

One Medical

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Import dependencies/packages

Import datasets

```
mbr <- read_csv("spacex_members.csv")
clm <- read_csv("spacex_claims.csv")
rx <- read_csv("spacex_pharmacy.csv")
ctr <- read_csv("SpaceX Health Center Claims 1016 to 1217.csv")
feesch <- read_csv("Blueshield LA allowed fee schedule.csv")
```

Custom functions

```
getmode <- function(v) {
  force(v)
  uniqv <- unique(v)
  uniqv[which.max(tabulate(match(v, uniqv)))]
}
```

Format claims to combine CH claims to OM Center claims

```
clm_dol = clm
clm_dol$`Metaclaims Analytics Medical Allowed Amount` = as.numeric(gsub("[\\$,]", "", clm_dol$`Metaclaims Analytics Medical Allowed Amount`))
clm_dol$`Metaclaims Analytics Medical First Name` = str_to_title(clm_dol$`Metaclaims Analytics Medical First Name`)
clm_dol$`Metaclaims Analytics Medical Last Name` = str_to_title(clm_dol$`Metaclaims Analytics Medical Last Name`)

clm_sub = clm_dol %>%
  mutate(personid = (`Metaclaims Analytics Medical Person ID`),
         female = (`Metaclaims Analytics Medical Gender`=="F"),
         firstname = `Metaclaims Analytics Medical First Name`,
         lastname = `Metaclaims Analytics Medical Last Name`,
         pos = `Metaclaims Analytics Medical Service Category Detail`,
         dos = `Metaclaims Analytics Medical Service Date Start Date`,
         om_flag = ((`Metaclaims Analytics Medical Billing Prov Bill ID`=="460695495")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="460741732")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="362169147")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="814542216")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="383906267")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="471708588")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="271346767")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="911942315")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="812141065")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="812141065"))
```

```

      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="452282261")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="273009385")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="812980907")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="270243800")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="020619758")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="461773122")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="800925565")&(`Metaclaims Ana
      (`Metaclaims Analytics Medical Billing Prov Bill ID`=="800925565")&(`Metaclaims Ana
em_flag = (`Metaclaims Analytics Medical Procedure Code`=='99201') |
      (`Metaclaims Analytics Medical Procedure Code`=='99202') |
      (`Metaclaims Analytics Medical Procedure Code`=='99203') |
      (`Metaclaims Analytics Medical Procedure Code`=='99204') |
      (`Metaclaims Analytics Medical Procedure Code`=='99205') |
      (`Metaclaims Analytics Medical Procedure Code`=='99211') |
      (`Metaclaims Analytics Medical Procedure Code`=='99212') |
      (`Metaclaims Analytics Medical Procedure Code`=='99213') |
      (`Metaclaims Analytics Medical Procedure Code`=='99214') |
      (`Metaclaims Analytics Medical Procedure Code`=='99215')),
diag1 = (`Metaclaims Analytics Medical Principal Diag`),
cost_md = (`Metaclaims Analytics Medical Allowed Amount`),
ctr_flag = as.logical(`Metaclaims Analytics Medical Billing Prov Bill ID`=="800925565")&(`Met
filter(dos<="2019-07-01")

ctr_sub = ctr
ctr_sub$Name = str_to_title(ctr$Name)
ctr_sub$`Primary Diagnosis` = as.character(gsub("[\\.]", "", ctr_sub$`Primary Diagnosis`))

ctr_sub = ctr_sub %>%
  separate("Name",c("lastname","empty","firstname"),sep = "([\\, \\ ])", extra="drop", warn = "left") %>%
  mutate(dos = mdy(DOS)) %>%
  mutate(female= getmode((Gender=='F')),
    om_flag = as.logical(1),
    em_flag = ((CPT=='99201') |
      (CPT=='99202') |
      (CPT=='99203') |
      (CPT=='99204') |
      (CPT=='99205') |
      (CPT=='99211') |
      (CPT=='99212') |
      (CPT=='99213') |
      (CPT=='99214') |
      (CPT=='99215')),
    pt_flag = ((Billing=='KSPANGENBE[109557787]') |
      (Billing=='MMARCUCCIL[109565213]')),
    mh_flag = ((Billing=='Darling[109701110]') |
      (Billing=='GFRANK[109571370]')),
    diag1 = getmode(`Primary Diagnosis`),
    pos = NA,
    ctr_flag=as.logical(1))

ctr_sub$pos[ctr_sub$mh_flag==1] = "Mental Health and Substance Use"
ctr_sub$pos[ctr_sub$pt_flag==1] = "Physical Medicine"

```

```

ctr_sub$pos[ctr_sub$CPT=="10060"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="10061"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="10120"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11100"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11200"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11400"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11401"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11730"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11740"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11900"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="11982"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="17110"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="17111"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="20553"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="20610"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="20612"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="36415"] = "Other"
ctr_sub$pos[ctr_sub$CPT=="69209"] = "Surgery"
ctr_sub$pos[ctr_sub$CPT=="86580"] = "Pathology Lab"
ctr_sub$pos[ctr_sub$CPT=="90460"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="90471"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="90472"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="90632"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90649"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90651"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90656"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90656"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90670"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90674"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90686"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90691"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90707"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90713"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90714"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90715"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90716"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90732"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90734"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90736"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90746"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="90791"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="90792"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="90832"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="90834"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="90837"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="90839"] = "Psychiatry"
ctr_sub$pos[ctr_sub$CPT=="96372"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="97001"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97002"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97010"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97014"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97033"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97110"] = "Physical Medicine"

```

```

ctr_sub$pos[ctr_sub$CPT=="97112"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97116"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97140"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97161"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97162"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97164"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97170"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="97530"] = "Physical Medicine"
ctr_sub$pos[ctr_sub$CPT=="99201"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99201"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99201"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99201"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99201"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99202"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99203"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99204"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99212"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99213"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99214"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99215"] = "Office Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99243"] = "Consultations"
ctr_sub$pos[ctr_sub$CPT=="99244"] = "Consultations"
ctr_sub$pos[ctr_sub$CPT=="99384"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99385"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99386"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99395"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99396"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="99397"] = "Preventive Visits - PCP"
ctr_sub$pos[ctr_sub$CPT=="G0008"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="Q2038"] = "Immunizations"
ctr_sub$pos[ctr_sub$CPT=="J0696"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="J1050"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="J1885"] = "Administration of drug"
ctr_sub$pos[ctr_sub$CPT=="J3301"] = "Administration of drug"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="10040" & as.numeric(ctr_sub$CPT)<="69210"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="76801" & as.numeric(ctr_sub$CPT)<="76942"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="90461" & as.numeric(ctr_sub$CPT)<="90474"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="90461" & as.numeric(ctr_sub$CPT)<="90840"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="93000" & as.numeric(ctr_sub$CPT)<="96160"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="97032" & as.numeric(ctr_sub$CPT)<="98968"
ctr_sub$pos[is.na(ctr_sub$pos)==1 & (as.numeric(ctr_sub$CPT)>="99173" & as.numeric(ctr_sub$CPT)<="99497"
ctr_sub$pos[is.na(ctr_sub$pos)==1] = "Administration of drug"

feesch_sub = feesch %>%
  mutate(cost_md = Fee) %>%
  select(CPT, cost_md)

ctr_sub = full_join(ctr_sub, feesch_sub, by="CPT")

ctr_sub$cost_md[is.na(ctr_sub$cost_md)==1] = ctr_sub$`Allowed - Contract`[is.na(ctr_sub$cost_md)==1]

ctr_sub = ctr_sub %>%
  select(firstname, lastname, female, em_flag, om_flag, diag1, pos, cost_md, ctr_flag)

```

```

clm_sub = full_join(clm_sub,feesch, by=c("Metaclaims Analytics Medical Procedure Code" = "CPT")) %>%
  mutate(cost_md = replace_na(cost_md,0),
         om_flag = replace_na(om_flag,0))
clm_sub$cost_md[clm_sub$cost_md==0 & clm_sub$om_flag==1] = clm_sub$Fee[clm_sub$cost_md==0 & clm_sub$om_

```

OM attribution and utilization counts

```

clm_sub$om_flag = as.logical(clm_sub$om_flag)

clm_tot = bind_rows(clm_sub,ctr_sub)

clm_tot = clm_tot %>%
  group_by(firstname, lastname,female) %>%
  # filter(any(em_flag==1)) %>%
  summarise(om_flag = getmode(om_flag[em_flag==1]),
            ctr_flag = getmode(ctr_flag),
            diag1 = getmode(diag1),
            count_drugadmin = sum((pos=="Administered drug inc Chemo")|(pos=="Administration of drug")|
            cost_drugadmin =sum((cost_md[pos=="Administered drug inc Chemo"|pos=="Administration of drug
            cost_per_drugadmin = mean((cost_md[pos=="Administered drug inc Chemo"|pos=="Administration of drug
            count_surg = sum((pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery")|(pos=="Su
            cost_surg = sum(cost_md[(pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery")|(p
            cost_per_surg = mean(cost_md[(pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery
            count_maternity = sum(pos=="Labor and Delivery" | pos=="Newborns"),
            cost_maternity = sum(cost_md[(pos=="Labor and Delivery" | pos=="Newborns")]),
            cost_per_maternity = mean(cost_md[(pos=="Labor and Delivery" | pos=="Newborns")],na.rm=T),
            count_labs = sum(pos=="Lab Pathology" | pos=="Pathology Lab"),
            cost_labs = sum(cost_md[(pos=="Lab Pathology" | pos=="Pathology Lab")]),
            cost_per_labs = mean(cost_md[(pos=="Lab Pathology" | pos=="Pathology Lab")],na.rm=T),
            count_er = sum(pos=="Emergency Room"),
            cost_er = sum(cost_md[pos=="Emergency Room"]),
            cost_per_er = mean(cost_md[pos=="Emergency Room"],na.rm=T),
            count_rads = sum(pos=="Radiology"),
            cost_rads = sum(cost_md[pos=="Radiology"]),
            cost_per_rads = mean(cost_md[pos=="Radiology"],na.rm=T),
            count_hosp = sum(pos=="Inpatient Visits"|pos=="Medical"),
            cost_hosp = sum(cost_md[pos=="Inpatient Visits"|pos=="Medical"]),
            cost_per_hosp = mean(cost_md[pos=="Inpatient Visits"|pos=="Medical"],na.rm=T),
            count_pcp = sum(((pos=="Office Visits - PCP")|(pos=="Preventive Visits - PCP"))),
            cost_pcp = sum((cost_md[(pos=="Office Visits - PCP"|pos=="Preventive Visits - PCP")])),
            cost_per_pcp = mean((cost_md[(pos=="Office Visits - PCP"|pos=="Preventive Visits - PCP")]),
            count_spec = sum((pos=="Office Visits - Specialist")|(pos=="Preventive Visits - Specialist
            cost_spec = sum((cost_md[pos=="Office Visits - Specialist"|pos=="Preventive Visits - Special
            cost_per_spec = mean((cost_md[pos=="Office Visits - Specialist"|pos=="Preventive Visits - Sp
            count_mh = sum(pos=="Mental Health and Substance Use" | pos=="Psychiatry"),
            cost_mh = sum(cost_md[pos=="Mental Health and Substance Use" | pos=="Psychiatry"]),
            cost_per_mh = mean(cost_md[pos=="Mental Health and Substance Use" | pos=="Psychiatry"], na
            count_pt = sum(pos=="Physical Medicine"),
            cost_pt = sum(cost_md[pos=="Physical Medicine"]),
            cost_per_pt = mean(cost_md[pos=="Physical Medicine"], na.rm=T),
            cost_other = sum(cost_md[(pos!="Administered drug inc Chemo")|(pos!="Administration of drug

```

```

      cost_md = sum(cost_other+cost_drugadmin+cost_surg+cost_maternity+cost_labs+cost_er+cost_rad
select(firstname,lastname, female,om_flag,diag1,cost_md,count_er,cost_er,count_hosp,cost_hosp,count_p
ungroup()
clm_tot$female[is.na(clm_tot$female)==1]=0

```

Member org

```

mbr_sub = mbr
mbr_sub$`Analytics Member Months First Name` = str_to_title(mbr_sub$`Analytics Member Months First Name`
mbr_sub$`Analytics Member Months Last Name` = str_to_title(mbr_sub$`Analytics Member Months Last Name`)

mbr_sub = mbr_sub %>%
  mutate(personid = `Analytics Member Months Person ID`) %>%
  group_by(personid) %>%
  mutate(start = min(`Analytics Member Months Start Date`),
         end = max(`Analytics Member Months End Date`),
         age = mean(`Analytics Member Months Age`),
         female = (`Analytics Member Months Gender`=='F'),
         firstname = `Analytics Member Months First Name`,
         lastname = `Analytics Member Months Last Name`,
         membermo = interval(start,end)/months(1),
         DOB = `Analytics Member Months Date of Birth Date`,
         zip = as.factor(`Analytics Member Months Current Postal Code`)) %>%
  select(age, female, personid, firstname, lastname, membermo, DOB, zip) %>%
  distinct()

```

Add in pharmacy claims

```

rx_dol = rx
rx_dol$`Analytics Claims Pharmacy Allowed Amount` = as.numeric(gsub("[\\$,]", "", rx_dol$`Analytics Cla
rx_dol$`Analytics Claims Pharmacy First Name` = str_to_title(rx_dol$`Analytics Claims Pharmacy First Na
rx_dol$`Analytics Claims Pharmacy Last Name` = str_to_title(rx_dol$`Analytics Claims Pharmacy Last Name

rx_sub = rx_dol %>%
  mutate(personid = `Analytics Claims Pharmacy Person ID`) %>%
  group_by(personid) %>%
  mutate(female = (`Analytics Claims Pharmacy Gender`=="F"),
         firstname = `Analytics Claims Pharmacy First Name`,
         lastname = `Analytics Claims Pharmacy Last Name`,
         cost_rx = sum(`Analytics Claims Pharmacy Allowed Amount`)) %>%
  select(female, personid, firstname,lastname,cost_rx) %>%
  distinct()

```

HCC risk score

```

spacex_dat = mbr_sub %>%
  full_join(clm_tot, by = c("firstname","lastname","female")) %>%

```



```

full_join(rx_sub, by = c("firstname", "lastname", "female")) %>%
mutate(om_flag = replace_na(om_flag, 0)) %>%
distinct()

PERSON = spacex_dat %>%
  ungroup() %>%
  mutate(HICNO = personid.x,
         SEX = if_else(female==1, "F", "M"),
         DOB = DOB,
         MCAID = 0,
         NMCAID = 0,
         OREC = 0) %>%
  select(HICNO, SEX, MCAID, NMCAID, OREC, DOB) %>%
  filter(!is.na(HICNO))

cmshcc_map <- load_cmshcc_map()

clm <- read_csv("spacex_claims.csv")

clm_hcc = clm %>%
  mutate(HICNO = (`Metaclaims Analytics Medical Person ID`),
         diag1 = `Metaclaims Analytics Medical Principal Diag`,
         diag2 = `Metaclaims Analytics Medical Diag02`,
         diag3 = `Metaclaims Analytics Medical Diag03`,
         diag4 = `Metaclaims Analytics Medical Diag04`,
         diag5 = `Metaclaims Analytics Medical Diag05`,
         diag6 = `Metaclaims Analytics Medical Diag06`,
         diag7 = `Metaclaims Analytics Medical Diag07`,
         diag8 = `Metaclaims Analytics Medical Diag08`,
         diag9 = `Metaclaims Analytics Medical Diag09`,
         diag10 = `Metaclaims Analytics Medical Diag10`) %>%
  gather(Diag, DX, diag1:diag10, factor_key=T) %>%
  select(HICNO, DX) %>%
  arrange(HICNO) %>%
  filter(!is.na(HICNO), !is.na(DX)) %>%
  distinct()

ctr_hcc = ctr
ctr_hcc$Name = str_to_title(ctr$Name)

ctr_hcc = ctr_hcc %>%
  separate("Name", c("lastname", "empty", "firstname"), sep = "([\\, \\ ])", extra="drop", warn = "left") %>%
  mutate(female= getmode((Gender=='F'))) %>%
  separate(`All Diagnosis`, into=c("diag1", "diag2", "diag3", "diag4", "diag5", "diag6", "diag7", "diag8", "diag9", "diag10")) %>%
  full_join(mbr_sub, by = c("firstname", "lastname", "female")) %>%
  select(personid, diag1, diag2, diag3, diag4, diag5, diag6, diag7, diag8, diag9, diag10) %>%
  mutate(HICNO= personid) %>%
  gather(Diag, DX, diag1:diag10, factor_key=T) %>%
  select(HICNO, DX) %>%
  arrange(HICNO) %>%
  filter(!is.na(HICNO), !is.na(DX)) %>%
  distinct()

```

```
DIAG = bind_rows(clm_hcc, ctr_hcc)

hcc = evaluate_v22_2017(PERSON, DIAG, "Community_NonDual_Aged")
```

CCS cat

```
ccs <- read_csv("ccs_dx_icd10cm_2018_1.csv")
ccs =ccs %>%
  mutate(diag1 = `ICD-10-CM CODE`,
         ccs = `CCS CATEGORY`) %>%
  select(diag1, ccs)
```

