

## Relationship with CMS Variables

```
source("cms_drugs.R")

dems <- c("DEM_GENDER", "DEM_AGE10", "DEM_STDNT", "DEM_VET",
         "DEM_HEALTH", "DEM_HISPANIC", "DEM_RACE", "DEM_INCOME",
         "DEM_MARITAL", "DEM_EDU", "DEM_PREG")
dem_names <- c("Gender", "Age Category", "Student", "Vet", "Healthcare Worker",
              "Hispanic", "Race", "Income", "Marital Status",
              "Education Level", "Pregnant")
```

## Weighted Spending

```
for (i in seq_along(dems)) {
  print(us18 %>%
    select(DEM = dems[i], nmus, WT) %>%
    mutate_all(~replace(., is.na(.), 0)) %>%
    group_by(DEM) %>%
    summarize(FENT = weighted.mean(FENT_NMU, WT), BUP = weighted.mean(BUP_NMU, WT),
              METH = weighted.mean(METH_NMU, WT), MORPH = weighted.mean(MORPH_NMU, WT),
              OXY = weighted.mean(OXY_NMU, WT), OXYM = weighted.mean(OXYM_NMU, WT),
              TRAM = weighted.mean(TRAM_NMU, WT), TAP = weighted.mean(TAP_NMU, WT),
              HYD = weighted.mean(HYD_NMU, WT), HYDM = weighted.mean(HYDM_NMU, WT),
              SUF = weighted.mean(SUF_NMU, WT), COD = weighted.mean(COD_NMU, WT),
              DIHY = weighted.mean(DIHY_NMU, WT), BENZ = weighted.mean(BENZ_NMU, WT),
              STIM = weighted.mean(STIM_NMU, WT), THC = weighted.mean(THC_NMU, WT),
              KTM = weighted.mean(KTM_NMU, WT)) %>%
    pivot_longer(!contains("DEM"),
                 names_to = "DRUG", values_to = "PROP") %>%

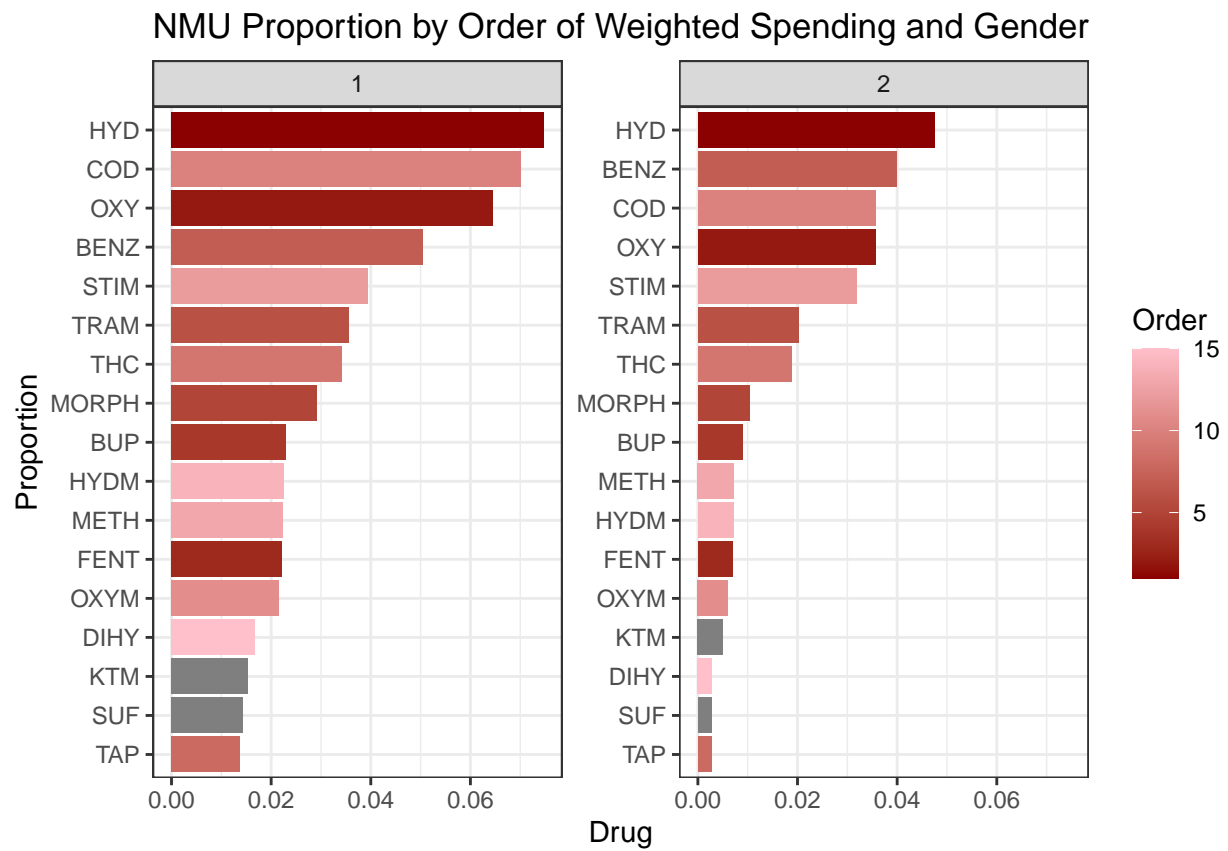
  left_join(cms18 %>%
    mutate(spending_dosage =
           total_spending * total_dosage_units) %>%
    filter(!is.na(spending_dosage)) %>%
    group_by(drug_code) %>%
    summarize(wasp_drug = sum(spending_dosage) /
              sum(total_dosage_units)) %>%
    arrange(desc(wasp_drug)) %>%
    mutate(WASP = row_number()) %>%
    rename(DRUG = drug_code),
           by = "DRUG") %>%
  mutate(DRUG_REORDER = reorder_within(DRUG, PROP, DEM)) %>%

  ggplot() + geom_col(aes(DRUG_REORDER, PROP, fill = WASP)) +
  scale_fill_continuous(low = "darkred", high = "pink",
```

