Lici_Díaz.Rmd

Lici Díaz

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```
library(Hmisc)
```

```
## Loading required package: lattice

## Loading required package: survival

## Loading required package: Formula

## Warning: package 'Formula' was built under R version 4.1.1

## Loading required package: ggplot2

## Warning: package 'ggplot2' was built under R version 4.1.1

##
## Attaching package: 'Hmisc'

## The following objects are masked from 'package:base':
##
##     format.pval, units
```

```
library(psych)
```

```
##
## Attaching package: 'psych'

## The following object is masked from 'package:Hmisc':
##
##     describe

## The following objects are masked from 'package:ggplot2':
##
##     %+%, alpha
```

```
library(ggpubr)
```

```
## Warning: package 'ggpubr' was built under R version 4.1.1
```

```
library(readr)
```

Dataframe from csv files:

```
example_lab_data <- read.table('example_lab_data.csv', sep=',', header=TRUE)
head(example_lab_data)
```

```
##   patient_id       date    lab_exam     result
## 1 cCnBeL4FBu 2021-03-09  Hematocrit 0.34678545
## 2 Xl5d5UcCYD 2021-02-03 Cholesterol 0.37630661
## 3 oa74Ed90gm 2020-03-05         CRP 0.88612849
## 4 rPjBoa86kB 2021-04-20   Platelets 0.09504662
## 5 uD0NxQpQ5F 2020-11-01     Glucose 0.01586868
## 6 3pZ2TqnNyn 2021-02-24 Lymphocytes 0.09372664
```

```
synthetic_data <- read.table('synthetic_data.csv', sep=',', header=TRUE)
head(synthetic_data)
```

```
##   patient_id age  sex     race weight_kg height_cm  bsa      bmi
## 1 PlSf6mx953  68    M Hispanic      85.6     154.9 2.27 28.96000
## 2 sT8IH3ZooD  56    M    White     104.0     172.0   NA 25.62000
## 3 4Zz1llngXL  24    M    White     115.0     180.3   NA 36.99957
## 4 FlV8vFIekH  45    M    White      61.0     152.4 2.30 21.75507
## 5 XHODUqel1R  54    F    White        NA     170.0 2.39 26.01070
## 6 gvQFBONZVL  60 Male    White     190.5     177.8   NA 42.86250
##                     diagnosis diagnosis_icd10 supplemental_diagnoses
## 1                    COVID-19           I25.5                   <NA>
## 2                    COVID-19            <NA>                   <NA>
## 3 Other respiratory condition            <NA>                   <NA>
## 4                    COVID-19          I71.01                   <NA>
## 5    Cardiovascular condition            <NA>                   <NA>
## 6                    COVID-19            <NA>                   <NA>
##   distal_perfusion trauma infective_endocarditis reintubation trached   ph  co2
## 1               NA     NA                    NA           NA   FALSE 6.96 33.1
## 2             TRUE  FALSE                 FALSE        FALSE   FALSE 7.41   NA
## 3             TRUE  FALSE                    NA        FALSE    TRUE 7.39 42.7
## 4            FALSE  FALSE                 FALSE           NA   FALSE 7.18 72.0
## 5               NA  FALSE                 FALSE        FALSE    TRUE 7.44 62.0
## 6               NA  FALSE                    NA        FALSE   FALSE 7.42   NA
##    o2 lactate_peak creatinine_peak total_bilirubin_peak mechanical_vent_days
## 1  68          3.9            2.27                 3.9            12h - 24h
## 2 542           NA            1.67                  NA                 <NA>
## 3  NA           NA            1.19                  NA               <= 12h
## 4 109          2.9             0.57                 0.9      2 days - 7 days
## 5  NA          2.3            1.04                 8.9                 <NA>
## 6  49          2.3            2.08                 0.5            12h - 24h
##   systemic_anticoagulation_type acute_kidney_injury severity_score icu_los
## 1                 Heparin only               FALSE              7       5
## 2                 Heparin only               FALSE             11      42
## 3              No anticoagulant                TRUE              4      NA
## 4       Heparin and bivalirudin                TRUE             NA       1
## 5                 Heparin only               FALSE              8      NA
```

```
## 6              No anticoagulant                TRUE             NA      43
##   hospital_los discharge_location                insurance proning steroids
## 1           13               <NA>                      UMR   FALSE       No
## 2           15               Home                    <NA>   FALSE      Yes
## 3           20              Death                 Medicare    TRUE     <NA>
## 4           49               <NA> Blue Cross/Blue Shield       NA     <NA>
## 5            1              Death     Aetna Better Health      NA     <NA>
## 6           29               Home            Acordia PEIA      NA      Yes
##    steroid_name cpc_score                                       infection
## 1          <NA>      <NA> (On-ECLS, Respiratory tract, Virus, Rhinovirus)
## 2          <NA>      <NA>                                             None
## 3          <NA>      <NA>                                             <NA>
## 4          <NA>      <NA>                                       SARS CoV19
## 5          <NA>       N/A                                       SARS CoV19
## 6 Dexemethasone      <NA>                                             <NA>
##   complication_mechanical complication_hemorrhage complication_neurological
## 1                    <NA>                    <NA>                       <NA>
## 2                    <NA>                       0                       <NA>
## 3                       0                    <NA>                       <NA>
## 4                       0                    <NA>                       <NA>
## 5                    <NA>                    <NA>                       <NA>
## 6                    <NA>                    <NA>                       None
##   complication_renal complication_cardiovascular complication_pulmonary
## 1               <NA>                       <NA>                   <NA>
## 2               <NA>                       <NA>                   <NA>
## 3               <NA>                       <NA>                   <NA>
## 4                  1                          0                   <NA>
## 5                Yes                       <NA>                      0
## 6               None                       <NA>                   <NA>
##   complication_metabolic complication_patient_limb il_6_blockers antivirals
## 1                   <NA>                     <NA>            NA         NA
## 2                   <NA>                        0            NA         NA
## 3                   <NA>                        0            NA         NA
## 4                   <NA>                     <NA>            NA         NA
## 5                   <NA>                     <NA>            NA         NA
## 6                   <NA>                     <NA>            NA         NA
##   antimalarials support_type transfer number_pt_visits_total_hosp_stay
## 1            NA      Cardiac    FALSE                                NA
## 2            NA         <NA>    FALSE                                NA
## 3            NA    Pulmonary    FALSE                                NA
## 4            NA         <NA>    FALSE                                NA
## 5            NA         <NA>    FALSE                                NA
## 6            NA         <NA>    FALSE                                NA
##   or_cannulation covid monoclonal_ab_treatment total_charges pregnant year
## 1             NA FALSE                      NA            NA       NA 2021
## 2             NA  TRUE                   FALSE            NA       NA 2018
## 3             NA FALSE                      NA            NA       NA 2018
## 4             NA FALSE                      NA      104724.6       NA 2020
## 5             NA FALSE                      NA            NA     TRUE 2022
## 6             NA  TRUE                      NA      966708.4       NA 2020
##   days_to_discharge    pcs12   mcs12 qal_ys admission_date discharge_date
## 1                70       NA      NA     NA     2021-08-26     2021-09-28
## 2                 7 23.06103 36.6572     NA     2020-10-17     2020-11-16
## 3                NA       NA      NA     NA     2021-12-25     2022-02-03
```

```
## 4               NA       NA      NA     NA     2020-01-29     2020-02-25
## 5               NA       NA      NA     NA     2021-07-02     2021-08-09
## 6               NA       NA      NA     NA     2021-06-18     2021-07-24
##   death_date
## 1       <NA>
## 2       <NA>
## 3       <NA>
## 4 2020-02-25
## 5       <NA>
## 6       <NA>
```

Remove any extraneous rows or columns:

Ensure that columns with numeric variables don't have characters #Count number of nulls per column

```
sapply(example_lab_data, function(x) sum(is.na(x)))
```

```
## patient_id       date   lab_exam     result
##          0          0          0          0
```

```
sapply(synthetic_data, function(x) sum(is.na(x)))
```

```
##                       patient_id                              age
##                                0                                5
##                              sex                             race
##                                5                                9
##                        weight_kg                        height_cm
##                               12                                9
##                              bsa                              bmi
##                              163                                8
##                        diagnosis                   diagnosis_icd10
##                               47                              332
##             supplemental_diagnoses                  distal_perfusion
##                              328                               64
##                           trauma             infective_endocarditis
##                              118                              192
##                      reintubation                          trached
##                              181                               80
##                               ph                              co2
##                               21                               78
##                               o2                      lactate_peak
##                               82                               58
##                   creatinine_peak              total_bilirubin_peak
##                              136                              127
##              mechanical_vent_days      systemic_anticoagulation_type
##                              109                               57
##               acute_kidney_injury                   severity_score
##                               70                              209
##                           icu_los                      hospital_los
##                               74                               71
##                discharge_location                         insurance
##                              128                               81
##                          proning                           steroids
```

```
##                              271                              273
##                    steroid_name                        cpc_score
##                             326                              359
##                       infection          complication_mechanical
##                             206                              332
##           complication_hemorrhage        complication_neurological
##                             303                              326
##                complication_renal      complication_cardiovascular
##                             310                              318
##             complication_pulmonary           complication_metabolic
##                             324                              329
##          complication_patient_limb                   il_6_blockers
##                             340                              424
##                       antivirals                   antimalarials
##                             424                              424
##                    support_type                         transfer
##                             278                                2
## number_pt_visits_total_hosp_stay                 or_cannulation
##                             409                              384
##                           covid          monoclonal_ab_treatment
##                               4                              407
##                   total_charges                        pregnant
##                             329                              406
##                            year                days_to_discharge
##                               2                              118
##                           pcs12                           mcs12
##                             339                              358
##                          qal_ys                  admission_date
##                             348                                2
##                  discharge_date                      death_date
##                               2                              295
```

#drop columns with NA > 300 observations:

```
synthetic_data <- synthetic_data[,!names(synthetic_data) %in% c("diagnosis_icd10","supplemental_diagnos
 "trauma", "infective_endocarditis",  "severity_score", "icu_los","insurance", "proning",  "il_6_blocke
```

Review patient IDs and address repeated patients:

For example_lab_data

```
repeated_patients_lab_data <- data.frame(table(example_lab_data$patient_id))
repeated_patients_lab_data  <- repeated_patients_lab_data[repeated_patients_lab_data$Freq > 1,]
```

For synthetic_data

```
repeated_patients_syntetic_data <- data.frame(table(synthetic_data$patient_id))
repeated_patients_syntetic_data <- repeated_patients_syntetic_data[repeated_patients_syntetic_data$Freq
```

tells you which patient_id occurred more than once:

```
example_lab_data[example_lab_data$patient_id %in% repeated_patients_lab_data$Var1[repeated_patients_lab
```

```
##     patient_id       date    lab_exam      result
## 1   cCnBeL4FBu 2021-03-09  Hematocrit 0.346785449
## 2   Xl5d5UcCYD 2021-02-03 Cholesterol 0.376306606
## 3   oa74Ed90gm 2020-03-05         CRP 0.886128495
## 4   rPjBoa86kB 2021-04-20   Platelets 0.095046618
## 5   uD0NxQpQ5F 2020-11-01     Glucose 0.015868681
## 6   3pZ2TqnNyn 2021-02-24 Lymphocytes 0.093726641
## 7   vlb0gzZhmX 2021-07-25  Hematocrit 0.510330833
## 8   XLquXLGSRi 2020-05-22 Cholesterol 0.568893068
## 9   argAUZmnvn 2021-11-28         CRP 0.692478949
## 10  zRlHFeTD3y 2020-10-04   Platelets 0.113104761
## 11  9L2XCccHyS 2021-11-20     Glucose 0.574832540
## 12  zbFUKiRnqH 2020-09-21 Lymphocytes 0.823637569
## 13  dTTfpgOYcA 2021-10-07  Hematocrit 0.870366165
## 14  kKxSSHlZXd 2020-08-31 Cholesterol 0.649610762
## 15  8NReDzROyU 2021-01-12         CRP 0.148109071
## 16  XjRrih0zHr 2020-01-10   Platelets 0.192479396
## 17  d5YupdnG8g 2021-05-07     Glucose 0.450984468
## 18  RPKFkP3mF7 2020-12-18 Lymphocytes 0.829561262
## 19  9RJXcM3JN2 2020-06-02  Hematocrit 0.576192793
## 20  xH3pHj8yGl 2021-08-25 Cholesterol 0.757487138
## 21  sT8IH3ZooD 2020-09-15         CRP 0.873480387
## 22  I9ioR5P3Fm 2021-01-08   Platelets 0.718018574
## 23  zEn8gO76bg 2021-03-30     Glucose 0.627878840
## 24  C2DRgzRqj7 2021-01-15 Lymphocytes 0.771622997
## 25  RLIZJgcVd8 2021-02-16  Hematocrit 0.814143439
## 26  d1KObvMArw 2020-06-23 Cholesterol 0.318192038
## 27  XjRrih0zHr 2020-11-06         CRP 0.108447898
## 28  6GhDk8AVNM 2021-05-27   Platelets 0.620728622
## 29  nDyA0tpdsa 2021-10-16     Glucose 0.300562091
## 30  PsoF9yzccf 2020-08-21 Lymphocytes 0.136893641
## 31  ZVLZlCpyfh 2020-12-10  Hematocrit 0.440410523
## 32  5eklKVY8eb 2021-04-13 Cholesterol 0.575704554
## 33  S65F25Nb7v 2021-07-08         CRP 0.325456802
## 34  krAuOxufmO 2020-12-25   Platelets 0.718835175
## 35  qapZgo14KS 2021-06-02     Glucose 0.238981723
## 36  sdfifHRB6T 2021-03-18 Lymphocytes 0.993059576
## 37  qBAgaxacbM 2020-06-22  Hematocrit 0.084000538
## 38  T3W1ZMT5J1 2020-09-24 Cholesterol 0.305750701
## 39  U5z4u340s9 2020-05-18         CRP 0.898445460
## 40  wExoR3npUK 2021-08-24   Platelets 0.095137071
## 41  q6danf6ZhC 2021-09-03     Glucose 0.621170023
## 42  4Zz1llngXL 2021-12-01 Lymphocytes 0.090882407
## 43  VVxY2ojz0G 2020-07-11  Hematocrit 0.895942808
## 44  RLIZJgcVd8 2020-10-20 Cholesterol 0.858342817
## 45  OGY8WsxqAd 2021-01-16         CRP 0.962069004
## 46  xxah5hoZVX 2020-05-19   Platelets 0.202420654
## 47  WpXIJg30L2 2021-04-05     Glucose 0.921659399
## 48  XLquXLGSRi 2021-10-01 Lymphocytes 0.719347612
## 49  YhxGHvKVSR 2020-08-14  Hematocrit 0.215445751
## 50  Cwy6w4MuKf 2021-09-28 Cholesterol 0.441443078
```

```
## 51  RUJwtKyHR6 2020-03-23         CRP 0.617166514
## 52  5TLquRFvBi 2021-01-09   Platelets 0.938551971
## 53  AQXGYHxdC0 2021-07-04     Glucose 0.897141899
## 54  PBg8B1Rhsi 2021-10-24 Lymphocytes 0.029912528
## 55  a5oybzT4hg 2021-10-20  Hematocrit 0.028277991
## 56  4WtxRYlnFr 2020-01-04 Cholesterol 0.152705176
## 57  ug7L5EgQ8i 2020-09-07         CRP 0.479228812
## 58  ATxZLWCuMl 2021-12-27   Platelets 0.846275419
## 59  I4zTRqpHco 2021-03-11     Glucose 0.531514242
## 60  3NQYqtSjUW 2021-11-16 Lymphocytes 0.680726675
## 61  SzCWauSPpe 2020-07-21  Hematocrit 0.701263714
## 62  x09FN6h0qT 2020-06-09 Cholesterol 0.362863051
## 63  cePCOQrw8s 2021-01-06         CRP 0.626984159
## 64  aCmgyoBDAU 2020-03-24   Platelets 0.789064142
## 65  uQKbY0aHUh 2021-01-21     Glucose 0.479833235
## 66  wfzftPR62C 2021-08-22 Lymphocytes 0.132995063
## 67  XLquXLGSRi 2020-07-20  Hematocrit 0.761114392
## 68  G5zjyy1NHl 2021-11-17 Cholesterol 0.612386186
## 69  zDfCEn0BQv 2021-09-26         CRP 0.099892192
## 70  gvQFBONZVL 2020-06-28   Platelets 0.965576809
## 71  7TZZyY0yMi 2020-01-21     Glucose 0.812468491
## 72  pNzvrqNfXv 2020-03-30 Lymphocytes 0.031166162
## 73  SHVAA5chqV 2021-02-07  Hematocrit 0.030112407
## 74  8NReDzROyU 2021-03-26 Cholesterol 0.600814934
## 75  d1KObvMArw 2021-12-15         CRP 0.644195586
## 76  UtfCc9UaEM 2021-10-17   Platelets 0.750430661
## 77  4Zz1llngXL 2021-01-26     Glucose 0.904825663
## 78  CUkgYtax4B 2020-04-20 Lymphocytes 0.363570148
## 79  w1d5gKl9AF 2021-07-01  Hematocrit 0.822260577
## 80  isLH4ZYjDV 2021-06-07 Cholesterol 0.421803570
## 81  ePV7YZsSGh 2021-01-03         CRP 0.357227643
## 82  5u0Xu0Tdc0 2020-01-09   Platelets 0.966201182
## 83  EtsodwhqNO 2020-02-21     Glucose 0.528181252
## 84  FG7WUotlDJ 2021-12-25 Lymphocytes 0.151397730
## 85  owdrTVqd26 2020-11-29  Hematocrit 0.233605907
## 86  lgwsTbQ9bX 2020-03-28 Cholesterol 0.620076907
## 87  nY6IQYyUNJ 2021-07-21         CRP 0.264638053
## 88  W07O9mDWf5 2020-10-22   Platelets 0.310774162
## 89  ENTDqRsfvq 2021-06-23     Glucose 0.732591485
## 90  axPHpa6Utq 2020-12-02 Lymphocytes 0.473360851
## 91  lflTgnORgy 2021-09-08  Hematocrit 0.811115817
## 92  LHlSeS6iJe 2021-10-09 Cholesterol 0.781288730
## 93  iwp8UUS8du 2021-05-10         CRP 0.634983127
## 94  7VN31dBvdO 2020-10-09   Platelets 0.435099457
## 95  2nb07U2Jjq 2021-05-26     Glucose 0.783531719
## 96  fzGmCWwgYZ 2020-04-29 Lymphocytes 0.975844932
## 97  PlSf6mx953 2020-08-24  Hematocrit 0.046336527
## 98  v9PAyt2zS6 2020-11-13 Cholesterol 0.752758495
## 99  sdezrCNI9N 2021-02-26         CRP 0.892928984
## 100 jcZ9OrMPOD 2021-08-27   Platelets 0.968659601
## 101 Cwy6w4MuKf 2021-12-28     Glucose 0.857854674
## 102 cCnBeL4FBu 2020-11-10 Lymphocytes 0.608395800
## 103 f9AMZUlNJL 2021-08-23  Hematocrit 0.147128591
## 104 ar1fphuqKw 2020-07-25 Cholesterol 0.635739189
```

```
## 105 ds8kizHdyF 2021-10-19         CRP 0.365337409
## 106 7TZZyY0yMi 2020-11-26   Platelets 0.486013396
## 107 W9IYIAle7a 2020-01-23     Glucose 0.450646945
## 108 4AAZ92PAwu 2020-05-26 Lymphocytes 0.156555813
## 109 mcVVfHOKEn 2020-03-01  Hematocrit 0.832616475
## 110 76nhLlQkv2 2021-08-13 Cholesterol 0.288940493
## 111 ekDtKmOTAg 2021-05-03         CRP 0.764288299
## 112 LBRVzQu5w9 2021-02-12   Platelets 0.959480939
## 113 KL9bwQLGY3 2021-08-30     Glucose 0.077097642
## 114 2llPclNASV 2021-07-15 Lymphocytes 0.052558219
## 115 KfxOQl5OT8 2020-07-22  Hematocrit 0.137665821
## 116 RLIZJgcVd8 2020-07-12 Cholesterol 0.529833617
## 117 gJ2ERPGGQc 2020-12-29         CRP 0.062546792
## 118 EtsodwhqNO 2021-03-31   Platelets 0.181656698
## 119 hPe6cM9zyo 2020-07-24     Glucose 0.357135660
## 120 oa74Ed90gm 2021-01-29 Lymphocytes 0.038691438
## 121 cCnBeL4FBu 2020-02-02  Hematocrit 0.686931974
## 122 Xl5d5UcCYD 2020-06-17 Cholesterol 0.602943822
## 123 oa74Ed90gm 2020-11-15         CRP 0.098238929
## 124 rPjBoa86kB 2021-07-16   Platelets 0.942216641
## 125 uD0NxQpQ5F 2020-06-05     Glucose 0.366070434
## 126 3pZ2TqnNyn 2021-06-22 Lymphocytes 0.770144808
## 127 vlb0gzZhmX 2020-03-12  Hematocrit 0.050639349
## 128 XLquXLGSRi 2020-08-25 Cholesterol 0.244553301
## 129 argAUZmnvn 2021-10-10         CRP 0.854903802
## 130 zRlHFeTD3y 2021-12-07   Platelets 0.873795579
## 131 9L2XCccHyS 2020-02-15     Glucose 0.094763305
## 132 zbFUKiRnqH 2020-07-27 Lymphocytes 0.756063293
## 133 dTTfpgOYcA 2021-01-04  Hematocrit 0.903058653
## 134 kKxSSHlZXd 2021-09-02 Cholesterol 0.664999282
## 135 8NReDzROyU 2020-08-26         CRP 0.307657089
## 136 XjRrih0zHr 2020-03-29   Platelets 0.148782962
## 137 d5YupdnG8g 2020-01-05     Glucose 0.214266529
## 138 RPKFkP3mF7 2021-03-23 Lymphocytes 0.655878888
## 139 9RJXcM3JN2 2020-05-09  Hematocrit 0.012304043
## 140 xH3pHj8yGl 2021-03-10 Cholesterol 0.099392833
## 141 sT8IH3ZooD 2020-04-26         CRP 0.130032565
## 142 I9ioR5P3Fm 2021-02-17   Platelets 0.398000024
## 143 zEn8gO76bg 2021-12-05     Glucose 0.120947054
## 144 C2DRgzRqj7 2021-04-10 Lymphocytes 0.126596136
## 145 RLIZJgcVd8 2020-03-18  Hematocrit 0.421721060
## 146 d1KObvMArw 2020-10-28 Cholesterol 0.626856897
## 147 XjRrih0zHr 2021-01-30         CRP 0.872599531
## 148 6GhDk8AVNM 2021-01-14   Platelets 0.115902185
## 149 nDyA0tpdsa 2020-07-04     Glucose 0.094489854
## 150 PsoF9yzccf 2021-06-28 Lymphocytes 0.988530209
## 151 ZVLZlCpyfh 2021-10-21  Hematocrit 0.133064122
## 152 5eklKVY8eb 2020-08-20 Cholesterol 0.969697058
## 153 S65F25Nb7v 2020-11-11         CRP 0.281811720
## 154 krAuOxufmO 2021-08-17   Platelets 0.224548736
## 155 qapZgo14KS 2021-09-17     Glucose 0.727053490
## 156 sdfifHRB6T 2021-10-14 Lymphocytes 0.633006003
## 157 qBAgaxacbM 2020-11-02  Hematocrit 0.378760998
## 158 T3W1ZMT5J1 2020-09-13 Cholesterol 0.085396940
```

```
## 159 U5z4u340s9 2021-08-31         CRP 0.303374225
## 160 wExoR3npUK 2020-08-23   Platelets 0.686363504
## 161 q6danf6ZhC 2020-04-07     Glucose 0.681221531
## 162 4Zz1llngXL 2021-11-01 Lymphocytes 0.427018608
## 163 VVxY2ojz0G 2020-06-14  Hematocrit 0.044457463
## 164 RLIZJgcVd8 2021-05-16 Cholesterol 0.239269632
## 165 OGY8WsxqAd 2021-07-17         CRP 0.366310248
## 166 xxah5hoZVX 2020-04-30   Platelets 0.519439106
## 167 WpXIJg30L2 2020-06-30     Glucose 0.291882424
## 168 XLquXLGSRi 2021-03-12 Lymphocytes 0.119705818
## 169 YhxGHvKVSR 2020-12-16  Hematocrit 0.738520296
## 170 Cwy6w4MuKf 2020-11-23 Cholesterol 0.210611552
## 171 RUJwtKyHR6 2021-05-18         CRP 0.438978773
## 172 5TLquRFvBi 2021-10-04   Platelets 0.892071775
## 173 AQXGYHxdC0 2020-11-03     Glucose 0.715107390
## 174 PBg8B1Rhsi 2020-10-06 Lymphocytes 0.373934668
## 175 a5oybzT4hg 2020-06-24  Hematocrit 0.789523862
## 176 4WtxRYlnFr 2021-03-14 Cholesterol 0.634103127
## 177 ug7L5EgQ8i 2021-09-10         CRP 0.914455302
## 178 ATxZLWCuMl 2021-10-27   Platelets 0.791805379
## 179 I4zTRqpHco 2020-10-01     Glucose 0.019151961
## 180 3NQYqtSjUW 2021-01-07 Lymphocytes 0.444897096
## 181 SzCWauSPpe 2020-10-24  Hematocrit 0.962484237
## 182 x09FN6h0qT 2020-04-15 Cholesterol 0.393372213
## 183 cePCOQrw8s 2020-04-19         CRP 0.338422134
## 184 aCmgyoBDAU 2020-05-28   Platelets 0.975513554
## 185 uQKbY0aHUh 2020-02-09     Glucose 0.059090007
## 186 wfzftPR62C 2020-09-14 Lymphocytes 0.950302884
## 187 XLquXLGSRi 2021-05-15  Hematocrit 0.222258664
## 188 G5zjyy1NHl 2021-05-29 Cholesterol 0.695711619
## 189 zDfCEn0BQv 2020-04-08         CRP 0.796360935
## 190 gvQFBONZVL 2020-08-16   Platelets 0.925823741
## 191 7TZZyY0yMi 2020-10-30     Glucose 0.425645039
## 192 pNzvrqNfXv 2021-11-26 Lymphocytes 0.330011227
## 193 SHVAA5chqV 2020-03-03  Hematocrit 0.226864406
## 194 8NReDzROyU 2021-06-10 Cholesterol 0.551282833
## 195 d1KObvMArw 2021-04-06         CRP 0.892592130
## 196 UtfCc9UaEM 2021-05-30   Platelets 0.030224378
## 197 4Zz1llngXL 2020-12-14     Glucose 0.870744020
## 198 CUkgYtax4B 2020-01-12 Lymphocytes 0.475415291
## 199 w1d5gKl9AF 2020-10-18  Hematocrit 0.942530180
## 200 isLH4ZYjDV 2020-01-17 Cholesterol 0.774774771
## 201 ePV7YZsSGh 2021-12-08         CRP 0.653328328
## 202 5u0Xu0Tdc0 2020-05-20   Platelets 0.756138862
## 203 EtsodwhqNO 2021-08-26     Glucose 0.114096778
## 204 FG7WUotlDJ 2020-02-13 Lymphocytes 0.033038687
## 205 owdrTVqd26 2020-04-01  Hematocrit 0.989403706
## 206 lgwsTbQ9bX 2021-08-07 Cholesterol 0.998552155
## 207 nY6IQYyUNJ 2021-07-06         CRP 0.948136381
## 208 W07O9mDWf5 2020-01-29   Platelets 0.092984530
## 209 ENTDqRsfvq 2020-08-04     Glucose 0.997730708
## 210 axPHpa6Utq 2020-11-30 Lymphocytes 0.457218633
## 211 lflTgnORgy 2021-05-09  Hematocrit 0.277786447
## 212 LHlSeS6iJe 2021-09-16 Cholesterol 0.261845701
```

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## 213 iwp8UUS8du 2021-04-18         CRP 0.970435903
## 214 7VN31dBvdO 2021-05-14   Platelets 0.696485100
## 215 2nb07U2Jjq 2020-04-25     Glucose 0.598574924
## 216 fzGmCWwgYZ 2020-11-12 Lymphocytes 0.791088210
## 217 PlSf6mx953 2021-06-05  Hematocrit 0.044174696
## 218 v9PAyt2zS6 2020-10-17 Cholesterol 0.748275055
## 219 sdezrCNI9N 2020-09-25         CRP 0.713220872
## 220 jcZ9OrMPOD 2021-04-09   Platelets 0.441291028
## 221 Cwy6w4MuKf 2020-11-18     Glucose 0.774626835
## 222 cCnBeL4FBu 2020-04-22 Lymphocytes 0.783023270
## 223 f9AMZUlNJL 2021-11-22  Hematocrit 0.343345638
## 224 ar1fphuqKw 2021-01-01 Cholesterol 0.875215858
## 225 ds8kizHdyF 2020-02-28         CRP 0.591384577
## 226 7TZZyY0yMi 2020-06-16   Platelets 0.824821159
## 227 W9IYIAle7a 2020-03-16     Glucose 0.265307293
## 228 4AAZ92PAwu 2020-07-02 Lymphocytes 0.543500476
## 229 mcVVfHOKEn 2020-09-05  Hematocrit 0.069244299
## 230 76nhLlQkv2 2020-10-11 Cholesterol 0.484883758
## 231 ekDtKmOTAg 2020-03-02         CRP 0.316861829
## 232 LBRVzQu5w9 2020-09-01   Platelets 0.350093617
## 233 KL9bwQLGY3 2020-05-14     Glucose 0.275099959
## 234 2llPclNASV 2020-03-07 Lymphocytes 0.708251950
## 235 KfxOQl5OT8 2020-05-12  Hematocrit 0.991679991
## 236 RLIZJgcVd8 2021-06-04 Cholesterol 0.236016750
## 237 gJ2ERPGGQc 2021-11-30         CRP 0.194514430
## 238 EtsodwhqNO 2020-11-19   Platelets 0.060967827
## 239 hPe6cM9zyo 2021-03-20     Glucose 0.090721783
## 240 oa74Ed90gm 2020-11-22 Lymphocytes 0.482355095
## 241 cCnBeL4FBu 2021-04-21  Hematocrit 0.975466004
## 242 Xl5d5UcCYD 2021-11-12 Cholesterol 0.482542444
## 243 oa74Ed90gm 2021-08-12         CRP 0.628275203
## 244 rPjBoa86kB 2021-04-11   Platelets 0.971943749
## 245 uD0NxQpQ5F 2020-09-12     Glucose 0.902964072
## 246 3pZ2TqnNyn 2020-07-16 Lymphocytes 0.843968912
## 247 vlb0gzZhmX 2021-06-01  Hematocrit 0.286343969
## 248 XLquXLGSRi 2020-03-04 Cholesterol 0.433966105
## 249 argAUZmnvn 2020-01-25         CRP 0.868127759
## 250 zRlHFeTD3y 2021-12-29   Platelets 0.948695913
## 251 9L2XCccHyS 2021-02-08     Glucose 0.015773882
## 252 zbFUKiRnqH 2021-02-04 Lymphocytes 0.907036672
## 253 dTTfpgOYcA 2020-05-11  Hematocrit 0.304994373
## 254 kKxSSHlZXd 2020-12-22 Cholesterol 0.201828417
## 255 8NReDzROyU 2020-02-22         CRP 0.388524927
## 256 XjRrih0zHr 2021-12-12   Platelets 0.365280244
## 257 d5YupdnG8g 2021-09-09     Glucose 0.509070439
## 258 RPKFkP3mF7 2020-08-02 Lymphocytes 0.254476132
## 259 9RJXcM3JN2 2020-05-17  Hematocrit 0.993852828
## 260 xH3pHj8yGl 2021-01-31 Cholesterol 0.039904815
## 261 sT8IH3ZooD 2020-07-01         CRP 0.481617356
## 262 I9ioR5P3Fm 2021-07-11   Platelets 0.402129882
## 263 zEn8gO76bg 2020-07-10     Glucose 0.508754178
## 264 C2DRgzRqj7 2020-12-24 Lymphocytes 0.282835062
## 265 RLIZJgcVd8 2021-10-31  Hematocrit 0.674403101
## 266 d1KObvMArw 2021-03-06 Cholesterol 0.910374189
```

