Data load

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2021-02-02

Load files

There are data files for each year from 2013 to October 2020. The rest of 2020 is awaited.

```
D2013 <- readxl::read_excel('data/2013 head injuries.xls')
D2014 <- readxl::read_excel('data/2014 head injuries.xls')
D2015 <- readxl::read_excel('data/2015 head injuries.xls')
D2016 <- readxl::read_excel('data/2016 head injuries.xls')
D2017 <- readxl::read_excel('data/2017 head injuries.xls')
D2018 <- readxl::read_excel('data/2018 head injuries.xls')
D2019 <- readxl::read_excel('data/2019 head injuries.xls')
D2020 <- readxl::read_excel('data/2020_part head injuries.xls') # Up to October

names(D2013)
```

```
##   [1] "E-MRN"                     "Hospital name"
##   [3] "Area of residence"         "Address county (ROI)"
##   [5] "Address Dub postal"        "Eircode route key"
##   [7] "Admission date"            "Admission day"
##   [9] "Admission week"            "Admission month"
##  [11] "Admission year"            "Admission time"
##  [13] "Discharge date"            "Discharge day"
##  [15] "Discharge week"            "Discharge month"
##  [17] "Discharge year"            "Discharge time"
##  [19] "Med fit discharge date"    "Med fit discharge day"
##  [21] "Admission source"          "Admission type"
##  [23] "Discharge destination"     "Medical card (Y/N)"
##  [25] "NTPF (Y/N)"                "Public/private"
##  [27] "Specialty (pr) group"      "Specialty (dis) group"
##  [29] "Specialty principal"       "Specialty discharge"
##  [31] "Team code admission"       "Team code discharge"
##  [33] "Team code principal"       "Team code Dx1"
##  [35] "Team code Dx 2"            "Team code Dx 3"
##  [37] "Team code Dx 4"            "Team code Dx 5"
##  [39] "Team code Dx 6"            "Team code Dx 7"
##  [41] "Team code Dx 8"            "Team code Dx 9"
##  [43] "Team code Dx 10"           "Team code Dx 11"
##  [45] "Team code Dx 12"           "Team code Dx 13"
##  [47] "Team code Dx 14"           "Team code Dx 15"
##  [49] "Team code Dx 16"           "Team code Dx 17"
##  [51] "Team code Dx 18"           "Team code Dx 19"
##  [53] "Team code Dx 20"           "Team code Dx 21"
##  [55] "Team code Dx 22"           "Team code Dx 23"
```

```
##  [57] "Team code Dx 24"           "Team code Dx 25"
##  [59] "Team code Dx 26"           "Team code Dx 27"
##  [61] "Team code Dx 28"           "Team code Dx 29"
##  [63] "Team code Dx 30"           "Team code Proc 1"
##  [65] "Team code Proc 2-20"       "Transfer from"
##  [67] "Transfer to"               "Ward AAU (Y/N)"
##  [69] "Ward admit"                "Ward discharge"
##  [71] "Age by 1 year"             "Age by 5 year"
##  [73] "Gender"                    "Dx 1 group (CCS-IM)"
##  [75] "Dx 1 name (CCS-IM)"        "Dx 1 ICD name"
##  [77] "Dx 2 ICD name"             "Dx 3 ICD name"
##  [79] "Dx 4 ICD name"             "Dx 5 ICD name"
##  [81] "Dx 6 ICD name"             "Dx 7 ICD name"
##  [83] "Dx 8 ICD name"             "Dx 9 ICD name"
##  [85] "Dx 10 ICD name"            "Dx 11 ICD name"
##  [87] "Dx 12 ICD name"            "Dx 13 ICD name"
##  [89] "Dx 14 ICD name"            "Dx 15 ICD name"
##  [91] "Dx 16 ICD name"            "Dx 17 ICD name"
##  [93] "Dx 18 ICD name"            "Dx 19 ICD name"
##  [95] "Dx 20 ICD name"            "Dx 21 ICD name"
##  [97] "Dx 22 ICD name"            "Dx 23 ICD name"
##  [99] "Dx 24 ICD name"            "Dx 25 ICD name"
## [101] "Dx 26 ICD name"            "Dx 27 ICD name"
## [103] "Dx 28 ICD name"            "Dx 29 ICD name"
## [105] "Dx 30 ICD name"            "Dx 1 ICD code"
## [107] "Dx 2 ICD code"             "Dx 3 ICD code"
## [109] "Dx 4 ICD code"             "Dx 5 ICD code"
## [111] "Dx 6 ICD code"             "Dx 7 ICD code"
## [113] "Dx 8 ICD code"             "Dx 9 ICD code"
## [115] "Dx 10 ICD code"            "Dx 11 ICD code"
## [117] "Dx 12 ICD code"            "Dx 13 ICD code"
## [119] "Dx 14 ICD code"            "Dx 15 ICD code"
## [121] "Dx 16 ICD code"            "Dx 17 ICD code"
## [123] "Dx 18 ICD code"            "Dx 19 ICD code"
## [125] "Dx 20 ICD code"            "Dx 21 ICD code"
## [127] "Dx 22 ICD code"            "Dx 23 ICD code"
## [129] "Dx 24 ICD code"            "Dx 25 ICD code"
## [131] "Dx 26 ICD code"            "Dx 27 ICD code"
## [133] "Dx 28 ICD code"            "Dx 29 ICD code"
## [135] "Dx 30 ICD code"            "Proc 1 ACHI name"
## [137] "Proc 2-20 ACHI name"       "Proc 1 group (RCs)"
## [139] "Proc 1 name (RCs)"         "Proc 1 surg (Y/N)"
## [141] "Proc 1 ACHI code"          "Proc 2-20 ACHI code"
## [143] "Proc 1 date"               "Proc 1 day"
## [145] "Proc 2-20 dates"           "DRG name"
## [147] "DRG code"                  "Hospital acq code"
## [149] "Hospital acq name"         "ASA score proc 1"
## [151] "ASA score all"             "Charlson score group"
## [153] "Charlson score value"      "Discharge alive/dead"
## [155] "Emerg adm 12m (#)"         "MAIS score"
## [157] "Palliative care (Y/N)"     "Sepsis (Y/N)"
## [159] "VTE (Y/N)"                 "COVID-19 (Y/N)"
## [161] "LOS total"                 "LOS pre proc 1"
## [163] "LOS post proc 1"           "LOS pre med fit dis"
```

```
