R. Notebook

Contents

```
# Necessary libraries
library(mice)
## Warning: package 'mice' was built under R version 4.0.5
##
## Attaching package: 'mice'
## The following object is masked from 'package:stats':
##
##
       filter
## The following objects are masked from 'package:base':
##
##
       cbind, rbind
library(fastDummies)
## Warning: package 'fastDummies' was built under R version 4.0.5
library(neuralnet)
## Warning: package 'neuralnet' was built under R version 4.0.5
library(caret)
## Warning: package 'caret' was built under R version 4.0.5
## Loading required package: ggplot2
## Loading required package: lattice
data <- read.delim(file = 'clinical_bone.tsv', sep = '\t', header = TRUE)</pre>
data[data == "\'--"] <- "NULL"</pre>
is.na(data) <- data == "NULL"</pre>
data <- data[, colSums(is.na(data)) < nrow(data)]</pre>
#names(data)
```

```
rem <- colSums(is.na(data)) > 1000
## Warning in eval(substitute(list(...)), '_data', parent.frame()): NAs introduced
## by coercion
data <- subset(data, select = -c(age_is_obfuscated, cause_of_death, days_to_death, year_of_birth, year_
#summary(data)
## Warning: Number of logged events: 228
data_subset_nn <- complete(data_imp)</pre>
#summary(data_subset_nn)
## [1] "project_id"
                                            "age_at_index"
## [3] "days_to_birth"
                                            "ethnicity"
## [5] "gender"
                                            "race"
## [7] "vital_status"
                                            "age_at_diagnosis"
## [9] "days_to_last_follow_up"
                                            "days_to_last_known_disease_status"
## [11] "iss_stage"
                                            "site_of_resection_or_biopsy"
## [13] "tissue_or_organ_of_origin"
# project_id=as.factor(project_id)
                                                                                   <== "factored variabl
# age_at_index=as.numeric(age_at_index)
# days_to_birth=as.numeric(days_to_birth)
# ethnicity=as.factor(ethnicity)
                                                                                   <== "factored variabl
# gender=as.factor(gender)
                                                                                   <== "factored variabl
# race=as.factor(race)
                                                                                   <== "factored variabl
# vital_status=as.factor(vital_status)
                                                                                   <== "factored variabl
# age_at_diagnosis=as.numeric(age_at_diagnosis)
# days_to_last_follow_up=as.numeric(days_to_last_follow_up)
# days_to_last_known_disease_status=as.numeric(days_to_last_known_disease_status)
# iss_stage=as.factor(iss_stage)
                                                                                   <== "factored variabl
                                                                                  <== "factored variabl
# site_of_resection_or_biopsy=as.factor(site_of_resection_or_biopsy)
# tissue_or_organ_of_origin=as.factor(tissue_or_organ_of_origin)
                                                                                   <== "factored variabl
unique(data_subset_nn$project_id)
## [1] TARGET-AML
                              TARGET-ALL-P2
                                                    TCGA-LAML
## [4] BEATAML1.O-COHORT
                              BEATAML1.O-CRENOLANIB MMRF-COMMPASS
## [7] CGCI-BLGSP
                              TARGET-ALL-P3
                                                    OHSU-CNL
## [10] TARGET-NBL
                              TARGET-ALL-P1
## 17 Levels: BEATAML1.0-COHORT BEATAML1.0-CRENOLANIB CGCI-BLGSP ... TCGA-LAML
unique(data_subset_nn$ethnicity)
## [1] not hispanic or latino hispanic or latino
## Levels: hispanic or latino not hispanic or latino
```

```
unique(data_subset_nn$gender)
## [1] male
              female
## Levels: female male
unique(data_subset_nn$race)
## [1] black or african american
## [2] white
## [3] asian
## [4] native hawaiian or other pacific islander
## [5] american indian or alaska native
## [6] other
## 6 Levels: american indian or alaska native asian ... white
unique(data_subset_nn$vital_status)
## [1] Alive Dead
## Levels: Alive Dead
unique(data_subset_nn$iss_stage)
## [1] III I
## Levels: I II III
unique(data_subset_nn$site_of_resection_or_biopsy)
  [1] Bone marrow
##
## [2] Abdomen, NOS
## [3] Blood
## [4] Bones of skull and face and associated joints
## [5] Liver
## [6] Mandible
## [7] Ovary
## [8] Retroperitoneum
## [9] Spleen
## [10] Kidney, NOS
## [11] Lymph nodes of head, face and neck
## [12] Vestibule of mouth
## [13] Connective, subcutaneous and other soft tissues of abdomen
## [14] Mouth, NOS
## [15] Intra-abdominal lymph nodes
## [16] Cheek mucosa
## [17] Peritoneum, NOS
## [18] Specified parts of peritoneum
## [19] Small intestine, NOS
## [20] Lower gum
## [21] Testis, NOS
## [22] Pelvis, NOS
\#\# [23] Connective, subcutaneous and other soft tissues, NOS
## [24] Lip, NOS
## 26 Levels: Abdomen, NOS Blood ... Vestibule of mouth
```

```
unique(data_subset_nn$tissue_or_organ_of_origin)
## [1] Bone marrow
## [2] Hematopoietic system, NOS
## [3] Bones of skull and face and associated joints
## [4] Orbit, NOS
## 4 Levels: Bone marrow ... Orbit, NOS
# Factored variables in 'data subset nn'
data subset nn factored vars <- subset(data subset nn,
                                         select = c(project_id,
                                                    ethnicity,
                                                     gender,
                                                    race,
                                                    vital_status,
                                                     iss_stage,
                                                    site_of_resection_or_biopsy,
                                                    tissue_or_organ_of_origin))
data_subset_nn_factored_vars_mat <- as.matrix(data_subset_nn_factored_vars)</pre>
# Non-factored variables in 'data subset nn'
data_subset_nn_nonfactored_vars <- subset(data_subset_nn,</pre>
                                            select = -c(project_id,
                                                         ethnicity,
                                                         gender,
                                                         race,
                                                         vital status,
                                                         iss_stage,
                                                         site_of_resection_or_biopsy,
                                                         tissue_or_organ_of_origin))
data_subset_nn_nonfactored_vars_mat <- as.matrix(data_subset_nn_nonfactored_vars)</pre>
dummies <- fastDummies::dummy_cols(data_subset_nn_factored_vars)</pre>
dummies <- subset(dummies, select = -c(1:length(names(data_subset_nn_factored_vars))))</pre>
normalize <- function(matrix_x) {</pre>
  n = length(matrix x[,1])
  return(apply(matrix_x, 2, rank) / (n + 1))
data_subset_nn_nonfactored_vars_mat_normalized <- normalize(data_subset_nn_nonfactored_vars_mat)</pre>
data_subset_nn_normalized <- cbind(data_subset_nn_nonfactored_vars_mat_normalized, dummies)</pre>
data_subset_nn_normalized <- subset(data_subset_nn_normalized,</pre>
                                      select = -c(`vital_status_Dead`))
names(data subset nn normalized) <- c(</pre>
  "age at index",
  "days to birth",
  "age_at_diagnosis",
  "days_to_last_follow_up",
  "days_to_last_known_disease_status",
```

```
"project id BEATAML1.0 COHORT",
"project_id_BEATAML1.0_CRENOLANIB",
"project id CGCI BLGSP",
"project id GENIE DFCI",
"project id GENIE JHU",
"project id GENIE MDA",
"project_id_GENIE MSK".
"project_id_GENIE_UHN",
"project id GENIE VICC",
"project_id_MMRF_COMMPASS",
"project_id_OHSU_CNL",
"project_id_TARGET_ALL_P1",
"project_id_TARGET_ALL_P2",
"project_id_TARGET_ALL_P3",
"project_id_TARGET_AML",
"project id TARGET NBL",
"project_id_TCGA_LAML",
"ethnicity hispanic",
"ethnicity_not_hispanic",
"gender female",
"gender male",
"race ameri ind or alaska",
"race asian",
"race_black_or_afr_ameri",
"race_hawaiian_or_pacific_islander",
"race other",
"race_white",
"vital_status_Alive",
"iss_stage_I",
"iss_stage_II"
"iss_stage_III",
"site_of_resection_or_biopsy_Abdomen_NOS",
"site of resection_or_biopsy_Blood",
"site_of_resection_or_biopsy_Bone_marrow",
"site of resection or biopsy Bones of skull and face",
"site_of_resection_or_biopsy_Cheek_mucosa",
"site of resection or biopsy Connective and other soft tissues",
"site of resection or biopsy Connective and other soft tissues NOS",
"site of resection or biopsy Head face or neck NOS",
"site of resection or biopsy Hematopoietic system NOS",
"site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes",
"site_of_resection_or_biopsy_Kidney_NOS",
"site_of_resection_or_biopsy_Lip_NOS",
"site_of_resection_or_biopsy_Liver",
"site_of_resection_or_biopsy_Lower_gum",
"site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck",
"site_of_resection_or_biopsy_Mandible",
"site_of_resection_or_biopsy_Mouth_NOS",
"site_of_resection_or_biopsy_Ovary",
"site of resection or biopsy Pelvis NOS",
"site_of_resection_or_biopsy_Peritoneum_NOS",
"site_of_resection_or_biopsy_Retroperitoneum";
"site_of_resection_or_biopsy_Small_intestine_NOS",
```

```
"site_of_resection_or_biopsy_Specified_parts_of_peritoneum",
  "site_of_resection_or_biopsy_Spleen",
  "site of resection or biopsy Testis NOS",
  "site_of_resection_or_biopsy_Vestibule_of_mouth",
  "tissue_or_organ_of_origin_Bone_marrow",
  "tissue_or_organ_of_origin_Bones_of_skull_and_face",
  "tissue_or_organ_of_origin_Hematopoietic_system_NOS",
  "tissue_or_organ_of_origin_Orbit_NOS"
train_ind <- sample(seq_len(nrow(data_subset_nn_normalized)),</pre>
                    size = floor(0.7 * nrow(data_subset_nn_normalized)))
train_nn <- data_subset_nn_normalized[train_ind,]</pre>
test_nn <- data_subset_nn_normalized[-train_ind,]</pre>
# Temporarily removing numeric variables
train nn temp \leftarrow subset(train nn, select = -c(1:5))
test_nn_temp <- subset(test_nn, select = -c(1:5))</pre>
## Neural Network
## (https://datascienceplus.com/neuralnet-train-and-test-neural-networks-using-r/)
## (http://uc-r.github.io/ann_classification)
# Making the neural network model
nn <- neuralnet(vital_status_Alive ~ project_id_BEATAML1.0_COHORT + project_id_BEATAML1.0_CRENOLANIB +
                data=train nn temp,
                hidden=c(50, 10), \#c(50, 10),
                linear.output=FALSE,
                threshold=0.01)
plot(nn)
nn$result.matrix
##
                                                                                               [,1]
                                                                                      6.809091e+02
## error
## reached.threshold
                                                                                      9.684379e-03
## steps
                                                                                      4.164000e+03
## Intercept.to.1layhid1
                                                                                     -2.750196e-01
## project_id_BEATAML1.0_COHORT.to.1layhid1
                                                                                     -1.950506e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid1
                                                                                      1.679915e+02
## project_id_CGCI_BLGSP.to.1layhid1
                                                                                      6.635708e-01
## project_id_GENIE_DFCI.to.1layhid1
                                                                                     -4.751315e-01
## project_id_GENIE_JHU.to.1layhid1
                                                                                     -7.164407e-02
## project_id_GENIE_MDA.to.1layhid1
                                                                                      2.772930e+00
## project_id_GENIE_MSK.to.1layhid1
                                                                                      1.553297e+00
## project_id_GENIE_UHN.to.1layhid1
                                                                                      1.789345e-01
```