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## 267 XjRrih0zHr 2020-08-10         CRP 0.517385889
## 268 6GhDk8AVNM 2021-04-29   Platelets 0.138856819
## 269 nDyA0tpdsa 2020-06-04     Glucose 0.025344846
## 270 PsoF9yzccf 2020-06-07 Lymphocytes 0.318160261
## 271 ZVLZlCpyfh 2020-07-26  Hematocrit 0.447170625
## 272 5eklKVY8eb 2020-01-02 Cholesterol 0.288765354
## 273 S65F25Nb7v 2020-07-29         CRP 0.112457871
## 274 krAuOxufmO 2021-06-24   Platelets 0.570870237
## 275 qapZgo14KS 2021-01-13     Glucose 0.686386991
## 276 sdfifHRB6T 2020-02-06 Lymphocytes 0.895208716
## 277 qBAgaxacbM 2021-03-27  Hematocrit 0.652859360
## 278 T3W1ZMT5J1 2021-03-13 Cholesterol 0.029359938
## 279 U5z4u340s9 2021-02-28         CRP 0.502200558
## 280 wExoR3npUK 2020-09-16   Platelets 0.402596772
## 281 q6danf6ZhC 2020-02-24     Glucose 0.293647772
## 282 4Zz1llngXL 2020-05-24 Lymphocytes 0.026592472
## 283 VVxY2ojz0G 2021-12-09  Hematocrit 0.477393371
## 284 RLIZJgcVd8 2020-04-18 Cholesterol 0.048481721
## 285 OGY8WsxqAd 2020-10-31         CRP 0.937607403
## 286 xxah5hoZVX 2021-09-23   Platelets 0.841855912
## 287 WpXIJg30L2 2021-07-29     Glucose 0.761004933
## 288 XLquXLGSRi 2020-01-13 Lymphocytes 0.495809025
## 289 YhxGHvKVSR 2021-01-27  Hematocrit 0.703669062
## 290 Cwy6w4MuKf 2021-07-09 Cholesterol 0.588481505
## 291 RUJwtKyHR6 2020-08-19         CRP 0.206111051
## 292 5TLquRFvBi 2020-01-30   Platelets 0.607862256
## 293 AQXGYHxdC0 2021-07-22     Glucose 0.053659386
## 294 PBg8B1Rhsi 2021-11-03 Lymphocytes 0.783587211
## 295 a5oybzT4hg 2020-03-17  Hematocrit 0.824875642
## 296 4WtxRYlnFr 2021-02-10 Cholesterol 0.671935383
## 297 ug7L5EgQ8i 2020-04-28         CRP 0.023538585
## 298 ATxZLWCuMl 2021-02-11   Platelets 0.030551919
## 299 I4zTRqpHco 2021-11-15     Glucose 0.039934440
## 300 3NQYqtSjUW 2021-02-09 Lymphocytes 0.092617046
## 301 SzCWauSPpe 2020-02-05  Hematocrit 0.484836475
## 302 x09FN6h0qT 2021-09-01 Cholesterol 0.428614217
## 303 cePCOQrw8s 2020-05-27         CRP 0.105722725
## 304 aCmgyoBDAU 2020-07-19   Platelets 0.993461577
## 305 uQKbY0aHUh 2021-10-06     Glucose 0.379667510
## 306 wfzftPR62C 2020-11-24 Lymphocytes 0.139718267
## 307 XLquXLGSRi 2021-02-25  Hematocrit 0.028405759
## 308 G5zjyy1NHl 2021-06-30 Cholesterol 0.465668522
## 309 zDfCEn0BQv 2021-09-07         CRP 0.207106964
## 310 gvQFBONZVL 2020-05-07   Platelets 0.939238462
## 311 7TZZyY0yMi 2021-04-14     Glucose 0.217461790
## 312 pNzvrqNfXv 2021-07-13 Lymphocytes 0.116740586
## 313 SHVAA5chqV 2021-05-01  Hematocrit 0.170985928
## 314 8NReDzROyU 2021-12-18 Cholesterol 0.924584697
## 315 d1KObvMArw 2021-07-19         CRP 0.375524573
## 316 UtfCc9UaEM 2020-08-03   Platelets 0.524008249
## 317 4Zz1llngXL 2021-03-22     Glucose 0.760842006
## 318 CUkgYtax4B 2021-07-20 Lymphocytes 0.416310863
## 319 w1d5gKl9AF 2021-01-20  Hematocrit 0.654121900
## 320 isLH4ZYjDV 2020-01-03 Cholesterol 0.032613600
```

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## 321 ePV7YZsSGh 2021-10-08         CRP 0.145878215
## 322 5u0Xu0Tdc0 2020-03-25   Platelets 0.159323776
## 323 EtsodwhqNO 2021-09-06     Glucose 0.531180403
## 324 FG7WUotlDJ 2021-08-08 Lymphocytes 0.246446484
## 325 owdrTVqd26 2021-12-14  Hematocrit 0.034972254
## 326 lgwsTbQ9bX 2021-09-22 Cholesterol 0.837464208
## 327 nY6IQYyUNJ 2020-03-11         CRP 0.836278183
## 328 W07O9mDWf5 2021-08-20   Platelets 0.904076249
## 329 ENTDqRsfvq 2021-11-04     Glucose 0.719801305
## 330 axPHpa6Utq 2021-11-14 Lymphocytes 0.020531628
## 331 lflTgnORgy 2021-12-23  Hematocrit 0.545684809
## 332 LHlSeS6iJe 2021-03-21 Cholesterol 0.923094574
## 333 iwp8UUS8du 2020-01-01         CRP 0.910676280
## 334 7VN31dBvdO 2020-05-21   Platelets 0.812254730
## 335 2nb07U2Jjq 2021-05-06     Glucose 0.392085551
## 336 fzGmCWwgYZ 2020-02-07 Lymphocytes 0.957501827
## 337 PlSf6mx953 2021-04-22  Hematocrit 0.539361370
## 338 v9PAyt2zS6 2020-08-28 Cholesterol 0.625978482
## 339 sdezrCNI9N 2020-08-29         CRP 0.521605546
## 340 jcZ9OrMPOD 2020-02-16   Platelets 0.568816615
## 341 Cwy6w4MuKf 2020-10-07     Glucose 0.991451986
## 342 cCnBeL4FBu 2020-07-30 Lymphocytes 0.788577995
## 343 f9AMZUlNJL 2021-03-17  Hematocrit 0.790077747
## 344 ar1fphuqKw 2020-06-01 Cholesterol 0.129328140
## 345 ds8kizHdyF 2020-02-23         CRP 0.922645039
## 346 7TZZyY0yMi 2020-05-13   Platelets 0.606605969
## 347 W9IYIAle7a 2021-08-18     Glucose 0.286120473
## 348 4AAZ92PAwu 2021-08-19 Lymphocytes 0.469338000
## 349 mcVVfHOKEn 2021-10-11  Hematocrit 0.288861509
## 350 76nhLlQkv2 2021-11-24 Cholesterol 0.661822313
## 351 ekDtKmOTAg 2020-09-23         CRP 0.919397313
## 352 LBRVzQu5w9 2021-06-21   Platelets 0.513658516
## 353 KL9bwQLGY3 2020-04-03     Glucose 0.014517345
## 354 2llPclNASV 2021-07-28 Lymphocytes 0.119867011
## 355 KfxOQl5OT8 2022-01-01  Hematocrit 0.816642944
## 356 RLIZJgcVd8 2020-12-13 Cholesterol 0.983532345
## 357 gJ2ERPGGQc 2021-10-02         CRP 0.366361852
## 358 EtsodwhqNO 2021-09-30   Platelets 0.912379829
## 359 hPe6cM9zyo 2020-06-25     Glucose 0.100849919
## 360 oa74Ed90gm 2020-03-26 Lymphocytes 0.644391948
## 361 cCnBeL4FBu 2021-02-05  Hematocrit 0.638959525
## 362 Xl5d5UcCYD 2021-11-09 Cholesterol 0.416689709
## 363 oa74Ed90gm 2021-11-07         CRP 0.001068190
## 364 rPjBoa86kB 2020-06-13   Platelets 0.534811510
## 365 uD0NxQpQ5F 2021-04-02     Glucose 0.452890812
## 366 3pZ2TqnNyn 2021-04-12 Lymphocytes 0.237182715
## 367 vlb0gzZhmX 2021-11-18  Hematocrit 0.242538659
## 368 XLquXLGSRi 2021-08-05 Cholesterol 0.253670813
## 369 argAUZmnvn 2020-01-08         CRP 0.366200881
## 370 zRlHFeTD3y 2021-07-12   Platelets 0.834109578
## 371 9L2XCccHyS 2021-10-13     Glucose 0.468687983
## 372 zbFUKiRnqH 2021-04-07 Lymphocytes 0.375831117
## 373 dTTfpgOYcA 2021-12-04  Hematocrit 0.048611448
## 374 kKxSSHlZXd 2021-10-03 Cholesterol 0.947564462
```

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## 375 8NReDzROyU 2021-10-18         CRP 0.004070355
## 376 XjRrih0zHr 2020-09-02   Platelets 0.182214915
## 377 d5YupdnG8g 2021-07-24     Glucose 0.831202549
## 378 RPKFkP3mF7 2020-07-07 Lymphocytes 0.852996543
## 379 9RJXcM3JN2 2020-07-17  Hematocrit 0.399677010
## 380 xH3pHj8yGl 2020-10-10 Cholesterol 0.207483406
## 381 sT8IH3ZooD 2021-11-23         CRP 0.448578177
## 382 I9ioR5P3Fm 2021-11-11   Platelets 0.938789801
## 383 zEn8gO76bg 2021-09-27     Glucose 0.370977896
## 384 C2DRgzRqj7 2020-01-19 Lymphocytes 0.128409982
## 385 RLIZJgcVd8 2021-09-24  Hematocrit 0.171605104
## 386 d1KObvMArw 2021-07-27 Cholesterol 0.887806539
## 387 XjRrih0zHr 2021-04-27         CRP 0.342692643
## 388 6GhDk8AVNM 2020-02-08   Platelets 0.561392690
## 389 nDyA0tpdsa 2021-03-05     Glucose 0.668397279
## 390 PsoF9yzccf 2020-07-05 Lymphocytes 0.342146704
## 391 ZVLZlCpyfh 2020-01-14  Hematocrit 0.695522991
## 392 5eklKVY8eb 2021-08-04 Cholesterol 0.644684430
## 393 S65F25Nb7v 2020-11-04         CRP 0.909940208
## 394 krAuOxufmO 2021-03-16   Platelets 0.723611807
## 395 qapZgo14KS 2020-06-26     Glucose 0.366637670
## 396 sdfifHRB6T 2021-06-26 Lymphocytes 0.011438892
## 397 qBAgaxacbM 2021-09-18  Hematocrit 0.646561362
## 398 T3W1ZMT5J1 2021-01-11 Cholesterol 0.410748043
## 399 U5z4u340s9 2021-05-12         CRP 0.965352895
## 400 wExoR3npUK 2021-02-22   Platelets 0.440601028
## 401 q6danf6ZhC 2021-03-08     Glucose 0.361179671
## 402 4Zz1llngXL 2021-09-05 Lymphocytes 0.076474124
## 403 VVxY2ojz0G 2020-12-05  Hematocrit 0.417900812
## 404 RLIZJgcVd8 2020-08-17 Cholesterol 0.963793466
## 405 OGY8WsxqAd 2020-08-18         CRP 0.478632116
## 406 xxah5hoZVX 2020-04-10   Platelets 0.982779108
## 407 WpXIJg30L2 2021-09-15     Glucose 0.623541027
## 408 XLquXLGSRi 2021-03-04 Lymphocytes 0.889432429
## 409 YhxGHvKVSR 2021-08-11  Hematocrit 0.575009966
## 410 Cwy6w4MuKf 2020-04-14 Cholesterol 0.246886212
## 411 RUJwtKyHR6 2020-07-28         CRP 0.256930286
## 412 5TLquRFvBi 2020-06-11   Platelets 0.651522061
## 413 AQXGYHxdC0 2021-05-05     Glucose 0.713944716
## 414 PBg8B1Rhsi 2021-08-29 Lymphocytes 0.354325091
## 415 a5oybzT4hg 2020-04-17  Hematocrit 0.264898025
## 416 4WtxRYlnFr 2020-06-03 Cholesterol 0.832662979
## 417 ug7L5EgQ8i 2021-01-23         CRP 0.659306824
## 418 ATxZLWCuMl 2021-05-22   Platelets 0.970891166
## 419 I4zTRqpHco 2020-01-28     Glucose 0.347731325
## 420 3NQYqtSjUW 2020-11-08 Lymphocytes 0.751714065
## 421 SzCWauSPpe 2020-12-19  Hematocrit 0.271920412
## 422 x09FN6h0qT 2021-11-19 Cholesterol 0.960174780
## 423 cePCOQrw8s 2021-04-15         CRP 0.213242923
## 424 aCmgyoBDAU 2020-01-31   Platelets 0.067254578
## 425 uQKbY0aHUh 2021-10-15     Glucose 0.912686107
## 426 wfzftPR62C 2020-12-27 Lymphocytes 0.313810426
## 427 XLquXLGSRi 2021-01-24  Hematocrit 0.504668652
## 428 G5zjyy1NHl 2020-09-19 Cholesterol 0.536442946
```

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## 429 zDfCEn0BQv 2021-01-19         CRP 0.263008715
## 430 gvQFBONZVL 2021-08-10   Platelets 0.130408852
## 431 7TZZyY0yMi 2020-06-15     Glucose 0.027207057
## 432 pNzvrqNfXv 2020-11-07 Lymphocytes 0.095307493
## 433 SHVAA5chqV 2021-04-23  Hematocrit 0.135216279
## 434 8NReDzROyU 2021-02-01 Cholesterol 0.475492881
## 435 d1KObvMArw 2020-12-08         CRP 0.058702733
## 436 UtfCc9UaEM 2021-06-20   Platelets 0.432504629
## 437 4Zz1llngXL 2021-05-04     Glucose 0.672291603
## 438 CUkgYtax4B 2021-02-18 Lymphocytes 0.010129479
## 439 w1d5gKl9AF 2020-06-29  Hematocrit 0.099221234
## 440 isLH4ZYjDV 2020-06-06 Cholesterol 0.400258140
## 441 ePV7YZsSGh 2020-01-26         CRP 0.324779462
## 442 5u0Xu0Tdc0 2021-04-19   Platelets 0.365273270
## 443 EtsodwhqNO 2021-01-22     Glucose 0.714730029
## 444 FG7WUotlDJ 2020-12-04 Lymphocytes 0.324142011
## 445 owdrTVqd26 2020-02-27  Hematocrit 0.255017334
## 446 lgwsTbQ9bX 2020-03-09 Cholesterol 0.783335667
## 447 nY6IQYyUNJ 2020-02-25         CRP 0.564372356
## 448 W07O9mDWf5 2020-10-27   Platelets 0.350601507
## 449 ENTDqRsfvq 2020-05-05     Glucose 0.357675146
## 450 axPHpa6Utq 2021-02-06 Lymphocytes 0.216537481
## 451 lflTgnORgy 2020-09-08  Hematocrit 0.910755286
## 452 LHlSeS6iJe 2020-12-17 Cholesterol 0.356177934
## 453 iwp8UUS8du 2021-12-20         CRP 0.445961018
## 454 7VN31dBvdO 2021-04-26   Platelets 0.196650845
## 455 2nb07U2Jjq 2021-06-17     Glucose 0.940817768
## 456 fzGmCWwgYZ 2020-03-22 Lymphocytes 0.998475784
## 457 PlSf6mx953 2020-02-19  Hematocrit 0.986426559
## 458 v9PAyt2zS6 2021-04-25 Cholesterol 0.053770982
## 459 sdezrCNI9N 2020-01-15         CRP 0.192906642
## 460 jcZ9OrMP0D 2020-02-10   Platelets 0.225101442
## 461 Cwy6w4MuKf 2020-04-21     Glucose 0.657069384
## 462 cCnBeL4FBu 2021-02-19 Lymphocytes 0.718248196
## 463 f9AMZUlNJL 2020-12-23  Hematocrit 0.036414707
## 464 ar1fphuqKw 2020-06-18 Cholesterol 0.630811864
## 465 ds8kizHdyF 2021-12-11         CRP 0.569927769
## 466 7TZZyY0yMi 2021-06-15   Platelets 0.373291326
## 467 W9IYIAle7a 2020-09-28     Glucose 0.102620619
## 468 4AAZ92PAwu 2020-12-01 Lymphocytes 0.722377218
## 469 mcVVfHOKEn 2020-05-04  Hematocrit 0.947368746
## 470 76nhLlQkv2 2021-12-30 Cholesterol 0.562077869
## 471 ekDtKmOTAg 2020-08-13         CRP 0.467195074
## 472 LBRVzQu5w9 2021-12-06   Platelets 0.469883380
## 473 KL9bwQLGY3 2021-09-19     Glucose 0.539874758
## 474 2llPclNASV 2021-10-12 Lymphocytes 0.297283307
## 475 KfxOQl50T8 2021-06-03  Hematocrit 0.430460595
## 476 RLIZJgcVd8 2021-10-05 Cholesterol 0.965002958
## 477 gJ2ERPGGQc 2020-03-31         CRP 0.966996107
## 478 EtsodwhqNO 2021-07-02   Platelets 0.480264119
## 479 hPe6cM9zyo 2021-05-19     Glucose 0.253232165
## 480 oa74Ed90gm 2021-06-06 Lymphocytes 0.727352751
```

```
synthetic_data[synthetic_data$patient_id %in% repeated_patients_syntetic_data$Var1[repeated_patients_sy
```

```
##     patient_id age    sex     race weight_kg height_cm       bmi
## 1   PlSf6mx953  68      M Hispanic      85.6    154.90  28.96000
## 2   sT8IH3ZooD  56      M    White     104.0    172.00  25.62000
## 3   4Zz1llngXL  24      M    White     115.0    180.30  36.99957
## 4   FlV8vFIekH  45      M    White      61.0    152.40  21.75507
## 5   XHODUqel1R  54      F    White        NA    170.00  26.01070
## 6   gvQFBONZVL  60   Male    White     190.5    177.80  42.86250
## 7   9RJXcM3JN2  23      M    White     104.8    154.90  28.75295
## 8   zsEXlQoxFm  46      M    White     120.3    182.90  37.47000
## 9   gJ2ERPGGQc  56   Male    White        NA    176.00  18.93000
## 10  5TLquRFvBi  57      M    White      48.5    173.50  32.28650
## 11  RUJwtKyHR6  53      F    White      82.6    175.30  31.00000
## 12  VVxY2ojz0G  23   Male    White     122.0    188.00  36.49000
## 13  PlSf6mx953  32 Female    White      90.4    188.00  32.49000
## 20  IcjCW6rMOW  65      M    Other      91.4    173.00  22.68000
## 21  usAagb3Ys8  38 Female    White     103.0    175.30  36.35000
## 23  U5z4u340s9  28      F    White     104.0    160.00  37.33000
## 24  GMM5IIMsks  53      M    White      87.8    180.30  44.25000
## 25  XLquXLGSRi  55 Female Hispanic        NA    170.20  28.32000
## 28  DjjRrZGNhd  48      M    Black      84.0    177.80  36.49000
## 29  bpjYMzIhem  30 Female    White      88.7    177.80  36.78670
## 30  Cwy6w4MuKf  63      M    White      60.0    159.00  32.11000
## 31  nDyA0tpdsa  71   Male    White        NA    182.90  37.68000
## 34  RLIZJgcVd8  61      F    White     139.8    165.00  39.43000
## 35  wfzftPR62C  59      F Hispanic      70.1    147.30  31.59750
## 36  U5z4u340s9  78      M    White      48.0    180.00  40.34000
## 39  fxfMuneuZ4  52   Male    White     149.2    162.60  33.96000
## 40  0shbw3gvsR  49   Male    White     155.0    177.80  37.51850
## 42  w1d5gKl9AF  72      F    White     145.0    175.30  50.58000
## 43  XjRrih0zHr  67      F    White     101.5    167.00  22.80000
## 44  LBRVzQu5w9  71      M    White     102.9    157.50  30.75000
## 46  5u0Xu0Tdc0  41   Male    White      48.5    178.00  41.26000
## 47  bpjYMzIhem  36      M    White     116.0        NA  36.99957
## 48  ds8kizHdyF  55      M    White     126.1    170.20  42.14943
## 49  1P5kPzvd9t  81      M    White     115.2    188.00  33.87235
## 50  CxsoWMlPJ7  53   Male    White      66.2    188.00  33.55795
## 52  l0dDAKKGyk  67      M    White      79.0    172.70  36.00000
## 53  nDyA0tpdsa  63      F    Other     112.0    182.90  49.78000
## 54  oa74Ed90gm  43      F    Black     100.3    180.30  21.40290
## 55  IqkI11WYK7  46 Female    White      87.8    185.00  39.03000
## 57  SHVAA5chqV  67   Male    White     103.0    173.50  37.67000
## 59  fbbgoc1RTa  60   Male    White      93.0    180.00  43.27000
## 61  eTIP4hpddm  36 Female    Black     104.0    160.00  19.20000
## 64  A85a96UqL3  55   Male    White     198.0    172.00  33.38000
## 66  pL7cjkuchS  60 Female    White     126.1    165.10  23.71094
## 69  3KSfMkioqd  81      F    White      79.8    178.00  25.86000
## 71  h0AW4YaVS6  56      F    White     161.0    182.90  43.61000
## 72  GMM5IIMsks  32      M    White      74.0    160.00  28.96000
## 74  KfxOQl50T8  49      M    White      82.5    175.00  39.49000
## 75  7kQUZ43oC8  23      F    White     104.0    182.90  35.15000
## 76  LBRVzQu5w9  40   Male    White      86.0    157.50        NA
```