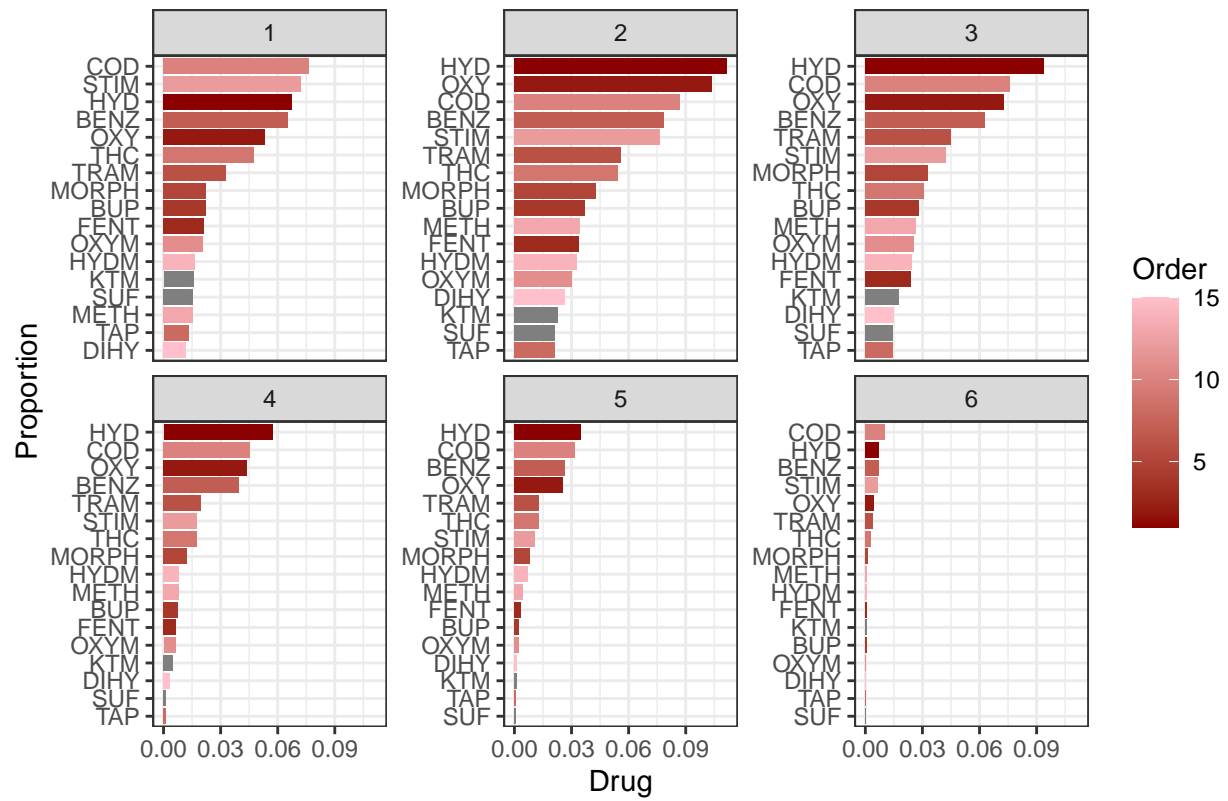
```

    name = "Order") +
  theme_bw() +
  scale_x_reordered() +
  labs(title =
    str_c("NMU Proportion by Order of Weighted Spending and ",
          dem_names[i]),
        x = "Proportion", y = "Drug") +
  facet_wrap(~DEM, ncol = 3, scales = "free_y") +
  coord_flip()
}

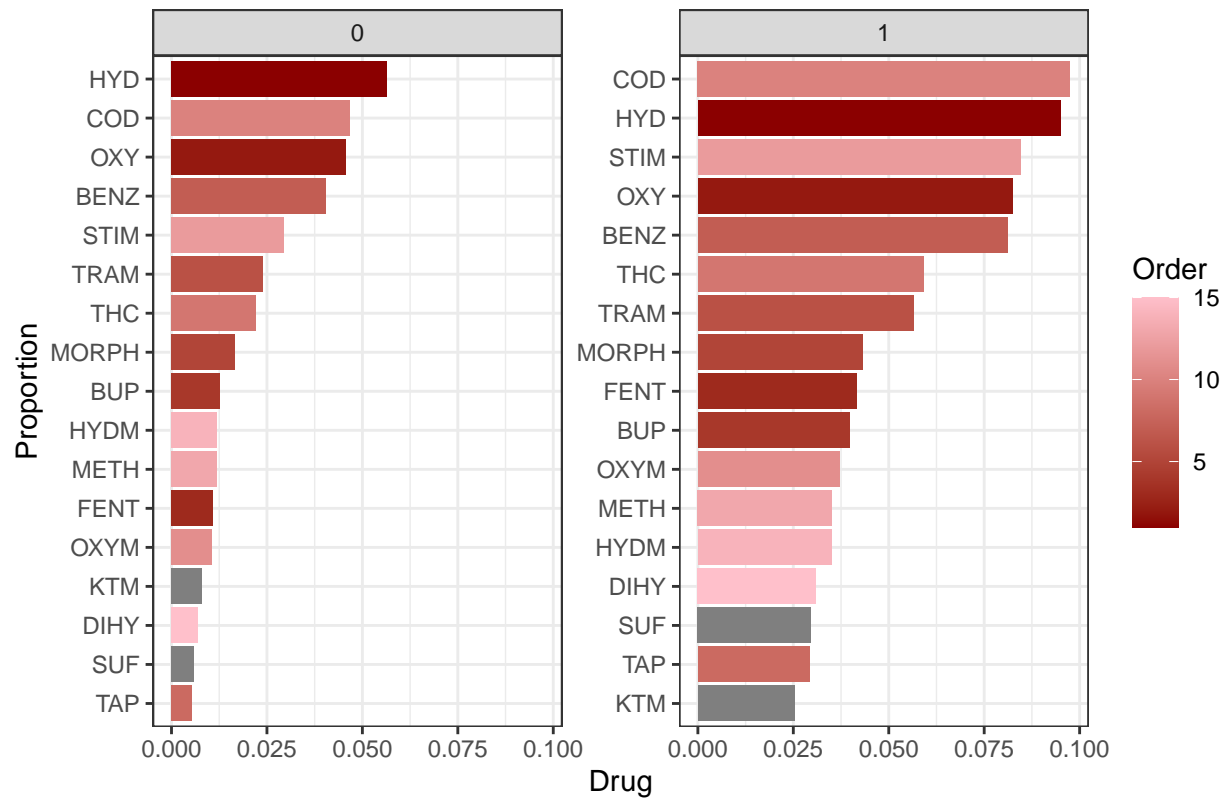
```