-2.818653e-01

-5.214857e-01

4.194778e+01

1.347046e+00

-1.128865e+00

project_id_GENIE_VICC.to.1layhid1

project_id_OHSU_CNL.to.1layhid1

project_id_MMRF_COMMPASS.to.1layhid1

project_id_TARGET_ALL_P1.to.1layhid1

project_id_TARGET_ALL_P2.to.1layhid1

```
## project id TARGET ALL P3.to.1layhid1
                                                                                   -3.284098e+00
## project_id_TARGET_AML.to.1layhid1
                                                                                    1.761209e+00
## project id TARGET NBL.to.1layhid1
                                                                                   -2.489825e+00
## project_id_TCGA_LAML.to.1layhid1
                                                                                    5.896574e-01
## ethnicity_hispanic.to.1layhid1
                                                                                   -6.495176e-01
## ethnicity not hispanic.to.1layhid1
                                                                                    8.766103e-01
## gender female.to.1layhid1
                                                                                    1.538840e-01
## gender male.to.1layhid1
                                                                                    3.785090e+00
## race ameri ind or alaska.to.1layhid1
                                                                                   -4.298468e+00
## race_asian.to.1layhid1
                                                                                    1.193069e+00
## race_black_or_afr_ameri.to.1layhid1
                                                                                   -3.153029e+00
## race_hawaiian_or_pacific_islander.to.1layhid1
                                                                                    2.592501e+00
## race_other.to.1layhid1
                                                                                   -1.101923e+00
## race_white.to.1layhid1
                                                                                    7.832896e-01
## iss_stage_I.to.1layhid1
                                                                                   -1.116330e+00
## iss_stage_II.to.1layhid1
                                                                                   -6.594988e-01
## iss_stage_III.to.1layhid1
                                                                                   -1.807425e+00
## site of resection or biopsy Abdomen NOS.to.1layhid1
                                                                                   -4.136594e+02
## site_of_resection_or_biopsy_Blood.to.1layhid1
                                                                                   -5.299722e-02
## site of resection or biopsy Bone marrow.to.1layhid1
                                                                                    2.487601e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid1
                                                                                   -1.269065e+02
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid1
                                                                                   -4.150510e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid1
                                                                                   -3.963239e+02
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid1
                                                                                    6.614504e-02
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid1
                                                                                   -1.381644e+00
## site of resection or biopsy Hematopoietic system NOS.to.1layhid1
                                                                                    1.332890e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid1
                                                                                   -4.106030e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid1
                                                                                    2.739246e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid1
                                                                                    3.831631e+01
## site_of_resection_or_biopsy_Liver.to.1layhid1
                                                                                   -1.267362e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid1
                                                                                    3.878868e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid1
                                                                                   -2.957043e+02
## site_of_resection_or_biopsy_Mandible.to.1layhid1
                                                                                    2.559488e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid1
                                                                                    4.312661e+01
## site of resection or biopsy Ovary.to.1layhid1
                                                                                   -3.745745e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid1
                                                                                    4.041004e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid1
                                                                                   -4.004003e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid1
                                                                                   -1.315804e+02
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid1
                                                                                    3.328823e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid1
                                                                                    2.654801e-01
## site of resection or biopsy Spleen.to.1layhid1
                                                                                   -1.105597e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid1
                                                                                   -4.011887e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid1
                                                                                    3.793889e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid1
                                                                                    3.001654e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid1
                                                                                    3.640733e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid1
                                                                                   -1.236903e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid1
                                                                                   -4.034053e+02
## Intercept.to.1layhid2
                                                                                    1.977217e-01
## project_id_BEATAML1.0_COHORT.to.1layhid2
                                                                                   -5.877524e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid2
                                                                                    1.090758e+02
## project_id_CGCI_BLGSP.to.1layhid2
                                                                                   -4.419048e+00
## project_id_GENIE_DFCI.to.1layhid2
                                                                                    4.366960e-01
## project_id_GENIE_JHU.to.1layhid2
                                                                                   -3.903041e-01
## project_id_GENIE_MDA.to.1layhid2
                                                                                   -9.943294e-01
```

```
## project_id_GENIE_MSK.to.1layhid2
                                                                                   -1.923972e-01
## project_id_GENIE_UHN.to.1layhid2
                                                                                   -6.361936e-02
## project id GENIE VICC.to.1layhid2
                                                                                   -1.191402e-01
## project_id_MMRF_COMMPASS.to.1layhid2
                                                                                   -2.295548e+00
## project_id_OHSU_CNL.to.1layhid2
                                                                                   -2.091672e+00
## project id TARGET ALL P1.to.1layhid2
                                                                                   -5.242728e+00
## project id TARGET ALL P2.to.1layhid2
                                                                                    6.077426e-01
## project id TARGET ALL P3.to.1layhid2
                                                                                   -3.923218e-02
## project_id_TARGET_AML.to.1layhid2
                                                                                    3.647193e-02
                                                                                   -2.927538e+01
## project_id_TARGET_NBL.to.1layhid2
## project_id_TCGA_LAML.to.1layhid2
                                                                                    1.273291e+00
## ethnicity_hispanic.to.1layhid2
                                                                                    2.000554e+00
## ethnicity_not_hispanic.to.1layhid2
                                                                                   -1.475604e+00
## gender_female.to.1layhid2
                                                                                    1.106359e+00
## gender_male.to.1layhid2
                                                                                   -1.075346e-01
## race_ameri_ind_or_alaska.to.1layhid2
                                                                                   -1.575131e+00
## race_asian.to.1layhid2
                                                                                    8.431577e-01
## race black or afr ameri.to.1layhid2
                                                                                    4.839570e-02
## race_hawaiian_or_pacific_islander.to.1layhid2
                                                                                   -2.160046e-01
## race other.to.1layhid2
                                                                                    3.516438e-01
## race_white.to.1layhid2
                                                                                   -1.588957e+00
## iss_stage_I.to.1layhid2
                                                                                   -3.535308e-02
## iss_stage_II.to.1layhid2
                                                                                   -2.310456e-01
## iss stage III.to.1layhid2
                                                                                   -2.195229e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid2
                                                                                    2.927674e+00
## site_of_resection_or_biopsy_Blood.to.1layhid2
                                                                                    1.399059e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid2
                                                                                    9.591722e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid2
                                                                                    2.665895e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid2
                                                                                    5.101098e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid2
                                                                                   -4.122177e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid2
                                                                                    4.511993e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid2
                                                                                    1.964830e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid2
                                                                                    7.954011e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid2
                                                                                    6.399800e+00
## site of resection or biopsy Kidney NOS.to.1layhid2
                                                                                    4.135433e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid2
                                                                                    3.899671e+01
## site of resection or biopsy Liver.to.1layhid2
                                                                                   -1.052092e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid2
                                                                                    1.000830e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid2
                                                                                    6.002954e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid2
                                                                                    1.883283e+00
## site of resection or biopsy Mouth NOS.to.1layhid2
                                                                                    9.923448e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid2
                                                                                   -4.137071e+02
## site of resection or biopsy Pelvis NOS.to.1layhid2
                                                                                    6.801456e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid2
                                                                                   -3.877819e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid2
                                                                                   -7.116558e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid2
                                                                                    4.389981e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid2
                                                                                   -4.122599e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid2
                                                                                   -4.628356e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid2
                                                                                   -4.100559e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid2
                                                                                    1.012742e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid2
                                                                                    3.225029e-01
## tissue or organ of origin Bones of skull and face.to.1layhid2
                                                                                    4.382457e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid2
                                                                                    2.893065e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid2
                                                                                   -4.155614e+02
```

```
## Intercept.to.1layhid3
                                                                                   -5.963357e-02
## project_id_BEATAML1.0_COHORT.to.1layhid3
                                                                                    -9.942473e-01
## project id BEATAML1.0 CRENOLANIB.to.1layhid3
                                                                                   -4.162020e+02
## project_id_CGCI_BLGSP.to.1layhid3
                                                                                    -3.895797e-01
## project_id_GENIE_DFCI.to.1layhid3
                                                                                     7.134614e-01
## project id GENIE JHU.to.1layhid3
                                                                                     1.543772e+00
## project id GENIE MDA.to.1layhid3
                                                                                   -4.213922e-01
## project_id_GENIE_MSK.to.1layhid3
                                                                                    6.219172e-02
## project_id_GENIE_UHN.to.1layhid3
                                                                                    -1.788888e-01
## project_id_GENIE_VICC.to.1layhid3
                                                                                   -7.460170e-01
## project_id_MMRF_COMMPASS.to.1layhid3
                                                                                   -5.902051e-01
## project_id_OHSU_CNL.to.1layhid3
                                                                                   -3.958005e+02
## project_id_TARGET_ALL_P1.to.1layhid3
                                                                                     4.975544e+00
## project_id_TARGET_ALL_P2.to.1layhid3
                                                                                    1.810552e-03
## project_id_TARGET_ALL_P3.to.1layhid3
                                                                                    9.620155e-01
## project_id_TARGET_AML.to.1layhid3
                                                                                   -1.221485e+00
## project_id_TARGET_NBL.to.1layhid3
                                                                                    1.313106e+00
## project id TCGA LAML.to.1layhid3
                                                                                   -1.378862e+00
## ethnicity_hispanic.to.1layhid3
                                                                                   -2.472863e+00
## ethnicity_not_hispanic.to.1layhid3
                                                                                   -4.432040e-01
## gender_female.to.1layhid3
                                                                                    4.100729e-01
## gender_male.to.1layhid3
                                                                                   -6.643119e-01
                                                                                   -1.584434e+00
## race_ameri_ind_or_alaska.to.1layhid3
## race asian.to.1layhid3
                                                                                     1.653989e+00
## race_black_or_afr_ameri.to.1layhid3
                                                                                     3.227299e-01
## race hawaiian or pacific islander.to.1layhid3
                                                                                     1.248311e+00
## race_other.to.1layhid3
                                                                                    3.381967e+00
                                                                                   -1.610736e+00
## race_white.to.1layhid3
## iss_stage_I.to.1layhid3
                                                                                   -8.068624e-01
## iss_stage_II.to.1layhid3
                                                                                    2.229098e+00
## iss_stage_III.to.1layhid3
                                                                                   -1.919242e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid3
                                                                                   -1.353892e+00
## site_of_resection_or_biopsy_Blood.to.1layhid3
                                                                                   -2.610088e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid3
                                                                                     1.059043e+00
## site of resection or biopsy Bones of skull and face.to.1layhid3
                                                                                     3.992297e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid3
                                                                                   -3.331421e+02
## site of resection or biopsy Connective and other soft tissues.to.1layhid3
                                                                                    4.078262e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid3 -2.050139e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid3
                                                                                     3.221405e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid3
                                                                                   -2.398436e-01
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid3
                                                                                   -4.156417e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid3
                                                                                    -4.160662e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid3
                                                                                    -4.166868e+02
## site_of_resection_or_biopsy_Liver.to.1layhid3
                                                                                   -1.666197e+01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid3
                                                                                   -4.169754e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid3
                                                                                    3.097618e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid3
                                                                                     2.852282e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid3
                                                                                   -4.172618e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid3
                                                                                    4.220175e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid3
                                                                                   -4.157701e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid3
                                                                                    4.100157e+01
## site of resection or biopsy Retroperitoneum.to.1layhid3
                                                                                    4.166438e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid3
                                                                                   -4.156436e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid3
                                                                                   -5.756488e-01
```

```
## site_of_resection_or_biopsy_Spleen.to.1layhid3
                                                                                   -2.140556e+01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid3
                                                                                    4.175676e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid3
                                                                                   -4.138696e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid3
                                                                                   -1.254688e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid3
                                                                                   -4.165613e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid3
                                                                                    1.591252e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid3
                                                                                    3.888917e+01
## Intercept.to.1layhid4
                                                                                   -4.197447e-01
## project_id_BEATAML1.0_COHORT.to.1layhid4
                                                                                    5.992453e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid4
                                                                                   -4.110974e+02
## project_id_CGCI_BLGSP.to.1layhid4
                                                                                    1.245983e+00
## project_id_GENIE_DFCI.to.1layhid4
                                                                                   -1.756641e+00
## project_id_GENIE_JHU.to.1layhid4
                                                                                    1.524739e+00
## project_id_GENIE_MDA.to.1layhid4
                                                                                    1.039413e-01
## project_id_GENIE_MSK.to.1layhid4
                                                                                   -1.118322e+00
## project_id_GENIE_UHN.to.1layhid4
                                                                                    3.645424e-01
## project_id_GENIE_VICC.to.1layhid4
                                                                                   -6.406757e-01
## project id MMRF COMMPASS.to.1layhid4
                                                                                   -3.774619e+00
## project_id_OHSU_CNL.to.1layhid4
                                                                                    4.579894e+00
## project_id_TARGET_ALL_P1.to.1layhid4
                                                                                    6.904129e-01
## project_id_TARGET_ALL_P2.to.1layhid4
                                                                                   -4.358542e+00
## project_id_TARGET_ALL_P3.to.1layhid4
                                                                                   -4.169545e+02
## project_id_TARGET_AML.to.1layhid4
                                                                                   -8.189800e-01
## project id TARGET NBL.to.1layhid4
                                                                                    8.396476e+00
## project id TCGA LAML.to.1layhid4
                                                                                    4.546911e+00
## ethnicity_hispanic.to.1layhid4
                                                                                   -5.019998e-01
## ethnicity_not_hispanic.to.1layhid4
                                                                                   -1.030531e+00
## gender_female.to.1layhid4
                                                                                    6.904403e-01
                                                                                   -4.094306e+00
## gender_male.to.1layhid4
## race_ameri_ind_or_alaska.to.1layhid4
                                                                                   -4.149415e+02
## race_asian.to.1layhid4
                                                                                   -4.123086e+02
## race_black_or_afr_ameri.to.1layhid4
                                                                                    6.039084e-01
## race_hawaiian_or_pacific_islander.to.1layhid4
                                                                                   -2.139869e+00
## race_other.to.1layhid4
                                                                                    8.099440e+00
## race white.to.1layhid4
                                                                                   -1.858678e+00
## iss_stage_I.to.1layhid4
                                                                                   -7.925229e-01
## iss stage II.to.1layhid4
                                                                                   -2.897092e+00
## iss_stage_III.to.1layhid4
                                                                                    2.365922e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid4
                                                                                   -4.148633e+02
## site_of_resection_or_biopsy_Blood.to.1layhid4
                                                                                    1.578446e+00
## site of resection or biopsy Bone marrow.to.1layhid4
                                                                                   -3.129498e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid4
                                                                                   -1.204289e+00
## site of resection or biopsy Cheek mucosa.to.1layhid4
                                                                                   -4.124878e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid4
                                                                                    5.379059e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid4 -1.111585e-02
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid4
                                                                                    4.394489e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid4
                                                                                    8.188798e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid4
                                                                                    1.873382e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid4
                                                                                    1.748900e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid4
                                                                                   -4.135262e+02
## site_of_resection_or_biopsy_Liver.to.1layhid4
                                                                                   -6.437938e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid4
                                                                                   -4.123689e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid4
                                                                                    1.555339e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid4
                                                                                    1.735349e+00
```

```
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid4
                                                                                   -4.094758e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid4
                                                                                    4.999554e+00
## site of resection or biopsy Pelvis NOS.to.1layhid4
                                                                                   -1.470531e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid4
                                                                                    4.356759e+00
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid4
                                                                                    4.579613e+01
## site of resection or biopsy Small intestine NOS.to.1layhid4
                                                                                   -4.146662e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid4
                                                                                    3.723682e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid4
                                                                                   -6.485071e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid4
                                                                                    4.370568e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid4
                                                                                   -4.119499e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid4
                                                                                    4.178089e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid4
                                                                                   -4.122458e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid4
                                                                                   -4.965362e-03
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid4
                                                                                    4.646221e+01
## Intercept.to.1layhid5
                                                                                   -3.385888e+00
## project_id_BEATAML1.0_COHORT.to.1layhid5
                                                                                    4.887215e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid5
                                                                                    9.443258e+01
## project id CGCI BLGSP.to.1layhid5
                                                                                    4.444277e-01
## project_id_GENIE_DFCI.to.1layhid5
                                                                                    1.150077e+00
## project_id_GENIE_JHU.to.1layhid5
                                                                                    -1.880610e+00
## project_id_GENIE_MDA.to.1layhid5
                                                                                   -8.157305e-01
## project_id_GENIE_MSK.to.1layhid5
                                                                                    2.286721e+00
## project_id_GENIE_UHN.to.1layhid5
                                                                                    7.095321e-01
## project id GENIE VICC.to.1layhid5
                                                                                    -1.664897e+00
## project id MMRF COMMPASS.to.1layhid5
                                                                                   -8.632191e-01
## project_id_OHSU_CNL.to.1layhid5
                                                                                    1.101316e+00
## project_id_TARGET_ALL_P1.to.1layhid5
                                                                                    4.608670e+00
## project_id_TARGET_ALL_P2.to.1layhid5
                                                                                    1.897191e+00
## project_id_TARGET_ALL_P3.to.1layhid5
                                                                                   -2.974019e+00
## project_id_TARGET_AML.to.1layhid5
                                                                                    1.804128e+00
## project_id_TARGET_NBL.to.1layhid5
                                                                                   -3.685410e+00
## project_id_TCGA_LAML.to.1layhid5
                                                                                    2.820419e+01
## ethnicity_hispanic.to.1layhid5
                                                                                   -1.650845e+00
## ethnicity_not_hispanic.to.1layhid5
                                                                                    1.584361e-01
## gender female.to.1layhid5
                                                                                    3.060301e+00
## gender_male.to.1layhid5
                                                                                    1.211478e+00
## race ameri ind or alaska.to.1layhid5
                                                                                   -4.048418e-01
## race_asian.to.1layhid5
                                                                                    4.490895e+00
## race_black_or_afr_ameri.to.1layhid5
                                                                                    1.151278e+00
## race_hawaiian_or_pacific_islander.to.1layhid5
                                                                                    9.575697e-01
## race other.to.1layhid5
                                                                                   -5.832000e+00
## race white.to.1layhid5
                                                                                    -1.446713e+00
## iss stage I.to.1layhid5
                                                                                   -5.888327e-01
## iss_stage_II.to.1layhid5
                                                                                    1.145282e+00
## iss_stage_III.to.1layhid5
                                                                                    2.545217e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid5
                                                                                   -5.231836e-01
## site_of_resection_or_biopsy_Blood.to.1layhid5
                                                                                    1.005366e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid5
                                                                                   -2.389506e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid5
                                                                                    1.478117e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid5
                                                                                    1.721865e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid5
                                                                                   -1.942431e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid5 -3.162262e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid5
                                                                                    1.668497e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid5
                                                                                   -6.714527e-02
```

```
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid5
                                                                                   -1.849303e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid5
                                                                                    3.820028e+01
## site of resection or biopsy Lip NOS.to.1layhid5
                                                                                    3.808461e+01
## site_of_resection_or_biopsy_Liver.to.1layhid5
                                                                                    4.208849e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid5
                                                                                    3.829143e+01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid5
                                                                                    4.222781e+00
## site of resection or biopsy Mandible.to.1layhid5
                                                                                   -3.754807e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid5
                                                                                    3.801711e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid5
                                                                                    -6.316370e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid5
                                                                                   -5.146652e-02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid5
                                                                                    2.047619e+00
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid5
                                                                                   -5.711436e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid5
                                                                                    4.073173e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid5
                                                                                    4.073656e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid5
                                                                                    3.240186e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid5
                                                                                    3.287032e+00
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid5
                                                                                    3.810940e+01
## tissue or organ of origin Bone marrow.to.1layhid5
                                                                                    9.442657e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid5
                                                                                    3.824149e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid5
                                                                                   -2.490178e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid5
                                                                                   -4.327708e+00
## Intercept.to.1layhid6
                                                                                    1.620277e+00
## project_id_BEATAML1.0_COHORT.to.1layhid6
                                                                                   -6.471549e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid6
                                                                                    1.399364e+01
## project id CGCI BLGSP.to.1layhid6
                                                                                    6.061924e+00
## project id GENIE DFCI.to.1layhid6
                                                                                    2.227436e-01
## project_id_GENIE_JHU.to.1layhid6
                                                                                   -6.278374e-01
## project_id_GENIE_MDA.to.1layhid6
                                                                                    6.357719e-01
                                                                                   -1.724458e+00
## project_id_GENIE_MSK.to.1layhid6
## project_id_GENIE_UHN.to.1layhid6
                                                                                    7.268649e-01
## project_id_GENIE_VICC.to.1layhid6
                                                                                    1.159157e+00
## project_id_MMRF_COMMPASS.to.1layhid6
                                                                                    1.871087e+00
## project_id_OHSU_CNL.to.1layhid6
                                                                                    3.769391e+01
## project_id_TARGET_ALL_P1.to.1layhid6
                                                                                    4.651828e+01
## project_id_TARGET_ALL_P2.to.1layhid6
                                                                                   -1.025253e+01
## project_id_TARGET_ALL_P3.to.1layhid6
                                                                                   -3.033265e-03
## project id TARGET AML.to.1layhid6
                                                                                    6.455471e+00
## project_id_TARGET_NBL.to.1layhid6
                                                                                    4.107436e+01
## project_id_TCGA_LAML.to.1layhid6
                                                                                    4.653375e+01
## ethnicity_hispanic.to.1layhid6
                                                                                   -8.777163e+00
## ethnicity not hispanic.to.1layhid6
                                                                                    3.540083e-01
## gender female.to.1layhid6
                                                                                    6.677454e+00
## gender male.to.1layhid6
                                                                                   -9.379330e-01
## race_ameri_ind_or_alaska.to.1layhid6
                                                                                   -9.967010e+00
## race_asian.to.1layhid6
                                                                                   -9.819888e-01
## race_black_or_afr_ameri.to.1layhid6
                                                                                    3.410983e+00
## race_hawaiian_or_pacific_islander.to.1layhid6
                                                                                   -4.363627e-01
## race_other.to.1layhid6
                                                                                   -1.081751e+01
## race_white.to.1layhid6
                                                                                   -1.329114e+00
## iss_stage_I.to.1layhid6
                                                                                    4.543166e+00
## iss_stage_II.to.1layhid6
                                                                                   -1.482833e+00
## iss_stage_III.to.1layhid6
                                                                                    1.075977e+01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid6
                                                                                   -1.368046e+01
## site of resection or biopsy Blood.to.1layhid6
                                                                                    5.720444e+01
```

```
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid6
                                                                                    3.621816e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid6
                                                                                    5.642568e+00
## site of resection or biopsy Cheek mucosa.to.1layhid6
                                                                                   -2.628727e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid6
                                                                                    -3.494727e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid6
                                                                                    9.030864e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid6
                                                                                    8.659487e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid6
                                                                                    8.977177e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid6
                                                                                   -1.545708e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid6
                                                                                   -1.595006e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid6
                                                                                    3.022511e+01
## site_of_resection_or_biopsy_Liver.to.1layhid6
                                                                                   -1.736203e+01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid6
                                                                                    2.510050e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid6
                                                                                   -2.562698e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid6
                                                                                   -1.418128e+01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid6
                                                                                    4.475223e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid6
                                                                                   -4.104389e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid6
                                                                                   -2.251587e+01
## site of resection or biopsy Peritoneum NOS.to.1layhid6
                                                                                   -3.877371e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid6
                                                                                    1.283848e+01
## site of resection or biopsy Small intestine NOS.to.1layhid6
                                                                                    2.306008e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid6
                                                                                    2.617275e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid6
                                                                                   -1.839009e+01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid6
                                                                                   -3.797635e+02
## site of resection or biopsy Vestibule of mouth.to.1layhid6
                                                                                    1.090510e+00
## tissue or organ of origin Bone marrow.to.1layhid6
                                                                                    9.143043e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid6
                                                                                    2.448450e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid6
                                                                                    6.911456e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid6
                                                                                   -4.021316e+02
## Intercept.to.1layhid7
                                                                                    8.396513e-02
## project_id_BEATAML1.0_COHORT.to.1layhid7
                                                                                   -2.175460e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid7
                                                                                    1.199509e+02
## project_id_CGCI_BLGSP.to.1layhid7
                                                                                   -2.433427e-01
## project_id_GENIE_DFCI.to.1layhid7
                                                                                    1.251676e+00
## project_id_GENIE_JHU.to.1layhid7
                                                                                    4.410408e-01
## project id GENIE MDA.to.1layhid7
                                                                                   -3.263058e-01
## project_id_GENIE_MSK.to.1layhid7
                                                                                    9.134152e-01
## project id GENIE UHN.to.1layhid7
                                                                                    8.696658e-01
## project_id_GENIE_VICC.to.1layhid7
                                                                                   -9.803266e-01
## project_id_MMRF_COMMPASS.to.1layhid7
                                                                                    -2.732989e+00
## project_id_OHSU_CNL.to.1layhid7
                                                                                   -2.223906e+01
## project id TARGET ALL P1.to.1layhid7
                                                                                    4.910241e+00
## project id TARGET ALL P2.to.1layhid7
                                                                                    1.641835e+00
## project_id_TARGET_ALL_P3.to.1layhid7
                                                                                    1.771797e+00
                                                                                   -1.160162e+00
## project_id_TARGET_AML.to.1layhid7
## project_id_TARGET_NBL.to.1layhid7
                                                                                   -2.185454e+00
## project_id_TCGA_LAML.to.1layhid7
                                                                                    2.093799e+00
## ethnicity_hispanic.to.1layhid7
                                                                                   -2.205230e+00
## ethnicity_not_hispanic.to.1layhid7
                                                                                   -1.527555e-01
## gender_female.to.1layhid7
                                                                                    5.976389e-01
## gender_male.to.1layhid7
                                                                                   -2.823462e-01
## race_ameri_ind_or_alaska.to.1layhid7
                                                                                    3.235348e+00
## race_asian.to.1layhid7
                                                                                    9.335154e-01
## race_black_or_afr_ameri.to.1layhid7
                                                                                    8.820874e-01
## race hawaiian or pacific islander.to.1layhid7
                                                                                   -6.412318e+00
```

```
-4.036977e+02
## race other.to.1layhid7
## race white.to.1layhid7
                                                                                    -4.774444e-01
                                                                                   -6.485158e-01
## iss stage I.to.1layhid7
## iss_stage_II.to.1layhid7
                                                                                   -4.246130e-01
## iss stage III.to.1layhid7
                                                                                   -1.270221e-01
## site of resection or biopsy Abdomen NOS.to.1layhid7
                                                                                   -1.058988e+00
## site of resection or biopsy Blood.to.1lavhid7
                                                                                    1.671813e+00
## site of resection or biopsy Bone marrow.to.1layhid7
                                                                                     1.211815e-01
## site of resection or biopsy Bones of skull and face.to.1layhid7
                                                                                    -2.028174e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid7
                                                                                    3.709871e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid7
                                                                                   -4.113042e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid7
                                                                                     6.154688e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid7
                                                                                    -5.639340e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid7
                                                                                   -2.282315e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid7
                                                                                    3.592560e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid7
                                                                                     3.658702e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid7
                                                                                     3.798360e+01
## site of resection or biopsy Liver.to.1layhid7
                                                                                   -1.328039e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid7
                                                                                     4.160657e+01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid7
                                                                                     1.840765e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid7
                                                                                    4.985439e-01
## site of resection or biopsy Mouth NOS.to.1layhid7
                                                                                    4.193924e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid7
                                                                                   -4.162863e+02
## site of resection or biopsy Pelvis NOS.to.1layhid7
                                                                                     4.078841e-01
## site of resection or biopsy Peritoneum NOS.to.1layhid7
                                                                                   -4.161878e+02
## site of resection or biopsy Retroperitoneum.to.1layhid7
                                                                                   -8.138318e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid7
                                                                                    3.752484e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid7
                                                                                    3.784911e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid7
                                                                                   -1.540036e+00
## site of resection or biopsy Testis NOS.to.1layhid7
                                                                                   -4.149836e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid7
                                                                                     4.248931e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid7
                                                                                   -1.694970e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid7
                                                                                    3.754481e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid7
                                                                                    9.482024e-01
## tissue or organ of origin Orbit NOS.to.1layhid7
                                                                                   -4.132994e+02
## Intercept.to.1layhid8
                                                                                   -1.150279e+00
## project id BEATAML1.0 COHORT.to.1layhid8
                                                                                    1.961436e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid8
                                                                                   -1.349141e+02
## project id CGCI BLGSP.to.1layhid8
                                                                                    -3.558695e+00
## project_id_GENIE_DFCI.to.1layhid8
                                                                                    3.090088e-01
## project id GENIE JHU.to.1layhid8
                                                                                   -2.902996e-01
## project id GENIE MDA.to.1layhid8
                                                                                   -1.110013e+00
## project id GENIE MSK.to.1layhid8
                                                                                     4.444059e-01
## project_id_GENIE_UHN.to.1layhid8
                                                                                     4.842036e-01
## project_id_GENIE_VICC.to.1layhid8
                                                                                     1.271262e+00
## project_id_MMRF_COMMPASS.to.1layhid8
                                                                                     1.117203e+01
## project id OHSU CNL.to.1layhid8
                                                                                    -1.036811e+01
## project_id_TARGET_ALL_P1.to.1layhid8
                                                                                   -1.318183e+01
## project_id_TARGET_ALL_P2.to.1layhid8
                                                                                   -5.834320e+00
## project_id_TARGET_ALL_P3.to.1layhid8
                                                                                   -1.489914e+02
## project_id_TARGET_AML.to.1layhid8
                                                                                   -6.522596e-01
## project_id_TARGET_NBL.to.1layhid8
                                                                                   -1.100066e+00
## project_id_TCGA_LAML.to.1layhid8
                                                                                     1.666310e+00
## ethnicity hispanic.to.1layhid8
                                                                                     2.641741e+00
```

```
## ethnicity not hispanic.to.1layhid8
                                                                                   -6.757711e-01
## gender_female.to.1layhid8
                                                                                    1.243889e-01
## gender male.to.1layhid8
                                                                                    5.398261e+00
## race_ameri_ind_or_alaska.to.1layhid8
                                                                                   -2.664335e+00
## race asian.to.1layhid8
                                                                                   -1.727247e+01
## race black or afr ameri.to.1layhid8
                                                                                    1.112120e+00
## race hawaiian or pacific islander.to.1layhid8
                                                                                   -9.243177e+00
## race other.to.1layhid8
                                                                                   -1.035819e+01
## race white.to.1layhid8
                                                                                    3.509677e-01
## iss_stage_I.to.1layhid8
                                                                                    2.937113e+00
## iss_stage_II.to.1layhid8
                                                                                   -8.781648e+00
## iss stage III.to.1layhid8
                                                                                   -2.439268e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid8
                                                                                   -4.005240e+02
## site_of_resection_or_biopsy_Blood.to.1layhid8
                                                                                    6.430252e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid8
                                                                                   -1.555683e-02
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid8
                                                                                   -4.432726e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid8
                                                                                    2.137235e+00
## site of resection or biopsy Connective and other soft tissues.to.1layhid8
                                                                                    1.388607e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid8
                                                                                    1.163980e+00
## site of resection or biopsy Head face or neck NOS.to.1layhid8
                                                                                    8.032164e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid8
                                                                                    4.657031e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid8
                                                                                    5.448913e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid8
                                                                                    5.256955e+00
## site of resection or biopsy Lip NOS.to.1layhid8
                                                                                   -3.418431e+02
## site of resection or biopsy Liver.to.1layhid8
                                                                                   -3.195646e+00
## site of resection or biopsy Lower gum.to.1layhid8
                                                                                   -3.975856e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid8
                                                                                   -7.756111e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid8
                                                                                   -7.374607e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid8
                                                                                   -3.274617e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid8
                                                                                    1.608768e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid8
                                                                                    1.015069e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid8
                                                                                    5.281431e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid8
                                                                                    4.823570e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid8
                                                                                   -3.464015e+02
## site of resection or biopsy Specified parts of peritoneum.to.1layhid8
                                                                                    1.376798e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid8
                                                                                   -3.428915e-01
## site of resection or biopsy Testis NOS.to.1layhid8
                                                                                    4.302263e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid8
                                                                                   -2.953110e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid8
                                                                                   -3.375292e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid8
                                                                                   -3.591581e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid8
                                                                                   -3.082015e+00
## tissue or organ of origin Orbit NOS.to.1layhid8
                                                                                    4.538389e+01
## Intercept.to.1layhid9
                                                                                    2.416041e+00
## project_id_BEATAML1.0_COHORT.to.1layhid9
                                                                                   -8.607849e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid9
                                                                                   -4.149511e+02
## project_id_CGCI_BLGSP.to.1layhid9
                                                                                   -2.010939e+00
## project_id_GENIE_DFCI.to.1layhid9
                                                                                    1.489099e+00
## project_id_GENIE_JHU.to.1layhid9
                                                                                   -2.477149e-01
## project_id_GENIE_MDA.to.1layhid9
                                                                                    8.588326e-03
## project_id_GENIE_MSK.to.1layhid9
                                                                                    8.276847e-01
## project_id_GENIE_UHN.to.1layhid9
                                                                                    1.850017e-01
## project_id_GENIE_VICC.to.1layhid9
                                                                                    4.641758e-01
## project_id_MMRF_COMMPASS.to.1layhid9
                                                                                   -6.719161e-01
## project id OHSU CNL.to.1layhid9
                                                                                    1.751372e-01
```

```
## project id TARGET ALL P1.to.1layhid9
                                                                                    1.981974e+00
## project_id_TARGET_ALL_P2.to.1layhid9
                                                                                    1.490105e+00
## project id TARGET ALL P3.to.1layhid9
                                                                                   -1.757386e+00
## project_id_TARGET_AML.to.1layhid9
                                                                                   -2.556740e-01
## project_id_TARGET_NBL.to.1layhid9
                                                                                   -1.471949e-02
## project id TCGA LAML.to.1layhid9
                                                                                   -1.141227e+00
## ethnicity hispanic.to.1layhid9
                                                                                   -4.100257e+00
## ethnicity_not_hispanic.to.1layhid9
                                                                                   -1.545816e+00
## gender female.to.1layhid9
                                                                                    3.474898e-01
## gender_male.to.1layhid9
                                                                                   -2.452507e-02
## race_ameri_ind_or_alaska.to.1layhid9
                                                                                   -9.397950e-01
                                                                                    1.938638e+00
## race_asian.to.1layhid9
## race_black_or_afr_ameri.to.1layhid9
                                                                                   -2.641122e-02
## race_hawaiian_or_pacific_islander.to.1layhid9
                                                                                    2.448724e+00
## race_other.to.1layhid9
                                                                                    1.462169e+00
## race_white.to.1layhid9
                                                                                    1.032130e+00
## iss_stage_I.to.1layhid9
                                                                                   -3.000698e-02
## iss stage II.to.1layhid9
                                                                                   -4.337814e-01
## iss_stage_III.to.1layhid9
                                                                                   -1.249602e+00
## site of resection or biopsy Abdomen NOS.to.1layhid9
                                                                                    2.133971e+00
## site_of_resection_or_biopsy_Blood.to.1layhid9
                                                                                   -1.909573e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid9
                                                                                    1.137228e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid9
                                                                                   -7.422981e-03
## site of resection or biopsy Cheek mucosa.to.1layhid9
                                                                                   -4.167867e+02
## site of resection or biopsy Connective and other soft tissues.to.1layhid9
                                                                                    3.859715e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid9
                                                                                   -1.353146e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid9
                                                                                   -2.492181e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid9
                                                                                   -7.778881e-02
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid9
                                                                                   -3.495173e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid9
                                                                                   -4.151159e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid9
                                                                                   -4.120608e+02
## site_of_resection_or_biopsy_Liver.to.1layhid9
                                                                                   -1.156434e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid9
                                                                                   -4.154654e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid9
                                                                                    2.871966e+00
## site of resection or biopsy Mandible.to.1layhid9
                                                                                   -1.522550e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid9
                                                                                   -4.137031e+02
## site of resection or biopsy Ovary.to.1layhid9
                                                                                    3.991974e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid9
                                                                                   -2.567549e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid9
                                                                                    3.964510e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid9
                                                                                    3.888959e+01
## site of resection or biopsy Small intestine NOS.to.1layhid9
                                                                                   -4.151665e+02
## site of resection or biopsy Specified parts of peritoneum.to.1layhid9
                                                                                   -4.153056e+02
## site of resection or biopsy Spleen.to.1layhid9
                                                                                    2.086197e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid9
                                                                                    3.899416e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid9
                                                                                   -4.148269e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid9
                                                                                   -9.221634e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid9
                                                                                   -4.131564e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid9
                                                                                   -7.700746e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid9
                                                                                    3.815162e+01
## Intercept.to.1layhid10
                                                                                   -2.940278e-01
## project_id_BEATAML1.0_COHORT.to.1layhid10
                                                                                    2.324304e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid10
                                                                                   -1.763236e+02
## project_id_CGCI_BLGSP.to.1layhid10
                                                                                    1.367767e+00
## project id GENIE DFCI.to.1layhid10
                                                                                   -2.521942e-01
```

```
## project id GENIE JHU.to.1layhid10
                                                                                   -2.733378e-02
## project_id_GENIE_MDA.to.1layhid10
                                                                                    2.699615e+00
## project id GENIE MSK.to.1layhid10
                                                                                   -4.234962e-01
## project_id_GENIE_UHN.to.1layhid10
                                                                                    1.240913e+00
## project id GENIE VICC.to.1layhid10
                                                                                    1.613747e-01
## project id MMRF COMMPASS.to.1layhid10
                                                                                   -4.972611e-01
## project id OHSU CNL.to.1layhid10
                                                                                    2.806556e+00
## project id TARGET ALL P1.to.1layhid10
                                                                                   -9.534158e-01
## project id TARGET ALL P2.to.1layhid10
                                                                                   -1.385789e+00
## project_id_TARGET_ALL_P3.to.1layhid10
                                                                                    2.365173e+00
## project_id_TARGET_AML.to.1layhid10
                                                                                   -1.197256e+01
## project_id_TARGET_NBL.to.1layhid10
                                                                                    2.109571e+00
## project_id_TCGA_LAML.to.1layhid10
                                                                                   -3.044381e+00
## ethnicity_hispanic.to.1layhid10
                                                                                    3.068652e+00
## ethnicity_not_hispanic.to.1layhid10
                                                                                   -1.329683e-01
## gender_female.to.1layhid10
                                                                                    6.178974e-01
## gender_male.to.1layhid10
                                                                                   -2.638651e+00
## race ameri ind or alaska.to.1layhid10
                                                                                    1.676018e+00
## race_asian.to.1layhid10
                                                                                    1.725175e+00
## race black or afr ameri.to.1layhid10
                                                                                   -5.998783e-01
## race_hawaiian_or_pacific_islander.to.1layhid10
                                                                                   -3.618283e+02
## race other.to.1layhid10
                                                                                    4.371003e+00
                                                                                    1.935293e-01
## race_white.to.1layhid10
## iss stage I.to.1layhid10
                                                                                   -3.945342e+00
## iss stage II.to.1layhid10
                                                                                   -7.472297e+01
## iss stage III.to.1layhid10
                                                                                    1.684563e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid10
                                                                                    8.679389e-01
## site_of_resection_or_biopsy_Blood.to.1layhid10
                                                                                   -1.674450e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid10
                                                                                   -7.200717e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid10
                                                                                    4.138972e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid10
                                                                                    1.136236e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid10
                                                                                   -3.751017e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid10 9.873557e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid10
                                                                                    1.871202e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid10
                                                                                   -5.753402e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid10
                                                                                   -7.075740e-01
## site of resection or biopsy Kidney NOS.to.1layhid10
                                                                                   -4.296798e-02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid10
                                                                                   -3.610380e+02
## site_of_resection_or_biopsy_Liver.to.1layhid10
                                                                                    1.946365e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid10
                                                                                   -2.972761e+02
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid10
                                                                                    3.524958e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid10
                                                                                    8.853736e-01
## site of resection or biopsy Mouth NOS.to.1layhid10
                                                                                   -2.395554e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid10
                                                                                   -2.189906e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid10
                                                                                    3.865987e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid10
                                                                                   -2.087049e+00
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid10
                                                                                    4.250801e-01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid10
                                                                                   -3.601292e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid10
                                                                                   -3.949293e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid10
                                                                                   -4.143988e+02
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid10
                                                                                   -5.934816e-01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid10
                                                                                   -3.662921e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid10
                                                                                   -6.370291e-01
## tissue or organ of origin Bones of skull and face.to.1layhid10
                                                                                   -7.727612e+01
```

```
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid10
                                                                                    2.290634e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid10
                                                                                   -2.015652e-01
## Intercept.to.1layhid11
                                                                                    2.897504e-01
## project_id_BEATAML1.0_COHORT.to.1layhid11
                                                                                    -2.252045e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid11
                                                                                    -4.120171e+02
## project id CGCI BLGSP.to.1layhid11
                                                                                    7.722664e-01
## project id GENIE DFCI.to.1layhid11
                                                                                   -8.646939e-01
## project id GENIE JHU.to.1layhid11
                                                                                   -5.897624e-02
## project id GENIE MDA.to.1layhid11
                                                                                    5.850464e-01
## project_id_GENIE_MSK.to.1layhid11
                                                                                   -1.366329e+00
## project_id_GENIE_UHN.to.1layhid11
                                                                                    -1.270999e+00
## project_id_GENIE_VICC.to.1layhid11
                                                                                     1.055452e+00
## project_id_MMRF_COMMPASS.to.1layhid11
                                                                                     1.003871e+00
## project_id_OHSU_CNL.to.1layhid11
                                                                                   -1.831952e+00
## project_id_TARGET_ALL_P1.to.1layhid11
                                                                                   -9.292724e-01
## project_id_TARGET_ALL_P2.to.1layhid11
                                                                                     1.092641e+00
## project_id_TARGET_ALL_P3.to.1layhid11
                                                                                    7.625347e-01
## project id TARGET AML.to.1layhid11
                                                                                   -1.254689e+00
## project_id_TARGET_NBL.to.1layhid11
                                                                                    1.215530e+01
## project_id_TCGA_LAML.to.1layhid11
                                                                                    -2.046174e-01
## ethnicity_hispanic.to.1layhid11
                                                                                   -8.799498e-01
## ethnicity_not_hispanic.to.1layhid11
                                                                                    7.883579e-01
## gender_female.to.1layhid11
                                                                                   -1.314507e+00
## gender male.to.1layhid11
                                                                                    -2.926704e-02
## race_ameri_ind_or_alaska.to.1layhid11
                                                                                    3.002078e+00
## race asian.to.1layhid11
                                                                                   -5.322707e-01
## race_black_or_afr_ameri.to.1layhid11
                                                                                    2.679791e-02
## race_hawaiian_or_pacific_islander.to.1layhid11
                                                                                    9.016488e-01
## race_other.to.1layhid11
                                                                                   -4.026133e-01
## race_white.to.1layhid11
                                                                                    3.686461e-01
## iss_stage_I.to.1layhid11
                                                                                    -2.404401e-01
## iss_stage_II.to.1layhid11
                                                                                    -2.134299e-01
## iss_stage_III.to.1layhid11
                                                                                   -1.648637e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid11
                                                                                   -4.292432e-01
## site of resection or biopsy Blood.to.1layhid11
                                                                                    -3.697582e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid11
                                                                                   -1.157236e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid11
                                                                                    1.009880e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid11
                                                                                    -4.945068e-01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid11
                                                                                     3.813353e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid11 -3.524114e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid11
                                                                                   -1.425243e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid11
                                                                                    1.016934e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid11
                                                                                    -4.041266e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid11
                                                                                   -4.158433e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid11
                                                                                    -4.148985e+02
## site_of_resection_or_biopsy_Liver.to.1layhid11
                                                                                    -7.917850e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid11
                                                                                    -4.142370e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid11
                                                                                    1.333854e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid11
                                                                                    2.258590e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid11
                                                                                   -4.135612e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid11
                                                                                    3.855323e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid11
                                                                                   -1.878662e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid11
                                                                                    3.852675e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid11
                                                                                    3.683503e+01
```

```
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid11
                                                                                   -4.131678e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid11
                                                                                   -4.150346e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid11
                                                                                   -3.303655e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid11
                                                                                    3.683507e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid11
                                                                                   -4.151667e+02
## tissue or organ of origin Bone marrow.to.1layhid11
                                                                                    5.049128e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid11
                                                                                   -4.143079e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid11
                                                                                   -6.393457e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid11
                                                                                    3.774897e+01
## Intercept.to.1layhid12
                                                                                   -1.829454e-01
## project_id_BEATAML1.0_COHORT.to.1layhid12
                                                                                    1.614405e-02
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid12
                                                                                    1.193786e+02
## project_id_CGCI_BLGSP.to.1layhid12
                                                                                   -5.580796e-01
## project_id_GENIE_DFCI.to.1layhid12
                                                                                   -4.319652e-02
## project_id_GENIE_JHU.to.1layhid12
                                                                                    2.996627e-01
## project_id_GENIE_MDA.to.1layhid12
                                                                                   -5.849167e-01
## project_id_GENIE_MSK.to.1layhid12
                                                                                   -9.258532e-01
## project id GENIE UHN.to.1layhid12
                                                                                   -1.269764e+00
## project_id_GENIE_VICC.to.1layhid12
                                                                                    7.405302e-02
## project_id_MMRF_COMMPASS.to.1layhid12
                                                                                    1.705517e+00
## project_id_OHSU_CNL.to.1layhid12
                                                                                   -8.151218e-01
## project_id_TARGET_ALL_P1.to.1layhid12
                                                                                    2.071796e+00
## project_id_TARGET_ALL_P2.to.1layhid12
                                                                                    1.031204e+00
## project id TARGET ALL P3.to.1layhid12
                                                                                    3.852157e+01
## project_id_TARGET_AML.to.1layhid12
                                                                                   -2.781383e-01
## project_id_TARGET_NBL.to.1layhid12
                                                                                   -1.775032e+00
## project_id_TCGA_LAML.to.1layhid12
                                                                                    3.726827e+01
## ethnicity_hispanic.to.1layhid12
                                                                                    1.839779e+00
## ethnicity_not_hispanic.to.1layhid12
                                                                                    3.577499e-01
## gender_female.to.1layhid12
                                                                                   -2.038901e+00
## gender_male.to.1layhid12
                                                                                    6.636570e-01
## race_ameri_ind_or_alaska.to.1layhid12
                                                                                   -2.439848e+00
## race_asian.to.1layhid12
                                                                                   -2.648448e-01
## race_black_or_afr_ameri.to.1layhid12
                                                                                    9.159762e-01
## race_hawaiian_or_pacific_islander.to.1layhid12
                                                                                    7.345470e+00
## race_other.to.1layhid12
                                                                                   -1.289115e+00
## race white.to.1layhid12
                                                                                    1.090223e+00
## iss_stage_I.to.1layhid12
                                                                                    8.323331e-02
## iss_stage_II.to.1layhid12
                                                                                    1.340405e+00
## iss_stage_III.to.1layhid12
                                                                                   -4.024765e-01
## site of resection or biopsy Abdomen NOS.to.1layhid12
                                                                                    3.765009e+01
## site_of_resection_or_biopsy_Blood.to.1layhid12
                                                                                   -1.643999e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid12
                                                                                    9.691104e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid12
                                                                                   -1.586522e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid12
                                                                                   -4.188962e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid12
                                                                                   -4.111483e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid12 1.334218e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid12
                                                                                    1.075714e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid12
                                                                                    1.562625e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid12
                                                                                   -1.864378e-01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid12
                                                                                   -5.250653e-01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid12
                                                                                    3.234990e+01
## site_of_resection_or_biopsy_Liver.to.1layhid12
                                                                                   -2.349782e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid12
                                                                                    3.765945e+01
```

```
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid12
                                                                                    1.459544e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid12
                                                                                   -1.287340e+00
## site of resection or biopsy Mouth NOS.to.1layhid12
                                                                                    3.755401e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid12
                                                                                   -4.116648e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid12
                                                                                   -4.152685e+02
## site of resection or biopsy Peritoneum NOS.to.1layhid12
                                                                                   -4.164233e+02
## site of resection or biopsy Retroperitoneum.to.1layhid12
                                                                                   -8.505575e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid12
                                                                                    3.421845e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid12
                                                                                   -4.460543e-01
## site_of_resection_or_biopsy_Spleen.to.1layhid12
                                                                                    1.615384e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid12
                                                                                   -4.133727e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid12
                                                                                    3.584539e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid12
                                                                                    5.969597e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid12
                                                                                    3.501810e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid12
                                                                                    1.124636e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid12
                                                                                   -4.179024e+02
## Intercept.to.1layhid13
                                                                                    3.690734e-01
## project id BEATAML1.0 COHORT.to.1layhid13
                                                                                   -2.282260e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid13
                                                                                   -4.163965e+02
## project_id_CGCI_BLGSP.to.1layhid13
                                                                                    3.181781e+00
## project_id_GENIE_DFCI.to.1layhid13
                                                                                   -7.757045e-01
## project_id_GENIE_JHU.to.1layhid13
                                                                                   -1.235908e+00
## project_id_GENIE_MDA.to.1layhid13
                                                                                    4.202229e-01
## project id GENIE MSK.to.1layhid13
                                                                                    1.520263e-01
## project id GENIE UHN.to.1layhid13
                                                                                    9.287469e-01
## project_id_GENIE_VICC.to.1layhid13
                                                                                   -1.775782e-01
## project_id_MMRF_COMMPASS.to.1layhid13
                                                                                   -6.753272e-01
## project_id_OHSU_CNL.to.1layhid13
                                                                                   -2.128883e+00
## project_id_TARGET_ALL_P1.to.1layhid13
                                                                                   -1.060224e+01
## project_id_TARGET_ALL_P2.to.1layhid13
                                                                                    1.469702e+00
## project_id_TARGET_ALL_P3.to.1layhid13
                                                                                    1.018080e+00
## project_id_TARGET_AML.to.1layhid13
                                                                                    1.554436e+00
## project_id_TARGET_NBL.to.1layhid13
                                                                                   -1.502728e+00
## project_id_TCGA_LAML.to.1layhid13
                                                                                   -5.049231e+00
## ethnicity hispanic.to.1layhid13
                                                                                   -7.102500e+00
## ethnicity_not_hispanic.to.1layhid13
                                                                                   -1.415612e+00
## gender female.to.1layhid13
                                                                                   -1.896376e+00
## gender_male.to.1layhid13
                                                                                    1.115868e+00
## race_ameri_ind_or_alaska.to.1layhid13
                                                                                   -4.762974e+00
## race_asian.to.1layhid13
                                                                                   -1.230080e+00
## race_black_or_afr_ameri.to.1layhid13
                                                                                   -1.979963e+00
## race_hawaiian_or_pacific_islander.to.1layhid13
                                                                                    2.069465e+00
## race other.to.1layhid13
                                                                                   -5.966601e+00
                                                                                    6.093940e-01
## race_white.to.1layhid13
## iss_stage_I.to.1layhid13
                                                                                   -7.216207e-01
## iss_stage_II.to.1layhid13
                                                                                    1.975083e+00
## iss_stage_III.to.1layhid13
                                                                                    4.372693e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid13
                                                                                   -6.299309e+00
## site_of_resection_or_biopsy_Blood.to.1layhid13
                                                                                    9.569795e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid13
                                                                                    6.486213e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid13
                                                                                   -1.605435e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid13
                                                                                   -8.551604e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid13
                                                                                    3.063775e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid13 2.621365e+00
```

```
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid13
                                                                                    2.049146e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid13
                                                                                    5.537364e-01
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid13
                                                                                    2.967163e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid13
                                                                                   -1.245060e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid13
                                                                                   -4.103230e+02
## site of resection or biopsy Liver.to.1layhid13
                                                                                   -2.158534e+00
## site of resection or biopsy Lower gum.to.1layhid13
                                                                                   -3.688112e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid13
                                                                                    2.747233e+00
## site of resection or biopsy Mandible.to.1layhid13
                                                                                    -2.696826e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid13
                                                                                   -3.594228e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid13
                                                                                   -1.341424e-01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid13
                                                                                   -9.261111e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid13
                                                                                   -9.655374e+00
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid13
                                                                                   -1.595009e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid13
                                                                                   -4.095894e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid13
                                                                                   -1.062120e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid13
                                                                                   -9.429439e-01
## site of resection or biopsy Testis NOS.to.1layhid13
                                                                                    2.645758e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid13
                                                                                   -3.911065e+02
## tissue or organ of origin Bone marrow.to.1layhid13
                                                                                   -1.289969e-02
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid13
                                                                                   -9.734341e+00
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid13
                                                                                    7.697463e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid13
                                                                                    3.566908e+01
## Intercept.to.1layhid14
                                                                                    9.212956e-01
## project_id_BEATAML1.0_COHORT.to.1layhid14
                                                                                   -1.754354e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid14
                                                                                   -2.972738e+00
## project_id_CGCI_BLGSP.to.1layhid14
                                                                                   -2.251600e-01
## project_id_GENIE_DFCI.to.1layhid14
                                                                                    8.931025e-02
## project_id_GENIE_JHU.to.1layhid14
                                                                                    2.413766e-02
## project_id_GENIE_MDA.to.1layhid14
                                                                                    1.122494e+00
## project_id_GENIE_MSK.to.1layhid14
                                                                                   -8.327426e-01
## project_id_GENIE_UHN.to.1layhid14
                                                                                   -1.614309e-01
## project_id_GENIE_VICC.to.1layhid14
                                                                                   -3.991607e-01
## project_id_MMRF_COMMPASS.to.1layhid14
                                                                                   -1.652989e+00
## project id OHSU CNL.to.1layhid14
                                                                                   -1.980243e+00
## project_id_TARGET_ALL_P1.to.1layhid14
                                                                                   -4.380609e+00
## project id TARGET ALL P2.to.1layhid14
                                                                                    7.013585e+00
## project_id_TARGET_ALL_P3.to.1layhid14
                                                                                   -1.694379e+00
## project_id_TARGET_AML.to.1layhid14
                                                                                    -2.989231e+00
## project_id_TARGET_NBL.to.1layhid14
                                                                                   -4.006246e-01
## project id TCGA LAML.to.1layhid14
                                                                                    1.331895e+00
## ethnicity hispanic.to.1layhid14
                                                                                    1.118765e+00
## ethnicity not hispanic.to.1layhid14
                                                                                    1.726060e+00
## gender_female.to.1layhid14
                                                                                    9.699724e+00
## gender_male.to.1layhid14
                                                                                   -5.098393e-02
## race_ameri_ind_or_alaska.to.1layhid14
                                                                                    2.142543e+00
## race_asian.to.1layhid14
                                                                                    1.505301e+00
## race_black_or_afr_ameri.to.1layhid14
                                                                                   -1.813615e+00
## race_hawaiian_or_pacific_islander.to.1layhid14
                                                                                    1.797650e+01
## race_other.to.1layhid14
                                                                                    9.618845e-01
## race_white.to.1layhid14
                                                                                    8.739014e-01
## iss_stage_I.to.1layhid14
                                                                                    1.183103e+00
## iss_stage_II.to.1layhid14
                                                                                    -1.215023e+00
## iss stage III.to.1layhid14
                                                                                    -1.656183e+00
```

```
## site of resection or biopsy Abdomen NOS.to.1layhid14
                                                                                    4.272752e-01
## site_of_resection_or_biopsy_Blood.to.1layhid14
                                                                                    9.781867e-01
## site of resection or biopsy Bone marrow.to.1layhid14
                                                                                   -1.751227e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid14
                                                                                    9.800605e-02
## site of resection or biopsy Cheek mucosa.to.1layhid14
                                                                                   -4.134854e+02
## site of resection or biopsy Connective and other soft tissues.to.1layhid14
                                                                                    2.589515e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid14 1.059351e+00
## site of resection or biopsy Head face or neck NOS.to.1layhid14
                                                                                   -5.179644e-02
## site of resection or biopsy Hematopoietic system NOS.to.1layhid14
                                                                                    9.126795e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid14
                                                                                   -9.299932e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid14
                                                                                   -4.532389e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid14
                                                                                   -4.062250e+02
## site_of_resection_or_biopsy_Liver.to.1layhid14
                                                                                   -1.681395e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid14
                                                                                   -2.862072e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid14
                                                                                    3.524805e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid14
                                                                                    1.946872e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid14
                                                                                   -1.083193e+01
## site of resection or biopsy Ovary.to.1layhid14
                                                                                    2.859792e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid14
                                                                                    3.566365e+01
## site of resection or biopsy Peritoneum NOS.to.1layhid14
                                                                                    3.658521e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid14
                                                                                   -4.005074e+02
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid14
                                                                                   -4.098379e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid14
                                                                                   -5.742798e+00
## site of resection or biopsy Spleen.to.1layhid14
                                                                                   -1.448498e+00
## site of resection or biopsy Testis NOS.to.1layhid14
                                                                                    3.564070e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid14
                                                                                   -3.184574e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid14
                                                                                    2.156106e-02
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid14
                                                                                   -2.604731e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid14
                                                                                   -4.830700e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid14
                                                                                    3.966967e+01
                                                                                    1.887533e+00
## Intercept.to.1layhid15
## project_id_BEATAML1.0_COHORT.to.1layhid15
                                                                                   -3.959476e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid15
                                                                                    1.194388e+02
## project_id_CGCI_BLGSP.to.1layhid15
                                                                                   -3.105353e-01
## project id GENIE DFCI.to.1layhid15
                                                                                   -8.869591e-01
## project_id_GENIE_JHU.to.1layhid15
                                                                                   -2.596456e-03
## project id GENIE MDA.to.1layhid15
                                                                                    5.691586e-01
## project_id_GENIE_MSK.to.1layhid15
                                                                                    1.638549e+00
## project id GENIE UHN.to.1layhid15
                                                                                    1.461782e-01
## project_id_GENIE_VICC.to.1layhid15
                                                                                    2.473739e+00
## project id MMRF COMMPASS.to.1layhid15
                                                                                   -8.115731e-01
## project id OHSU CNL.to.1layhid15
                                                                                   -3.140951e-01
## project id TARGET ALL P1.to.1layhid15
                                                                                    3.603002e+01
## project_id_TARGET_ALL_P2.to.1layhid15
                                                                                   -1.868706e+00
## project_id_TARGET_ALL_P3.to.1layhid15
                                                                                    1.179874e-01
## project_id_TARGET_AML.to.1layhid15
                                                                                    8.737814e-01
## project_id_TARGET_NBL.to.1layhid15
                                                                                    7.331374e+00
## project_id_TCGA_LAML.to.1layhid15
                                                                                    3.837192e+01
## ethnicity_hispanic.to.1layhid15
                                                                                   -1.236705e+00
## ethnicity_not_hispanic.to.1layhid15
                                                                                    6.257462e-01
## gender_female.to.1layhid15
                                                                                   -1.756798e+00
## gender_male.to.1layhid15
                                                                                    1.276804e+00
## race_ameri_ind_or_alaska.to.1layhid15
                                                                                    3.704214e+01
## race asian.to.1layhid15
                                                                                    5.603840e-02
```

```
## race black or afr ameri.to.1layhid15
                                                                                    7.562211e-01
## race_hawaiian_or_pacific_islander.to.1layhid15
                                                                                    4.274822e+00
## race other.to.1layhid15
                                                                                    3.866803e+00
## race_white.to.1layhid15
                                                                                    8.319988e-01
## iss stage I.to.1layhid15
                                                                                    -8.703640e-01
## iss stage II.to.1layhid15
                                                                                    1.019443e+00
## iss stage III.to.1layhid15
                                                                                    2.898096e+00
## site of resection or biopsy Abdomen NOS.to.1layhid15
                                                                                    3.802449e+01
## site of resection or biopsy Blood.to.1layhid15
                                                                                    2.647625e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid15
                                                                                   -1.194741e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid15
                                                                                    4.059400e+01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid15
                                                                                    3.799421e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid15
                                                                                    -4.158848e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid15 -3.750114e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid15
                                                                                    2.433752e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid15
                                                                                    1.275776e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid15
                                                                                   -4.678604e+00
## site of resection or biopsy Kidney NOS.to.1layhid15
                                                                                   -1.502374e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid15
                                                                                    3.495513e+01
## site of resection or biopsy Liver.to.1layhid15
                                                                                   -4.639806e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid15
                                                                                    3.734537e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid15
                                                                                    3.983565e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid15
                                                                                   -3.569485e+00
## site of resection or biopsy Mouth NOS.to.1layhid15
                                                                                    3.804897e+01
## site of resection or biopsy Ovary.to.1layhid15
                                                                                   -4.153750e+02
## site of resection or biopsy Pelvis NOS.to.1layhid15
                                                                                    3.618864e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid15
                                                                                   -4.161459e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid15
                                                                                   -8.618753e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid15
                                                                                    3.514747e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid15
                                                                                   -1.469263e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid15
                                                                                    -3.373818e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid15
                                                                                   -4.165334e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid15
                                                                                    3.885921e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid15
                                                                                   -1.616137e-01
## tissue or organ of origin Bones of skull and face.to.1layhid15
                                                                                    3.459700e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid15
                                                                                   -1.561519e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid15
                                                                                   -4.164401e+02
## Intercept.to.1layhid16
                                                                                    8.666138e-02
## project id BEATAML1.0 COHORT.to.1layhid16
                                                                                    5.047046e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid16
                                                                                   -3.881502e+02
## project id CGCI BLGSP.to.1layhid16
                                                                                   -3.767400e-01
## project id GENIE DFCI.to.1layhid16
                                                                                    4.596990e-01
## project id GENIE JHU.to.1layhid16
                                                                                   -2.310054e-01
## project_id_GENIE_MDA.to.1layhid16
                                                                                    8.520346e-01
## project_id_GENIE_MSK.to.1layhid16
                                                                                   -1.954331e-01
## project_id_GENIE_UHN.to.1layhid16
                                                                                    1.375442e+00
## project_id_GENIE_VICC.to.1layhid16
                                                                                    9.312768e-01
## project_id_MMRF_COMMPASS.to.1layhid16
                                                                                    1.644029e+00
## project_id_OHSU_CNL.to.1layhid16
                                                                                    5.415217e+00
## project_id_TARGET_ALL_P1.to.1layhid16
                                                                                    3.867392e+00
## project_id_TARGET_ALL_P2.to.1layhid16
                                                                                   -2.599846e+01
## project_id_TARGET_ALL_P3.to.1layhid16
                                                                                   -2.344905e-01
## project_id_TARGET_AML.to.1layhid16
                                                                                    1.014244e+00
## project id TARGET NBL.to.1layhid16
                                                                                    3.991497e+01
```

```
## project id TCGA LAML.to.1layhid16
                                                                                    4.521819e+00
## ethnicity hispanic.to.1layhid16
                                                                                   -5.526258e+00
## ethnicity not hispanic.to.1layhid16
                                                                                   -1.017557e+00
## gender_female.to.1layhid16
                                                                                   -1.349718e+00
## gender male.to.1layhid16
                                                                                    2.003673e+00
## race ameri ind or alaska.to.1layhid16
                                                                                   -9.605806e-01
## race asian.to.1lavhid16
                                                                                   -9.338518e-01
## race black or afr ameri.to.1layhid16
                                                                                   -4.590084e-01
## race hawaiian or pacific islander.to.1layhid16
                                                                                   -1.561777e-01
                                                                                    6.668225e-01
## race_other.to.1layhid16
## race_white.to.1layhid16
                                                                                    1.018126e-01
## iss_stage_I.to.1layhid16
                                                                                    3.369410e-02
## iss stage II.to.1layhid16
                                                                                   -9.764219e-01
## iss_stage_III.to.1layhid16
                                                                                    5.656681e+01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid16
                                                                                    9.757572e-01
## site_of_resection_or_biopsy_Blood.to.1layhid16
                                                                                   -5.994850e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid16
                                                                                   -4.896792e-01
## site of resection or biopsy Bones of skull and face.to.1layhid16
                                                                                   -2.066355e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid16
                                                                                    1.963581e+00
## site of resection or biopsy Connective and other soft tissues.to.1layhid16
                                                                                   -4.072812e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid16 5.230344e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid16
                                                                                   -7.770254e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid16
                                                                                    3.382161e-01
## site_of_resection_or_biopsy_Intra_abdominal lymph nodes.to.1lavhid16
                                                                                   -1.780504e+02
## site of resection or biopsy Kidney NOS.to.1layhid16
                                                                                   -3.561622e+02
## site of resection or biopsy Lip NOS.to.1layhid16
                                                                                   -4.007693e+02
## site_of_resection_or_biopsy_Liver.to.1layhid16
                                                                                   -3.917070e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid16
                                                                                   -3.643331e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid16
                                                                                   -2.721260e-01
## site_of_resection_or_biopsy_Mandible.to.1layhid16
                                                                                   -1.629442e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid16
                                                                                   -4.047391e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid16
                                                                                   -4.097050e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid16
                                                                                    1.433624e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid16
                                                                                   -4.081767e+02
## site of resection or biopsy Retroperitoneum.to.1layhid16
                                                                                   -8.974240e-01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid16
                                                                                   -4.058025e+02
## site of resection or biopsy Specified parts of peritoneum.to.1layhid16
                                                                                   -5.853066e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid16
                                                                                    1.194430e-01
## site of resection or biopsy Testis NOS.to.1layhid16
                                                                                   -4.022010e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid16
                                                                                   -3.920718e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid16
                                                                                    6.137236e-01
## tissue or organ of origin Bones of skull and face.to.1layhid16
                                                                                   -3.917057e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid16
                                                                                   -6.152051e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid16
                                                                                   -4.123580e+02
## Intercept.to.1layhid17
                                                                                   -3.947965e-02
## project_id_BEATAML1.0_COHORT.to.1layhid17
                                                                                   -1.159263e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid17
                                                                                   -4.132827e+02
## project_id_CGCI_BLGSP.to.1layhid17
                                                                                   -1.308953e+01
## project_id_GENIE_DFCI.to.1layhid17
                                                                                   -1.328284e+00
## project_id_GENIE_JHU.to.1layhid17
                                                                                   -1.077673e+00
## project_id_GENIE_MDA.to.1layhid17
                                                                                   -2.352928e+00
## project_id_GENIE_MSK.to.1layhid17
                                                                                    3.618830e-01
## project_id_GENIE_UHN.to.1layhid17
                                                                                   -8.623309e-02
## project id GENIE VICC.to.1layhid17
                                                                                   -4.485257e-01
```

```
## project id MMRF COMMPASS.to.1layhid17
                                                                                   -1.274291e+00
## project_id_OHSU_CNL.to.1layhid17
                                                                                   -1.410561e+00
## project id TARGET ALL P1.to.1layhid17
                                                                                    5.916243e-01
## project_id_TARGET_ALL_P2.to.1layhid17
                                                                                   -2.427609e+00
## project_id_TARGET_ALL_P3.to.1layhid17
                                                                                    9.036361e-01
## project id TARGET AML.to.1layhid17
                                                                                   -1.796373e-03
## project id TARGET NBL.to.1layhid17
                                                                                   -3.727845e-02
## project_id_TCGA_LAML.to.1layhid17
                                                                                   -4.021853e+02
## ethnicity hispanic.to.1layhid17
                                                                                   -1.664362e+00
## ethnicity_not_hispanic.to.1layhid17
                                                                                   -2.666550e-01
## gender_female.to.1layhid17
                                                                                    3.879013e-02
                                                                                   -1.921045e+00
## gender_male.to.1layhid17
## race_ameri_ind_or_alaska.to.1layhid17
                                                                                   -8.326521e-01
## race_asian.to.1layhid17
                                                                                    4.002489e+00
## race_black_or_afr_ameri.to.1layhid17
                                                                                    5.289857e-01
## race_hawaiian_or_pacific_islander.to.1layhid17
                                                                                   -1.398576e+00
## race_other.to.1layhid17
                                                                                    1.291681e+00
## race white.to.1layhid17
                                                                                    5.884285e-01
## iss_stage_I.to.1layhid17
                                                                                    3.037640e-01
## iss stage II.to.1layhid17
                                                                                    8.825572e-01
## iss_stage_III.to.1layhid17
                                                                                   -1.045155e+00
## site of resection or biopsy Abdomen NOS.to.1layhid17
                                                                                   -4.111275e+02
## site_of_resection_or_biopsy_Blood.to.1layhid17
                                                                                    2.019636e+00
## site of resection or biopsy Bone marrow.to.1layhid17
                                                                                    4.453658e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid17
                                                                                    2.926328e+00
## site of resection or biopsy Cheek mucosa.to.1layhid17
                                                                                   -4.145192e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid17
                                                                                    6.375109e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid17 -3.632108e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid17
                                                                                   -1.970701e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid17
                                                                                    7.748735e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid17
                                                                                   -4.064217e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid17
                                                                                    2.648623e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid17
                                                                                   -4.177034e+02
## site_of_resection_or_biopsy_Liver.to.1layhid17
                                                                                   -1.981268e+00
## site of resection or biopsy Lower gum.to.1layhid17
                                                                                   -3.355375e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid17
                                                                                   -1.073243e-01
## site of resection or biopsy Mandible.to.1layhid17
                                                                                   -4.144692e+02
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid17
                                                                                   -4.152528e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid17
                                                                                    6.380129e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid17
                                                                                   -4.124831e+02
## site of resection or biopsy Peritoneum NOS.to.1layhid17
                                                                                    6.375260e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid17
                                                                                    6.561614e+01
## site of resection or biopsy Small intestine NOS.to.1layhid17
                                                                                   -4.149096e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid17
                                                                                    2.577749e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid17
                                                                                    2.393410e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid17
                                                                                    6.568749e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid17
                                                                                   -4.152081e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid17
                                                                                    3.025113e-02
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid17
                                                                                   -4.147120e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid17
                                                                                   -1.310591e+01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid17
                                                                                    5.220141e+01
                                                                                   -6.704171e-01
## Intercept.to.1layhid18
## project_id_BEATAML1.0_COHORT.to.1layhid18
                                                                                   -2.503979e-01
## project id BEATAML1.0 CRENOLANIB.to.1layhid18
                                                                                   -4.164472e+02