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## 77  VVxY2ojz0G  43      F    White      61.2    157.50  40.05477
## 79  KfxOQl50T8  55      M    White      79.8    162.60  41.16000
## 82  IqbiKaQrSQ  55      F    White     101.0    172.70  42.97000
## 83  IwoGIkuRxW  57      M    White      60.0    161.90  43.70000
## 84  owdrTVqd26  74      M    White     149.2    188.00  29.19184
## 85  TeelI019by  46      F    White      61.9    170.20  34.22041
## 86  C2DRgzRqj7  51 Female    White     100.3        NA  29.96000
## 88  GW3gmyWKj7  40      F    White      68.4    182.30  21.53000
## 89  5TLquRFvBi  47      F    Black      71.7    172.50  42.58000
## 91  5TLquRFvBi  41      F     <NA>        NA    185.00  28.96000
## 92  e2XxEm3acg  24   <NA>    White     136.9    170.00  18.79000
## 93  I4zTRqpHco  28      M    White     141.0    165.10  56.78000
## 95  SzCWauSPpe  44      M    Black      86.5    167.60  37.20000
## 96  1P5kPzvd9t  27   Male Hispanic      90.8    185.00  24.94000
## 97  FlV8vFIekH  56      M    White     110.0    177.80  32.55764
## 98  xxah5hoZVX  46   Male    Black      96.4    177.80        NA
## 100 oa74Ed90gm  61 Female    White      79.7    177.80  25.41000
## 102 owdrTVqd26  53      M    White      95.7    162.60  53.20000
## 103 pNzvrqNfXv  62      M    White     106.0    175.30  33.44000
## 104 KL9bwQLGY3  64      M    White     127.3    162.60  15.54000
## 105 SzCWauSPpe  52      M    White     112.4    177.80  26.84000
## 106 argAUZmnvn  56      F    White     121.8    175.00  45.75000
## 107 rPjBoa86kB  56   Male    White      64.5    170.20  27.65000
## 108 RPKFkP3mF7  67      M    White     170.0    180.30  36.70000
## 109 AQXGYHxdC0  59      M    White      72.0    177.80  50.58000
## 111 RLIZJgcVd8  64      M    White      69.4    180.00  32.03000
## 112 DjjRrZGNhd  35   Male    White     155.0    185.00  36.02736
## 113 GRgi1BcRFF  78   Male    White     106.0    165.10  29.70341
## 116 ar1fphuqKw  30   Male Hispanic      79.7    177.80  27.02979
## 117 8NReDzROyU  48      M    White      97.6    171.50 347.88167
## 121 A85a96UqL3  30   Male    White     124.0    170.20  26.01000
## 122 fxfMuneuZ4  51      M    White      65.0    152.00  39.03000
## 123 q6danf6ZhC  57      F    White      91.7    170.20  21.53000
## 124 IwoGIkuRxW  31   Male    White     106.0    175.30        NA
## 126 p3uCdY5XSk  52      M    White      74.8    180.30  25.51000
## 127 I4zTRqpHco  73      F    White      76.3    180.00  35.18232
## 128 OwwryljbEQ  32      M    White     131.0    172.00  25.62000
## 129 sT8IH3ZooD  43   Male    Black      96.1    183.00  28.32000
## 134 d5YupdnG8g  39      M    White     101.0    167.60  27.60000
## 135 CUkgYtax4B  59 Female    White      84.0    177.80  43.51834
## 136 d5YupdnG8g  54      M    White      74.0    157.50  49.78000
## 137 TqQ4YnODN5  23   Male    Black      85.7    188.00  28.52043
## 139 8NReDzROyU  73      F    White      55.0    152.40  28.97000
## 140 IqkI11WYK7  31 Female    White     104.5    189.00  26.84000
## 141 S65F25Nb7v  57      M    Black      62.0    182.60  21.70000
## 142 p3uCdY5XSk  58   Male     <NA>      82.1    170.20  33.24000
## 144 WpXIJg30L2  63 Female    White      87.8    167.00  23.11000
## 145 lgwsTbQ9bX  57      F    White     114.8    172.70  26.57000
## 148 1uksyaSHeL  52      M    White      95.0    162.60  33.95201
## 149 qBAgaxacbM  56   Male    White      74.0    170.20  34.21687
## 151 XLquXLGSRi  33   Male    White      94.7    157.50  29.52000
## 152 eTIP4hpddm  78      F    White      96.9    185.00  38.04000
## 156 SzCWauSPpe  56      M    White     122.0    177.80  19.57000
## 157 Cwy6w4MuKf  57      M    White     114.6    167.60  30.62134
```

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## 158 W07O9mDWf5  42 Female    White      68.0    180.30  18.79000
## 159 7VN31dBvdO  29      F    White      95.3    152.00        NA
## 160 CUkgYtax4B  58      F    White      57.3    172.70  46.58000
## 162 7TZZyYOyMi  51      M    White      63.1    165.10  30.72000
## 164 lgwsTbQ9bX  46      F    White      72.0    180.00  22.48000
## 165 hOAW4YaVS6  52      F    White      91.7    190.50  43.70000
## 166 bGRYJRCGmT  28      M    White     193.7    176.00  30.53000
## 168 GRgi1BcRFF  56   Male    White     170.0    165.10  21.24000
## 169 5dVrn2ayfY  62      M    White      65.0    170.20  54.35000
## 171 uDONxQpQ5F  67      M    White      68.0    190.50  36.49000
## 172 qBAgaxacbM  57      M    White      58.7    131.30  36.50000
## 174 TeelIO19by  53      M    Black     126.0    182.90  24.82459
## 176 Oshbw3gvsR  70   Male    White      61.0    185.00  44.25000
## 177 cCnBeL4FBu  56   Male    White      75.8    167.00  41.79592
## 178 bGRYJRCGmT  60      M    White     101.0    182.90  21.24000
## 179 EtsodwhqNO  73      M    White     109.0    182.90  28.47001
## 183 fbbgoc1RTa  65      M    White      65.0    157.00  32.98000
## 184 q6danf6ZhC  54   Male    White     113.0    174.00  26.12862
## 185 ds8kizHdyF  28      M    White     117.0    152.00  18.53688
## 188 3KSfMkioqd  52      M    White     107.0    165.10  36.35000
## 189 EtsodwhqNO  57      F    White      76.3    176.00  35.18232
## 193 d1KObvMArw  22   Male    White     136.0    182.90  53.52000
## 194 RPKFkP3mF7  59      M    White     118.6    184.00  45.75000
## 195 GRgi1BcRFF  19      M    White     104.5    170.00  26.60000
## 199 5dVrn2ayfY  23      F    White      96.0    180.30  44.74000
## 200 erG5SEIJWp  NA      M    White     115.2    170.20  27.02380
## 201 TqQ4YnODN5  38   Male    White     106.8    167.00  44.25000
## 202 uDONxQpQ5F  56      M    White      77.8    170.20  28.12000
## 204 oa74Ed90gm  59   Male    White     124.0    165.10  36.89000
## 206 EgO9gedBMk  56   Male    White      96.4    159.00  28.72738
## 207 DjjRrZGNhd  52      F    White     159.2    185.00  22.79000
## 209 8NReDzROyU  56 Female    White      96.0    172.70  51.61000
## 210 uQKbYOaHUh  49      M    White      96.1    190.00  16.00043
## 214 argAUZmnvn  40      M    Other      65.0    177.80  52.64000
## 216 4Zz1llngXL  37      M    White     122.0    175.30  33.04000
## 217 9wMC9Rqblr  77   Male    White      58.0    175.30  24.63531
## 220 nY6IQYyUNJ  29      M    White     101.0        NA  27.80000
## 223 pL7cjkuchS  49      M    White      98.9    175.30  20.20000
## 226 9RJXcM3JN2  65   Male    White     115.0    180.30  40.84000
## 229 cCnBeL4FBu  67   Male    White     107.0    189.00  23.84620
## 230 3KSfMkioqd  28   Male    White        NA    161.30  22.80852
## 231 XLquXLGSRi  64      M    White     107.0    162.60  32.72000
## 234 5uOXuOTdc0  64      F    White      73.7    180.30  52.70000
## 235 CxsoWMlPJ7  52      M    White      95.0    170.20  39.14000
## 236 AQXGYHxdC0  47   Male    White      96.0    196.00  32.06000
## 237 sMJ8f6IKAW  65      M    White     110.0    175.30  42.21000
## 238 isLH4ZYjDV  65      M    White     154.7    175.30  36.56337
## 239 SHVAA5chqV  78      F    White      66.2    162.60  36.56337
## 240 aCmgyoBDAU  61      M    White      99.9    182.90  23.20312
## 242 Yx4YroY44a  29      F    White      85.6    162.60  46.48022
## 244 EgO9gedBMk  69      M    White     113.7        NA  34.81000
## 245 wExoR3npUK  62 Female    White      96.1        NA  39.71000
## 246 RLIZJgcVd8  57      M    Other      77.9    180.00  32.50000
## 247 pNzvrqNfXv  29 Female    White     125.2    170.00  21.53000
```

```
## 249 oa74Ed90gm  70      F    White     105.3    185.40  30.75000
## 250 3NQYqtSjUW  67      F    White     122.0    160.54  28.90000
## 251 dt1qZYVvWv  65      M    White     100.3    182.90  32.50000
## 252 3NQYqtSjUW  44 Female    White      75.2    163.00  26.90644
## 253 IwoGIkuRxW  40      F    Black     110.0    172.70  38.19000
## 254 nY6IQYyUNJ  30      F    White     110.0    160.54  48.44000
## 255 XjRrih0zHr  56      M    White      94.1    184.00  26.01000
## 256 sMJ8f6IKAW  70   Male    White      82.0    163.00  34.45000
## 257 OwwryljbEQ  54      F    White     115.0    162.00  34.32992
## 259 gvQFBONZVL  78      F    White      50.4    160.00  26.90644
## 260 wfzftPR62C  40   Male    White     127.3    188.00  34.58000
## 261 xPNg98Rj2c  36      M     <NA>      95.0    175.30  32.85000
## 262 XLquXLGSRi  40      F    White     104.0    152.40        NA
## 263 5u0Xu0Tdc0  47      M    White     124.0    170.20  23.71094
## 264 oa74Ed90gm  67      M    White     160.0    172.50  17.40000
## 265 8NReDzROyU  56      M    White      97.5    154.90  31.01507
## 268 AQXGYHxdC0  53 Female    White      66.2    184.50  23.06000
## 269 wExoR3npUK  53      M    White      81.7    157.50  25.51000
## 270 e2XxEm3acg  67      M    White     101.0    170.20  22.48000
## 271 HDHj5t6h8Q  58      M    White     125.5    165.10  30.23000
## 272 mcVVfHOKEn  47      F    White     105.0    185.40  46.87297
## 273 gJ2ERPGGQc  62   Male    White      59.4    172.70  50.58000
## 274 JibNJxmh9o  59   Male    Black     123.0    182.90  32.04000
## 275 WpXIJg30L2  27      M    White     114.8    172.70  31.88000
## 276 sMJ8f6IKAW  54      M    White      96.1    182.30  37.30000
## 277 eWV175w6O4  53   Male    White     103.5    188.00  37.77000
## 278 gJ2ERPGGQc  41   Male    White      81.9    176.00  28.83000
## 279 ghGLxbqUot  29 Female     <NA>     136.9    170.20  32.29000
## 280 eWV175w6O4  57      F    White     123.0    185.40  22.48000
## 282 7VN31dBvdO  29      F    White      73.0    172.00  35.80000
## 286 mcVVfHOKEn  31      F    White      80.4    175.00  34.43000
## 287 ghGLxbqUot  59      M    White      55.7    149.90  31.59122
## 289 dt1qZYVvWv  44      M    White     107.0    170.20  56.78000
## 290 W07O9mDWf5  27   Male    Black     140.0    180.00  19.57000
## 293 l0dDAKKGyk  48   Male Hispanic      76.8    167.60  31.77000
## 294 usAagb3Ys8  63      F    White      64.7    177.80  42.58000
## 296 PlSf6mx953  52      M    White      85.7    162.60  26.08525
## 297 7TZZyY0yMi  49      F    White      51.3    167.60  37.33000
## 298 HDHj5t6h8Q  31      M    White      99.2    183.00  34.76000
## 299 u8FjkVujGh  44      M    White      69.2    173.60  42.14943
## 300 pL7cjkuchS  58      M    White      86.5    185.40  25.78740
## 301 RUJwtKyHR6  17      M    White     115.3    162.60  38.71000
## 302 XjRrih0zHr  38 Female    White     102.9    179.60  26.01000
## 303 IqbiKaQrSQ  39      M    White      98.5    182.90  31.67000
## 305 3KSfMkioqd  64      F    White     148.0    170.20  33.53012
## 308 KL9bwQLGY3  56 Female    White      90.4    175.30  35.80000
## 314 w1d5gKl9AF  67      M    White      86.3    152.00  29.30000
## 315 d1KObvMArw  32      M    White      82.4    170.20  46.58000
## 316 vlb0gzZhmX  81      M    White      50.2    170.20  43.27000
## 319 rPjBoa86kB  49      M    White     114.8    163.00  21.53000
## 320 u8FjkVujGh  29 Female    White      88.4    198.10  53.20000
## 323 FlV8vFIekH  49      M    Black      97.6    170.20  41.79592
## 324 vSewHcBXnT  61      F    White     132.0    188.00  25.51000
## 326 GMM5IIMsks  53 Female    White      85.4    182.90  40.39018
```

```
## 328 ysIXFTGIsU  51      F     <NA>        NA    147.30  29.76000
## 330 9wMC9Rqblr  55      M    White     124.0    160.00  31.26370
## 332 zsEXlQoxFm  58 Female    White     105.0    162.90  36.08000
## 333 CUkgYtax4B  14      M    White      70.1    163.00  36.00000
## 334 zsEXlQoxFm  49      F    White     122.0    183.00  41.54000
## 336 sdfifHRB6T  25      M    White      83.2    157.00  28.38000
## 337 bGRYJRCGmT  53      F    White      79.7    170.20  33.82641
## 342 7TZZyYOyMi  50   Male    White      96.4    150.00  26.57000
## 344 EePz5z5OfK  43      F    White     170.0    188.00  32.29000
## 345 nY6IQYyUNJ  69      F    White     146.0    171.50  37.05333
## 346 C2DRgzRqj7  61   Male    White      92.8    172.70  24.82459
## 347 v9PAyt2zS6  14   Male    White     124.0    182.90  38.59000
## 348 gJ2ERPGGQc  65      M    White     122.0    170.20  30.27000
## 350 ysIXFTGIsU  83      M    White      65.0    160.00  37.17000
## 352 v9PAyt2zS6  61      M    White      64.5    160.00  32.49000
## 353 gJ2ERPGGQc  36      F    White      86.5    170.20  31.44437
## 355 XjRrih0zHr  60   Male    Black     100.3    170.00  33.53012
## 357             NA           <NA>        NA        NA        NA
## 359 OwwryljbEQ  44   Male    White     193.7    177.00  34.22041
## 361 vSewHcBXnT  35      M    White      79.0    154.90  30.53000
## 363             NA           <NA>        NA        NA        NA
## 364 ekDtKmOTAg  38      F    White      84.1    190.50  31.44766
## 365 v9PAyt2zS6  63   Male    Black     132.0    185.00  34.81000
## 368 eTIP4hpddm  30      F    Black     110.9    180.30  40.13841
## 369 TXgFTizXwY  39   <NA>    Black      75.2    185.40  27.70000
## 372 1P5kPzvd9t  76      F    White      80.7    157.70  26.01070
## 374 EePz5z5OfK  62      F Hispanic      96.0    172.70  21.81000
## 375 VVxY2ojz0G  76      M    White     125.0    170.20  51.60000
## 376 TXgFTizXwY  59      M    White      89.9    182.90  33.82641
## 378 GW3gmyWKj7  48      M    White      79.4    172.00  37.47000
## 379 7kQUZ43oC8  53   Male    White      90.7        NA  24.68372
## 380 IqbiKaQrSQ  51      F    White      81.6    165.10  33.62000
## 381 XHODUqel1R  65 Female    White      78.3    195.60  25.28000
## 382 Yx4YroY44a  39      M    Black      94.7    172.70        NA
## 383 nY6IQYyUNJ  72   Male    White     113.7    183.00  23.84620
## 384 sMJ8f6IKAW  NA      M    White      78.3    157.00  15.60000
## 385 5TLquRFvBi  43      F    White      69.8    177.80  39.03000
## 386 ar1fphuqKw  58   Male    White     115.0    163.00  37.08000
## 387 ekDtKmOTAg  55 Female    White      78.2    131.30  18.53688
## 389 qapZgo14KS  53      F    White      90.8    182.90  28.38000
## 391 vlb0gzZhmX  26   Male    White     160.0    185.40  38.44212
## 393 PlSf6mx953  22      F    White      83.5    162.60  38.43000
## 397 4Zz1llngXL  30   Male    White     154.7    198.10  18.79425
## 398 S65F25Nb7v  54   <NA>    White      96.0    182.90  22.25945
## 399 xPNg98Rj2c  49      F    White      58.3    175.00  26.11877
## 400 sMJ8f6IKAW  32   Male    White      95.7    165.10  17.40000
## 403 TeelI019by  18      M    White      82.0    188.00  31.59750
## 404 aCmgyoBDAU  35      M    White     190.5    185.40  26.55000
## 406 erG5SEIJWp  40   Male    White     114.0    167.00  35.19692
## 407 IcjCW6rMOW  24      M    White      95.4    190.50  26.57000
## 408 isLH4ZYjDV  68 Female    White     123.0    182.90  38.68000
## 409 RLIZJgcVd8  60      F    White     164.9    175.30  50.58000
## 411 uQKbY0aHUh  25   Male    White     100.0    182.90  37.51850
## 414 1uksyaSHeL  44 Female    White     105.3    160.00  21.40290
```

```
## 416 WpXIJg30L2  32      M    White      79.8    160.00  33.11000
## 417 JibNJxmh9o  23      F    White      90.8     74.00  26.31000
## 418 1uksyaSHeL  47 Female    White     122.0    167.60  32.22488
## 419 sdfifHRB6T  59      F    White     159.2    162.90  32.06000
## 422 qapZgo14KS  67      M    Black     132.0    175.30  27.04000
## 423 xxah5hoZVX  42      F    White      82.7    160.00  37.67000
##                       diagnosis reintubation trached                ph   co2
## 1                      COVID-19           NA   FALSE               6.96  33.1
## 2                      COVID-19        FALSE   FALSE               7.41    NA
## 3   Other respiratory condition        FALSE    TRUE               7.39  42.7
## 4                      COVID-19           NA   FALSE               7.18  72.0
## 5      Cardiovascular condition        FALSE    TRUE               7.44  62.0
## 6                      COVID-19        FALSE   FALSE               7.42    NA
## 7                         Other        FALSE   FALSE               7.34  44.3
## 8                         <NA>         FALSE    TRUE               7.28  37.0
## 9                      COVID-19           NA    TRUE               7.18  44.0
## 10                        <NA>            NA   FALSE               7.09  77.0
## 11                     COVID-19           NA    TRUE                7.6  39.0
## 12                     COVID-19        FALSE   FALSE                NDA  59.0
## 13  Other respiratory condition        FALSE   FALSE                NDA  59.0
## 20                        <NA>            NA    TRUE               7.08    NA
## 21  Other respiratory condition           NA   FALSE               <NA>  35.7
## 23  Other respiratory condition        FALSE    TRUE               7.24  44.0
## 24                     COVID-19        FALSE   FALSE               7.32  72.0
## 25     Cardiovascular condition           NA   FALSE               7.32  58.3
## 28     Cardiovascular condition           NA    TRUE               7.09    NA
## 29  Other respiratory condition        FALSE    TRUE               7.35  38.0
## 30                     COVID-19        FALSE   FALSE               7.02  36.0
## 31                        <NA>            NA   FALSE               7.45  47.3
## 34                        <NA>         FALSE    TRUE               7.46  75.0
## 35  Other respiratory condition         TRUE   FALSE               7.39  37.0
## 36     Cardiovascular condition        FALSE    TRUE               7.11    NA
## 39                        <NA>            NA   FALSE               7.49  41.6
## 40  Other respiratory infection         TRUE      NA               7.39  30.0
## 42                        Other        FALSE    TRUE               7.11    NA
## 43                     COVID-19           NA    TRUE               7.36 100.0
## 44  Other respiratory infection        FALSE    TRUE               7.41  75.0
## 46                     COVID-19           NA   FALSE               7.14  38.0
## 47                     COVID-19        FALSE    TRUE                7.2  45.0
## 48                        Other        FALSE   FALSE               6.95    NA
## 49  Other respiratory condition        FALSE    TRUE               7.20  19.5
## 50  Other respiratory condition        FALSE    TRUE                NDA  37.0
## 52  Other respiratory condition           NA    TRUE               7.26    NA
## 53                     COVID-19           NA   FALSE                NDA    NA
## 54                     COVID-19           NA   FALSE               7.40    NA
## 55  Other respiratory condition        FALSE      NA               7.37  72.0
## 57     Cardiovascular condition         TRUE   FALSE               7.21    NA
## 59                        <NA>            NA   FALSE               7.46  64.0
## 61     Cardiovascular condition        FALSE    TRUE               7.38    NA
## 64                        <NA>         FALSE   FALSE               7.10  59.0
## 66     Cardiovascular condition        FALSE      NA               7.28  51.0
## 69                     COVID-19           NA    TRUE                NDA  30.0
## 71                        <NA>          TRUE   FALSE               <NA>  48.0
## 72     Cardiovascular condition           NA    TRUE               7.44  39.0
```

```
## 74     Cardiovascular condition        FALSE      NA                7.25 101.8
## 75     Cardiovascular condition        FALSE   FALSE                 NDA  86.0
## 76  Other respiratory condition        FALSE    TRUE                7.49    NA
## 77                          <NA>       FALSE    TRUE                7.43    NA
## 79     Cardiovascular condition        FALSE   FALSE                7.43  61.0
## 82                     COVID-19        FALSE   FALSE                 NDA    NA
## 83                          <NA>       FALSE      NA                7.11  56.3
## 84                        Other        FALSE   FALSE                7.37 115.0
## 85     Cardiovascular condition        FALSE    TRUE                7.36    NA
## 86                          <NA>       FALSE    TRUE                7.40  36.0
## 88                     COVID-19        FALSE      NA                7.11  35.0
## 89                        Other           NA   FALSE                7.27  41.0
## 91                     COVID-19        FALSE   FALSE                7.33  56.0
## 92  Other respiratory condition           NA      NA                 NDA  44.0
## 93                     COVID-19           NA   FALSE                7.36  46.0
## 95                          <NA>       FALSE    TRUE                7.22  39.0
## 96  Other respiratory condition        FALSE    TRUE                7.08  41.0
## 97                        Other         TRUE   FALSE                7.36    NA
## 98  Other respiratory condition        FALSE    TRUE                7.27  63.4
## 100    Cardiovascular condition           NA   FALSE                7.37  33.8
## 102    Cardiovascular condition        FALSE   FALSE                 NDA  56.3
## 103                    COVID-19        FALSE      NA                6.78  43.0
## 104 Other respiratory condition        FALSE   FALSE                 NDA  74.0
## 105    Cardiovascular condition           NA    TRUE                7.48  39.0
## 106    Cardiovascular condition         TRUE    TRUE                7.11  35.0
## 107                    COVID-19           NA   FALSE                7.11  71.9
## 108    Cardiovascular condition           NA   FALSE                 NDA  40.0
## 109    Cardiovascular condition        FALSE   FALSE                7.16  79.0
## 111    Cardiovascular condition           NA   FALSE                7.42  41.9
## 112    Cardiovascular condition        FALSE   FALSE                 NDA  62.0
## 113                       Other           NA   FALSE    no info from OSH    NA
## 116                    COVID-19        FALSE   FALSE                7.22  57.0
## 117                       Other           NA      NA                <NA>  48.0
## 121    Cardiovascular condition        FALSE    TRUE                7.24  57.0
## 122    Cardiovascular condition        FALSE      NA                7.47 128.0
## 123 Other respiratory condition        FALSE   FALSE                7.24  75.0
## 124 Other respiratory infection           NA   FALSE                7.31  56.3
## 126                    COVID-19        FALSE   FALSE                 NDA    NA
## 127    Cardiovascular condition        FALSE    TRUE                7.22    NA
## 128 Other respiratory infection         TRUE   FALSE                7.22  37.0
## 129 Other respiratory condition           NA   FALSE                 7.3  60.0
## 134 Other respiratory condition           NA   FALSE                 7.1  48.0
## 135    Cardiovascular condition           NA   FALSE                7.09  39.4
## 136                    COVID-19           NA      NA                7.06  37.0
## 137                    COVID-19         TRUE      NA                7.31    NA
## 139    Cardiovascular condition           NA   FALSE                7.32  59.0
## 140                    COVID-19           NA   FALSE                 NDA  12.0
## 141    Cardiovascular condition        FALSE   FALSE                 NDA  38.4
## 142                       Other           NA    TRUE                7.34  47.0
## 144                       Other           NA   FALSE                7.35  71.8
## 145    Cardiovascular condition        FALSE    TRUE                <NA>  31.0
## 148    Cardiovascular condition           NA      NA                7.33  37.0
## 149                    COVID-19        FALSE   FALSE                7.33  60.0
## 151                    COVID-19           NA    TRUE                7.21  38.4
```

```
## 152    Cardiovascular condition         TRUE   FALSE                7.35    NA
## 156    Cardiovascular condition        FALSE      NA                7.46  63.4
## 157                    COVID-19           NA      NA                7.11  77.0
## 158    Cardiovascular condition           NA    TRUE                7.21  59.0
## 159    Cardiovascular condition        FALSE    TRUE    no info from OSH  45.0
## 160                    COVID-19           NA      NA                7.31  47.3
## 162                       Other           NA    TRUE       Not Available  46.0
## 164 Other respiratory condition           NA   FALSE                7.42  60.0
## 165    Cardiovascular condition           NA    TRUE                7.04  43.0
## 166                        <NA>           NA   FALSE 7.32099999999999884  46.0
## 168    Cardiovascular condition           NA   FALSE                7.11  36.0
## 169 Other respiratory condition           NA    TRUE                7.22  34.0
## 171 Other respiratory condition           NA    TRUE                 7.4  41.0
## 172                    COVID-19           NA      NA                 NDA  61.0
## 174    Cardiovascular condition        FALSE   FALSE                7.27  24.2
## 176    Cardiovascular condition        FALSE    TRUE                7.04  71.6
## 177    Cardiovascular condition        FALSE    TRUE                6.78  64.0
## 178                    COVID-19           NA   FALSE                7.52  31.0
## 179    Cardiovascular condition         TRUE      NA                7.31  31.0
## 183                    COVID-19        FALSE    TRUE                7.14    NA
## 184                    COVID-19           NA    TRUE                <NA>  56.0
## 185    Cardiovascular condition           NA   FALSE                7.31  75.0
## 188 Other respiratory condition        FALSE    TRUE        not measured  81.0
## 189                    COVID-19           NA      NA                7.52  53.0
## 193 Other respiratory condition           NA   FALSE                7.43  24.2
## 194 Other respiratory condition           NA      NA                7.12  60.0
## 195                       Other        FALSE      NA                7.39  80.3
## 199                    COVID-19        FALSE    TRUE                7.49  49.0
## 200 Other respiratory infection           NA    TRUE                <NA>  64.8
## 201                    COVID-19           NA    TRUE                7.37 128.0
## 202                        <NA>        FALSE      NA                7.31  33.1
## 204    Cardiovascular condition        FALSE    TRUE                7.11    NA
## 206    Cardiovascular condition           NA   FALSE                <NA>  86.0
## 207                    COVID-19           NA    TRUE                7.42    NA
## 209                        <NA>           NA    TRUE                7.31  50.7
## 210 Other respiratory condition        FALSE   FALSE                7.32    NA
## 214                    COVID-19        FALSE      NA                7.49  44.3
## 216    Cardiovascular condition           NA    TRUE                7.38  63.0
## 217 Other respiratory condition         TRUE      NA                7.37    NA
## 220                    COVID-19         TRUE    TRUE                7.39    NA
## 223 Other respiratory condition           NA   FALSE                7.39  34.0
## 226    Cardiovascular condition        FALSE   FALSE                7.25  53.0
## 229                    COVID-19        FALSE   FALSE                7.30  43.0
## 230    Cardiovascular condition        FALSE   FALSE                7.26  43.0
## 231                    COVID-19           NA      NA                7.33  39.4
## 234 Other respiratory condition        FALSE   FALSE                7.40    NA
## 235                    COVID-19        FALSE    TRUE                7.33  43.9
## 236 Other respiratory infection           NA   FALSE                7.29    NA
## 237                    COVID-19        FALSE    TRUE                7.34  64.0
## 238                    COVID-19        FALSE    TRUE                7.20  44.3
## 239                    COVID-19           NA      NA                 7.6  63.0
## 240 Other respiratory infection           NA    TRUE                7.21  56.3
## 242 Other respiratory infection           NA   FALSE                   N  63.0
## 244                    COVID-19        FALSE   FALSE                7.25  48.0
```

```
## 245                    COVID-19       FALSE   FALSE                7.41  40.0
## 246                    COVID-19       FALSE   FALSE                7.45  47.3
## 247    Cardiovascular condition          NA      NA                6.78  36.2
## 249    Cardiovascular condition       FALSE    TRUE                <NA>  57.0
## 250                    COVID-19          NA   FALSE                7.11  86.0
## 251 Other respiratory condition          NA    TRUE                7.38  60.0
## 252    Cardiovascular condition        TRUE    TRUE                7.38  58.0
## 253                    COVID-19       FALSE   FALSE                7.42  39.0
## 254    Cardiovascular condition          NA      NA                7.33  57.0
## 255                    COVID-19       FALSE    TRUE                7.12  52.0
## 256                       Other          NA    TRUE                6.86  34.0
## 257                       Other       FALSE   FALSE                7.31  71.5
## 259                    COVID-19          NA      NA                 NDA  47.0
## 260                    COVID-19          NA   FALSE                 NDA  48.0
## 261    Cardiovascular condition       FALSE      NA                7.36  19.5
## 262                    COVID-19       FALSE      NA                7.16  24.2
## 263                    COVID-19          NA    TRUE 7.15299999999999958    NA
## 264                       Other          NA   FALSE                7.37  43.9
## 265 Other respiratory condition          NA    TRUE                7.15  56.0
## 268                         <NA>        TRUE    TRUE                7.24  52.0
## 269    Cardiovascular condition       FALSE   FALSE                7.04  70.0
## 270 Other respiratory condition          NA      NA                7.26 125.0
## 271                    COVID-19          NA    TRUE                7.22  57.0
## 272 Other respiratory infection          NA    TRUE                7.30  53.0
## 273 Other respiratory condition          NA   FALSE                7.35  39.5
## 274    Cardiovascular condition       FALSE      NA                7.10  48.0
## 275 Other respiratory infection       FALSE   FALSE                7.21  61.0
## 276 Other respiratory infection       FALSE   FALSE                 NDA  77.0
## 277    Cardiovascular condition          NA   FALSE                7.24    NA
## 278                    COVID-19          NA   FALSE                7.26  52.0
## 279                         <NA>       FALSE      NA                7.20  63.0
## 280    Cardiovascular condition       FALSE   FALSE                 NDA  51.0
## 282    Cardiovascular condition       FALSE      NA                7.11  49.0
## 286    Cardiovascular condition       FALSE    TRUE                 7.2  53.0
## 287    Cardiovascular condition       FALSE      NA                7.53  31.0
## 289 Other respiratory condition       FALSE    TRUE                 NDA  37.3
## 290    Cardiovascular condition          NA   FALSE                7.02    NA
## 293                         <NA>       FALSE   FALSE                 NDA  49.0
## 294    Cardiovascular condition          NA   FALSE                 7.3  35.7
## 296    Cardiovascular condition          NA    TRUE                7.09  77.0
## 297                    COVID-19          NA   FALSE             V: 6.92 108.0
## 298                       Other          NA    TRUE                7.27  44.0
## 299                    COVID-19          NA   FALSE                7.36  62.5
## 300 Other respiratory condition          NA    TRUE                7.35  39.4
## 301                    COVID-19       FALSE    TRUE                7.40  30.0
## 302                    COVID-19          NA    TRUE                 NDA    NA
## 303    Cardiovascular condition          NA    TRUE                7.31  51.0
## 305 Other respiratory condition        TRUE    TRUE                7.52  37.3
## 308                       Other        TRUE      NA                 NDA  48.0
## 314 Other respiratory condition          NA   FALSE                7.15  56.2
## 315    Cardiovascular condition       FALSE   FALSE                7.33    NA
## 316    Cardiovascular condition        TRUE    TRUE                 NDA  45.0
## 319                    COVID-19       FALSE      NA                7.14  61.0
## 320 Other respiratory condition        TRUE    TRUE                7.11  51.0
```

```
## 323 Other respiratory condition       FALSE   FALSE               7.34  39.0
## 324                       Other       FALSE   FALSE               7.17  48.0
## 326 Other respiratory condition          NA   FALSE               7.43  39.0
## 328 Other respiratory condition       FALSE      NA               7.49  33.0
## 330                    COVID-19        TRUE    TRUE               7.44    NA
## 332 Other respiratory condition       FALSE      NA               7.27  42.7
## 333    Cardiovascular condition       FALSE    TRUE               7.41  45.0
## 334    Cardiovascular condition          NA   FALSE               7.33  77.0
## 336                    COVID-19       FALSE      NA       not measured  68.0
## 337                       Other       FALSE   FALSE               7.24  42.7
## 342                       Other          NA   FALSE               7.23  39.4
## 344                    COVID-19       FALSE   FALSE               7.24  42.0
## 345                    COVID-19       FALSE   FALSE               7.10    NA
## 346    Cardiovascular condition          NA   FALSE               7.12  43.9
## 347                    COVID-19       FALSE      NA               7.26  63.0
## 348                        <NA>        TRUE    TRUE               6.78 125.0
## 350                    COVID-19       FALSE   FALSE               7.35    NA
## 352                    COVID-19       FALSE    TRUE               7.35    NA
## 353                    COVID-19          NA    TRUE               7.48  36.0
## 355                    COVID-19          NA   FALSE               7.14    NA
## 357                        <NA>          NA      NA                     NA
## 359 Other respiratory infection       FALSE   FALSE               7.12    NA
## 361                    COVID-19       FALSE      NA               7.40    NA
## 363                        <NA>          NA      NA                     NA
## 364 Other respiratory condition       FALSE   FALSE               7.42  39.5
## 365    Cardiovascular condition          NA    TRUE               7.35  72.0
## 368    Cardiovascular condition          NA    TRUE               7.24  41.0
## 369                        <NA>          NA    TRUE               7.44  35.3
## 372 Other respiratory condition        TRUE      NA               7.27  80.0
## 374                        <NA>       FALSE      NA               <NA>  39.0
## 375 Other respiratory infection       FALSE      NA               7.37  43.0
## 376                    COVID-19          NA   FALSE               7.49  80.3
## 378                    COVID-19        TRUE    TRUE                7.4  32.0
## 379    Cardiovascular condition       FALSE   FALSE               7.35  57.0
## 380                       Other       FALSE      NA               7.48    NA
## 381                    COVID-19          NA   FALSE               7.05  71.9
## 382 Other respiratory condition       FALSE    TRUE               7.32  42.0
## 383 Other respiratory condition       FALSE   FALSE               7.50  52.0
## 384                    COVID-19       FALSE      NA               7.54  25.0
## 385                    COVID-19          NA    TRUE               7.36  62.0
## 386    Cardiovascular condition          NA   FALSE               7.40  43.0
## 387                    COVID-19          NA   FALSE               7.12  86.0
## 389                    COVID-19        TRUE    TRUE               7.16  37.0
## 391                        <NA>       FALSE   FALSE               7.39  69.0
## 393    Cardiovascular condition       FALSE   FALSE               7.15  81.0
## 397                    COVID-19          NA      NA               7.46    NA
## 398                        <NA>       FALSE   FALSE               7.32    NA
## 399                        <NA>          NA   FALSE               7.42  39.0
## 400                    COVID-19       FALSE   FALSE                7.1  41.0
## 403                    COVID-19       FALSE   FALSE    no info from OSH    NA
## 404    Cardiovascular condition        TRUE   FALSE               7.17  59.0
## 406 Other respiratory condition       FALSE    TRUE               7.43  40.0
## 407                        <NA>       FALSE    TRUE               7.28  57.0
## 408                       Other          NA   FALSE               7.28  37.0
```

```
## 409    Cardiovascular condition           NA    TRUE              7.33 140.0
## 411                    COVID-19           NA   FALSE           V: 6.92  49.0
## 414 Other respiratory condition           NA   FALSE              7.03  53.0
## 416    Cardiovascular condition        FALSE      NA               7.3  70.8
## 417    Cardiovascular condition           NA    TRUE              7.23  52.0
## 418    Cardiovascular condition        FALSE    TRUE              7.31  38.0
## 419    Cardiovascular condition           NA   FALSE              7.23 118.0
## 422    Cardiovascular condition        FALSE      NA               7.37  72.0
## 423                        <NA>        FALSE   FALSE              7.25  59.0
##        o2 lactate_peak creatinine_peak total_bilirubin_peak
## 1    68.0          3.9            2.27                 3.9
## 2   542.0           NA            1.67                  NA
## 3      NA           NA            1.19                  NA
## 4   109.0          2.9            0.57                 0.9
## 5      NA          2.3            1.04                 8.9
## 6    49.0          2.3            2.08                 0.5
## 7      NA           NA            3.34                 1.0
## 8   135.0          3.0            3.97                 2.7
## 9      NA          8.5            0.83                 1.4
## 10  116.0          9.0            1.14                  NA
## 11     NA          4.8              NA                  NA
## 12   49.0          3.7              NA                 4.4
## 13  232.0          3.2            2.04                  NA
## 20   80.0          7.3            0.64                 4.4
## 21  186.0          1.5            0.94                 1.3
## 23   69.2          2.6              NA                 3.4
## 24   62.0         13.3            2.80                 3.5
## 25   11.0          2.9              NA                 8.9
## 28     NA          2.0            5.52                 2.7
## 29  130.0          2.6            1.90                 1.5
## 30   76.1          6.8            0.40                  NA
## 31     NA           NA            2.97                  NA
## 34   25.0          2.0            1.57                 1.4
## 35  125.0          9.0              NA                 0.7
## 36   66.0          1.9              NA                 4.6
## 39   45.8           NA            0.81                  NA
## 40  116.0          1.9            1.90                  NA
## 42   51.0          2.4            6.09                 2.5
## 43  419.0           NA            0.92                 4.8
## 44   66.0          3.7            6.02                  NA
## 46  208.0          3.3            0.90                 4.9
## 47  121.0         13.1            0.63                 1.1
## 48   36.0          8.5            2.91                 5.4
## 49     NA          4.2              NA                  NA
## 50  208.0          9.7            0.74                 0.9
## 52   54.0         17.5              NA                 3.0
## 53     NA          2.6            0.60                29.8
## 54  394.4         10.0            2.23                  NA
## 55     NA          1.0            2.28                14.0
## 57  253.6          8.7              NA                  NA
## 59   79.0          4.9              NA                 1.6
## 61  323.0          1.9              NA                  NA
## 64   76.0          3.7            4.46                 2.2
## 66   59.0          5.0            0.82                 5.4
```

```
## 69   70.0          9.4            NA                6.7
## 71   27.0         12.0            NA                 NA
## 72     NA          2.0          0.90                0.9
## 74   49.0           NA          3.00                6.8
## 75   98.0          3.7            NA                 NA
## 76  351.0          1.7          0.87                 NA
## 77     NA          6.6          1.50                1.6
## 79  253.6          2.7            NA                1.4
## 82  103.0          1.5          2.71                5.5
## 83  151.0          1.9          2.64               12.6
## 84  408.3          2.0          0.72                 NA
## 85   53.0         17.5          0.86                3.5
## 86   26.0          3.2          1.86                3.7
## 88  207.0          2.1            NA                0.2
## 89     NA          2.2            NA                3.1
## 91   46.0          3.9          0.60                 NA
## 92     NA          4.8          2.66               15.1
## 93   60.0         12.4          0.60                1.5
## 95   64.0          2.4          4.09                5.5
## 96     NA          4.4          4.09                0.9
## 97     NA          3.0          1.19                0.8
## 98     NA          1.2          1.57                1.6
## 100  39.0          2.6          1.86                1.0
## 102  88.0           NA            NA                1.4
## 103 116.0          0.9            NA                2.9
## 104  99.0          1.3          2.10                 NA
## 105  41.8          4.0          1.90                6.7
## 106    NA          2.1            NA                 NA
## 107  68.9           NA            NA                1.9
## 108  68.0         13.1          6.09                1.4
## 109  57.0          4.8          1.35                0.7
## 111 175.0         11.4          0.90               12.1
## 112  44.0          1.5          2.97                 NA
## 113    NA           NA          3.00                 NA
## 116  69.0          2.5          0.97                 NA
## 117  66.5          5.2          0.90                8.5
## 121 179.3          9.5          1.56                3.6
## 122  38.0          2.6          0.95                 NA
## 123  64.0          1.4          2.23                0.5
## 124 144.9         11.4          2.15                 NA
## 126  56.0          2.0            NA                 NA
## 127  87.0          2.0          1.33                 NA
## 128    NA          3.8          1.03                0.8
## 129  68.0           NA            NA                0.9
## 134  67.0           NA          3.00                2.2
## 135    NA          9.4          5.12                 NA
## 136  41.4          1.8            NA                 NA
## 137  73.0          2.1          2.70                1.2
## 139 107.0          2.9          0.54                5.5
## 140 525.6          3.9          3.41                 NA
## 141  69.5          1.2          0.95                1.0
## 142    NA          5.2          0.94                4.0
## 144  63.0         29.0            NA                1.0
## 145  66.0          7.6          5.13                0.7
```

```
## 148  89.4          NA             NA              NA
## 149 376.2         5.8             NA             6.1
## 151 139.4         1.9             NA             0.5
## 152 119.0         8.3             NA             2.6
## 156 108.8          NA             NA             8.5
## 157  64.0         4.8           1.35             2.2
## 158 374.7          NA             NA              NA
## 159  80.0         2.0           1.27             1.7
## 160 266.0         2.0           0.88             4.6
## 162  95.0         7.9             NA             0.8
## 164    NA         2.3           2.88             0.8
## 165  66.5         2.2             NA             6.1
## 166 109.6         2.4           1.33             2.6
## 168 135.0        10.9           1.56            12.6
## 169 174.0         2.1           1.14             2.1
## 171 124.0         0.8           1.72             0.7
## 172    NA          NA           0.87              NA
## 174 330.4        17.5           2.88            40.0
## 176 152.0         6.2           0.92             3.4
## 177  19.0         4.3             NA             1.1
## 178    NA         2.3             NA            13.3
## 179 102.6         3.8             NA              NA
## 183  67.0         2.9           0.69              NA
## 184  76.0         3.9             NA              NA
## 185  49.0        17.5             NA              NA
## 188 330.4         1.6             NA            19.1
## 189    NA         1.5           1.66              NA
## 193    NA         3.0           1.19             0.8
## 194 102.6         2.4           5.10             1.8
## 195 288.0         2.0           2.70              NA
## 199  83.0          NA           2.66              NA
## 200 383.0         6.9           1.56              NA
## 201 112.0         5.4             NA              NA
## 202 116.0         1.5           0.73             2.5
## 204  53.0        15.3           0.57             4.7
## 206  73.0         7.6           1.10             6.7
## 207  68.0         0.8             NA             1.6
## 209  47.0         1.7           1.38              NA
## 210  86.0         2.8           7.50             0.4
## 214 106.0         6.4             NA             3.4
## 216 221.0         3.2             NA              NA
## 217  65.0         2.8             NA              NA
## 220    NA         2.3             NA             2.0
## 223 221.0         2.5           0.63             1.3
## 226    NA         2.0           0.54             8.5
## 229  63.0         3.6           2.70             1.6
## 230 330.4        17.5           0.96              NA
## 231  54.0         9.0             NA              NA
## 234 253.7          NA             NA             5.3
## 235  69.0         7.8           3.11             2.6
## 236    NA         2.2           1.46             0.7
## 237 109.0          NA           1.35              NA
## 238 232.0         2.9             NA             0.4
## 239  19.0         5.8           1.04              NA
```

```
## 240  94.5        10.2           NA              1.8
## 242    NA         1.7         6.09              1.0
## 244 287.0         3.5         2.15              2.2
## 245    NA         1.9           NA               NA
## 246  86.0        15.4         4.25               NA
## 247    NA        17.5         1.19              1.9
## 249  60.0         8.9           NA              2.5
## 250  87.0          NA         0.71              6.1
## 251  76.0          NA         1.56              0.8
## 252 117.0         8.9         1.90              8.1
## 253  37.9         4.8           NA               NA
## 254  56.0          NA         1.57              0.3
## 255  73.0        12.9           NA               NA
## 256  57.0         5.2         0.51              2.6
## 257 107.0          NA         0.40              8.2
## 259  60.0          NA         2.14              2.8
## 260  65.0         0.9         1.04              2.9
## 261    NA         3.8         1.56               NA
## 262  44.0         2.5         0.74              0.3
## 263  60.0         1.9           NA              2.4
## 264  61.0        10.9         1.64              0.7
## 265  69.0         0.8         0.63              1.4
## 268  68.9        15.4         1.10              1.1
## 269 266.0          NA           NA               NA
## 270 116.0         3.9         3.05               NA
## 271  87.0        11.7         1.96              0.3
## 272 124.0         8.4           NA               NA
## 273    NA         1.9           NA               NA
## 274  88.0         3.5           NA              1.6
## 275  52.0        10.9         1.67               NA
## 276  61.0        15.3           NA              1.4
## 277    NA          NA         0.81              1.1
## 278  24.0         4.9         2.90              1.7
## 279    NA         2.1           NA               NA
## 280    NA         3.2         2.01              5.3
## 282 249.0         2.3         0.47               NA
## 286  19.0          NA         0.81              4.7
## 287    NA         2.9         0.57              2.1
## 289  91.1         2.7         0.88               NA
## 290  72.0         6.1         2.50               NA
## 293 360.0         9.0         1.65              0.7
## 294 207.0        11.8         0.81              2.2
## 296    NA         4.7         2.71               NA
## 297  54.0          NA         1.35               NA
## 298  36.0         7.8         0.81               NA
## 299  93.0         5.9         1.14              0.7
## 300 288.0         2.3         0.71              2.6
## 301  47.0         1.3         0.83              2.2
## 302  76.0         9.6           NA              1.7
## 303  58.0        17.5           NA              1.3
## 305  59.0         6.0           NA              2.1
## 308 123.0         1.1         4.46              3.1
## 314 130.0        17.5         1.35               NA
## 315  68.0         4.0         0.57              7.9
```

```
## 316  90.0         3.3           NA           0.4
## 319    NA         4.7           NA            NA
## 320 113.0         8.1           NA           2.0
## 323  34.0         1.6         2.17           1.4
## 324 232.0          NA           NA           4.7
## 326  14.9          NA           NA           3.4
## 328 179.3         7.6         0.54            NA
## 330 464.0         3.8         0.72            NA
## 332    NA         2.5         1.10           2.5
## 333 464.0         0.9         0.47           8.2
## 334    NA         6.2         0.79            NA
## 336  66.4         7.7         2.40           1.3
## 337 208.0         9.0         1.80          27.3
## 342    NA         3.1         1.46           1.3
## 344 139.4         7.8         2.11           0.5
## 345 139.4        15.0           NA           1.0
## 346  59.0         4.5         0.79           6.7
## 347    NA         3.9         1.73            NA
## 348 119.0         3.0         0.79           2.9
## 350  56.0         2.7         3.75            NA
## 352  37.9         3.0         0.80            NA
## 353  79.0         5.9           NA            NA
## 355  60.0         1.9         2.00            NA
## 357    NA          NA           NA            NA
## 359 121.0         3.2           NA           1.7
## 361  68.6         2.4           NA           1.3
## 363    NA          NA           NA            NA
## 364  58.0        17.5         2.55           0.9
## 365  65.0        17.5           NA            NA
## 368 208.0        15.0           NA           1.1
## 369  84.0         1.7         3.30           1.3
## 372  50.0         1.6         1.67           1.1
## 374 118.9         3.5         6.09           0.9
## 375  54.0          NA           NA           0.4
## 376  42.0         5.9         1.57           1.9
## 378  58.0          NA         1.65           1.1
## 379 221.0        17.5         1.00            NA
## 380  91.1          NA         3.27           0.8
## 381    NA        11.8         1.90            NA
## 382 518.0         2.3         1.20          11.7
## 383    NA         1.3         3.41            NA
## 384  68.6         5.2           NA           0.9
## 385    NA         1.9         1.27           3.7
## 386  66.0          NA         2.50            NA
## 387 117.6        17.5           NA           1.6
## 389 101.0         6.0         1.64           8.5
## 391  49.0         3.5         3.85           5.7
## 393 351.0         1.9         1.39           1.1
## 397 119.0         3.8           NA           3.1
## 398    NA         1.3         5.12            NA
## 399  88.0        17.5         1.67            NA
## 400 317.0          NA         2.40            NA
## 403  87.0         4.8         1.38           2.0
## 404    NA         5.9         2.23           0.5
```

```
## 406    NA          3.8             NA                 2.0
## 407  69.0          1.2           2.80                 1.3
## 408  77.0          4.8           0.60                 3.4
## 409 166.0          0.8             NA                 1.6
## 411 124.0          7.9             NA                 2.1
## 414  45.8          8.9           6.02                 3.0
## 416  67.3         16.5           1.10                 0.3
## 417 282.0         16.5           3.30                 0.5
## 418 283.0          2.5           2.40                  NA
## 419 324.0          3.5             NA                 4.3
## 422 146.0          5.2             NA                 2.4
## 423 152.0          6.4             NA                 0.9
##     mechanical_vent_days systematic_anticoagulation_type acute_kidney_injury
## 1              12h - 24h                  Heparin only               FALSE
## 2                   <NA>                  Heparin only               FALSE
## 3                 <= 12h              No anticoagulant                TRUE
## 4         2 days - 7 days       Heparin and bivalirudin                TRUE
## 5                   <NA>                  Heparin only               FALSE
## 6              12h - 24h              No anticoagulant                TRUE
## 7         2 days - 7 days                  Heparin only               FALSE
## 8              12h - 24h              Bivalirudin only                  NA
## 9              12h - 24h                  Heparin only                TRUE
## 10        2 days - 7 days              Bivalirudin only               FALSE
## 11                  <NA>              Bivalirudin only               FALSE
## 12                  <NA>              Bivalirudin only                  NA
## 13                  <NA>              Bivalirudin only                TRUE
## 20             12h - 24h                          <NA>               FALSE
## 21             12h - 24h                  Heparin only                TRUE
## 23                <= 12h                  Heparin only                TRUE
## 24             12h - 24h                  Heparin only                TRUE
## 25             12h - 24h                          <NA>               FALSE
## 28                <= 12h                  Heparin only                TRUE
## 29                  <NA>                  Heparin only               FALSE
## 30                <= 12h                  Heparin only               FALSE
## 31        2 days - 7 days              No anticoagulant               FALSE
## 34             12h - 24h              Bivalirudin only               FALSE
## 35             12h - 24h              Bivalirudin only                TRUE
## 36             12h - 24h              No anticoagulant               FALSE
## 39                  <NA>       Heparin and bivalirudin                  NA
## 40             12h - 24h              No anticoagulant               FALSE
## 42             12h - 24h              No anticoagulant                TRUE
## 43             12h - 24h                  Heparin only                TRUE
## 44             >= 7 days                  Heparin only               FALSE
## 46                <= 12h              Bivalirudin only                  NA
## 47                <= 12h       Heparin and bivalirudin                TRUE
## 48             12h - 24h              Bivalirudin only               FALSE
## 49                <= 12h              Bivalirudin only                TRUE
## 50                  <NA>                  Heparin only               FALSE
## 52        2 days - 7 days                          <NA>               FALSE
## 53                <= 12h       Heparin and bivalirudin               FALSE
## 54             12h - 24h                  Heparin only               FALSE
## 55             12h - 24h              Bivalirudin only               FALSE
## 57        2 days - 7 days                  Heparin only               FALSE
## 59             12h - 24h                  Heparin only               FALSE
```

```
## 61       2 days - 7 days                Heparin only              FALSE
## 64                 <= 12h             No anticoagulant               TRUE
## 66                 <= 12h                         <NA>              FALSE
## 69                   <NA>                Heparin only                 NA
## 71                 <= 12h                Heparin only                 NA
## 72       2 days - 7 days                Heparin only              FALSE
## 74             12h - 24h       Heparin and bivalirudin               TRUE
## 75             12h - 24h              Bivalirudin only               TRUE
## 76                 <NA>                Heparin only               TRUE
## 77                 <NA>              Bivalirudin only               TRUE
## 79             12h - 24h                Heparin only              FALSE
## 82             12h - 24h             No anticoagulant              FALSE
## 83                 <NA>                Heparin only              FALSE
## 84             12h - 24h              Bivalirudin only              FALSE
## 85                 <NA>                         <NA>              FALSE
## 86                 <NA>                Heparin only              FALSE
## 88                 <NA>                Heparin only              FALSE
## 89                 <NA>                         <NA>              FALSE
## 91             12h - 24h             No anticoagulant                 NA
## 92             >= 7 days                Heparin only              FALSE
## 93             12h - 24h                Heparin only              FALSE
## 95       2 days - 7 days                Heparin only               TRUE
## 96             12h - 24h              Bivalirudin only               TRUE
## 97             12h - 24h                Heparin only               TRUE
## 98                 <NA>              Bivalirudin only               TRUE
## 100                <= 12h             No anticoagulant               TRUE
## 102                <NA>                Heparin only              FALSE
## 103                <NA>              Bivalirudin only               TRUE
## 104      2 days - 7 days                Heparin only                 NA
## 105                <= 12h                         <NA>              FALSE
## 106                <NA>                Heparin only               TRUE
## 107            12h - 24h              Bivalirudin only                 NA
## 108      2 days - 7 days              Bivalirudin only              FALSE
## 109            12h - 24h                         <NA>              FALSE
## 111            12h - 24h                Heparin only              FALSE
## 112                <= 12h             Heparin only              FALSE
## 113            12h - 24h              Bivalirudin only                 NA
## 116                <= 12h                         <NA>                 NA
## 117                <NA>                Heparin only              FALSE
## 121                <NA>                         <NA>              FALSE
## 122                <= 12h                         <NA>              FALSE
## 123            12h - 24h             No anticoagulant               TRUE
## 124            12h - 24h             No anticoagulant               TRUE
## 126            >= 7 days              Bivalirudin only                 NA
## 127                <= 12h                         <NA>              FALSE
## 128            12h - 24h                Heparin only              FALSE
## 129            12h - 24h             No anticoagulant              FALSE
## 134                <= 12h             No anticoagulant              FALSE
## 135                <NA>                Heparin only               TRUE
## 136            >= 7 days                Heparin only              FALSE
## 137            >= 7 days                         <NA>                 NA
## 139            12h - 24h             No anticoagulant              FALSE
## 140            12h - 24h              Bivalirudin only              FALSE
## 141                <NA>                         <NA>              FALSE
```

```
## 142              <= 12h               Heparin only                NA
## 144              <= 12h               Heparin only             FALSE
## 145                <NA>          Bivalirudin only             FALSE
## 148              <= 12h          No anticoagulant              TRUE
## 149           12h - 24h          Bivalirudin only              TRUE
## 151      2 days - 7 days          Bivalirudin only                NA
## 152      2 days - 7 days          No anticoagulant                NA
## 156                <NA>               Heparin only              TRUE
## 157              <= 12h               Heparin only             FALSE
## 158           12h - 24h          Bivalirudin only             FALSE
## 159              <= 12h          No anticoagulant             FALSE
## 160      2 days - 7 days          Bivalirudin only              TRUE
## 162           12h - 24h               Heparin only             FALSE
## 164           12h - 24h          Bivalirudin only              TRUE
## 165           12h - 24h               Heparin only                NA
## 166           >= 7 days          Bivalirudin only                NA
## 168              <= 12h               Heparin only             FALSE
## 169                <NA>     Heparin and bivalirudin              TRUE
## 171              <= 12h               Heparin only                NA
## 172              <= 12h     Heparin and bivalirudin             FALSE
## 174                <NA>                     <NA>              TRUE
## 176      2 days - 7 days           Argatroban only              TRUE
## 177           12h - 24h               Heparin only             FALSE
## 178           12h - 24h               Heparin only                NA
## 179                <NA>               Heparin only              TRUE
## 183      2 days - 7 days               Heparin only             FALSE
## 184           12h - 24h               Heparin only                NA
## 185                <NA>               Heparin only                NA
## 188      2 days - 7 days               Heparin only              TRUE
## 189           12h - 24h               Heparin only             FALSE
## 193              <= 12h     Heparin and bivalirudin              TRUE
## 194              <= 12h               Heparin only             FALSE
## 195              <= 12h               Heparin only             FALSE
## 199           12h - 24h               Heparin only             FALSE
## 200           12h - 24h          No anticoagulant             FALSE
## 201           >= 7 days               Heparin only                NA
## 202                <NA>          Bivalirudin only             FALSE
## 204           >= 7 days                     <NA>                NA
## 206              <= 12h          No anticoagulant                NA
## 207           >= 7 days               Heparin only             FALSE
## 209      2 days - 7 days               Heparin only              TRUE
## 210           12h - 24h               Heparin only              TRUE
## 214              <= 12h               Heparin only                NA
## 216                <NA>               Heparin only                NA
## 217                <NA>                     <NA>              FALSE
## 220              <= 12h                     <NA>              FALSE
## 223              <= 12h     Heparin and bivalirudin              TRUE
## 226      2 days - 7 days               Heparin only             FALSE
## 229                <NA>               Heparin only             FALSE
## 230                <NA>               Heparin only                NA
## 231              <= 12h               Heparin only                NA
## 234              <= 12h          Bivalirudin only                NA
## 235           12h - 24h               Heparin only                NA
## 236           12h - 24h               Heparin only                NA
```

```
## 237                <NA>       Heparin and bivalirudin              FALSE
## 238                <NA>                          <NA>              FALSE
## 239           12h - 24h                Heparin only               TRUE
## 240      2 days - 7 days                Heparin only               TRUE
## 242                <NA>                          <NA>                NA
## 244           12h - 24h                Heparin only               TRUE
## 245                <NA>                Heparin only              FALSE
## 246                <NA>                Heparin only              FALSE
## 247                <NA>             No anticoagulant             FALSE
## 249           12h - 24h             No anticoagulant             FALSE
## 250           12h - 24h             Bivalirudin only             FALSE
## 251              <= 12h                          <NA>               TRUE
## 252           12h - 24h                Heparin only                NA
## 253              <= 12h             No anticoagulant               TRUE
## 254              <= 12h             Bivalirudin only               TRUE
## 255      2 days - 7 days                Heparin only               TRUE
## 256           12h - 24h             Bivalirudin only               TRUE
## 257              <= 12h             Bivalirudin only              FALSE
## 259           12h - 24h             Bivalirudin only              FALSE
## 260      2 days - 7 days             Bivalirudin only               TRUE
## 261           12h - 24h                Heparin only              FALSE
## 262              <= 12h       Heparin and bivalirudin               TRUE
## 263           12h - 24h                Heparin only               TRUE
## 264           12h - 24h                Heparin only              FALSE
## 265                <NA>                          <NA>               TRUE
## 268           12h - 24h                Heparin only                NA
## 269           >= 7 days             Bivalirudin only              FALSE
## 270                <NA>                Heparin only               TRUE
## 271           12h - 24h             Bivalirudin only               TRUE
## 272                <NA>             Bivalirudin only              FALSE
## 273           12h - 24h                Heparin only              FALSE
## 274                <NA>                          <NA>               TRUE
## 275              <= 12h             Bivalirudin only               TRUE
## 276                <NA>             No anticoagulant               TRUE
## 277           >= 7 days                          <NA>               TRUE
## 278                <NA>                Heparin only              FALSE
## 279           >= 7 days                Heparin only               TRUE
## 280      2 days - 7 days             Bivalirudin only               TRUE
## 282           12h - 24h                Heparin only              FALSE
## 286           12h - 24h             No anticoagulant               TRUE
## 287              <= 12h                Heparin only               TRUE
## 289           12h - 24h             No anticoagulant                NA
## 290                <NA>                Heparin only              FALSE
## 293           >= 7 days                Heparin only              FALSE
## 294           12h - 24h                          <NA>              FALSE
## 296                <NA>                Heparin only               TRUE
## 297           12h - 24h                Heparin only               TRUE
## 298                <NA>                Heparin only              FALSE
## 299              <= 12h             Bivalirudin only               TRUE
## 300      2 days - 7 days                Heparin only               TRUE
## 301      2 days - 7 days                Heparin only               TRUE
## 302           12h - 24h                Heparin only               TRUE
## 303              <= 12h                          <NA>                NA
## 305           12h - 24h             Bivalirudin only                NA
```

```
## 308           12h - 24h              Heparin only              TRUE
## 314     2 days - 7 days              Heparin only             FALSE
## 315                <NA>              Heparin only                NA
## 316           12h - 24h              Heparin only              TRUE
## 319              <= 12h           Bivalirudin only             FALSE
## 320           12h - 24h              Heparin only                NA
## 323              <= 12h           No anticoagulant              TRUE
## 324              <= 12h                      <NA>              TRUE
## 326           12h - 24h              Heparin only              TRUE
## 328           12h - 24h                      <NA>             FALSE
## 330              <= 12h              Heparin only              TRUE
## 332           12h - 24h                      <NA>             FALSE
## 333           12h - 24h                      <NA>              TRUE
## 334           12h - 24h              Heparin only              TRUE
## 336              <= 12h              Heparin only              TRUE
## 337                <NA>           Bivalirudin only             FALSE
## 342                <NA>           Bivalirudin only              TRUE
## 344              <= 12h                      <NA>              TRUE
## 345                <NA>              Heparin only              TRUE
## 346                <NA>           Bivalirudin only              TRUE
## 347              <= 12h              Heparin only                NA
## 348              <= 12h              Heparin only             FALSE
## 350                <NA>           Bivalirudin only              TRUE
## 352                <NA>           No anticoagulant             FALSE
## 353                <NA>           Bivalirudin only              TRUE
## 355           12h - 24h           Bivalirudin only             FALSE
## 357                <NA>                      <NA>                NA
## 359                <NA>                      <NA>              TRUE
## 361                <NA>              Heparin only             FALSE
## 363                <NA>                      <NA>                NA
## 364           12h - 24h              Heparin only             FALSE
## 365                <NA>      Heparin and bivalirudin                NA
## 368     2 days - 7 days           No anticoagulant                NA
## 369              <= 12h              Heparin only             FALSE
## 372                <NA>           Bivalirudin only             FALSE
## 374              <= 12h           Bivalirudin only                NA
## 375           12h - 24h                      <NA>             FALSE
## 376              <= 12h           Bivalirudin only                NA
## 378     2 days - 7 days           Bivalirudin only                NA
## 379              <= 12h              Heparin only              TRUE
## 380           >= 7 days              Heparin only              TRUE
## 381           >= 7 days              Heparin only              TRUE
## 382           12h - 24h              Heparin only              TRUE
## 383           12h - 24h              Heparin only             FALSE
## 384              <= 12h              Heparin only                NA
## 385           >= 7 days           Bivalirudin only                NA
## 386           12h - 24h           Bivalirudin only              TRUE
## 387           12h - 24h              Heparin only             FALSE
## 389              <= 12h              Heparin only             FALSE
## 391           12h - 24h           No anticoagulant              TRUE
## 393              <= 12h              Heparin only             FALSE
## 397                <NA>           No anticoagulant             FALSE
## 398              <= 12h                      <NA>             FALSE
## 399                <NA>                      <NA>                NA
```

```
## 400      2 days - 7 days              No anticoagulant               TRUE
## 403                <= 12h                  Heparin only               TRUE
## 404                <= 12h             Bivalirudin only               TRUE
## 406             >= 7 days                  Heparin only               TRUE
## 407                  <NA>                  Heparin only              FALSE
## 408                <= 12h                  Heparin only                 NA
## 409      2 days - 7 days                  Heparin only               TRUE
## 411                <= 12h             Bivalirudin only                 NA
## 414                  <NA>             Bivalirudin only              FALSE
## 416                <= 12h             No anticoagulant               TRUE
## 417                <= 12h                         <NA>               TRUE
## 418                  <NA>             Bivalirudin only               TRUE
## 419                <= 12h                  Heparin only               TRUE
## 422                  <NA>             No anticoagulant              FALSE
## 423             >= 7 days                  Heparin only              FALSE
##     hospital_los discharge_location steroids
## 1           13.0                <NA>       No
## 2           15.0                Home      Yes
## 3           20.0               Death     <NA>
## 4           49.0                <NA>     <NA>
## 5            1.0               Death     <NA>
## 6           29.0                Home      Yes
## 7           34.0                Home     <NA>
## 8           32.0                <NA>       No
## 9           16.0               Death       No
## 10         109.0                <NA>       No
## 11          34.0               Death     <NA>
## 12            NA                <NA>     <NA>
## 13         153.0                <NA>     <NA>
## 20          12.0                Home     <NA>
## 21            NA               Death      Yes
## 23          88.0                <NA>      Yes
## 24          34.0                Home      N/A
## 25           6.0               Death     <NA>
## 28           4.0               Death      Yes
## 29          29.0         LTAC/rehab     <NA>
## 30          26.0               Death       No
## 31          20.0                <NA>      Yes
## 34          14.0                Home     <NA>
## 35           2.0               Death       No
## 36           8.0               Death     <NA>
## 39           6.0                Home     <NA>
## 40           7.0                <NA>       No
## 42           8.0               Death       No
## 43          18.0                <NA>      Yes
## 44           7.0                <NA>       No
## 46           8.0                <NA>      Yes
## 47          88.0         LTAC/rehab     <NA>
## 48          36.8                Home     <NA>
## 49          41.0                <NA>       No
## 50         101.0               Death     <NA>
## 52          12.0         LTAC/rehab     <NA>
## 53          20.0                Home     <NA>
## 54          17.0                <NA>     <NA>
```

```
## 55          18.0             Death       No
## 57            NA              <NA>     <NA>
## 59          10.0              <NA>     <NA>
## 61            NA        LTAC/rehab     <NA>
## 64          13.0        LTAC/rehab     <NA>
## 66          51.0              <NA>     <NA>
## 69          43.0             Death     <NA>
## 71          13.0             Death      Yes
## 72            NA              Home     <NA>
## 74          38.0              <NA>     <NA>
## 75          56.0              <NA>      Yes
## 76          15.0        LTAC/rehab       No
## 77          36.0             Death     <NA>
## 79           6.0              <NA>       No
## 82          27.0              Home     <NA>
## 83          46.0              <NA>     <NA>
## 84            NA        LTAC/rehab      Yes
## 85          12.0        LTAC/rehab     <NA>
## 86          18.0        LTAC/rehab     <NA>
## 88            NA        LTAC/rehab      Yes
## 89          47.0              Home      Yes
## 91          38.0             Death     <NA>
## 92            NA             Death      Yes
## 93            NA             Death     <NA>
## 95          54.0             Death     <NA>
## 96          33.0             Death     <NA>
## 97           1.0             Death     <NA>
## 98            NA              Home     <NA>
## 100         22.0             Death     <NA>
## 102        103.0              Home      Yes
## 103         12.0              Home     <NA>
## 104         67.0             Death     <NA>
## 105          7.0              Home       No
## 106           NA             Death     <NA>
## 107         70.0              <NA>      Yes
## 108         23.0              <NA>      Yes
## 109           NA             Death     <NA>
## 111          1.0        LTAC/rehab       No
## 112         17.0             Death     <NA>
## 113          8.0              <NA>     <NA>
## 116         19.0        LTAC/rehab     <NA>
## 117         54.0             Death     <NA>
## 121         27.0             Death     <NA>
## 122          1.0        LTAC/rehab     <NA>
## 123         38.0              Home     <NA>
## 124         26.0              <NA>       No
## 126         27.0        LTAC/rehab     <NA>
## 127          4.0              Home       No
## 128         13.0              <NA>     <NA>
## 129         19.0              <NA>     <NA>
## 134         20.0             Death       No
## 135          8.0              <NA>      Yes
## 136         22.0              Home      Yes
## 137           NA              <NA>     <NA>
```

```
## 139         16.0              <NA>     <NA>
## 140           NA         LTAC/rehab     <NA>
## 141         12.0              Home      Yes
## 142          5.0             Death     <NA>
## 144        123.0              <NA>     <NA>
## 145        123.0         LTAC/rehab       No
## 148           NA             Death     <NA>
## 149         23.0              <NA>     <NA>
## 151         32.0         LTAC/rehab     <NA>
## 152         79.0              <NA>     <NA>
## 156         77.0             Death      Yes
## 157         16.0              <NA>     <NA>
## 158         25.0              Home     <NA>
## 159         28.0              Home      Yes
## 160          2.0             Death     <NA>
## 162         77.0              <NA>     <NA>
## 164         37.0         LTAC/rehab      Yes
## 165           NA              <NA>     <NA>
## 166           NA              Home     <NA>
## 168         19.0             Death     <NA>
## 169           NA             Other     <NA>
## 171         13.0             Death       No
## 172         43.0              <NA>       No
## 174         27.0              <NA>     <NA>
## 176           NA             Death       No
## 177          8.0              <NA>     <NA>
## 178         58.0             Death     <NA>
## 179         16.0              Home     <NA>
## 183           NA              Home     <NA>
## 184         73.0              Home     <NA>
## 185         26.0             Death     <NA>
## 188           NA              <NA>     <NA>
## 189         55.0              <NA>     <NA>
## 193         42.0             Death     <NA>
## 194           NA             Death      Yes
## 195         43.0              Home     <NA>
## 199         52.0             Death     <NA>
## 200         58.0              Home      Yes
## 201           NA         LTAC/rehab       No
## 202         31.0             Death      Yes
## 204           NA             Death     <NA>
## 206         85.0             Death     <NA>
## 207         19.0         LTAC/rehab     <NA>
## 209           NA              <NA>     <NA>
## 210         15.0              <NA>     <NA>
## 214         29.0         LTAC/rehab      Yes
## 216         61.0              <NA>      Yes
## 217         36.8             Death      Yes
## 220         40.0              <NA>     <NA>
## 223          1.0             Death     <NA>
## 226           NA             Death      Yes
## 229         94.0             Death     <NA>
## 230         17.0              <NA>       No
## 231         21.0              Home      Yes
```