Pre-match

```
spacex_dat_ana = mbr_sub %>%
  full_join(clm_tot, by = c("firstname", "lastname", "female")) %>%
  full_join(rx_sub, by = c("firstname", "lastname", "female")) %>%
  full_join(hcc, by = c("personid.x" = "HICNO")) %>%
  left_join(ccs, c("diag1")) %>%
  filter(!is.na(personid.x)) %>%
mutate(mm = membermo,
       om_flag = replace_na(om_flag, 0),
       cost_md = replace_na(cost_md, 0),
       count_er = replace_na(count_er, 0),
       cost_er = replace_na(cost_er, 0),
       count_hosp = replace_na(count_hosp, 0),
       cost_hosp = replace_na(cost_hosp, 0),
       count_pcp = replace_na(count_pcp, 0),
       cost_pcp = replace_na(cost_pcp, 0),
       count_spec = replace_na(count_spec, 0),
       cost_spec = replace_na(cost_spec, 0),
       count_mh = replace_na(count_mh, 0),
       count_pt = replace_na(count_pt, 0),
       cost_pt = replace_na(cost_pt, 0),
       cost_mh = replace_na(cost_mh, 0),
       cost_rx = replace_na(cost_rx, 0),
       cost_md = (cost_md+cost_rx)/mm,
       cost_rx = (cost_rx)/mm,
       cost_er = (cost_er)/mm,
       cost_hosp = (cost_hosp)/mm,
       cost_pcp = (cost_pcp)/mm,
       cost_spec = (cost_spec)/mm,
       cost_mh = (cost_mh)/mm,
       cost_pt = (cost_pt)/mm,
       count_er = (count_er)/mm,
       count_hosp = (count_hosp)/mm,
       count_pcp = (count_pcp)/mm,
       count_spec = (count_spec)/mm,
       count_mh = (count_mh)/mm,
```



```

count_pt = (count_pt)/mm,
count_drugadmin = (count_drugadmin)/mm,
cost_drugadmin = (cost_drugadmin)/mm,
count_surg = (count_surg)/mm,
cost_surg = (cost_surg)/mm,
count_maternity = (count_maternity)/mm,
cost_maternity = (cost_maternity)/mm,
count_labs = (count_labs)/mm,
cost_labs = (cost_labs)/mm,
count_rads = (count_rads)/mm,
cost_rads = (cost_rads)/mm,
count_drugadmin = replace_na(count_drugadmin,0),
cost_drugadmin = replace_na(cost_drugadmin,0),
count_surg = replace_na(count_surg,0),
cost_surg = replace_na(cost_surg,0),
count_maternity = replace_na(count_maternity,0),
cost_maternity = replace_na(cost_maternity,0),
count_labs = replace_na(count_labs,0),
cost_labs = replace_na(cost_labs, 0),
count_rads = replace_na(count_rads, 0),
cost_rads = replace_na(cost_rads,0),
Community_NonDual_Aged = replace_na(Community_NonDual_Aged,0),
hcc = Community_NonDual_Aged,
ccs = replace_na(ccs,0),
mm = membermo,
ccs = as.factor(ccs),
zip = as.factor(zip),
ctr_flag = replace_na(ctr_flag,0))

# monthly membership cost
membership_pmpm = 7020265 / (3650 + 4332 + 4996 + 4544) * 2/3 /12 /2

spacex_dat_ana$cost_md[spacex_dat_ana$om_flag==1] = membership_pmpm + spacex_dat_ana$cost_md[spacex_dat_ana$om_flag==1]

summary(spacex_dat_ana)

```

```

##      age      female      personid.x      firstname
## Min.   : 0.00   Mode :logical   Min.   :182259   Length:23518
## 1st Qu.:16.20   FALSE:14607   1st Qu.:226238   Class :character
## Median :27.80   TRUE :8911    Median :238841   Mode  :character
## Mean   :26.95                      Mean   :339844
## 3rd Qu.:35.80                      3rd Qu.:380059
## Max.   :79.33                      Max.   :848253
##
##      lastname      membermo      DOB
## Length:23518      Min.   : 0.5484   Min.   :1938-02-02
## Class :character   1st Qu.:13.9677   1st Qu.:1981-10-15
## Mode  :character   Median :28.9677   Median :1989-11-30
##                      Mean   :28.7119   Mean   :1990-08-25
##                      3rd Qu.:47.9677   3rd Qu.:2001-04-16
##                      Max.   :47.9677   Max.   :2019-08-12
##

```

```

##      zip              om_flag      diag1
## Length:23518      Min.   :0.00000 Length:23518
## Class :character  1st Qu.:0.00000 Class :character
## Mode  :character  Median :0.00000 Mode  :character
##                      Mean   :0.08389
##                      3rd Qu.:0.00000
##                      Max.   :1.00000
##
##      cost_md          count_er      cost_er      count_hosp
## Min.   :    0.00      Min.   : 0.0000      Min.   :    0.00      Min.   :0.00000
## 1st Qu.:    0.00      1st Qu.: 0.0000      1st Qu.:    0.00      1st Qu.:0.00000
## Median :   78.63      Median : 0.0000      Median :    0.00      Median :0.00000
## Mean   :  561.90      Mean   : 0.0988      Mean   :   33.76      Mean   :0.01699
## 3rd Qu.:  348.85      3rd Qu.: 0.0000      3rd Qu.:    0.00      3rd Qu.:0.00000
## Max.   :91100.95      Max.   :25.4098      Max.   :6029.73      Max.   :9.91498
##
##      cost_hosp        count_pcp      cost_pcp
## Min.   :    0.00      Min.   : 0.00000      Min.   :    0.000
## 1st Qu.:    0.00      1st Qu.: 0.00000      1st Qu.:    0.000
## Median :    0.00      Median : 0.08339      Median :    9.936
## Mean   :   29.83      Mean   : 0.18478      Mean   :   22.356
## 3rd Qu.:    0.00      3rd Qu.: 0.22302      3rd Qu.:   26.721
## Max.   :32221.89      Max.   :39.31034      Max.   :3108.476
##
##      count_spec      cost_spec      count_mh
## Min.   : 0.00000      Min.   :    0.000      Min.   : 0.00000
## 1st Qu.: 0.00000      1st Qu.:    0.000      1st Qu.: 0.00000
## Median : 0.00000      Median :    0.000      Median : 0.00000
## Mean   : 0.06945      Mean   :    7.665      Mean   : 0.03155
## 3rd Qu.: 0.07151      3rd Qu.:    8.207      3rd Qu.: 0.00000
## Max.   :24.88889      Max.   :2008.533      Max.   :20.16260
##
##      cost_mh          count_pt      cost_pt
## Min.   :    0.000      Min.   : 0.00000      Min.   :    0.000
## 1st Qu.:    0.000      1st Qu.: 0.00000      1st Qu.:    0.000
## Median :    0.000      Median : 0.00000      Median :    0.000
## Mean   :    6.998      Mean   : 0.1891      Mean   :    8.091
## 3rd Qu.:    0.000      3rd Qu.: 0.00000      3rd Qu.:    0.000
## Max.   :7718.156      Max.   :69.6230      Max.   :2315.029
##
##      count_drugadmin  cost_drugadmin  count_surg
## Min.   : 0.00000      Min.   :    0.00      Min.   : 0.00000
## 1st Qu.: 0.00000      1st Qu.:    0.00      1st Qu.: 0.00000
## Median : 0.00000      Median :    0.00      Median : 0.00000
## Mean   : 0.13137      Mean   :   14.58      Mean   : 0.08009
## 3rd Qu.: 0.09764      3rd Qu.:    2.87      3rd Qu.: 0.03452
## Max.   :17.78689      Max.   :39264.82      Max.   :24.59987
##
##      cost_surg        count_maternity  cost_maternity
## Min.   :    0.00      Min.   :0.000000      Min.   :    0.00
## 1st Qu.:    0.00      1st Qu.:0.000000      1st Qu.:    0.00
## Median :    0.00      Median :0.000000      Median :    0.00
## Mean   :   75.45      Mean   :0.002373      Mean   :   23.28
## 3rd Qu.:    2.75      3rd Qu.:0.000000      3rd Qu.:    0.00

```

```

## Max. :39217.02 Max. :3.020134 Max. :36858.13
##
## count_labs cost_labs count_rads
## Min. : 0.00000 Min. : 0.000 Min. :0.00000
## 1st Qu.: 0.00000 1st Qu.: 0.000 1st Qu.:0.00000
## Median : 0.06254 Median : 0.440 Median :0.00000
## Mean : 0.39116 Mean : 12.665 Mean :0.07329
## 3rd Qu.: 0.39610 3rd Qu.: 7.602 3rd Qu.:0.06254
## Max. :112.75862 Max. :4419.551 Max. :9.85158
##
## cost_rads cost_per_drugadmin cost_per_surg
## Min. : 0.000 Min. : 0.00 Min. : 0.00
## 1st Qu.: 0.000 1st Qu.: 21.64 1st Qu.: 89.58
## Median : 0.000 Median : 36.86 Median : 196.05
## Mean : 14.041 Mean : 74.21 Mean : 630.14
## 3rd Qu.: 3.194 3rd Qu.: 69.79 3rd Qu.: 503.66
## Max. :8152.876 Max. :44224.81 Max. :56556.45
## NA's :14261 NA's :16329
## cost_per_maternity cost_per_labs cost_per_er cost_per_rads
## Min. : 0 Min. : 0.00 Min. : 0.0 Min. : 0.00
## 1st Qu.: 2066 1st Qu.: 11.22 1st Qu.: 242.1 1st Qu.: 36.38
## Median : 7369 Median : 17.99 Median : 328.3 Median : 83.52
## Mean : 12702 Mean : 27.59 Mean : 387.6 Mean : 140.89
## 3rd Qu.: 13730 3rd Qu.: 29.33 3rd Qu.: 457.4 3rd Qu.: 160.20
## Max. :1029625 Max. :841.77 Max. :4025.4 Max. :3566.60
## NA's :22690 NA's :10387 NA's :18779 NA's :14920
## cost_per_hosp cost_per_pcp cost_per_spec cost_per_mh
## Min. : 0.0 Min. : 0.00 Min. : 0.00 Min. : 0.00
## 1st Qu.: 103.3 1st Qu.: 98.23 1st Qu.: 90.56 1st Qu.: 80.86
## Median : 189.8 Median :119.76 Median :113.22 Median : 122.25
## Mean : 1355.4 Mean :130.09 Mean :117.45 Mean : 303.37
## 3rd Qu.: 1310.1 3rd Qu.:154.35 3rd Qu.:137.93 3rd Qu.: 173.09
## Max. :87309.1 Max. :659.14 Max. :675.00 Max. :36599.00
## NA's :21896 NA's :8026 NA's :13698 NA's :21288
## cost_per_pt ctr_flag personid.y cost_rx
## Min. : 0.00 Min. :0.00000 Min. :186028 Min. : 0.00
## 1st Qu.: 24.58 1st Qu.:0.00000 1st Qu.:225194 1st Qu.: 0.00
## Median : 38.51 Median :0.00000 Median :230004 Median : 0.87
## Mean : 50.66 Mean :0.04805 Mean :302959 Mean : 48.19
## 3rd Qu.: 67.41 3rd Qu.:0.00000 3rd Qu.:345704 3rd Qu.: 9.48
## Max. :1200.00 Max. :1.00000 Max. :840239 Max. :83586.29
## NA's :19535 NA's :9195
## Community_NonDual_Aged ccs mm
## Min. :0.00000 Length:23518 Min. : 0.5484
## 1st Qu.:0.00000 Class :character 1st Qu.:13.9677
## Median :0.00000 Mode :character Median :28.9677
## Mean :0.09799 Mean :28.7119
## 3rd Qu.:0.00000 3rd Qu.:47.9677
## Max. :9.53700 Max. :47.9677
##
## hcc
## Min. :0.00000
## 1st Qu.:0.00000
## Median :0.00000

```

```
## Mean :0.09799
## 3rd Qu.:0.00000
## Max. :9.53700
##
```

```
tempData = mice(spacex_dat_ana, m = 1, maxit = 1, meth = 'pmm', seed = 123)
```

```
##
## iter imp variable
## 1 1 cost_per_drugadmin cost_per_surg cost_per_maternity cost_per_labs cost_per_er cost_per
```

```
spacex_dat_nomiss <- as.data.frame(complete(tempData,1))
summary(spacex_dat_nomiss)
```

```
##      age      female      personid.x      firstname
## Min.   : 0.00   Mode :logical   Min.   :182259   Length:23518
## 1st Qu.:16.20   FALSE:14607   1st Qu.:226238   Class :character
## Median :27.80   TRUE :8911    Median :238841   Mode  :character
## Mean   :26.95                      Mean   :339844
## 3rd Qu.:35.80                      3rd Qu.:380059
## Max.   :79.33                      Max.   :848253
##      lastname      membermo      DOB
## Length:23518      Min.   : 0.5484   Min.   :1938-02-02
## Class :character   1st Qu.:13.9677   1st Qu.:1981-10-15
## Mode  :character   Median :28.9677   Median :1989-11-30
##                      Mean   :28.7119   Mean   :1990-08-25
##                      3rd Qu.:47.9677   3rd Qu.:2001-04-16
##                      Max.   :47.9677   Max.   :2019-08-12
##      zip      om_flag      diag1
## Length:23518      Min.   :0.00000   Length:23518
## Class :character   1st Qu.:0.00000   Class :character
## Mode  :character   Median :0.00000   Mode  :character
##                      Mean   :0.08389
##                      3rd Qu.:0.00000
##                      Max.   :1.00000
##      cost_md      count_er      cost_er      count_hosp
## Min.   : 0.00   Min.   : 0.0000   Min.   : 0.00   Min.   :0.00000
## 1st Qu.: 0.00   1st Qu.: 0.0000   1st Qu.: 0.00   1st Qu.:0.00000
## Median : 78.63   Median : 0.0000   Median : 0.00   Median :0.00000
## Mean   : 561.90   Mean   : 0.0988   Mean   : 33.76   Mean   :0.01699
## 3rd Qu.: 348.85   3rd Qu.: 0.0000   3rd Qu.: 0.00   3rd Qu.:0.00000
## Max.   :91100.95   Max.   :25.4098   Max.   :6029.73   Max.   :9.91498
##      cost_hosp      count_pcp      cost_pcp
## Min.   : 0.00   Min.   : 0.00000   Min.   : 0.000
## 1st Qu.: 0.00   1st Qu.: 0.00000   1st Qu.: 0.000
## Median : 0.00   Median : 0.08339   Median : 9.936
## Mean   : 29.83   Mean   : 0.18478   Mean   : 22.356
## 3rd Qu.: 0.00   3rd Qu.: 0.22302   3rd Qu.: 26.721
## Max.   :32221.89   Max.   :39.31034   Max.   :3108.476
##      count_spec      cost_spec      count_mh
## Min.   : 0.00000   Min.   : 0.000   Min.   : 0.00000
## 1st Qu.: 0.00000   1st Qu.: 0.000   1st Qu.: 0.00000
## Median : 0.00000   Median : 0.000   Median : 0.00000
```

## Mean : 0.06945	Mean : 7.665	Mean : 0.03155	
## 3rd Qu.: 0.07151	3rd Qu.: 8.207	3rd Qu.: 0.00000	
## Max. :24.88889	Max. :2008.533	Max. :20.16260	
## cost_mh	count_pt	cost_pt	
## Min. : 0.000	Min. : 0.0000	Min. : 0.000	
## 1st Qu.: 0.000	1st Qu.: 0.0000	1st Qu.: 0.000	
## Median : 0.000	Median : 0.0000	Median : 0.000	
## Mean : 6.998	Mean : 0.1891	Mean : 8.091	
## 3rd Qu.: 0.000	3rd Qu.: 0.0000	3rd Qu.: 0.000	
## Max. :7718.156	Max. :69.6230	Max. :2315.029	
## count_drugadmin	cost_drugadmin	count_surg	
## Min. : 0.00000	Min. : 0.00	Min. : 0.00000	
## 1st Qu.: 0.00000	1st Qu.: 0.00	1st Qu.: 0.00000	
## Median : 0.00000	Median : 0.00	Median : 0.00000	
## Mean : 0.13137	Mean : 14.58	Mean : 0.08009	
## 3rd Qu.: 0.09764	3rd Qu.: 2.87	3rd Qu.: 0.03452	
## Max. :17.78689	Max. :39264.82	Max. :24.59987	
## cost_surg	count_maternity	cost_maternity	
## Min. : 0.00	Min. :0.000000	Min. : 0.00	
## 1st Qu.: 0.00	1st Qu.:0.000000	1st Qu.: 0.00	
## Median : 0.00	Median :0.000000	Median : 0.00	
## Mean : 75.45	Mean :0.002373	Mean : 23.28	
## 3rd Qu.: 2.75	3rd Qu.:0.000000	3rd Qu.: 0.00	
## Max. :39217.02	Max. :3.020134	Max. :36858.13	
## count_labs	cost_labs	count_rads	
## Min. : 0.00000	Min. : 0.000	Min. :0.00000	
## 1st Qu.: 0.00000	1st Qu.: 0.000	1st Qu.:0.00000	
## Median : 0.06254	Median : 0.440	Median :0.00000	
## Mean : 0.39116	Mean : 12.665	Mean :0.07329	
## 3rd Qu.: 0.39610	3rd Qu.: 7.602	3rd Qu.:0.06254	
## Max. :112.75862	Max. :4419.551	Max. :9.85158	
## cost_rads	cost_per_drugadmin	cost_per_surg	
## Min. : 0.000	Min. : 0.00	Min. : 0.00	
## 1st Qu.: 0.000	1st Qu.: 21.13	1st Qu.: 89.05	
## Median : 0.000	Median : 35.59	Median : 193.23	
## Mean : 14.041	Mean : 65.62	Mean : 471.38	
## 3rd Qu.: 3.194	3rd Qu.: 66.86	3rd Qu.: 483.04	
## Max. :8152.876	Max. :44224.81	Max. :56556.45	
## cost_per_maternity	cost_per_labs	cost_per_er	cost_per_rads
## Min. : 0	Min. : 0.00	Min. : 0.0	Min. : 0.00
## 1st Qu.: 1032	1st Qu.: 10.90	1st Qu.: 247.1	1st Qu.: 33.60
## Median : 3497	Median : 17.34	Median : 332.7	Median : 69.64
## Mean : 6728	Mean : 25.27	Mean : 387.4	Mean : 115.71
## 3rd Qu.: 9599	3rd Qu.: 27.24	3rd Qu.: 456.3	3rd Qu.: 133.86
## Max. :1029625	Max. :841.77	Max. :4025.4	Max. :3566.60
## cost_per_hosp	cost_per_pcp	cost_per_spec	cost_per_mh
## Min. : 0.0	Min. : 0.00	Min. : 0.0	Min. : 0.00
## 1st Qu.: 109.6	1st Qu.: 99.19	1st Qu.: 92.4	1st Qu.: 72.74
## Median : 201.9	Median :118.80	Median :113.6	Median : 110.00
## Mean : 1403.0	Mean :128.42	Mean :117.7	Mean : 157.71
## 3rd Qu.: 1730.0	3rd Qu.:149.90	3rd Qu.:137.2	3rd Qu.: 162.41
## Max. :87309.1	Max. :659.14	Max. :675.0	Max. :36599.00
## cost_per_pt	ctr_flag	personid.y	cost_rx
## Min. : 0.00	Min. :0.00000	Min. :186028	Min. : 0.00

```
## 1st Qu.: 26.28 1st Qu.:0.00000 1st Qu.:226477 1st Qu.: 0.00
## Median : 40.82 Median :0.00000 Median :239579 Median : 0.87
## Mean : 50.02 Mean :0.04805 Mean :336179 Mean : 48.19
## 3rd Qu.: 67.17 3rd Qu.:0.00000 3rd Qu.:375360 3rd Qu.: 9.48
## Max. :1200.00 Max. :1.00000 Max. :840239 Max. :83586.29
## Community_NonDual_Aged ccs mm
## Min. :0.00000 Length:23518 Min. : 0.5484
## 1st Qu.:0.00000 Class :character 1st Qu.:13.9677
## Median :0.00000 Mode :character Median :28.9677
## Mean :0.09799 Mean :28.7119
## 3rd Qu.:0.00000 3rd Qu.:47.9677
## Max. :9.53700 Max. :47.9677
## hcc
## Min. :0.00000
## 1st Qu.:0.00000
## Median :0.00000
## Mean :0.09799
## 3rd Qu.:0.00000
## Max. :9.53700
```