```

```
## project id CGCI BLGSP.to.1layhid18
                                                                                     9.862793e-01
## project_id_GENIE_DFCI.to.1layhid18
                                                                                    -1.921523e+00
## project id GENIE JHU.to.1layhid18
                                                                                   -1.213031e-02
## project_id_GENIE_MDA.to.1layhid18
                                                                                    -9.299378e-01
## project_id_GENIE_MSK.to.1layhid18
                                                                                    -1.287360e+00
## project id GENIE UHN.to.1layhid18
                                                                                   -2.908634e-02
## project id GENIE VICC.to.1layhid18
                                                                                    7.466421e-01
## project id MMRF COMMPASS.to.1layhid18
                                                                                   -6.418029e+01
## project_id_OHSU_CNL.to.1layhid18
                                                                                     2.551098e-01
## project_id_TARGET_ALL_P1.to.1layhid18
                                                                                   -7.533150e-01
## project_id_TARGET_ALL_P2.to.1layhid18
                                                                                    1.159652e+00
## project_id_TARGET_ALL_P3.to.1layhid18
                                                                                    8.564811e-01
## project_id_TARGET_AML.to.1layhid18
                                                                                     1.287076e+00
## project_id_TARGET_NBL.to.1layhid18
                                                                                    1.249696e+00
## project_id_TCGA_LAML.to.1layhid18
                                                                                    -1.499891e-01
## ethnicity_hispanic.to.1layhid18
                                                                                    -9.064706e-01
## ethnicity_not_hispanic.to.1layhid18
                                                                                   -1.025462e+00
## gender female.to.1layhid18
                                                                                   -4.751228e-01
## gender_male.to.1layhid18
                                                                                   -1.447939e+00
## race ameri ind or alaska.to.1layhid18
                                                                                     1.023521e+00
## race_asian.to.1layhid18
                                                                                     1.584757e+00
## race_black_or_afr_ameri.to.1layhid18
                                                                                     3.938126e-01
## race_hawaiian_or_pacific_islander.to.1layhid18
                                                                                    3.872182e+00
## race other.to.1layhid18
                                                                                     2.364587e-01
## race white.to.1layhid18
                                                                                    6.693809e-01
## iss_stage_I.to.1layhid18
                                                                                    -2.366123e-01
## iss_stage_II.to.1layhid18
                                                                                     4.755219e-01
## iss_stage_III.to.1layhid18
                                                                                     1.452326e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid18
                                                                                   -6.179296e-01
## site_of_resection_or_biopsy_Blood.to.1layhid18
                                                                                    -6.570467e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid18
                                                                                    -1.682185e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid18
                                                                                    -3.740189e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid18
                                                                                    -3.810902e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid18
                                                                                    -1.110993e+00
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid18 -7.995846e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid18
                                                                                    -1.587821e+00
## site of resection or biopsy Hematopoietic system NOS.to.1layhid18
                                                                                   -1.119839e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid18
                                                                                    -2.351691e-01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid18
                                                                                     7.579866e-01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid18
                                                                                    -4.127298e+02
## site of resection or biopsy Liver.to.1layhid18
                                                                                    -1.347694e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid18
                                                                                    -4.172160e+02
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid18
                                                                                    -1.722819e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid18
                                                                                    1.420698e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid18
                                                                                    -4.158388e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid18
                                                                                   -1.037447e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid18
                                                                                    -3.759512e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid18
                                                                                   -3.899801e-01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid18
                                                                                   -1.168486e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid18
                                                                                    -4.166031e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid18
                                                                                   -4.077732e+02
## site of resection or biopsy Spleen.to.1layhid18
                                                                                   -1.004634e+02
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid18
                                                                                    1.149829e-01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid18
                                                                                   -4.193795e+02
```

```
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid18
                                                                                    9.262143e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid18
                                                                                   -4.160404e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid18
                                                                                   -5.854905e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid18
                                                                                    1.604698e+00
## Intercept.to.1layhid19
                                                                                    -4.929841e-01
## project id BEATAML1.0 COHORT.to.1layhid19
                                                                                   -2.317910e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1lavhid19
                                                                                    1.050031e+02
## project id CGCI BLGSP.to.1layhid19
                                                                                     1.591745e+00
## project id GENIE DFCI.to.1layhid19
                                                                                     2.227237e+00
## project_id_GENIE_JHU.to.1layhid19
                                                                                    4.210033e-01
## project_id_GENIE_MDA.to.1layhid19
                                                                                    -8.742454e-01
## project_id_GENIE_MSK.to.1layhid19
                                                                                   -1.038403e+00
## project_id_GENIE_UHN.to.1layhid19
                                                                                    -3.429571e-01
                                                                                   -1.620838e+00
## project_id_GENIE_VICC.to.1layhid19
## project_id_MMRF_COMMPASS.to.1layhid19
                                                                                   -7.068390e-01
## project_id_OHSU_CNL.to.1layhid19
                                                                                    -8.883382e-01
## project_id_TARGET_ALL_P1.to.1layhid19
                                                                                   -2.246117e+00
## project id TARGET ALL P2.to.1layhid19
                                                                                    6.967336e-01
## project_id_TARGET_ALL_P3.to.1layhid19
                                                                                    2.278546e-01
## project_id_TARGET_AML.to.1layhid19
                                                                                    2.450562e+00
## project_id_TARGET_NBL.to.1layhid19
                                                                                   -2.169357e-01
## project_id_TCGA_LAML.to.1layhid19
                                                                                   -3.301316e+00
## ethnicity_hispanic.to.1layhid19
                                                                                    2.206102e-01
## ethnicity not hispanic.to.1layhid19
                                                                                    7.105702e-01
                                                                                   -4.175605e-01
## gender female.to.1layhid19
## gender male.to.1layhid19
                                                                                    -1.300577e-02
## race_ameri_ind_or_alaska.to.1layhid19
                                                                                   -2.173467e+00
## race_asian.to.1layhid19
                                                                                     4.850337e-01
## race_black_or_afr_ameri.to.1layhid19
                                                                                    7.546538e-01
## race_hawaiian_or_pacific_islander.to.1layhid19
                                                                                     2.643954e+00
## race_other.to.1layhid19
                                                                                     4.289810e+00
## race_white.to.1layhid19
                                                                                    5.371711e-01
## iss_stage_I.to.1layhid19
                                                                                   -1.406605e+00
## iss_stage_II.to.1layhid19
                                                                                    5.535278e-01
## iss stage III.to.1layhid19
                                                                                    8.485051e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid19
                                                                                    3.833012e+01
## site of resection or biopsy Blood.to.1layhid19
                                                                                   -1.651391e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid19
                                                                                    1.714379e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid19
                                                                                   -1.903911e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid19
                                                                                    3.592613e+01
## site of resection or biopsy Connective and other soft tissues.to.1layhid19
                                                                                    -4.038342e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid19 -2.295663e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid19
                                                                                     2.198935e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid19
                                                                                   -1.303757e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid19
                                                                                    3.393093e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid19
                                                                                    3.551881e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid19
                                                                                     3.405700e+01
## site_of_resection_or_biopsy_Liver.to.1layhid19
                                                                                    -5.276529e-02
## site_of_resection_or_biopsy_Lower_gum.to.1layhid19
                                                                                    3.917095e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid19
                                                                                    3.642730e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid19
                                                                                   -1.100113e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid19
                                                                                    3.906759e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid19
                                                                                   -3.893711e+02
## site of resection or biopsy Pelvis NOS.to.1layhid19
                                                                                   -6.732958e-01
```

```
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid19
                                                                                   -2.849587e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid19
                                                                                   -6.724663e+01
## site of resection or biopsy Small intestine NOS.to.1layhid19
                                                                                    3.570217e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid19
                                                                                    3.571985e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid19
                                                                                    -7.342699e-01
## site of resection or biopsy Testis NOS.to.1layhid19
                                                                                   -3.472958e+02
## site of resection or biopsy Vestibule of mouth.to.1layhid19
                                                                                    3.949657e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid19
                                                                                   -4.530600e-01
## tissue or organ of origin Bones of skull and face.to.1layhid19
                                                                                    3.547363e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid19
                                                                                    1.201101e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid19
                                                                                   -3.723060e+02
## Intercept.to.1layhid20
                                                                                   -3.636760e-01
## project_id_BEATAML1.0_COHORT.to.1layhid20
                                                                                    4.133391e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid20
                                                                                    7.909416e+01
## project_id_CGCI_BLGSP.to.1layhid20
                                                                                    3.012666e+00
## project_id_GENIE_DFCI.to.1layhid20
                                                                                    3.321293e-03
## project_id_GENIE_JHU.to.1layhid20
                                                                                   -1.322013e+00
## project id GENIE MDA.to.1layhid20
                                                                                    8.043732e-01
## project_id_GENIE_MSK.to.1layhid20
                                                                                   -1.039535e+00
## project id GENIE UHN.to.1layhid20
                                                                                    1.002709e+00
## project_id_GENIE_VICC.to.1layhid20
                                                                                   -3.116692e-01
## project_id_MMRF_COMMPASS.to.1layhid20
                                                                                   -1.871352e+00
## project_id_OHSU_CNL.to.1layhid20
                                                                                    3.923562e+01
## project id TARGET ALL P1.to.1layhid20
                                                                                    3.857785e+00
## project id TARGET ALL P2.to.1layhid20
                                                                                   -1.023866e+00
## project_id_TARGET_ALL_P3.to.1layhid20
                                                                                    2.592683e+00
## project_id_TARGET_AML.to.1layhid20
                                                                                   -7.710754e-01
## project_id_TARGET_NBL.to.1layhid20
                                                                                    9.764323e-01
## project_id_TCGA_LAML.to.1layhid20
                                                                                    7.704128e-01
                                                                                   -8.446976e-02
## ethnicity_hispanic.to.1layhid20
## ethnicity_not_hispanic.to.1layhid20
                                                                                    1.362990e-01
## gender_female.to.1layhid20
                                                                                   -1.074356e+00
## gender_male.to.1layhid20
                                                                                   -6.980610e-01
## race_ameri_ind_or_alaska.to.1layhid20
                                                                                    3.041897e+00
## race asian.to.1layhid20
                                                                                   -3.190185e+00
## race_black_or_afr_ameri.to.1layhid20
                                                                                   -8.928726e-01
## race hawaiian or pacific islander.to.1layhid20
                                                                                   -3.421917e-01
## race_other.to.1layhid20
                                                                                    1.673925e+00
## race_white.to.1layhid20
                                                                                   -7.331320e-01
## iss_stage_I.to.1layhid20
                                                                                    1.575164e+00
## iss stage II.to.1layhid20
                                                                                   -1.071459e-01
## iss stage III.to.1layhid20
                                                                                    2.536743e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid20
                                                                                    3.584701e+01
## site_of_resection_or_biopsy_Blood.to.1layhid20
                                                                                    1.443698e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid20
                                                                                   -7.057134e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid20
                                                                                   -7.439602e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid20
                                                                                    3.496746e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid20
                                                                                   -4.127000e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid20 1.408849e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid20
                                                                                   -1.464472e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid20
                                                                                   -2.542728e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid20
                                                                                    3.591277e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid20
                                                                                    3.549815e+01
## site of resection or biopsy Lip NOS.to.1layhid20
                                                                                    3.570424e+01
```

```
## site_of_resection_or_biopsy_Liver.to.1layhid20
                                                                                     7.119176e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid20
                                                                                     3.572234e+01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid20
                                                                                    2.695381e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid20
                                                                                     1.754435e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid20
                                                                                     3.615511e+01
## site of resection or biopsy Ovary.to.1layhid20
                                                                                   -4.084109e+02
## site of resection or biopsy Pelvis NOS.to.1layhid20
                                                                                    3.589801e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid20
                                                                                    -3.466225e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid20
                                                                                    -2.413696e+00
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid20
                                                                                    3.367630e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid20
                                                                                     3.530943e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid20
                                                                                    7.363152e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid20
                                                                                   -4.086249e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid20
                                                                                    3.600762e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid20
                                                                                    3.488237e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid20
                                                                                    3.602069e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid20
                                                                                    1.805389e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid20
                                                                                   -4.143050e+02
## Intercept.to.1layhid21
                                                                                    -6.999830e-01
## project_id_BEATAML1.0_COHORT.to.1layhid21
                                                                                     4.202238e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid21
                                                                                    3.800226e+01
## project_id_CGCI_BLGSP.to.1layhid21
                                                                                   -6.574436e-01
## project_id_GENIE_DFCI.to.1layhid21
                                                                                     4.952169e-02
## project id GENIE JHU.to.1layhid21
                                                                                     9.652434e-01
## project id GENIE MDA.to.1layhid21
                                                                                    8.891349e-01
## project id GENIE MSK.to.1layhid21
                                                                                    -5.403754e-01
## project_id_GENIE_UHN.to.1layhid21
                                                                                    1.033222e+00
## project_id_GENIE_VICC.to.1layhid21
                                                                                    -2.186332e-01
## project_id_MMRF_COMMPASS.to.1layhid21
                                                                                   -1.112995e+00
## project_id_OHSU_CNL.to.1layhid21
                                                                                   -1.139280e+00
## project_id_TARGET_ALL_P1.to.1layhid21
                                                                                    3.234276e+01
## project_id_TARGET_ALL_P2.to.1layhid21
                                                                                   -2.342009e+00
## project_id_TARGET_ALL_P3.to.1layhid21
                                                                                    6.447923e-01
## project_id_TARGET_AML.to.1layhid21
                                                                                   -6.799404e-01
## project_id_TARGET_NBL.to.1layhid21
                                                                                     2.507467e+00
## project_id_TCGA_LAML.to.1layhid21
                                                                                     1.746983e+00
## ethnicity hispanic.to.1layhid21
                                                                                    2.028716e+00
## ethnicity_not_hispanic.to.1layhid21
                                                                                   -1.060663e-01
## gender female.to.1layhid21
                                                                                     5.847747e-02
## gender_male.to.1layhid21
                                                                                     6.302769e-01
## race ameri ind or alaska.to.1layhid21
                                                                                     1.801820e+00
## race asian.to.1layhid21
                                                                                    2.857116e+00
## race black or afr ameri.to.1layhid21
                                                                                    8.778808e-01
## race_hawaiian_or_pacific_islander.to.1layhid21
                                                                                   -1.227774e+00
## race_other.to.1layhid21
                                                                                    -3.147487e+00
                                                                                   -1.340788e+00
## race_white.to.1layhid21
## iss_stage_I.to.1layhid21
                                                                                     2.058951e-01
## iss_stage_II.to.1layhid21
                                                                                   -1.114811e+00
## iss_stage_III.to.1layhid21
                                                                                    -1.046477e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid21
                                                                                    -1.236331e+00
## site_of_resection_or_biopsy_Blood.to.1layhid21
                                                                                    1.937007e+00
## site of resection or biopsy Bone marrow.to.1layhid21
                                                                                    1.485374e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid21
                                                                                   -2.526010e-01
## site of resection or biopsy Cheek mucosa.to.1layhid21
                                                                                    3.827725e+01
```

```
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid21
                                                                                    4.111806e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid21
                                                                                    4.466592e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid21
                                                                                    1.119925e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid21
                                                                                    -2.250996e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid21
                                                                                    3.652360e+00
## site of resection or biopsy Kidney NOS.to.1layhid21
                                                                                    2.498153e+00
## site of resection or biopsy Lip NOS.to.1layhid21
                                                                                    3.697218e+01
## site_of_resection_or_biopsy_Liver.to.1layhid21
                                                                                    -6.159015e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid21
                                                                                    3.830945e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid21
                                                                                    1.663055e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid21
                                                                                   -3.075414e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid21
                                                                                    3.890786e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid21
                                                                                    4.112882e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid21
                                                                                    4.709101e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid21
                                                                                   -9.955492e+00
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid21
                                                                                    4.048517e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid21
                                                                                    3.929740e+01
## site of resection or biopsy Specified parts of peritoneum.to.1layhid21
                                                                                   -3.227832e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid21
                                                                                   -3.842943e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid21
                                                                                    -5.431274e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid21
                                                                                    3.833312e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid21
                                                                                    5.476491e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid21
                                                                                    3.629178e+01
## tissue or organ of origin Hematopoietic system NOS.to.1layhid21
                                                                                    -4.459121e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid21
                                                                                   -1.055907e+00
## Intercept.to.1layhid22
                                                                                    6.656573e-01
## project_id_BEATAML1.0_COHORT.to.1layhid22
                                                                                   -5.018451e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid22
                                                                                   -4.178142e+02
## project_id_CGCI_BLGSP.to.1layhid22
                                                                                   -1.534114e+00
## project_id_GENIE_DFCI.to.1layhid22
                                                                                    4.845234e-02
## project_id_GENIE_JHU.to.1layhid22
                                                                                    1.489550e+00
## project_id_GENIE_MDA.to.1layhid22
                                                                                    6.099269e-01
## project_id_GENIE_MSK.to.1layhid22
                                                                                    1.620290e-01
## project_id_GENIE_UHN.to.1layhid22
                                                                                   -2.907859e-01
## project_id_GENIE_VICC.to.1layhid22
                                                                                    2.965883e-01
## project_id_MMRF_COMMPASS.to.1layhid22
                                                                                   -7.492881e-01
## project_id_OHSU_CNL.to.1layhid22
                                                                                   -2.100954e+02
## project_id_TARGET_ALL_P1.to.1layhid22
                                                                                   -1.272416e+00
## project_id_TARGET_ALL_P2.to.1layhid22
                                                                                    -8.787682e-01
## project_id_TARGET_ALL_P3.to.1layhid22
                                                                                   -1.004026e+00
## project id TARGET AML.to.1layhid22
                                                                                    7.040494e-01
## project_id_TARGET_NBL.to.1layhid22
                                                                                   -9.958302e-01
## project_id_TCGA_LAML.to.1layhid22
                                                                                   -7.265178e-01
## ethnicity_hispanic.to.1layhid22
                                                                                    6.229153e-01
## ethnicity_not_hispanic.to.1layhid22
                                                                                   -2.555674e+00
## gender_female.to.1layhid22
                                                                                   -1.386632e+00
## gender_male.to.1layhid22
                                                                                    1.398135e-01
## race_ameri_ind_or_alaska.to.1layhid22
                                                                                   -3.085252e+00
## race_asian.to.1layhid22
                                                                                    8.428312e-01
## race_black_or_afr_ameri.to.1layhid22
                                                                                    6.530995e-01
## race_hawaiian_or_pacific_islander.to.1layhid22
                                                                                    3.005159e+00
## race_other.to.1layhid22
                                                                                    2.322119e+00
## race_white.to.1layhid22
                                                                                    -1.251751e+00
## iss_stage_I.to.1layhid22
                                                                                    -5.221887e-01
```

```
## iss stage II.to.1lavhid22
                                                                                   -8.715289e-01
## iss_stage_III.to.1layhid22
                                                                                    2.603682e-01
## site of resection or biopsy Abdomen NOS.to.1layhid22
                                                                                    3.468592e+00
## site_of_resection_or_biopsy_Blood.to.1layhid22
                                                                                    2.772608e-01
## site of resection or biopsy Bone marrow.to.1layhid22
                                                                                    2.143059e+00
## site of resection or biopsy Bones of skull and face.to.1layhid22
                                                                                   -3.769805e+02
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid22
                                                                                    1.471664e+00
## site of resection or biopsy Connective and other soft tissues.to.1layhid22
                                                                                    4.480109e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid22
                                                                                    2.388785e-02
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid22
                                                                                    7.424108e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid22
                                                                                   -3.973615e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid22
                                                                                   -4.154553e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid22
                                                                                   -4.158810e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid22
                                                                                   -4.184971e+02
## site_of_resection_or_biopsy_Liver.to.1layhid22
                                                                                    1.274463e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid22
                                                                                   -4.093491e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid22
                                                                                   -8.950808e+01
## site of resection or biopsy Mandible.to.1layhid22
                                                                                   -1.248493e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid22
                                                                                   -4.163372e+02
## site of resection or biopsy Ovary.to.1layhid22
                                                                                    4.474991e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid22
                                                                                    4.320984e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid22
                                                                                    4.446968e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid22
                                                                                    4.286847e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid22
                                                                                   -4.167474e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid22
                                                                                   -4.069224e+02
## site of resection or biopsy Spleen.to.1layhid22
                                                                                    3.771416e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid22
                                                                                    4.294897e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid22
                                                                                   -4.175114e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid22
                                                                                    3.759916e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid22
                                                                                   -4.186668e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid22
                                                                                   -1.073418e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid22
                                                                                    3.810635e+01
## Intercept.to.1layhid23
                                                                                   -1.772711e-01
## project_id_BEATAML1.0_COHORT.to.1layhid23
                                                                                    3.472275e+01
## project id BEATAML1.0 CRENOLANIB.to.1layhid23
                                                                                    8.368617e+01
## project_id_CGCI_BLGSP.to.1layhid23
                                                                                   -8.869743e-01
## project id GENIE DFCI.to.1layhid23
                                                                                    5.824612e-03
## project_id_GENIE_JHU.to.1layhid23
                                                                                   -6.117335e-01
## project id GENIE MDA.to.1layhid23
                                                                                    7.480378e-02
## project_id_GENIE_MSK.to.1layhid23
                                                                                    9.905019e-01
## project id GENIE UHN.to.1layhid23
                                                                                    1.006943e+00
## project id GENIE VICC.to.1layhid23
                                                                                   -4.572858e-01
## project id MMRF COMMPASS.to.1layhid23
                                                                                   -1.812564e+00
## project_id_OHSU_CNL.to.1layhid23
                                                                                   -1.391042e+00
## project_id_TARGET_ALL_P1.to.1layhid23
                                                                                    3.584066e+01
## project_id_TARGET_ALL_P2.to.1layhid23
                                                                                    5.546410e-01
## project_id_TARGET_ALL_P3.to.1layhid23
                                                                                   -2.553078e+00
## project_id_TARGET_AML.to.1layhid23
                                                                                    3.484418e-01
## project_id_TARGET_NBL.to.1layhid23
                                                                                   -2.734226e-01
## project_id_TCGA_LAML.to.1layhid23
                                                                                   -3.471569e+00
## ethnicity_hispanic.to.1layhid23
                                                                                    6.577774e+00
## ethnicity not hispanic.to.1layhid23
                                                                                    1.179419e+00
## gender_female.to.1layhid23
                                                                                   -4.081876e-01
## gender male.to.1layhid23
                                                                                    2.134164e-01
```

```
## race ameri ind or alaska.to.1layhid23
                                                                                   -2.930138e+00
## race asian.to.1layhid23
                                                                                   -8.396278e-01
## race black or afr ameri.to.1layhid23
                                                                                    2.202831e+00
## race_hawaiian_or_pacific_islander.to.1layhid23
                                                                                   -4.148809e+00
## race other.to.1layhid23
                                                                                   -6.192755e+00
## race white.to.1layhid23
                                                                                   -1.714884e-01
## iss stage I.to.1layhid23
                                                                                    6.601280e-01
## iss stage II.to.1layhid23
                                                                                    4.163804e-02
## iss stage III.to.1layhid23
                                                                                   -8.028914e-04
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid23
                                                                                   -1.882800e+00
## site_of_resection_or_biopsy_Blood.to.1layhid23
                                                                                   -1.090295e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid23
                                                                                    8.543369e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid23
                                                                                   -1.794537e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid23
                                                                                   -5.346082e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid23
                                                                                   -3.937808e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid23 -1.021267e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid23
                                                                                    8.050446e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid23
                                                                                   -6.901036e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid23
                                                                                   -7.419872e-01
## site of resection or biopsy Kidney NOS.to.1layhid23
                                                                                   -1.803755e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid23
                                                                                    2.947915e+01
## site of resection or biopsy Liver.to.1layhid23
                                                                                   -2.976726e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid23
                                                                                    3.406671e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid23
                                                                                   -2.405838e+00
## site of resection or biopsy Mandible.to.1layhid23
                                                                                   -1.336948e+00
## site of resection or biopsy Mouth NOS.to.1layhid23
                                                                                    3.469966e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid23
                                                                                   -3.511724e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid23
                                                                                   -8.663763e-01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid23
                                                                                   -3.469972e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid23
                                                                                   -5.252016e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid23
                                                                                    3.587020e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid23
                                                                                    3.646032e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid23
                                                                                    1.671729e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid23
                                                                                   -3.827234e+02
## site of resection or biopsy Vestibule of mouth.to.1layhid23
                                                                                    3.410589e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid23
                                                                                    1.623772e+00
## tissue or organ of origin Bones of skull and face.to.1layhid23
                                                                                    3.342312e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid23
                                                                                    1.483344e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid23
                                                                                   -3.679140e+02
                                                                                    7.203373e-01
## Intercept.to.1layhid24
## project_id_BEATAML1.0_COHORT.to.1layhid24
                                                                                   -6.954226e-01
## project id BEATAML1.0 CRENOLANIB.to.1layhid24
                                                                                    7.911744e+01
## project id CGCI BLGSP.to.1layhid24
                                                                                    8.487601e-01
## project_id_GENIE_DFCI.to.1layhid24
                                                                                    7.132728e-01
## project_id_GENIE_JHU.to.1layhid24
                                                                                    8.013391e-01
## project_id_GENIE_MDA.to.1layhid24
                                                                                   -2.214767e-01
## project_id_GENIE_MSK.to.1layhid24
                                                                                   -4.850213e-01
## project_id_GENIE_UHN.to.1layhid24
                                                                                   -2.232637e-01
## project_id_GENIE_VICC.to.1layhid24
                                                                                    2.036324e-02
## project_id_MMRF_COMMPASS.to.1layhid24
                                                                                    1.170042e+01
## project_id_OHSU_CNL.to.1layhid24
                                                                                    1.816933e+01
## project_id_TARGET_ALL_P1.to.1layhid24
                                                                                   -9.521965e+00
## project_id_TARGET_ALL_P2.to.1layhid24
                                                                                    1.042099e+01
## project id TARGET ALL P3.to.1layhid24
                                                                                    2.024003e+01
```

```
## project id TARGET AML.to.1layhid24
                                                                                   -2.740179e+00
## project_id_TARGET_NBL.to.1layhid24
                                                                                   -1.806393e+01
## project_id_TCGA_LAML.to.1layhid24
                                                                                   -1.045302e+01
## ethnicity_hispanic.to.1layhid24
                                                                                   -1.104903e+01
## ethnicity not hispanic.to.1layhid24
                                                                                    8.227648e-01
## gender female.to.1layhid24
                                                                                   -1.737733e-01
## gender male.to.1layhid24
                                                                                   -6.072605e+00
## race ameri ind or alaska.to.1layhid24
                                                                                   -5.691124e+00
## race asian.to.1layhid24
                                                                                   -4.888709e-01
## race_black_or_afr_ameri.to.1layhid24
                                                                                   -3.830361e-01
## race_hawaiian_or_pacific_islander.to.1layhid24
                                                                                   -2.886472e+00
                                                                                   -4.569481e+00
## race other.to.1layhid24
                                                                                    7.799596e+00
## race_white.to.1layhid24
## iss_stage_I.to.1layhid24
                                                                                   -4.017858e+00
## iss_stage_II.to.1layhid24
                                                                                    3.247494e+00
## iss_stage_III.to.1layhid24
                                                                                    1.224677e+01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid24
                                                                                    6.377556e+00
## site of resection or biopsy Blood.to.1layhid24
                                                                                   -4.339714e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid24
                                                                                    6.339879e+00
## site of resection or biopsy Bones of skull and face.to.1layhid24
                                                                                   -7.784294e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid24
                                                                                   -4.088456e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid24
                                                                                   -3.934523e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid24 -4.109169e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid24
                                                                                   -4.591933e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid24
                                                                                    1.632807e+00
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid24
                                                                                    3.641714e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid24
                                                                                    4.360828e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid24
                                                                                    4.833393e+01
                                                                                    4.463524e+00
## site_of_resection_or_biopsy_Liver.to.1layhid24
## site_of_resection_or_biopsy_Lower_gum.to.1layhid24
                                                                                   -1.352367e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid24
                                                                                    4.958180e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid24
                                                                                    5.644447e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid24
                                                                                    7.915630e+00
## site_of_resection_or_biopsy_Ovary.to.1layhid24
                                                                                   -3.071755e+02
## site of resection or biopsy Pelvis NOS.to.1layhid24
                                                                                   -6.058963e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid24
                                                                                   -4.050445e+02
## site of resection or biopsy Retroperitoneum.to.1layhid24
                                                                                   -3.383910e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid24
                                                                                    3.566889e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid24
                                                                                   -8.261194e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid24
                                                                                    4.051288e+00
## site of resection or biopsy Testis NOS.to.1layhid24
                                                                                   -3.023253e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid24
                                                                                   -5.081779e-01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid24
                                                                                    4.253772e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid24
                                                                                    1.229770e+00
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid24
                                                                                    1.261210e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid24
                                                                                   -2.858653e+02
## Intercept.to.1layhid25
                                                                                    1.247859e+00
## project_id_BEATAML1.0_COHORT.to.1layhid25
                                                                                    5.308553e+01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid25
                                                                                   -3.981579e+02
## project_id_CGCI_BLGSP.to.1layhid25
                                                                                    3.192875e-01
## project_id_GENIE_DFCI.to.1layhid25
                                                                                   -8.145861e-01
## project_id_GENIE_JHU.to.1layhid25
                                                                                   -1.714467e+00
## project_id_GENIE_MDA.to.1layhid25
                                                                                   -1.270834e-01
## project id GENIE MSK.to.1layhid25
                                                                                   -1.366616e+00
```

```
## project id GENIE UHN.to.1layhid25
                                                                                   -1.489912e+00
## project id GENIE VICC.to.1layhid25
                                                                                    -9.105020e-01
## project id MMRF COMMPASS.to.1layhid25
                                                                                    3.861044e+00
## project_id_OHSU_CNL.to.1layhid25
                                                                                   -3.698259e+00
## project_id_TARGET_ALL_P1.to.1layhid25
                                                                                    9.678331e+00
## project id TARGET ALL P2.to.1layhid25
                                                                                   -1.282127e+01
## project id TARGET ALL P3.to.1layhid25
                                                                                   -2.446932e+00
## project id TARGET AML.to.1layhid25
                                                                                    -4.088498e+00
## project_id_TARGET_NBL.to.1layhid25
                                                                                    1.342933e+00
## project_id_TCGA_LAML.to.1layhid25
                                                                                    1.670676e+00
## ethnicity_hispanic.to.1layhid25
                                                                                    2.007739e+01
                                                                                   -2.763260e-01
## ethnicity_not_hispanic.to.1layhid25
## gender_female.to.1layhid25
                                                                                    1.234385e+00
## gender_male.to.1layhid25
                                                                                   -6.724918e-01
## race_ameri_ind_or_alaska.to.1layhid25
                                                                                   -1.787028e+01
## race_asian.to.1layhid25
                                                                                    3.499246e+01
## race_black_or_afr_ameri.to.1layhid25
                                                                                    4.898784e-01
## race hawaiian or pacific islander.to.1layhid25
                                                                                   -3.673712e+00
## race_other.to.1layhid25
                                                                                   -2.045314e+01
## race white.to.1layhid25
                                                                                    -2.475643e+00
## iss_stage_I.to.1layhid25
                                                                                   -6.989725e-01
## iss stage II.to.1layhid25
                                                                                    6.065165e-01
                                                                                   -2.404035e+00
## iss_stage_III.to.1layhid25
## site of resection or biopsy Abdomen NOS.to.1layhid25
                                                                                    -1.946010e+01
## site of resection or biopsy Blood.to.1layhid25
                                                                                   -3.402849e+01
## site of resection or biopsy Bone marrow.to.1layhid25
                                                                                    2.222971e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid25
                                                                                    2.149299e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid25
                                                                                    3.855672e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid25
                                                                                    4.174826e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid25 -3.110925e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid25
                                                                                    1.764628e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid25
                                                                                    2.356003e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid25
                                                                                   -6.769157e-02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid25
                                                                                    3.853729e+01
## site of resection or biopsy Lip NOS.to.1layhid25
                                                                                    -4.160617e+02
## site_of_resection_or_biopsy_Liver.to.1layhid25
                                                                                    -3.257207e+00
## site of resection or biopsy Lower gum.to.1layhid25
                                                                                   -4.160019e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid25
                                                                                    1.174332e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid25
                                                                                    -6.389151e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid25
                                                                                   -2.534228e+02
## site of resection or biopsy Ovary.to.1layhid25
                                                                                    3.868958e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid25
                                                                                    5.908454e-01
## site of resection or biopsy Peritoneum NOS.to.1layhid25
                                                                                    3.852040e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid25
                                                                                    4.150281e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid25
                                                                                    -4.154489e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid25
                                                                                    -2.074453e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid25
                                                                                   -1.794887e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid25
                                                                                    4.238338e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid25
                                                                                   -4.143080e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid25
                                                                                    6.674542e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid25
                                                                                   -4.178112e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid25
                                                                                   -5.046594e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid25
                                                                                    3.588785e+01
                                                                                   -1.634650e+00
## Intercept.to.1layhid26
```

```
## project id BEATAML1.0 COHORT.to.1layhid26
                                                                                     2.290695e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid26
                                                                                    4.521893e+01
## project id CGCI BLGSP.to.1layhid26
                                                                                    -2.056686e-02
## project_id_GENIE_DFCI.to.1layhid26
                                                                                    -6.219005e-02
## project_id_GENIE_JHU.to.1layhid26
                                                                                    -1.322818e-01
## project id GENIE MDA.to.1layhid26
                                                                                   -1.649794e+00
## project id GENIE MSK.to.1layhid26
                                                                                    7.685228e-01
## project_id_GENIE_UHN.to.1layhid26
                                                                                   -1.943179e+00
## project_id_GENIE_VICC.to.1layhid26
                                                                                     1.588744e-01
## project_id_MMRF_COMMPASS.to.1layhid26
                                                                                   -1.727619e+00
## project_id_OHSU_CNL.to.1layhid26
                                                                                     3.318466e+00
## project_id_TARGET_ALL_P1.to.1layhid26
                                                                                     9.495188e+00
## project_id_TARGET_ALL_P2.to.1layhid26
                                                                                     1.041679e+00
## project_id_TARGET_ALL_P3.to.1layhid26
                                                                                    5.801023e-01
## project_id_TARGET_AML.to.1layhid26
                                                                                    -1.183123e+00
## project_id_TARGET_NBL.to.1layhid26
                                                                                    -3.788369e+00
## project_id_TCGA_LAML.to.1layhid26
                                                                                     1.972083e+00
## ethnicity hispanic.to.1layhid26
                                                                                    5.181607e-01
## ethnicity_not_hispanic.to.1layhid26
                                                                                    -4.028800e-01
## gender female.to.1layhid26
                                                                                    -4.638715e-01
## gender_male.to.1layhid26
                                                                                   -4.441901e-01
## race_ameri_ind_or_alaska.to.1layhid26
                                                                                     1.982564e+00
## race_asian.to.1layhid26
                                                                                    -1.467281e-01
## race_black_or_afr_ameri.to.1layhid26
                                                                                    -6.180920e-01
## race_hawaiian_or_pacific_islander.to.1layhid26
                                                                                     4.709853e-01
## race other.to.1layhid26
                                                                                     1.764954e+00
## race_white.to.1layhid26
                                                                                     2.293320e-01
## iss_stage_I.to.1layhid26
                                                                                     1.841682e-01
## iss_stage_II.to.1layhid26
                                                                                     2.015584e+00
## iss_stage_III.to.1layhid26
                                                                                     1.065919e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid26
                                                                                     1.286214e+00
## site_of_resection_or_biopsy_Blood.to.1layhid26
                                                                                    -5.472657e-03
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid26
                                                                                   -1.932975e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid26
                                                                                    3.965133e-01
## site of resection or biopsy Cheek mucosa.to.1layhid26
                                                                                    -1.609586e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid26
                                                                                    -2.517236e+00
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid26 -7.962875e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid26
                                                                                    4.814010e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid26
                                                                                    -1.284782e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid26
                                                                                    -1.127136e+00
## site of resection or biopsy Kidney NOS.to.1layhid26
                                                                                     3.760993e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid26
                                                                                    3.480719e+01
## site_of_resection_or_biopsy_Liver.to.1layhid26
                                                                                    -5.402248e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid26
                                                                                    3.753976e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid26
                                                                                   -1.458092e-01
## site_of_resection_or_biopsy_Mandible.to.1layhid26
                                                                                     1.053769e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid26
                                                                                     3.756218e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid26
                                                                                    -8.415936e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid26
                                                                                    -1.241276e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid26
                                                                                    -1.550646e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid26
                                                                                   -4.157686e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid26
                                                                                    3.674477e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid26
                                                                                    3.669397e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid26
                                                                                    -2.068991e-01
```

```
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid26
                                                                                   -1.387327e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid26
                                                                                    3.758096e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid26
                                                                                    1.852940e-02
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid26
                                                                                    3.990019e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid26
                                                                                    2.156503e+00
## tissue or organ of origin Orbit NOS.to.1layhid26
                                                                                   -9.240824e+01
## Intercept.to.1layhid27
                                                                                   -9.890756e-01
## project_id_BEATAML1.0_COHORT.to.1layhid27
                                                                                    2.227361e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid27
                                                                                     1.903287e+02
## project_id_CGCI_BLGSP.to.1layhid27
                                                                                   -2.134908e+00
## project_id_GENIE_DFCI.to.1layhid27
                                                                                     1.836119e+00
## project_id_GENIE_JHU.to.1layhid27
                                                                                     1.235820e+00
## project_id_GENIE_MDA.to.1layhid27
                                                                                     6.900842e-01
## project_id_GENIE_MSK.to.1layhid27
                                                                                   -6.037164e-01
## project_id_GENIE_UHN.to.1layhid27
                                                                                    1.082225e+00
## project_id_GENIE_VICC.to.1layhid27
                                                                                   -1.488025e+00
## project_id_MMRF_COMMPASS.to.1layhid27
                                                                                   -4.424561e-01
## project id OHSU CNL.to.1layhid27
                                                                                    8.140627e-01
## project_id_TARGET_ALL_P1.to.1layhid27
                                                                                   -1.308343e-02
## project_id_TARGET_ALL_P2.to.1layhid27
                                                                                    3.888903e-01
## project_id_TARGET_ALL_P3.to.1layhid27
                                                                                   -2.023497e+00
## project_id_TARGET_AML.to.1layhid27
                                                                                   -3.223861e-01
## project_id_TARGET_NBL.to.1layhid27
                                                                                   -9.238425e-01
## project id TCGA LAML.to.1layhid27
                                                                                     1.599159e+00
                                                                                     5.056377e-01
## ethnicity_hispanic.to.1layhid27
## ethnicity_not_hispanic.to.1layhid27
                                                                                     2.010702e-01
## gender_female.to.1layhid27
                                                                                    4.752179e-01
## gender_male.to.1layhid27
                                                                                   -1.800446e-04
## race_ameri_ind_or_alaska.to.1layhid27
                                                                                   -1.454409e+00
## race_asian.to.1layhid27
                                                                                    3.242918e-01
## race_black_or_afr_ameri.to.1layhid27
                                                                                     1.415301e+00
## race_hawaiian_or_pacific_islander.to.1layhid27
                                                                                   -4.062251e-01
## race_other.to.1layhid27
                                                                                    4.477437e+00
## race_white.to.1layhid27
                                                                                    6.402610e-01
## iss stage I.to.1layhid27
                                                                                    -9.470923e-01
## iss_stage_II.to.1layhid27
                                                                                   -5.220529e-01
## iss stage III.to.1layhid27
                                                                                     1.017494e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid27
                                                                                     1.299893e+00
## site_of_resection_or_biopsy_Blood.to.1layhid27
                                                                                     1.449911e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid27
                                                                                    3.399756e-01
## site of resection or biopsy Bones of skull and face.to.1layhid27
                                                                                   -4.078717e-02
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid27
                                                                                     2.714660e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid27
                                                                                    -4.160231e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid27
                                                                                    4.180307e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid27
                                                                                     1.469762e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid27
                                                                                     4.685770e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid27
                                                                                     3.656800e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid27
                                                                                   -1.519779e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid27
                                                                                    3.897341e+01
## site_of_resection_or_biopsy_Liver.to.1layhid27
                                                                                   -1.401265e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid27
                                                                                    3.967391e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid27
                                                                                    2.536006e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid27
                                                                                   -9.748389e-02
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid27
                                                                                    3.973136e+01
```

```
## site_of_resection_or_biopsy_Ovary.to.1layhid27
                                                                                   -4.168899e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid27
                                                                                    3.760186e+00
## site of resection or biopsy Peritoneum NOS.to.1layhid27
                                                                                   -4.164646e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid27
                                                                                   -1.523006e+02
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid27
                                                                                    4.049048e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid27
                                                                                   -9.888806e+01
## site of resection or biopsy Spleen.to.1layhid27
                                                                                    2.052971e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid27
                                                                                   -4.181196e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid27
                                                                                    3.971454e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid27
                                                                                   -7.820228e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid27
                                                                                    3.890331e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid27
                                                                                   -4.739753e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid27
                                                                                   -4.166466e+02
## Intercept.to.1layhid28
                                                                                   -1.044328e+00
## project_id_BEATAML1.0_COHORT.to.1layhid28
                                                                                   -7.255964e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid28
                                                                                   -4.161471e+02
## project_id_CGCI_BLGSP.to.1layhid28
                                                                                    1.691174e-01
## project id GENIE DFCI.to.1layhid28
                                                                                    4.609307e-01
## project_id_GENIE_JHU.to.1layhid28
                                                                                    1.070207e+00
## project_id_GENIE_MDA.to.1layhid28
                                                                                   -7.184660e-01
## project_id_GENIE_MSK.to.1layhid28
                                                                                   -7.899427e-01
## project_id_GENIE_UHN.to.1layhid28
                                                                                   -1.287701e+00
                                                                                   -6.008294e-01
## project_id_GENIE_VICC.to.1layhid28
## project id MMRF COMMPASS.to.1layhid28
                                                                                   -5.290407e-01
## project id OHSU CNL.to.1layhid28
                                                                                    5.498752e-01
## project id TARGET ALL P1.to.1layhid28
                                                                                   -6.146310e+00
## project_id_TARGET_ALL_P2.to.1layhid28
                                                                                    3.576400e+00
## project_id_TARGET_ALL_P3.to.1layhid28
                                                                                    8.076926e-01
## project_id_TARGET_AML.to.1layhid28
                                                                                   -1.891919e+00
## project_id_TARGET_NBL.to.1layhid28
                                                                                    3.117916e-02
## project_id_TCGA_LAML.to.1layhid28
                                                                                    2.117981e+00
## ethnicity_hispanic.to.1layhid28
                                                                                   -6.481557e-01
## ethnicity_not_hispanic.to.1layhid28
                                                                                   -4.123335e-01
## gender_female.to.1layhid28
                                                                                    1.018300e+00
## gender male.to.1layhid28
                                                                                   -1.183407e-02
## race_ameri_ind_or_alaska.to.1layhid28
                                                                                    2.763296e+00
## race asian.to.1layhid28
                                                                                    4.341933e-01
## race_black_or_afr_ameri.to.1layhid28
                                                                                   -1.474452e+00
## race hawaiian or pacific islander.to.1layhid28
                                                                                    9.325693e-01
## race_other.to.1layhid28
                                                                                   -2.166802e+02
## race white.to.1layhid28
                                                                                    5.679487e-01
## iss_stage_I.to.1layhid28
                                                                                   -8.992525e-01
## iss stage II.to.1layhid28
                                                                                   -1.346927e+00
## iss_stage_III.to.1layhid28
                                                                                   -3.198777e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid28
                                                                                    1.329084e+00
## site_of_resection_or_biopsy_Blood.to.1layhid28
                                                                                   -1.350331e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid28
                                                                                    1.475506e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid28
                                                                                   -1.613603e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid28
                                                                                   -4.104831e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid28
                                                                                    3.685043e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid28 -4.617646e-02
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid28
                                                                                    9.476042e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid28
                                                                                    5.257143e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid28
                                                                                    5.402813e-01
```

```
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid28
                                                                                     1.437105e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid28
                                                                                    -4.173398e+02
## site of resection or biopsy Liver.to.1layhid28
                                                                                     1.892140e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid28
                                                                                    -4.137855e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid28
                                                                                    -6.063421e-01
## site of resection or biopsy Mandible.to.1layhid28
                                                                                    1.801911e+00
## site of resection or biopsy Mouth NOS.to.1layhid28
                                                                                    -4.183016e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid28
                                                                                    3.897526e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid28
                                                                                     5.940670e-01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid28
                                                                                    4.315963e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid28
                                                                                    3.786958e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid28
                                                                                    -4.155278e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid28
                                                                                    -4.140597e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid28
                                                                                    3.058741e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid28
                                                                                    3.744572e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid28
                                                                                    -4.171043e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid28
                                                                                    -6.459486e-01
## tissue or organ of origin Bones of skull and face.to.1layhid28
                                                                                   -4.161965e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid28
                                                                                    9.455810e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid28
                                                                                    3.938631e+01
## Intercept.to.1layhid29
                                                                                     1.458655e+00
## project_id_BEATAML1.0_COHORT.to.1layhid29
                                                                                     1.256088e+01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid29
                                                                                    -4.165657e+02
## project id CGCI BLGSP.to.1layhid29
                                                                                    -2.240132e+00
## project id GENIE DFCI.to.1layhid29
                                                                                   -1.724154e+00
## project id GENIE JHU.to.1layhid29
                                                                                    5.711389e-01
## project_id_GENIE_MDA.to.1layhid29
                                                                                    -4.816478e-01
## project_id_GENIE_MSK.to.1layhid29
                                                                                     6.524163e-01
## project_id_GENIE_UHN.to.1layhid29
                                                                                     2.293397e-01
## project_id_GENIE_VICC.to.1layhid29
                                                                                    -3.890259e-01
## project_id_MMRF_COMMPASS.to.1layhid29
                                                                                    3.973418e-01
## project_id_OHSU_CNL.to.1layhid29
                                                                                     3.884555e-01
## project_id_TARGET_ALL_P1.to.1layhid29
                                                                                    -3.769267e+02
## project_id_TARGET_ALL_P2.to.1layhid29
                                                                                    -2.330103e+00
## project_id_TARGET_ALL_P3.to.1layhid29
                                                                                    -2.670822e+00
## project_id_TARGET_AML.to.1layhid29
                                                                                    -1.065867e+00
## project_id_TARGET_NBL.to.1layhid29
                                                                                   -3.277607e+01
## project_id_TCGA_LAML.to.1layhid29
                                                                                    -7.670828e+01
## ethnicity_hispanic.to.1layhid29
                                                                                    -2.390436e+00
## ethnicity_not_hispanic.to.1layhid29
                                                                                   -1.040957e+00
## gender female.to.1layhid29
                                                                                    -3.316248e-01
## gender male.to.1layhid29
                                                                                    -9.906402e-01
## race ameri ind or alaska.to.1layhid29
                                                                                    -3.792076e+02
## race_asian.to.1layhid29
                                                                                    1.299841e+00
## race_black_or_afr_ameri.to.1layhid29
                                                                                   -3.380644e-01
## race_hawaiian_or_pacific_islander.to.1layhid29
                                                                                   -3.947208e+02
                                                                                    -5.770333e+00
## race_other.to.1layhid29
## race_white.to.1layhid29
                                                                                   -2.186546e-01
## iss_stage_I.to.1layhid29
                                                                                    2.181781e-02
## iss_stage_II.to.1layhid29
                                                                                    -3.474480e-01
## iss_stage_III.to.1layhid29
                                                                                   -7.192943e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid29
                                                                                    2.069832e+00
## site_of_resection_or_biopsy_Blood.to.1layhid29
                                                                                   -3.679301e+02
## site of resection or biopsy Bone marrow.to.1layhid29
                                                                                     2.834477e-01
```

```
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid29
                                                                                   -5.177699e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid29
                                                                                    4.040340e+00
## site of resection or biopsy Connective and other soft tissues.to.1layhid29
                                                                                    3.209431e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid29 -1.420814e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid29
                                                                                    1.578731e+00
## site of resection or biopsy Hematopoietic system NOS.to.1layhid29
                                                                                   -4.762018e-01
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid29
                                                                                   -4.125252e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid29
                                                                                    -4.149719e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid29
                                                                                    -4.176284e+02
## site_of_resection_or_biopsy_Liver.to.1layhid29
                                                                                    4.118345e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid29
                                                                                   -4.160012e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid29
                                                                                    1.268114e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid29
                                                                                   -4.150115e+02
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid29
                                                                                   -4.158145e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid29
                                                                                   -2.600826e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid29
                                                                                    -2.482401e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid29
                                                                                   -1.057062e+01
## site of resection or biopsy Retroperitoneum.to.1layhid29
                                                                                    3.850109e+00
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid29
                                                                                   -4.154703e+02
## site of resection or biopsy Specified parts of peritoneum.to.1layhid29
                                                                                    -3.408664e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid29
                                                                                    4.079436e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid29
                                                                                   -2.540241e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid29
                                                                                   -4.177761e+02
## tissue or organ of origin Bone marrow.to.1layhid29
                                                                                   -9.473822e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid29
                                                                                   -4.150662e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid29
                                                                                   -2.318746e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid29
                                                                                   -6.638268e+01
## Intercept.to.1layhid30
                                                                                    1.137123e+00
## project_id_BEATAML1.0_COHORT.to.1layhid30
                                                                                    1.894039e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid30
                                                                                    5.813649e+01
## project_id_CGCI_BLGSP.to.1layhid30
                                                                                   -5.821958e-01
## project_id_GENIE_DFCI.to.1layhid30
                                                                                    -3.489546e-02
## project_id_GENIE_JHU.to.1layhid30
                                                                                   -2.209591e+00
## project_id_GENIE_MDA.to.1layhid30
                                                                                    1.218497e+00
## project id GENIE MSK.to.1layhid30
                                                                                    7.759221e-01
## project_id_GENIE_UHN.to.1layhid30
                                                                                   -4.461346e-01
## project id GENIE VICC.to.1layhid30
                                                                                   -5.375229e-02
## project_id_MMRF_COMMPASS.to.1layhid30
                                                                                    2.689807e+00
## project_id_OHSU_CNL.to.1layhid30
                                                                                   -4.406019e+00
## project_id_TARGET_ALL_P1.to.1layhid30
                                                                                   -6.720204e-02
## project id TARGET ALL P2.to.1layhid30
                                                                                    4.278471e+00
## project id TARGET ALL P3.to.1layhid30
                                                                                    4.132353e+01
## project_id_TARGET_AML.to.1layhid30
                                                                                    -3.230033e+00
## project_id_TARGET_NBL.to.1layhid30
                                                                                   -1.831635e+00
## project_id_TCGA_LAML.to.1layhid30
                                                                                    2.259946e+01
## ethnicity_hispanic.to.1layhid30
                                                                                   -4.865142e+00
## ethnicity_not_hispanic.to.1layhid30
                                                                                    1.498433e+00
## gender_female.to.1layhid30
                                                                                   -4.801413e-01
## gender_male.to.1layhid30
                                                                                    2.519343e+00
## race_ameri_ind_or_alaska.to.1layhid30
                                                                                    4.069634e+01
## race_asian.to.1layhid30
                                                                                    5.989411e+00
## race_black_or_afr_ameri.to.1layhid30
                                                                                    6.674768e-02
## race_hawaiian_or_pacific_islander.to.1layhid30
                                                                                   -1.484040e+00
## race other.to.1layhid30
                                                                                    3.807350e+01
```

```
## race white.to.1layhid30
                                                                                   -3.938096e+00
## iss_stage_I.to.1layhid30
                                                                                    1.740761e-01
## iss stage II.to.1layhid30
                                                                                   -2.857795e-01
## iss_stage_III.to.1layhid30
                                                                                    4.832866e+01
## site of resection or biopsy Abdomen NOS.to.1layhid30
                                                                                    3.783945e+01
## site of resection or biopsy Blood.to.1layhid30
                                                                                   -6.883656e-01
## site of resection or biopsy Bone marrow.to.1layhid30
                                                                                    3.129646e+00
## site of resection or biopsy Bones of skull and face.to.1layhid30
                                                                                    4.079212e+01
## site of resection or biopsy Cheek mucosa.to.1layhid30
                                                                                    4.081595e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid30
                                                                                    3.315509e-01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid30
                                                                                    1.988192e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid30
                                                                                    -1.439175e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid30
                                                                                    1.451032e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid30
                                                                                    3.444796e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid30
                                                                                    3.143568e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid30
                                                                                    3.785402e+01
## site_of_resection_or_biopsy_Liver.to.1layhid30
                                                                                   -3.454351e+00
## site of resection or biopsy Lower gum.to.1layhid30
                                                                                    3.146612e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid30
                                                                                   -6.069250e+00
## site of resection or biopsy Mandible.to.1layhid30
                                                                                    4.874506e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid30
                                                                                    4.076349e+01
## site of resection or biopsy Ovary.to.1layhid30
                                                                                   -4.646083e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid30
                                                                                    3.439067e+01
## site of resection or biopsy Peritoneum NOS.to.1layhid30
                                                                                    3.798428e+01
## site of resection or biopsy Retroperitoneum.to.1layhid30
                                                                                   -2.738564e+01
## site of resection or biopsy Small intestine NOS.to.1layhid30
                                                                                    3.495334e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid30
                                                                                    3.545551e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid30
                                                                                    -3.804206e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid30
                                                                                   -4.858268e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid30
                                                                                    3.625448e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid30
                                                                                    7.156640e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid30
                                                                                    2.887899e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid30
                                                                                    9.919334e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid30
                                                                                   -7.569877e+00
## Intercept.to.1layhid31
                                                                                    -2.419515e+00
## project_id_BEATAML1.0_COHORT.to.1layhid31
                                                                                   -7.673661e+01
## project id BEATAML1.0 CRENOLANIB.to.1layhid31
                                                                                   -3.118624e+01
## project_id_CGCI_BLGSP.to.1layhid31
                                                                                    1.669859e+00
## project id GENIE DFCI.to.1layhid31
                                                                                   -6.392176e-01
## project_id_GENIE_JHU.to.1layhid31
                                                                                    1.424229e+00
## project id GENIE MDA.to.1layhid31
                                                                                   -8.362084e-01
## project id GENIE MSK.to.1layhid31
                                                                                   -1.207923e+00
## project id GENIE UHN.to.1layhid31
                                                                                    1.022873e+00
## project_id_GENIE_VICC.to.1layhid31
                                                                                   -2.494182e+00
## project_id_MMRF_COMMPASS.to.1layhid31
                                                                                    2.874555e-01
## project_id_OHSU_CNL.to.1layhid31
                                                                                   -3.392451e+01
## project_id_TARGET_ALL_P1.to.1layhid31
                                                                                    8.554556e+00
## project_id_TARGET_ALL_P2.to.1layhid31
                                                                                   -2.145161e+00
## project_id_TARGET_ALL_P3.to.1layhid31
                                                                                   -9.957236e-01
## project_id_TARGET_AML.to.1layhid31
                                                                                    3.168979e+00
## project_id_TARGET_NBL.to.1layhid31
                                                                                   -3.540257e+02
## project_id_TCGA_LAML.to.1layhid31
                                                                                   -1.430047e+00
## ethnicity_hispanic.to.1layhid31
                                                                                   -1.006476e+01
## ethnicity not hispanic.to.1layhid31
                                                                                    1.984032e+00
```

```
## gender female.to.1layhid31
                                                                                    3.597570e+00
## gender_male.to.1layhid31
                                                                                    -2.627937e+00
## race ameri ind or alaska.to.1layhid31
                                                                                   -1.542973e+01
## race_asian.to.1layhid31
                                                                                    1.704674e+00
## race black or afr ameri.to.1layhid31
                                                                                    1.350699e+00
## race hawaiian or pacific islander.to.1layhid31
                                                                                   -2.037309e+01
## race other.to.1layhid31
                                                                                   -1.374059e+01
## race white.to.1layhid31
                                                                                   -2.344289e+00
## iss stage I.to.1layhid31
                                                                                    1.130715e+01
## iss_stage_II.to.1layhid31
                                                                                   -1.046980e+00
## iss_stage_III.to.1layhid31
                                                                                    6.446001e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid31
                                                                                   -1.166333e+01
## site_of_resection_or_biopsy_Blood.to.1layhid31
                                                                                   -3.580462e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid31
                                                                                   -2.161289e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid31
                                                                                    3.777757e+01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid31
                                                                                    2.829400e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid31
                                                                                    3.495244e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid31
                                                                                    1.040090e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid31
                                                                                    -9.232069e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid31
                                                                                    -5.371333e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid31
                                                                                    3.668699e+01
## site of resection or biopsy Kidney NOS.to.1layhid31
                                                                                    3.287902e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid31
                                                                                    4.856550e+01
## site of resection or biopsy Liver.to.1layhid31
                                                                                    -4.034674e-01
## site of resection or biopsy Lower gum.to.1layhid31
                                                                                    7.500952e+01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid31
                                                                                   -1.844290e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid31
                                                                                    4.830300e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid31
                                                                                   -2.045024e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid31
                                                                                    3.492797e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid31
                                                                                    3.861353e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid31
                                                                                    1.027422e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid31
                                                                                    5.714358e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid31
                                                                                    2.853460e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid31
                                                                                   -9.333232e+00
## site of resection or biopsy Spleen.to.1layhid31
                                                                                    3.696014e+01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid31
                                                                                    3.874899e+01
## site of resection or biopsy Vestibule of mouth.to.1layhid31
                                                                                    7.450413e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid31
                                                                                    1.222964e+00
## tissue or organ of origin Bones of skull and face.to.1layhid31
                                                                                    -7.316658e+00
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid31
                                                                                    1.380809e+00
## tissue or organ of origin Orbit NOS.to.1layhid31
                                                                                    4.031624e+01
## Intercept.to.1layhid32
                                                                                   -1.184754e+00
## project id BEATAML1.0 COHORT.to.1layhid32
                                                                                    1.174305e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid32
                                                                                    1.166634e+02
## project_id_CGCI_BLGSP.to.1layhid32
                                                                                   -2.113760e-01
## project_id_GENIE_DFCI.to.1layhid32
                                                                                   -8.914499e-01
## project_id_GENIE_JHU.to.1layhid32
                                                                                   -5.000236e-01
## project_id_GENIE_MDA.to.1layhid32
                                                                                    2.979056e-01
## project_id_GENIE_MSK.to.1layhid32
                                                                                    9.893846e-01
## project_id_GENIE_UHN.to.1layhid32
                                                                                   -3.761781e-01
## project_id_GENIE_VICC.to.1layhid32
                                                                                    1.444167e+00
## project id MMRF COMMPASS.to.1layhid32
                                                                                   -5.540412e-01
## project_id_OHSU_CNL.to.1layhid32
                                                                                    4.856880e+00
## project id TARGET ALL P1.to.1layhid32
                                                                                   -6.368967e+00
```

```
## project id TARGET ALL P2.to.1layhid32
                                                                                   -9.399910e-01
## project_id_TARGET_ALL_P3.to.1layhid32
                                                                                   -2.520594e+00
## project id TARGET AML.to.1layhid32
                                                                                    1.910469e+00
## project_id_TARGET_NBL.to.1layhid32
                                                                                    3.072072e+00
## project_id_TCGA_LAML.to.1layhid32
                                                                                   -1.361016e+00
## ethnicity hispanic.to.1layhid32
                                                                                    5.105083e-01
## ethnicity not hispanic.to.1layhid32
                                                                                   -1.747898e-01
## gender female.to.1layhid32
                                                                                   -1.601095e-01
## gender male.to.1layhid32
                                                                                    1.201724e+00
## race_ameri_ind_or_alaska.to.1layhid32
                                                                                    5.473589e+00
## race_asian.to.1layhid32
                                                                                    3.216057e+00
## race_black_or_afr_ameri.to.1layhid32
                                                                                    3.121557e+00
## race_hawaiian_or_pacific_islander.to.1layhid32
                                                                                    4.154753e+00
## race_other.to.1layhid32
                                                                                    5.955966e+00
## race_white.to.1layhid32
                                                                                    8.497182e-01
## iss_stage_I.to.1layhid32
                                                                                   -3.824051e-01
## iss_stage_II.to.1layhid32
                                                                                   -1.229195e+00
## iss stage III.to.1layhid32
                                                                                    9.233759e-02
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid32
                                                                                   -9.562919e-01
## site of resection or biopsy Blood.to.1layhid32
                                                                                    9.292030e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid32
                                                                                   -7.972716e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid32
                                                                                    4.352267e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid32
                                                                                    3.623264e+01
## site of resection or biopsy Connective and other soft tissues.to.1layhid32
                                                                                   -4.119051e+02
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid32 -1.828097e+00
## site of resection or biopsy Head face or neck NOS.to.1layhid32
                                                                                   -1.178456e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid32
                                                                                    1.377151e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid32
                                                                                    1.438963e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid32
                                                                                    3.624413e-01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid32
                                                                                    3.489678e+01
## site_of_resection_or_biopsy_Liver.to.1layhid32
                                                                                   -4.444527e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid32
                                                                                    3.843216e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid32
                                                                                   -2.183335e-01
## site_of_resection_or_biopsy_Mandible.to.1layhid32
                                                                                   -1.704441e+00
## site of resection or biopsy Mouth NOS.to.1layhid32
                                                                                    3.800508e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid32
                                                                                   -4.091528e+02
## site of resection or biopsy Pelvis NOS.to.1layhid32
                                                                                    3.578784e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid32
                                                                                   -3.285246e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid32
                                                                                   -8.065993e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid32
                                                                                    3.703373e+01
## site of resection or biopsy Specified parts of peritoneum.to.1layhid32
                                                                                    3.781714e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid32
                                                                                    6.767469e+00
## site of resection or biopsy Testis NOS.to.1layhid32
                                                                                   -4.168466e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid32
                                                                                    3.939498e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid32
                                                                                   -1.879173e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid32
                                                                                    3.559535e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid32
                                                                                   -3.109911e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid32
                                                                                   -4.160118e+02
## Intercept.to.1layhid33
                                                                                   -3.708507e-01
## project_id_BEATAML1.0_COHORT.to.1layhid33
                                                                                    6.576974e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid33
                                                                                   -4.129961e+02
## project id CGCI BLGSP.to.1layhid33
                                                                                    8.081638e-01
## project_id_GENIE_DFCI.to.1layhid33
                                                                                   -6.909705e-01
## project id GENIE JHU.to.1layhid33
                                                                                   -7.867696e-01
```

```
## project id GENIE MDA.to.1layhid33
                                                                                    1.912918e-01
## project_id_GENIE_MSK.to.1layhid33
                                                                                    1.446201e+00
## project id GENIE UHN.to.1layhid33
                                                                                   -6.991452e-02
## project_id_GENIE_VICC.to.1layhid33
                                                                                    -8.221995e-01
## project_id_MMRF_COMMPASS.to.1layhid33
                                                                                    6.531772e-01
## project id OHSU CNL.to.1layhid33
                                                                                    2.857890e-02
## project id TARGET ALL P1.to.1layhid33
                                                                                   -3.261421e-01
## project id TARGET ALL P2.to.1layhid33
                                                                                   -4.585107e-01
## project_id_TARGET_ALL_P3.to.1layhid33
                                                                                    -4.201354e+00
                                                                                   -1.383554e+00
## project_id_TARGET_AML.to.1layhid33
## project_id_TARGET_NBL.to.1layhid33
                                                                                   -2.434560e+01
## project_id_TCGA_LAML.to.1layhid33
                                                                                   -1.081203e+00
## ethnicity_hispanic.to.1layhid33
                                                                                    2.448976e+00
                                                                                    1.783684e+00
## ethnicity_not_hispanic.to.1layhid33
## gender_female.to.1layhid33
                                                                                    1.833620e-01
## gender_male.to.1layhid33
                                                                                    2.697395e-01
## race_ameri_ind_or_alaska.to.1layhid33
                                                                                    2.739726e-01
## race asian.to.1layhid33
                                                                                    1.090147e-01
## race_black_or_afr_ameri.to.1layhid33
                                                                                   -1.550757e+00
## race hawaiian or pacific islander.to.1layhid33
                                                                                    7.058392e+00
## race_other.to.1layhid33
                                                                                    4.016773e+01
## race_white.to.1layhid33
                                                                                   -2.223216e+00
## iss_stage_I.to.1layhid33
                                                                                    1.595512e+00
## iss stage II.to.1layhid33
                                                                                    -1.537151e+00
## iss stage III.to.1layhid33
                                                                                   -7.603134e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid33
                                                                                   -6.706415e-02
## site_of_resection_or_biopsy_Blood.to.1layhid33
                                                                                   -1.460041e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid33
                                                                                    1.405594e-02
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid33
                                                                                    8.630358e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid33
                                                                                   -2.271319e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid33
                                                                                    3.661200e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid33 -6.238471e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid33
                                                                                    1.089354e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid33
                                                                                   -9.773353e-02
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid33
                                                                                    -3.552446e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid33
                                                                                   -1.130639e+00
## site of resection or biopsy Lip NOS.to.1layhid33
                                                                                   -4.140684e+02
## site_of_resection_or_biopsy_Liver.to.1layhid33
                                                                                   -1.579756e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid33
                                                                                    -4.142176e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid33
                                                                                    3.165212e+00
## site of resection or biopsy Mandible.to.1layhid33
                                                                                    6.998815e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid33
                                                                                   -3.880738e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid33
                                                                                    3.658378e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid33
                                                                                   -2.924212e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid33
                                                                                    3.589034e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid33
                                                                                    3.644965e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid33
                                                                                   -4.153348e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid33
                                                                                   -3.214195e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid33
                                                                                   -2.486667e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid33
                                                                                    3.612419e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid33
                                                                                   -4.164677e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid33
                                                                                   -6.458512e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid33
                                                                                   -4.142031e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid33
                                                                                    1.556777e+00
```

```
3.737211e+01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid33
## Intercept.to.1layhid34
                                                                                    -6.309928e-01
## project id BEATAML1.0 COHORT.to.1layhid34
                                                                                     4.746272e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid34
                                                                                     9.398314e+01
## project_id_CGCI_BLGSP.to.1layhid34
                                                                                     8.977603e-01
## project id GENIE DFCI.to.1layhid34
                                                                                     1.895916e+00
## project id GENIE JHU.to.1layhid34
                                                                                     7.836733e-01
## project_id_GENIE_MDA.to.1layhid34
                                                                                    -9.922814e-01
## project id GENIE MSK.to.1layhid34
                                                                                     3.513130e-01
## project_id_GENIE_UHN.to.1layhid34
                                                                                   -1.153729e+00
## project_id_GENIE_VICC.to.1layhid34
                                                                                     1.768160e+00
## project_id_MMRF_COMMPASS.to.1layhid34
                                                                                     1.637666e+00
## project_id_OHSU_CNL.to.1layhid34
                                                                                    -1.103087e+00
## project_id_TARGET_ALL_P1.to.1layhid34
                                                                                   -8.586612e-01
## project_id_TARGET_ALL_P2.to.1layhid34
                                                                                   -4.464307e+00
## project_id_TARGET_ALL_P3.to.1layhid34
                                                                                     2.593127e+00
## project_id_TARGET_AML.to.1layhid34
                                                                                     2.872093e-01
## project id TARGET NBL.to.1layhid34
                                                                                     6.957929e+00
## project_id_TCGA_LAML.to.1layhid34
                                                                                    2.957969e-01
## ethnicity_hispanic.to.1layhid34
                                                                                    -1.559735e+00
## ethnicity_not_hispanic.to.1layhid34
                                                                                    7.263424e-01
## gender_female.to.1layhid34
                                                                                     1.784640e+00
## gender_male.to.1layhid34
                                                                                    -4.898857e-01
## race ameri ind or alaska.to.1layhid34
                                                                                     4.214948e+01
## race asian.to.1layhid34
                                                                                     1.394986e-01
## race_black_or_afr_ameri.to.1layhid34
                                                                                    2.160372e-01
## race_hawaiian_or_pacific_islander.to.1layhid34
                                                                                   -1.656341e+00
## race_other.to.1layhid34
                                                                                   -4.288741e+00
                                                                                   -1.901690e+00
## race_white.to.1layhid34
                                                                                    -1.114225e+00
## iss_stage_I.to.1layhid34
## iss_stage_II.to.1layhid34
                                                                                     9.676839e-01
## iss_stage_III.to.1layhid34
                                                                                     2.100634e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid34
                                                                                     2.139526e-01
## site_of_resection_or_biopsy_Blood.to.1layhid34
                                                                                   -1.285765e-01
## site of resection or biopsy Bone marrow.to.1layhid34
                                                                                     3.703648e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid34
                                                                                   -9.193998e-01
## site of resection or biopsy Cheek mucosa.to.1layhid34
                                                                                    1.760991e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid34
                                                                                   -1.560283e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid34 -1.121087e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid34
                                                                                     1.463401e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid34
                                                                                     6.449998e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid34
                                                                                     3.650996e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid34
                                                                                     3.872406e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid34
                                                                                     3.937887e+01
## site_of_resection_or_biopsy_Liver.to.1layhid34
                                                                                    -5.424797e-02
## site_of_resection_or_biopsy_Lower_gum.to.1layhid34
                                                                                     3.875632e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid34
                                                                                     1.813258e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid34
                                                                                   -1.496712e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid34
                                                                                    3.877256e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid34
                                                                                    -2.413036e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid34
                                                                                   -3.146041e-01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid34
                                                                                    1.956461e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid34