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## 234         86.0             Death      N/A
## 235           NA              <NA>      Yes
## 236          2.0              Home     <NA>
## 237         70.0             Death     <NA>
## 238         46.0              <NA>      N/A
## 239         37.0             Death     <NA>
## 240           NA              Home       No
## 242           NA        LTAC/rehab     <NA>
## 244        101.0        LTAC/rehab       No
## 245           NA             Death     <NA>
## 246         17.0              Home     <NA>
## 247         47.0              <NA>     <NA>
## 249         26.0        LTAC/rehab      Yes
## 250        108.0              <NA>       No
## 251         16.0              <NA>     <NA>
## 252         33.0              <NA>       No
## 253           NA              <NA>      Yes
## 254         32.0              <NA>      Yes
## 255           NA             Death     <NA>
## 256         24.0             Death     <NA>
## 257         43.0              <NA>     <NA>
## 259           NA              <NA>     <NA>
## 260         52.0        LTAC/rehab     <NA>
## 261         75.0             Death     <NA>
## 262         30.0             Death     <NA>
## 263         49.0              <NA>      Yes
## 264         29.0              <NA>     <NA>
## 265         36.0        LTAC/rehab       No
## 268         29.0              Home      Yes
## 269         27.0              <NA>     <NA>
## 270         12.0              <NA>     <NA>
## 271         53.0        LTAC/rehab      Yes
## 272         36.0              Home     <NA>
## 273           NA        LTAC/rehab     <NA>
## 274         11.0        LTAC/rehab       No
## 275         23.0             Other     <NA>
## 276         33.0              <NA>     <NA>
## 277         17.0        LTAC/rehab     <NA>
## 278         10.0              <NA>      Yes
## 279           NA             Death     <NA>
## 280           NA        LTAC/rehab       No
## 282        123.0              Home     <NA>
## 286         19.0              <NA>       No
## 287         56.0             Death     <NA>
## 289         25.0              <NA>     <NA>
## 290         12.0              <NA>     <NA>
## 293           NA              <NA>      Yes
## 294        106.8              <NA>     <NA>
## 296         10.0              <NA>     <NA>
## 297         22.0             Death     <NA>
## 298         14.0              <NA>      Yes
## 299         77.0              <NA>     <NA>
## 300         33.0              Home     <NA>
## 301         17.0             Death      Yes
```

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## 302         46.0              Death     <NA>
## 303         23.0               <NA>     <NA>
## 305         12.0               <NA>      Yes
## 308         19.0              Death      Yes
## 314         36.8              Death     <NA>
## 315         24.0              Death      Yes
## 316         12.0              Death       No
## 319           NA               <NA>       No
## 320         10.0              Death     <NA>
## 323           NA              Death      Yes
## 324        153.0               <NA>     <NA>
## 326         52.0              Death     <NA>
## 328          7.0               <NA>     <NA>
## 330         42.0              Death     <NA>
## 332           NA               Home     <NA>
## 333         62.0               <NA>     <NA>
## 334         58.0               Home     <NA>
## 336          3.0               Home     <NA>
## 337          2.0               Home     <NA>
## 342         35.0               <NA>     <NA>
## 344         11.0         LTAC/rehab     <NA>
## 345         22.0               <NA>       No
## 346         49.0               Home     <NA>
## 347          1.0               Home     <NA>
## 348           NA               Home      Yes
## 350         41.0               <NA>     <NA>
## 352          4.0              Death     <NA>
## 353           NA              Death     <NA>
## 355          7.0               <NA>     <NA>
## 357           NA
## 359          7.0               <NA>     <NA>
## 361         46.0              Death      N/A
## 363           NA
## 364           NA         LTAC/rehab     <NA>
## 365         11.0              Death     <NA>
## 368          2.0              Death       No
## 369        173.0              Death      Yes
## 372         38.0               <NA>      Yes
## 374           NA               <NA>     <NA>
## 375         57.0               Home     <NA>
## 376         37.0         LTAC/rehab     <NA>
## 378          7.0              Death       No
## 379         60.0              Death     <NA>
## 380         21.0              Death     <NA>
## 381         17.0               Home     <NA>
## 382         26.0               <NA>     <NA>
## 383         15.0              Death       No
## 384          2.0               Home       No
## 385          9.0               Home     <NA>
## 386        103.0         LTAC/rehab       No
## 387         14.0               <NA>     <NA>
## 389          8.0         LTAC/rehab       No
## 391         41.0               <NA>     <NA>
## 393         12.0         LTAC/rehab     <NA>
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## 397        117.0         LTAC/rehab       No
## 398           NA              Death     <NA>
## 399          8.0               <NA>     <NA>
## 400         37.0               <NA>     <NA>
## 403          1.0              Death      Yes
## 404           NA              Death     <NA>
## 406          1.5              Death      Yes
## 407         29.0         LTAC/rehab     <NA>
## 408           NA               Home     <NA>
## 409         23.0               <NA>       No
## 411         38.0               <NA>     <NA>
## 414         29.0               Home     <NA>
## 416          7.0         LTAC/rehab       No
## 417         23.0              Death       No
## 418           NA               Home     <NA>
## 419         53.0               <NA>     <NA>
## 422          8.0               <NA>       No
## 423         17.0               <NA>     <NA>
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## 31
## 34
## 35
## 36
## 39                                   (On-ECLS, Blood, Bacteria, Enterobacter cloacae), (On-ECLS, B
## 40
## 42
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## 52
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## 69
## 71
## 72
## 74
## 75                                                                    (Pre-ECLS, Urine, Bacteria, En
## 76
## 77
## 79
## 82
## 83
## 84
## 85                                          (Pre-ECLS, Respiratory Tract, Bacteria, Serratia mars
## 86
## 88
## 89
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## 109
## 111
## 112
## 113
## 116                                (Pre-ECLS, Blood, Bacteria, E. coli), (Pre-ECLS, Blood, Ba
## 117
## 121
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## 135
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## 149
## 151
## 152
## 156
## 157                                                                    (On-ECLS, Respiratory tract, Fungus
## 158
## 159
## 160
## 162
## 164
## 165
## 166
## 168
## 169
## 171
## 172
## 174
## 176 (On-ECLS, Respiratory Tract, Fungus, Candida Albicans), (On-ECLS, Respiratory Tract, Bacteria, C
## 177
## 178
## 179
## 183
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## 185
## 188
## 189
## 193
## 194
## 195
## 199
## 200
## 201
## 202                                                                    (On-ECLS, Respiratory tract, Fungus
## 204
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## 229
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## 234
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## 236
## 237
## 238
## 239
## 240                                                                    (Pre-ECLS, Urine, Bacteria, En
## 242
## 244
## 245
## 246
## 247
## 249
## 250
## 251
## 252
## 253                                  (Pre-ECLS, Blood, Bacteria, E. coli), (Pre-ECLS, Blood, Ba
## 254
## 255
## 256                                  (Pre-ECLS, Blood, Bacteria, E. coli), (Pre-ECLS, Blood, Ba
## 257
## 259
## 260
## 261
## 262
## 263
## 264
## 265
## 268
## 269
## 270
## 271                                  (Pre-ECLS, Blood, Bacteria, E. coli), (Pre-ECLS, Blood, Ba
## 272
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## 422
## 423
##     support_type transfer covid pregnant year days_to_discharge admission_date
## 1        Cardiac    FALSE FALSE       NA 2021                70     2021-08-26
## 2           <NA>    FALSE  TRUE       NA 2018                 7     2020-10-17
## 3      Pulmonary    FALSE FALSE       NA 2018                NA     2021-12-25
## 4           <NA>    FALSE FALSE       NA 2020                NA     2020-01-29
## 5           <NA>    FALSE FALSE     TRUE 2022                NA     2021-07-02
## 6           <NA>    FALSE  TRUE       NA 2020                NA     2021-06-18
## 7           <NA>    FALSE  TRUE       NA 2020                NA     2020-05-10
## 8           <NA>    FALSE FALSE       NA 2019                 6     2021-09-13
## 9        Cardiac    FALSE FALSE       NA 2020                18     2021-07-08
## 10          <NA>    FALSE  TRUE       NA 2018                NA     2021-11-03
## 11          <NA>    FALSE FALSE       NA 2019                38     2021-06-01
## 12       Cardiac    FALSE FALSE       NA 2018                NA     2021-05-15
## 13          <NA>    FALSE FALSE       NA 2018                10     2021-12-30
## 20     Pulmonary    FALSE FALSE       NA 2020                36     2020-02-19
## 21       Cardiac    FALSE FALSE       NA 2019                 7     2021-07-11
## 23       Cardiac    FALSE FALSE       NA 2020                66     2020-05-15
## 24          <NA>    FALSE FALSE       NA 2021                NA     2020-02-12
## 25          <NA>    FALSE FALSE       NA 2019                NA     2021-11-01
## 28          <NA>    FALSE FALSE       NA 2020                NA     2021-01-08
## 29          <NA>    FALSE FALSE       NA 2018               101     2020-10-05
## 30       Cardiac    FALSE  TRUE       NA 2019                NA     2020-07-16
## 31          ECPR    FALSE FALSE       NA 2018                12     2020-05-08
## 34          ECPR    FALSE  TRUE       NA 2019                71     2020-11-03
## 35          <NA>    FALSE FALSE       NA 2022                 9     2020-06-09
## 36          <NA>    FALSE  TRUE       NA 2019                66     2020-11-23
## 39     Pulmonary    FALSE FALSE       NA 2021                27     2020-04-14
## 40       Cardiac    FALSE FALSE       NA 2021                14     2021-10-25
## 42          <NA>    FALSE FALSE       NA 2018                48     2020-08-23
## 43       Cardiac    FALSE FALSE       NA 2019                75     2020-12-17
## 44          <NA>    FALSE  TRUE       NA 2018               107     2021-08-11
## 46          ECPR    FALSE FALSE       NA 2020                19     2020-07-03
## 47          ECPR    FALSE FALSE       NA 2019                38     2021-04-08
```