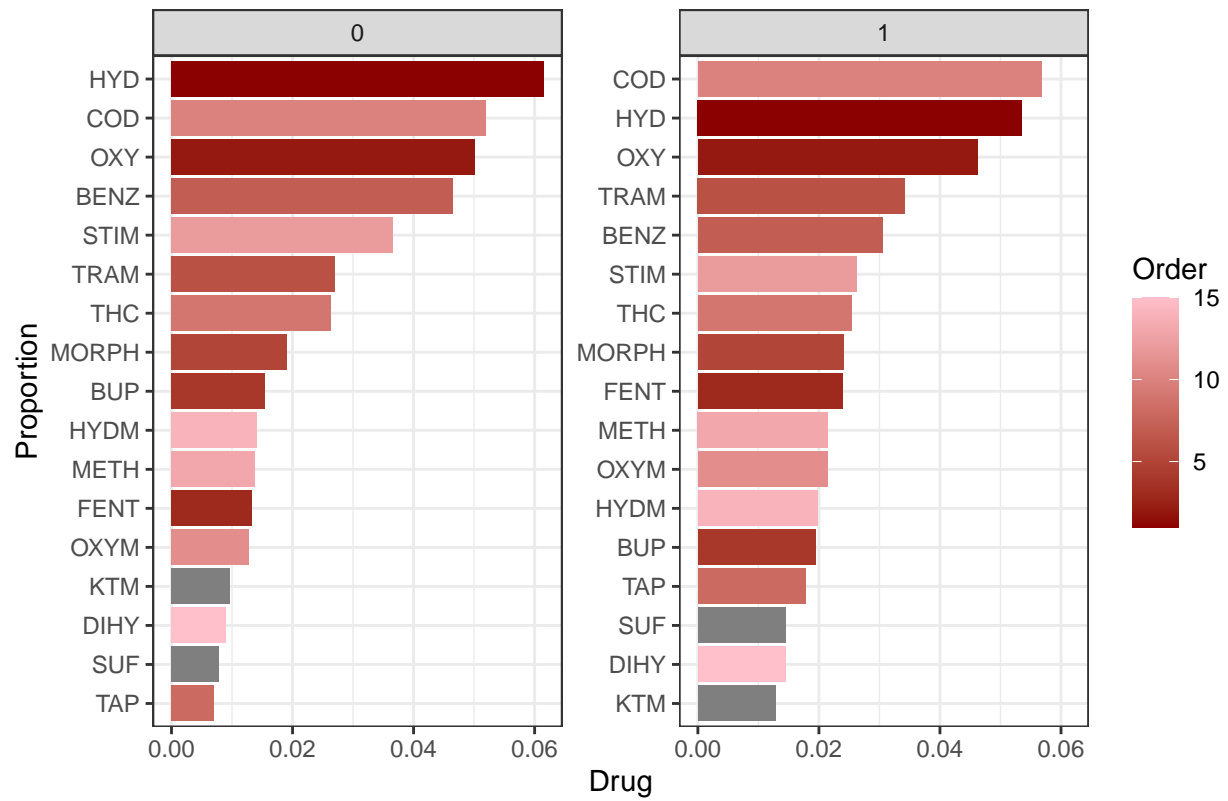
NMU Proportion by Order of Weighted Spending and Age Category



