**Data exploration about the severity of Covid**

After last week’s meeting, I try to extract Covid records from original tables

Combining

* COV19
  + ICD10 = ('U07.1', 'Z11.52', 'Z20.822', 'J12.82')

and the raw data in DIAGNOSES table, I extact the Study\_ID of Covid patients.

In this case, from the view of DIAGNOSES table, the proportion of covid-related records is small---only take 0.95% of all of records in DIAGNOSES table.

For those Covid diagnoses, explore its distribution through time series.

In this dataset, the first Covid case appeared on 2020-03-16,

and latest one appear on 2021-01-31

the peak of the number of diagnoses occurs between 2020/12~ 2021/1

Chart, line chart

Description automatically generated

For diagnoses table, some patients have more than one records

For the same petient, the largest span of two Covid-related diagnoses is 296 days

Study\_ID: 5222723000

[Timestamp('2020-04-05 00:00:00'), Timestamp('2021-01-26 00:00:00')], 296)

For those patients have multiple covid records

diagnoses happen within a week(1~6 days): 1287 ( 37.89 %)

diagnoses happen within a month(1~30 days): 1998 ( 58.83 %)

(7~30 days----711 records (21%))

the span of diagnoses is larger than one month: 111 ( 3.26%)

Strange?

Most of Covid patients(82%) only have one covid record in DIAGNOSES table

(those record appear from 2020-03-17)

***Less important***

Demographics of those Covid patients

Chart, histogram

Description automatically generated

Age distribution refenece in Demographics Chart

Description automatically generated

**Encounter table**

For covid patient, they always multiple Encounter records

**For those patients:**

Encounters happen within a week(1~7 days): 6805 ( 35.639 %)

Encounters happen within a month(1~30 days): 11231 ( 58.81 %)

(7~30 days----4426 (23.18%))

the span of START\_DATE is larger than one month: 1058 ( 5.5 %)

Mortality

For all record in Encounter containing DEATH SUMMARY in ENC\_TYPE column

die within a week(1~6 days): 230 ( 33.72434017595308 %)

die within 7~30 days: 152 ( 22.287390029325515 %)

die within a month(1~30 days): 382 ( 56.011730205278596 %)

other: 70 ( 10.263929618768328 %)

procedurę

**Encounter\_covid\_7: Patients whose all records span within one week**

**Encounter\_covid\_7\_30: Patients whose all records span within 7~30 days**

**Encounter\_covid\_other: Patients whose all records span is greater than one month**

Encounter Type distribution

|  |  |  |
| --- | --- | --- |
| Encounter\_covid\_7 | Encounter\_covid\_7\_30 | Encounter\_covid\_other |
| LAB RESULTS 25.414339 | LAB RESULTS 23.500958 | LAB RESULTS 23.545999 |
| IMAGING 9.146363 | IMAGING 9.444793 | IMAGING 9.066698 |
| ER REPORT 8.895602 | IP CONSULT 7.005970 | IP CONSULT 7.554929 |
| HOSPITAL-ENCOUNTER 7.435356 | ER REPORT 6.764576 | ER REPORT 6.056868 |
| EMERGENCY 6.116236 | EKG 5.812818 | EKG 5.504641 |
| EKG 5.711520 | HOSPITAL ENCOUNTER 4.677711 | DEFICIENCIES 4.494184 |
| HOSPITAL ENCOUNTER 3.916537 | INPATIENT H&P 4.615059 | HOSPITAL ENCOUNTER 4.415854 |
| IP CONSULT 3.629620 | HOSPITAL-ENCOUNTER 4.325754 | INPATIENT H&P 4.408021 |
| TELEPHONE 3.466334 | DEFICIENCIES 4.219798 | HOSPITAL-ENCOUNTER 4.310108 |
| INPATIENT H&P 3.375360 | INPATIENT 3.944313 | INPATIENT 3.501351 |
| DEFICIENCIES 3.249396 | TELEPHONE 3.531547 | TELEPHONE 3.252653 |
| UPMC HOSPITAL SUMMARY 2.961313 | NUTRITION 3.010061 | DISCHARGE SUMMARY 2.851212 |
| DISCHARGE SUMMARY 2.696556 | EMERGENCY 2.518059 | APPOINTMENT 2.798339 |
| INPATIENT 2.617245 | APPOINTMENT 2.455407 | UPMC HOSPITAL SUMMARY 2.661262 |
| APPOINTMENT 1.807812 | DISCHARGE SUMMARY 2.237967 | NUTRITION 2.485019 |
| NUTRITION 0.961056 | IP LAB RESULTS 2.002101 | EMERGENCY 2.248071 |
| CHP VISIT 0.954058 | UPMC HOSPITAL SUMMARY 1.927471 | SCAN 1.388399 |
| SCAN 0.791938 | SCAN 0.828297 | IP LAB RESULTS 1.347276 |
| TELEMEDICINE 0.759281 | PATIENT EMAIL 0.674431 | ECHO 0.826382 |
| HISTORY 0.714961 | TELEMEDICINE 0.624678 | INFORMATIONAL 0.724553 |

DISCHARGE rate for per patient:

DISCHARGE SUMMARY(0-7) 0.33975018

DISCHARGE SUMMARY(7-30) 0.548803

DISCHARGE SUMMARY(other) 1.376181

Re-admission

DISCHARGE SUMMARY happened in all kinds of covid patient record, So I explored whether the patient was readmitted after discharge?

After discharge, whether patient come to inpatient department again?

***'INPATIENT H&P', 'INPATIENT'*** *happen after* ***'DISCHARGE SUMMARY'***

Re-admission Within 7 days: -- 478 patients (43.10%)

Re-admission Within 7-30 days-- 208 patients (18.75%)

Re-admission More than one month--423 patients (38.14 %)

After discharge, whether patient come to hospital again?

***['HOSPITAL-ENCOUNTER','HOSPITAL ENCOUNTER','ER REPORT','IP CONSULT','EMERGENCY'****]*

*happen after* ***'DISCHARGE SUMMARY'***

Re-admission Within 7 days: -- 2934 (89.34%)

Re-admission Within 7-30 days-- 118 (3.59%)

Re-admission More than one month--232 (7.06%)