## [165] "LOS post med fit dis"       "ITU / CCU bed days"
## [167] "DOSA (Y/N)"                 "Discharge same day (Y/N)"
## [169] "Elective day case (Y/N)"    "Statistical day case (Y/N)"
## [171] "Readm <7d (Y/N)"            "Readm <30d (Y/N)"
## [173] "Readm info"
```

```
names(D2019)
```

```
##   [1] "E-MRN"                     "Hospital name"
##   [3] "Area of residence"         "Address county (ROI)"
##   [5] "Address Dub postal"        "Eircode route key"
##   [7] "Admission date"            "Admission day"
##   [9] "Admission week"            "Admission month"
##  [11] "Admission year"            "Admission time"
##  [13] "Discharge date"            "Discharge day"
##  [15] "Discharge week"            "Discharge month"
##  [17] "Discharge year"            "Discharge time"
##  [19] "Med fit discharge date"    "Med fit discharge day"
##  [21] "Admission source"          "Admission type"
##  [23] "Discharge destination"     "Medical card (Y/N)"
##  [25] "NTPF (Y/N)"                "Public/private"
##  [27] "Specialty (pr) group"      "Specialty (dis) group"
##  [29] "Specialty principal"       "Specialty discharge"
##  [31] "Team code admission"       "Team code discharge"
##  [33] "Team code principal"       "Team code Dx1"
##  [35] "Team code Dx 2"            "Team code Dx 3"
##  [37] "Team code Dx 4"            "Team code Dx 5"
##  [39] "Team code Dx 6"            "Team code Dx 7"
##  [41] "Team code Dx 8"            "Team code Dx 9"
##  [43] "Team code Dx 10"           "Team code Dx 11"
##  [45] "Team code Dx 12"           "Team code Dx 13"
##  [47] "Team code Dx 14"           "Team code Dx 15"
##  [49] "Team code Dx 16"           "Team code Dx 17"
##  [51] "Team code Dx 18"           "Team code Dx 19"
##  [53] "Team code Dx 20"           "Team code Dx 21"
##  [55] "Team code Dx 22"           "Team code Dx 23"
##  [57] "Team code Dx 24"           "Team code Dx 25"
##  [59] "Team code Dx 26"           "Team code Dx 27"
##  [61] "Team code Dx 28"           "Team code Dx 29"
##  [63] "Team code Dx 30"           "Team code Proc 1"
##  [65] "Team code Proc 2-20"       "Transfer from"
##  [67] "Transfer to"               "Ward AAU (Y/N)"
##  [69] "Ward admit"                "Ward discharge"
##  [71] "Age by 1 year"             "Age by 5 year"
##  [73] "Gender"                    "Dx 1 group (CCS-IM)"
##  [75] "Dx 1 name (CCS-IM)"        "Dx 1 ICD name"
##  [77] "Dx 2 ICD name"             "Dx 3 ICD name"
##  [79] "Dx 4 ICD name"             "Dx 5 ICD name"
##  [81] "Dx 6 ICD name"             "Dx 7 ICD name"
##  [83] "Dx 8 ICD name"             "Dx 9 ICD name"
##  [85] "Dx 10 ICD name"            "Dx 11 ICD name"
##  [87] "Dx 12 ICD name"            "Dx 13 ICD name"
##  [89] "Dx 14 ICD name"            "Dx 15 ICD name"
##  [91] "Dx 16 ICD name"            "Dx 17 ICD name"
##  [93] "Dx 18 ICD name"            "Dx 19 ICD name"
```

```
##  [95] "Dx 20 ICD name"            "Dx 21 ICD name"
##  [97] "Dx 22 ICD name"            "Dx 23 ICD name"
##  [99] "Dx 24 ICD name"            "Dx 25 ICD name"
## [101] "Dx 26 ICD name"            "Dx 27 ICD name"
## [103] "Dx 28 ICD name"            "Dx 29 ICD name"
## [105] "Dx 30 ICD name"            "Dx 1 ICD code"
## [107] "Dx 2 ICD code"             "Dx 3 ICD code"
## [109] "Dx 4 ICD code"             "Dx 5 ICD code"
## [111] "Dx 6 ICD code"             "Dx 7 ICD code"
## [113] "Dx 8 ICD code"             "Dx 9 ICD code"
## [115] "Dx 10 ICD code"            "Dx 11 ICD code"
## [117] "Dx 12 ICD code"            "Dx 13 ICD code"
## [119] "Dx 14 ICD code"            "Dx 15 ICD code"
## [121] "Dx 16 ICD code"            "Dx 17 ICD code"
## [123] "Dx 18 ICD code"            "Dx 19 ICD code"
## [125] "Dx 20 ICD code"            "Dx 21 ICD code"
## [127] "Dx 22 ICD code"            "Dx 23 ICD code"
## [129] "Dx 24 ICD code"            "Dx 25 ICD code"
## [131] "Dx 26 ICD code"            "Dx 27 ICD code"
## [133] "Dx 28 ICD code"            "Dx 29 ICD code"
## [135] "Dx 30 ICD code"            "Proc 1 ACHI name"
## [137] "Proc 2-20 ACHI name"       "Proc 1 group (RCs)"
## [139] "Proc 1 name (RCs)"         "Proc 1 surg (Y/N)"
## [141] "Proc 1 ACHI code"          "Proc 2-20 ACHI code"
## [143] "Proc 1 date"               "Proc 1 day"
## [145] "Proc 2-20 dates"           "DRG name"
## [147] "DRG code"                  "Hospital acq code"
## [149] "Hospital acq name"         "ASA score proc 1"
## [151] "ASA score all"             "Charlson score group"
## [153] "Charlson score value"      "Discharge alive/dead"
## [155] "Emerg adm 12m (#)"         "MAIS score"
## [157] "Palliative care (Y/N)"     "Sepsis (Y/N)"
## [159] "VTE (Y/N)"                 "COVID-19 (Y/N)"
## [161] "LOS total"                 "LOS pre proc 1"
## [163] "LOS post proc 1"           "LOS pre med fit dis"
## [165] "LOS post med fit dis"      "ITU / CCU bed days"
## [167] "DOSA (Y/N)"                "Discharge same day (Y/N)"
## [169] "Elective day case (Y/N)"   "Statistical day case (Y/N)"
## [171] "Readm <7d (Y/N)"           "Readm <30d (Y/N)"
## [173] "Readm info"
```

```
vtable::vt(D2013)
```

```
vtable::vt(D2014)
```

```
vtable::vt(D2015)
```

```
vtable::vt(D2016)
```

```
vtable::vt(D2017)
```

```
vtable::vt(D2018)
```

```
vtable::vt(D2019)
```

```
vtable::vt(D2020)
```