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## 48          <NA>    FALSE FALSE       NA 2019                9     2020-02-06
## 49          <NA>    FALSE FALSE       NA 2021               NA     2020-09-19
## 50     Pulmonary    FALSE FALSE       NA 2019               NA     2020-03-21
## 52          <NA>    FALSE  TRUE       NA 2021               45     2020-03-20
## 53          <NA>    FALSE    NA       NA 2020              107     2020-09-06
## 54          <NA>    FALSE FALSE       NA 2020               NA     2021-12-23
## 55          <NA>    FALSE FALSE       NA 2020               21     2020-08-28
## 57          <NA>    FALSE  TRUE       NA 2021               69     2020-02-17
## 59     Pulmonary    FALSE  TRUE       NA 2020               17     2021-07-30
## 61          <NA>    FALSE  TRUE       NA 2021               NA     2020-10-10
## 64          <NA>    FALSE  TRUE       NA 2021               26     2021-10-07
## 66     Pulmonary    FALSE FALSE       NA 2019                8     2020-12-29
## 69          <NA>    FALSE  TRUE       NA 2019               11     2021-06-29
## 71     Pulmonary    FALSE FALSE       NA 2019               NA     2020-03-14
## 72          <NA>    FALSE FALSE       NA 2020               54     2021-07-22
## 74          <NA>    FALSE FALSE       NA 2020               18     2020-07-29
## 75          <NA>    FALSE FALSE       NA 2022                1     2021-12-16
## 76     Pulmonary    FALSE FALSE       NA 2020               11     2020-04-10
## 77       Cardiac    FALSE FALSE       NA 2018               15     2021-12-27
## 79     Pulmonary    FALSE  TRUE       NA 2020               19     2020-07-25
## 82          <NA>    FALSE FALSE       NA 2021               19     2021-08-04
## 83       Cardiac    FALSE FALSE       NA 2019               23     2020-11-24
## 84          <NA>    FALSE FALSE       NA 2019               46     2021-07-20
## 85       Cardiac    FALSE FALSE       NA 2020               37     2021-10-08
## 86          <NA>    FALSE FALSE       NA 2019               17     2021-11-19
## 88          <NA>    FALSE FALSE       NA 2021               41     2020-04-28
## 89       Cardiac    FALSE FALSE       NA 2017                8     2020-09-12
## 91     Pulmonary    FALSE FALSE       NA 2022               12     2020-08-15
## 92       Cardiac    FALSE FALSE       NA 2021               NA     2021-06-15
## 93          <NA>    FALSE  TRUE       NA 2021               43     2021-12-21
## 95          <NA>    FALSE FALSE       NA 2021               NA     2021-07-27
## 96          <NA>    FALSE  TRUE       NA 2019               NA     2020-03-09
## 97       Cardiac    FALSE FALSE       NA 2021               53     2020-09-20
## 98          <NA>    FALSE FALSE       NA 2021               13     2021-04-14
## 100         <NA>    FALSE FALSE       NA 2018               71     2020-06-10
## 102         <NA>    FALSE FALSE       NA 2020                8     2020-02-04
## 103         <NA>    FALSE FALSE       NA 2021               NA     2020-05-25
## 104         <NA>    FALSE FALSE       NA 2020               NA     2020-01-11
## 105         <NA>    FALSE FALSE       NA 2020               NA     2020-07-22
## 106      Cardiac    FALSE  TRUE       NA 2019               58     2021-02-08
## 107         <NA>    FALSE FALSE       NA 2019               NA     2020-02-11
## 108         <NA>    FALSE FALSE       NA 2019               48     2021-07-13
## 109         <NA>    FALSE FALSE       NA 2018               35     2020-03-07
## 111         <NA>    FALSE  TRUE       NA 2022               58     2020-08-18
## 112         <NA>    FALSE FALSE       NA 2018               10     2020-04-09
## 113         <NA>    FALSE FALSE       NA 2020               NA     2020-02-22
## 116         <NA>    FALSE FALSE       NA 2018               11     2020-03-16
## 117         <NA>    FALSE FALSE       NA 2022               15     2021-07-10
## 121         ECPR    FALSE FALSE       NA 2019               NA     2021-03-17
## 122         <NA>    FALSE FALSE       NA 2018               11     2020-11-19
## 123         ECPR     TRUE FALSE       NA 2018               83     2020-01-13
## 124         <NA>    FALSE FALSE       NA 2020               NA     2020-05-02
## 126      Cardiac    FALSE  TRUE       NA 2018                3     2020-12-12
## 127         <NA>    FALSE FALSE       NA 2022                8     2020-12-31
```

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## 128        <NA>    FALSE FALSE       NA 2021               55     2021-08-07
## 129        <NA>    FALSE FALSE       NA 2018               32     2021-11-09
## 134   Pulmonary    FALSE FALSE       NA 2021               26     2020-08-21
## 135        <NA>    FALSE  TRUE       NA 2019               NA     2020-08-14
## 136        <NA>    FALSE  TRUE       NA 2021               35     2021-07-09
## 137        ECPR    FALSE  TRUE       NA 2018                0     2021-05-19
## 139        <NA>    FALSE FALSE       NA 2020               NA     2021-05-04
## 140   Pulmonary    FALSE FALSE       NA 2021                2     2020-04-30
## 141   Pulmonary    FALSE FALSE       NA 2021               14     2020-03-18
## 142        ECPR    FALSE FALSE       NA 2021               58     2021-10-23
## 144   Pulmonary    FALSE FALSE       NA 2019               13     2021-03-03
## 145        <NA>    FALSE  TRUE       NA 2019                2     2021-02-03
## 148        <NA>    FALSE FALSE       NA 2017               NA     2021-06-17
## 149        <NA>    FALSE FALSE       NA 2020               54     2021-05-10
## 151        <NA>    FALSE  TRUE       NA 2021               88     2021-11-20
## 152        ECPR    FALSE FALSE       NA 2018               NA     2021-11-22
## 156        ECPR    FALSE FALSE       NA 2020               45     2020-11-20
## 157        <NA>    FALSE FALSE       NA 2020               NA     2021-06-16
## 158        <NA>    FALSE FALSE       NA 2018               44     2021-08-03
## 159        <NA>    FALSE FALSE       NA 2018                3     2020-09-11
## 160   Pulmonary    FALSE  TRUE       NA 2019               NA     2021-03-26
## 162        <NA>    FALSE FALSE     TRUE 2020               NA     2021-05-02
## 164        <NA>    FALSE  TRUE       NA 2019               12     2020-02-08
## 165     Cardiac    FALSE FALSE       NA 2020               11     2021-03-27
## 166        <NA>    FALSE FALSE       NA 2019               11     2021-03-15
## 168        <NA>    FALSE FALSE       NA 2021               12     2021-03-29
## 169     Cardiac    FALSE FALSE       NA 2020               19     2020-10-19
## 171   Pulmonary    FALSE  TRUE       NA 2018               NA     2021-06-09
## 172        <NA>    FALSE FALSE       NA 2018               10     2020-12-09
## 174   Pulmonary    FALSE  TRUE       NA 2019               71     2020-09-10
## 176        <NA>    FALSE  TRUE       NA 2020               24     2021-12-24
## 177        <NA>    FALSE FALSE       NA 2020                8     2020-06-29
## 178        <NA>    FALSE FALSE       NA 2019               69     2020-09-14
## 179        <NA>    FALSE FALSE       NA 2017               58     2020-08-17
## 183        <NA>    FALSE FALSE       NA 2019               NA     2021-06-13
## 184        <NA>    FALSE  TRUE       NA 2019               29     2021-08-09
## 185        <NA>    FALSE  TRUE       NA 2020              107     2021-03-20
## 188        <NA>    FALSE  TRUE       NA 2019                1     2020-01-05
## 189        <NA>    FALSE FALSE       NA 2020               40     2021-05-07
## 193        <NA>    FALSE FALSE       NA 2018               42     2020-02-14
## 194        <NA>    FALSE FALSE       NA 2020               39     2020-11-18
## 195     Cardiac    FALSE FALSE       NA 2019               NA     2021-02-02
## 199        <NA>    FALSE FALSE       NA 2020               NA     2020-07-24
## 200        ECPR    FALSE FALSE       NA 2019                4     2021-02-15
## 201        <NA>    FALSE FALSE       NA 2018               69     2021-09-05
## 202        <NA>    FALSE FALSE       NA 2020               NA     2021-12-09
## 204        <NA>    FALSE FALSE       NA 2018               NA     2020-08-06
## 206        <NA>    FALSE  TRUE       NA 2020               NA     2020-12-18
## 207        <NA>    FALSE  TRUE       NA 2019               34     2020-09-17
## 209        <NA>    FALSE  TRUE       NA 2017               NA     2021-04-21
## 210        <NA>    FALSE  TRUE       NA 2020                5     2021-03-19
## 214        <NA>    FALSE  TRUE       NA 2020               20     2020-07-14
## 216     Cardiac    FALSE  TRUE       NA 2021                6     2020-12-21
## 217        <NA>    FALSE  TRUE     TRUE 2020                3     2020-05-06
```

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## 220         ECPR    FALSE FALSE       NA 2021               39     2021-07-19
## 223      Cardiac    FALSE FALSE       NA 2019                2     2021-08-30
## 226      Cardiac    FALSE FALSE       NA 2020               NA     2021-11-27
## 229      Cardiac    FALSE FALSE       NA 2020               NA     2020-02-28
## 230      Cardiac    FALSE FALSE       NA 2021                0     2020-06-16
## 231    Pulmonary    FALSE FALSE     TRUE 2020               16     2020-12-22
## 234         <NA>    FALSE  TRUE       NA 2019               12     2021-10-29
## 235         <NA>    FALSE FALSE       NA 2019               40     2021-03-04
## 236         <NA>    FALSE  TRUE       NA 2020               13     2020-09-09
## 237    Pulmonary    FALSE FALSE       NA 2019               33     2020-02-03
## 238         <NA>    FALSE FALSE       NA 2020                7     2020-03-22
## 239         <NA>    FALSE FALSE       NA 2018                9     2021-03-10
## 240         <NA>    FALSE FALSE       NA 2020               NA     2020-07-13
## 242         <NA>    FALSE FALSE       NA 2021                8     2021-06-06
## 244         <NA>    FALSE FALSE       NA 2020                6     2020-04-22
## 245         <NA>    FALSE  TRUE       NA 2018               18     2021-09-15
## 246         <NA>    FALSE FALSE       NA 2020               NA     2021-02-16
## 247    Pulmonary    FALSE  TRUE       NA 2019               34     2021-10-15
## 249         <NA>    FALSE FALSE       NA 2019                1     2021-02-01
## 250      Cardiac    FALSE FALSE       NA 2019                5     2020-09-24
## 251         <NA>    FALSE FALSE       NA 2019               NA     2021-08-25
## 252         <NA>    FALSE FALSE       NA 2020               75     2021-02-28
## 253         <NA>    FALSE  TRUE       NA 2020               NA     2020-03-01
## 254         <NA>    FALSE FALSE       NA 2021                6     2020-01-04
## 255         <NA>    FALSE  TRUE       NA 2020                3     2020-07-06
## 256    Pulmonary    FALSE  TRUE     TRUE 2019                7     2021-09-08
## 257         <NA>    FALSE FALSE       NA 2020               NA     2021-08-01
## 259         <NA>    FALSE FALSE       NA 2018               NA     2021-08-15
## 260      Cardiac    FALSE FALSE       NA 2019               NA     2021-11-05
## 261         <NA>    FALSE FALSE       NA 2021               NA     2020-10-20
## 262      Cardiac    FALSE  TRUE       NA 2019              107     2021-04-23
## 263      Cardiac    FALSE  TRUE       NA 2019                2     2021-02-22
## 264    Pulmonary    FALSE  TRUE       NA 2020               13     2021-09-01
## 265         <NA>    FALSE FALSE       NA 2020               12     2020-03-28
## 268    Pulmonary    FALSE  TRUE       NA 2020                2     2020-04-16
## 269      Cardiac    FALSE  TRUE       NA 2018               NA     2020-07-02
## 270         <NA>    FALSE  TRUE       NA 2021               16     2021-01-06
## 271         <NA>    FALSE  TRUE       NA 2021               NA     2021-10-19
## 272      Cardiac    FALSE FALSE       NA 2018               20     2020-08-12
## 273         <NA>    FALSE FALSE       NA 2019                1     2020-06-04
## 274      Cardiac    FALSE FALSE       NA 2021               30     2020-02-15
## 275         <NA>    FALSE FALSE       NA 2018               NA     2020-06-06
## 276         <NA>    FALSE  TRUE       NA 2021               75     2020-10-18
## 277         <NA>    FALSE  TRUE       NA 2022               70     2021-11-30
## 278         <NA>    FALSE FALSE       NA 2020                1     2020-06-25
## 279      Cardiac    FALSE  TRUE       NA 2020               38     2020-11-26
## 280         <NA>    FALSE FALSE       NA 2020               15     2021-01-27
## 282    Pulmonary    FALSE FALSE       NA 2020               NA     2021-09-27
## 286         <NA>    FALSE FALSE       NA 2019               NA     2021-10-16
## 287      Cardiac    FALSE FALSE       NA 2018               25     2021-03-23
## 289         <NA>    FALSE FALSE       NA 2018               NA     2020-06-17
## 290         <NA>    FALSE FALSE       NA 2018               14     2020-06-07
## 293         <NA>    FALSE  TRUE       NA 2019               63     2021-03-21
## 294         <NA>    FALSE FALSE       NA 2019               17     2021-06-20
```