                                                                                   -5.621002e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid34
                                                                                    4.074595e+01
```

```
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid34
                                                                                    4.074033e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid34
                                                                                    6.021505e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid34
                                                                                    4.067234e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid34
                                                                                    3.877140e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid34
                                                                                    2.892366e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid34
                                                                                    3.717896e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid34
                                                                                   -1.387691e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid34
                                                                                    1.244975e+00
## Intercept.to.1layhid35
                                                                                    -1.924583e+00
## project_id_BEATAML1.0_COHORT.to.1layhid35
                                                                                   -8.554984e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid35
                                                                                   -3.485363e+02
## project_id_CGCI_BLGSP.to.1layhid35
                                                                                   -6.604087e-03
## project_id_GENIE_DFCI.to.1layhid35
                                                                                    2.236477e-01
## project_id_GENIE_JHU.to.1layhid35
                                                                                    1.016096e+00
## project_id_GENIE_MDA.to.1layhid35
                                                                                   -1.541576e+00
## project_id_GENIE_MSK.to.1layhid35
                                                                                    1.747050e+00
## project_id_GENIE_UHN.to.1layhid35
                                                                                   -1.489760e+00
## project id GENIE VICC.to.1layhid35
                                                                                   -5.624106e-01
## project_id_MMRF_COMMPASS.to.1layhid35
                                                                                    1.424499e+00
## project_id_OHSU_CNL.to.1layhid35
                                                                                   -4.151030e+02
## project_id_TARGET_ALL_P1.to.1layhid35
                                                                                    7.128973e-01
## project_id_TARGET_ALL_P2.to.1layhid35
                                                                                    2.053430e+00
## project_id_TARGET_ALL_P3.to.1layhid35
                                                                                   -5.217338e-01
## project id TARGET AML.to.1layhid35
                                                                                    -5.765207e-01
## project_id_TARGET_NBL.to.1layhid35
                                                                                    1.277935e+00
## project_id_TCGA_LAML.to.1layhid35
                                                                                    3.209071e+00
## ethnicity_hispanic.to.1layhid35
                                                                                    3.001968e+00
## ethnicity_not_hispanic.to.1layhid35
                                                                                   -1.268390e+00
## gender_female.to.1layhid35
                                                                                    1.308106e+00
## gender_male.to.1layhid35
                                                                                    2.175270e+00
## race_ameri_ind_or_alaska.to.1layhid35
                                                                                    4.048882e+01
## race_asian.to.1layhid35
                                                                                    1.503364e+00
## race_black_or_afr_ameri.to.1layhid35
                                                                                    2.311154e+00
## race_hawaiian_or_pacific_islander.to.1layhid35
                                                                                   -2.036329e+00
## race other.to.1layhid35
                                                                                    -1.756283e+00
## race_white.to.1layhid35
                                                                                   -3.187626e+00
## iss_stage_I.to.1layhid35
                                                                                    6.577679e-01
## iss_stage_II.to.1layhid35
                                                                                   -7.564974e-01
## iss_stage_III.to.1layhid35
                                                                                    -4.603429e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid35
                                                                                   -1.319517e+00
## site of resection or biopsy Blood.to.1layhid35
                                                                                   -4.191294e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid35
                                                                                   -1.244689e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid35
                                                                                   -6.955311e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid35
                                                                                    3.451155e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid35
                                                                                   -3.669925e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid35 1.072080e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid35
                                                                                    -1.272745e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid35
                                                                                   -1.202684e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid35
                                                                                   -4.130325e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid35
                                                                                    -4.157271e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid35
                                                                                   -4.157589e+02
## site_of_resection_or_biopsy_Liver.to.1layhid35
                                                                                    1.015791e-02
## site_of_resection_or_biopsy_Lower_gum.to.1layhid35
                                                                                   -2.842258e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid35
                                                                                   -6.583302e+00
```

```
## site_of_resection_or_biopsy_Mandible.to.1layhid35
                                                                                     4.421679e-02
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid35
                                                                                    -3.389083e+02
## site of resection or biopsy Ovary.to.1layhid35
                                                                                    -3.037335e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid35
                                                                                    -4.138040e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid35
                                                                                     4.089557e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid35
                                                                                   -2.080161e+02
## site of resection or biopsy Small intestine NOS.to.1layhid35
                                                                                   -4.142847e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid35
                                                                                    1.992558e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid35
                                                                                    -5.778364e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid35
                                                                                   -3.659621e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid35
                                                                                    -3.350308e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid35
                                                                                    5.069816e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid35
                                                                                   -3.338361e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid35
                                                                                    3.001318e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid35
                                                                                    -3.612469e+02
## Intercept.to.1layhid36
                                                                                    -9.948205e-01
## project_id_BEATAML1.0_COHORT.to.1layhid36
                                                                                   -1.548797e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid36
                                                                                     1.005921e+02
## project_id_CGCI_BLGSP.to.1layhid36
                                                                                     1.913791e+00
## project_id_GENIE_DFCI.to.1layhid36
                                                                                     1.386190e+00
## project_id_GENIE_JHU.to.1layhid36
                                                                                    -1.915380e-02
## project_id_GENIE_MDA.to.1layhid36
                                                                                    2.458350e-01
## project_id_GENIE_MSK.to.1layhid36
                                                                                    -1.946364e-01
## project id GENIE UHN.to.1layhid36
                                                                                     2.582372e-01
## project id GENIE VICC.to.1layhid36
                                                                                    -6.311622e-01
## project id MMRF COMMPASS.to.1layhid36
                                                                                    9.280425e-01
## project_id_OHSU_CNL.to.1layhid36
                                                                                     5.050495e-01
## project_id_TARGET_ALL_P1.to.1layhid36
                                                                                     1.933659e+01
## project_id_TARGET_ALL_P2.to.1layhid36
                                                                                   -1.814616e+00
## project_id_TARGET_ALL_P3.to.1layhid36
                                                                                     1.728810e+01
## project_id_TARGET_AML.to.1layhid36
                                                                                    -1.109060e+00
## project_id_TARGET_NBL.to.1layhid36
                                                                                     2.634870e+00
## project_id_TCGA_LAML.to.1layhid36
                                                                                     5.222512e+01
## ethnicity_hispanic.to.1layhid36
                                                                                   -1.416077e+01
## ethnicity not hispanic.to.1layhid36
                                                                                     1.194906e+00
## gender_female.to.1layhid36
                                                                                    9.631390e-01
## gender male.to.1layhid36
                                                                                   -2.302028e+00
## race_ameri_ind_or_alaska.to.1layhid36
                                                                                    -1.368361e+00
## race asian.to.1layhid36
                                                                                     2.573317e+00
## race_black_or_afr_ameri.to.1layhid36
                                                                                    -1.159695e+00
## race hawaiian or pacific islander.to.1layhid36
                                                                                    -3.904516e+02
## race other.to.1layhid36
                                                                                    2.441542e+00
## race white.to.1layhid36
                                                                                     1.473504e+00
                                                                                   -1.271561e-03
## iss_stage_I.to.1layhid36
                                                                                    2.897786e+00
## iss_stage_II.to.1layhid36
                                                                                    -7.540197e-01
## iss_stage_III.to.1layhid36
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid36
                                                                                    -2.157119e+00
## site_of_resection_or_biopsy_Blood.to.1layhid36
                                                                                   -8.586548e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid36
                                                                                     1.445310e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid36
                                                                                     9.992053e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid36
                                                                                    9.360486e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid36
                                                                                     3.177160e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid36
                                                                                    4.067905e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid36
                                                                                     3.713646e-01
```

```
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid36
                                                                                    4.992132e-02
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid36
                                                                                    2.326689e+00
## site of resection or biopsy Kidney NOS.to.1layhid36
                                                                                     1.626104e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid36
                                                                                     5.007953e+01
## site_of_resection_or_biopsy_Liver.to.1layhid36
                                                                                     4.234914e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid36
                                                                                     3.860685e+01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid36
                                                                                     5.233227e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid36
                                                                                     4.684299e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid36
                                                                                     5.117510e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid36
                                                                                     4.675207e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid36
                                                                                     3.503519e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid36
                                                                                    -8.669313e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid36
                                                                                    -5.884737e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid36
                                                                                    3.420833e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid36
                                                                                    3.498260e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid36
                                                                                    -2.480393e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid36
                                                                                    -3.229224e+00
## site of resection or biopsy Vestibule of mouth.to.1layhid36
                                                                                    4.146414e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid36
                                                                                    -1.782512e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid36
                                                                                     3.874857e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid36
                                                                                     1.248929e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid36
                                                                                     3.294468e+00
## Intercept.to.1layhid37
                                                                                    -1.072953e+00
## project id BEATAML1.0 COHORT.to.1layhid37
                                                                                     2.994871e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid37
                                                                                     7.316215e+01
## project id CGCI BLGSP.to.1layhid37
                                                                                     1.214010e-01
## project_id_GENIE_DFCI.to.1layhid37
                                                                                     3.548573e+00
## project_id_GENIE_JHU.to.1layhid37
                                                                                     1.625628e-01
## project_id_GENIE_MDA.to.1layhid37
                                                                                     1.134145e+00
## project_id_GENIE_MSK.to.1layhid37
                                                                                    -8.321084e-01
## project_id_GENIE_UHN.to.1layhid37
                                                                                     1.431730e+00
## project_id_GENIE_VICC.to.1layhid37
                                                                                     3.226397e-01
## project_id_MMRF_COMMPASS.to.1layhid37
                                                                                    -3.970382e-01
## project_id_OHSU_CNL.to.1layhid37
                                                                                    5.431521e-01
## project id TARGET ALL P1.to.1layhid37
                                                                                     2.879615e+00
## project_id_TARGET_ALL_P2.to.1layhid37
                                                                                     5.589427e-01
## project id TARGET ALL P3.to.1layhid37
                                                                                     4.254910e+01
## project_id_TARGET_AML.to.1layhid37
                                                                                     6.650452e-01
## project_id_TARGET_NBL.to.1layhid37
                                                                                     1.254553e+00
## project_id_TCGA_LAML.to.1layhid37
                                                                                     1.329909e+00
## ethnicity hispanic.to.1layhid37
                                                                                    -1.124130e+00
## ethnicity_not_hispanic.to.1layhid37
                                                                                    7.304234e-02
## gender female.to.1layhid37
                                                                                    -1.018296e+00
## gender_male.to.1layhid37
                                                                                    7.811062e-01
## race_ameri_ind_or_alaska.to.1layhid37
                                                                                    -5.243799e-01
## race_asian.to.1layhid37
                                                                                     2.673350e+01
## race_black_or_afr_ameri.to.1layhid37
                                                                                     1.306703e+00
## race_hawaiian_or_pacific_islander.to.1layhid37
                                                                                     2.047126e+00
## race_other.to.1layhid37
                                                                                     1.896407e+00
## race_white.to.1layhid37
                                                                                    -8.590334e-01
## iss_stage_I.to.1layhid37
                                                                                     2.053192e+00
## iss_stage_II.to.1layhid37
                                                                                    -3.710436e-01
## iss_stage_III.to.1layhid37
                                                                                     1.439399e+00
## site of resection or biopsy Abdomen NOS.to.1layhid37
                                                                                    -2.607795e+00
```

```
## site of resection or biopsy Blood.to.1layhid37
                                                                                    2.523977e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid37
                                                                                   -2.697197e-02
## site of resection or biopsy Bones of skull and face.to.1layhid37
                                                                                    4.397444e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid37
                                                                                    3.891314e+01
## site of resection or biopsy Connective and other soft tissues.to.1layhid37
                                                                                   -2.732004e+02
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid37 1.071060e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid37
                                                                                    1.353325e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid37
                                                                                   -1.125053e+00
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid37
                                                                                    2.078220e-01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid37
                                                                                   -1.539271e+00
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid37
                                                                                    3.714495e+01
## site_of_resection_or_biopsy_Liver.to.1layhid37
                                                                                    1.654862e+01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid37
                                                                                    3.630308e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid37
                                                                                    3.580793e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid37
                                                                                    4.668697e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid37
                                                                                    3.897464e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid37
                                                                                   -2.567426e+02
## site of resection or biopsy Pelvis NOS.to.1layhid37
                                                                                   -4.171484e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid37
                                                                                   -3.238613e+02
## site of resection or biopsy Retroperitoneum.to.1layhid37
                                                                                   -3.848255e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid37
                                                                                    3.546431e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid37
                                                                                    3.810014e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid37
                                                                                    2.114985e+01
## site of resection or biopsy Testis NOS.to.1layhid37
                                                                                   -2.698754e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid37
                                                                                    3.827445e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid37
                                                                                   -1.024775e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid37
                                                                                    3.432981e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid37
                                                                                    4.871592e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid37
                                                                                   -2.557046e+02
## Intercept.to.1layhid38
                                                                                   -1.667564e+00
## project_id_BEATAML1.0_COHORT.to.1layhid38
                                                                                   -2.458185e-01
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid38
                                                                                    1.226859e+01
## project_id_CGCI_BLGSP.to.1layhid38
                                                                                    5.317788e-01
## project_id_GENIE_DFCI.to.1layhid38
                                                                                   -8.962628e-01
## project id GENIE JHU.to.1layhid38
                                                                                   -1.770326e+00
## project_id_GENIE_MDA.to.1layhid38
                                                                                   -6.335092e-01
## project id GENIE MSK.to.1layhid38
                                                                                   -2.106233e+00
## project_id_GENIE_UHN.to.1layhid38
                                                                                   -3.997247e-01
## project id GENIE VICC.to.1layhid38
                                                                                    1.336062e+00
## project_id_MMRF_COMMPASS.to.1layhid38
                                                                                   -2.587935e+00
## project id OHSU CNL.to.1layhid38
                                                                                    6.312497e+00
## project id TARGET ALL P1.to.1layhid38
                                                                                    3.326897e+00
## project id TARGET ALL P2.to.1layhid38
                                                                                    1.919644e+00
## project_id_TARGET_ALL_P3.to.1layhid38
                                                                                    9.764667e+00
## project_id_TARGET_AML.to.1layhid38
                                                                                   -2.483745e+00
## project_id_TARGET_NBL.to.1layhid38
                                                                                   -4.381108e+00
## project_id_TCGA_LAML.to.1layhid38
                                                                                   -6.062144e+00
## ethnicity_hispanic.to.1layhid38
                                                                                   -1.194857e+00
## ethnicity_not_hispanic.to.1layhid38
                                                                                    7.609161e-01
## gender_female.to.1layhid38
                                                                                    2.461448e+00
## gender_male.to.1layhid38
                                                                                   -8.810403e-01
## race ameri ind or alaska.to.1layhid38
                                                                                   -6.022258e-03
## race asian.to.1layhid38
                                                                                    3.245933e+00
## race black or afr ameri.to.1layhid38
                                                                                    1.006343e+00
```

```
7.746028e+00
## race hawaiian or pacific islander.to.1layhid38
## race other.to.1layhid38
                                                                                    4.115741e+00
## race white.to.1layhid38
                                                                                   -4.548734e+00
## iss_stage_I.to.1layhid38
                                                                                    -1.927771e+00
## iss stage II.to.1layhid38
                                                                                    3.731548e-01
## iss stage III.to.1layhid38
                                                                                    2.304719e+00
## site of resection or biopsy Abdomen NOS.to.1layhid38
                                                                                    1.311503e+00
## site of resection or biopsy Blood.to.1layhid38
                                                                                    2.480819e+00
## site of resection or biopsy Bone marrow.to.1layhid38
                                                                                    -7.420754e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid38
                                                                                    7.697930e-02
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid38
                                                                                   -2.030315e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid38
                                                                                    -3.002282e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid38 -1.366971e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid38
                                                                                   -1.541740e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid38
                                                                                   -9.090383e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid38
                                                                                    3.672502e+01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid38
                                                                                    1.605465e+00
## site of resection or biopsy Lip NOS.to.1layhid38
                                                                                    3.996787e+00
## site_of_resection_or_biopsy_Liver.to.1layhid38
                                                                                    -3.597994e+00
## site of resection or biopsy Lower gum.to.1layhid38
                                                                                    3.871787e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid38
                                                                                    2.562389e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid38
                                                                                    1.307469e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid38
                                                                                    8.877376e+00
## site of resection or biopsy Ovary.to.1layhid38
                                                                                    -2.627805e+02
## site of resection or biopsy Pelvis NOS.to.1layhid38
                                                                                   -3.637828e+00
## site of resection or biopsy Peritoneum NOS.to.1layhid38
                                                                                    -2.485413e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid38
                                                                                   -7.801598e+00
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid38
                                                                                    9.895017e+00
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid38
                                                                                    6.381415e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid38
                                                                                   -5.542330e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid38
                                                                                   -2.989506e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid38
                                                                                    4.149166e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid38
                                                                                   -3.862849e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid38
                                                                                    3.969496e+01
## tissue or organ of origin Hematopoietic system NOS.to.1layhid38
                                                                                    2.442251e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid38
                                                                                   -2.476960e+02
## Intercept.to.1layhid39
                                                                                   -1.602674e+00
## project_id_BEATAML1.0_COHORT.to.1layhid39
                                                                                    2.815386e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid39
                                                                                    -8.332098e+01
## project_id_CGCI_BLGSP.to.1layhid39
                                                                                   -4.781145e-01
## project id GENIE DFCI.to.1layhid39
                                                                                    9.420825e-01
## project id GENIE JHU.to.1layhid39
                                                                                   -2.520166e-01
## project id GENIE MDA.to.1layhid39
                                                                                    1.209872e+00
## project_id_GENIE_MSK.to.1layhid39
                                                                                   -6.308524e-01
## project_id_GENIE_UHN.to.1layhid39
                                                                                    7.244163e-02
## project_id_GENIE_VICC.to.1layhid39
                                                                                    5.075044e-01
## project_id_MMRF_COMMPASS.to.1layhid39
                                                                                    1.119600e+00
## project_id_OHSU_CNL.to.1layhid39
                                                                                   -5.218203e+00
## project_id_TARGET_ALL_P1.to.1layhid39
                                                                                    5.176759e+00
## project_id_TARGET_ALL_P2.to.1layhid39
                                                                                   -1.621588e+00
## project_id_TARGET_ALL_P3.to.1layhid39
                                                                                    4.014865e+00
## project_id_TARGET_AML.to.1layhid39
                                                                                   -1.541722e+00
## project_id_TARGET_NBL.to.1layhid39
                                                                                    4.056318e+00
## project id TCGA LAML.to.1layhid39
                                                                                    3.640821e+00
```

```
## ethnicity hispanic.to.1layhid39
                                                                                    3.499404e-01
## ethnicity_not_hispanic.to.1layhid39
                                                                                   -2.053238e+00
## gender female.to.1layhid39
                                                                                   -6.751959e+00
## gender_male.to.1layhid39
                                                                                   -2.788523e-02
## race ameri ind or alaska.to.1layhid39
                                                                                    3.440741e+00
## race asian.to.1layhid39
                                                                                   -1.954647e+00
## race black or afr ameri.to.1layhid39
                                                                                    5.619758e-01
## race hawaiian or pacific islander.to.1layhid39
                                                                                   -9.641088e+01
## race other.to.1lavhid39
                                                                                    5.785455e-01
## race_white.to.1layhid39
                                                                                   -1.190366e-01
## iss_stage_I.to.1layhid39
                                                                                   -7.644303e-01
## iss_stage_II.to.1layhid39
                                                                                   -1.450690e-01
## iss stage III.to.1layhid39
                                                                                    1.167879e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid39
                                                                                   -4.192082e-01
## site_of_resection_or_biopsy_Blood.to.1layhid39
                                                                                    2.225017e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid39
                                                                                   -6.278698e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid39
                                                                                   -1.658627e+00
## site of resection or biopsy Cheek mucosa.to.1layhid39
                                                                                    6.305989e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid39
                                                                                    4.807281e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid39 1.253448e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid39
                                                                                    2.058801e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid39
                                                                                   -8.132027e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid39
                                                                                   -3.949609e+02
## site of resection or biopsy Kidney NOS.to.1layhid39
                                                                                   -4.144034e+02
## site of resection or biopsy Lip NOS.to.1layhid39
                                                                                    5.360031e-01
## site of resection or biopsy Liver.to.1layhid39
                                                                                    2.219551e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid39
                                                                                    4.427702e-01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid39
                                                                                    3.918341e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid39
                                                                                   -6.003837e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid39
                                                                                   -4.140379e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid39
                                                                                    4.749408e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid39
                                                                                    6.801535e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid39
                                                                                    4.737290e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid39
                                                                                    8.701479e+01
## site of resection or biopsy Small intestine NOS.to.1layhid39
                                                                                    4.239321e+00
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid39
                                                                                   -4.145565e+02
## site of resection or biopsy Spleen.to.1layhid39
                                                                                    2.855408e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid39
                                                                                    4.133086e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid39
                                                                                   -2.584305e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid39
                                                                                   -2.196442e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid39
                                                                                   -1.862297e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid39
                                                                                    4.523361e-01
## tissue or organ of origin Orbit NOS.to.1layhid39
                                                                                    4.173420e+01
## Intercept.to.1layhid40
                                                                                    5.850767e-01
## project_id_BEATAML1.0_COHORT.to.1layhid40
                                                                                   -2.238084e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid40
                                                                                   -4.173446e+00
## project_id_CGCI_BLGSP.to.1layhid40
                                                                                   -1.232759e+00
## project_id_GENIE_DFCI.to.1layhid40
                                                                                    7.611923e-01
## project_id_GENIE_JHU.to.1layhid40
                                                                                    3.009310e-01
## project_id_GENIE_MDA.to.1layhid40
                                                                                   -4.774219e-01
## project_id_GENIE_MSK.to.1layhid40
                                                                                   -2.886476e-01
## project_id_GENIE_UHN.to.1layhid40
                                                                                   -4.650587e-01
## project_id_GENIE_VICC.to.1layhid40
                                                                                   -7.634152e-01
## project id MMRF COMMPASS.to.1layhid40
                                                                                    7.451192e-01
```

```
## project id OHSU CNL.to.1layhid40
                                                                                   -1.120961e+00
## project id TARGET ALL P1.to.1layhid40
                                                                                    2.943990e-01
## project id TARGET ALL P2.to.1layhid40
                                                                                    3.631166e+00
## project_id_TARGET_ALL_P3.to.1layhid40
                                                                                   -1.497711e+00
## project id TARGET AML.to.1layhid40
                                                                                    1.112364e+00
## project id TARGET NBL.to.1layhid40
                                                                                   -1.425556e+00
## project id TCGA LAML.to.1layhid40
                                                                                   -1.300259e+00
## ethnicity hispanic.to.1layhid40
                                                                                   -2.033294e+00
## ethnicity not hispanic.to.1layhid40
                                                                                    1.820884e-01
## gender_female.to.1layhid40
                                                                                   -1.260968e-01
## gender_male.to.1layhid40
                                                                                   -1.788801e+00
## race_ameri_ind_or_alaska.to.1layhid40
                                                                                   -1.859403e-01
## race asian.to.1layhid40
                                                                                    8.737658e-01
## race_black_or_afr_ameri.to.1layhid40
                                                                                   -1.763784e-01
## race_hawaiian_or_pacific_islander.to.1layhid40
                                                                                   -8.180271e-01
## race_other.to.1layhid40
                                                                                    5.990360e+00
## race_white.to.1layhid40
                                                                                    9.817778e-01
## iss stage I.to.1layhid40
                                                                                    8.213931e-01
## iss_stage_II.to.1layhid40
                                                                                   -4.828640e-01
## iss stage III.to.1layhid40
                                                                                    2.378523e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid40
                                                                                   -1.990781e+02
## site of resection or biopsy Blood.to.1layhid40
                                                                                    1.642625e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid40
                                                                                    3.439714e-02
## site of resection or biopsy Bones of skull and face.to.1layhid40
                                                                                   -3.922060e+00
## site of resection or biopsy Cheek mucosa.to.1layhid40
                                                                                   -5.708325e-01
## site of resection or biopsy Connective and other soft tissues.to.1layhid40
                                                                                    3.663727e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid40 -1.439602e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid40
                                                                                    1.017606e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid40
                                                                                   -1.892453e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid40
                                                                                   -1.189465e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid40
                                                                                   -1.264931e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid40
                                                                                    3.959434e+00
## site_of_resection_or_biopsy_Liver.to.1layhid40
                                                                                   -6.851242e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid40
                                                                                   -9.678914e-01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid40
                                                                                    2.089066e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid40
                                                                                    1.196466e+00
## site of resection or biopsy Mouth NOS.to.1layhid40
                                                                                   -1.805043e+00
## site_of_resection_or_biopsy_Ovary.to.1layhid40
                                                                                    3.788528e+01
## site of resection or biopsy Pelvis NOS.to.1layhid40
                                                                                   -4.054341e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid40
                                                                                    4.163441e+01
## site of resection or biopsy Retroperitoneum.to.1layhid40
                                                                                    5.772341e+00
## site of resection or biopsy Small intestine NOS.to.1layhid40
                                                                                   -7.191250e-01
## site of resection or biopsy Specified parts of peritoneum.to.1layhid40
                                                                                   -2.451009e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid40
                                                                                    6.015525e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid40
                                                                                    3.701323e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid40
                                                                                   -2.814038e+00
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid40
                                                                                   -1.196371e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid40
                                                                                   -1.881061e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid40
                                                                                    1.991716e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid40
                                                                                    3.966326e+01
## Intercept.to.1layhid41
                                                                                    1.901197e-01
## project id BEATAML1.0 COHORT.to.1layhid41
                                                                                    2.013580e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid41
                                                                                   -4.076236e+02
## project id CGCI BLGSP.to.1layhid41
                                                                                   -6.958789e-01
```

```
## project id GENIE DFCI.to.1layhid41
                                                                                    1.929485e+00
## project_id_GENIE_JHU.to.1layhid41
                                                                                    3.020759e-01
## project id GENIE MDA.to.1layhid41
                                                                                    3.467715e-01
## project_id_GENIE_MSK.to.1layhid41
                                                                                   -2.204580e+00
## project_id_GENIE_UHN.to.1layhid41
                                                                                    -4.416008e-01
                                                                                   -5.001297e-02
## project id GENIE VICC.to.1layhid41
## project id MMRF COMMPASS.to.1layhid41
                                                                                    6.791113e-01
## project id OHSU CNL.to.1layhid41
                                                                                   -3.451562e+00
## project id TARGET ALL P1.to.1layhid41
                                                                                    -3.720836e-01
## project_id_TARGET_ALL_P2.to.1layhid41
                                                                                   -1.495576e+00
## project_id_TARGET_ALL_P3.to.1layhid41
                                                                                    1.868077e+00
## project_id_TARGET_AML.to.1layhid41
                                                                                    2.124052e+00
## project_id_TARGET_NBL.to.1layhid41
                                                                                   -2.627158e+00
## project_id_TCGA_LAML.to.1layhid41
                                                                                    5.407170e-01
## ethnicity_hispanic.to.1layhid41
                                                                                    7.792673e-01
## ethnicity_not_hispanic.to.1layhid41
                                                                                    7.798329e-01
## gender_female.to.1layhid41
                                                                                   -3.919697e-01
## gender male.to.1layhid41
                                                                                    7.367768e-01
## race_ameri_ind_or_alaska.to.1layhid41
                                                                                    2.610111e+00
## race asian.to.1layhid41
                                                                                    9.607529e-02
## race_black_or_afr_ameri.to.1layhid41
                                                                                   -5.442211e-01
## race hawaiian or pacific islander.to.1layhid41
                                                                                   -1.042075e+00
                                                                                    3.042766e+00
## race_other.to.1layhid41
## race white.to.1layhid41
                                                                                    1.390265e+00
## iss_stage_I.to.1layhid41
                                                                                   -2.218302e+00
## iss stage II.to.1layhid41
                                                                                   -2.206622e-01
## iss_stage_III.to.1layhid41
                                                                                   -7.625339e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid41
                                                                                   -2.100163e+00
## site_of_resection_or_biopsy_Blood.to.1layhid41
                                                                                    1.205571e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid41
                                                                                   -5.841574e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid41
                                                                                    1.555932e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid41
                                                                                    8.411804e-01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid41
                                                                                   -2.104272e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid41 -4.399893e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid41
                                                                                    8.117323e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid41
                                                                                    1.031059e+00
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid41
                                                                                   -2.198152e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid41
                                                                                   -4.157858e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid41
                                                                                    -4.100936e+02
## site_of_resection_or_biopsy_Liver.to.1layhid41
                                                                                   -1.759190e+00
## site of resection or biopsy Lower gum.to.1layhid41
                                                                                   -3.295312e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid41
                                                                                    7.569357e-01
## site of resection or biopsy Mandible.to.1layhid41
                                                                                   -1.655715e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid41
                                                                                   -4.108559e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid41
                                                                                   -2.026792e+00
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid41
                                                                                   -1.116607e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid41
                                                                                    3.910931e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid41
                                                                                    3.595654e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid41
                                                                                   -4.101634e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid41
                                                                                    -4.132906e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid41
                                                                                   -3.016329e+01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid41
                                                                                   -2.632605e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid41
                                                                                   -4.126405e+02
## tissue or organ of origin Bone marrow.to.1layhid41
                                                                                   -6.397275e-01
```

```
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid41
                                                                                   -4.132906e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid41
                                                                                    5.974433e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid41
                                                                                   -1.198348e+00
## Intercept.to.1layhid42
                                                                                   -7.719701e-01
## project_id_BEATAML1.0_COHORT.to.1layhid42
                                                                                    8.513004e-01
## project id BEATAML1.0 CRENOLANIB.to.1layhid42
                                                                                   -3.437611e+02
## project id CGCI BLGSP.to.1layhid42
                                                                                   -6.387753e-02
## project_id_GENIE_DFCI.to.1layhid42
                                                                                    5.813095e-01
## project_id_GENIE_JHU.to.1layhid42
                                                                                   -1.120034e+00
## project_id_GENIE_MDA.to.1layhid42
                                                                                    7.534636e-02
## project_id_GENIE_MSK.to.1layhid42
                                                                                    7.880925e-01
## project_id_GENIE_UHN.to.1layhid42
                                                                                    1.883279e+00
## project_id_GENIE_VICC.to.1layhid42
                                                                                   -4.387805e-01
## project_id_MMRF_COMMPASS.to.1layhid42
                                                                                    5.624516e-01
## project_id_OHSU_CNL.to.1layhid42
                                                                                    3.292388e+01
## project_id_TARGET_ALL_P1.to.1layhid42
                                                                                    3.756083e+00
## project_id_TARGET_ALL_P2.to.1layhid42
                                                                                   -9.513590e-01
## project id TARGET ALL P3.to.1layhid42
                                                                                    4.251704e-01
## project_id_TARGET_AML.to.1layhid42
                                                                                    1.844763e+00
## project_id_TARGET_NBL.to.1layhid42
                                                                                   -1.105014e+01
## project_id_TCGA_LAML.to.1layhid42
                                                                                    2.602840e-01
## ethnicity_hispanic.to.1layhid42
                                                                                   -2.618289e+00
## ethnicity_not_hispanic.to.1layhid42
                                                                                    7.684413e-01
## gender female.to.1layhid42
                                                                                    1.556379e+00
## gender_male.to.1layhid42
                                                                                   -5.268015e-01
## race_ameri_ind_or_alaska.to.1layhid42
                                                                                   -9.527670e-01
## race_asian.to.1layhid42
                                                                                    9.456693e-01
## race_black_or_afr_ameri.to.1layhid42
                                                                                   -2.006423e+00
## race_hawaiian_or_pacific_islander.to.1layhid42
                                                                                    3.705811e+00
## race_other.to.1layhid42
                                                                                    1.700936e+00
## race_white.to.1layhid42
                                                                                   -4.362173e-01
## iss_stage_I.to.1layhid42
                                                                                    2.523747e+00
## iss_stage_II.to.1layhid42
                                                                                   -1.652683e+00
## iss_stage_III.to.1layhid42
                                                                                   -1.172707e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid42
                                                                                    6.882470e-01
## site_of_resection_or_biopsy_Blood.to.1layhid42
                                                                                    2.106239e-01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid42
                                                                                   -1.289144e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid42
                                                                                    2.827210e-01
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid42
                                                                                   -4.130023e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid42
                                                                                    3.883129e+01
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid42 3.473585e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid42
                                                                                    1.140700e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid42
                                                                                    2.468315e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid42
                                                                                    1.728123e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid42
                                                                                   -4.012543e+02
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid42
                                                                                   -3.693209e+02
## site_of_resection_or_biopsy_Liver.to.1layhid42
                                                                                   -5.064158e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid42
                                                                                   -3.110840e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid42
                                                                                    1.625471e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid42
                                                                                   -4.169730e+02
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid42
                                                                                   -3.302037e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid42
                                                                                    4.021260e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid42
                                                                                    1.651822e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid42
                                                                                    4.033657e+01
```

```
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid42
                                                                                    4.067234e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid42
                                                                                   -3.828840e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid42
                                                                                    4.087124e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid42
                                                                                    8.013655e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid42
                                                                                    3.929145e+01
## site of resection or biopsy Vestibule of mouth.to.1layhid42
                                                                                   -3.468360e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid42
                                                                                    1.280298e-02
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid42
                                                                                   -3.508178e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid42
                                                                                   -1.252426e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid42
                                                                                    4.236600e+01
## Intercept.to.1layhid43
                                                                                    1.831638e+00
## project_id_BEATAML1.0_COHORT.to.1layhid43
                                                                                    2.466985e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid43
                                                                                    2.294695e+00
## project_id_CGCI_BLGSP.to.1layhid43
                                                                                    8.925161e-01
## project_id_GENIE_DFCI.to.1layhid43
                                                                                   -6.641467e-01
## project_id_GENIE_JHU.to.1layhid43
                                                                                    7.384523e-02
## project_id_GENIE_MDA.to.1layhid43
                                                                                    3.647028e-01
## project id GENIE MSK.to.1layhid43
                                                                                    3.254908e-01
## project_id_GENIE_UHN.to.1layhid43
                                                                                    2.427833e-01
## project_id_GENIE_VICC.to.1layhid43
                                                                                    3.028019e-01
## project_id_MMRF_COMMPASS.to.1layhid43
                                                                                   -3.156781e-02
## project_id_OHSU_CNL.to.1layhid43
                                                                                   -1.567996e+00
## project_id_TARGET_ALL_P1.to.1layhid43
                                                                                   -4.958791e+00
## project id TARGET ALL P2.to.1layhid43
                                                                                    4.410103e+01
## project id TARGET ALL P3.to.1layhid43
                                                                                   -2.871101e+02
## project_id_TARGET_AML.to.1layhid43
                                                                                    2.085853e+00
## project_id_TARGET_NBL.to.1layhid43
                                                                                    1.561305e+00
## project_id_TCGA_LAML.to.1layhid43
                                                                                   -4.278166e-01
## ethnicity_hispanic.to.1layhid43
                                                                                   -4.386397e+00
## ethnicity_not_hispanic.to.1layhid43
                                                                                    1.093234e+00
## gender_female.to.1layhid43
                                                                                    1.478400e+00
## gender_male.to.1layhid43
                                                                                   -1.430571e+00
## race_ameri_ind_or_alaska.to.1layhid43
                                                                                   -6.599313e-01
## race_asian.to.1layhid43
                                                                                   -2.230261e-01
## race black or afr ameri.to.1layhid43
                                                                                   -1.221091e+00
## race_hawaiian_or_pacific_islander.to.1layhid43
                                                                                    7.222555e+00
## race other.to.1layhid43
                                                                                    1.284599e+00
## race_white.to.1layhid43
                                                                                   -2.684090e-01
## iss_stage_I.to.1layhid43
                                                                                   -5.806097e-02
## iss_stage_II.to.1layhid43
                                                                                   -1.385521e+00
## iss stage III.to.1layhid43
                                                                                   -8.312048e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid43
                                                                                   -2.194977e+00
## site of resection or biopsy Blood.to.1layhid43
                                                                                    1.957849e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid43
                                                                                    5.463404e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid43
                                                                                    2.753826e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid43
                                                                                    5.082103e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid43
                                                                                    3.551476e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid43 6.135947e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid43
                                                                                   -1.425179e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid43
                                                                                   -4.740181e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid43
                                                                                   -2.974513e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid43
                                                                                    3.867432e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid43
                                                                                    6.678637e+00
## site_of_resection_or_biopsy_Liver.to.1layhid43
                                                                                   -6.423418e+00
```

```
## site_of_resection_or_biopsy_Lower_gum.to.1layhid43
                                                                                    2.005995e+00
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid43
                                                                                   -3.487885e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid43
                                                                                    1.420656e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid43
                                                                                    4.500515e+00
## site_of_resection_or_biopsy_Ovary.to.1layhid43
                                                                                    3.893584e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid43
                                                                                   -2.740571e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid43
                                                                                    3.616142e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid43
                                                                                   -2.323064e+00
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid43
                                                                                   -1.082648e+00
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid43
                                                                                   -3.210939e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid43
                                                                                   -2.038740e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid43
                                                                                    3.729092e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid43
                                                                                    1.111185e+00
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid43
                                                                                   -1.219688e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid43
                                                                                   -1.416289e+00
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid43
                                                                                   -1.668575e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid43
                                                                                    3.644313e+01
## Intercept.to.1layhid44
                                                                                    3.384623e-01
## project_id_BEATAML1.0_COHORT.to.1layhid44
                                                                                    2.575553e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid44
                                                                                   -4.164401e+02
## project_id_CGCI_BLGSP.to.1layhid44
                                                                                    8.451917e-01
## project_id_GENIE_DFCI.to.1layhid44
                                                                                   -1.542228e+00
## project_id_GENIE_JHU.to.1layhid44
                                                                                   -1.248876e-01
## project id GENIE MDA.to.1layhid44
                                                                                    -1.790576e+00
## project_id_GENIE_MSK.to.1layhid44
                                                                                   -5.501229e-01
## project_id_GENIE_UHN.to.1layhid44
                                                                                   -9.066992e-01
## project_id_GENIE_VICC.to.1layhid44
                                                                                   -1.872543e-01
## project_id_MMRF_COMMPASS.to.1layhid44
                                                                                   -5.594995e-01
## project_id_OHSU_CNL.to.1layhid44
                                                                                   -3.180636e+00
## project_id_TARGET_ALL_P1.to.1layhid44
                                                                                    3.243839e+00
## project_id_TARGET_ALL_P2.to.1layhid44
                                                                                   -1.397323e+00
## project_id_TARGET_ALL_P3.to.1layhid44
                                                                                   -4.442712e-01
## project_id_TARGET_AML.to.1layhid44
                                                                                    5.063547e+00
## project_id_TARGET_NBL.to.1layhid44
                                                                                   -1.413662e+01
## project_id_TCGA_LAML.to.1layhid44
                                                                                    -3.501442e+00
## ethnicity_hispanic.to.1layhid44
                                                                                   -3.831351e+00
## ethnicity_not_hispanic.to.1layhid44
                                                                                   -1.618458e+00
## gender_female.to.1layhid44
                                                                                    9.314956e-01
## gender_male.to.1layhid44
                                                                                   -7.991520e-01
## race_ameri_ind_or_alaska.to.1layhid44
                                                                                   -5.509025e+00
## race asian.to.1layhid44
                                                                                   -4.267533e+00
## race_black_or_afr_ameri.to.1layhid44
                                                                                    2.542315e-01
## race_hawaiian_or_pacific_islander.to.1layhid44
                                                                                    2.628013e+01
                                                                                   -7.449277e+00
## race_other.to.1layhid44
## race_white.to.1layhid44
                                                                                    2.301824e+00
## iss_stage_I.to.1layhid44
                                                                                   -4.524096e-01
## iss_stage_II.to.1layhid44
                                                                                   -1.104258e-01
## iss_stage_III.to.1layhid44
                                                                                    3.659328e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid44
                                                                                    3.862993e-01
## site_of_resection_or_biopsy_Blood.to.1layhid44
                                                                                    4.262117e+01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid44
                                                                                    1.672283e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid44
                                                                                   -2.074882e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid44
                                                                                   -2.870338e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid44
                                                                                    3.444552e+01
```

```
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid44 -1.555766e+00
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid44
                                                                                    1.435926e+00
## site of resection or biopsy Hematopoietic system NOS.to.1layhid44
                                                                                   -3.929206e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid44
                                                                                   -4.513488e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid44
                                                                                    -3.303988e+00
## site of resection or biopsy Lip NOS.to.1layhid44
                                                                                   -4.146297e+02
## site of resection or biopsy Liver.to.1layhid44
                                                                                    8.577633e-01
## site_of_resection_or_biopsy_Lower_gum.to.1layhid44
                                                                                    -4.154351e+02
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid44
                                                                                    2.916787e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid44
                                                                                    3.640373e-01
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid44
                                                                                    -4.109191e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid44
                                                                                    3.662486e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid44
                                                                                   -3.535945e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid44
                                                                                    3.645488e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid44
                                                                                    3.603986e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid44
                                                                                    -4.167218e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid44
                                                                                   -4.101625e+02
## site of resection or biopsy Spleen.to.1layhid44
                                                                                    1.677832e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid44
                                                                                    3.608407e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid44
                                                                                   -4.168592e+02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid44
                                                                                    5.812287e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid44
                                                                                   -4.157023e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid44
                                                                                    8.137384e-02
## tissue or organ of origin Orbit NOS.to.1layhid44
                                                                                    3.656976e+01
## Intercept.to.1layhid45
                                                                                   -1.092472e+00
## project id BEATAML1.0 COHORT.to.1layhid45
                                                                                    3.282349e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid45
                                                                                    2.344789e+00
## project_id_CGCI_BLGSP.to.1layhid45
                                                                                    1.858050e+00
## project_id_GENIE_DFCI.to.1layhid45
                                                                                   -2.297400e-01
## project_id_GENIE_JHU.to.1layhid45
                                                                                   -3.117030e-01
## project_id_GENIE_MDA.to.1layhid45
                                                                                    4.320848e-01
## project_id_GENIE_MSK.to.1layhid45
                                                                                   -3.205378e-02
## project_id_GENIE_UHN.to.1layhid45
                                                                                    9.555518e-01
## project_id_GENIE_VICC.to.1layhid45
                                                                                    1.378715e+00
## project id MMRF COMMPASS.to.1layhid45
                                                                                   -1.773220e+00
## project_id_OHSU_CNL.to.1layhid45
                                                                                    9.066101e-01
## project id TARGET ALL P1.to.1layhid45
                                                                                   -1.143831e+00
## project_id_TARGET_ALL_P2.to.1layhid45
                                                                                   -7.812713e-02
## project_id_TARGET_ALL_P3.to.1layhid45
                                                                                    5.379560e-01
## project_id_TARGET_AML.to.1layhid45
                                                                                    1.662911e+00
## project id TARGET NBL.to.1layhid45
                                                                                    1.618537e-01
## project id TCGA LAML.to.1layhid45
                                                                                   -1.391846e+01
## ethnicity hispanic.to.1layhid45
                                                                                   -1.814399e+00
## ethnicity_not_hispanic.to.1layhid45
                                                                                   -6.131786e-01
## gender_female.to.1layhid45
                                                                                   -1.521602e+00
## gender_male.to.1layhid45
                                                                                    1.110678e+00
## race_ameri_ind_or_alaska.to.1layhid45
                                                                                   -1.920775e+00
## race_asian.to.1layhid45
                                                                                   -2.346470e+00
## race_black_or_afr_ameri.to.1layhid45
                                                                                   -1.748389e-01
## race_hawaiian_or_pacific_islander.to.1layhid45
                                                                                    -9.460336e-01
## race_other.to.1layhid45
                                                                                   -1.306156e+00
## race_white.to.1layhid45
                                                                                   -1.084629e+00
## iss_stage_I.to.1layhid45
                                                                                   -6.173078e-01
## iss stage II.to.1layhid45
                                                                                    4.741776e-01
```

```
## iss stage III.to.1layhid45
                                                                                    3.832003e-01
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid45
                                                                                    1.140695e+00
## site of resection or biopsy Blood.to.1layhid45
                                                                                    1.314859e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid45
                                                                                    -1.050287e+00
## site of resection or biopsy Bones of skull and face.to.1layhid45
                                                                                    -3.615967e-01
## site of resection or biopsy Cheek mucosa.to.1layhid45
                                                                                    1.150063e+00
## site_of_resection_or_biopsy_Connective_and_other soft tissues.to.1lavhid45
                                                                                   -3.687654e+02
## site of resection or biopsy Connective and other soft tissues NOS.to.1layhid45 -1.890741e+00
## site of resection or biopsy Head face or neck NOS.to.1layhid45
                                                                                    2.336850e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid45
                                                                                   -1.855406e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid45
                                                                                    -4.123725e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid45
                                                                                    3.850639e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid45
                                                                                    -1.206806e+00
                                                                                   -4.119701e-01
## site_of_resection_or_biopsy_Liver.to.1layhid45
## site_of_resection_or_biopsy_Lower_gum.to.1layhid45
                                                                                   -3.261747e-01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid45
                                                                                    1.127038e+00
## site_of_resection_or_biopsy_Mandible.to.1layhid45
                                                                                   -1.261532e+00
## site of resection or biopsy Mouth NOS.to.1layhid45
                                                                                    2.641042e+00
## site_of_resection_or_biopsy_Ovary.to.1layhid45
                                                                                   -3.403766e+02
## site of resection or biopsy Pelvis NOS.to.1layhid45
                                                                                    7.013831e-01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid45
                                                                                   -3.849445e+02
## site of resection or biopsy Retroperitoneum.to.1layhid45
                                                                                   -4.475701e+00
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid45
                                                                                   -4.069508e-01
## site of resection or biopsy Specified parts of peritoneum.to.1layhid45
                                                                                    3.842735e+01
## site of resection or biopsy Spleen.to.1layhid45
                                                                                   -1.630795e+00
## site of resection or biopsy Testis NOS.to.1layhid45
                                                                                    -3.808519e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid45
                                                                                   -2.498256e-02
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid45
                                                                                    1.065865e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid45
                                                                                    7.929884e-01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid45
                                                                                   -5.524221e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid45
                                                                                   -3.606023e+02
## Intercept.to.1layhid46
                                                                                   -8.684740e-01
## project_id_BEATAML1.0_COHORT.to.1layhid46
                                                                                   -4.603176e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid46
                                                                                   -4.133452e+02
## project id CGCI BLGSP.to.1layhid46
                                                                                   -6.625953e-01
## project_id_GENIE_DFCI.to.1layhid46
                                                                                   -1.679535e+00
## project id GENIE JHU.to.1layhid46
                                                                                   -4.268860e-01
## project_id_GENIE_MDA.to.1layhid46
                                                                                   -3.201328e-01
## project id GENIE MSK.to.1layhid46
                                                                                    1.318849e+00
## project_id_GENIE_UHN.to.1layhid46
                                                                                   -2.642599e-01
## project id GENIE VICC.to.1layhid46
                                                                                   -1.328812e+00
## project id MMRF COMMPASS.to.1layhid46
                                                                                   -1.150144e-01
## project id OHSU CNL.to.1layhid46
                                                                                    9.528021e-01
## project_id_TARGET_ALL_P1.to.1layhid46
                                                                                   -2.520328e-01
## project_id_TARGET_ALL_P2.to.1layhid46
                                                                                    5.426594e+00
## project_id_TARGET_ALL_P3.to.1layhid46
                                                                                    3.914105e+00
## project_id_TARGET_AML.to.1layhid46
                                                                                    2.144242e+00
## project_id_TARGET_NBL.to.1layhid46
                                                                                   -9.707262e+00
## project_id_TCGA_LAML.to.1layhid46
                                                                                   -1.698551e+01
## ethnicity_hispanic.to.1layhid46
                                                                                    1.007016e+01
## ethnicity_not_hispanic.to.1layhid46
                                                                                   -1.358056e+00
## gender female.to.1layhid46
                                                                                    2.127196e+00
## gender_male.to.1layhid46
                                                                                    7.312105e-01
## race ameri ind or alaska.to.1layhid46
                                                                                   -1.514259e+00
```

```
## race asian.to.1layhid46
                                                                                   -5.426955e-01
## race_black_or_afr_ameri.to.1layhid46
                                                                                    2.793196e+00
## race hawaiian or pacific islander.to.1layhid46
                                                                                   -9.348631e-01
## race_other.to.1layhid46
                                                                                   -3.462301e+00
## race white.to.1layhid46
                                                                                    6.518838e-02
## iss stage I.to.1layhid46
                                                                                    5.204051e+00
## iss stage II.to.1lavhid46
                                                                                   -2.007780e+00
## iss stage III.to.1layhid46
                                                                                    1.247828e+00
## site of resection or biopsy Abdomen NOS.to.1layhid46
                                                                                    9.131137e-01
## site_of_resection_or_biopsy_Blood.to.1layhid46
                                                                                   -3.366634e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid46
                                                                                   -1.030449e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid46
                                                                                    7.876991e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid46
                                                                                    2.838440e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid46
                                                                                    4.010658e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid46 9.701591e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid46
                                                                                   -1.748022e-01
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid46
                                                                                   -1.508418e+00
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid46
                                                                                   -4.114782e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid46
                                                                                   -2.181160e+02
                                                                                   -4.125686e+02
## site of resection or biopsy Lip NOS.to.1layhid46
## site_of_resection_or_biopsy_Liver.to.1layhid46
                                                                                   -1.656090e+00
## site of resection or biopsy Lower gum.to.1layhid46
                                                                                   -4.131379e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid46
                                                                                    4.132086e+01
## site of resection or biopsy Mandible.to.1layhid46
                                                                                    -1.313291e+00
## site of resection or biopsy Mouth NOS.to.1layhid46
                                                                                   -4.111525e+02
## site of resection or biopsy Ovary.to.1layhid46
                                                                                    4.009762e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid46
                                                                                   -3.471555e+00
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid46
                                                                                    3.735786e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid46
                                                                                    4.125358e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid46
                                                                                   -4.132590e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid46
                                                                                    -3.542719e+00
## site_of_resection_or_biopsy_Spleen.to.1layhid46
                                                                                   -4.343898e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid46
                                                                                    3.800179e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid46
                                                                                   -4.133492e+02
## tissue or organ of origin Bone marrow.to.1layhid46
                                                                                    1.050631e+00
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid46
                                                                                   -4.132984e+02
## tissue or organ of origin Hematopoietic system NOS.to.1layhid46
                                                                                   -4.162692e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid46
                                                                                    3.964135e+01
## Intercept.to.1layhid47
                                                                                    7.054821e-01
## project_id_BEATAML1.0_COHORT.to.1layhid47
                                                                                   -2.906848e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid47
                                                                                   -4.028155e+02
## project id CGCI BLGSP.to.1layhid47
                                                                                   -1.172946e+00
## project id GENIE DFCI.to.1layhid47
                                                                                    9.208559e-01
## project_id_GENIE_JHU.to.1layhid47
                                                                                   -8.883931e-01
## project_id_GENIE_MDA.to.1layhid47
                                                                                   -2.750688e+00
## project_id_GENIE_MSK.to.1layhid47
                                                                                    4.992281e-02
## project_id_GENIE_UHN.to.1layhid47
                                                                                   -9.239955e-01
## project_id_GENIE_VICC.to.1layhid47
                                                                                    3.623421e-01
## project_id_MMRF_COMMPASS.to.1layhid47
                                                                                    3.733671e-01
## project_id_OHSU_CNL.to.1layhid47
                                                                                   -4.108657e+00
## project_id_TARGET_ALL_P1.to.1layhid47
                                                                                   -2.775108e+00
                                                                                    1.391975e+00
## project_id_TARGET_ALL_P2.to.1layhid47
## project_id_TARGET_ALL_P3.to.1layhid47
                                                                                    2.515590e+00
## project id TARGET AML.to.1layhid47
                                                                                    9.187515e-01
```

```
## project id TARGET NBL.to.1layhid47
                                                                                    9.238425e+00
## project_id_TCGA_LAML.to.1layhid47
                                                                                   -1.196130e+00
## ethnicity hispanic.to.1layhid47
                                                                                   -3.137827e+00
## ethnicity_not_hispanic.to.1layhid47
                                                                                    1.429183e-01
## gender female.to.1layhid47
                                                                                   -4.202015e-01
## gender male.to.1layhid47
                                                                                    2.079436e+00
## race ameri ind or alaska.to.1layhid47
                                                                                    1.674885e+00
## race asian.to.1layhid47
                                                                                   -1.162777e+00
## race black or afr ameri.to.1layhid47
                                                                                    5.025706e-01
## race_hawaiian_or_pacific_islander.to.1layhid47
                                                                                   -2.631785e+00
## race_other.to.1layhid47
                                                                                   -4.506019e+00
## race white.to.1layhid47
                                                                                   -8.797213e-01
                                                                                   -1.192662e+00
## iss_stage_I.to.1layhid47
## iss_stage_II.to.1layhid47
                                                                                    2.300877e+00
## iss_stage_III.to.1layhid47
                                                                                   -1.217182e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid47
                                                                                   -2.396782e+00
## site_of_resection_or_biopsy_Blood.to.1layhid47
                                                                                   -1.740224e+00
## site of resection or biopsy Bone marrow.to.1layhid47
                                                                                    6.398391e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid47
                                                                                    1.374639e+00
## site of resection or biopsy Cheek mucosa.to.1layhid47
                                                                                    1.240597e-01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid47
                                                                                    4.003329e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid47
                                                                                    5.655666e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid47
                                                                                    4.235618e-01
## site of resection or biopsy Hematopoietic system NOS.to.1layhid47
                                                                                    6.563012e-01
## site of resection or biopsy Intra abdominal lymph nodes.to.1layhid47
                                                                                    3.995485e+01
## site of resection or biopsy Kidney NOS.to.1layhid47
                                                                                    3.857161e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid47
                                                                                   -4.139059e+02
## site_of_resection_or_biopsy_Liver.to.1layhid47
                                                                                   -8.994341e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid47
                                                                                   -4.161721e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid47
                                                                                    9.636544e-01
## site_of_resection_or_biopsy_Mandible.to.1layhid47
                                                                                    4.234365e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid47
                                                                                   -4.136207e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid47
                                                                                    4.330690e+01
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid47
                                                                                   -4.009553e+02
## site of resection or biopsy Peritoneum NOS.to.1layhid47
                                                                                    3.998851e+01
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid47
                                                                                    3.745424e+01
## site of resection or biopsy Small intestine NOS.to.1layhid47
                                                                                   -4.160111e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid47
                                                                                   -3.783502e+02
## site_of_resection_or_biopsy_Spleen.to.1layhid47
                                                                                    1.055287e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid47
                                                                                    3.750912e+01
## site of resection or biopsy Vestibule of mouth.to.1layhid47
                                                                                   -3.778439e+02
## tissue or organ of origin Bone marrow.to.1layhid47
                                                                                    9.214230e-01
## tissue or organ of origin Bones of skull and face.to.1layhid47
                                                                                   -4.140765e+02
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid47
                                                                                   -3.754485e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid47
                                                                                    3.530124e+01
                                                                                    5.414536e-02
## Intercept.to.1layhid48
## project_id_BEATAML1.0_COHORT.to.1layhid48
                                                                                    3.556535e+00
## project_id_BEATAML1.0_CRENOLANIB.to.1layhid48
                                                                                    1.205992e+02
## project_id_CGCI_BLGSP.to.1layhid48
                                                                                    4.015662e+00
## project_id_GENIE_DFCI.to.1layhid48
                                                                                   -2.074931e-01
## project_id_GENIE_JHU.to.1layhid48
                                                                                   -6.717121e-01
## project id GENIE MDA.to.1layhid48
                                                                                   -2.800186e-01
## project_id_GENIE_MSK.to.1layhid48
                                                                                    2.072862e+00
## project id GENIE UHN.to.1layhid48
                                                                                   -1.316006e+00
```

```
## project id GENIE VICC.to.1layhid48
                                                                                    1.510186e+00
## project_id_MMRF_COMMPASS.to.1layhid48
                                                                                   -3.625444e-02
                                                                                    5.485659e+00
## project id OHSU CNL.to.1layhid48
## project_id_TARGET_ALL_P1.to.1layhid48
                                                                                   -1.309474e+00
## project_id_TARGET_ALL_P2.to.1layhid48
                                                                                   -3.779946e-01
## project id TARGET ALL P3.to.1layhid48
                                                                                   -7.724083e+00
## project id TARGET AML.to.1layhid48
                                                                                   -4.164999e+01
## project id TARGET NBL.to.1layhid48
                                                                                    1.491526e+00
## project id TCGA LAML.to.1layhid48
                                                                                    5.068148e+00
                                                                                    3.708745e+00
## ethnicity_hispanic.to.1layhid48
## ethnicity_not_hispanic.to.1layhid48
                                                                                   -8.844803e-01
## gender_female.to.1layhid48
                                                                                   -5.843162e-01
## gender_male.to.1layhid48
                                                                                    2.116498e+00
## race_ameri_ind_or_alaska.to.1layhid48
                                                                                    3.561656e+01
## race_asian.to.1layhid48
                                                                                   -3.165986e+00
## race_black_or_afr_ameri.to.1layhid48
                                                                                    6.173748e+00
## race_hawaiian_or_pacific_islander.to.1layhid48
                                                                                    9.939272e+00
## race other.to.1layhid48
                                                                                   -7.993582e-01
## race_white.to.1layhid48
                                                                                   -1.307889e+00
## iss stage I.to.1layhid48
                                                                                   -4.213361e+00
## iss_stage_II.to.1layhid48
                                                                                    5.917591e-01
## iss stage III.to.1layhid48
                                                                                    1.478433e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid48
                                                                                   -9.545554e+00
## site of resection or biopsy Blood.to.1layhid48
                                                                                   -1.260878e+01
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid48
                                                                                    1.012463e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid48
                                                                                   -6.923895e+00
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid48
                                                                                   -8.429128e+00
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid48
                                                                                   -4.117620e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid48 6.501010e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid48
                                                                                   -1.598454e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid48
                                                                                   -4.229774e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid48
                                                                                   -9.938594e+00
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid48
                                                                                   -1.567085e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid48
                                                                                    2.184874e+01
## site of resection or biopsy Liver.to.1layhid48
                                                                                   -1.281223e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid48
                                                                                    7.664140e-01
## site of resection or biopsy Lymph nodes of head face neck.to.1layhid48
                                                                                   -1.040324e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid48
                                                                                   -4.548088e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid48
                                                                                   -3.252808e+00
## site_of_resection_or_biopsy_Ovary.to.1layhid48
                                                                                   -4.071548e+02
## site of resection or biopsy Pelvis NOS.to.1layhid48
                                                                                    3.435294e+01
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid48
                                                                                   -4.136331e+02
## site of resection or biopsy Retroperitoneum.to.1layhid48
                                                                                   -8.631246e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid48
                                                                                    3.575123e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid48
                                                                                    3.594749e+01
## site_of_resection_or_biopsy_Spleen.to.1layhid48
                                                                                   -6.487351e-01
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid48
                                                                                   -4.110897e+02
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid48
                                                                                   -2.878612e-01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid48
                                                                                   -7.785066e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid48
                                                                                    3.011250e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid48
                                                                                    3.136471e+00
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid48
                                                                                   -4.154205e+02
## Intercept.to.1layhid49
                                                                                   -1.242728e+00
## project id BEATAML1.0 COHORT.to.1layhid49
                                                                                    6.754155e-01
```

```
## project id BEATAML1.0 CRENOLANIB.to.1layhid49
                                                                                     1.461744e+02
## project id CGCI BLGSP.to.1layhid49
                                                                                     1.403082e+00
## project id GENIE DFCI.to.1layhid49
                                                                                     3.420460e-02
## project_id_GENIE_JHU.to.1layhid49
                                                                                    -1.285456e+00
## project_id_GENIE_MDA.to.1layhid49
                                                                                     1.848644e-01
## project id GENIE MSK.to.1layhid49
                                                                                     1.232573e-01
## project id GENIE UHN.to.1layhid49
                                                                                     5.227424e-02
## project id GENIE VICC.to.1layhid49
                                                                                     1.818052e+00
## project_id_MMRF_COMMPASS.to.1layhid49
                                                                                     3.666326e-01
## project_id_OHSU_CNL.to.1layhid49
                                                                                     6.695134e-01
## project_id_TARGET_ALL_P1.to.1layhid49
                                                                                    -1.075861e+00
## project_id_TARGET_ALL_P2.to.1layhid49
                                                                                     1.892990e+00
## project_id_TARGET_ALL_P3.to.1layhid49
                                                                                     2.203016e+00
## project_id_TARGET_AML.to.1layhid49
                                                                                   -2.067599e-01
## project_id_TARGET_NBL.to.1layhid49
                                                                                    -1.950298e-01
## project_id_TCGA_LAML.to.1layhid49
                                                                                    -7.459466e-02
## ethnicity_hispanic.to.1layhid49
                                                                                     1.573781e-01
## ethnicity not hispanic.to.1layhid49
                                                                                    1.155215e+00
## gender_female.to.1layhid49
                                                                                    -5.904057e-01
## gender male.to.1layhid49
                                                                                     1.180535e+00
## race_ameri_ind_or_alaska.to.1layhid49
                                                                                    -3.856912e+00
## race asian.to.1layhid49
                                                                                    6.329400e-01
## race_black_or_afr_ameri.to.1layhid49
                                                                                   -1.821698e+00
## race hawaiian or pacific islander.to.1layhid49
                                                                                     3.142857e+00
## race other.to.1layhid49
                                                                                    3.304821e+00
## race white.to.1layhid49
                                                                                    -8.228238e-01
## iss_stage_I.to.1layhid49
                                                                                     1.289099e+00
## iss_stage_II.to.1layhid49
                                                                                    -6.927252e-01
## iss_stage_III.to.1layhid49
                                                                                   -1.942040e+00
## site_of_resection_or_biopsy_Abdomen_NOS.to.1layhid49
                                                                                   -3.345287e+02
## site_of_resection_or_biopsy_Blood.to.1layhid49
                                                                                    -1.984209e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid49
                                                                                   -1.855662e-01
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid49
                                                                                   -1.026744e+02
## site_of_resection_or_biopsy_Cheek_mucosa.to.1layhid49
                                                                                    -4.152344e+02
## site of resection or biopsy Connective and other soft tissues.to.1layhid49
                                                                                    -4.052190e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid49 -9.034715e-01
## site of resection or biopsy Head face or neck NOS.to.1layhid49
                                                                                    -1.314344e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid49
                                                                                    -1.222524e+00
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid49
                                                                                     8.009395e-01
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid49
                                                                                     1.636481e+00
## site of resection or biopsy Lip NOS.to.1layhid49
                                                                                     3.922280e+01
## site_of_resection_or_biopsy_Liver.to.1layhid49
                                                                                    -8.773002e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid49
                                                                                     3.931918e+01
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid49
                                                                                    -4.073991e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid49
                                                                                    3.086184e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid49
                                                                                     4.171324e+01
## site_of_resection_or_biopsy_Ovary.to.1layhid49
                                                                                    -4.081805e+02
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid49
                                                                                    -4.170236e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid49
                                                                                    -3.955309e+02
## site_of_resection_or_biopsy_Retroperitoneum.to.1layhid49
                                                                                    -1.104633e+02
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid49
                                                                                    3.593061e+01
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid49
                                                                                    7.211054e-01
## site_of_resection_or_biopsy_Spleen.to.1layhid49
                                                                                    -4.381918e+00
## site_of_resection_or_biopsy_Testis_NOS.to.1layhid49
                                                                                    -4.029317e+02
```

```
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid49
                                                                                    3.885595e+01
## tissue_or_organ_of_origin_Bone_marrow.to.1layhid49
                                                                                    4.581298e-01
## tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid49
                                                                                    3.860002e+01
## tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid49
                                                                                   -3.082184e-01
## tissue_or_organ_of_origin_Orbit_NOS.to.1layhid49
                                                                                    -3.884338e+02
## Intercept.to.1layhid50
                                                                                   -4.113431e-01
## project id BEATAML1.0 COHORT.to.1layhid50
                                                                                   -3.277523e+00
## project id BEATAML1.0 CRENOLANIB.to.1layhid50
                                                                                   -4.157449e+02
## project id CGCI BLGSP.to.1layhid50
                                                                                    -2.171618e+00
## project_id_GENIE_DFCI.to.1layhid50
                                                                                   -4.611268e-02
## project_id_GENIE_JHU.to.1layhid50
                                                                                    2.162543e-01
## project_id_GENIE_MDA.to.1layhid50
                                                                                   -9.652411e-01
## project_id_GENIE_MSK.to.1layhid50
                                                                                    1.500538e+00
## project_id_GENIE_UHN.to.1layhid50
                                                                                   -1.503993e+00
## project_id_GENIE_VICC.to.1layhid50
                                                                                   -1.907642e+00
## project_id_MMRF_COMMPASS.to.1layhid50
                                                                                    3.655756e-01
## project_id_OHSU_CNL.to.1layhid50
                                                                                   -2.992732e+02
## project id TARGET ALL P1.to.1layhid50
                                                                                   -3.408608e+01
## project_id_TARGET_ALL_P2.to.1layhid50
                                                                                    3.959280e+01
## project_id_TARGET_ALL_P3.to.1layhid50
                                                                                    1.834364e+00
## project_id_TARGET_AML.to.1layhid50
                                                                                    2.470236e-01
## project_id_TARGET_NBL.to.1layhid50
                                                                                   -9.267252e+00
## project_id_TCGA_LAML.to.1layhid50
                                                                                   -7.590794e-01
## ethnicity hispanic.to.1layhid50
                                                                                    2.230158e+01
## ethnicity_not_hispanic.to.1layhid50
                                                                                   -1.041563e+00
## gender female.to.1layhid50
                                                                                    9.329436e-01
## gender_male.to.1layhid50
                                                                                    9.134504e-01
## race_ameri_ind_or_alaska.to.1layhid50
                                                                                    4.638261e+00
## race_asian.to.1layhid50
                                                                                   -4.003213e-01
## race_black_or_afr_ameri.to.1layhid50
                                                                                    2.790092e+00
## race_hawaiian_or_pacific_islander.to.1layhid50
                                                                                    1.527685e+00
## race_other.to.1layhid50
                                                                                    3.491249e-01
## race_white.to.1layhid50
                                                                                    4.596248e-01
## iss_stage_I.to.1layhid50
                                                                                    5.276827e-01
## iss stage II.to.1layhid50
                                                                                    5.868973e-01
## iss_stage_III.to.1layhid50
                                                                                    1.899259e-01
## site of resection or biopsy Abdomen NOS.to.1layhid50
                                                                                    2.709379e+00
## site_of_resection_or_biopsy_Blood.to.1layhid50
                                                                                   -1.994801e+00
## site_of_resection_or_biopsy_Bone_marrow.to.1layhid50
                                                                                    1.101338e+00
## site_of_resection_or_biopsy_Bones_of_skull_and_face.to.1layhid50
                                                                                   -2.332821e+01
## site of resection or biopsy Cheek mucosa.to.1layhid50
                                                                                   -4.128635e+02
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues.to.1layhid50
                                                                                    4.241096e+01
## site_of_resection_or_biopsy_Connective_and_other_soft_tissues_NOS.to.1layhid50 7.751956e-01
## site_of_resection_or_biopsy_Head_face_or_neck_NOS.to.1layhid50
                                                                                    1.144835e+00
## site_of_resection_or_biopsy_Hematopoietic_system_NOS.to.1layhid50
                                                                                   -3.548202e-01
## site_of_resection_or_biopsy_Intra_abdominal_lymph_nodes.to.1layhid50
                                                                                   -4.074024e+02
## site_of_resection_or_biopsy_Kidney_NOS.to.1layhid50
                                                                                   -2.556186e+01
## site_of_resection_or_biopsy_Lip_NOS.to.1layhid50
                                                                                   -4.154886e+02
## site_of_resection_or_biopsy_Liver.to.1layhid50
                                                                                   -1.342189e+00
## site_of_resection_or_biopsy_Lower_gum.to.1layhid50
                                                                                    -4.116673e+02
## site_of_resection_or_biopsy_Lymph_nodes_of_head_face_neck.to.1layhid50
                                                                                   -2.047913e+01
## site_of_resection_or_biopsy_Mandible.to.1layhid50
                                                                                    1.857683e+00
## site_of_resection_or_biopsy_Mouth_NOS.to.1layhid50
                                                                                   -4.136365e+02
## site_of_resection_or_biopsy_Ovary.to.1layhid50
                                                                                    4.197090e+01
```

```
## site_of_resection_or_biopsy_Pelvis_NOS.to.1layhid50
                                                                                     -3.949700e+02
## site_of_resection_or_biopsy_Peritoneum_NOS.to.1layhid50
                                                                                     4.201216e+01
## site of resection or biopsy Retroperitoneum.to.1layhid50
                                                                                     4.235117e+01
## site_of_resection_or_biopsy_Small_intestine_NOS.to.1layhid50
                                                                                     -4.132799e+02
## site_of_resection_or_biopsy_Specified_parts_of_peritoneum.to.1layhid50
                                                                                     -2.596058e+01
## site of resection or biopsy Spleen.to.1layhid50
                                                                                     1.908514e+01
## site of resection or biopsy Testis NOS.to.1layhid50
                                                                                      4.236089e+01
## site_of_resection_or_biopsy_Vestibule_of_mouth.to.1layhid50
                                                                                     -4.141257e+02
   tissue or organ of origin Bone marrow.to.1layhid50
                                                                                     -4.463940e-01
   tissue_or_organ_of_origin_Bones_of_skull_and_face.to.1layhid50
                                                                                     -4.140526e+02
   tissue_or_organ_of_origin_Hematopoietic_system_NOS.to.1layhid50
                                                                                     -3.552844e+00
   tissue_or_organ_of_origin_Orbit_NOS.to.1layhid50
                                                                                     3.568353e+01
   Intercept.to.2layhid1
                                                                                     -9.085605e-01
   1layhid1.to.2layhid1
                                                                                    -7.957724e-01
## 1layhid2.to.2layhid1
                                                                                     -5.865138e-01
   1layhid3.to.2layhid1
                                                                                      1.878969e+00
   1layhid4.to.2layhid1
                                                                                      1.166692e+00
   1layhid5.to.2layhid1
                                                                                     4.947376e-02
  1layhid6.to.2layhid1
                                                                                     1.873284e-01
   1layhid7.to.2layhid1
                                                                                     -2.434246e-02
## 1layhid8.to.2layhid1
                                                                                     -4.095832e-01
## 1layhid9.to.2layhid1
                                                                                      1.625166e+00
## 1layhid10.to.2layhid1
                                                                                      1.290963e+00
  1layhid11.to.2layhid1
                                                                                      9.041387e-01
## 1layhid12.to.2layhid1
                                                                                     -1.893673e+00
  1layhid13.to.2layhid1
                                                                                     -1.606114e+00
   1layhid14.to.2layhid1
                                                                                      1.401119e+00
   1layhid15.to.2layhid1
                                                                                     -1.788402e+00
## 1layhid16.to.2layhid1
                                                                                     6.438033e-01
## 1layhid17.to.2layhid1
                                                                                     6.690245e-01
   1layhid18.to.2layhid1
                                                                                      1.031615e+00
   1layhid19.to.2layhid1
                                                                                     -8.296388e-01
   1layhid20.to.2layhid1
                                                                                     -8.682119e-04
  1layhid21.to.2layhid1
                                                                                     -1.047198e+00
   1layhid22.to.2layhid1
                                                                                      2.712780e+00
## 1layhid23.to.2layhid1
                                                                                     -1.449792e+00
## 1layhid24.to.2layhid1
                                                                                     -3.742113e-01
## 1layhid25.to.2layhid1
                                                                                     -6.296061e-01
   1layhid26.to.2layhid1
                                                                                     -1.677216e+00
  1layhid27.to.2layhid1
                                                                                     -2.519752e-01
   1layhid28.to.2layhid1
                                                                                     1.849118e+00
  1layhid29.to.2layhid1
                                                                                      1.079632e+00
  1layhid30.to.2layhid1
                                                                                     -1.450041e+00
   1layhid31.to.2layhid1
                                                                                    -6.358421e-01
## 1layhid32.to.2layhid1
                                                                                     8.593289e-02
## 1layhid33.to.2layhid1
                                                                                      2.244155e+00
  1layhid34.to.2layhid1
                                                                                     -6.267803e-01
   1layhid35.to.2layhid1
                                                                                     2.306337e+00
## 1layhid36.to.2layhid1
                                                                                     6.969587e-01
## 1layhid37.to.2layhid1
                                                                                     -2.281318e-01
## 1layhid38.to.2layhid1
                                                                                      1.673045e+00
## 1layhid39.to.2layhid1
                                                                                     3.541614e+00
## 1layhid40.to.2layhid1
                                                                                     -9.825722e-01
## 1layhid41.to.2layhid1
                                                                                      7.266943e-01
```

