BE WELL Study Randomization

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Create a dataset for the sample size with stratification by gender and smoking status

```
# Sample size
n <- 100
# Our sample size is 42, but allocating for more participants allows for uneven
# groups while ensuring even split by the stratifying vars

# Create dataframe of mostly equal numbers of current smokers vs quit,
# and of males and females
df <- data.frame(smoking = c(rep(0, n / 2),
                             rep(1, n/2)),
                 gender = c(rep(
                   c(rep(0, ceiling(n/4)),
                     rep(1, floor(n/4))),
                   2)
                 )
) %>%
  # Create a group label
  mutate(group = ifelse(smoking == 0 & gender == 0, 1,
                        ifelse(smoking == 0 & gender == 1, 2,
                               ifelse(smoking == 1 & gender == 0, 3, 4)
                        )
  )
  ) %>%
  # Rename binary with informative labels
  mutate(smoking = ifelse(smoking == 0, "currSmoker", "quit")) %>%
  mutate(gender = ifelse(gender == 0, "Male", "Female")) %>%
  arrange(group)


table(df$group)
```

```
##
##  1  2  3  4
## 25 25 25 25
```

There are four groups: male smoker, male former smoker, female smoker and female former smoker. I'll now randomly assign them to start with box 682 or 294 using the `block_ra` function from the `randomizr` package.

```
set.seed(8675309)

treatment <-
  df %>%
  arrange(group) %>%
  mutate(first.treatment = block_ra(blocks = df$group)) %>%
```

```
  mutate(first.treatment = ifelse(first.treatment == 1, 683, 294))

table(treatment$first.treatment, treatment$group)
```

```
##
##        1  2  3  4
##   294 12 12 13 12
##   683 13 13 12 13
```

```
write.csv(x = treatment,
            file = "randomize-vector.csv",
            quote = FALSE, row.names = FALSE
)
```

RedCap has a randomization table with columns `rand_tx` with values 0 or 6, `gender` with values 0, 1, or 2, and `rand_smoke_status` with values 0 or 1. Renaming the treatment table to follow this format.

```
redcap <-
  treatment %>%
  select(first.treatment, gender, smoking) %>%
  rename("rand_tx" = "first.treatment") %>%
  mutate(rand_tx = ifelse(rand_tx == 683, 0, 6)) %>%
  rename("rand_smoke_status" = "smoking") %>%
  mutate(rand_smoke_status = ifelse(rand_smoke_status == "quit", 0, 1)) %>%
  mutate(gender = ifelse(gender == "Male", 1, 2))
```

```
write.csv(x = redcap,
            file = "RedCap_randomize-vector.csv",
            quote = FALSE, row.names = FALSE
)
```

Check the already uploaded development allocation table.

```
rat.dev <- read.csv("RandomizationAllocationTable_Dev.csv")
```

```
table(rat.dev)
```

```
## , , rand_smoke_status = 0
##
##         gender
## rand_tx  1  2
##       0 19  7
##       6 13 11
##
## , , rand_smoke_status = 1
##
##         gender
## rand_tx  1  2
##       0 15  9
##       6 13 13
```

That is not even. Uploading `RedCap_randomize-vector.csv`.