Table 1: D2013

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 2: D2014

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 3: D2015

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 4: D2016

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 5: D2017

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 6: D2018

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 7: D2019

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

Table 8: D2020

Name	Class	Values
E-MRN	character	
Hospital name	character	
Area of residence	character	
Address county (ROI)	character	
Address Dub postal	character	
Eircode route key	character	
Admission date	character	
Admission day	character	
Admission week	character	
Admission month	character	
Admission year	character	
Admission time	character	
Discharge date	character	
Discharge day	character	
Discharge week	character	
Discharge month	character	
Discharge year	character	
Discharge time	character	
Med fit discharge date	character	
Med fit discharge day	character	
Admission source	character	
Admission type	character	
Discharge destination	character	
Medical card (Y/N)	character	
NTPF (Y/N)	character	
Public/private	character	
Specialty (pr) group	character	
Specialty (dis) group	character	
Specialty principal	character	
Specialty discharge	character	
Team code admission	character	
Team code discharge	character	
Team code principal	character	
Team code Dx1	character	
Team code Dx 2	character	
Team code Dx 3	character	
Team code Dx 4	character	
Team code Dx 5	character	
Team code Dx 6	character	
Team code Dx 7	character	
Team code Dx 8	character	
Team code Dx 9	character	
Team code Dx 10	character	
Team code Dx 11	character	
Team code Dx 12	character	
Team code Dx 13	character	
Team code Dx 14	character	
Team code Dx 15	character	
Team code Dx 16	character	
Team code Dx 17	character	
Team code Dx 18	character	
Team code Dx 19	character	
Team code Dx 20	character	

```
TBI <- D2020 %>% rbind(D2019) %>% rbind(D2018) %>% rbind(D2017) %>% rbind(D2016) %>% rbind(D2015) %>% rb
nrow(TBI)
```

```
## [1] 95442
```

```
nrow(distinct(TBI))
```

```
## [1] 93346
```

```
TBI <- TBI %>% distinct() #Some dates overlap 2019 and part 2020
rm(D2013,D2014,D2015,D2016,D2017,D2018,D2019,D2020)
```

Data

Fix the variable names

```
## Warning: Missing column names filled in: 'X1' [1]
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   X1 = col_double(),
##   Name = col_character(),
##   NewName = col_character(),
##   Type = col_character()
## )
```