##	1layhid42.to.2layhid1	7.138611e-01
##		-1.889488e+00
##	y y	3.600871e-01
##	y y	2.797112e+00
##	1layhid46.to.2layhid1	-5.525183e-01
##	1layhid47.to.2layhid1	2.468987e+00
##	1layhid48.to.2layhid1	-6.586049e-01
##	1layhid49.to.2layhid1	-3.853276e-01
##	1layhid50.to.2layhid1	-3.227934e-01
##	Intercept.to.2layhid2	-1.057533e+00
##	1layhid1.to.2layhid2	-1.929735e+00
##		-4.424818e+00
##		4.105647e+00
##		6.782415e+00
##		-1.780522e-01
##		-1.266416e+00
##		1.119170e+00
##		2.523619e-01
##		-6.486156e-01
		3.197029e+00
##		-2.981794e-01
##		-1.312590e-01
##		6.752256e-01
##	j j	5.103081e-01
##	j j	
##	j j	-4.490931e-01
##	J J	-6.909492e-01
##		3.595824e-01
##		9.103195e-01
##		-3.767135e-01
##		3.368816e-01
##		6.587804e-01
##		-5.941100e-01
##	j j	-9.543633e-01
##	j j	-1.881152e+00
##	1layhid25.to.2layhid2	6.147214e-01
##	j j	-1.483669e+00
##	1layhid27.to.2layhid2	-1.923229e+00
##	1layhid28.to.2layhid2	1.668389e+00
##	1layhid29.to.2layhid2	-6.998518e+00
##	1layhid30.to.2layhid2	9.842223e-01
##	1layhid31.to.2layhid2	7.633278e-01
##	1layhid32.to.2layhid2	-1.433815e+00
##	1layhid33.to.2layhid2	-2.191165e-01
##	1layhid34.to.2layhid2	1.226700e+00
##	1layhid35.to.2layhid2	-1.359497e+00
##	1layhid36.to.2layhid2	9.575877e-01
##	1layhid37.to.2layhid2	-5.278074e-01
##	1layhid38.to.2layhid2	-1.842695e+00
##	1layhid39.to.2layhid2	4.734281e+00
##	1layhid40.to.2layhid2	1.413243e-01
##	1layhid41.to.2layhid2	5.657145e-01
##		1.609472e-02
##		1.512834e+00
##	1layhid44.to.2layhid2	-7.377167e-01

