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title: "NDL Wales Output 1 FINAL 20210121"

output: html\_document

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```{r load packages, include=FALSE}

library(odbc)

library(tidyverse)

library(lubridate)

library(DescTools)

```

```{r import dataset, echo=FALSE}

cohort <- dbGetQuery(sql,"select \* from SAILW1224V.COHORT")

```

```{r correct columns and create new columns, echo = F}

cohort$SEX[cohort$SEX == 1] <- "Male"

cohort$SEX[cohort$SEX == 2] <- "Female"

cohort$SEX[is.na(cohort$SEX)] <- "Unknown"

cohort$START\_DATE <- ymd(cohort$START\_DATE)

cohort <- cohort %>% mutate(Age\_Group = case\_when(AGE <= 19 ~ '<20',

between(AGE, 20, 29) ~ '20-29',

between(AGE, 30, 39) ~ '30-39',

between(AGE, 40, 49) ~ '40-49',

between(AGE, 50, 59) ~ '50-59',

between(AGE, 60, 69) ~ '60-69',

between(AGE, 70, 79) ~ '70-79',

AGE >= 80 ~ '80+',

is.na(AGE) ~ 'Unknown'))

cohort <- cohort %>% rowwise() %>% mutate(Multi = case\_when(sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) > 1 ~ 'Multiple\_Reasons',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) >= 1 & sum(GP\_REFERRED, OTHER) >= 1 ~ 'Unknown',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) == 0 & sum(GP\_REFERRED, OTHER) >= 1 ~ 'Unknown',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) == 1 ~ 'Single\_Reason',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) == 0 & sum(GP\_REFERRED, OTHER) == 0 &

sum(NOT\_KNOWN) == 1 ~ 'Unknown'))

cohort <- cohort %>% rowwise() %>% mutate(method = case\_when(sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) >= 1 ~ 'Clinical',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) == 0 & sum(GP\_REFERRED, OTHER) >= 1 ~ 'Other',

sum(TRANSPLANT, CANCER, RESPIRATORY, ORGAN\_DISEASE, RARE\_DISEASES, IMMUNOSUPPRESSION\_THERAPY,

PREGNANCY, RENAL\_DIALYSIS) == 0 & sum(GP\_REFERRED, OTHER) == 0 & sum(NOT\_KNOWN) >= 1 ~ 'Unknown'))

cohort$LSOA2011\_CD[cohort$START\_DATE > '2020-03-01'] <- NA

cohort$WIMD\_2014\_QUINTILE[cohort$START\_DATE > '2020-03-01'] <- NA

cohort$RUC11[cohort$START\_DATE > '2020-03-01'] <- NA

cohort <- cohort %>% mutate(Rural\_or\_Urban = case\_when(RUC11 %like% 'Rural%' ~ 'Rural', RUC11 %like% 'Urban%' ~ 'Urban'))

```

```{r Age, echo = F}

Age\_Counts <- cohort %>% group\_by(Age\_Group) %>% summarise(Total = n())

Age\_Sex\_Counts <- cohort %>% group\_by(SEX, Age\_Group) %>% summarise(Total = n())

```

```{r Sex, echo = F}

Sex\_Counts <- cohort %>% group\_by(SEX) %>% summarise(Total = n())

```

```{r Reason for shielding, echo = F}

Shielding\_Reason\_Counts <- cohort %>% ungroup() %>% summarise\_at(c("TRANSPLANT", "CANCER", "RESPIRATORY", "ORGAN\_DISEASE", "RARE\_DISEASES",

"IMMUNOSUPPRESSION\_THERAPY", "PREGNANCY", "RENAL\_DIALYSIS", "OTHER", "GP\_REFERRED",

"NOT\_KNOWN"), sum)

Shielding\_Age\_Counts <- pivot\_longer(cohort, cols = c("TRANSPLANT", "CANCER", "RESPIRATORY", "ORGAN\_DISEASE", "RARE\_DISEASES", "IMMUNOSUPPRESSION\_THERAPY",

"PREGNANCY", "RENAL\_DIALYSIS", "OTHER", "GP\_REFERRED", "NOT\_KNOWN"),

names\_to = "Shield\_Reason") %>% subset(value > 0) %>% group\_by(Shield\_Reason, Age\_Group) %>% summarise(Total = n())

```

```{r Multimorbidities, echo = F}

Multi\_Reason\_Counts <- cohort %>% group\_by(Multi) %>% summarise(Total= n())

```

```{r Method of addition, echo = F}

Reason\_Counts <- cohort %>% group\_by(method) %>% summarise(count = n())

```

```{r Deprivation, echo = F}

Deprivation\_Counts <- cohort %>% group\_by(WIMD\_2014\_QUINTILE) %>% summarise(Total = n())

Deprivation\_Sex\_Counts <- cohort %>% group\_by(SEX, WIMD\_2014\_QUINTILE) %>% summarise(Total = n())

Deprivation\_Age\_Counts <- cohort %>% group\_by(WIMD\_2014\_QUINTILE, Age\_Group) %>% summarise(Total = n())

Shielding\_Deprivation\_Counts <- pivot\_longer(cohort, cols = c("TRANSPLANT", "CANCER", "RESPIRATORY", "ORGAN\_DISEASE", "RARE\_DISEASES",

"IMMUNOSUPPRESSION\_THERAPY", "PREGNANCY", "RENAL\_DIALYSIS", "OTHER", "GP\_REFERRED", "NOT\_KNOWN"),

names\_to = "Shield\_Reason") %>% subset(value > 0) %>% group\_by(Shield\_Reason, WIMD\_2014\_QUINTILE) %>%

summarise(Total = n())

```

```{r Rurality, echo = F}

Rurality\_Counts <- cohort %>% group\_by(Rural\_or\_Urban) %>% summarise(Total = n())

```