```
## 296      Cardiac     TRUE FALSE       NA 2018               15     2020-12-01
## 297         <NA>    FALSE  TRUE       NA 2021               86     2021-10-06
## 298         <NA>    FALSE  TRUE       NA 2021               22     2020-06-14
## 299      Cardiac    FALSE FALSE       NA 2020               11     2020-06-15
## 300         <NA>    FALSE FALSE     TRUE 2019                7     2021-12-06
## 301         <NA>     TRUE FALSE       NA 2017               38     2020-06-21
## 302         <NA>    FALSE FALSE       NA 2018               NA     2021-02-21
## 303         <NA>    FALSE  TRUE       NA 2019               39     2021-07-04
## 305         <NA>    FALSE FALSE       NA 2018               NA     2020-01-24
## 308         <NA>    FALSE FALSE       NA 2019               NA     2021-09-20
## 314         <NA>    FALSE FALSE       NA 2020               NA     2021-05-11
## 315    Pulmonary    FALSE  TRUE       NA 2019               NA     2020-11-08
## 316      Cardiac    FALSE FALSE       NA 2019                1     2021-02-27
## 319         <NA>    FALSE FALSE     TRUE 2019               26     2021-07-25
## 320         <NA>    FALSE  TRUE       NA 2020                6     2020-02-21
## 323         <NA>    FALSE FALSE       NA 2019              160     2021-04-11
## 324         <NA>    FALSE  TRUE     TRUE 2020               25     2020-04-24
## 326         <NA>    FALSE  TRUE     TRUE 2020               76     2020-04-07
## 328      Cardiac    FALSE FALSE       NA 2017               69     2021-06-02
## 330         <NA>    FALSE FALSE     TRUE 2021               NA     2020-08-30
## 332         <NA>    FALSE FALSE       NA 2021               NA     2021-03-07
## 333         <NA>    FALSE FALSE       NA 2021               23     2020-10-07
## 334      Cardiac    FALSE FALSE       NA 2019               58     2020-05-04
## 336         <NA>    FALSE FALSE       NA 2019               19     2021-01-24
## 337         <NA>    FALSE FALSE       NA 2019               20     2020-03-13
## 342    Pulmonary    FALSE  TRUE       NA 2019                7     2020-04-27
## 344    Pulmonary    FALSE  TRUE       NA 2019               NA     2021-04-16
## 345         <NA>    FALSE  TRUE       NA 2021               13     2021-04-30
## 346         <NA>    FALSE FALSE       NA 2021               19     2021-10-17
## 347      Cardiac    FALSE FALSE       NA 2020                7     2020-03-26
## 348    Pulmonary     TRUE FALSE       NA 2021               NA     2021-01-02
## 350         <NA>    FALSE  TRUE       NA 2019               15     2020-10-24
## 352         <NA>    FALSE FALSE       NA 2020                7     2020-06-27
## 353         <NA>    FALSE FALSE       NA 2018               33     2020-10-03
## 355         <NA>    FALSE FALSE       NA 2019               15     2021-01-18
## 357         <NA>       NA    NA       NA   NA               NA           <NA>
## 359         <NA>    FALSE FALSE       NA 2020               NA     2020-06-22
## 361         <NA>    FALSE FALSE       NA 2020                4     2021-04-06
## 363         <NA>       NA    NA       NA   NA               NA           <NA>
## 364         <NA>    FALSE FALSE       NA 2021               NA     2021-07-05
## 365      Cardiac    FALSE  TRUE       NA 2020               11     2021-07-07
## 368         <NA>    FALSE FALSE       NA 2020               NA     2020-08-26
## 369         <NA>    FALSE FALSE       NA 2019               61     2020-05-18
## 372         <NA>    FALSE FALSE       NA 2018               76     2020-11-14
## 374         <NA>    FALSE FALSE       NA 2021               22     2020-05-12
## 375         <NA>    FALSE FALSE       NA 2020               NA     2021-11-26
## 376         <NA>    FALSE FALSE       NA 2020               NA     2021-08-02
## 378         <NA>    FALSE FALSE       NA 2020               NA     2021-11-10
## 379         <NA>    FALSE    NA       NA 2019               NA     2020-09-25
## 380      Cardiac    FALSE FALSE       NA 2018               NA     2021-10-01
## 381         <NA>    FALSE  TRUE       NA 2019               28     2021-08-18
## 382         <NA>     TRUE FALSE       NA 2021               26     2021-05-05
## 383         <NA>    FALSE  TRUE       NA 2019               20     2021-09-07
## 384      Cardiac    FALSE FALSE       NA 2020               50     2020-06-20
```

```
## 385      Cardiac    FALSE FALSE       NA 2021               NA     2021-10-24
## 386      Cardiac    FALSE FALSE       NA 2021                6     2020-12-30
## 387         <NA>    FALSE  TRUE       NA 2021               27     2021-01-25
## 389         <NA>    FALSE FALSE       NA 2021                2     2021-03-14
## 391         <NA>    FALSE FALSE       NA 2021                4     2021-06-27
## 393    Pulmonary    FALSE FALSE       NA 2020                6     2020-12-20
## 397    Pulmonary    FALSE FALSE       NA 2018               NA     2020-12-27
## 398         <NA>    FALSE FALSE       NA 2019               23     2020-08-29
## 399    Pulmonary     TRUE FALSE       NA 2021               NA     2020-04-03
## 400         <NA>    FALSE FALSE       NA 2019               NA     2021-08-23
## 403         <NA>    FALSE FALSE       NA 2020               18     2020-02-02
## 404         <NA>    FALSE  TRUE       NA 2018               22     2021-11-18
## 406         <NA>    FALSE  TRUE       NA 2020              103     2020-08-09
## 407    Pulmonary    FALSE  TRUE       NA 2020                3     2021-01-28
## 408         <NA>    FALSE  TRUE       NA 2019               95     2021-01-30
## 409         <NA>    FALSE  TRUE       NA 2018               NA     2021-09-06
## 411         <NA>    FALSE FALSE       NA 2019                7     2021-02-12
## 414         <NA>    FALSE FALSE       NA 2019                1     2021-04-10
## 416         ECPR    FALSE  TRUE     TRUE 2021               42     2021-07-03
## 417    Pulmonary    FALSE FALSE       NA 2019               25     2020-08-16
## 418         <NA>    FALSE FALSE       NA 2018               NA     2021-11-04
## 419      Cardiac    FALSE FALSE       NA 2020               10     2020-06-28
## 422      Cardiac    FALSE  TRUE       NA 2019               27     2020-03-25
## 423      Cardiac    FALSE  TRUE       NA 2017               39     2021-10-21
##     discharge_date death_date
## 1       2021-09-28       <NA>
## 2       2020-11-16       <NA>
## 3       2022-02-03       <NA>
## 4       2020-02-25 2020-02-25
## 5       2021-08-09       <NA>
## 6       2021-07-24       <NA>
## 7       2020-05-31       <NA>
## 8       2021-10-13       <NA>
## 9       2021-08-22       <NA>
## 10      2021-11-11       <NA>
## 11      2021-06-06       <NA>
## 12      2021-05-20       <NA>
## 13      2022-02-04       <NA>
## 20      2020-03-30 2020-03-30
## 21      2021-08-25       <NA>
## 23      2020-05-30       <NA>
## 24      2020-03-09 2020-03-09
## 25      2021-11-02       <NA>
## 28      2021-01-10       <NA>
## 29      2020-11-18       <NA>
## 30      2020-08-05 2020-08-05
## 31      2020-06-27       <NA>
## 34      2020-11-14       <NA>
## 35      2020-07-13       <NA>
## 36      2020-12-29 2020-12-29
## 39      2020-05-25       <NA>
## 40      2021-12-05       <NA>
## 42      2020-09-21       <NA>
## 43      2020-12-30       <NA>
```

```
## 44      2021-08-31       <NA>
## 46      2020-08-10 2020-08-10
## 47      2021-04-11 2021-04-11
## 48      2020-03-16       <NA>
## 49      2020-10-01 2020-10-01
## 50      2020-04-20       <NA>
## 52      2020-03-21 2020-03-21
## 53      2020-10-03       <NA>
## 54      2022-01-13       <NA>
## 55      2020-09-21 2020-09-21
## 57      2020-02-24       <NA>
## 59      2021-08-22       <NA>
## 61      2020-11-06       <NA>
## 64      2021-10-26       <NA>
## 66      2021-01-17       <NA>
## 69      2021-08-08       <NA>
## 71      2020-05-01 2020-05-01
## 72      2021-09-03       <NA>
## 74      2020-09-13 13/09/2020
## 75      2022-01-08       <NA>
## 76      2020-04-13       <NA>
## 77      2021-12-31       <NA>
## 79      2020-07-29 2020-07-29
## 82      2021-08-13       <NA>
## 83      2021-01-03       <NA>
## 84      2021-08-09       <NA>
## 85      2021-10-18       <NA>
## 86      2021-12-24       <NA>
## 88      2020-05-10       <NA>
## 89      2020-09-19       <NA>
## 91      2020-09-24       <NA>
## 92      2021-07-19 2021-07-19
## 93      2022-01-06 2022-01-06
## 95      2021-07-30       <NA>
## 96      2020-03-15       <NA>
## 97      2020-11-02       <NA>
## 98      2021-05-02 2021-05-02
## 100     2020-07-25       <NA>
## 102     2020-02-18       <NA>
## 103     2020-06-30 2020-06-30
## 104     2020-01-29       <NA>
## 105     2020-08-22 2020-08-22
## 106     2021-03-14       <NA>
## 107     2020-03-05       <NA>
## 108     2021-08-29       <NA>
## 109     2020-03-15       <NA>
## 111     2020-09-20       <NA>
## 112     2020-05-21       <NA>
## 113     2020-03-31       <NA>
## 116     2020-03-23       <NA>
## 117     2021-08-23       <NA>
## 121     2021-03-30       <NA>
## 122     2020-12-16       <NA>
## 123     2020-02-05       <NA>
```

```
## 124     2020-05-10 2020-05-10
## 126     2021-01-12 2021-01-12
## 127     2021-01-05       <NA>
## 128     2021-08-11 2021-08-11
## 129     2021-11-28 2021-11-28
## 134     2020-09-11       <NA>
## 135     2020-08-25       <NA>
## 136     2021-08-10 2021-08-10
## 137     2021-06-23       <NA>
## 139     2021-06-19       <NA>
## 140     2020-05-25       <NA>
## 141     2020-05-04 2020-05-04
## 142     2021-11-12       <NA>
## 144     2021-03-14       <NA>
## 145     2021-03-08       <NA>
## 148     2021-07-09       <NA>
## 149     2021-06-04       <NA>
## 151     2021-12-16       <NA>
## 152     2021-12-15 2021-12-15
## 156     2020-12-24       <NA>
## 157     2021-07-17       <NA>
## 158     2021-08-06 2021-08-06
## 159     2020-10-08       <NA>
## 160     2021-04-06       <NA>
## 162     2021-05-17       <NA>
## 164     2020-03-18       <NA>
## 165     2021-04-11 2021-04-11
## 166     2021-03-22       <NA>
## 168     2021-04-06       <NA>
## 169     2020-10-28 2020-10-28
## 171     2021-07-15 2021-07-15
## 172     2021-01-03 2021-01-03
## 174     2020-10-05       <NA>
## 176     2022-01-26       <NA>
## 177     2020-07-07       <NA>
## 178     2020-10-21 2020-10-21
## 179     2020-08-23       <NA>
## 183     2021-06-18 2021-06-18
## 184     2021-08-27       <NA>
## 185     2021-04-30       <NA>
## 188     2020-01-12       <NA>
## 189     2021-06-17       <NA>
## 193     2020-04-01       <NA>
## 194     2020-12-23       <NA>
## 195     2021-02-13 2021-02-13
## 199     2020-08-16       <NA>
## 200     2021-03-20       <NA>
## 201     2021-09-15       <NA>
## 202     2022-01-27       <NA>
## 204     2020-08-19       <NA>
## 206     2020-12-31       <NA>
## 207     2020-09-18       <NA>
## 209     2021-05-21       <NA>
## 210     2021-03-27       <NA>
```

```
## 214     2020-07-30       <NA>
## 216     2021-01-17 2021-01-17
## 217     2020-06-04 2020-06-04
## 220     2021-09-03       <NA>
## 223     2021-09-27 2021-09-27
## 226     2022-01-01       <NA>
## 229     2020-04-09       <NA>
## 230     2020-07-31 2020-07-31
## 231     2021-01-09       <NA>
## 234     2021-11-21       <NA>
## 235     2021-04-16       <NA>
## 236     2020-10-23 2020-10-23
## 237     2020-02-14       <NA>
## 238     2020-04-21       <NA>
## 239     2021-03-15       <NA>
## 240     2020-07-23       <NA>
## 242     2021-06-07       <NA>
## 244     2020-05-08 2020-05-08
## 245     2021-10-21       <NA>
## 246     2021-02-26 2021-02-26
## 247     2021-11-10       <NA>
## 249     2021-02-27 2021-02-27
## 250     2020-10-07       <NA>
## 251     2021-09-27       <NA>
## 252     2021-04-18       <NA>
## 253     2020-04-04 2020-04-04
## 254     2020-02-23       <NA>
## 255     2020-07-24       <NA>
## 256     2021-09-17       <NA>
## 257     2021-08-13       <NA>
## 259     2021-09-15       <NA>
## 260     2021-12-15 2021-12-15
## 261     2020-11-01       <NA>
## 262     2021-05-18       <NA>
## 263     2021-03-11       <NA>
## 264     2021-10-16       <NA>
## 265     2020-04-06       <NA>
## 268     2020-05-10 2020-05-10
## 269     2020-07-22       <NA>
## 270     2021-02-15       <NA>
## 271     2021-11-18 2021-11-18
## 272     2020-09-07       <NA>
## 273     2020-07-05       <NA>
## 274     2020-02-19 2020-02-19
## 275     2020-06-07 2020-06-07
## 276     2020-11-08       <NA>
## 277     2022-01-02 2022-01-02
## 278     2020-06-30 2020-06-30
## 279     2021-01-10 2021-01-10
## 280     2021-03-11 2021-03-11
## 282     2021-10-20       <NA>
## 286     2021-12-03       <NA>
## 287     2021-05-07       <NA>
## 289     2020-07-31       <NA>
```

```
## 290     2020-06-25       <NA>
## 293     2021-05-06       <NA>
## 294     2021-06-28       <NA>
## 296     2020-12-28       <NA>
## 297     2021-11-08       <NA>
## 298     2020-08-01       <NA>
## 299     2020-06-25       <NA>
## 300     2021-12-30       <NA>
## 301     2020-07-20       <NA>
## 302     2021-04-04       <NA>
## 303     2021-07-06       <NA>
## 305     2020-02-28       <NA>
## 308     2021-11-08       <NA>
## 314     2021-06-06       <NA>
## 315     2020-11-11       <NA>
## 316     2021-03-03       <NA>
## 319     2021-07-27       <NA>
## 320     2020-02-26 2020-02-26
## 323     2021-05-16 2021-05-16
## 324     2020-06-07       <NA>
## 326     2020-05-14       <NA>
## 328     2021-06-28 2021-06-28
## 330     2020-09-24 2020-09-24
## 332     2021-04-03       <NA>
## 333     2020-10-17 2020-10-17
## 334     2020-05-16       <NA>
## 336     2021-01-29 2021-01-29
## 337     2020-04-27       <NA>
## 342     2020-04-29 2020-04-29
## 344     2021-04-24 2021-04-24
## 345     2021-05-26       <NA>
## 346     2021-11-01       <NA>
## 347     2020-03-30 2020-03-30
## 348     2021-01-26 2021-01-26
## 350     2020-11-02       <NA>
## 352     2020-07-23 2020-07-23
## 353     2020-10-06 2020-10-06
## 355     2021-02-13 2021-02-13
## 357           <NA>
## 359     2020-07-29       <NA>
## 361     2021-05-05       <NA>
## 363           <NA>
## 364     2021-07-13       <NA>
## 365     2021-07-23       <NA>
## 368     2020-10-15 2020-10-15
## 369     2020-06-22       <NA>
## 372     2020-12-20       <NA>
## 374     2020-05-25       <NA>
## 375     2021-12-18       <NA>
## 376     2021-08-20       <NA>
## 378     2021-11-18       <NA>
## 379     2020-10-30       <NA>
## 380     2021-10-30       <NA>
## 381     2021-09-25 2021-09-25
```

```
## 382     2021-06-18 2021-06-18
## 383     2021-10-07       <NA>
## 384     2020-08-04       <NA>
## 385     2021-10-29       <NA>
## 386     2021-01-07       <NA>
## 387     2021-03-12 2021-03-12
## 389     2021-03-17 2021-03-17
## 391     2021-08-12 2021-08-12
## 393     2021-01-22       <NA>
## 397     2021-02-10       <NA>
## 398     2020-09-14       <NA>
## 399     2020-05-12 2020-05-12
## 400     2021-09-20       <NA>
## 403     2020-03-23       <NA>
## 404     2021-12-07       <NA>
## 406     2020-08-13 2020-08-13
## 407     2021-02-23       <NA>
## 408     2021-02-12       <NA>
## 409     2021-09-08 2021-09-08
## 411     2021-02-17 2021-02-17
## 414     2021-05-09       <NA>
## 416     2021-07-21 2021-07-21
## 417     2020-10-02 2020-10-02
## 418     2021-12-14 2021-12-14
## 419     2020-07-08 2020-07-08
## 422     2020-05-10       <NA>
## 423     2021-11-02 2021-11-02
```

drop duplicate patient_id, use only the first (oldest) visit:

#For example_lab_data, Sort dataframe by patient_id and date:

```
example_lab_data <- example_lab_data[order(example_lab_data$patient_id,example_lab_data$date ),]
```

#Drop duplicates dataframe by patient_id:

```
example_lab_data <- example_lab_data[!duplicated(example_lab_data$patient_id), ]
```

#For synthetic_data, Sort dataframe by patient_id and admission_date:

```
synthetic_data <- synthetic_data[order(synthetic_data$patient_id,synthetic_data$admission_date ),]
```

#Drop duplicates dataframe by patient_id:

```
synthetic_data <- synthetic_data[!duplicated(synthetic_data$patient_id), ]
```

Ensure that columns with numeric variables don't have characters

#Fill empty values with NA:

```
example_lab_data[example_lab_data == ''] <- NA
synthetic_data[synthetic_data == ''] <- NA
```

```
example_lab_data[example_lab_data == 'UTC'] <- NA
synthetic_data[synthetic_data == 'UTC'] <- NA
example_lab_data[example_lab_data == 'NDA'] <- NA
synthetic_data[synthetic_data == 'NDA'] <- NA
example_lab_data[example_lab_data == 'N/A'] <- NA
synthetic_data[synthetic_data == 'N/A'] <- NA
```

#find character on numeric columns:

```
synthetic_data[synthetic_data == 'Not Available' ] <- NA
synthetic_data[synthetic_data == 'no info from OSH' ] <- NA
synthetic_data[synthetic_data == 'No data avail' ] <- NA
synthetic_data[synthetic_data == 'Not Measured, pt coded' ] <- NA
synthetic_data[synthetic_data == 'not measured' ] <- NA

synthetic_data$ph <- parse_number(synthetic_data$ph)
```

```
## Warning: 1 parsing failure.
## row col expected actual
## 137  -- a number      N
```

#Some variables will have more than one value in the same cell, separated by a comma.

Use average for mechanical_vent_days in days not hours

```
synthetic_data$mechanical_vent_days[synthetic_data$mechanical_vent_days == '<= 12h'] <- 0.5
synthetic_data$mechanical_vent_days[synthetic_data$mechanical_vent_days == '12h - 24h'] <- 7
synthetic_data$mechanical_vent_days[synthetic_data$mechanical_vent_days == '>= 7 days'] <- 0.75
synthetic_data$mechanical_vent_days[synthetic_data$mechanical_vent_days == '2 days - 7 days'] <- 4.5
```

#change chr to number column

```
synthetic_data$mechanical_vent_days <- as.numeric(synthetic_data$mechanical_vent_days)
```

#drop first row (just NA values)

```
synthetic_data = synthetic_data[-1,]
```

Evaluate if categorical variables have any category with a low frequency:

#Uses frecuency tables:

#standarizes sex colum:

```
synthetic_data$sex[synthetic_data$sex == 'Female'] <- "F"
synthetic_data$sex[synthetic_data$sex == 'Male'] <- "M"


table(synthetic_data$sex)
```

```
##
##   F   M
##  91 169
```

```
table(synthetic_data$race)
```

```
##
##    Black Hispanic    Other    White
##       23       12        8      216
```

```
table(synthetic_data$diagnosis)
```

```
##
##    Cardiovascular condition                    COVID-19
##                          73                          75
##                       Other Other respiratory condition
##                          18                          60
## Other respiratory infection
##                          11
```

```
table(synthetic_data$reintubation)
```

```
##
## FALSE  TRUE
##   139    19
```

```
table(synthetic_data$trached)
```

```
##
## FALSE  TRUE
##   142    76
```

```
table(synthetic_data$systemic_anticoagulation_type)
```

```
##
##                         Bivalirudin only
##                                       62
## Heparin and anticoagulant sodium citrate
##                                        1
##                  Heparin and bivalirudin
##                                       12
##                              Heparin only
##                                      126
##                         No anticoagulant
##                                       24
```

```
table(synthetic_data$acute_kidney_injury)
```

```
##
## FALSE  TRUE
##   117   106
```

```r
table(synthetic_data$discharge_location)
```

```
##
##      Death       Home LTAC/rehab      Other
##         84         56         45          4
```

```r
synthetic_data$steroids[synthetic_data$steroids == 'Unk'] <- "unk"
synthetic_data$steroids[synthetic_data$steroids == 'unk'] <- NA
table(synthetic_data$steroids)
```

```
##
##  No Yes
##  39  48
```

```r
synthetic_data$infection[synthetic_data$infection == 'R/V/SARS CoV19'] <- 'SARS CoV19'
synthetic_data$infection[synthetic_data$infection == 'R/V/COVID-19'] <- 'SARS CoV19'
synthetic_data$infection[synthetic_data$infection == 'Hx of COVID19 - 1/2022'] <- 'SARS CoV19'
synthetic_data$infection[synthetic_data$infection == 'P/R/V/ Covid-19, P/R/GM+/ Strep sp, P/B/GM+/ Staph


synthetic_data$infection[synthetic_data$infection != 'SARS CoV19'] <- 'Other'

table(synthetic_data$infection)
```

```
##
##      Other SARS CoV19
##         57         71
```

```r
table(synthetic_data$support_type)
```

```
##
##   Cardiac      ECPR Pulmonary
##        48        14        30
```

```r
table(synthetic_data$transfer)
```

```
##
## FALSE  TRUE
##   252    11
```

```r
table(synthetic_data$covid)
```

```
##
## FALSE  TRUE
##   192    70
```

```r
table(synthetic_data$pregnant)
```

```
##
## TRUE
##   11
```

#for example_lab_data:

```
table(example_lab_data$lab_exam)
```

```
##
## Cholesterol         CRP     Glucose  Hematocrit Lymphocytes   Platelets
##          16          18          18          19          18          18
```

Make sure that time variables are consistently coded: #convert char column into posixct

```
synthetic_data[['admission_date']] <- as.POSIXct(synthetic_data[['admission_date']],
                                    format = "%Y-%m-%d")


synthetic_data[['discharge_date']] <- as.POSIXct(synthetic_data[['discharge_date']],
                                    format = "%Y-%m-%d")

synthetic_data[['death_date']] <- as.POSIXct(synthetic_data[['death_date']],
                                    format = "%Y-%m-%d")
```

#for example_lab_data:

```
example_lab_data[['date']] <- as.POSIXct(example_lab_data[['date']],
                                    format = "%Y-%m-%d")
```

Evaluate the distribution of numeric variables:

#for that, first convert to factors:

```
example_lab_data$lab_exam <- as.factor(example_lab_data$lab_exam)

synthetic_data$sex <- as.factor(synthetic_data$sex)
synthetic_data$race  <- as.factor(synthetic_data$race)
synthetic_data$diagnosis  <- as.factor(synthetic_data$diagnosis)
synthetic_data$reintubation  <- as.factor(synthetic_data$reintubation)
synthetic_data$trached  <- as.factor(synthetic_data$trached)

synthetic_data$systemic_anticoagulation_type <- as.factor(synthetic_data$systemic_anticoagulation_type)

synthetic_data$acute_kidney_injury <- as.factor(synthetic_data$acute_kidney_injury)

synthetic_data$discharge_location <- as.factor(synthetic_data$discharge_location)

synthetic_data$steroids <- as.factor(synthetic_data$steroids)
synthetic_data$infection <- as.factor(synthetic_data$infection)
synthetic_data$support_type <- as.factor(synthetic_data$support_type)
synthetic_data$transfer <- as.factor(synthetic_data$transfer)
synthetic_data$covid <- as.factor(synthetic_data$covid)
synthetic_data$pregnant <- as.factor(synthetic_data$pregnant)
synthetic_data$mechanical_vent_days <- as.factor(synthetic_data$mechanical_vent_days)
```

We can evaluate normality according to swek and kurtosis: #statistical summary number variables:

```
describe(synthetic_data$weight_kg)
```

```
##    vars   n   mean sd median trimmed   mad min   max range skew kurtosis   se
## X1    1 257 101.39 29   99.9   99.34 27.72  40 200.6 160.6 0.82     1.18 1.81
```

```
describe(synthetic_data$height_cm)
```

```
##    vars   n   mean    sd median trimmed   mad   min   max range  skew kurtosis
## X1    1 260 172.96 11.43    175  173.43 11.71 131.3 198.1  66.8 -0.49     0.24
##      se
## X1 0.71
```

```
describe(synthetic_data$bmi)
```

```
##    vars   n mean   sd median trimmed  mad   min    max  range  skew kurtosis
## X1    1 259 33.6 21.4   31.6   31.66 8.12 15.54 347.88 332.34 12.25   176.58
##      se
## X1 1.33
```

```
describe(synthetic_data$ph)
```

```
##    vars   n mean   sd median trimmed  mad  min  max range  skew kurtosis   se
## X1    1 214 7.27 0.14   7.28    7.28 0.17 6.78 7.53  0.75 -0.53     0.09 0.01
```

```
describe(synthetic_data$co2)
```

```
##    vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
## X1    1 215 52.12 18.37     48   50.26 14.83  12 128   116 1.31     2.76 1.25
```

```
describe(synthetic_data$o2)
```

```
##    vars   n   mean     sd median trimmed   mad min max range skew kurtosis   se
## X1    1 216 120.88 101.32   82.5  100.59 42.25  19 542   523 2.05     4.11 6.89
```

```
describe(synthetic_data$lactate_peak)
```

```
##    vars   n mean  sd median trimmed  mad min  max range skew kurtosis   se
## X1    1 227 5.48 4.4    3.5    4.77 2.37 0.5 17.5    17 1.25     0.65 0.29
```

```
describe(synthetic_data$creatinine_peak)
```

```
##    vars   n mean   sd median trimmed  mad  min  max range skew kurtosis   se
## X1    1 175 1.87 1.23    1.6     1.7 1.08 0.17 6.09  5.92 1.42     2.14 0.09
```

```
describe(synthetic_data$total_bilirubin_peak)
```

```
##    vars   n mean   sd median trimmed  mad min  max range skew kurtosis   se
## X1    1 182 3.27 4.12   1.85    2.45 1.56 0.2 27.3  27.1 3.56    15.71 0.31
```

```
describe(synthetic_data$hospital_los)
```

```
##    vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
## X1    1 225 32.05 31.26     23   26.65 20.76   1 181   180 2.13     5.68 2.08
```

```
describe(synthetic_data$days_to_discharge)
```

```
##    vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
## X1    1 197 24.84 23.51     17   20.82 14.83   0 107   107 1.69     2.71 1.68
```

normal graph

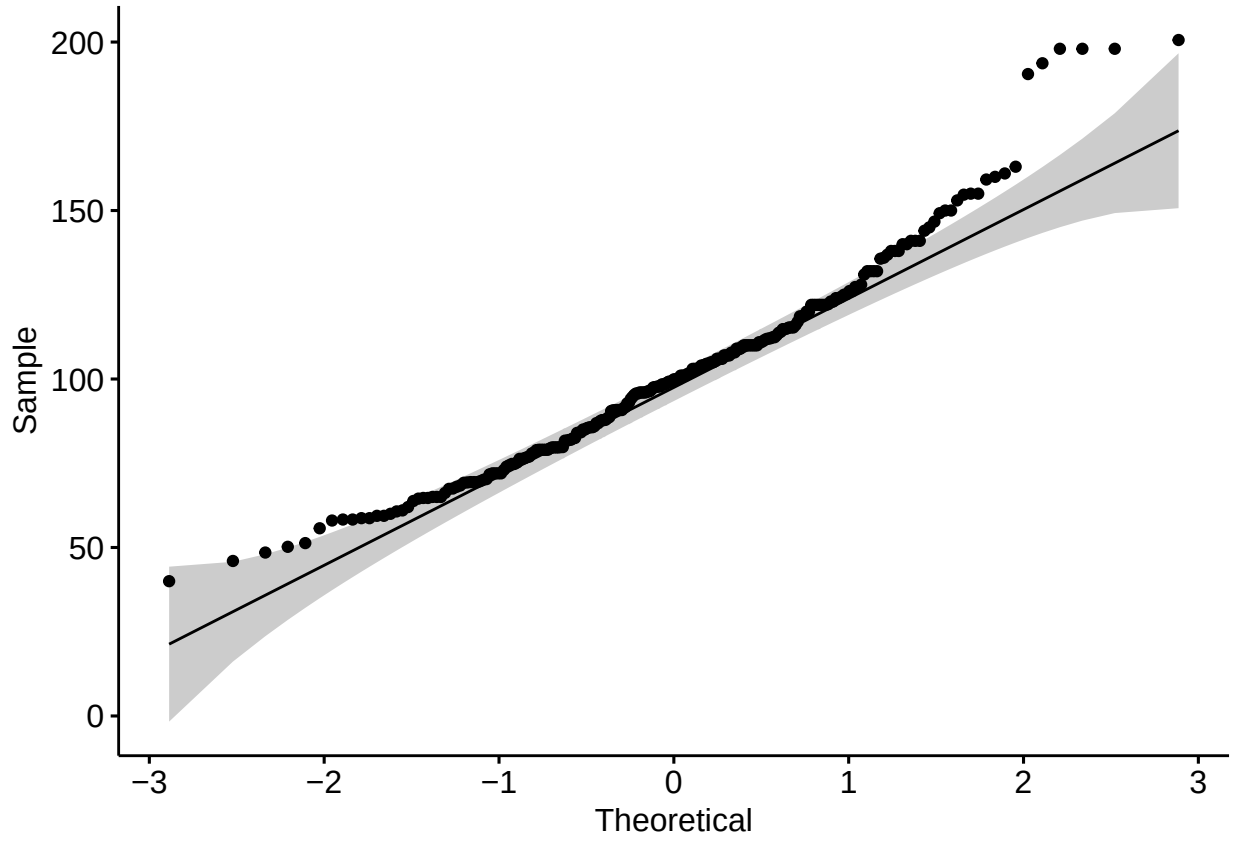
#As all the points fall approximately along this reference line, we can assume normality.