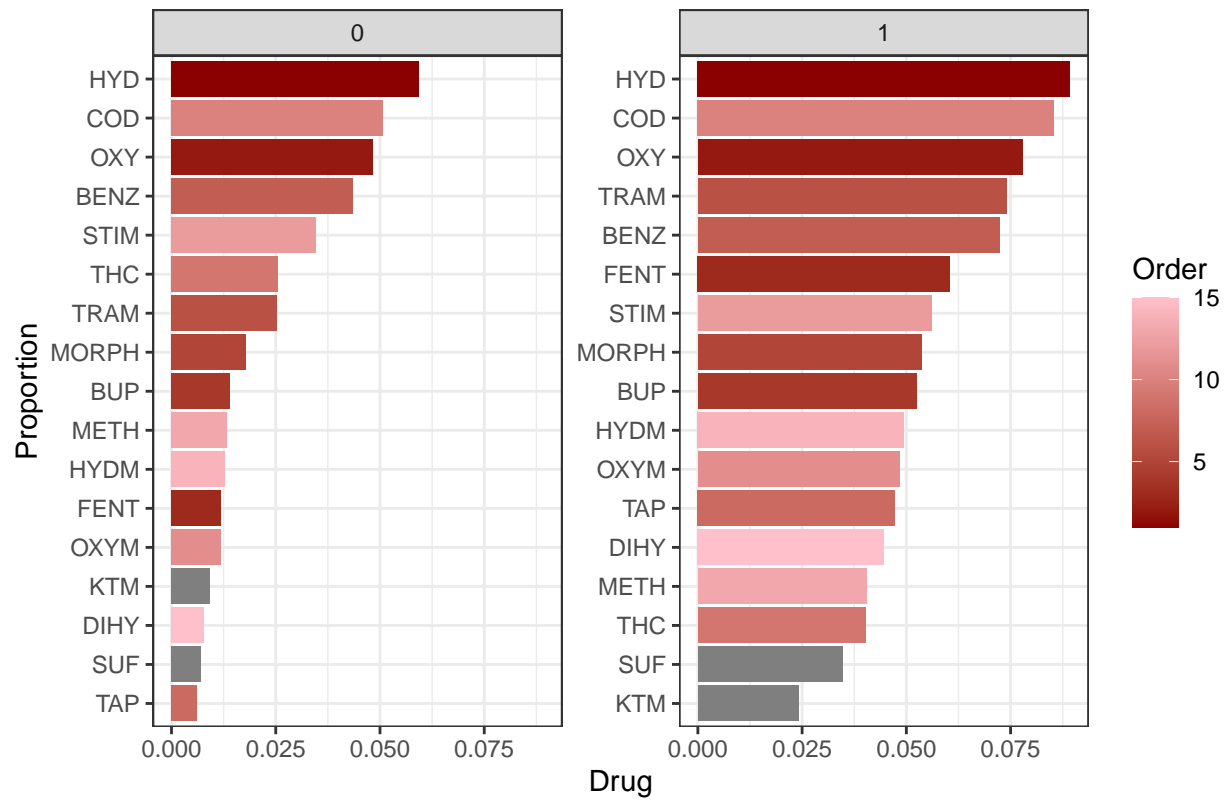
NMU Proportion by Order of Weighted Spending and Student