##	## 1layhid45.to.2layhid2	1.177092e+00
##		-2.695901e+00
##	WW 47 1 1 1 4 F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-1.779348e+00
##	WW 47 3 4 4 4 9 4 9 4 4 9 9 4 4 9 9 9 9 9 9 9	-1.128149e+00
##		-3.061589e+00
##		-7.508716e-01
##		-1.065582e+00
##		-1.096245e+00
##		8.783225e-01
##	## 1layhid3.to.2layhid3	-4.098141e+00
##	## 1layhid4.to.2layhid3	1.074036e+01
##	## 1layhid5.to.2layhid3	-1.578320e+00
##	## 1layhid6.to.2layhid3	-3.098619e-01
##	## 1layhid7.to.2layhid3	-3.984258e-01
##	## 1layhid8.to.2layhid3	1.198392e+00
##	## 1layhid9.to.2layhid3	1.402497e+00
##	## 1layhid10.to.2layhid3	-7.385454e+00
##	## 1layhid11.to.2layhid3	-1.216953e+00
##	## 1layhid12.to.2layhid3	-2.459258e-01
##	## 1layhid13.to.2layhid3	-6.413058e-01
##	## 1layhid14.to.2layhid3	-1.740466e+00
##	3	-2.843222e-01
##	v v	-1.087959e+00
##		7.591420e-02
##		-7.651482e-03
##		1.301868e+00
##	3	-1.553144e-01
##	3	2.181263e+00
##	3	4.186725e+00
##	3	1.676660e+00
##	J J	8.505331e-01
##	J J	6.788157e-01
##	J J	-9.023923e-01 -9.096266e-01
##		1.033487e+00
##	v v	9.436973e-01
##	## 1layhid29.to.2layhid3 ## 1layhid30.to.2layhid3	7.601167e-01
##		1.203223e+00
##		-3.465321e-01
##		-2.725968e-01
##		4.000934e-01
##		2.218183e+00
##		-9.111026e-01
##		1.682686e+00
##		-2.929872e+01
##		4.457520e+00
##		-6.611491e-01
##		-1.616134e+00
##		-3.426292e-01
##		6.879607e-02
##		7.890292e-02
##		2.882669e+00
##	## 1layhid46.to.2layhid3	-5.859565e-01
##	## 1layhid47.to.2layhid3	-1.247674e+00