Fix the variable types

```
table(NAMES$NewName,NAMES$Type)
```

```
##
##                          Character Date Logical Numeric
##   Address_county_ROI             1    0       0       0
##   Address_Dub_postal             1    0       0       0
##   Admission_date                 0    1       0       0
##   Admission_day                  0    0       0       1
##   Admission_month                0    0       0       1
##   Admission_source               1    0       0       0
##   Admission_time                 0    0       0       1
##   Admission_type                 1    0       0       0
##   Admission_week                 0    0       0       1
##   Admission_year                 0    0       0       1
##   Age_by_1_year                  0    0       0       1
##   Age_by_5_year                  1    0       0       0
##   Area_of_residence              1    0       0       0
##   ASA_score_all                  0    0       0       1
##   ASA_score_proc_1               0    0       0       1
##   Charlson_score_group           0    0       0       1
##   Charlson_score_value           0    0       0       1
##   COVID-19                       0    0       1       0
##   Discharge_alive/dead           1    0       0       0
##   Discharge_date                 0    1       0       0
##   Discharge_day                  0    0       0       1
##   Discharge_destination          1    0       0       0
##   Discharge_month                0    0       0       1
##   Discharge_same_day             0    0       1       0
```

```
##   Discharge_time               0    0       0       1
##   Discharge_week               0    0       0       1
##   Discharge_year               0    0       0       1
##   DOSA                         0    0       1       0
##   DRG_code                     1    0       0       0
##   DRG_name                     1    0       0       0
##   Dx_1_group_CCS-IM            1    0       0       0
##   Dx_1_ICD_code                1    0       0       0
##   Dx_1_ICD_name                1    0       0       0
##   Dx_1_name_CCS-IM             1    0       0       0
##   Dx_10_ICD_code               1    0       0       0
##   Dx_10_ICD_name               1    0       0       0
##   Dx_11_ICD_code               1    0       0       0
##   Dx_11_ICD_name               1    0       0       0
##   Dx_12_ICD_code               1    0       0       0
##   Dx_12_ICD_name               1    0       0       0
##   Dx_13_ICD_code               1    0       0       0
##   Dx_13_ICD_name               1    0       0       0
##   Dx_14_ICD_code               1    0       0       0
##   Dx_14_ICD_name               1    0       0       0
##   Dx_15_ICD_code               1    0       0       0
##   Dx_15_ICD_name               1    0       0       0
##   Dx_16_ICD_code               1    0       0       0
##   Dx_16_ICD_name               1    0       0       0
##   Dx_17_ICD_code               1    0       0       0
##   Dx_17_ICD_name               1    0       0       0
##   Dx_18_ICD_code               1    0       0       0
##   Dx_18_ICD_name               1    0       0       0
##   Dx_19_ICD_code               1    0       0       0
##   Dx_19_ICD_name               1    0       0       0
##   Dx_2_ICD_code                1    0       0       0
##   Dx_2_ICD_name                1    0       0       0
##   Dx_20_ICD_code               1    0       0       0
##   Dx_20_ICD_name               1    0       0       0
##   Dx_21_ICD_code               1    0       0       0
##   Dx_21_ICD_name               1    0       0       0
##   Dx_22_ICD_code               1    0       0       0
##   Dx_22_ICD_name               1    0       0       0
##   Dx_23_ICD_code               1    0       0       0
##   Dx_23_ICD_name               1    0       0       0
##   Dx_24_ICD_code               1    0       0       0
##   Dx_24_ICD_name               1    0       0       0
##   Dx_25_ICD_code               1    0       0       0
##   Dx_25_ICD_name               1    0       0       0
##   Dx_26_ICD_code               1    0       0       0
##   Dx_26_ICD_name               1    0       0       0
##   Dx_27_ICD_code               1    0       0       0
##   Dx_27_ICD_name               1    0       0       0
##   Dx_28_ICD_code               1    0       0       0
##   Dx_28_ICD_name               1    0       0       0
##   Dx_29_ICD_code               1    0       0       0
##   Dx_29_ICD_name               1    0       0       0
##   Dx_3_ICD_code                1    0       0       0
##   Dx_3_ICD_name                1    0       0       0
```

```
##   Dx_30_ICD_code               1    0       0       0
##   Dx_30_ICD_name               1    0       0       0
##   Dx_4_ICD_code                1    0       0       0
##   Dx_4_ICD_name                1    0       0       0
##   Dx_5_ICD_code                1    0       0       0
##   Dx_5_ICD_name                1    0       0       0
##   Dx_6_ICD_code                1    0       0       0
##   Dx_6_ICD_name                1    0       0       0
##   Dx_7_ICD_code                1    0       0       0
##   Dx_7_ICD_name                1    0       0       0
##   Dx_8_ICD_code                1    0       0       0
##   Dx_8_ICD_name                1    0       0       0
##   Dx_9_ICD_code                1    0       0       0
##   Dx_9_ICD_name                1    0       0       0
##   E_MRN                        1    0       0       0
##   Eircode_route_key            1    0       0       0
##   Elective_day_case            0    0       1       0
##   Emerg_adm_12m_#              1    0       0       0
##   Gender                       1    0       0       0
##   Hospital_acq_code            1    0       0       0
##   Hospital_acq_name            1    0       0       0
##   Hospital_name                1    0       0       0
##   ITU_or_CCU_bed_days          0    0       0       1
##   LOS_post_med_fit_dis         0    0       0       1
##   LOS_post_proc_1              0    0       0       1
##   LOS_pre_med_fit_dis          0    0       0       1
##   LOS_pre_proc_1               0    0       0       1
##   LOS_total                    0    0       0       1
##   MAIS_score                   0    0       0       1
##   Med_fit_discharge_date       0    0       0       1
##   Med_fit_discharge_day        0    0       0       1
##   Medical_card                 1    0       0       0
##   NTPF                         1    0       0       0
##   Palliative_care              0    0       1       0
##   Proc_1_ACHI_code             1    0       0       0
##   Proc_1_ACHI_name             1    0       0       0
##   Proc_1_date                  1    0       0       0
##   Proc_1_day                   1    0       0       0
##   Proc_1_group_RCs             1    0       0       0
##   Proc_1_name_RCs              1    0       0       0
##   Proc_1_surg                  1    0       0       0
##   Proc_2-20_ACHI_code          1    0       0       0
##   Proc_2-20_ACHI_name          1    0       0       0
##   Proc_2-20_dates              1    0       0       0
##   Public_or_private            1    0       0       0
##   Readm_<30d                   0    0       1       0
##   Readm_<7d                    0    0       1       0
##   Readm_info                   0    0       1       0
##   Sepsis                       0    0       1       0
##   Specialty_dis_group          1    0       0       0
##   Specialty_discharge          1    0       0       0
##   Specialty_pr_group           1    0       0       0
##   Specialty_principal          1    0       0       0
##   Statistical_day_case         0    0       1       0
```

```
##   Team_code_admission           1    0       0       0
##   Team_code_discharge           1    0       0       0
##   Team_code_Dx_1                1    0       0       0
##   Team_code_Dx_10               1    0       0       0
##   Team_code_Dx_11               1    0       0       0
##   Team_code_Dx_12               1    0       0       0
##   Team_code_Dx_13               1    0       0       0
##   Team_code_Dx_14               1    0       0       0
##   Team_code_Dx_15               1    0       0       0
##   Team_code_Dx_16               1    0       0       0
##   Team_code_Dx_17               1    0       0       0
##   Team_code_Dx_18               1    0       0       0
##   Team_code_Dx_19               1    0       0       0
##   Team_code_Dx_2                1    0       0       0
##   Team_code_Dx_20               1    0       0       0
##   Team_code_Dx_21               1    0       0       0
##   Team_code_Dx_22               1    0       0       0
##   Team_code_Dx_23               1    0       0       0
##   Team_code_Dx_24               1    0       0       0
##   Team_code_Dx_25               1    0       0       0
##   Team_code_Dx_26               1    0       0       0
##   Team_code_Dx_27               1    0       0       0
##   Team_code_Dx_28               1    0       0       0
##   Team_code_Dx_29               1    0       0       0
##   Team_code_Dx_3                1    0       0       0
##   Team_code_Dx_30               1    0       0       0
##   Team_code_Dx_4                1    0       0       0
##   Team_code_Dx_5                1    0       0       0
##   Team_code_Dx_6                1    0       0       0
##   Team_code_Dx_7                1    0       0       0
##   Team_code_Dx_8                1    0       0       0
##   Team_code_Dx_9                1    0       0       0
##   Team_code_principal           1    0       0       0
##   Team_code_Proc_1              1    0       0       0
##   Team_code_Proc_2-20           1    0       0       0
##   Transfer_from                 1    0       0       0
##   Transfer_to                   1    0       0       0
##   VTE                           0    0       1       0
##   Ward_AAU                      1    0       0       0
##   Ward_admit                    1    0       0       0
##   Ward_discharge                1    0       0       0
```

```
#Numbers
Numbers <- NAMES %>% filter(Type == 'Numeric') %>% select(NewName)
  COLS <- Numbers$NewName
TBIt <- TBI %>%
  mutate(across(all_of(COLS), as.numeric))
```

```
## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.
```

```
## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.

## Warning: Problem with `mutate()` input `..1`.
## i NAs introduced by coercion
## i Input `..1` is `across(all_of(COLS), as.numeric)`.
```

```r
  rm(Numbers)

#Dates
Dates <- NAMES%>% filter(Type == 'Date') %>% select(NewName)
  COLS <- Dates$NewName
```

```
TBIt <- TBIt %>%
  mutate(across(all_of(COLS), as_date))
  rm(Dates)

vtable::vt(TBIt)
```

```
warnings()

TBI <- TBIt
rm(TBIt, COLS, NAMES)
```