Matching

```
spacex_dat_cov <- c('age', 'female', 'mm', 'membermo', 'hcc', 'ccs', 'diag1', 'zip')

spacex_dat_nomiss = spacex_dat_nomiss %>%
  mutate(diag1=replace_na(diag1,0),
         zip = replace_na(zip,0))

#spacex_dat_nomiss = as.data.frame(spacex_dat_ana)

start_time <- Sys.time()

set.seed(1)
mod_match <- matchit(om_flag ~ age + female + ccs + hcc + mm + zip,
                    method = "nearest", data = spacex_dat_nomiss, caliper = .10)
end_time <- Sys.time()

end_time - start_time
```

```
## Time difference of 37.42458 mins
```

```
mod_match
```

```
##
## Call:
## matchit(formula = om_flag ~ age + female + ccs + hcc + mm + zip,
## data = spacex_dat_nomiss, method = "nearest", caliper = 0.1)
##
## Sample sizes:
## Control Treated
## All 21545 1973
```



```
## Matched      1584      1584
## Unmatched    19961      389
## Discarded      0        0
```

```
save.image("onemedical.RData")

dta_m <- match.data(mod_match)
dim(dta_m)
```

```
## [1] 3168    53
```

```
dta_m %>%
  group_by(om_flag) %>%
  select(one_of(spacex_dat_cov)) %>%
  summarise_all(funs(mean))
```

```
## # A tibble: 2 x 9
##   om_flag age female mm membermo hcc ccs diag1 zip
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1     0  30.9  0.157  33.0    33.0 0.0786    NA    NA    NA
## 2     1  30.6  0.172  33.4    33.4 0.0767    NA    NA    NA
```

```
print(CreateTableOne(vars = c("age", "female", "hcc", "mm", "ccs", "zip"), strata = "om_flag", data =
```

```
##
##           Stratified by om_flag
##           0           1           p      test SMD
##  n           1584          1584
##  age (mean (SD))  30.86 (14.46)  30.59 (8.43)  0.527      0.022
##  female = TRUE (%)  249 (15.7)   272 (17.2)   0.292      0.039
##  hcc (mean (SD))   0.08 (0.20)   0.08 (0.19)  0.791      0.009
##  mm (mean (SD))    33.01 (14.55)  33.38 (13.72) 0.453      0.027
##  ccs (%)           6 (0.4)        0 (0.0)      1.000      0.239
##  0                 6 (0.4)        0 (0.0)
##  10                351 (22.2)       364 (23.0)
##  102               11 (0.7)        13 (0.8)
##  106               15 (0.9)        17 (1.1)
##  117               4 (0.3)         3 (0.2)
##  119               2 (0.1)         1 (0.1)
##  122               1 (0.1)         1 (0.1)
##  123               8 (0.5)         5 (0.3)
##  124               2 (0.1)         3 (0.2)
##  125               5 (0.3)         6 (0.4)
##  126               38 (2.4)         38 (2.4)
##  127               4 (0.3)         2 (0.1)
##  128               6 (0.4)         5 (0.3)
##  130               1 (0.1)         1 (0.1)
##  133               10 (0.6)         9 (0.6)
##  134               14 (0.9)         13 (0.8)
##  137               4 (0.3)         3 (0.2)
##  138               2 (0.1)         1 (0.1)
##  140               2 (0.1)         2 (0.1)
##  141               2 (0.1)         2 (0.1)
```

##	142	3 (0.2)	2 (0.1)
##	143	6 (0.4)	5 (0.3)
##	147	2 (0.1)	1 (0.1)
##	151	1 (0.1)	2 (0.1)
##	154	5 (0.3)	4 (0.3)
##	155	13 (0.8)	13 (0.8)
##	158	1 (0.1)	1 (0.1)
##	159	5 (0.3)	5 (0.3)
##	160	1 (0.1)	2 (0.1)
##	163	15 (0.9)	20 (1.3)
##	165	4 (0.3)	3 (0.2)
##	166	8 (0.5)	7 (0.4)
##	167	4 (0.3)	5 (0.3)
##	168	2 (0.1)	2 (0.1)
##	171	6 (0.4)	5 (0.3)
##	175	0 (0.0)	1 (0.1)
##	176	7 (0.4)	6 (0.4)
##	181	1 (0.1)	1 (0.1)
##	183	0 (0.0)	1 (0.1)
##	196	2 (0.1)	3 (0.2)
##	197	10 (0.6)	7 (0.4)
##	198	4 (0.3)	4 (0.3)
##	200	21 (1.3)	19 (1.2)
##	202	0 (0.0)	1 (0.1)
##	203	1 (0.1)	1 (0.1)
##	204	70 (4.4)	60 (3.8)
##	205	97 (6.1)	86 (5.4)
##	209	1 (0.1)	2 (0.1)
##	211	42 (2.7)	42 (2.7)
##	212	13 (0.8)	12 (0.8)
##	213	1 (0.1)	1 (0.1)
##	217	1 (0.1)	0 (0.0)
##	22	2 (0.1)	1 (0.1)
##	225	6 (0.4)	4 (0.3)
##	229	2 (0.1)	3 (0.2)
##	23	0 (0.0)	1 (0.1)
##	230	0 (0.0)	2 (0.1)
##	232	30 (1.9)	27 (1.7)
##	233	3 (0.2)	2 (0.1)
##	234	1 (0.1)	0 (0.0)
##	235	3 (0.2)	3 (0.2)
##	236	8 (0.5)	7 (0.4)
##	239	4 (0.3)	6 (0.4)
##	240	2 (0.1)	1 (0.1)
##	244	2 (0.1)	3 (0.2)
##	245	3 (0.2)	3 (0.2)
##	246	4 (0.3)	10 (0.6)
##	247	2 (0.1)	2 (0.1)
##	250	6 (0.4)	6 (0.4)
##	251	21 (1.3)	20 (1.3)
##	252	7 (0.4)	14 (0.9)
##	253	14 (0.9)	12 (0.8)
##	255	7 (0.4)	4 (0.3)
##	256	353 (22.3)	369 (23.3)

##	257	2 (0.1)	1 (0.1)		
##	258	19 (1.2)	21 (1.3)		
##	259	20 (1.3)	17 (1.1)		
##	29	1 (0.1)	1 (0.1)		
##	4	5 (0.3)	6 (0.4)		
##	44	4 (0.3)	2 (0.1)		
##	47	9 (0.6)	8 (0.5)		
##	48	4 (0.3)	3 (0.2)		
##	49	16 (1.0)	18 (1.1)		
##	5	1 (0.1)	1 (0.1)		
##	50	0 (0.0)	1 (0.1)		
##	51	2 (0.1)	4 (0.3)		
##	53	4 (0.3)	6 (0.4)		
##	54	3 (0.2)	2 (0.1)		
##	55	1 (0.1)	1 (0.1)		
##	58	8 (0.5)	8 (0.5)		
##	59	2 (0.1)	3 (0.2)		
##	6	0 (0.0)	1 (0.1)		
##	62	1 (0.1)	1 (0.1)		
##	650	3 (0.2)	8 (0.5)		
##	651	27 (1.7)	28 (1.8)		
##	652	8 (0.5)	8 (0.5)		
##	657	19 (1.2)	18 (1.1)		
##	660	5 (0.3)	3 (0.2)		
##	661	3 (0.2)	2 (0.1)		
##	670	1 (0.1)	1 (0.1)		
##	7	13 (0.8)	12 (0.8)		
##	81	2 (0.1)	1 (0.1)		
##	84	18 (1.1)	13 (0.8)		
##	87	11 (0.7)	7 (0.4)		
##	90	2 (0.1)	6 (0.4)		
##	91	5 (0.3)	6 (0.4)		
##	92	3 (0.2)	6 (0.4)		
##	93	7 (0.4)	7 (0.4)		
##	94	12 (0.8)	12 (0.8)		
##	95	12 (0.8)	12 (0.8)		
##	96	1 (0.1)	1 (0.1)		
##	98	15 (0.9)	15 (0.9)		
##	zip (%)			1.000	0.471
##	05201	0 (0.0)	1 (0.1)		
##	10014	1 (0.1)	0 (0.0)		
##	11797	1 (0.1)	1 (0.1)		
##	13045	1 (0.1)	1 (0.1)		
##	20002	0 (0.0)	1 (0.1)		
##	20005	0 (0.0)	1 (0.1)		
##	22203	0 (0.0)	1 (0.1)		
##	30107	1 (0.1)	1 (0.1)		
##	30519	1 (0.1)	0 (0.0)		
##	31401	1 (0.1)	0 (0.0)		
##	32780	1 (0.1)	2 (0.1)		
##	32832	0 (0.0)	1 (0.1)		
##	32901	1 (0.1)	1 (0.1)		
##	32920	1 (0.1)	1 (0.1)		
##	32931	0 (0.0)	1 (0.1)		

##	32940	1 (0.1)	2 (0.1)
##	32952	1 (0.1)	2 (0.1)
##	32955	2 (0.1)	2 (0.1)
##	33186	0 (0.0)	1 (0.1)
##	33710	1 (0.1)	1 (0.1)
##	34772	0 (0.0)	1 (0.1)
##	44094	1 (0.1)	0 (0.0)
##	48098	1 (0.1)	1 (0.1)
##	55126	1 (0.1)	1 (0.1)
##	66227	0 (0.0)	1 (0.1)
##	76502	1 (0.1)	1 (0.1)
##	76643	2 (0.1)	3 (0.2)
##	76702	1 (0.1)	1 (0.1)
##	76707	1 (0.1)	1 (0.1)
##	76712	1 (0.1)	0 (0.0)
##	77005	1 (0.1)	1 (0.1)
##	77089	1 (0.1)	1 (0.1)
##	77573	1 (0.1)	1 (0.1)
##	78520	2 (0.1)	1 (0.1)
##	78521	3 (0.2)	4 (0.3)
##	78626	1 (0.1)	1 (0.1)
##	78642	1 (0.1)	0 (0.0)
##	78681	1 (0.1)	1 (0.1)
##	78729	0 (0.0)	1 (0.1)
##	80111	0 (0.0)	1 (0.1)
##	80130	1 (0.1)	1 (0.1)
##	80305	1 (0.1)	1 (0.1)
##	80917	0 (0.0)	1 (0.1)
##	84015	1 (0.1)	1 (0.1)
##	85251	1 (0.1)	0 (0.0)
##	85303	0 (0.0)	1 (0.1)
##	90001	13 (0.8)	5 (0.3)
##	90002	3 (0.2)	3 (0.2)
##	90003	2 (0.1)	1 (0.1)
##	90005	4 (0.3)	4 (0.3)
##	90006	0 (0.0)	2 (0.1)
##	90007	0 (0.0)	1 (0.1)
##	90008	3 (0.2)	4 (0.3)
##	90011	1 (0.1)	1 (0.1)
##	90012	3 (0.2)	3 (0.2)
##	90013	8 (0.5)	7 (0.4)
##	90014	5 (0.3)	5 (0.3)
##	90015	8 (0.5)	10 (0.6)
##	90016	4 (0.3)	4 (0.3)
##	90017	5 (0.3)	6 (0.4)
##	90018	1 (0.1)	3 (0.2)
##	90019	7 (0.4)	4 (0.3)
##	90020	2 (0.1)	2 (0.1)
##	90022	2 (0.1)	2 (0.1)
##	90024	3 (0.2)	3 (0.2)
##	90025	18 (1.1)	16 (1.0)
##	90026	6 (0.4)	7 (0.4)
##	90027	1 (0.1)	2 (0.1)
##	90028	2 (0.1)	1 (0.1)

##	90031	1 (0.1)	2 (0.1)
##	90032	2 (0.1)	1 (0.1)
##	90033	1 (0.1)	1 (0.1)
##	90034	19 (1.2)	18 (1.1)
##	90035	3 (0.2)	3 (0.2)
##	90036	4 (0.3)	4 (0.3)
##	90037	0 (0.0)	3 (0.2)
##	90039	4 (0.3)	4 (0.3)
##	90041	1 (0.1)	2 (0.1)
##	90042	4 (0.3)	3 (0.2)
##	90043	2 (0.1)	2 (0.1)
##	90044	6 (0.4)	5 (0.3)
##	90045	26 (1.6)	31 (2.0)
##	90046	4 (0.3)	2 (0.1)
##	90047	2 (0.1)	5 (0.3)
##	90048	2 (0.1)	2 (0.1)
##	90049	3 (0.2)	4 (0.3)
##	90056	0 (0.0)	2 (0.1)
##	90059	4 (0.3)	3 (0.2)
##	90061	1 (0.1)	2 (0.1)
##	90062	1 (0.1)	0 (0.0)
##	90064	3 (0.2)	4 (0.3)
##	90065	6 (0.4)	3 (0.2)
##	90066	18 (1.1)	23 (1.5)
##	90094	11 (0.7)	7 (0.4)
##	90201	1 (0.1)	2 (0.1)
##	90220	11 (0.7)	10 (0.6)
##	90221	6 (0.4)	2 (0.1)
##	90222	2 (0.1)	1 (0.1)
##	90230	9 (0.6)	12 (0.8)
##	90232	10 (0.6)	9 (0.6)
##	90240	5 (0.3)	4 (0.3)
##	90241	3 (0.2)	4 (0.3)
##	90242	3 (0.2)	4 (0.3)
##	90245	46 (2.9)	41 (2.6)
##	90247	26 (1.6)	19 (1.2)
##	90248	1 (0.1)	2 (0.1)
##	90249	14 (0.9)	12 (0.8)
##	90250	85 (5.4)	86 (5.4)
##	90254	60 (3.8)	63 (4.0)
##	90255	0 (0.0)	1 (0.1)
##	90260	40 (2.5)	33 (2.1)
##	90262	9 (0.6)	9 (0.6)
##	90266	39 (2.5)	35 (2.2)
##	90270	0 (0.0)	1 (0.1)
##	90274	3 (0.2)	4 (0.3)
##	90275	16 (1.0)	13 (0.8)
##	90277	51 (3.2)	53 (3.3)
##	90278	75 (4.7)	89 (5.6)
##	90280	8 (0.5)	9 (0.6)
##	90291	13 (0.8)	15 (0.9)
##	90292	20 (1.3)	24 (1.5)
##	90293	13 (0.8)	15 (0.9)
##	90301	4 (0.3)	5 (0.3)

##	90302	3 (0.2)	5 (0.3)
##	90303	8 (0.5)	9 (0.6)
##	90304	7 (0.4)	4 (0.3)
##	90305	0 (0.0)	2 (0.1)
##	90401	4 (0.3)	5 (0.3)
##	90403	7 (0.4)	8 (0.5)
##	90404	10 (0.6)	9 (0.6)
##	90405	11 (0.7)	9 (0.6)
##	90501	18 (1.1)	21 (1.3)
##	90502	6 (0.4)	6 (0.4)
##	90503	37 (2.3)	30 (1.9)
##	90504	34 (2.1)	27 (1.7)
##	90505	19 (1.2)	16 (1.0)
##	90510	0 (0.0)	1 (0.1)
##	90601	5 (0.3)	5 (0.3)
##	90603	1 (0.1)	1 (0.1)
##	90605	1 (0.1)	2 (0.1)
##	90620	5 (0.3)	3 (0.2)
##	90621	5 (0.3)	3 (0.2)
##	90630	7 (0.4)	6 (0.4)
##	90631	6 (0.4)	6 (0.4)
##	90638	2 (0.1)	4 (0.3)
##	90640	7 (0.4)	5 (0.3)
##	90650	14 (0.9)	13 (0.8)
##	90660	4 (0.3)	5 (0.3)
##	90670	6 (0.4)	7 (0.4)
##	90680	2 (0.1)	1 (0.1)
##	90701	2 (0.1)	4 (0.3)
##	90703	3 (0.2)	5 (0.3)
##	90706	11 (0.7)	11 (0.7)
##	90710	2 (0.1)	4 (0.3)
##	90712	14 (0.9)	13 (0.8)
##	90713	6 (0.4)	6 (0.4)
##	90715	5 (0.3)	4 (0.3)
##	90717	10 (0.6)	6 (0.4)
##	90720	2 (0.1)	1 (0.1)
##	90723	3 (0.2)	4 (0.3)
##	90731	16 (1.0)	16 (1.0)
##	90732	6 (0.4)	4 (0.3)
##	90740	1 (0.1)	1 (0.1)
##	90744	4 (0.3)	7 (0.4)
##	90745	15 (0.9)	14 (0.9)
##	90746	5 (0.3)	6 (0.4)
##	90802	16 (1.0)	15 (0.9)
##	90803	10 (0.6)	10 (0.6)
##	90804	10 (0.6)	7 (0.4)
##	90805	20 (1.3)	19 (1.2)
##	90806	14 (0.9)	8 (0.5)
##	90807	6 (0.4)	8 (0.5)
##	90808	10 (0.6)	5 (0.3)
##	90810	5 (0.3)	5 (0.3)
##	90813	4 (0.3)	6 (0.4)
##	90814	6 (0.4)	6 (0.4)
##	90815	3 (0.2)	3 (0.2)