##	# 1layhid48.to.2layhid3	-4.615324e-03
##		-2.821504e+00
##		-2.457085e+00
##	`	-1.471346e+00
##		1.595517e-01
##		1.290008e+00
##		1.640702e+00
##		-4.756636e+00
##		-3.920033e-01
##		2.029083e+00
##		6.874992e-01
##		2.584270e-01
##		-6.988434e-01
##		-1.634964e+00
##		2.724851e-01
##		4.325104e-01
##		1.879778e+00
##		-7.409533e-01
##		-1.540210e-01
##		3.533435e-01
##		-1.385394e+00
##		-3.875596e+00
##		1.317158e+00
##		3.112192e-01
##		-1.553525e+00
##		-4.957032e-01
##		5.254407e-01
##		1.888950e-01
##		3.783548e-01
##		2.612324e-01
##		6.976022e-01
##		-1.095583e+00
##		-2.024280e+00
##		3.831718e-01
##		-1.604956e+00
##		-6.773732e-01
	# 1layhid33.to.2layhid4	-2.401600e-01
##		-3.211211e-01
##		3.111546e+00
##		1.693833e+00
##		-3.140893e-01
##		7.146045e-01
##		5.861716e+00
##		3.561351e-01
##		-1.167139e+00
##		-1.652760e+00
##		8.894487e-01
##		-6.358255e-02
##		2.756157e+00
##		-6.101542e-01
##		4.770474e-01
##		3.867475e+00
##		-1.041202e+00
	# 1layhid50.to.2layhid4	-9.534797e-01
		0.001.0.0 01