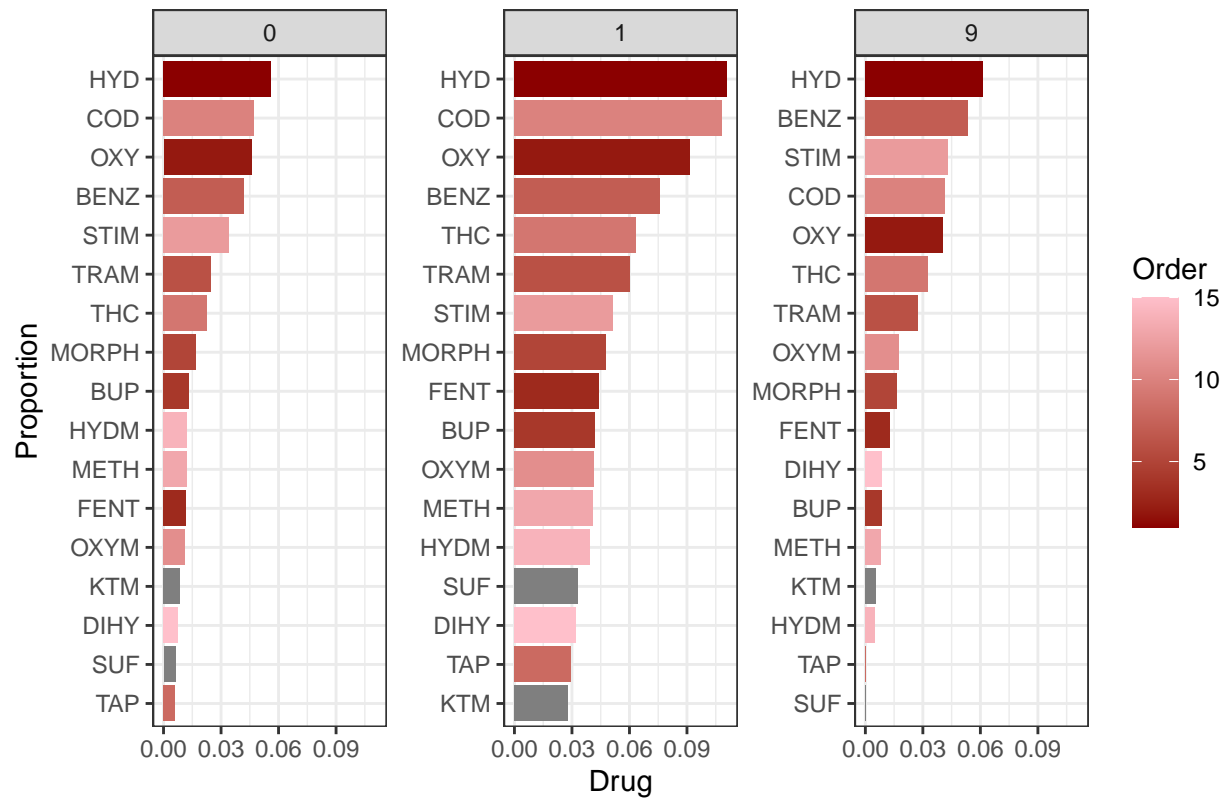
NMU Proportion by Order of Weighted Spending and Vet