##	91001	4 (0.3)	2 (0.1)
##	91006	1 (0.1)	1 (0.1)
##	91007	3 (0.2)	2 (0.1)
##	91011	3 (0.2)	0 (0.0)
##	91016	0 (0.0)	1 (0.1)
##	91030	3 (0.2)	3 (0.2)
##	91042	1 (0.1)	3 (0.2)
##	91104	2 (0.1)	1 (0.1)
##	91107	0 (0.0)	1 (0.1)
##	91202	1 (0.1)	1 (0.1)
##	91205	2 (0.1)	1 (0.1)
##	91208	2 (0.1)	2 (0.1)
##	91302	1 (0.1)	1 (0.1)
##	91304	0 (0.0)	1 (0.1)
##	91307	2 (0.1)	1 (0.1)
##	91316	1 (0.1)	1 (0.1)
##	91320	1 (0.1)	1 (0.1)
##	91321	1 (0.1)	1 (0.1)
##	91325	2 (0.1)	2 (0.1)
##	91331	2 (0.1)	2 (0.1)
##	91340	0 (0.0)	1 (0.1)
##	91342	1 (0.1)	1 (0.1)
##	91343	2 (0.1)	2 (0.1)
##	91344	2 (0.1)	2 (0.1)
##	91345	1 (0.1)	1 (0.1)
##	91350	1 (0.1)	1 (0.1)
##	91352	1 (0.1)	1 (0.1)
##	91354	1 (0.1)	1 (0.1)
##	91360	1 (0.1)	1 (0.1)
##	91362	2 (0.1)	1 (0.1)
##	91364	1 (0.1)	2 (0.1)
##	91367	0 (0.0)	1 (0.1)
##	91384	1 (0.1)	1 (0.1)
##	91402	1 (0.1)	1 (0.1)
##	91405	1 (0.1)	1 (0.1)
##	91406	0 (0.0)	2 (0.1)
##	91423	4 (0.3)	3 (0.2)
##	91436	1 (0.1)	2 (0.1)
##	91501	1 (0.1)	1 (0.1)
##	91505	0 (0.0)	1 (0.1)
##	91510	1 (0.1)	1 (0.1)
##	91604	2 (0.1)	1 (0.1)
##	91606	1 (0.1)	1 (0.1)
##	91607	2 (0.1)	2 (0.1)
##	91701	3 (0.2)	2 (0.1)
##	91706	2 (0.1)	1 (0.1)
##	91709	4 (0.3)	2 (0.1)
##	91710	2 (0.1)	2 (0.1)
##	91711	0 (0.0)	1 (0.1)
##	91722	3 (0.2)	2 (0.1)
##	91730	0 (0.0)	4 (0.3)
##	91732	0 (0.0)	1 (0.1)
##	91733	0 (0.0)	1 (0.1)
##	91740	3 (0.2)	2 (0.1)

##	91744	2 (0.1)	1 (0.1)
##	91745	3 (0.2)	8 (0.5)
##	91746	0 (0.0)	1 (0.1)
##	91748	1 (0.1)	1 (0.1)
##	91750	0 (0.0)	2 (0.1)
##	91754	4 (0.3)	3 (0.2)
##	91761	3 (0.2)	1 (0.1)
##	91763	0 (0.0)	1 (0.1)
##	91764	1 (0.1)	1 (0.1)
##	91765	3 (0.2)	4 (0.3)
##	91767	2 (0.1)	1 (0.1)
##	91768	2 (0.1)	3 (0.2)
##	91770	1 (0.1)	2 (0.1)
##	91773	0 (0.0)	1 (0.1)
##	91775	1 (0.1)	1 (0.1)
##	91776	1 (0.1)	1 (0.1)
##	91780	1 (0.1)	0 (0.0)
##	91789	0 (0.0)	1 (0.1)
##	91790	3 (0.2)	2 (0.1)
##	91791	1 (0.1)	0 (0.0)
##	91801	3 (0.2)	2 (0.1)
##	91803	2 (0.1)	3 (0.2)
##	91942	1 (0.1)	1 (0.1)
##	91945	2 (0.1)	1 (0.1)
##	92025	0 (0.0)	1 (0.1)
##	92083	1 (0.1)	1 (0.1)
##	92106	1 (0.1)	1 (0.1)
##	92122	1 (0.1)	1 (0.1)
##	92127	1 (0.1)	1 (0.1)
##	92307	3 (0.2)	1 (0.1)
##	92320	1 (0.1)	1 (0.1)
##	92335	3 (0.2)	1 (0.1)
##	92336	1 (0.1)	3 (0.2)
##	92345	4 (0.3)	4 (0.3)
##	92346	0 (0.0)	1 (0.1)
##	92376	1 (0.1)	0 (0.0)
##	92385	1 (0.1)	1 (0.1)
##	92505	0 (0.0)	1 (0.1)
##	92530	3 (0.2)	1 (0.1)
##	92532	2 (0.1)	2 (0.1)
##	92553	2 (0.1)	1 (0.1)
##	92555	1 (0.1)	1 (0.1)
##	92557	1 (0.1)	1 (0.1)
##	92562	2 (0.1)	3 (0.2)
##	92570	4 (0.3)	2 (0.1)
##	92584	2 (0.1)	2 (0.1)
##	92604	1 (0.1)	1 (0.1)
##	92612	4 (0.3)	2 (0.1)
##	92614	2 (0.1)	2 (0.1)
##	92618	1 (0.1)	1 (0.1)
##	92620	4 (0.3)	4 (0.3)
##	92625	1 (0.1)	0 (0.0)
##	92626	2 (0.1)	2 (0.1)
##	92630	1 (0.1)	1 (0.1)

##	92646	4 (0.3)	4 (0.3)
##	92647	8 (0.5)	4 (0.3)
##	92648	1 (0.1)	2 (0.1)
##	92649	5 (0.3)	6 (0.4)
##	92651	1 (0.1)	0 (0.0)
##	92653	1 (0.1)	0 (0.0)
##	92656	1 (0.1)	2 (0.1)
##	92660	1 (0.1)	0 (0.0)
##	92663	0 (0.0)	1 (0.1)
##	92673	2 (0.1)	1 (0.1)
##	92677	0 (0.0)	1 (0.1)
##	92679	1 (0.1)	1 (0.1)
##	92683	3 (0.2)	6 (0.4)
##	92688	1 (0.1)	1 (0.1)
##	92691	2 (0.1)	1 (0.1)
##	92692	4 (0.3)	2 (0.1)
##	92694	2 (0.1)	2 (0.1)
##	92703	1 (0.1)	2 (0.1)
##	92705	0 (0.0)	1 (0.1)
##	92706	2 (0.1)	1 (0.1)
##	92708	0 (0.0)	2 (0.1)
##	92782	0 (0.0)	1 (0.1)
##	92801	1 (0.1)	1 (0.1)
##	92802	1 (0.1)	2 (0.1)
##	92804	9 (0.6)	11 (0.7)
##	92805	4 (0.3)	3 (0.2)
##	92806	6 (0.4)	5 (0.3)
##	92807	1 (0.1)	1 (0.1)
##	92821	2 (0.1)	1 (0.1)
##	92831	3 (0.2)	2 (0.1)
##	92832	1 (0.1)	1 (0.1)
##	92833	13 (0.8)	12 (0.8)
##	92835	1 (0.1)	0 (0.0)
##	92840	1 (0.1)	4 (0.3)
##	92843	0 (0.0)	1 (0.1)
##	92844	3 (0.2)	3 (0.2)
##	92860	1 (0.1)	1 (0.1)
##	92867	4 (0.3)	3 (0.2)
##	92870	4 (0.3)	4 (0.3)
##	92879	0 (0.0)	1 (0.1)
##	92880	2 (0.1)	2 (0.1)
##	92881	0 (0.0)	1 (0.1)
##	92882	1 (0.1)	1 (0.1)
##	92883	2 (0.1)	2 (0.1)
##	93010	1 (0.1)	2 (0.1)
##	93021	2 (0.1)	2 (0.1)
##	93063	0 (0.0)	1 (0.1)
##	93065	6 (0.4)	3 (0.2)
##	93105	1 (0.1)	1 (0.1)
##	93110	0 (0.0)	1 (0.1)
##	93111	0 (0.0)	1 (0.1)
##	93436	1 (0.1)	3 (0.2)
##	93454	0 (0.0)	1 (0.1)
##	93536	6 (0.4)	5 (0.3)

##	93552	2 (0.1)	1 (0.1)
##	94010	0 (0.0)	1 (0.1)
##	94025	0 (0.0)	2 (0.1)
##	94043	0 (0.0)	1 (0.1)
##	94063	2 (0.1)	1 (0.1)
##	94103	1 (0.1)	1 (0.1)
##	94110	1 (0.1)	0 (0.0)
##	94403	0 (0.0)	1 (0.1)
##	94506	0 (0.0)	1 (0.1)
##	94563	0 (0.0)	1 (0.1)
##	94566	0 (0.0)	1 (0.1)
##	94611	1 (0.1)	1 (0.1)
##	94706	0 (0.0)	1 (0.1)
##	94903	0 (0.0)	1 (0.1)
##	95014	1 (0.1)	1 (0.1)
##	95060	1 (0.1)	1 (0.1)
##	95361	1 (0.1)	1 (0.1)
##	97045	0 (0.0)	1 (0.1)
##	98004	3 (0.2)	2 (0.1)
##	98007	3 (0.2)	2 (0.1)
##	98012	2 (0.1)	1 (0.1)
##	98027	1 (0.1)	1 (0.1)
##	98052	1 (0.1)	1 (0.1)
##	98053	1 (0.1)	1 (0.1)
##	98057	1 (0.1)	0 (0.0)
##	98075	1 (0.1)	1 (0.1)
##	98112	1 (0.1)	1 (0.1)
##	98118	0 (0.0)	1 (0.1)

Outcome metrics

```
dta_run = dta_m %>%
  mutate(logcost_md = log(cost_md+1),
         logcost_er = log(cost_er+1),
         logcost_hosp = log(cost_hosp+1),
         logcost_pcp = log(cost_pcp+1),
         logcost_spec = log(cost_spec+1),
         logcost_mh = log(cost_mh+1),
         logcost_pt = log(cost_pt+1),
         logcost_rx = log(cost_rx+1),
         logcost_drugadmin = log(cost_drugadmin + 1),
         logcost_surg = log(cost_surg+1),
         logcost_maternity = log(cost_maternity+1),
         logcost_labs = log(cost_labs+1),
         logcost_rads = log(cost_rads +1),
         logcount_er = log(count_er+1),
         logcount_hosp = log(count_hosp+1),
         logcount_pcp = log(count_pcp+1),
         logcount_spec = log(count_spec+1),
         logcount_mh = log(count_mh+1),
         logcount_pt = log(count_pt+1),
```

```

logcount_drugadmin = log(count_drugadmin+1),
logcount_surg = log(count_surg+1),
logcount_maternity = log(count_maternity+1),
logcount_labs = log(count_labs+1),
logcount_rads = log(count_rads+1),
logcost_per_er = log(cost_per_er+1),
logcost_per_hosp = log(cost_per_hosp+1),
logcost_per_pcp = log(cost_per_pcp+1),
logcost_per_spec = log(cost_per_spec+1),
logcost_per_mh = log(cost_per_mh+1),
logcost_per_pt = log(cost_per_pt+1),
logcost_per_drugadmin = log(cost_per_drugadmin+1),
logcost_per_surg = log(cost_per_surg+1),
logcost_per_maternity = log(cost_per_maternity+1),
logcost_per_labs = log(cost_per_labs+1),
logcost_per_rads = log(cost_per_rads+1)
)

```

pre-match

```

prem = spacex_dat_ana %>%
  mutate(count_er = 1000*count_er,
         count_hosp = 1000*count_hosp,
         count_pcp = 1000*count_pcp,
         count_spec = 1000*count_spec,
         count_mh = 1000*count_mh,
         count_pt = 1000*count_pt,
         count_drugadmin = 1000*count_drugadmin,
         count_surg = 1000*count_surg,
         count_maternity = 1000*count_maternity,
         count_labs = 1000*count_labs,
         count_rads = 1000*count_rads
  )

```

```

pretable = CreateTableOne(data = prem, vars = c("age", "female", "hcc", "mm", "cost_md", "cost_rx", "cost_er", "cost_hosp", "cost_pcp", "cost_spec", "cost_mh", "cost_pt", "cost_drugadmin"),
pretab = print(pretable, smd = TRUE, contDigits=3, catDigits=1, noSpaces = TRUE, quote = T)

```

```

##                                     "Stratified by om_flag"
## ""                                "0"
## "n"                               "21545"
## "age (mean (SD))"                 "26.620 (15.667)"
## "female = TRUE (%)"               "8615 (40.0)"
## "hcc (mean (SD))"                 "0.100 (0.356)"
## "mm (mean (SD))"                  "28.343 (15.913)"
## "cost_md (mean (SD))"              "591.467 (2993.404)"
## "cost_rx (mean (SD))"              "50.279 (684.207)"
## "cost_er (mean (SD))"              "34.746 (152.274)"
## "cost_hosp (mean (SD))"            "32.014 (520.054)"
## "cost_pcp (mean (SD))"             "21.672 (59.466)"
## "cost_spec (mean (SD))"            "8.114 (25.616)"
## "cost_mh (mean (SD))"              "7.002 (88.862)"
## "cost_pt (mean (SD))"              "7.828 (47.923)"
## "cost_drugadmin (mean (SD))"       "15.236 (345.333)"

```

##	"cost_surg (mean (SD))"	"80.871 (814.338)"		
##	"cost_maternity (mean (SD))"	"25.356 (471.895)"		
##	"cost_labs (mean (SD))"	"13.212 (81.853)"		
##	"cost_rads (mean (SD))"	"14.810 (117.655)"		
##	"count_er (mean (SD))"	"102.859 (466.047)"		
##	"count_hosp (mean (SD))"	"18.250 (182.771)"		
##	"count_pcp (mean (SD))"	"185.291 (525.990)"		
##	"count_spec (mean (SD))"	"73.825 (242.791)"		
##	"count_mh (mean (SD))"	"30.656 (277.528)"		
##	"count_pt (mean (SD))"	"189.762 (1103.374)"		
##	"count_drugadmin (mean (SD))"	"136.475 (626.797)"		
##	"count_surg (mean (SD))"	"84.566 (382.634)"		
##	"count_maternity (mean (SD))"	"2.586 (31.543)"		
##	"count_labs (mean (SD))"	"398.687 (1464.049)"		
##	"count_rads (mean (SD))"	"76.852 (241.262)"		
##	"cost_per_er (mean (SD))"	"385.916 (278.072)"		
##	"cost_per_hosp (mean (SD))"	"1318.806 (3759.133)"		
##	"cost_per_pcp (mean (SD))"	"124.262 (47.379)"		
##	"cost_per_spec (mean (SD))"	"116.808 (47.359)"		
##	"cost_per_mh (mean (SD))"	"319.344 (1263.575)"		
##	"cost_per_pt (mean (SD))"	"48.044 (58.935)"		
##	"cost_per_drugadmin (mean (SD))"	"74.171 (531.699)"		
##	"cost_per_surg (mean (SD))"	"650.220 (2384.617)"		
##	"cost_per_maternity (mean (SD))"	"12698.977 (41963.367)"		
##	"cost_per_labs (mean (SD))"	"27.801 (36.673)"		
##	"cost_per_rads (mean (SD))"	"141.567 (195.650)"		
##		"Stratified by om_flag"		
##	"n"	"1"	"p"	"test"
##	"n"	"1973"	"	"
##	"age (mean (SD))"	"30.557 (8.571)"	"<0.001"	"
##	"female = TRUE (%)"	"296 (15.0)"	"<0.001"	"
##	"hcc (mean (SD))"	"0.072 (0.179)"	"<0.001"	"
##	"mm (mean (SD))"	"32.738 (14.054)"	"<0.001"	"
##	"cost_md (mean (SD))"	"239.093 (537.148)"	"<0.001"	"
##	"cost_rx (mean (SD))"	"25.342 (164.393)"	"0.106"	"
##	"cost_er (mean (SD))"	"23.028 (129.469)"	"0.001"	"
##	"cost_hosp (mean (SD))"	"5.954 (93.026)"	"0.026"	"
##	"cost_pcp (mean (SD))"	"29.830 (42.012)"	"<0.001"	"
##	"cost_spec (mean (SD))"	"2.766 (6.402)"	"<0.001"	"
##	"cost_mh (mean (SD))"	"6.957 (37.196)"	"0.982"	"
##	"cost_pt (mean (SD))"	"10.969 (49.453)"	"0.005"	"
##	"cost_drugadmin (mean (SD))"	"7.453 (84.976)"	"0.318"	"
##	"cost_surg (mean (SD))"	"16.231 (97.745)"	"<0.001"	"
##	"cost_maternity (mean (SD))"	"0.563 (15.166)"	"0.020"	"
##	"cost_labs (mean (SD))"	"6.701 (15.618)"	"<0.001"	"
##	"cost_rads (mean (SD))"	"5.649 (33.464)"	"0.001"	"
##	"count_er (mean (SD))"	"54.444 (229.532)"	"<0.001"	"
##	"count_hosp (mean (SD))"	"3.167 (32.872)"	"<0.001"	"
##	"count_pcp (mean (SD))"	"179.252 (249.922)"	"0.614"	"
##	"count_spec (mean (SD))"	"21.694 (45.061)"	"<0.001"	"
##	"count_mh (mean (SD))"	"41.319 (203.672)"	"0.096"	"
##	"count_pt (mean (SD))"	"182.279 (768.987)"	"0.768"	"
##	"count_drugadmin (mean (SD))"	"75.600 (217.374)"	"<0.001"	"
##	"count_surg (mean (SD))"	"31.213 (103.092)"	"<0.001"	"


```

## "count_maternity (mean (SD))" "0.045 (0.997)" "<0.001" ""
## "count_labs (mean (SD))" "308.953 (502.360)" "0.007" ""
## "count_rads (mean (SD))" "34.353 (98.709)" "<0.001" ""
## "cost_per_er (mean (SD))" "414.671 (354.029)" "0.103" ""
## "cost_per_hosp (mean (SD))" "2504.585 (6220.292)" "0.032" ""
## "cost_per_pcp (mean (SD))" "170.109 (39.551)" "<0.001" ""
## "cost_per_spec (mean (SD))" "126.593 (56.056)" "<0.001" ""
## "cost_per_mh (mean (SD))" "198.142 (337.114)" "0.102" ""
## "cost_per_pt (mean (SD))" "66.565 (41.013)" "<0.001" ""
## "cost_per_drugadmin (mean (SD))" "74.545 (111.657)" "0.983" ""
## "cost_per_surg (mean (SD))" "373.695 (1607.519)" "0.009" ""
## "cost_per_maternity (mean (SD))" "13319.250 (10574.622)" "0.976" ""
## "cost_per_labs (mean (SD))" "25.782 (29.426)" "0.052" ""
## "cost_per_rads (mean (SD))" "131.873 (199.310)" "0.241" ""
## "Stratified by om_flag"
## "" "SMD"
## "n" ""
## "age (mean (SD))" "0.312"
## "female = TRUE (%)" "0.583"
## "hcc (mean (SD))" "0.102"
## "mm (mean (SD))" "0.293"
## "cost_md (mean (SD))" "0.164"
## "cost_rx (mean (SD))" "0.050"
## "cost_er (mean (SD))" "0.083"
## "cost_hosp (mean (SD))" "0.070"
## "cost_pcp (mean (SD))" "0.158"
## "cost_spec (mean (SD))" "0.286"
## "cost_mh (mean (SD))" "0.001"
## "cost_pt (mean (SD))" "0.065"
## "cost_drugadmin (mean (SD))" "0.031"
## "cost_surg (mean (SD))" "0.111"
## "cost_maternity (mean (SD))" "0.074"
## "cost_labs (mean (SD))" "0.110"
## "cost_rads (mean (SD))" "0.106"
## "count_er (mean (SD))" "0.132"
## "count_hosp (mean (SD))" "0.115"
## "count_pcp (mean (SD))" "0.015"
## "count_spec (mean (SD))" "0.299"
## "count_mh (mean (SD))" "0.044"
## "count_pt (mean (SD))" "0.008"
## "count_drugadmin (mean (SD))" "0.130"
## "count_surg (mean (SD))" "0.190"
## "count_maternity (mean (SD))" "0.114"
## "count_labs (mean (SD))" "0.082"
## "count_rads (mean (SD))" "0.231"
## "cost_per_er (mean (SD))" "0.090"
## "cost_per_hosp (mean (SD))" "0.231"
## "cost_per_pcp (mean (SD))" "1.051"
## "cost_per_spec (mean (SD))" "0.189"
## "cost_per_mh (mean (SD))" "0.131"
## "cost_per_pt (mean (SD))" "0.365"
## "cost_per_drugadmin (mean (SD))" "0.001"
## "cost_per_surg (mean (SD))" "0.136"
## "cost_per_maternity (mean (SD))" "0.020"