##	## Intercept.to.2layhid5	-4.586447e-01
##		6.988302e-02
		-4.376765e+00
##		5.772566e+00
##	y y	-2.166924e+01
##		
##		1.385453e+00
##		-3.142750e-01
##		-1.758866e+00
##	J J	1.458566e+00
##	J J	-2.684905e-01
##		-3.605224e-01
##		2.358511e-01
##		-1.063827e+00
##		4.931135e-01
##		2.389835e+00
##		-6.247133e-01
##	j v	-4.856685e-01
##	j j	1.290761e+00
##		-5.819482e-01
##	## 1layhid19.to.2layhid5	-1.523540e-01
##	## 1layhid20.to.2layhid5	-1.981421e+00
##	## 1layhid21.to.2layhid5	1.587338e-02
##	## 1layhid22.to.2layhid5	4.299916e-01
##	## 1layhid23.to.2layhid5	8.707950e-02
##	## 1layhid24.to.2layhid5	-3.282457e-01
##	## 1layhid25.to.2layhid5	8.897651e-01
##	## 1layhid26.to.2layhid5	-1.073347e+00
##	## 1layhid27.to.2layhid5	-2.627124e+00
##	## 1layhid28.to.2layhid5	1.662610e+00
##	## 1layhid29.to.2layhid5	-3.446260e+00
##	## 1layhid30.to.2layhid5	-1.774764e-01
##	## 1layhid31.to.2layhid5	1.153511e+00
##	## 1layhid32.to.2layhid5	-4.911467e-01
##		-1.542558e-01
##		1.408938e+00
##		-5.687406e-01
	## 1layhid36.to.2layhid5	2.136766e+00
	## 1layhid37.to.2layhid5	3.716630e-01
	## 1layhid38.to.2layhid5	1.731667e+00
##		5.171759e+00
##		-8.264364e-01
##		-1.116109e+00
##		-1.747490e-01
##		1.901611e+00
##		-1.875551e-01
##		-3.209527e+00
##		-4.837157e-01
##		1.733888e+00
##		-9.631792e-01
		-9.631792e-01 -2.807578e+00
##	· · · · · · · · · · · · · · · · · · ·	-2.807578e+00 -4.843787e-01
##	j j	
##	1 0	5.508538e-02
##	J J	-1.098062e+00
##	## 1layhid2.to.2layhid6	-9.505183e-01

##	1layhid3.to.2layhid6	1.419942e+00
##		-9.112534e-02
##		-2.081123e+00
##	1layhid6.to.2layhid6	-7.121881e-01
##	1layhid7.to.2layhid6	-2.182603e+00
##	1layhid8.to.2layhid6	2.496890e-01
##	1layhid9.to.2layhid6	1.062775e+00
##	1layhid10.to.2layhid6	2.091946e+00
##	1layhid11.to.2layhid6	1.609652e+00
##	1layhid12.to.2layhid6	-1.203405e+00
##	1layhid13.to.2layhid6	-7.078791e-01
##	1layhid14.to.2layhid6	3.479170e-01
##	1layhid15.to.2layhid6	-8.713286e-01
##	1layhid16.to.2layhid6	1.776144e-01
##	1layhid17.to.2layhid6	-5.961412e-01
##	1layhid18.to.2layhid6	-2.443851e-01
##	1layhid19.to.2layhid6	5.971225e-01
##	1layhid20.to.2layhid6	1.915975e+00
##	1layhid21.to.2layhid6	-1.217094e+00
##	1layhid22.to.2layhid6	-8.767380e-01
##	1layhid23.to.2layhid6	6.939795e-02
##	1layhid24.to.2layhid6	1.479874e-01
##	1layhid25.to.2layhid6	-9.526274e-02
##	1layhid26.to.2layhid6	4.339056e+00
##	1layhid27.to.2layhid6	-1.799179e-01
##	1layhid28.to.2layhid6	2.635332e+00
##	1layhid29.to.2layhid6	3.202876e-01
##		-4.791684e-01
##	1layhid31.to.2layhid6	3.707802e-01
##	1layhid32.to.2layhid6	8.255339e-02
##	1layhid33.to.2layhid6	1.884175e+00
##	1layhid34.to.2layhid6	-4.836031e-01
##	1layhid35.to.2layhid6	3.161430e-02
##	1layhid36.to.2layhid6	-3.084764e-01
##	1layhid37.to.2layhid6	-1.406309e+00
##	1layhid38.to.2layhid6	-1.472876e+00
	1layhid39.to.2layhid6	-3.414215e+00
	11ayhid40.to.21ayhid6	3.169373e+00
##	j j	-8.045453e-01
##	j j	2.029393e-01
##	1layhid43.to.2layhid6	-1.456169e+00
##	1layhid44.to.2layhid6	5.284102e-01
##	1layhid45.to.2layhid6	-1.431087e-01 3.589286e-01
##	1layhid46.to.2layhid6 1layhid47.to.2layhid6	5.390204e-01
##	11ayhid48.to.21ayhid6	-1.020455e+00
	1layhid49.to.2layhid6	-4.845468e-01
##	11ayhid49.to.21ayhid6	-3.974675e-01
##	Intercept.to.2layhid7	5.746082e-01
##	1layhid1.to.2layhid7	3.532942e-01
##	11ayhid1.to.21ayhid7 11ayhid2.to.2layhid7	-2.622570e+00
##	11ayhid2.to.21ayhid7 11ayhid3.to.2layhid7	9.111216e-01
##		1.551473e+00
	1layhid5.to.2layhid7	-6.175619e-01
11		0.1,00100 01

##	1layhid6.to.2layhid7	1.530013e+00
##		-9.035917e-01
##	43 440 4 63 445	-1.291724e+00
##	43 440 4 63 445	2.591210e-02
##	43 4446 4 43	3.503041e-01
##	43 444 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8.352782e-01
##		-1.079454e+00
##		6.294370e-01
##		-2.506722e-01
##	43 1 44 5 4 6 5 4 4 5 5 6 5 6 5 6 5 6 5 6 5	-1.150266e+00
##	1layhid16.to.2layhid7	-1.202236e+00
##	1layhid17.to.2layhid7	4.017648e-01
##	1layhid18.to.2layhid7	1.217150e+00
##	1layhid19.to.2layhid7	4.972850e-01
##	1layhid20.to.2layhid7	-5.249956e-03
##	1layhid21.to.2layhid7	-6.369166e-01
##	1layhid22.to.2layhid7	3.356175e-01
##	1layhid23.to.2layhid7	-4.117834e-01
##	1layhid24.to.2layhid7	5.606482e-01
##	1layhid25.to.2layhid7	1.552355e-01
##	J J	-1.463493e+00
##		-1.293498e+00
##		3.507132e-01
##		6.569091e-01
##		9.554514e-01
##		-1.064036e+00
##		-6.048146e-01
##		-2.520469e-01
##		-1.132798e+00
##		-4.211972e-01
##		-9.366385e-01
##	y y	-6.258418e-01
##	y y	2.034247e-01
##		6.772436e-02
##		8.994531e-01 3.014053e-01
##	1layhid41.to.2layhid7 1layhid42.to.2layhid7	-6.312832e-01
##		4.263554e-02
##		1.535286e+00
##		1.045810e+00
##		8.284230e-01
##		1.326732e-01
##		-6.256108e-01
##		-4.393758e-01
##		7.338409e-01
##		6.781360e-01
##		2.385983e-01
##		-1.478818e+00
##		2.293059e+00
##	1layhid4.to.2layhid8	5.612669e+00
##	1layhid5.to.2layhid8	7.313365e-01
##	1layhid6.to.2layhid8	-6.247743e-01
##	j j	-4.806245e-01
##	1layhid8.to.2layhid8	2.145507e-02

##	## 1layhid9.to.2layhid8	6.766805e-02
##	## 1layhid10.to.2layhid8	-6.743299e-01
	## 1layhid11.to.2layhid8	-3.936315e-01
	j j	6.073882e-01
##	## 1layhid13.to.2layhid8	8.959698e-01
##	## 1layhid14.to.2layhid8	-8.442885e-01
##	## 1layhid15.to.2layhid8	-6.426581e-01
##	j j	9.494578e-01
##	j j	4.377945e-01
		9.656042e-01
		-2.107852e+00
		-8.820028e-01
		-1.702771e+00
##	## 1layhid22.to.2layhid8	1.234950e-01
##	## 1layhid23.to.2layhid8	2.898407e-01
##	## 1layhid24.to.2layhid8	-1.112974e+00
	j j	6.199100e-01
	J J	2.396136e-01
##	## 1layhid27.to.2layhid8	-1.583281e+00
##		1.384155e+00
##	## 1layhid29.to.2layhid8	1.806990e+00
##	## 1layhid30.to.2layhid8	-1.903216e+00
##	## 1layhid31.to.2layhid8	-1.722893e+00
##	## 1layhid32.to.2layhid8	-1.437726e+00
##	j j	8.316208e-01
##	j j	-1.168492e+00
##		2.189822e-01
##		8.376682e-01
##		-4.243510e-01
##		1.909380e+00
##		5.183758e-01
##		-9.865534e-01
##		-7.143757e-01
##		-1.154686e+00
##	y y	-2.628384e-01
##		8.515542e-02
	## 1layhid45.to.2layhid8	-2.337802e+00
##	j j	1.928791e-01
##	j j	7.080006e-01
##	j j	9.043860e-01
##	j j	1.761895e+00
##		1.398128e+00
##	1 3	4.455422e-02
##		2.307650e+00
##		-2.990214e+00
##		-7.380825e-01
##		-1.295294e+01
##		-8.715236e-01
##		6.739664e-01
##	J J	7.405815e-01
##	J J	-1.703520e+00
##		1.097611e+00
##		6.078216e+00
##	## 1layhid11.to.2layhid9	1.998792e-01

##	# 1layhid12.to.2layhid9	-3.082579e-01
##		7.251995e-01
		1.031100e+00
##		7.498322e-01
##	· · · · · · · · · · · · · · · · · · ·	4.607589e-01
##		
##		-1.014662e+00
##		2.514089e+01
##		1.867102e+00
##	y y	6.593271e-02
##	· · · · · · · · · · · · · · · · · · ·	-7.606267e-01
##		-8.540399e-01
##		-6.499106e-01
##		1.476638e+00
##		2.318804e-01
##		1.615146e+00
##		3.418453e-02
##		1.662768e-01
##	J	-2.487714e+00
##		-1.343759e+00
##		-1.695872e+00
##	J	-7.825070e-01
##	y	-7.558850e-01
##	y	5.951021e-01
##	y	-1.561541e+00
##	y	2.111382e+00
##	J	-1.388668e+00
##	J	1.170127e+01
##	y	-3.621424e+00
##	y	9.810598e-01
##	y	-9.816184e-01
##	y	-5.429751e-01
##	y	9.173639e-01
##	y	1.478205e+00
##	# 1layhid45.to.2layhid9	1.816102e+00
##	t 1layhid46.to.2layhid9	8.891905e-01
##	# 1layhid47.to.2layhid9	-2.379646e-02
##	t 11ayhid48.to.21ayhid9	8.480682e-01
##	t 1layhid49.to.2layhid9	2.063182e+00
##	# 1layhid50.to.2layhid9	-1.066866e+00
##	f Intercept.to.2layhid10	7.057983e-01
##	t 1layhid1.to.2layhid10	8.279008e-02
##	# 1layhid2.to.2layhid10	-9.985787e-02
##	# 1layhid3.to.2layhid10	-7.175222e-01
##	t 1layhid4.to.2layhid10	-2.230702e-02
##	t 1layhid5.to.2layhid10	6.737660e-01
##	# 1layhid6.to.2layhid10	-1.695073e-01
##	t 1layhid7.to.2layhid10	1.011749e+00
##	t 1layhid8.to.2layhid10	-1.043138e+00
##	t 1layhid9.to.2layhid10	-1.084429e-01
##		9.852214e-01
##		-1.165263e+00
##		3.372819e-01
##		-1.902765e+00
##	t 1layhid14.to.2layhid10	1.511794e-02
	·	

```
## 1layhid15.to.2layhid10
                                                                                      -1.401150e-01
## 1layhid16.to.2layhid10
                                                                                      -1.070128e+00
                                                                                      -1.018490e+00
## 1layhid17.to.2layhid10
## 1layhid18.to.2layhid10
                                                                                      -2.612773e-01
## 1layhid19.to.2layhid10
                                                                                       6.054919e-01
## 1layhid20.to.2layhid10
                                                                                       1.890114e+00
## 1layhid21.to.2layhid10
                                                                                      -5.963693e-01
## 1layhid22.to.2layhid10
                                                                                      -1.192956e+00
  1layhid23.to.2layhid10
                                                                                       1.392176e+00
   1layhid24.to.2layhid10
                                                                                      -5.986271e-01
## 1layhid25.to.2layhid10
                                                                                      -1.553568e-01
## 1layhid26.to.2layhid10
                                                                                       3.793973e-01
## 1layhid27.to.2layhid10
                                                                                      -1.243072e-01
## 1layhid28.to.2layhid10
                                                                                       4.991387e-01
## 1layhid29.to.2layhid10
                                                                                       8.186523e-02
## 1layhid30.to.2layhid10
                                                                                      -3.012594e-01
## 1layhid31.to.2layhid10
                                                                                      -7.509156e-01
## 1layhid32.to.2layhid10
                                                                                       3.023340e+00
## 1layhid33.to.2layhid10
                                                                                      -8.360257e-02
## 1layhid34.to.2layhid10
                                                                                       1.469023e+00
## 1layhid35.to.2layhid10
                                                                                      -6.528514e-01
## 1layhid36.to.2layhid10
                                                                                      8.547330e-01
## 1layhid37.to.2layhid10
                                                                                       7.545103e-01
  1layhid38.to.2layhid10
                                                                                       1.332266e+00
## 1layhid39.to.2layhid10
                                                                                       1.398158e-01
  1layhid40.to.2layhid10
                                                                                       1.375609e+00
## 1layhid41.to.2layhid10
                                                                                      -2.330005e+00
## 1layhid42.to.2layhid10
                                                                                      -8.631432e-01
## 1layhid43.to.2layhid10
                                                                                      -2.313728e+00
## 1layhid44.to.2layhid10
                                                                                      -9.690106e-02
## 1layhid45.to.2layhid10
                                                                                      -1.798668e-01
## 1layhid46.to.2layhid10
                                                                                      -1.397665e+00
## 1layhid47.to.2layhid10
                                                                                       4.671938e-01
## 1layhid48.to.2layhid10
                                                                                      -1.540723e+00
## 1layhid49.to.2layhid10
                                                                                       1.440800e+00
## 1layhid50.to.2layhid10
                                                                                      -5.807973e-01
## Intercept.to.vital status Alive
                                                                                      4.675735e-02
## 2layhid1.to.vital_status_Alive
                                                                                       1.221529e+01
## 2layhid2.to.vital_status_Alive
                                                                                       8.541864e+00
## 2layhid3.to.vital_status_Alive
                                                                                      7.993486e-01
## 2layhid4.to.vital status Alive
                                                                                      -5.074512e-01
## 2layhid5.to.vital status Alive
                                                                                       1.668603e-01
## 2layhid6.to.vital status Alive
                                                                                       1.257202e+00
## 2layhid7.to.vital_status_Alive
                                                                                       1.654504e+00
## 2layhid8.to.vital_status_Alive
                                                                                       1.405565e+00
## 2layhid9.to.vital_status_Alive
                                                                                      -6.661978e-01
## 2layhid10.to.vital_status_Alive
                                                                                      -8.384894e+00
# Testing the resulting output
prediction_threshold <- 0.5</pre>
nn.results <- compute(nn, test_nn_temp)</pre>
prediction <- nn.results$net.result</pre>
prediction[prediction >= prediction_threshold] <- 1</pre>
```

```
prediction[prediction < prediction_threshold] <- 0</pre>
prediction <- c(prediction)</pre>
actual <- test_nn$vital_status_Alive</pre>
confusionMatrix(factor(prediction), factor(actual))
## Confusion Matrix and Statistics
##
             Reference
                 0
## Prediction
            0 367 184
##
            1 682 2544
##
##
##
                  Accuracy : 0.7707
##
                    95% CI: (0.757, 0.784)
##
       No Information Rate: 0.7223
       P-Value [Acc > NIR] : 6.972e-12
##
##
##
                     Kappa : 0.3307
##
    Mcnemar's Test P-Value : < 2.2e-16
##
##
##
               Sensitivity: 0.34986
##
               Specificity: 0.93255
##
            Pos Pred Value : 0.66606
##
            Neg Pred Value: 0.78859
##
                Prevalence: 0.27773
##
            Detection Rate: 0.09717
      Detection Prevalence : 0.14588
##
##
         Balanced Accuracy: 0.64120
```

'Positive' Class : 0

##

##