```
ggqqplot(synthetic_data$weight_kg)
```

```
## Warning: Removed 6 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 6 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 6 rows containing non-finite values (stat_qq_line).
```

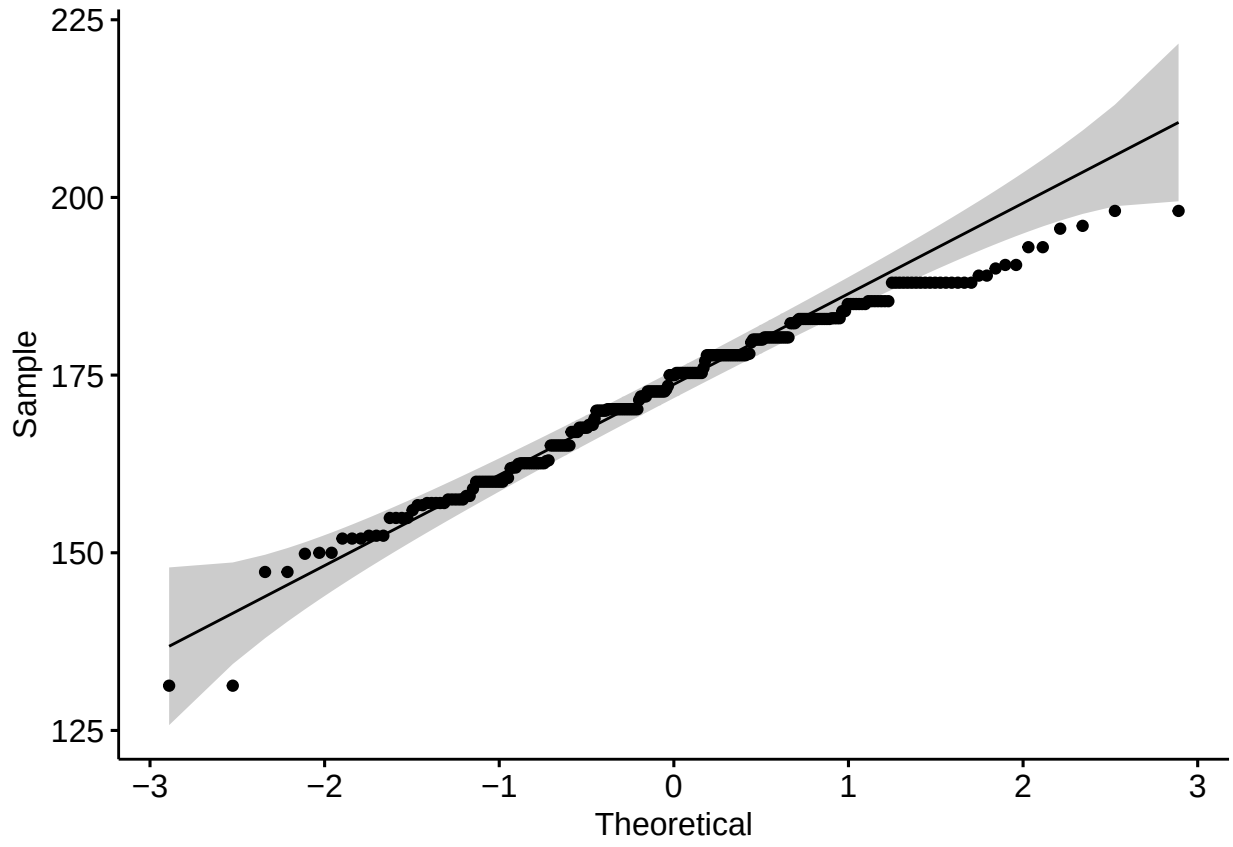


```
ggqqplot(synthetic_data$height_cm)
```

```
## Warning: Removed 3 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 3 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 3 rows containing non-finite values (stat_qq_line).
```

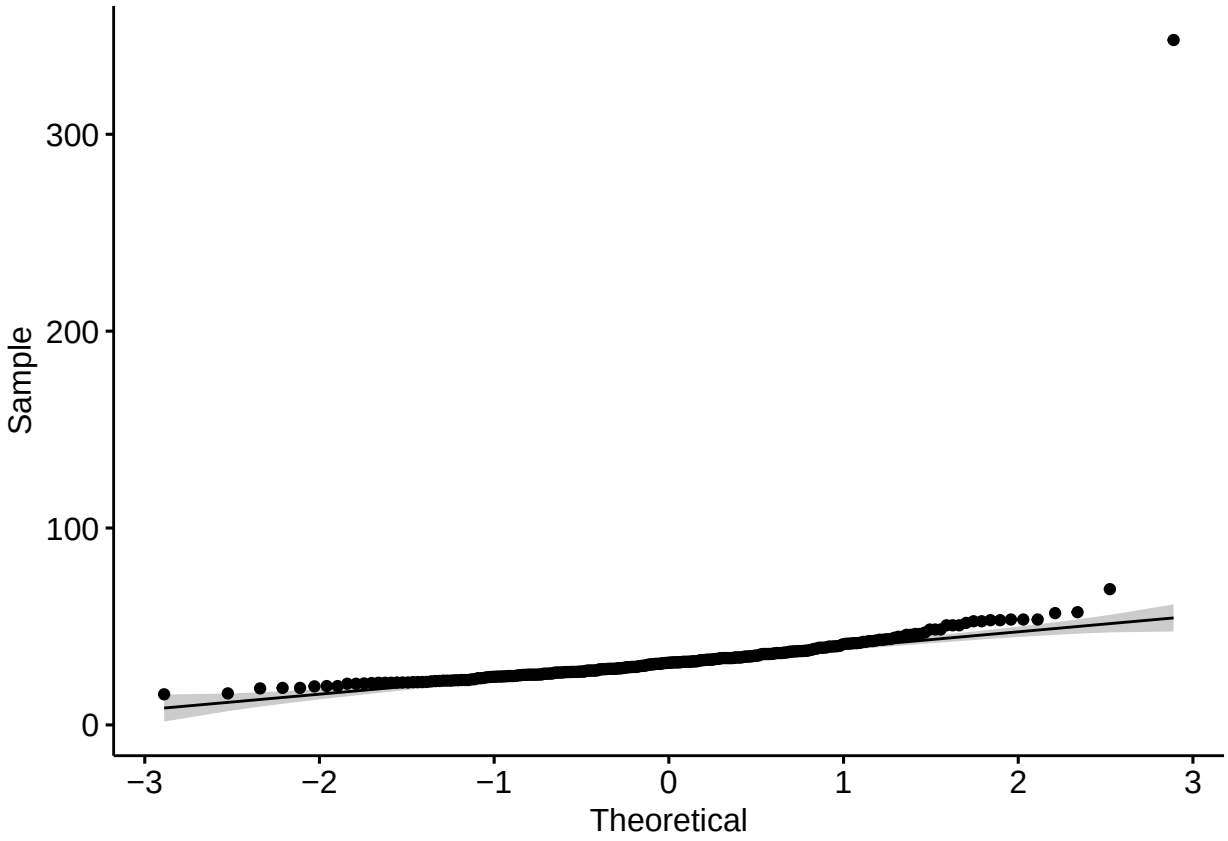



```
ggqqplot(synthetic_data$bmi)
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq_line).
```

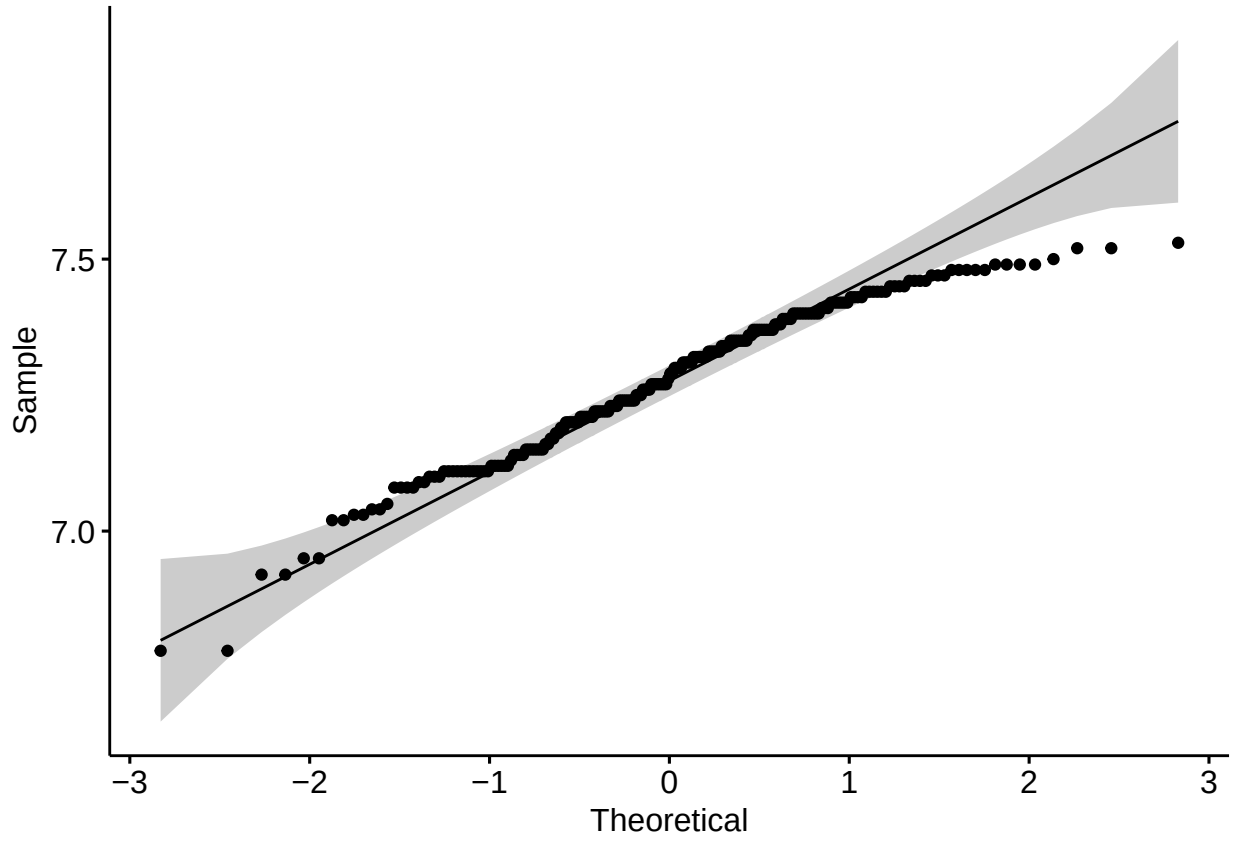



```
ggqqplot(synthetic_data$ph)
```

```
## Warning: Removed 49 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 49 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 49 rows containing non-finite values (stat_qq_line).
```

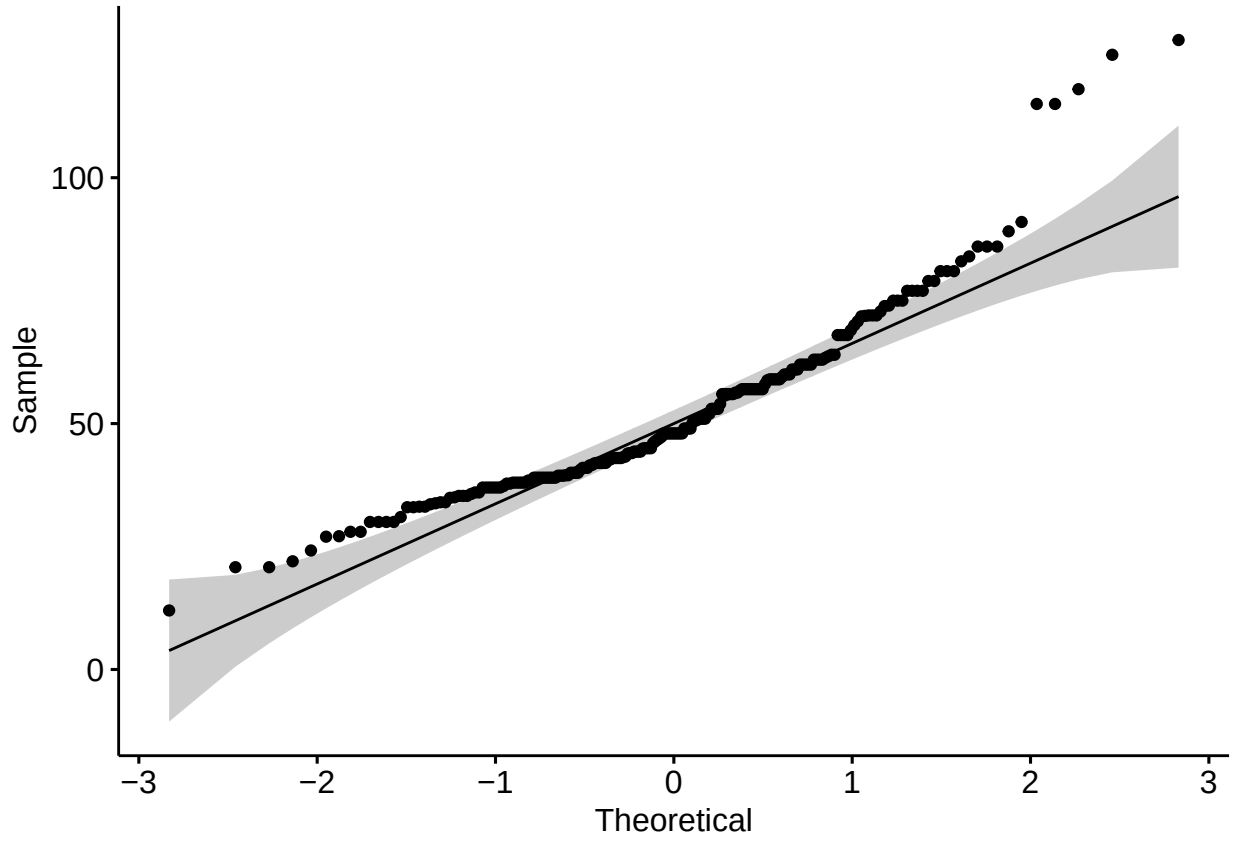



```
ggqqplot(synthetic_data$co2)
```

```
## Warning: Removed 48 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 48 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 48 rows containing non-finite values (stat_qq_line).
```

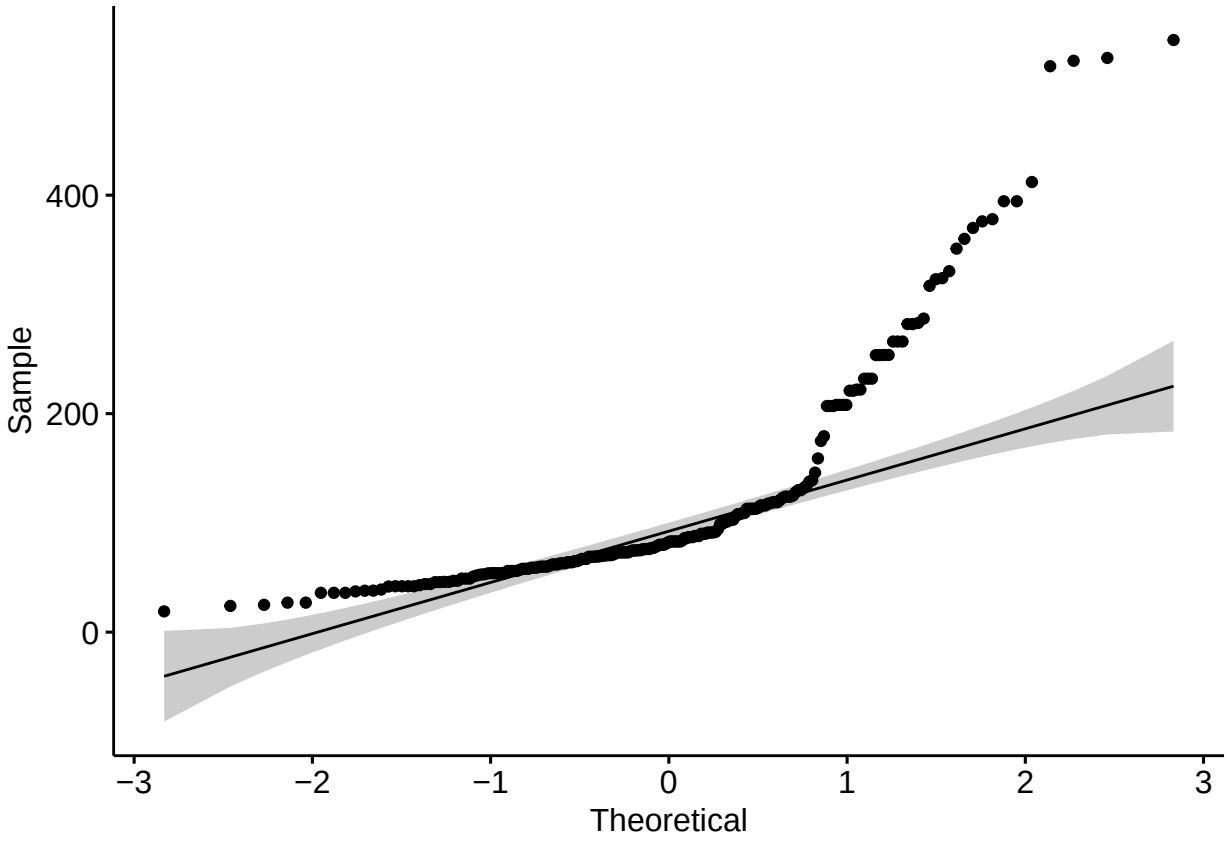



```
ggqqplot(synthetic_data$o2)
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq_line).
```

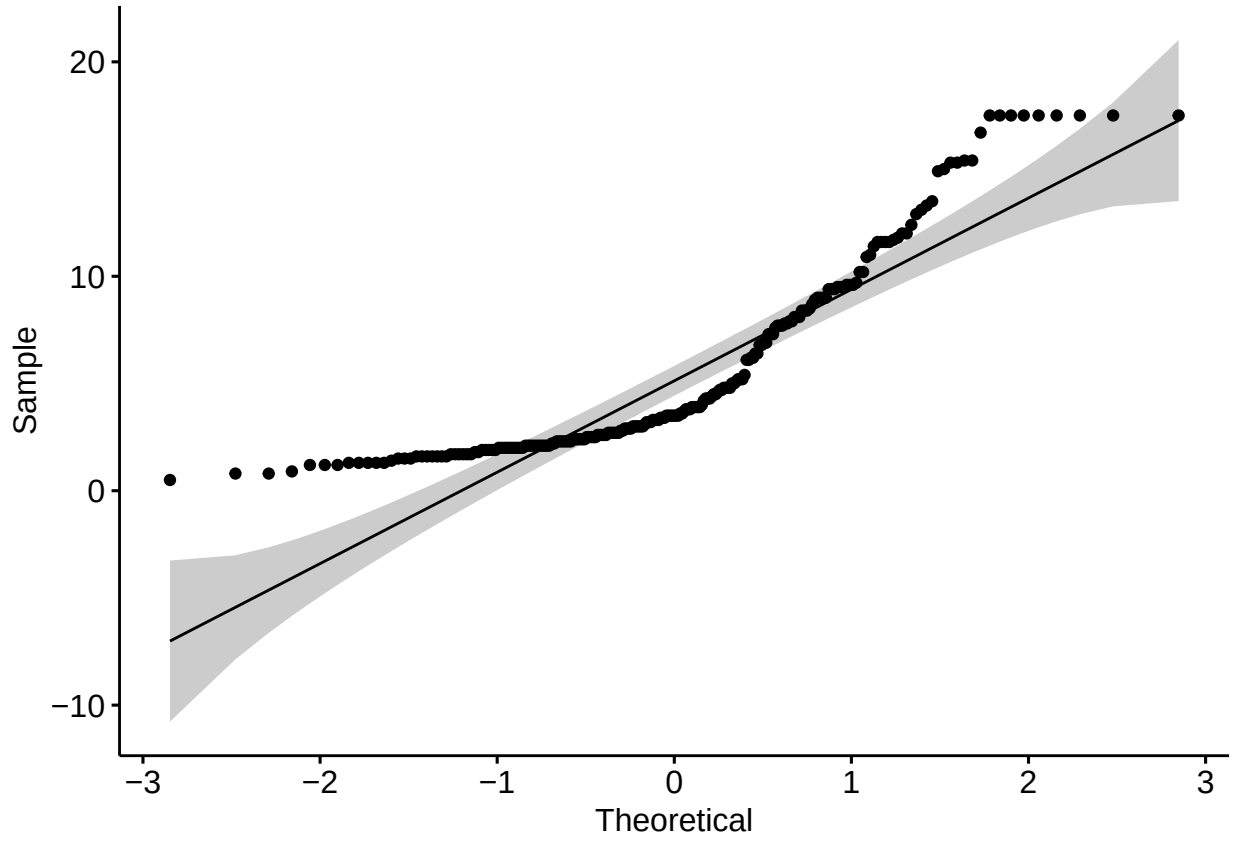



```
ggqqplot(synthetic_data$lactate_peak)
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq_line).
```

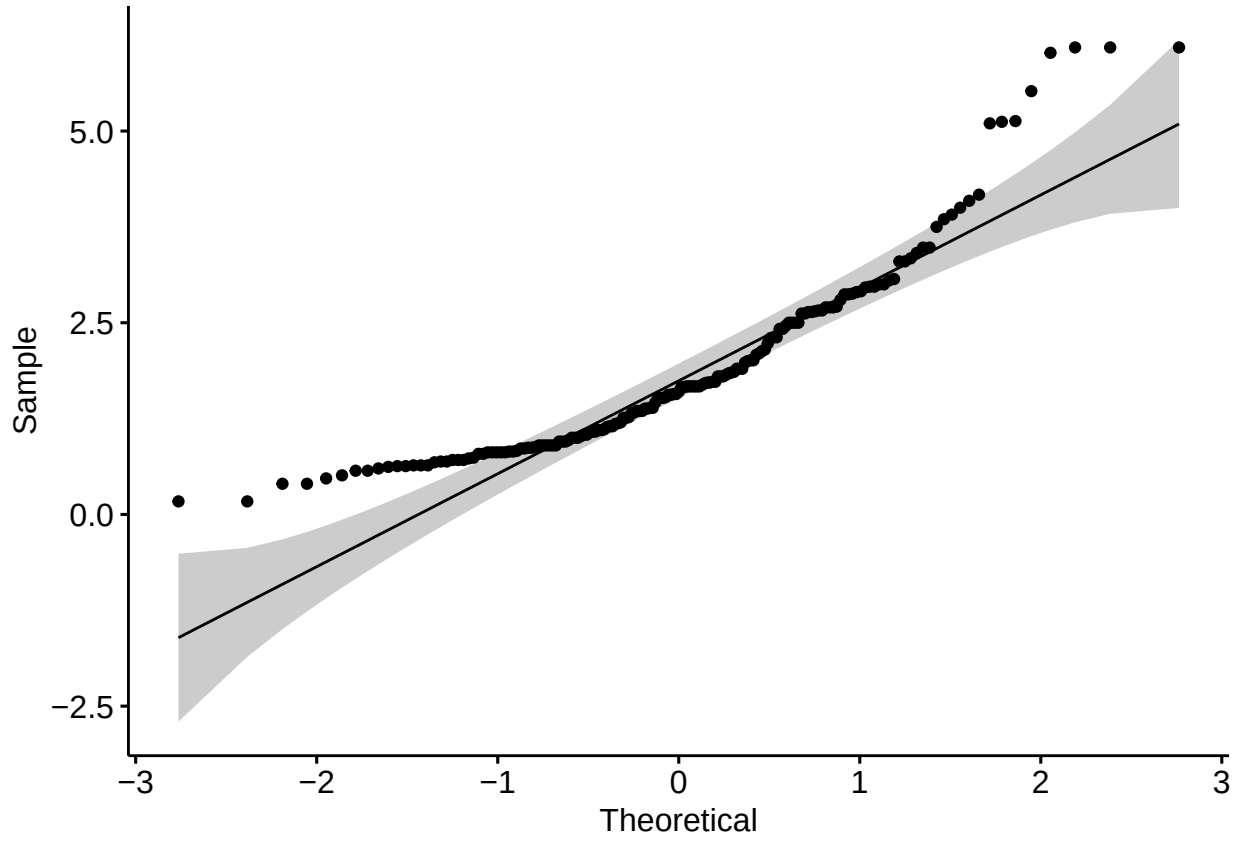



```
ggqqplot(synthetic_data$creatinine_peak)
```

```
## Warning: Removed 88 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 88 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 88 rows containing non-finite values (stat_qq_line).
```

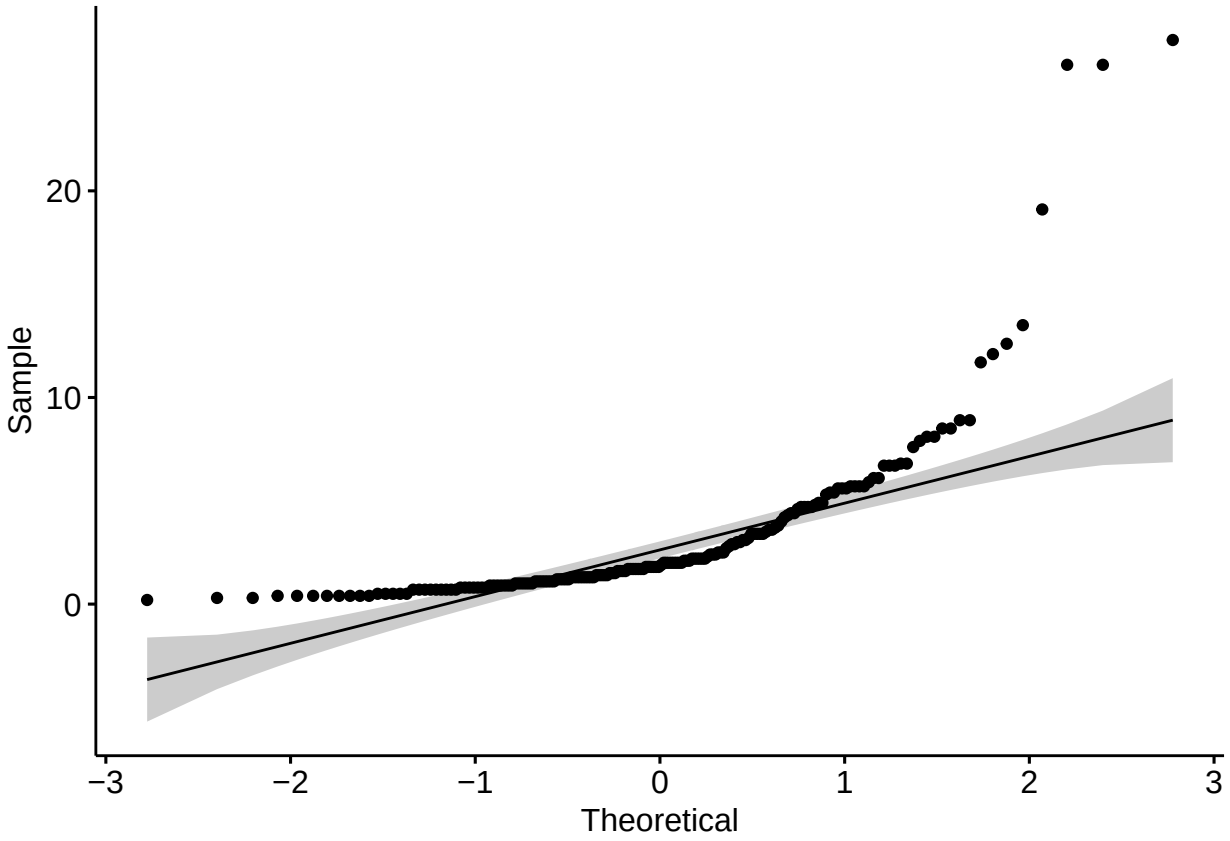