Add new variables

```
#Correctly ordered age groups
TBI <- TBI %>%
  mutate(AgeGrp = as_factor(Age_by_5_year)) %>%
  mutate(AgeGrp = fct_reorder(AgeGrp, Age_by_1_year))#  #order by median age
#  mutate(AgeGrp = fct_relevel(AgeGrp, "5-9", after=1)) #
#  mutate(AgeGrp = fct_relevel(AgeGrp, "100-104", after=Inf)) #

TBI %>% select(AgeGrp) %>% group_by(AgeGrp) %>% summarise(N = n())
```

```
## # A tibble: 22 x 2
##    AgeGrp     N
##  * <fct>  <int>
##  1 0-4    11581
##  2 5-9     5160
##  3 10-14   4204
##  4 15-19   5837
##  5 20-24   5440
##  6 25-29   4560
##  7 30-34   4204
##  8 35-39   3881
##  9 40-44   3464
## 10 45-49   3374
## # ... with 12 more rows
```

```
#UniqueID

TBI$ID = 1:nrow(TBI)

TBI <- TBI %>% select(ID,E_MRN:AgeGrp)
```

Basic tables

```
Gender <- gt(data=TBI %>%
               select(Gender) %>%
               group_by(Gender) %>%
               summarise(N = n())
             ) %>%
  tab_header(
    title = "Gender",
```

Table 9: TBIt

Name	Class	Values
E_MRN	character	
Hospital_name	character	
Area_of_residence	character	
Address_county_ROI	character	
Address_Dub_postal	character	
Eircode_route_key	character	
Admission_date	Date	Time: 2013-01-01 to 2020-10-31
Admission_day	numeric	
Admission_week	numeric	Num: 1 to 53
Admission_month	numeric	
Admission_year	numeric	Num: 2013 to 2020
Admission_time	numeric	Num: 0 to 23
Discharge_date	Date	Time: 2013-01-02 to 2020-11-26
Discharge_day	numeric	
Discharge_week	numeric	Num: 1 to 53
Discharge_month	numeric	
Discharge_year	numeric	Num: 2013 to 2020
Discharge_time	numeric	Num: 0 to 23
Med_fit_discharge_date	numeric	
Med_fit_discharge_day	numeric	
Admission_source	character	
Admission_type	character	
Discharge_destination	character	
Medical_card	character	
NTPF	character	
Public_or_private	character	
Specialty_pr_group	character	
Specialty_dis_group	character	
Specialty_principal	character	
Specialty_discharge	character	
Team_code_admission	character	
Team_code_discharge	character	
Team_code_principal	character	
Team_code_Dx_1	character	
Team_code_Dx_2	character	
Team_code_Dx_3	character	
Team_code_Dx_4	character	
Team_code_Dx_5	character	
Team_code_Dx_6	character	
Team_code_Dx_7	character	
Team_code_Dx_8	character	
Team_code_Dx_9	character	
Team_code_Dx_10	character	
Team_code_Dx_11	character	
Team_code_Dx_12	character	
Team_code_Dx_13	character	
Team_code_Dx_14	character	
Team_code_Dx_15	character	
Team_code_Dx_16	character	
Team_code_Dx_17	character	
Team_code_Dx_18	character	
Team_code_Dx_19	character	
Team_code_Dx_20	character	

```
    subtitle = "Only Male and Female are recorded"
  )

Gender
```