```

```
## "cost_per_labs (mean (SD))" "0.061"
## "cost_per_rads (mean (SD))" "0.049"
```

```
# post-match
```

```
postm = dta_m %>%
```

```
  mutate(count_er = 1000*count_er,
         count_hosp = 1000*count_hosp,
         count_pcp = 1000*count_pcp,
         count_spec = 1000*count_spec,
         count_mh = 1000*count_mh,
         count_pt = 1000*count_pt,
         count_drugadmin = 1000*count_drugadmin,
         count_surg = 1000*count_surg,
         count_maternity = 1000*count_maternity,
         count_labs = 1000*count_labs,
         count_rads = 1000*count_rads
```

```
)
```

```
posttable = CreateTableOne(data = postm, vars = c("age", "female", "hcc", "mm", "cost_md", "cost_rx", "cost_er", "cost_hosp", "cost_pcp", "cost_spec", "cost_mh", "cost_pt", "cost_drugadmin", "cost_surg", "cost_maternity", "cost_labs", "cost_rads", "count_er", "count_hosp", "count_pcp", "count_spec", "count_mh", "count_pt", "count_drugadmin", "count_surg", "count_maternity", "count_labs", "count_rads", "cost_per_er", "cost_per_labs", "cost_per_rads"),
                           smd = TRUE, contDigits=3, catDigits=1, noSpaces = TRUE, quote = T)
```

```
## "Stratified by om_flag"
## "" "0"
## "n" "1584"
## "age (mean (SD))" "30.859 (14.456)"
## "female = TRUE (%)" "249 (15.7)"
## "hcc (mean (SD))" "0.079 (0.204)"
## "mm (mean (SD))" "33.007 (14.550)"
## "cost_md (mean (SD))" "492.692 (1208.012)"
## "cost_rx (mean (SD))" "54.042 (496.572)"
## "cost_er (mean (SD))" "34.439 (120.397)"
## "cost_hosp (mean (SD))" "14.799 (146.053)"
## "cost_pcp (mean (SD))" "32.605 (88.737)"
## "cost_spec (mean (SD))" "11.115 (18.829)"
## "cost_mh (mean (SD))" "8.945 (56.944)"
## "cost_pt (mean (SD))" "14.305 (48.806)"
## "cost_drugadmin (mean (SD))" "17.580 (84.318)"
## "cost_surg (mean (SD))" "50.686 (232.398)"
## "cost_maternity (mean (SD))" "9.086 (111.004)"
## "cost_labs (mean (SD))" "15.397 (53.381)"
## "cost_rads (mean (SD))" "13.480 (49.165)"
## "count_er (mean (SD))" "93.642 (317.908)"
## "count_hosp (mean (SD))" "11.227 (57.366)"
## "count_pcp (mean (SD))" "253.453 (732.921)"
## "count_spec (mean (SD))" "100.919 (174.700)"
## "count_mh (mean (SD))" "37.269 (161.834)"
## "count_pt (mean (SD))" "303.580 (1098.566)"
## "count_drugadmin (mean (SD))" "253.221 (1264.617)"
## "count_surg (mean (SD))" "102.647 (367.974)"
## "count_maternity (mean (SD))" "0.789 (8.002)"
## "count_labs (mean (SD))" "509.024 (1176.903)"
## "count_rads (mean (SD))" "78.229 (168.733)"
## "cost_per_er (mean (SD))" "435.257 (324.361)"
```

##	"cost_per_hosp (mean (SD))"	"1665.834 (4194.920)"	
##	"cost_per_pcp (mean (SD))"	"144.220 (53.525)"	
##	"cost_per_spec (mean (SD))"	"118.016 (47.082)"	
##	"cost_per_mh (mean (SD))"	"148.900 (193.306)"	
##	"cost_per_pt (mean (SD))"	"51.524 (54.222)"	
##	"cost_per_drugadmin (mean (SD))"	"54.513 (65.180)"	
##	"cost_per_surg (mean (SD))"	"438.666 (1036.553)"	
##	"cost_per_maternity (mean (SD))"	"5762.053 (7488.372)"	
##	"cost_per_labs (mean (SD))"	"27.437 (36.323)"	
##	"cost_per_rads (mean (SD))"	"141.419 (200.466)"	
##		"Stratified by om_flag"	
##	"	"1"	"SMD"
##	"n"	"1584"	"
##	"age (mean (SD))"	"30.594 (8.435)"	"0.022"
##	"female = TRUE (%)"	"272 (17.2)"	"0.039"
##	"hcc (mean (SD))"	"0.077 (0.186)"	"0.009"
##	"mm (mean (SD))"	"33.384 (13.718)"	"0.027"
##	"cost_md (mean (SD))"	"238.876 (562.713)"	"0.269"
##	"cost_rx (mean (SD))"	"23.726 (158.750)"	"0.082"
##	"cost_er (mean (SD))"	"26.020 (141.751)"	"0.064"
##	"cost_hosp (mean (SD))"	"4.455 (63.840)"	"0.092"
##	"cost_pcp (mean (SD))"	"27.475 (33.756)"	"0.076"
##	"cost_spec (mean (SD))"	"2.839 (6.411)"	"0.588"
##	"cost_mh (mean (SD))"	"6.782 (38.533)"	"0.045"
##	"cost_pt (mean (SD))"	"10.679 (49.305)"	"0.074"
##	"cost_drugadmin (mean (SD))"	"7.476 (93.866)"	"0.113"
##	"cost_surg (mean (SD))"	"15.534 (89.215)"	"0.200"
##	"cost_maternity (mean (SD))"	"0.701 (16.924)"	"0.106"
##	"cost_labs (mean (SD))"	"6.767 (15.979)"	"0.219"
##	"cost_rads (mean (SD))"	"6.322 (36.666)"	"0.165"
##	"count_er (mean (SD))"	"60.277 (248.761)"	"0.117"
##	"count_hosp (mean (SD))"	"3.608 (36.101)"	"0.159"
##	"count_pcp (mean (SD))"	"166.165 (196.358)"	"0.163"
##	"count_spec (mean (SD))"	"22.118 (43.370)"	"0.619"
##	"count_mh (mean (SD))"	"40.591 (209.526)"	"0.018"
##	"count_pt (mean (SD))"	"183.685 (791.698)"	"0.125"
##	"count_drugadmin (mean (SD))"	"70.389 (156.948)"	"0.203"
##	"count_surg (mean (SD))"	"29.573 (99.421)"	"0.271"
##	"count_maternity (mean (SD))"	"0.056 (1.112)"	"0.128"
##	"count_labs (mean (SD))"	"316.225 (506.000)"	"0.213"
##	"count_rads (mean (SD))"	"35.350 (94.372)"	"0.314"
##	"cost_per_er (mean (SD))"	"521.070 (412.453)"	"0.231"
##	"cost_per_hosp (mean (SD))"	"3875.932 (4028.223)"	"0.537"
##	"cost_per_pcp (mean (SD))"	"169.285 (39.159)"	"0.534"
##	"cost_per_spec (mean (SD))"	"136.066 (52.955)"	"0.360"
##	"cost_per_mh (mean (SD))"	"136.670 (182.524)"	"0.065"
##	"cost_per_pt (mean (SD))"	"71.822 (65.063)"	"0.339"
##	"cost_per_drugadmin (mean (SD))"	"67.639 (107.008)"	"0.148"
##	"cost_per_surg (mean (SD))"	"332.875 (974.928)"	"0.105"
##	"cost_per_maternity (mean (SD))"	"3975.345 (6360.967)"	"0.257"
##	"cost_per_labs (mean (SD))"	"24.877 (28.307)"	"0.079"
##	"cost_per_rads (mean (SD))"	"115.719 (167.546)"	"0.139"

##	"cost_per_pcp (mean (SD))"	"162.6 (36.6)"	"178.7 (40.7)"
##	"cost_per_spec (mean (SD))"	"129.2 (51.1)"	"145.6 (54.1)"
##	"cost_per_mh (mean (SD))"	"146.8 (226.4)"	"122.5 (89.2)"
##	"cost_per_pt (mean (SD))"	"67.3 (70.6)"	"78.2 (55.8)"
##	"cost_per_drugadmin (mean (SD))"	"64.2 (107.7)"	"72.4 (105.9)"
##	"cost_per_surg (mean (SD))"	"336.8 (1221.9)"	"327.4 (440.4)"
##	"cost_per_maternity (mean (SD))"	"3993.6 (5554.2)"	"3949.9 (7345.2)"
##	"cost_per_labs (mean (SD))"	"27.5 (32.8)"	"21.3 (19.8)"
##	"cost_per_rads (mean (SD))"	"114.8 (187.5)"	"117.0 (135.0)"
##		"Stratified by ctr_flag"	
##	"	"p"	"test" "SMD"
##	"n"	"	"
##	"age (mean (SD))"	"0.532"	"0.032"
##	"female = TRUE (%)"	"<0.001"	"0.215"
##	"hcc (mean (SD))"	"<0.001"	"0.277"
##	"mm (mean (SD))"	"0.001"	"0.173"
##	"cost_md (mean (SD))"	"<0.001"	"0.336"
##	"cost_rx (mean (SD))"	"0.005"	"0.153"
##	"cost_er (mean (SD))"	"<0.001"	"0.322"
##	"cost_hosp (mean (SD))"	"0.019"	"0.129"
##	"cost_pcp (mean (SD))"	"0.066"	"0.090"
##	"cost_spec (mean (SD))"	"<0.001"	"0.359"
##	"cost_mh (mean (SD))"	"0.672"	"0.022"
##	"cost_pt (mean (SD))"	"<0.001"	"0.167"
##	"cost_drugadmin (mean (SD))"	"0.323"	"0.054"
##	"cost_surg (mean (SD))"	"<0.001"	"0.265"
##	"cost_maternity (mean (SD))"	"0.163"	"0.077"
##	"cost_labs (mean (SD))"	"<0.001"	"0.560"
##	"cost_rads (mean (SD))"	"0.001"	"0.172"
##	"count_er (mean (SD))"	"<0.001"	"0.417"
##	"count_hosp (mean (SD))"	"0.001"	"0.183"
##	"count_pcp (mean (SD))"	"0.001"	"0.162"
##	"count_spec (mean (SD))"	"<0.001"	"0.470"
##	"count_mh (mean (SD))"	"0.573"	"0.030"
##	"count_pt (mean (SD))"	"0.086"	"0.084"
##	"count_drugadmin (mean (SD))"	"0.088"	"0.089"
##	"count_surg (mean (SD))"	"<0.001"	"0.375"
##	"count_maternity (mean (SD))"	"0.092"	"0.093"
##	"count_labs (mean (SD))"	"<0.001"	"0.657"
##	"count_rads (mean (SD))"	"<0.001"	"0.462"
##	"cost_per_er (mean (SD))"	"<0.001"	"0.836"
##	"cost_per_hosp (mean (SD))"	"<0.001"	"0.772"
##	"cost_per_pcp (mean (SD))"	"<0.001"	"0.415"
##	"cost_per_spec (mean (SD))"	"<0.001"	"0.312"
##	"cost_per_mh (mean (SD))"	"0.009"	"0.142"
##	"cost_per_pt (mean (SD))"	"0.001"	"0.171"
##	"cost_per_drugadmin (mean (SD))"	"0.131"	"0.077"
##	"cost_per_surg (mean (SD))"	"0.849"	"0.010"
##	"cost_per_maternity (mean (SD))"	"0.893"	"0.007"
##	"cost_per_labs (mean (SD))"	"<0.001"	"0.228"
##	"cost_per_rads (mean (SD))"	"0.794"	"0.014"

Treatment effect

```
glmMatched1 <- glm(formula = logcost_md ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched2 <- glm(formula = logcost_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched3 <- glm(formula = logcost_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched4 <- glm(formula = logcost_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched5 <- glm(formula = logcost_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched5a <- glm(formula = logcost_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched5b <- glm(formula = logcost_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched6 <- glm(formula = logcost_rx ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched6a <- glm(formula = logcost_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)
glmMatched6b <- glm(formula = logcost_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)
glmMatched6c <- glm(formula = logcost_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)
glmMatched6d <- glm(formula = logcost_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)
glmMatched6e <- glm(formula = logcost_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched7 <- glm(formula = logcount_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched8 <- glm(formula = logcount_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)

glmMatched9 <- glm(formula = logcount_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = dta_run)
```



```

glmMatched10 <- glm(formula = logcount_spec ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                    data     = dta_run)

glmMatched10a <- glm(formula = logcount_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched10b <- glm(formula = logcount_pt ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                     data     = dta_run)

glmMatched10c <- glm(formula = logcount_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)
glmMatched10d <- glm(formula = logcount_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)
glmMatched10e <- glm(formula = logcount_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)
glmMatched10f <- glm(formula = logcount_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)
glmMatched10g <- glm(formula = logcount_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched11 <- glm(formula = logcost_per_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
                    data     = dta_run)

glmMatched11b <- glm(formula = logcost_per_hosp ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                     data     = dta_run)

glmMatched11c <- glm(formula = logcost_per_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched5c <- glm(formula = logcost_per_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
                    data     = dta_run)

glmMatched5ca <- glm(formula = logcost_per_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched5cb <- glm(formula = logcost_per_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched5cc <- glm(formula = logcost_per_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data     = dta_run)

glmMatched5cd <- glm(formula = logcost_per_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,

```

```

data = dta_run)

glmMatched5ce <- glm(formula = logcost_per_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
data = dta_run)

glmMatched5cf <- glm(formula = logcost_per_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
data = dta_run)

glmMatched5cg <- glm(formula = logcost_per_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
data = dta_run)

```

Results as percentage change in each outcome

```

exponentiate <- function(x) ((exp(x)-1)*100)

stargazer::stargazer(glmMatched1, glmMatched2, glmMatched3, glmMatched4, glmMatched5, glmMatched5a, glmMatched5b,
title="Spending",
type = "html",
keep=c("om_flag", "age", "female", "mm", "hcc"),
ci=TRUE, ci.level=0.95,
apply.coef=exponentiate, apply.se = exponentiate,
digits = 1,
star.cutoffs = c(0.05, 0.01, 0.001),
column.labels = c("Total Spend", "Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health"),
out = "table1.htm")

##
## <table style="text-align:center"><caption><strong>Spending</strong></caption>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td></td><td colspan="13" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_md</td><td>logcost_er</td><td>logcost_hosp</td><td>logcost_prim</td><td>logcost_spec</td><td>logcost_ment</td></tr>
## <tr><td style="text-align:left"></td><td>Total Spend</td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Specialist</td><td>Mental Health</td></tr>
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left"></td><td>(-36.4, -17.3)</td><td>(-44.2, -20.5)</td><td>(-19.7, -7.9)</td><td>(-11.5, -2.1)</td><td>(-1.2, 0.2)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">age</td><td>-0.4</td><td>-1.1<sup>***</sup></td><td>-0.5<sup>***</sup></td><td>-0.3<sup>***</sup></td><td>-0.1<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-0.8, 0.1)</td><td>(-1.6, -0.5)</td><td>(-0.8, -0.3)</td><td>(-0.4, -0.2)</td><td>(-0.2, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">female</td><td>8.3</td><td>-16.0</td><td>-9.0<sup>*</sup></td><td>8.1<sup>*</sup></td><td>1.2<sup>*</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-6.0, 22.6)</td><td>(-33.9, 1.9)</td><td>(-17.8, -0.2)</td><td>(-1.2, 2.4)</td><td>(-0.1, 0.3)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">mm</td><td>-1.2<sup>***</sup></td><td>0.7<sup>***</sup></td><td>-0.2<sup>***</sup></td><td>-0.1<sup>***</sup></td><td>-0.1<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-1.5, -0.8)</td><td>(0.3, 1.2)</td><td>(-0.4, 0.03)</td><td>(-0.2, 0.1)</td><td>(-0.1, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">hcc</td><td>657.9<sup>***</sup></td><td>477.0<sup>***</sup></td><td>211.1<sup>***</sup></td><td>513.7<sup>***</sup></td><td>687.1<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(628.8, 687.1)</td><td>(440.3, 513.7)</td><td>(211.1, 246.5)</td><td>(513.7, 580.1)</td><td>(628.8, 687.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left">Log Likelihood</td><td>-5,038.8</td><td>-5,716.5</td><td>-3,543.9</td><td>-4,211.1</td><td>-2,877.9</td><td>-3,543.9</td></tr>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>11,039.5</td><td>12,395.1</td><td>8,049.9</td><td>10,839.1</td><td>11,039.5</td><td>11,039.5</td></tr>

