <2e-16
original_glcm_Autocorrelation                          <2e-16
original_glcm_ClusterProminence                        <2e-16
original_glcm_ClusterShade                             <2e-16
original_glcm_ClusterTendency                          <2e-16
original_glcm_Contrast                                 <2e-16
original_glcm_Correlation                              <2e-16
original_glcm_DifferenceAverage                        <2e-16
original_glcm_DifferenceEntropy                        <2e-16
original_glcm_DifferenceVariance                       <2e-16
original_glcm_Id                                       <2e-16
original_glcm_Idm                                      <2e-16
original_glcm_Idmn                                     <2e-16
original_glcm_Idn                                      <2e-16
original_glcm_Imc1                                     <2e-16
original_glcm_Imc2                                     <2e-16
original_glcm_InverseVariance                          <2e-16
original_glcm_JointAverage                             <2e-16
original_glcm_JointEnergy                              <2e-16
original_glcm_JointEntropy                             <2e-16
original_glcm_MCC                                      <2e-16
original_glcm_MaximumProbability                       <2e-16
original_glcm_SumAverage                                    1
original_glcm_SumEntropy                               <2e-16
original_glcm_SumSquares                                    1
original_gldm_DependenceEntropy                        <2e-16
original_gldm_DependenceNonUniformity                  <2e-16
original_gldm_DependenceNonUniformityNormalized        <2e-16
original_gldm_DependenceVariance                       <2e-16
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original_gldm_GrayLevelNonUniformity	<2e-16
original_gldm_GrayLevelVariance	<2e-16
original_gldm_HighGrayLevelEmphasis	<2e-16
original_gldm_LargeDependenceEmphasis	<2e-16
original_gldm_LargeDependenceHighGrayLevelEmphasis	<2e-16
original_gldm_LargeDependenceLowGrayLevelEmphasis	<2e-16
original_gldm_LowGrayLevelEmphasis	<2e-16
original_gldm_SmallDependenceEmphasis	<2e-16
original_gldm_SmallDependenceHighGrayLevelEmphasis	<2e-16
original_gldm_SmallDependenceLowGrayLevelEmphasis	<2e-16
original_glrlm_GrayLevelNonUniformity	<2e-16
original_glrlm_GrayLevelNonUniformityNormalized	<2e-16
original_glrlm_GrayLevelVariance	<2e-16
original_glrlm_HighGrayLevelRunEmphasis	<2e-16
original_glrlm_LongRunEmphasis	<2e-16
original_glrlm_LongRunHighGrayLevelEmphasis	<2e-16
original_glrlm_LongRunLowGrayLevelEmphasis	<2e-16
original_glrlm_LowGrayLevelRunEmphasis	<2e-16
original_glrlm_RunEntropy	<2e-16
original_glrlm_RunLengthNonUniformity	<2e-16
original_glrlm_RunLengthNonUniformityNormalized	<2e-16
original_glrlm_RunPercentage	<2e-16
original_glrlm_RunVariance	<2e-16
original_glrlm_ShortRunEmphasis	<2e-16
original_glrlm_ShortRunHighGrayLevelEmphasis	<2e-16
original_glrlm_ShortRunLowGrayLevelEmphasis	<2e-16
original_glszm_GrayLevelNonUniformity	<2e-16
original_glszm_GrayLevelNonUniformityNormalized	<2e-16
original_glszm_GrayLevelVariance	<2e-16
original_glszm_HighGrayLevelZoneEmphasis	<2e-16
original_glszm_LargeAreaEmphasis	<2e-16
original_glszm_LargeAreaHighGrayLevelEmphasis	<2e-16
original_glszm_LargeAreaLowGrayLevelEmphasis	<2e-16
original_glszm_LowGrayLevelZoneEmphasis	<2e-16
original_glszm_SizeZoneNonUniformity	<2e-16
original_glszm_SizeZoneNonUniformityNormalized	<2e-16
original_glszm_SmallAreaEmphasis	<2e-16
original_glszm_SmallAreaHighGrayLevelEmphasis	<2e-16
original_glszm_SmallAreaLowGrayLevelEmphasis	<2e-16
original_glszm_ZoneEntropy	<2e-16
original_glszm_ZonePercentage	<2e-16
original_glszm_ZoneVariance	<2e-16
original_ngtdm_Busyness	<2e-16
original_ngtdm_Coarseness	<2e-16
original_ngtdm_Complexity	<2e-16
original_ngtdm_Contrast	<2e-16
original_ngtdm_Strength	<2e-16
original_shape_Elongation	<2e-16
original_shape_Flatness	<2e-16
original_shape_LeastAxisLength	<2e-16
original_shape_MajorAxisLength	<2e-16
original_shape_Maximum2DDiameterColumn	<2e-16
original_shape_Maximum2DDiameterRow	<2e-16
original_shape_Maximum2DDiameterSlice	<2e-16
original_shape_Maximum3DDiameter	<2e-16
original_shape_MeshVolume	<2e-16

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original_shape_MinorAxisLength                      <2e-16
original_shape_Sphericity                           <2e-16
original_shape_SurfaceArea                          <2e-16
original_shape_SurfaceVolumeRatio                   <2e-16
original_shape_VoxelVolume                          <2e-16


Likelihood ratio test=262.3  on 107 df, p=4.777e-15
n= 361, number of events= 47



$time
Time difference of 31.25362 secs
```