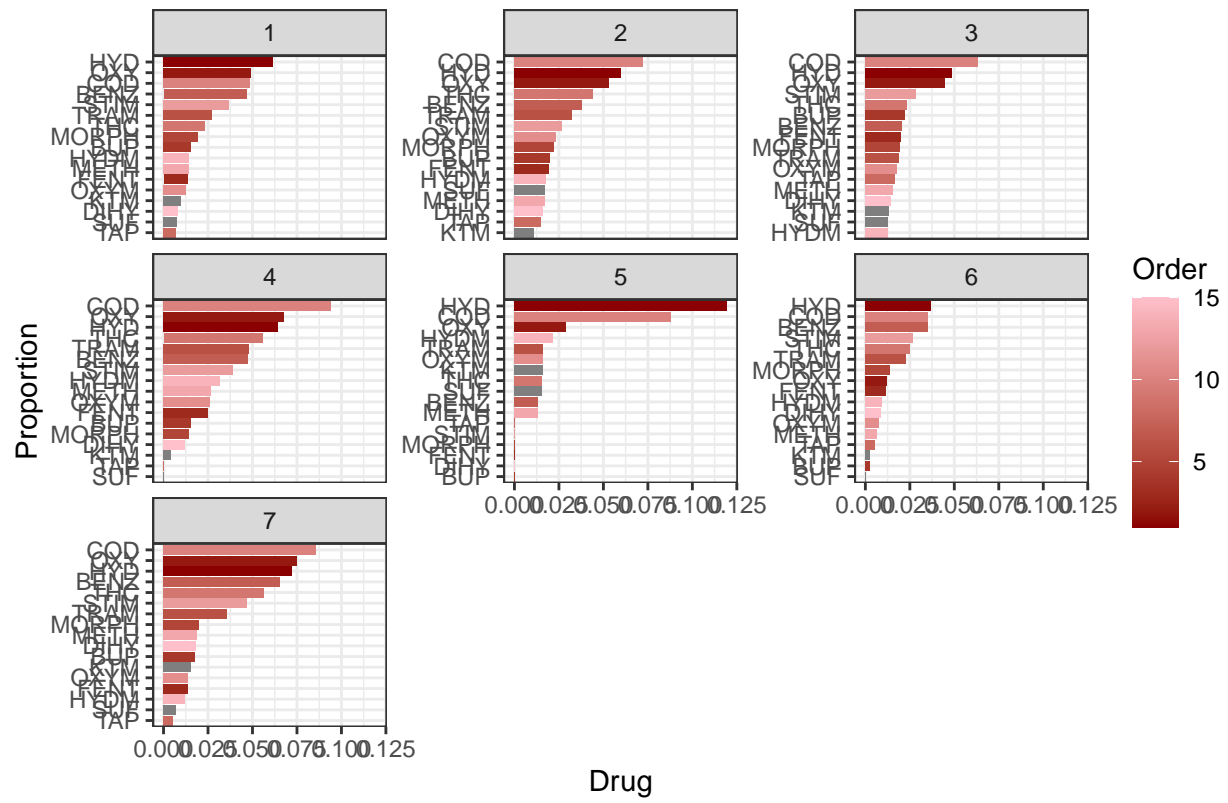
NMU Proportion by Order of Weighted Spending and Healthcare Worker