```

```
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## </table>
```

```
stargazer::stargazer(glmMatched7, glmMatched8, glmMatched9, glmMatched10, glmMatched10a, glmMatched10b,
  title="Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health", "Ph
  out = "table2.htm")
```

```
##
## <table style="text-align:center"><caption><strong>Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcount_er</td><td>logcount_hosp</td><td>logcount_pcp</td>
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Spe
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td style="text-align:left"></td><td>(-3.1, -1.1)</td><td>(-0.9, -0.4)</td><td>(-4.2, -1.6)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">age</td><td>-0.02</td><td>-0.03<sup>***</sup></td><td>-0.1<sup>***</sup></td>
## <tr><td style="text-align:left"></td><td>(-0.1, 0.02)</td><td>(-0.04, -0.02)</td><td>(-0.2, -0.1)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">female</td><td>-1.5<sup>*</sup></td><td>-0.6<sup>***</sup></td><td>-0.
## <tr><td style="text-align:left"></td><td>(-3.0, -0.03)</td><td>(-1.0, -0.2)</td><td>(-2.1, 1.7)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">mm</td><td>-0.1<sup>***</sup></td><td>-0.02<sup>***</sup></td><td>-0.
## <tr><td style="text-align:left"></td><td>(-0.1, -0.04)</td><td>(-0.03, -0.01)</td><td>(-0.5, -0.4)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">hcc</td><td>13.5<sup>***</sup></td><td>3.9<sup>***</sup></td><td>22.
## <tr><td style="text-align:left"></td><td>(10.6, 16.5)</td><td>(3.1, 4.7)</td><td>(18.7, 26.3)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td style="text-align:left">Log Likelihood</td><td>2,042.9</td><td>6,219.3</td><td>1,213.9</td><td>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>-3,123.9</td><td>-11,476.7</td><td>-1,465.
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## </table>
```

```
stargazer::stargazer(glmMatched11, glmMatched11b, glmMatched11c, glmMatched5c, glmMatched5ca, glmMatche
  title="Cost per Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health", "Ph
  out = "table3.htm")
```

```
##
```

```
## <table style="text-align:center"><caption><strong>Cost per Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_per_er</td><td>logcost_per_hosp</td><td>logcost_per
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Spe
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left"></td><td>(13.2, 24.4)</td><td>(232.0, 262.8)</td><td>(21.0, 26.3)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">age</td><td>-0.02</td><td>-0.2</td><td>0.1</td><td>0.01</td><td>0.3</td>
## <tr><td style="text-align:left"></td><td>(-0.3, 0.2)</td><td>(-0.9, 0.5)</td><td>(-0.05, 0.2)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">female</td><td>-28.6<sup>***</sup></td><td>-9.9</td><td>-8.5<sup>***</sup>
## <tr><td style="text-align:left"></td><td>(-36.9, -20.3)</td><td>(-33.2, 13.4)</td><td>(-12.5, -4.5)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">mm</td><td>0.3<sup>*</sup></td><td>-0.2</td><td>-0.02</td><td>-0.04</td>
## <tr><td style="text-align:left"></td><td>(0.1, 0.6)</td><td>(-0.8, 0.4)</td><td>(-0.1, 0.1)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">hcc</td><td>-2.0</td><td>45.8</td><td>1.5</td><td>4.9</td><td>89.9</td>
## <tr><td style="text-align:left"></td><td>(-18.8, 14.7)</td><td>(-2.6, 94.3)</td><td>(-6.4, 9.4)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left">Log Likelihood</td><td>-3,369.9</td><td>-6,513.9</td><td>-1,053.7</td>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>7,701.7</td><td>13,989.9</td><td>3,069.5</td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## </table>
```

```
evaluates.OLS(est = glmMatched1$coefficients[2],
se = summary(glmMatched1)$coefficients['om_flag', 'Std. Error'],
sd = sd(dta_run$logcost_md) )
```

```
##           point      lower      upper
## RR          0.8231775 0.7769096 0.8722009
## E-values 1.7256334      NA 1.5563959
```

Sensitivity analyses:

- exclude NICU and newborns, dialysis, pregnancy, hospice, rehab, and transplants
- cap claimants to \$50k/12mo
- exclude those without a min # of member-months: 12

```
sens_m = dta_run %>%
  filter(age != 0,
         diag1 != "Z992",
         diag1 != "Z340",
         diag1 != "Z515",
         diag1 != "F0",
         diag1 != "T86",
         (cost_md/mm) < (50000/12),
         mm>12)
```

Sensitivity results

```
glmMatched1_s <- glm(formula = logcost_md ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched2_s <- glm(formula = logcost_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched3_s <- glm(formula = logcost_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched4_s <- glm(formula = logcost_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched5_s <- glm(formula = logcost_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched5a_s <- glm(formula = logcost_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched5b_s <- glm(formula = logcost_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched6_s <- glm(formula = logcost_rx ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched6a_s <- glm(formula = logcost_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)
glmMatched6b_s <- glm(formula = logcost_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)
glmMatched6c_s <- glm(formula = logcost_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)
glmMatched6d_s <- glm(formula = logcost_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)
glmMatched6e_s <- glm(formula = logcost_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched7_s <- glm(formula = logcount_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched8_s <- glm(formula = logcount_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)

glmMatched9_s <- glm(formula = logcount_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data      = sens_m)
```

```

glmMatched10_s <- glm(formula = logcount_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched10a_s <- glm(formula = logcount_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched10b_s <- glm(formula = logcount_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched10c_s <- glm(formula = logcount_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)
glmMatched10d_s <- glm(formula = logcount_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)
glmMatched10e_s <- glm(formula = logcount_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)
glmMatched10f_s <- glm(formula = logcount_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)
glmMatched10g_s <- glm(formula = logcount_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched11_s <- glm(formula = logcost_per_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched11b_s <- glm(formula = logcost_per_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched11c_s <- glm(formula = logcost_per_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched5c_s <- glm(formula = logcost_per_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched5ca_s <- glm(formula = logcost_per_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched5cb_s <- glm(formula = logcost_per_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched5cc_s <- glm(formula = logcost_per_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = sens_m)

glmMatched5cd_s <- glm(formula = logcost_per_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,

```

```

data      = sens_m)

glmMatched5ce_s <- glm(formula = logcost_per_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
data      = sens_m)

glmMatched5cf_s <- glm(formula = logcost_per_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
data      = sens_m)

glmMatched5cg_s <- glm(formula = logcost_per_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
data      = sens_m)

```

Sens table results

```

exponentiate_s <- function(x) ((exp(x)-1)*100)

stargazer::stargazer(glmMatched1_s, glmMatched2_s, glmMatched3_s, glmMatched4_s, glmMatched5_s, glmMatched6_s,
title="Spending",
type = "html",
keep=c("om_flag", "age", "female", "mm", "hcc"),
ci=TRUE, ci.level=0.95,
apply.coef=exponentiate, apply.se = exponentiate,
digits = 1,
star.cutoffs = c(0.05, 0.01, 0.001),
column.labels = c("Total Spend", "Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health"),
out = "table1s.htm")

##
## <table style="text-align:center"><caption><strong>Spending</strong></caption>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td></td><td colspan="13" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_md</td><td>logcost_er</td><td>logcost_hosp</td><td>logcost_prim</td><td>logcost_spec</td><td>logcost_ment</td></tr>
## <tr><td style="text-align:left"></td><td>Total Spend</td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Specialist</td><td>Mental Health</td></tr>
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left"></td><td>(-38.3, -18.3)</td><td>(-49.2, -24.3)</td><td>(-19.0, -6.6)</td><td>(-11.1, -1.1)</td><td>(-1.1, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>age</td><td>-0.3</td><td>-1.1<sup>***</sup></td><td>-0.4<sup>*</sup></td><td>-0.1</td><td>-0.1</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(-0.8, 0.2)</td><td>(-1.7, -0.5)</td><td>(-0.7, -0.1)</td><td>(-0.1, 0.0)</td><td>(-0.1, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>female</td><td>14.0</td><td>-11.5</td><td>-7.2</td><td>11.1</td><td>11.1</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(-1.3, 29.3)</td><td>(-30.7, 7.6)</td><td>(-16.6, 2.2)</td><td>(-1.1, 0.0)</td><td>(-0.1, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>mm</td><td>-0.3</td><td>0.9<sup>***</sup></td><td>-0.1</td><td>-1.1<sup>***</sup></td><td>-1.1<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(-0.8, 0.1)</td><td>(0.4, 1.5)</td><td>(-0.4, 0.2)</td><td>(-1.1, 0.0)</td><td>(-1.1, 0.0)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>hcc</td><td>647.6<sup>***</sup></td><td>484.3<sup>***</sup></td><td>216.8<sup>***</sup></td><td>252.7<sup>***</sup></td><td>252.7<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(618.1, 677.2)</td><td>(447.0, 521.6)</td><td>(216.8, 252.7)</td><td>(252.7, 252.7)</td><td>(252.7, 252.7)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left">Log Likelihood</td><td>-4,404.6</td><td>-5,012.9</td><td>-3,075.4</td><td>-3,075.4</td><td>-3,075.4</td><td>-3,075.4</td></tr>

```

```
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>9,743.2</td><td>10,959.7</td><td>7,084.8</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">
## </table>
```

```
stargazer::stargazer(glmMatched7_s, glmMatched8_s, glmMatched9_s, glmMatched10_s, glmMatched10a_s, glmMatched10b_s,
  title="Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health", "Pharmacy"),
  out = "table2s.htm")
```

```
##
## <table style="text-align:center"><caption><strong>Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcount_er</td><td>logcount_hosp</td><td>logcount_pcp</td><td>logcount_spec</td></tr>
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Specialist</td></tr>
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td></tr>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">
## <tr><td style="text-align:left"></td><td>(-3.5, -1.7)</td><td>(-0.7, -0.2)</td><td>(-3.3, -1.3)</td><td>(-2.1, -0.8)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">age</td><td>-0.01</td><td>-0.02<sup>***</sup></td><td>-0.1<sup>***</sup></td><td>-0.2<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-0.1, 0.03)</td><td>(-0.03, -0.01)</td><td>(-0.1, -0.04)</td><td>(-0.2, -0.05)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">female</td><td>-0.6</td><td>-0.5<sup>*</sup></td><td>0.6</td><td>-0.4</td><td>-0.3</td></tr>
## <tr><td style="text-align:left"></td><td>(-2.0, 0.7)</td><td>(-0.8, -0.1)</td><td>(-0.9, 2.2)</td><td>(-1.1, 0.6)</td><td>(-1.2, 0.5)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">mm</td><td>-0.03</td><td>-0.01</td><td>-0.2<sup>***</sup></td><td>0.1<sup>***</sup></td><td>0.2<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-0.1, 0.01)</td><td>(-0.02, 0.001)</td><td>(-0.3, -0.2)</td><td>(-0.1, 0.0)</td><td>(-0.2, 0.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">hcc</td><td>12.7<sup>***</sup></td><td>4.0<sup>***</sup></td><td>21.1<sup>***</sup></td><td>18.8<sup>***</sup></td><td>15.3<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(10.2, 15.3)</td><td>(3.3, 4.6)</td><td>(18.8, 24.4)</td><td>(16.5, 21.1)</td><td>(14.0, 17.6)</td></tr>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">
## <tr><td style="text-align:left">Log Likelihood</td><td>2,348.9</td><td>6,177.1</td><td>2,053.6</td><td>2,053.6</td><td>2,053.6</td></tr>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>-3,763.8</td><td>-11,420.1</td><td>-3,173.8</td><td>-3,173.8</td><td>-3,173.8</td></tr>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">
## </table>
```

```
stargazer::stargazer(glmMatched11_s, glmMatched11b_s, glmMatched11c_s, glmMatched5c_s, glmMatched5ca_s, glmMatched5cb_s,
  title="Cost per Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health", "Pharmacy"),
  out = "table3s.htm")
```



```
##
## <table style="text-align:center"><caption><strong>Cost per Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_per_er</td><td>logcost_per_hosp</td><td>logcost_per
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Spe
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left"></td><td>(7.1, 18.6)</td><td>(209.6, 243.1)</td><td>(17.9, 23.2)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">age</td><td>-0.01</td><td>-0.5</td><td>0.1</td><td>-0.01</td><td>0.1</td>
## <tr><td style="text-align:left"></td><td>(-0.3, 0.3)</td><td>(-1.3, 0.3)</td><td>(-0.04, 0.2)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">female</td><td>-31.8<sup>***</sup></td><td>-12.2</td><td>-8.1<sup>***</sup></td>
## <tr><td style="text-align:left"></td><td>(-40.6, -23.0)</td><td>(-38.1, 13.7)</td><td>(-12.1, -4.1)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">mm</td><td>0.5<sup>***</sup></td><td>-0.4</td><td>-0.1</td><td>-0.2</td><td>-0.2</td>
## <tr><td style="text-align:left"></td><td>(0.2, 0.7)</td><td>(-1.1, 0.3)</td><td>(-0.2, 0.04)</td><td>-0.2</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">hcc</td><td>0.6</td><td>44.1</td><td>1.8</td><td>4.4</td><td>86.5<sup>***</sup></td>
## <tr><td style="text-align:left"></td><td>(-16.1, 17.4)</td><td>(-7.0, 95.1)</td><td>(-5.7, 9.3)</td><td>-1.1</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## <tr><td style="text-align:left">Log Likelihood</td><td>-2,888.0</td><td>-5,818.4</td><td>-682.6</td><td>-1,111.1</td>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>6,710.0</td><td>12,570.8</td><td>2,299.3</td><td>4,444.4</td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"
## </table>
```

```
save.image("onemedical.RData")
```

alternative control group of non-spaceX members to compare OM-SpaceX users

```
clm_alt = clm_tot %>%
  filter(om_flag==1)

clm_cont = read_csv("spacex_controls.csv")

clm_dol2 = clm_cont
clm_dol2$`Metaclaims Analytics Medical Allowed Amount` = as.numeric(gsub("[\\$,]", "", clm_dol2$`Metaclaims Analytics Medical Allowed Amount`))
clm_dol2$`Metaclaims Analytics Medical First Name` = str_to_title(clm_dol2$`Metaclaims Analytics Medical First Name`)
clm_dol2$`Metaclaims Analytics Medical Last Name` = str_to_title(clm_dol2$`Metaclaims Analytics Medical Last Name`)

clm_sub2 = clm_dol2 %>%
  mutate(personid = (`Metaclaims Analytics Medical Person ID`),
         female = (`Metaclaims Analytics Medical Gender`=="F"),
         firstname = `Metaclaims Analytics Medical First Name`,
         lastname = `Metaclaims Analytics Medical Last Name`,
         pos = `Metaclaims Analytics Medical Service Category Detail`,
         dos = `Metaclaims Analytics Medical Service Date Start Date`,
         om_flag = ((`Metaclaims Analytics Medical Billing Prov Bill ID`=="460695495")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="460741732")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="362169147")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="460741732")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="362169147")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="460695495"))
```

```

((`Metaclaims Analytics Medical Billing Prov Bill ID`=="814542216")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="383906267")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="471708588")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="271346767")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="911942315")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="812141065")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="452282261")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="273009385")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="812980907")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="270243800")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="020619758")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="461773122")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="800925565")&(`Metaclaims Analytics Medical Billing Prov Bill ID`=="800925565")&(`Metaclaims Analytics Medical Procedure Code`=="99201")|
  (`Metaclaims Analytics Medical Procedure Code`=="99202")|
  (`Metaclaims Analytics Medical Procedure Code`=="99203")|
  (`Metaclaims Analytics Medical Procedure Code`=="99204")|
  (`Metaclaims Analytics Medical Procedure Code`=="99205")|
  (`Metaclaims Analytics Medical Procedure Code`=="99211")|
  (`Metaclaims Analytics Medical Procedure Code`=="99212")|
  (`Metaclaims Analytics Medical Procedure Code`=="99213")|
  (`Metaclaims Analytics Medical Procedure Code`=="99214")|
  (`Metaclaims Analytics Medical Procedure Code`=="99215")),
diag1 = (`Metaclaims Analytics Medical Principal Diag`),
cost_md = (`Metaclaims Analytics Medical Allowed Amount`) %>%
filter(dos<="2019-07-01")

clm_sub2 = clm_sub2 %>%
  group_by(firstname, lastname, female) %>%
  # filter(any(em_flag==1)) %>%
  summarise(om_flag = getmode(om_flag[em_flag==1]),
    diag1 = getmode(diag1),
    count_drugadmin = sum((pos=="Administered drug inc Chemo")|(pos=="Administration of drug")),
    cost_drugadmin = sum(cost_md[(pos=="Administered drug inc Chemo")|(pos=="Administration of drug")]),
    cost_per_drugadmin = mean(cost_md[(pos=="Administered drug inc Chemo")|(pos=="Administration of drug")]),
    count_surg = sum((pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery")|(pos=="Surgical Services")),
    cost_surg = sum(cost_md[(pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery")|(pos=="Surgical Services")]),
    cost_per_surg = mean(cost_md[(pos=="Anesthesia")|(pos=="Outpatient Surgery")|(pos=="Surgery")|(pos=="Surgical Services")]),
    count_maternity = sum(pos=="Labor and Delivery" | pos=="Newborns"),
    cost_maternity = sum(cost_md[(pos=="Labor and Delivery" | pos=="Newborns")]),
    cost_per_maternity = mean(cost_md[(pos=="Labor and Delivery" | pos=="Newborns")], na.rm=T),
    count_labs = sum(pos=="Lab Pathology" | pos=="Pathology Lab"),
    cost_labs = sum(cost_md[(pos=="Lab Pathology" | pos=="Pathology Lab")]),
    cost_per_labs = mean(cost_md[(pos=="Lab Pathology" | pos=="Pathology Lab")], na.rm=T),
    count_er = sum(pos=="Emergency Room"),
    cost_er = sum(cost_md[pos=="Emergency Room"]),
    cost_per_er = mean(cost_md[pos=="Emergency Room"], na.rm=T),
    count_rads = sum(pos=="Radiology"),
    cost_rads = sum(cost_md[pos=="Radiology"]),
    cost_per_rads = mean(cost_md[pos=="Radiology"], na.rm=T),