```
ggqqplot(synthetic_data$total_bilirubin_peak)
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq_line).
```

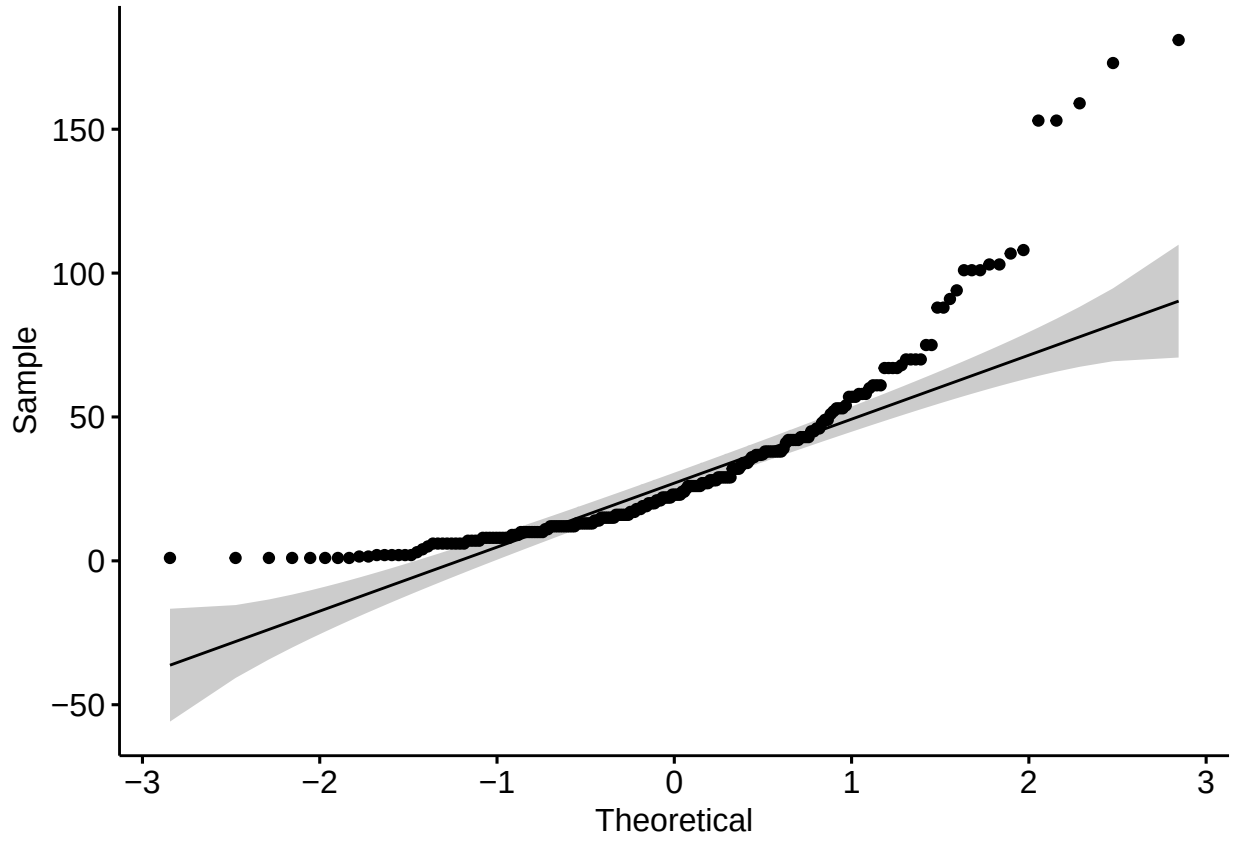



```
ggqqplot(synthetic_data$hospital_los)
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq_line).
```

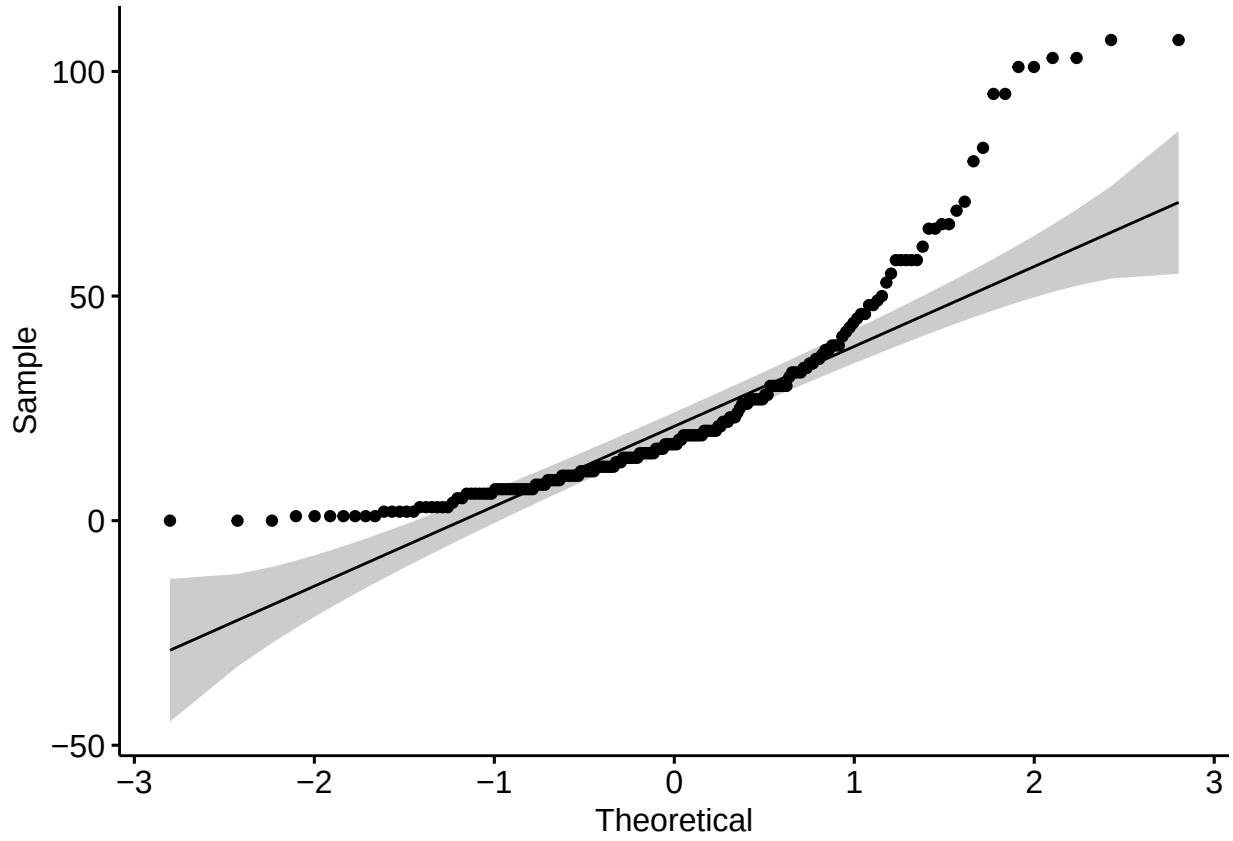



```
ggqqplot(synthetic_data$days_to_discharge)
```

```
## Warning: Removed 66 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 66 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 66 rows containing non-finite values (stat_qq_line).
```



not normal numeric variables:

synthetic_databmisynthetic_data$ao2 synthetic_data$lactate_peak$synthetic_data$total_bilirubin_peak synthetic_data$hospital_los

If a numeric variable does not have a normal distribution, you may log transform it and re-evaluate the distribuion:

#log transformation:

```
synthetic_data$bmi_log = log(synthetic_data$bmi)
```

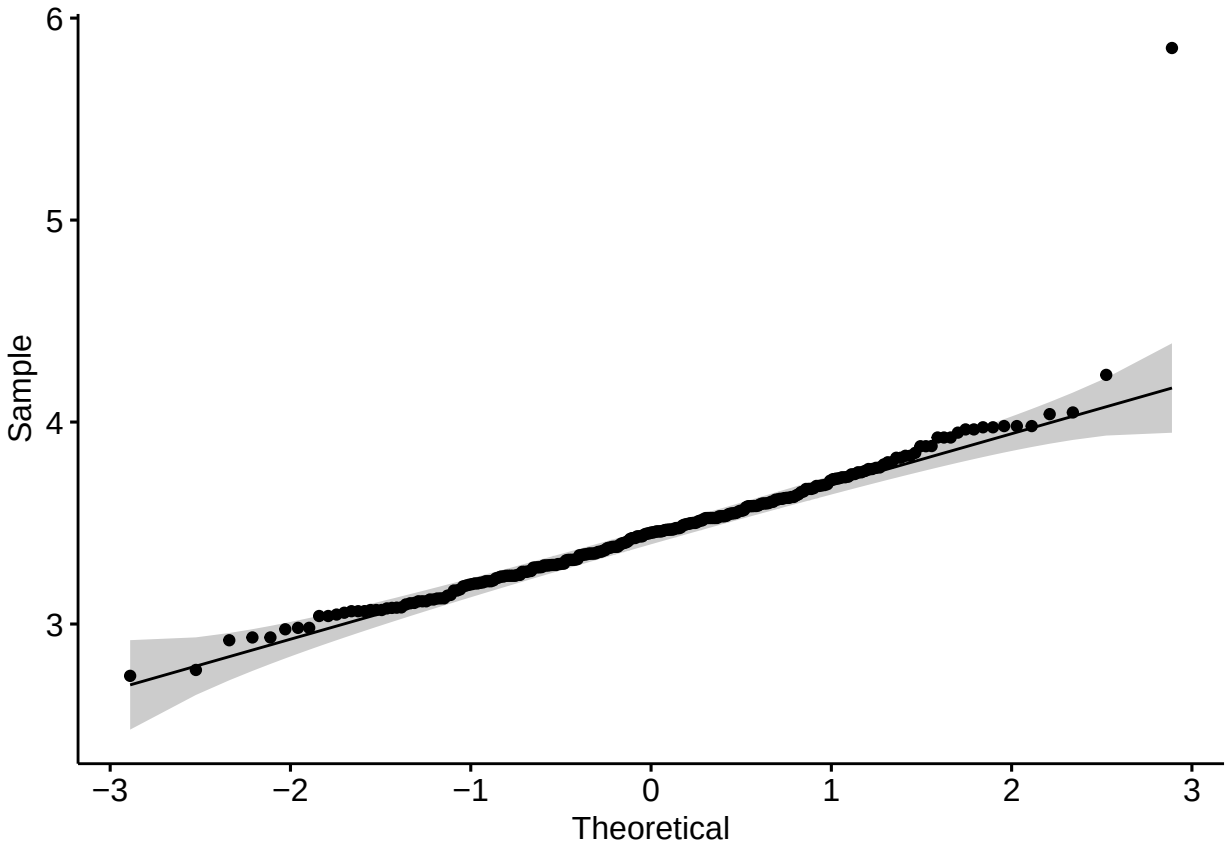
#graph to evaluate normality

```
ggqqplot(synthetic_data$bmi_log)
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 4 rows containing non-finite values (stat_qq_line).
```

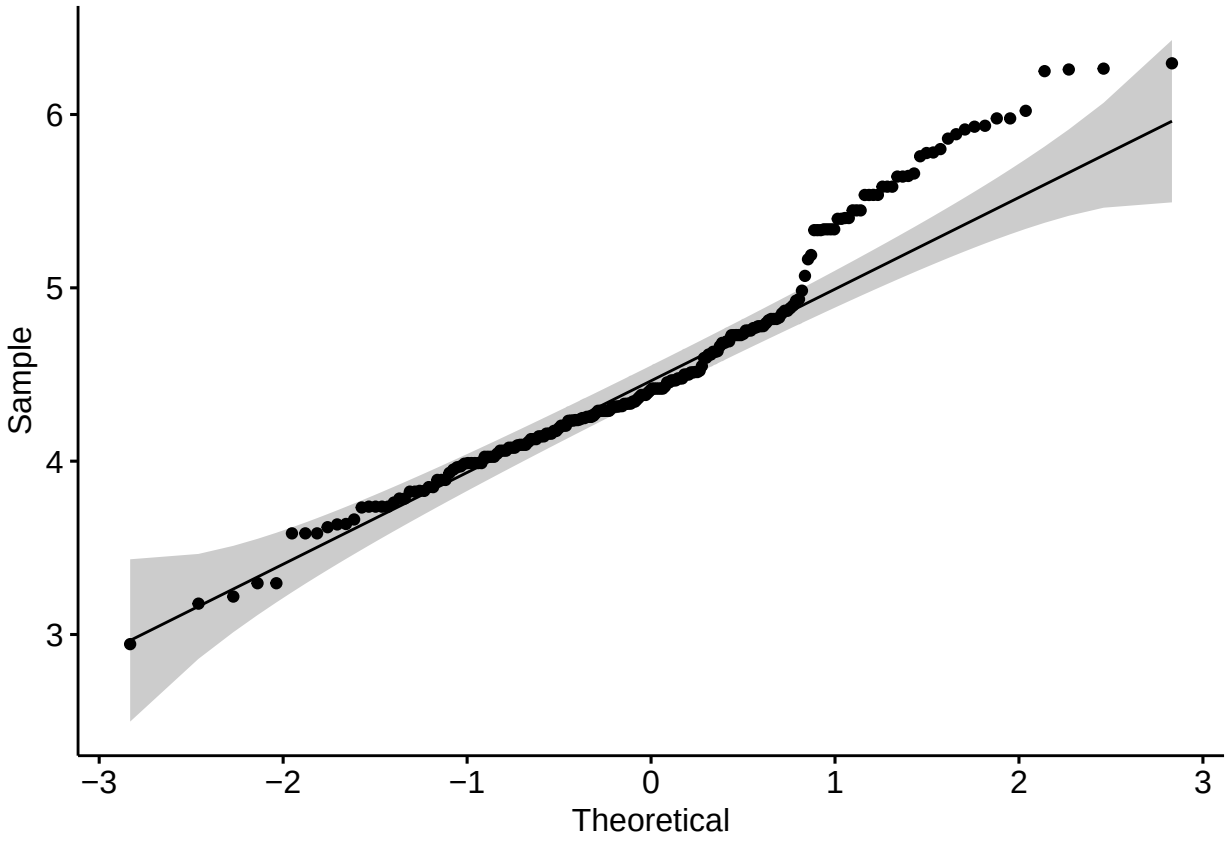



```
synthetic_data$o2_log = log(synthetic_data$o2)
ggqqplot(synthetic_data$o2_log)
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 47 rows containing non-finite values (stat_qq_line).
```

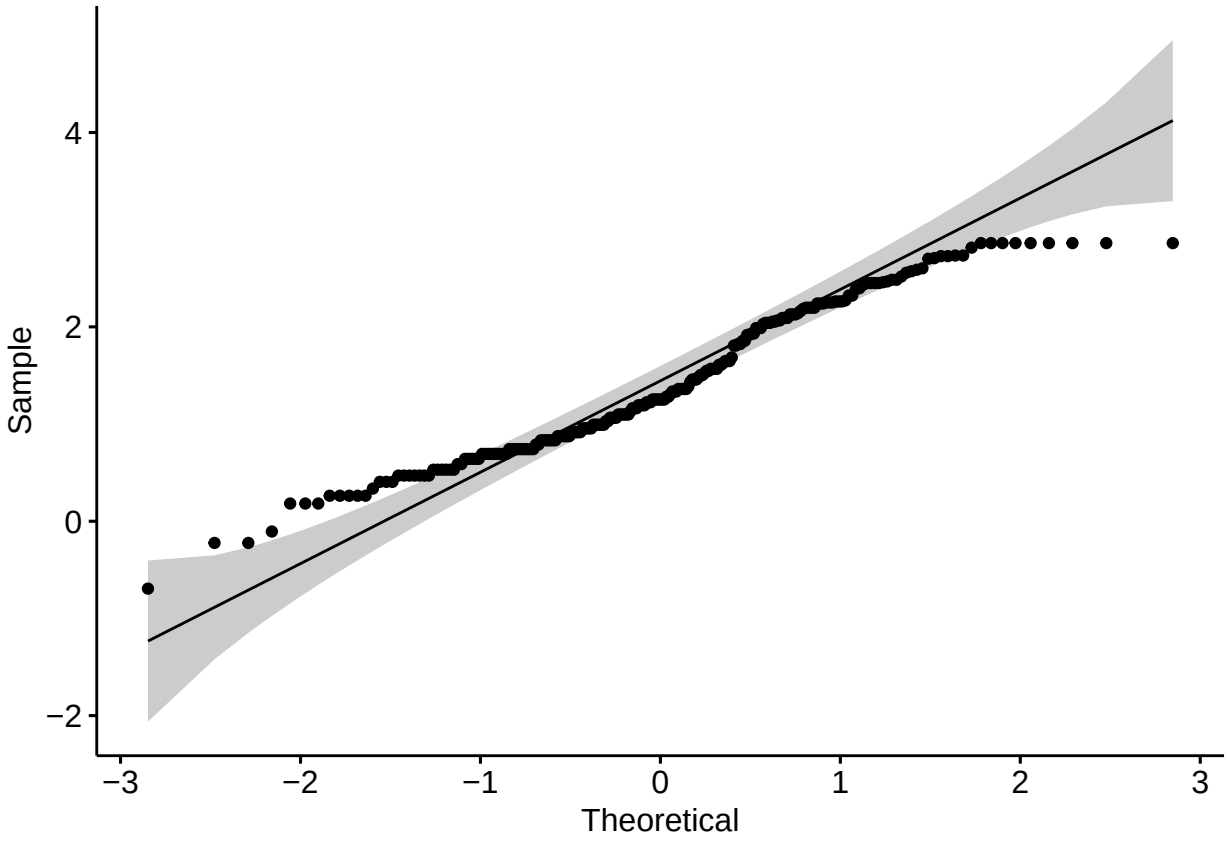



```
synthetic_data$lactate_peak_log = log(synthetic_data$lactate_peak)
ggqqplot(synthetic_data$lactate_peak_log)
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 36 rows containing non-finite values (stat_qq_line).
```

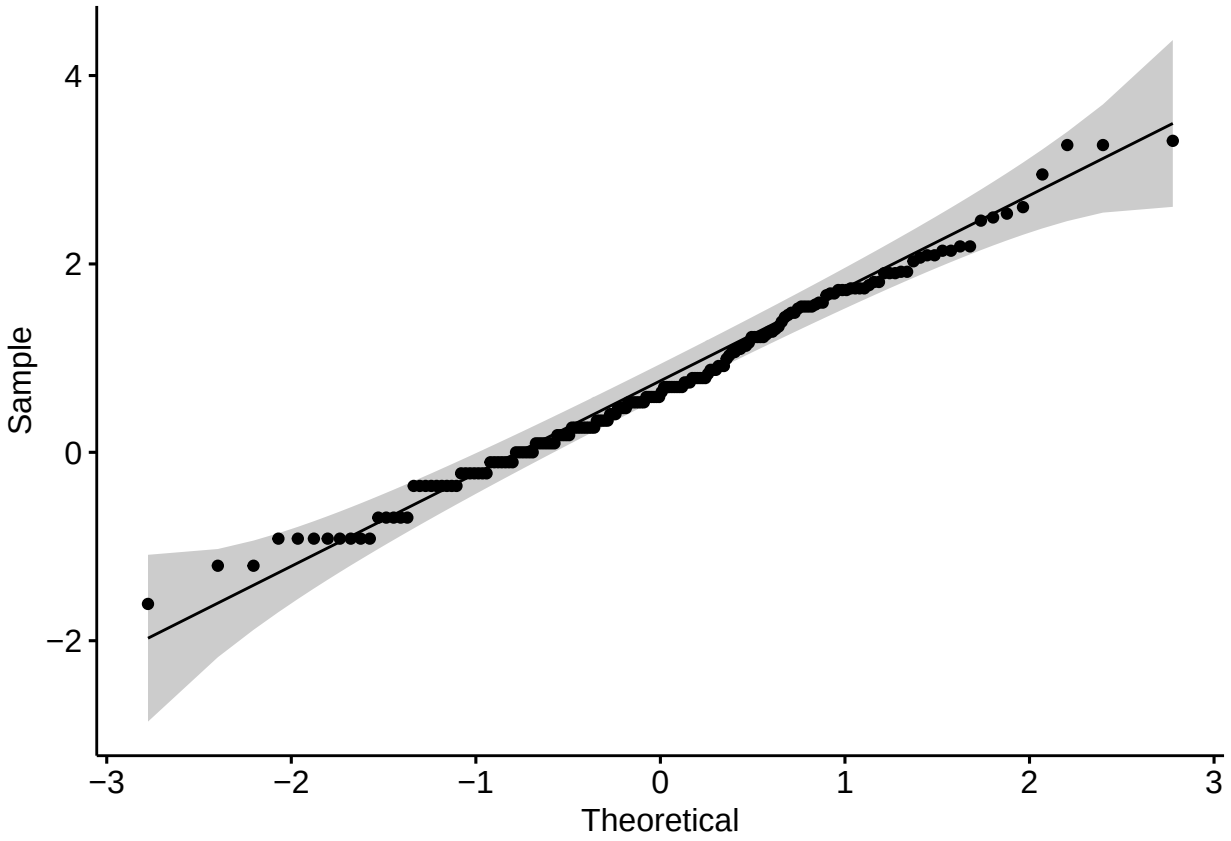



```
synthetic_data$total_bilirubin_peak_log = log(synthetic_data$total_bilirubin_peak)
ggqqplot(synthetic_data$total_bilirubin_peak_log)
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 81 rows containing non-finite values (stat_qq_line).
```

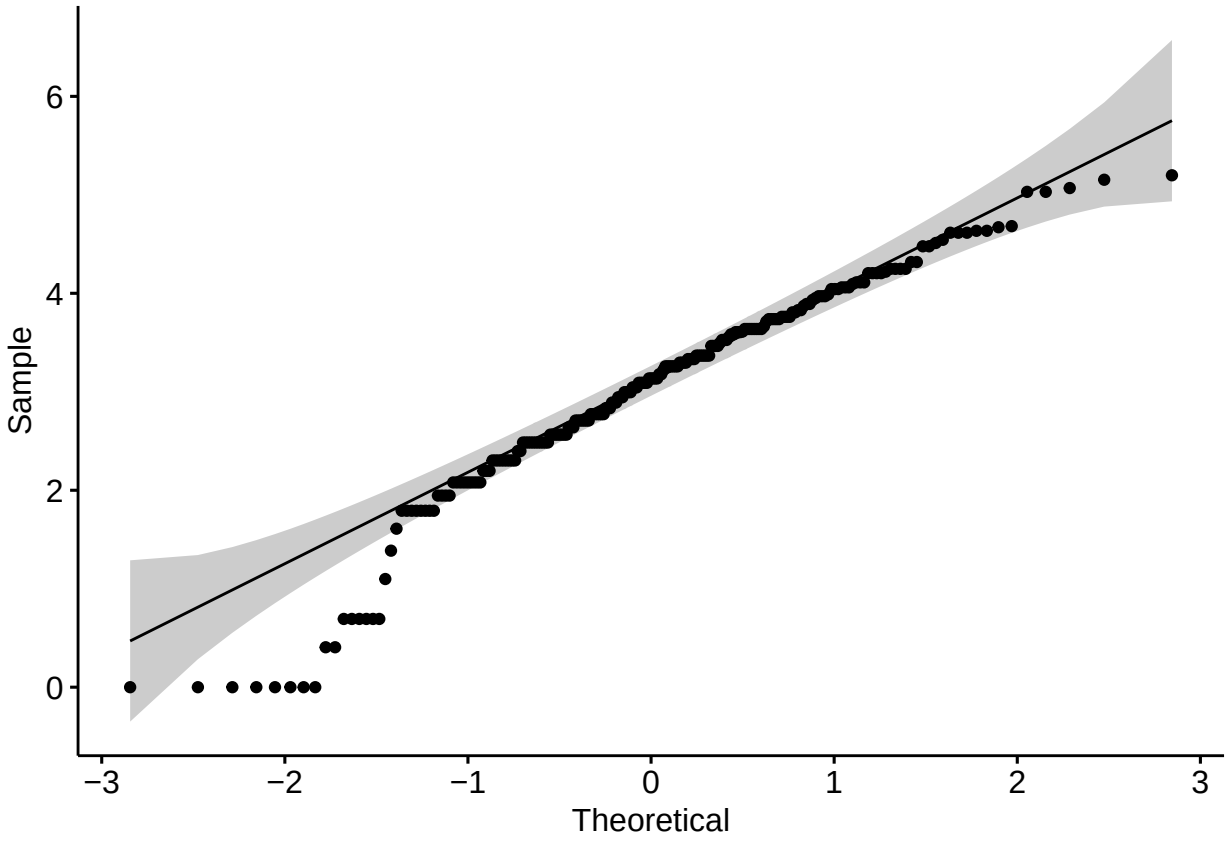



```
synthetic_data$hospital_los_log = log(synthetic_data$hospital_los)
ggqqplot(synthetic_data$hospital_los_log)
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 38 rows containing non-finite values (stat_qq_line).
```

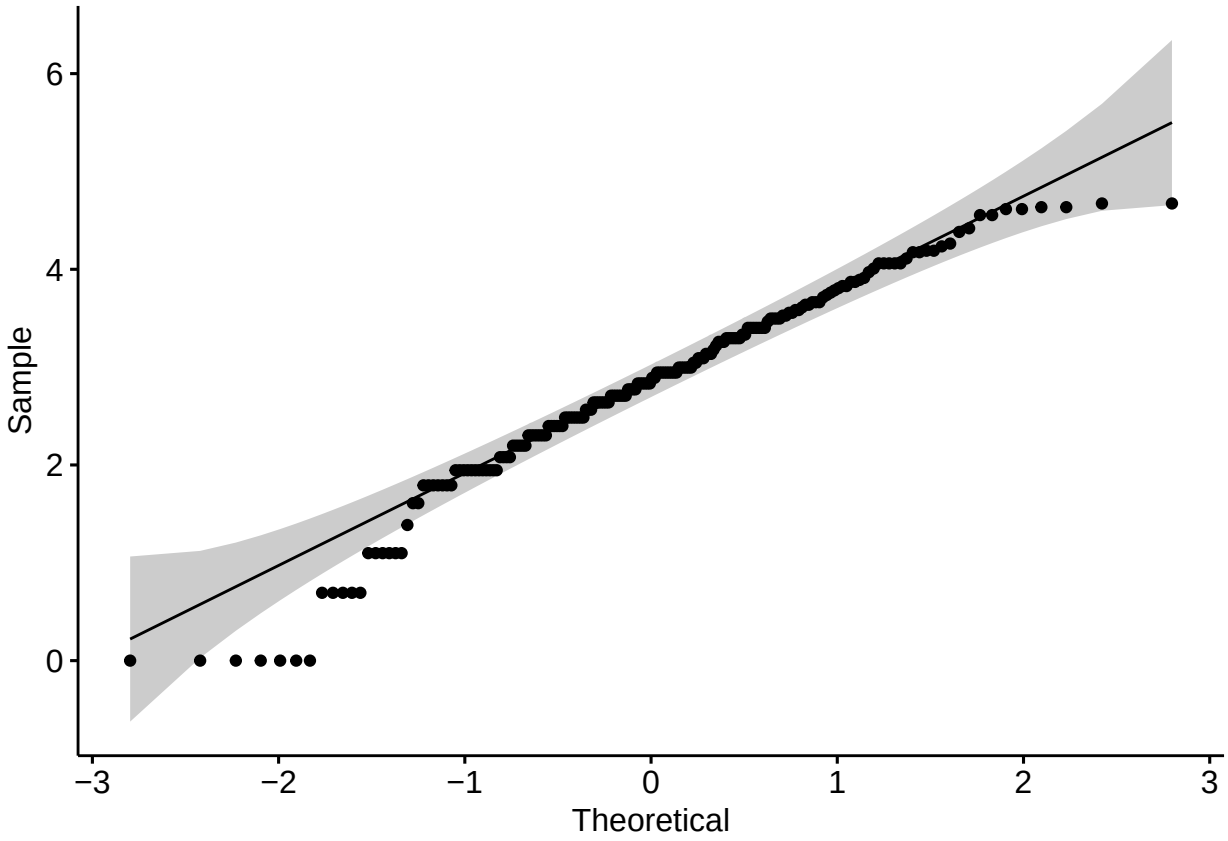



```
synthetic_data$days_to_discharge_log = log(synthetic_data$days_to_discharge)
ggqqplot(synthetic_data$days_to_discharge_log)
```

```
## Warning: Removed 69 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 69 rows containing non-finite values (stat_qq_line).
```

```
## Warning: Removed 69 rows containing non-finite values (stat_qq_line).
```


6
4
2
0
Sample
−3
−2
−1
0
1
2
3
Theoretical