NMU Proportion by Order of Weighted Spending and Hispanic

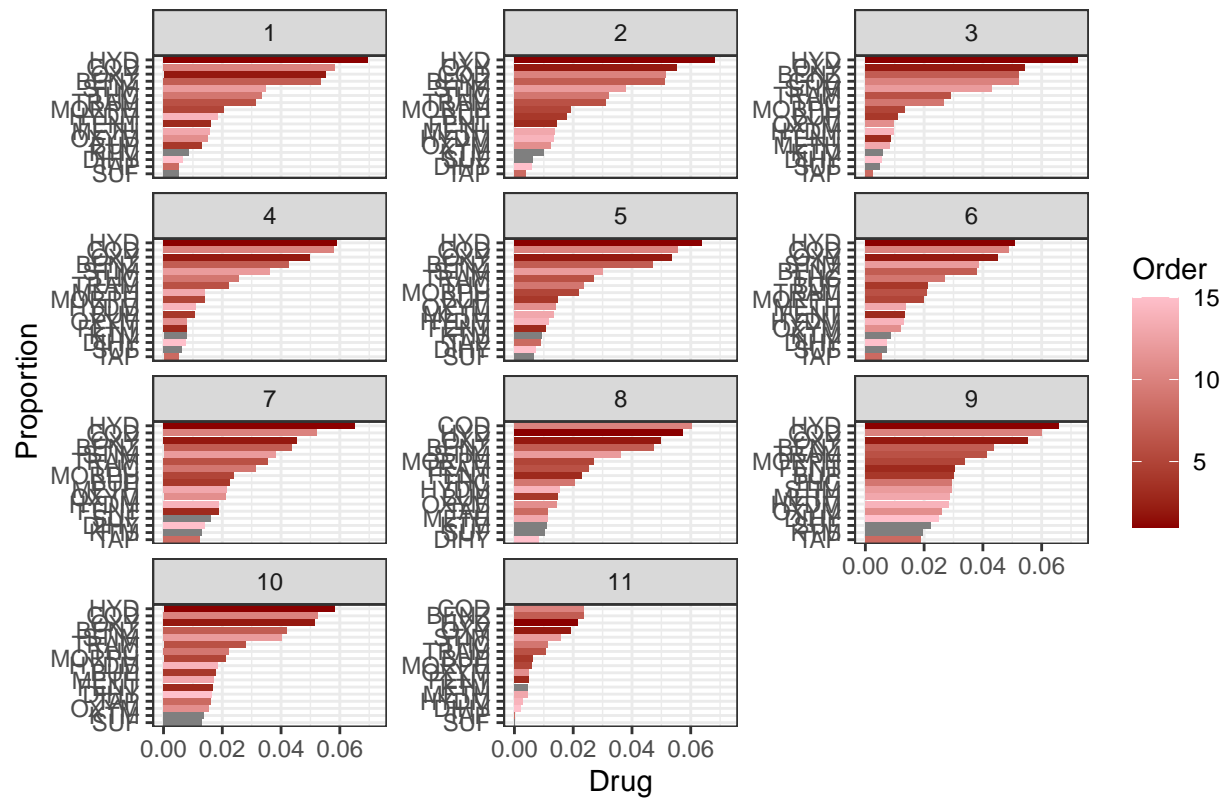


NMU Proportion by Order of Weighted Spending and Race

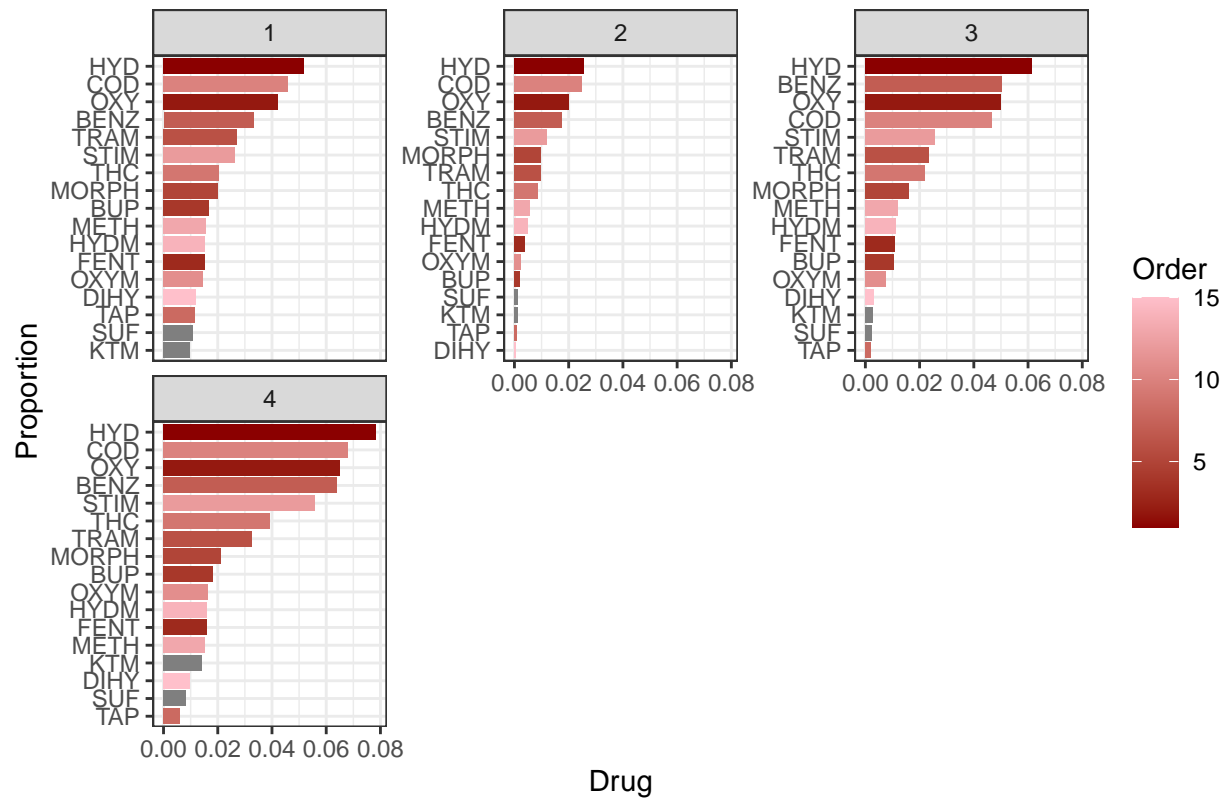




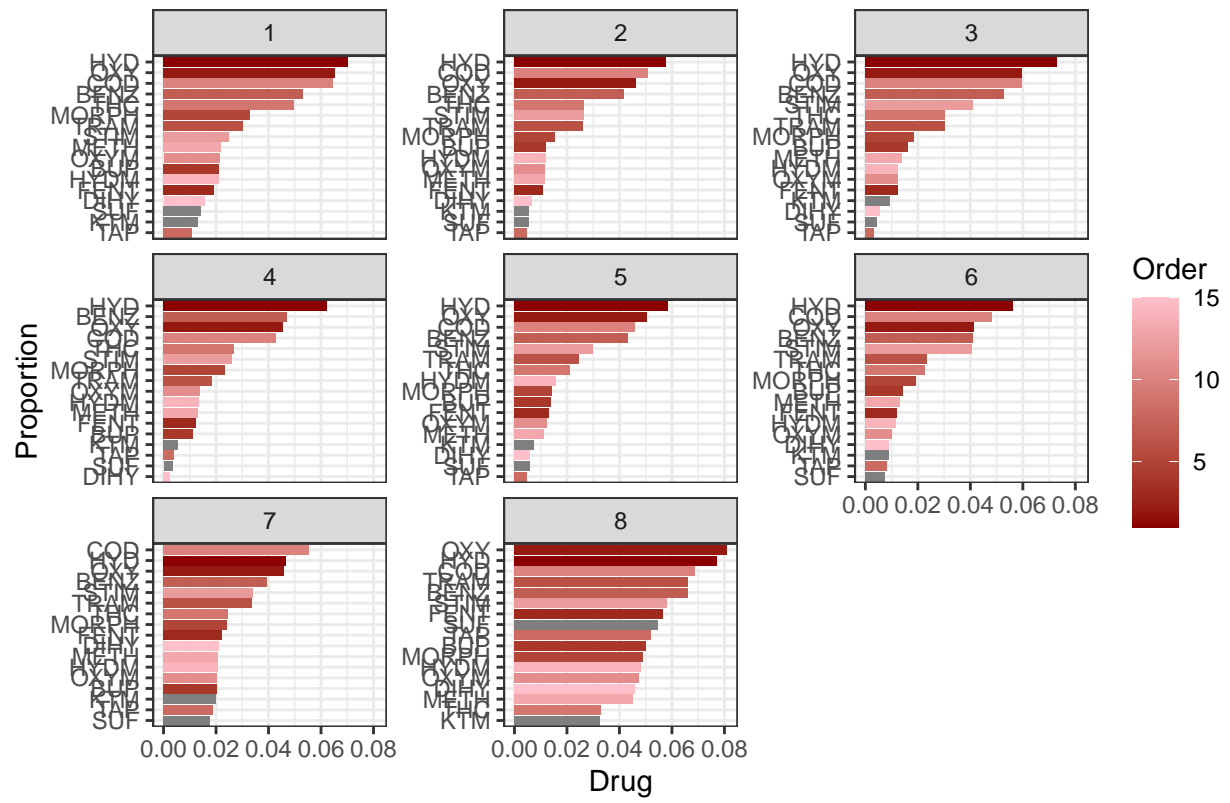
NMU Proportion by Order of Weighted Spending and Income



NMU Proportion by Order of Weighted Spending and Marital Status



NMU Proportion by Order of Weighted Spending and Education Level



NMU Proportion by Order of Weighted Spending and Pregnant