```

```

count_hosp = sum(pos=="Inpatient Visits"|pos=="Medical"),
cost_hosp = sum(cost_md[pos=="Inpatient Visits"|pos=="Medical"]),
cost_per_hosp = mean(cost_md[pos=="Inpatient Visits"|pos=="Medical"],na.rm=T),
count_pcp = sum(((pos=="Office Visits - PCP")|(pos=="Preventive Visits - PCP"))),
cost_pcp = sum((cost_md[(pos=="Office Visits - PCP"|pos=="Preventive Visits - PCP")])),
cost_per_pcp = mean((cost_md[(pos=="Office Visits - PCP"|pos=="Preventive Visits - PCP")])),
count_spec = sum((pos=="Office Visits - Specialist")|(pos=="Preventive Visits - Specialist")),
cost_spec = sum((cost_md[(pos=="Office Visits - Specialist"|pos=="Preventive Visits - Specialist")])),
cost_per_spec = mean((cost_md[(pos=="Office Visits - Specialist"|pos=="Preventive Visits - Specialist")])),
count_mh = sum(pos=="Mental Health and Substance Use" | pos=="Psychiatry"),
cost_mh = sum(cost_md[(pos=="Mental Health and Substance Use" | pos=="Psychiatry")]),
cost_per_mh = mean(cost_md[(pos=="Mental Health and Substance Use" | pos=="Psychiatry")], na.rm=T),
count_pt = sum(pos=="Physical Medicine"),
cost_pt = sum(cost_md[(pos=="Physical Medicine")]),
cost_per_pt = mean(cost_md[(pos=="Physical Medicine")], na.rm=T),
cost_other = sum(cost_md[(pos!="Administration of drug inc Chemo")|(pos!="Administration of drug inc Chemo")]),
cost_md = sum(cost_md[(pos!="Administration of drug inc Chemo")|(pos!="Administration of drug inc Chemo")]),
select(firstname,lastname, female,om_flag,diag1,cost_md,count_er,cost_er,count_hosp,cost_hosp,count_pcp),
filter(!any(om_flag)==1) %>%
ungroup()
clm_sub2$female[is.na(clm_sub2$female)==1]=0

clm_tot2 = bind_rows(clm_alt,clm_sub2)

mbr_alt = read_csv("spacex_controls_mbr.csv")

mbr_sub2 = mbr_alt %>%
  filter(str_detect(`Analytics Member Months Current Postal Code`,`9$")==T)
mbr_sub2$`Analytics Member Months First Name` = str_to_title(mbr_sub2$`Analytics Member Months First Name`)
mbr_sub2$`Analytics Member Months Last Name` = str_to_title(mbr_sub2$`Analytics Member Months Last Name`)

mbr_sub2 = mbr_sub2 %>%
  mutate(personid = `Analytics Member Months Person ID`) %>%
  group_by(personid) %>%
  mutate(start = min(`Analytics Member Months Start Date`),
         end = max(`Analytics Member Months End Date`),
         age = mean(`Analytics Member Months Age`),
         female = (`Analytics Member Months Gender`=='F'),
         firstname = `Analytics Member Months First Name`,
         lastname = `Analytics Member Months Last Name`,
         membermo = interval(start,end)/months(1),
         DOB = `Analytics Member Months Date of Birth Date`,
         zip = as.factor(`Analytics Member Months Current Postal Code`)) %>%
  select(age, female, personid, firstname, lastname, membermo, DOB, zip) %>%
  distinct()

mbr_sub2 = bind_rows(mbr_sub,mbr_sub2)

rx_alt = read_csv("spacex_controls_rx.csv")

rx_dol2 = rx_alt

```

```

rx_dol2$`Analytics Claims Pharmacy Allowed Amount` = as.numeric(gsub("[\\$,]", "", rx_dol2$`Analytics C
rx_dol2$`Analytics Claims Pharmacy First Name` = str_to_title(rx_dol2$`Analytics Claims Pharmacy First
rx_dol2$`Analytics Claims Pharmacy Last Name` = str_to_title(rx_dol2$`Analytics Claims Pharmacy Last Na

rx_alt = rx_dol2 %>%
  mutate(personid = `Analytics Claims Pharmacy Person ID`) %>%
  group_by(personid) %>%
  mutate(female = (`Analytics Claims Pharmacy Gender`=="F"),
         firstname = `Analytics Claims Pharmacy First Name`,
         lastname = `Analytics Claims Pharmacy Last Name`,
         cost_rx = sum(`Analytics Claims Pharmacy Allowed Amount`)) %>%
  select(female, personid, firstname, lastname, cost_rx) %>%
  distinct()
rx_sub2 = rbind(rx_sub, rx_alt)

rx_sub2 = bind_rows(rx_sub, rx_sub2)

spacex_dat2 = mbr_sub2 %>%
  full_join(clm_tot2, by = c("firstname", "lastname", "female")) %>%
  full_join(rx_sub2, by = c("firstname", "lastname", "female")) %>%
  mutate(om_flag = replace_na(om_flag, 0)) %>%
  distinct()

PERSON2 = spacex_dat2 %>%
  ungroup() %>%
  mutate(HICNO = personid.x,
         SEX = if_else(female==1, "F", "M"),
         DOB = DOB,
         MCAID = 0,
         NMCAID = 0,
         OREC = 0) %>%
  select(HICNO, SEX, MCAID, NMCAID, OREC, DOB) %>%
  filter(!is.na(HICNO))

cmshcc_map <- load_cmshcc_map()

clm2 <- rbind(clm, clm_cont)

clm_hcc2 = clm2 %>%
  mutate(HICNO = (`Metaclaims Analytics Medical Person ID`),
         diag1 = `Metaclaims Analytics Medical Principal Diag`,
         diag2 = `Metaclaims Analytics Medical Diag02`,
         diag3 = `Metaclaims Analytics Medical Diag03`,
         diag4 = `Metaclaims Analytics Medical Diag04`,
         diag5 = `Metaclaims Analytics Medical Diag05`,
         diag6 = `Metaclaims Analytics Medical Diag06`,
         diag7 = `Metaclaims Analytics Medical Diag07`,
         diag8 = `Metaclaims Analytics Medical Diag08`,
         diag9 = `Metaclaims Analytics Medical Diag09`,
         diag10 = `Metaclaims Analytics Medical Diag10`) %>%
  gather(Diag, DX, diag1:diag10, factor_key=T) %>%
  select(HICNO, DX) %>%

```

```

arrange(HICNO) %>%
filter(!is.na(HICNO), !is.na(DX)) %>%
distinct()

DIAG2 = bind_rows(clm_hcc2, ctr_hcc)

hcc2 = evaluate_v22_2017(PERSON2, DIAG2, "Community_NonDual_Aged")

spacex_dat_ana2 = mbr_sub2 %>%
  full_join(clm_tot2, by = c("firstname", "lastname", "female")) %>%
  full_join(rx_sub2, by = c("firstname", "lastname", "female")) %>%
  full_join(hcc2, by = c("personid.x" = "HICNO")) %>%
  left_join(ccs, c("diag1")) %>%
  distinct() %>%
  filter(!is.na(personid.x)) %>%
  mutate(mm = membermo,
         om_flag = replace_na(om_flag, 0),
         cost_md = replace_na(cost_md, 0),
         count_er = replace_na(count_er, 0),
         cost_er = replace_na(cost_er, 0),
         count_hosp = replace_na(count_hosp, 0),
         cost_hosp = replace_na(cost_hosp, 0),
         count_pcp = replace_na(count_pcp, 0),
         cost_pcp = replace_na(cost_pcp, 0),
         count_spec = replace_na(count_spec, 0),
         cost_spec = replace_na(cost_spec, 0),
         count_mh = replace_na(count_mh, 0),
         count_pt = replace_na(count_pt, 0),
         cost_pt = replace_na(cost_pt, 0),
         cost_mh = replace_na(cost_mh, 0),
         cost_rx = replace_na(cost_rx, 0),
         cost_md = (cost_md + cost_rx) / mm,
         cost_rx = (cost_rx) / mm,
         cost_er = (cost_er) / mm,
         cost_hosp = (cost_hosp) / mm,
         cost_pcp = (cost_pcp) / mm,
         cost_spec = (cost_spec) / mm,
         cost_mh = (cost_mh) / mm,
         cost_pt = (cost_pt) / mm,
         count_er = (count_er) / mm,
         count_hosp = (count_hosp) / mm,
         count_pcp = (count_pcp) / mm,
         count_spec = (count_spec) / mm,
         count_mh = (count_mh) / mm,
         count_pt = (count_pt) / mm,
         count_drugadmin = (count_drugadmin) / mm,
         cost_drugadmin = (cost_drugadmin) / mm,
         count_surg = (count_surg) / mm,
         cost_surg = (cost_surg) / mm,
         count_maternity = (count_maternity) / mm,
         cost_maternity = (cost_maternity) / mm,
         count_labs = (count_labs) / mm,

```

```

cost_labs = (cost_labs)/mm,
count_rads = (count_rads)/mm,
cost_rads = (cost_rads)/mm,
count_drugadmin = replace_na(count_drugadmin,0),
cost_drugadmin = replace_na(cost_drugadmin,0),
count_surg = replace_na(count_surg,0),
cost_surg = replace_na(cost_surg,0),
count_maternity = replace_na(count_maternity,0),
cost_maternity = replace_na(cost_maternity,0),
count_labs = replace_na(count_labs,0),
cost_labs = replace_na(cost_labs, 0),
count_rads = replace_na(count_rads, 0),
cost_rads = replace_na(cost_rads,0),
Community_NonDual_Aged = replace_na(Community_NonDual_Aged,0),
hcc = Community_NonDual_Aged,
ccs = replace_na(ccs,0),
mm = membermo,
ccs = as.factor(ccs),
zip = as.factor(zip))

```

```

spacex_dat_ana2$cost_md[spacex_dat_ana2$om_flag==1] = membership_pmpm + spacex_dat_ana2$cost_md[spacex_

```

```

summary(spacex_dat_ana2)

```

```

##      age      female      personid.x      firstname
## Min.   : 0.00   Mode :logical   Min.   :169771   Length:33630
## 1st Qu.:17.71   FALSE:20023   1st Qu.:227614   Class :character
## Median :28.50   TRUE :13607   Median :315652   Mode  :character
## Mean   :27.91                      Mean   :382908
## 3rd Qu.:37.00                      3rd Qu.:517105
## Max.   :85.50                      Max.   :848901
##
##      lastname      membermo      DOB
## Length:33630      Min.   : 0.4194   Min.   :1933-01-29
## Class :character   1st Qu.:11.9677   1st Qu.:1980-08-16
## Mode  :character   Median :23.9677   Median :1989-02-11
##                      Mean   :26.0793   Mean   :1989-11-19
##                      3rd Qu.:40.9677   3rd Qu.:1999-12-21
##                      Max.   :47.9677   Max.   :2019-08-12
##
##      zip      om_flag      diag1
## Length:33630   Min.   :0.00000   Length:33630
## Class :character 1st Qu.:0.00000   Class :character
## Mode  :character Median :0.00000   Mode  :character
##                      Mean   :0.06343
##                      3rd Qu.:0.00000
##                      Max.   :1.00000
##
##      cost_md      count_er      cost_er
## Min.   :      0.00   Min.   : 0.00000   Min.   :      0.00
## 1st Qu.:      0.00   1st Qu.: 0.00000   1st Qu.:      0.00
## Median :      3.53   Median : 0.00000   Median :      0.00

```

```

## Mean      : 250.77      Mean      : 0.03125      Mean      : 10.74
## 3rd Qu.:   71.34      3rd Qu.: 0.00000      3rd Qu.:   0.00
## Max.     :124161.41    Max.     :20.66667      Max.     :4257.32
##
##      count_hosp      cost_hosp      count_pcp
## Min.     :0.000000    Min.      : 0.00      Min.     : 0.00000
## 1st Qu.:0.000000    1st Qu.:   0.00      1st Qu.: 0.00000
## Median :0.000000    Median     : 0.00      Median : 0.00000
## Mean      :0.003495    Mean       : 8.49      Mean     : 0.06926
## 3rd Qu.:0.000000    3rd Qu.:   0.00      3rd Qu.: 0.00000
## Max.     :5.904762    Max.      :60969.26    Max.     :12.40000
##
##      cost_pcp      count_spec      cost_spec      count_mh
## Min.      : 0.00    Min.      : 0.00000    Min.      : 0.000    Min.      :0.00000
## 1st Qu.:   0.00    1st Qu.: 0.00000    1st Qu.:   0.000    1st Qu.:0.00000
## Median :   0.00    Median : 0.00000    Median :   0.000    Median :0.00000
## Mean      : 10.23    Mean      : 0.03415    Mean      : 4.156    Mean      :0.01577
## 3rd Qu.:   0.00    3rd Qu.: 0.00000    3rd Qu.:   0.000    3rd Qu.:0.00000
## Max.     :1421.17    Max.      :10.18182    Max.      :1512.731    Max.      :9.67273
##
##      cost_mh      count_pt      cost_pt
## Min.      : 0.000    Min.      : 0.0000    Min.      : 0.000
## 1st Qu.:   0.000    1st Qu.: 0.0000    1st Qu.:   0.000
## Median :   0.000    Median : 0.0000    Median :   0.000
## Mean      : 2.866    Mean      : 0.1024    Mean      : 4.508
## 3rd Qu.:   0.000    3rd Qu.: 0.0000    3rd Qu.:   0.000
## Max.     :2039.489    Max.      :53.5761    Max.      :2255.479
##
##      count_drugadmin      cost_drugadmin      count_surg
## Min.      : 0.00000    Min.      : 0.000    Min.      : 0.00000
## 1st Qu.: 0.00000    1st Qu.: 0.000    1st Qu.: 0.00000
## Median : 0.00000    Median : 0.000    Median : 0.00000
## Mean      : 0.03306    Mean      : 4.084    Mean      : 0.03303
## 3rd Qu.: 0.00000    3rd Qu.: 0.000    3rd Qu.: 0.00000
## Max.     :20.55526    Max.      :10442.604    Max.      :28.97826
##
##      cost_surg      count_maternity      cost_maternity
## Min.      : 0.00    Min.      :0.0000000    Min.      : 0.000
## 1st Qu.: 0.00    1st Qu.:0.0000000    1st Qu.: 0.000
## Median : 0.00    Median :0.0000000    Median : 0.000
## Mean      : 26.12    Mean      :0.0003532    Mean      : 4.421
## 3rd Qu.: 0.00    3rd Qu.:0.0000000    3rd Qu.: 0.000
## Max.     :22297.75    Max.      :0.6684636    Max.      :10958.036
##
##      count_labs      cost_labs      count_rads
## Min.      : 0.0000    Min.      : 0.000    Min.      : 0.00000
## 1st Qu.: 0.0000    1st Qu.: 0.000    1st Qu.: 0.00000
## Median : 0.0000    Median : 0.000    Median : 0.00000
## Mean      : 0.1658    Mean      : 6.358    Mean      : 0.02842
## 3rd Qu.: 0.0000    3rd Qu.: 0.000    3rd Qu.: 0.00000
## Max.     :39.2667    Max.      :2570.304    Max.      :12.42510
##
##      cost_rads      cost_per_drugadmin      cost_per_surg
## Min.      : 0.000    Min.      : 0.00    Min.      : 0.00

```



```

## 1st Qu.: 0.000 1st Qu.: 24.36 1st Qu.: 87.76
## Median : 0.000 Median : 37.90 Median : 186.08
## Mean : 8.378 Mean : 88.13 Mean : 511.40
## 3rd Qu.: 0.000 3rd Qu.: 74.50 3rd Qu.: 478.07
## Max. :23669.401 Max. :5557.10 Max. :51705.00
## NA's :29478 NA's :30260
## cost_per_maternity cost_per_labs cost_per_er cost_per_rads
## Min. : 0 Min. : 0.00 Min. : 0.0 Min. : 0.00
## 1st Qu.: 3760 1st Qu.: 12.74 1st Qu.: 204.1 1st Qu.: 47.84
## Median :11652 Median : 20.26 Median : 336.6 Median : 123.76
## Mean :14110 Mean : 38.52 Mean : 398.2 Mean : 210.68
## 3rd Qu.:18323 3rd Qu.: 38.57 3rd Qu.: 507.7 3rd Qu.: 246.32
## Max. :40910 Max. :3335.95 Max. :3377.4 Max. :5167.47
## NA's :33507 NA's :27087 NA's :32185 NA's :29886
## cost_per_hosp cost_per_pcp cost_per_spec cost_per_mh
## Min. : 0.0 Min. : 0.0 Min. : 0.00 Min. : 0.00
## 1st Qu.: 144.0 1st Qu.:113.3 1st Qu.: 88.97 1st Qu.: 88.83
## Median : 240.5 Median :151.0 Median :114.76 Median : 148.30
## Mean : 2555.9 Mean :164.2 Mean :132.07 Mean : 212.62
## 3rd Qu.: 3243.6 3rd Qu.:197.5 3rd Qu.:157.73 3rd Qu.: 192.50
## Max. :36152.9 Max. :666.7 Max. :678.62 Max. :6656.00
## NA's :33262 NA's :25264 NA's :28620 NA's :32404
## cost_per_pt ctr_flag personid.y cost_rx
## Min. : 0.00 Mode :logical Min. : 1021 Min. : 0.00
## 1st Qu.: 25.01 FALSE:1168 1st Qu.:226642 1st Qu.: 0.00
## Median : 41.81 TRUE :965 Median :267699 Median : 0.98
## Mean : 53.98 NA's :31497 Mean :363622 Mean : 60.36
## 3rd Qu.: 69.90 3rd Qu.:496025 3rd Qu.: 10.81
## Max. :841.11 Max. :846140 Max. :83586.29
## NA's :31405 NA's :12660
## Community_NonDual_Aged ccs mm
## Min. :0.00000 Length:33630 Min. : 0.4194
## 1st Qu.:0.00000 Class :character 1st Qu.:11.9677
## Median :0.00000 Mode :character Median :23.9677
## Mean :0.08493 Mean :26.0793
## 3rd Qu.:0.00000 3rd Qu.:40.9677
## Max. :9.53700 Max. :47.9677
##
## hcc
## Min. :0.00000
## 1st Qu.:0.00000
## Median :0.00000
## Mean :0.08493
## 3rd Qu.:0.00000
## Max. :9.53700
##

