**Feature set**

Note: All are 0/1 binary except age and time of diagnosis.

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|  | Domain | Feature /Target name | Definition |
| **Target** | | | |
| 1 | Death | Died | Died in 2020 |
| 2 | Hospitalized | Hospitalization | Hospitalized with covid-19 as listed diagnosis, excluding same-day discharge, as well as admission for labor/delivery or trauma |
| **Demographics** | | | |
| 1 | Age | demo\_age | Age in years |
| 2 | Gender | demo\_sex | Female 1, male 2 |
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| **Underlying medical conditions** | | | Whether had any of the following ICD-10 diagnostic labels |
|  | Cancer | umc\_cancer | Whether had any of the ICD-10 diagnostic codes starting with C |
|  | Chronic Kidney Disease | umc\_ckd | I129, Z992, E0822, E0922, E1022, E1122, E1322, all ICD-10 codes starting with N18 and N19, and all codes starting with I12 and I13 |
|  | COPD | umc\_copd | All ICD-10 codes starting with J42, J43, J44, J45, and J47 |
|  | Serious heart conditions | umc\_heart | I110, all codes starting with I50  All codes starting with I25  All codes starting with Q24  All codes starting with I42  All codes starting with I27  All codes starting with I48 and I49  R000 |
|  | Type 2 diabetes mellitus | umc\_dm2 | Z794, and all codes starting with E11 |
|  | Type 1 diabetes mellitus | umc\_dm1 | Z794, and all codes starting with E10 |
|  | Asthma | umc\_asthma | All codes starting with J45 |
|  | Cerebrovascular disease | umc\_cbd | All codes starting with I60, I61, I62, I63, I65, I66, I67, I68, and I69 |
|  | Hypertension | umc\_hyp | All codes starting with I10, I11, I12, I13, I15, and I16 |
|  | Organ transplant | umc\_trans | Z9481, and all codes starting with T86 |
|  | Immune deficiencies | umc\_immune\_def | All codes starting with D80, D81, D82, D83, D84, D86, and D89 |
|  | Use of immune weakening medicines | umc\_immune\_suppressants | All codes starting with T451 |
|  | Neurologic conditions | umc\_dementia | All codes starting with F01, F02, F03, F04, F05, F06, F07, F09, G30, G31, G32, G35, G36, and G37 |
|  | Chronic liver disease | umc\_liver | All codes starting with K70, K71, K72, K73, and K74 |
|  | Pulmonary fibrosis | umc\_pulm\_fib | All codes starting with J84 |
|  | Hyperlipidemia | umc\_hyl | E785, E870, E7800 |
|  | Developmental and behavioral disorders | umc\_dev\_beh\_disorder | All codes starting with F90  All codes starting with F84  All codes starting with G80  All codes starting with Q860  Q992  All codes starting with F70, F71, F72, F73, F78, F79  All codes starting with F80 and F81  All codes starting with F95 |
|  | Metabolic disorders | umc\_inherited\_metabolic | All codes starting with E70, E71, E72, E73, E74, E75, E76, E77, E78, E79, E80, E83 |
|  | Systemic lupus erythematosus | umc\_lupus | All codes starting with M32 |
|  | Rheumatoid arthritis | umc\_rheumatoid\_arthritis | All codes starting with M05, M06 |
|  | Pancreatitis | umc\_pancreatitis | All codes starting with K85, K86 |
|  | Parkinson’s disease | umc\_parkinsons | All codes starting with G20, G21, G23 |
|  | Multiple sclerosis | umc\_multiple\_sclerosis | All codes starting with G35, G36, G37 |
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|  | Breast cancer | umc\_breast\_cancer | All codes starting with C50 |
|  | Prostate Cancer | umc\_prostate\_cancer | All codes starting with C61 |
|  | Lung cancer | umc\_lung\_cancer | All codes starting with C34 |
|  | Colorectal cancer | umc\_colorectal\_cancer | All codes starting with C18, C19, C20 |
|  | Lymphoma and myeloma | umc\_lymphoma\_myeloma | All codes starting with C81, C82, C83, C84, C85, C86, C88 |
|  | Obesity | umc\_obesity | All codes starting with E66 |
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| **Covid** | | | |
|  | Covid-19 diagnosis | Covid | U07 |
|  | Time of covid diagnosis | Days\_since\_2020 | Day of 2020 covid-19 diagnosis was received |
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