Gender

Only Male and Female are recorded

Gender	N
Female	35805
Male	57541

```
Age <- gt(data=TBI %>%
            select(AgeGrp) %>%
            group_by(AgeGrp) %>%
            summarise(N = n())
             ) %>%
  tab_header(
    title = "Age (5 year age groups)",
    subtitle = "All S00-S09 admissions"
  )

Age
```

Age (5 year age groups)

All S00-S09 admissions

AgeGrp	N
0-4	11581
5-9	5160
10-14	4204
15-19	5837
20-24	5440
25-29	4560
30-34	4204
35-39	3881
40-44	3464
45-49	3374
50-54	3471
55-59	3643
60-64	3638
65-69	4053
70-74	4933
75-79	5923
80-84	6746
85-89	5773
90-94	2749
95-99	652
100-104	59
110-114	1

```
Source <- gt(data=TBI %>%
            select(Admission_source) %>%
```

```
            group_by(Admission_source) %>%
            summarise(N = n())
             ) %>%
  tab_header(
    title = "Source of admission",
    subtitle = "All S00-S09 admissions"
  )

Source
```

Source of admission

All S00-S09 admissions

Admission_source	N
Home	85409
New born	31
Other	42
Prison	77
Temporary place of residence	136
Transfer from Acute Hospital	5382
Transfer from hospice not in HIPE hospital listing	1
Transfer from Non-Acute Hospital not in HIPE hospital listing	80
Transfer from nursing home/convalescent home or other long stay accommodation	2112
Transfer from psychiatric hospital/unit	76

```
Type <- gt(data=TBI %>%
            select(Admission_type) %>%
            group_by(Admission_type) %>%
            summarise(N = n())
             ) %>%
  tab_header(
    title = "Type of admission",
    subtitle = "All S00-S09 admissions"
  )

Type
```

Type of admission

All S00-S09 admissions

Admission_type	N
Elective	9281
Elective Readmission	721
Emergency	82437
Emergency Readmission	405
Maternity	181
New born	321

```
Destination <- gt(data=TBI %>%
            select(Discharge_destination) %>%
            group_by(Discharge_destination) %>%
            summarise(N = n())
             ) %>%
```

```
  tab_header(
    title = "Discharge destination",
    subtitle = "All S00-S09 admissions"
  )

Destination
```

Discharge destination
All S00-S09 admissions

Discharge_destination	N
Absconded	339
Died no post mortem	1765
Died with post mortem	730
Home	75677
Hospice (not in HIPE Hospital Listing)	125
Nursing home, convalescent home or long stay accommodation	6676
Other (e.g. Foster care)	147
Prison	121
Self discharge	1630
Temporary place of residence (e.g. hotel)	179
Transfer to external rehabilitation facility (not in HIPE Hospital Listing)	505
Transfer to Hospital - Emergency	1445
Transfer to Hospital - Non Emergency	3691
Transfer to Non-Acute Hospital not in HIPE Hospital Listing - Emergency	8
Transfer to Non-Acute Hospital not in HIPE Hospital Listing - Non Emergency	133
Transfer to psychiatric hospital/unit	175

```
Group.db <- TBI %>%
  select(Medical_card, NTPF, Public_or_private) %>%
  group_by(Medical_card, NTPF, Public_or_private) %>%
  summarise(N=n())
```

```
## `summarise()` has grouped output by 'Medical_card', 'NTPF'. You can override using the `.groups` argu
```

```
Group.db %>%
  kbl() %>%
  kable_classic(full_width = F, html_font = "Cambria")
```

Medical_card	NTPF	Public_or_private	N
No	No	Private	13094
No	No	Public	34478
No	Yes	Public	26
Unknown	No	Private	31
Unknown	No	Public	162
Unknown	Yes	Public	1
Yes	No	Private	2873
Yes	No	Public	42674
Yes	Yes	Public	7

