

“Alive or Deceased Status” summary

Classification & regression

Feature selection:

- Covid-19 test result
- Patients who died after 2020
- Age
- Gender
- Marital status
- The total number of hospitalized days
- The number of hospitalized days as a result of covid-19
- The number of days in lcu as a result of covid-19

Observation file :

- 'Non-small cell lung cancer (disorder)'
- 'Neoplasm of prostate'
- 'Pneumonia'
- 'Myocardial Infarction'
- 'Small cell carcinoma of lung (disorder)'

Encounter file:

- 'Chronic_congestive_heart_failure' finds that there are many covid-19 patients also have those diseases.

Procedure file:

- 'Oxygen Therapy'
- 'Oxygen administration by mask (procedure)'
- 'Plain chest X-ray (procedure)'
- 'Mental health screening (procedure)'
- 'Pulmonary_diseases_cancer' includes 'Non-small cell carcinoma of lung TNM stage 1 (disorder)', 'Primary small cell malignant neoplasm of lung TNM stage 1 (disorder)', 'Suspected lung cancer (situation)', 'Pulmonary emphysema (disorder)'. Since they are all pulmonary related diseases, I grouped them together.
- 'Chronic obstructive bronchitis (disorder)'
- 'cardial_Atrial_diseases' includes 'Atrial Fibrillation' and 'Myocardial Infarction'.
- 'Throat_pharyngitis' include 'Streptococcal sore throat (disorder)' and 'Acute viral pharyngitis (disorder)'.

(Immunization file:)

- 'immu_PCV' include 'pneumococcal polysaccharide vaccine 23 valent' and 'Pneumococcal conjugate PCV 13'. It shows that patients who died as a result of covid-19 are less likely to have the PCV injection.

(Condition file:)

- 'Respiratory distress (finding)'
- 'Pneumonia (disorder)'
- 'Hypoxemia (disorder)'

(Medications file:)

- 'Carcinoma_of_lung' includes 'Non-small cell carcinoma of lung TNM stage 1 (disorder)' and 'Primary small cell malignant neoplasm of lung TNM stage 1 (disorder)'. They are the two stages of the same disease.

Risk Factors:

- There are a fair number of covid-19 patients who didn't die due to covid-19, some of them died due to some chronic diseases that had existed a long time in their life.
- Patients who get covid-19 are more likely to cause some heart disease.
- Covid-19 patients are likely to have other pneumonia related diseases.
- Patients who get covid-19 are easy to get other diseases.

Protective Factors:

- Patients who got PCV shot are less likely to get covid-19, compared to those who did.

Methods:

- RandomForestClassifier, accuracy: 0.9998942246668077
- MultinomialNB: accuracy 0.7739933714124533
- SGDClassifier: accuracy 0.8800860306043298
- LogisticRegression: accuracy 0.9341019674211973