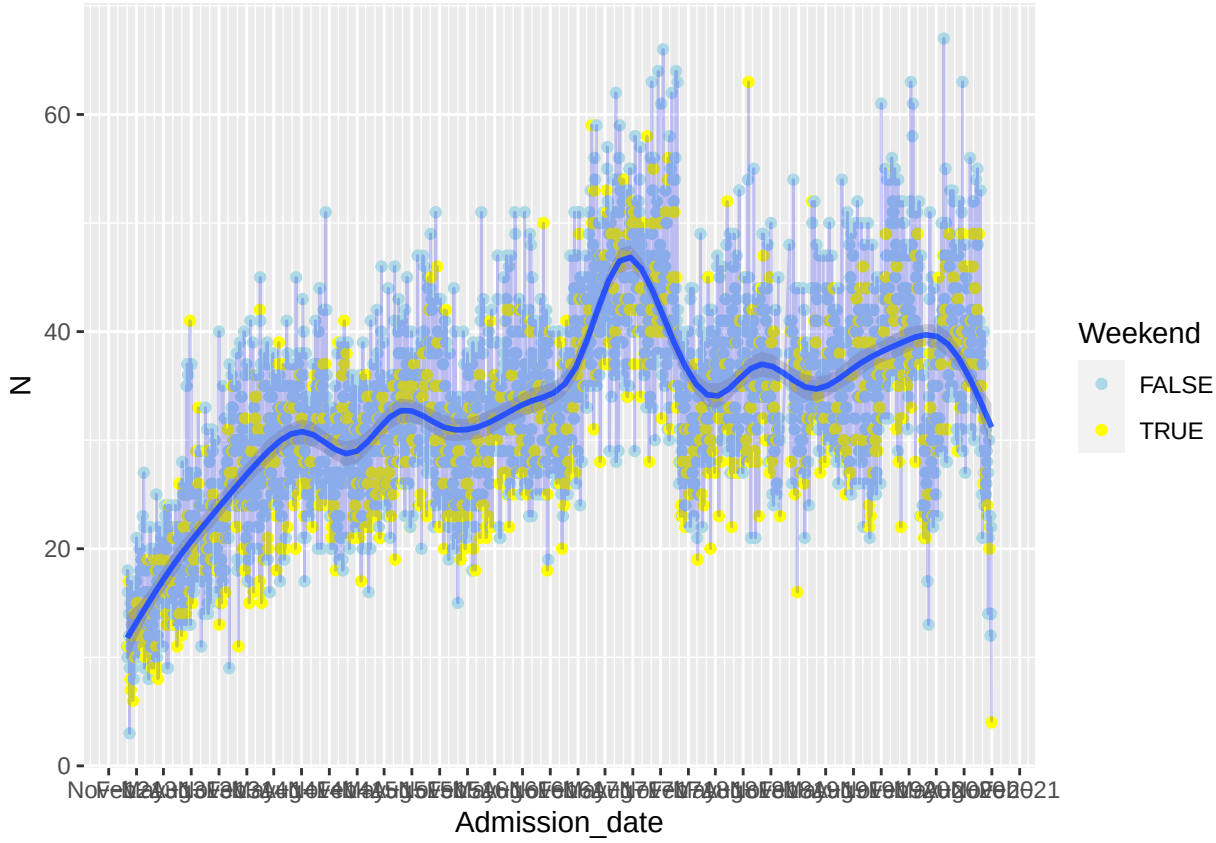
Basic plots

```
Daily_Admissions <- TBI %>%
  select(Admission_date) %>%
  group_by(Admission_date) %>%
  summarise(N = n()) %>%
  mutate(Day_of_week = wday(Admission_date,
                            label = TRUE)) %>%
  mutate(Weekend = ifelse((Day_of_week %in% c('Sat','Sun')), TRUE, FALSE))

str(Daily_Admissions)
```

```
## tibble [2,831 x 4] (S3: tbl_df/tbl/data.frame)
##  $ Admission_date: Date[1:2831], format: "2013-01-01" "2013-01-02" ...
##  $ N             : int [1:2831] 11 10 18 16 11 17 14 12 3 9 ...
##  $ Day_of_week   : Ord.factor w/ 7 levels "Sun"<"Mon"<"Tue"<..: 3 4 5 6 7 1 2 3 4 5 ...
##  $ Weekend       : logi [1:2831] FALSE FALSE FALSE FALSE TRUE TRUE ...
```

```
ggplot(Daily_Admissions, aes(x=Admission_date, y=N)) +
  geom_point(aes(colour=Weekend)) +
  geom_smooth( method = "gam", formula = y ~ s(x, k=20, bs = "cs"))  +
  geom_line(alpha=0.2,colour='blue') +
  scale_colour_manual(values=c('lightblue','yellow')) +
  scale_x_date(date_minor_breaks='1 month', date_breaks = '3 months', date_labels = '%b-%y', limits = c
```



Something very different in 2018 Small gap in late 2018 - only given up to December 1st Sharp dip in March 2020 - COVID1

This is all head injuires.

Dictionary of codes

This is set of all the ICD10 codes used in the data which were associated with names. Note that there are more codes (up to 30) than names(up to 19) in the dataset.

```
Dictionary <- TBI %>%
  select(ID, Dx_1_ICD_code:Dx_30_ICD_code, Dx_1_ICD_name:Dx_19_ICD_name) %>%  #All diagnoses
  pivot_longer(-ID,
               names_to=c("Dx",".value"),
               names_pattern="(Dx_\\d+)_(.*)") %>% # Generate one row per diagnosis
  filter(!is.na(ICD_code)) %>% # Lose blank codes
  filter(!is.na(ICD_name)) %>% # Lose blank codes
  select(-ID,-Dx) %>%
  group_by(ICD_code,ICD_name) %>%
  summarise(N=n()) %>%
  arrange(ICD_code) %>% # Put in Code order
  ungroup()
```

```
## `summarise()` has grouped output by 'ICD_code'. You can override using the `.groups` argument.
```

```
Dictionary
```

```
## # A tibble: 6,777 x 3
##    ICD_code ICD_name                                N
##    <chr>    <chr>                               <int>
##  1 A020     Salmonella enteritis                    2
##  2 A029     Salmonella infection unspecified        1
##  3 A039     Shigellosis unspecified                 1
##  4 A041     Enterotoxigenic E coli infection        1
##  5 A043     Enterohaemorrhagic E coli infection     4
##  6 A044     Other E coli infection                  5
##  7 A045     Campylobacter enteritis                12
##  8 A047     Enterocolitis dt Clostridium difficile   264
##  9 A048     Other spec bacterial intestinal infectn   10
## 10 A049     Bacterial intestinal infection unsp      1
## # ... with 6,767 more rows
```

Working data set

Advice? Suggest, exclude all electives. Require SO6 as Dx_1 or SO6 + Vcode

```
# Codes used and the number of the associated diagnosis
Codes_used_by_Dx <- TBI %>%
  select(ID,Dx_1_ICD_code:Dx_30_ICD_code) %>%  #All diagnoses
  pivot_longer(-ID,
               names_to=c("Dx","Type"),
               names_pattern="(Dx_\\d+)_(.*)",
               values_to="Code") %>% # Generate one row per diagnosis
  select(-Type) %>% # This just says ICD_code
  filter(!is.na(Code)) %>% # Lose blank codes
  left_join(Dictionary, by = c('Code' = 'ICD_code')) %>%
  group_by(Dx,Code,ICD_name) %>% # Group by diagnosis, and code
```

```
  summarize(N=n()) %>% # Count every combination of diagnosis and code
  arrange(desc(N)) # Put from most common to least common
```

```
## `summarise()` has grouped output by 'Dx', 'Code'. You can override using the `.groups` argument.
```

```
Codes_used_by_Dx
```

```
## # A tibble: 40,551 x 4
## # Groups:   Dx, Code [40,551]
##    Dx    Code  ICD_name                                N
##    <chr> <chr> <chr>                                <int>
##  1 Dx_4  U739  Unspecified activity                 22819
##  2 Dx_5  U739  Unspecified activity                 13564
##  3 Dx_4  Y929  Unspecified place of occurrence      13339
##  4 Dx_3  Y929  Unspecified place of occurrence      12255
##  5 Dx_1  S099  Unspecified injury of head           10881
##  6 Dx_3  U739  Unspecified activity                  8015
##  7 Dx_2  W19   Unspecified fall                      7205
##  8 Dx_6  U739  Unspecified activity                  6814
##  9 Dx_1  S0188 Open wound of other parts of head     5999
## 10 Dx_1  S022  Fracture of nasal bones               5751
## # ... with 40,541 more rows
```

```
# Codes used for all diagnoses
Codes_used_all_Dx <- TBI %>%
  select(ID,Dx_1_ICD_code:Dx_30_ICD_code) %>%  #All diagnoses
  pivot_longer(-ID,
               names_to=c("Dx","Type"),
               names_pattern="(Dx_\\d+)_(.*)",
               values_to="Code") %>% # Generate one row per diagnosis
  select(-Type) %>% # This just says ICD_code
  filter(!is.na(Code)) %>% # Lose blank codes
  left_join(Dictionary, by = c('Code' = 'ICD_code')) %>%
  group_by(Code,ICD_name) %>% # Group by code
  summarize(N=n()) %>% # Count every code used for any diagnosis
  arrange(desc(N)) # Put from most common to least common
```

```
## `summarise()` has grouped output by 'Code'. You can override using the `.groups` argument.
```

```
Codes_used_all_Dx
```

```
## # A tibble: 6,842 x 3
## # Groups:   Code [6,842]
##    Code  ICD_name                                   N
##    <chr> <chr>                                  <int>
##  1 U739  Unspecified activity                  62197
##  2 Y929  Unspecified place of occurrence       37201
##  3 W19   Unspecified fall                      20723
##  4 Y9209 Other and unspecified place in home   16936
##  5 S099  Unspecified injury of head            13647
##  6 S0188 Open wound of other parts of head     12387
##  7 U738  Other specified activity               8517
##  8 Z720  Tobacco use current                    8457
##  9 S022  Fracture of nasal bones                7540
## 10 U732  While rest sleep eat engaging vtl act  6935
## # ... with 6,832 more rows
```

```r
#Codes used for diagnosis 1 only
Codes_used_Dx_1 <- TBI %>%
  select(ID,Dx_1_ICD_code) %>%  #Principal diagnosis
  pivot_longer(-ID,
               names_to=c("Dx","Type"),
               names_pattern="(Dx_\\d+)_(.*)",
               values_to="Code") %>% # Generate one row per diagnosis
  select(-Type) %>% # This just says ICD_code
  filter(!is.na(Code)) %>% # Lose blank codes
  left_join(Dictionary, by = c('Code' = 'ICD_code')) %>%
  group_by(Code, ICD_name) %>% # Group by code
  summarize(N=n()) %>% # Count every code for principal diagnosis
  arrange(desc(N)) # Put from most common to least common
```

```
## `summarise()` has grouped output by 'Code'. You can override using the `.groups` argument.
```

```r
Codes_used_Dx_1
```

```
## # A tibble: 2,203 x 3
## # Groups:   Code [2,203]
##    Code  ICD_name                                    N
##    <chr> <chr>                                   <int>
##  1 S099  Unspecified injury of head             10881
##  2 S0188 Open wound of other parts of head       5999
##  3 S022  Fracture of nasal bones                 5751
##  4 S098  Other specified injuries of head        4825
##  5 S065  Traumatic subdural haemorrhage          3882
##  6 S0602 LOC brief dur [less than 30 minutes]    3562
##  7 R55   Syncope and collapse                    3041
##  8 S0151 Open wound of lip                       2507
##  9 S010  Open wound of scalp                     2475
## 10 S024  Fracture of malar and maxillary bones   2255
## # ... with 2,193 more rows
```