```

```
spacex_dat_cov <- c('age', 'female', 'mm', 'membermo', 'hcc', 'ccs', 'diag1', 'zip')
```

```
tempData2 = mice(spacex_dat_ana2, m = 1, maxit = 1, meth = 'cart', seed = 1)
```

```

##
## iter imp variable
## 1 1 cost_per_drugadmin cost_per_surg cost_per_maternity cost_per_labs cost_per_er cost_per

```



```
spacex_dat_nomiss2 <- as.data.frame(complete(tempData2,1))
summary(spacex_dat_nomiss2)
```

```
##      age      female      personid.x      firstname
## Min.   : 0.00    Mode :logical    Min.   :169771    Length:33630
## 1st Qu.:17.71    FALSE:20023      1st Qu.:227614    Class :character
## Median :28.50    TRUE :13607      Median :315652    Mode  :character
## Mean   :27.91
## 3rd Qu.:37.00
## Max.   :85.50
##      lastname      membermo      DOB
## Length:33630      Min.   : 0.4194    Min.   :1933-01-29
## Class :character    1st Qu.:11.9677    1st Qu.:1980-08-16
## Mode  :character    Median :23.9677    Median :1989-02-11
##                      Mean   :26.0793    Mean   :1989-11-19
##                      3rd Qu.:40.9677    3rd Qu.:1999-12-21
##                      Max.   :47.9677    Max.   :2019-08-12
##      zip      om_flag      diag1
## Length:33630      Min.   :0.00000    Length:33630
## Class :character    1st Qu.:0.00000    Class :character
## Mode  :character    Median :0.00000    Mode  :character
##                      Mean   :0.06343
##                      3rd Qu.:0.00000
##                      Max.   :1.00000
##      cost_md      count_er      cost_er
## Min.   : 0.00      Min.   : 0.00000      Min.   : 0.00
## 1st Qu.: 0.00      1st Qu.: 0.00000      1st Qu.: 0.00
## Median : 3.53      Median : 0.00000      Median : 0.00
## Mean   : 250.77      Mean   : 0.03125      Mean   : 10.74
## 3rd Qu.: 71.34      3rd Qu.: 0.00000      3rd Qu.: 0.00
## Max.   :124161.41      Max.   :20.66667      Max.   :4257.32
##      count_hosp      cost_hosp      count_pcp
## Min.   :0.000000      Min.   : 0.00      Min.   : 0.00000
## 1st Qu.:0.000000      1st Qu.: 0.00      1st Qu.: 0.00000
## Median :0.000000      Median : 0.00      Median : 0.00000
## Mean   :0.003495      Mean   : 8.49      Mean   : 0.06926
## 3rd Qu.:0.000000      3rd Qu.: 0.00      3rd Qu.: 0.00000
## Max.   :5.904762      Max.   :60969.26      Max.   :12.40000
##      cost_pcp      count_spec      cost_spec      count_mh
## Min.   : 0.00      Min.   : 0.00000      Min.   : 0.000      Min.   :0.00000
## 1st Qu.: 0.00      1st Qu.: 0.00000      1st Qu.: 0.000      1st Qu.:0.00000
## Median : 0.00      Median : 0.00000      Median : 0.000      Median :0.00000
## Mean   : 10.23      Mean   : 0.03415      Mean   : 4.156      Mean  :0.01577
## 3rd Qu.: 0.00      3rd Qu.: 0.00000      3rd Qu.: 0.000      3rd Qu.:0.00000
## Max.   :1421.17      Max.   :10.18182      Max.   :1512.731      Max.   :9.67273
##      cost_mh      count_pt      cost_pt
## Min.   : 0.000      Min.   : 0.0000      Min.   : 0.000
## 1st Qu.: 0.000      1st Qu.: 0.0000      1st Qu.: 0.000
## Median : 0.000      Median : 0.0000      Median : 0.000
## Mean   : 2.866      Mean   : 0.1024      Mean   : 4.508
## 3rd Qu.: 0.000      3rd Qu.: 0.0000      3rd Qu.: 0.000
## Max.   :2039.489      Max.   :53.5761      Max.   :2255.479
##      count_drugadmin      cost_drugadmin      count_surg
```

```

## Min. : 0.00000 Min. : 0.000 Min. : 0.00000
## 1st Qu.: 0.00000 1st Qu.: 0.000 1st Qu.: 0.00000
## Median : 0.00000 Median : 0.000 Median : 0.00000
## Mean : 0.03306 Mean : 4.084 Mean : 0.03303
## 3rd Qu.: 0.00000 3rd Qu.: 0.000 3rd Qu.: 0.00000
## Max. :20.55526 Max. :10442.604 Max. :28.97826
## cost_surg count_maternity cost_maternity
## Min. : 0.00 Min. :0.0000000 Min. : 0.000
## 1st Qu.: 0.00 1st Qu.:0.0000000 1st Qu.: 0.000
## Median : 0.00 Median :0.0000000 Median : 0.000
## Mean : 26.12 Mean :0.0003532 Mean : 4.421
## 3rd Qu.: 0.00 3rd Qu.:0.0000000 3rd Qu.: 0.000
## Max. :22297.75 Max. :0.6684636 Max. :10958.036
## count_labs cost_labs count_rads
## Min. : 0.0000 Min. : 0.000 Min. : 0.00000
## 1st Qu.: 0.0000 1st Qu.: 0.000 1st Qu.: 0.00000
## Median : 0.0000 Median : 0.000 Median : 0.00000
## Mean : 0.1658 Mean : 6.358 Mean : 0.02842
## 3rd Qu.: 0.0000 3rd Qu.: 0.000 3rd Qu.: 0.00000
## Max. :39.2667 Max. :2570.304 Max. :12.42510
## cost_rads cost_per_drugadmin cost_per_surg
## Min. : 0.000 Min. : 0.000 Min. : 0.00
## 1st Qu.: 0.000 1st Qu.: 0.140 1st Qu.: 0.00
## Median : 0.000 Median : 1.740 Median : 50.52
## Mean : 8.378 Mean : 13.759 Mean : 99.71
## 3rd Qu.: 0.000 3rd Qu.: 6.917 3rd Qu.: 99.73
## Max. :23669.401 Max. :5557.095 Max. :51705.00
## cost_per_maternity cost_per_labs cost_per_er cost_per_rads
## Min. : 0 Min. : 0.000 Min. : 0.0 Min. : 0.00
## 1st Qu.: 8456 1st Qu.: 1.155 1st Qu.: 274.8 1st Qu.: 0.00
## Median :12760 Median : 6.130 Median : 274.8 Median : 10.61
## Mean :10871 Mean : 12.906 Mean : 270.1 Mean : 30.88
## 3rd Qu.:14626 3rd Qu.: 15.980 3rd Qu.: 274.8 3rd Qu.: 15.81
## Max. :40910 Max. :3335.953 Max. :3377.4 Max. :5167.47
## cost_per_hosp cost_per_pcp cost_per_spec cost_per_mh
## Min. : 0.0 Min. : 0.00 Min. : 0.00 Min. : 0.00
## 1st Qu.: 108.1 1st Qu.: 0.00 1st Qu.: 0.00 1st Qu.: 0.00
## Median : 164.2 Median : 0.00 Median : 0.00 Median : 0.00
## Mean : 201.0 Mean : 41.30 Mean : 19.68 Mean : 8.61
## 3rd Qu.: 219.7 3rd Qu.: 22.09 3rd Qu.: 0.00 3rd Qu.: 0.00
## Max. :36152.9 Max. :666.73 Max. :678.62 Max. :6656.00
## cost_per_pt ctr_flag personid.y cost_rx
## Min. : 0.000 Min. :0.0000 Min. : 1021 Min. : 0.00
## 1st Qu.: 0.000 1st Qu.:0.0000 1st Qu.:228681 1st Qu.: 0.00
## Median : 0.000 Median :0.0000 Median :335544 Median : 0.98
## Mean : 5.258 Mean :0.4507 Mean :399448 Mean : 60.36
## 3rd Qu.: 0.000 3rd Qu.:1.0000 3rd Qu.:539276 3rd Qu.: 10.81
## Max. :841.113 Max. :1.0000 Max. :846140 Max. :83586.29
## Community_NonDual_Aged ccs mm
## Min. :0.00000 Length:33630 Min. : 0.4194
## 1st Qu.:0.00000 Class :character 1st Qu.:11.9677
## Median :0.00000 Mode :character Median :23.9677
## Mean :0.08493 Mean :26.0793
## 3rd Qu.:0.00000 3rd Qu.:40.9677

```

```
## Max.      :9.53700          Max.      :47.9677
##      hcc
## Min.      :0.00000
## 1st Qu.:0.00000
## Median :0.00000
## Mean     :0.08493
## 3rd Qu.:0.00000
## Max.     :9.53700
```

```
spacex_dat_nomiss2 = spacex_dat_nomiss2 %>%
  mutate(diag1=replace_na(diag1,0),
         zip = replace_na(zip,0),
         ccs = replace_na(ccs,0))

spacex_dat_nomiss2 = as.data.frame(spacex_dat_nomiss2)

start_time <- Sys.time()

set.seed(1)
mod_match2 <- matchit(om_flag ~ age + female + ccs + hcc + mm ,
                     method = "nearest", data = spacex_dat_nomiss2, caliper = .10)
end_time <- Sys.time()

end_time - start_time
```

```
## Time difference of 37.54276 secs
```

```
mod_match2
```

```
##
## Call:
## matchit(formula = om_flag ~ age + female + ccs + hcc + mm, data = spacex_dat_nomiss2,
## method = "nearest", caliper = 0.1)
##
## Sample sizes:
##           Control Treated
## All           31497     2133
## Matched           1679     1679
## Unmatched        29818      454
## Discarded           0         0
```

```
dta_m2 <- match.data(mod_match2)
dim(dta_m2)
```

```
## [1] 3358   53
```

```
dta_m2 %>%
  group_by(om_flag) %>%
  select(one_of(spacex_dat_cov)) %>%
  summarise_all(funs(mean))
```

```
## # A tibble: 2 x 9
##   om_flag age female mm membermo hcc ccs diag1 zip
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1     0 30.1 0.177 31.3 31.3 0.0741 NA NA NA
## 2     1 30.5 0.182 31.4 31.4 0.0794 NA NA NA
```

```
print(CreateTableOne(vars = c("age", "female", "hcc", "mm", "ccs", "zip"), strata = "om_flag", data = d
```

```
##           Stratified by om_flag
##           0           1           p           test SMD
##  n
##  age (mean (SD)) 30.10 (14.51) 30.50 (8.66) 0.337 0.033
##  female = TRUE (%) 298 (17.7) 305 (18.2) 0.787 0.011
##  hcc (mean (SD)) 0.07 (0.21) 0.08 (0.19) 0.443 0.027
##  mm (mean (SD)) 31.30 (14.58) 31.43 (14.43) 0.806 0.008
##  ccs (%) 1.000 0.223
##  0 2 (0.1) 0 (0.0)
##  10 216 (12.9) 220 (13.1)
##  102 17 (1.0) 20 (1.2)
##  106 13 (0.8) 14 (0.8)
##  117 2 (0.1) 3 (0.2)
##  122 0 (0.0) 1 (0.1)
##  123 8 (0.5) 7 (0.4)
##  124 2 (0.1) 3 (0.2)
##  125 9 (0.5) 9 (0.5)
##  126 39 (2.3) 44 (2.6)
##  127 1 (0.1) 2 (0.1)
##  128 5 (0.3) 6 (0.4)
##  133 16 (1.0) 14 (0.8)
##  134 22 (1.3) 15 (0.9)
##  137 4 (0.2) 2 (0.1)
##  138 0 (0.0) 1 (0.1)
##  140 2 (0.1) 2 (0.1)
##  141 2 (0.1) 3 (0.2)
##  142 1 (0.1) 1 (0.1)
##  143 4 (0.2) 5 (0.3)
##  147 3 (0.2) 2 (0.1)
##  151 3 (0.2) 3 (0.2)
##  154 4 (0.2) 4 (0.2)
##  155 17 (1.0) 14 (0.8)
##  156 0 (0.0) 1 (0.1)
##  158 2 (0.1) 1 (0.1)
##  159 8 (0.5) 8 (0.5)
##  160 2 (0.1) 3 (0.2)
##  163 23 (1.4) 25 (1.5)
##  164 0 (0.0) 1 (0.1)
##  165 4 (0.2) 3 (0.2)
##  166 11 (0.7) 8 (0.5)
##  167 4 (0.2) 7 (0.4)
##  168 3 (0.2) 2 (0.1)
##  171 6 (0.4) 6 (0.4)
##  175 1 (0.1) 2 (0.1)
##  176 12 (0.7) 7 (0.4)
##  181 0 (0.0) 1 (0.1)
```

##	196	4 (0.2)	3 (0.2)
##	197	5 (0.3)	8 (0.5)
##	198	10 (0.6)	7 (0.4)
##	2	2 (0.1)	1 (0.1)
##	200	21 (1.3)	27 (1.6)
##	202	0 (0.0)	1 (0.1)
##	203	2 (0.1)	1 (0.1)
##	204	78 (4.6)	77 (4.6)
##	205	77 (4.6)	98 (5.8)
##	209	4 (0.2)	4 (0.2)
##	211	55 (3.3)	55 (3.3)
##	212	15 (0.9)	14 (0.8)
##	213	1 (0.1)	2 (0.1)
##	225	4 (0.2)	5 (0.3)
##	229	6 (0.4)	4 (0.2)
##	23	1 (0.1)	1 (0.1)
##	230	4 (0.2)	3 (0.2)
##	232	33 (2.0)	32 (1.9)
##	234	1 (0.1)	1 (0.1)
##	235	4 (0.2)	5 (0.3)
##	236	10 (0.6)	10 (0.6)
##	239	10 (0.6)	8 (0.5)
##	240	1 (0.1)	1 (0.1)
##	244	9 (0.5)	6 (0.4)
##	245	2 (0.1)	3 (0.2)
##	246	5 (0.3)	8 (0.5)
##	247	2 (0.1)	2 (0.1)
##	250	7 (0.4)	7 (0.4)
##	251	31 (1.8)	27 (1.6)
##	252	18 (1.1)	16 (1.0)
##	253	16 (1.0)	9 (0.5)
##	255	4 (0.2)	4 (0.2)
##	256	435 (25.9)	431 (25.7)
##	257	0 (0.0)	1 (0.1)
##	258	27 (1.6)	25 (1.5)
##	259	18 (1.1)	20 (1.2)
##	29	0 (0.0)	1 (0.1)
##	4	11 (0.7)	10 (0.6)
##	44	2 (0.1)	2 (0.1)
##	47	10 (0.6)	10 (0.6)
##	48	5 (0.3)	4 (0.2)
##	49	13 (0.8)	16 (1.0)
##	5	0 (0.0)	1 (0.1)
##	50	2 (0.1)	1 (0.1)
##	51	6 (0.4)	4 (0.2)
##	53	6 (0.4)	6 (0.4)
##	54	0 (0.0)	2 (0.1)
##	55	2 (0.1)	2 (0.1)
##	58	8 (0.5)	9 (0.5)
##	59	1 (0.1)	3 (0.2)
##	6	1 (0.1)	1 (0.1)
##	62	3 (0.2)	3 (0.2)
##	650	7 (0.4)	9 (0.5)
##	651	27 (1.6)	32 (1.9)

##	652	10 (0.6)	9 (0.5)		
##	657	26 (1.5)	26 (1.5)		
##	660	12 (0.7)	7 (0.4)		
##	661	4 (0.2)	2 (0.1)		
##	670	1 (0.1)	1 (0.1)		
##	7	15 (0.9)	14 (0.8)		
##	81	1 (0.1)	1 (0.1)		
##	84	20 (1.2)	19 (1.1)		
##	87	2 (0.1)	3 (0.2)		
##	90	5 (0.3)	7 (0.4)		
##	91	8 (0.5)	7 (0.4)		
##	92	11 (0.7)	7 (0.4)		
##	93	11 (0.7)	15 (0.9)		
##	94	18 (1.1)	15 (0.9)		
##	95	11 (0.7)	12 (0.7)		
##	96	2 (0.1)	2 (0.1)		
##	98	28 (1.7)	19 (1.1)		
##	zip (%)			<0.001	2.426
##	00802	0 (0.0)	1 (0.1)		
##	01440	0 (0.0)	1 (0.1)		
##	01776	0 (0.0)	1 (0.1)		
##	02163	0 (0.0)	1 (0.1)		
##	02364	0 (0.0)	1 (0.1)		
##	02445	0 (0.0)	1 (0.1)		
##	04401	0 (0.0)	1 (0.1)		
##	06070	1 (0.1)	0 (0.0)		
##	06248	2 (0.1)	0 (0.0)		
##	07626	0 (0.0)	1 (0.1)		
##	07717	0 (0.0)	1 (0.1)		
##	07726	0 (0.0)	1 (0.1)		
##	07747	0 (0.0)	1 (0.1)		
##	08540	0 (0.0)	1 (0.1)		
##	08559	0 (0.0)	1 (0.1)		
##	08857	0 (0.0)	1 (0.1)		
##	10530	0 (0.0)	1 (0.1)		
##	11217	0 (0.0)	1 (0.1)		
##	11232	1 (0.1)	0 (0.0)		
##	11724	0 (0.0)	1 (0.1)		
##	11754	0 (0.0)	1 (0.1)		
##	11797	0 (0.0)	1 (0.1)		
##	12534	0 (0.0)	1 (0.1)		
##	13045	0 (0.0)	1 (0.1)		
##	14072	0 (0.0)	1 (0.1)		
##	14127	0 (0.0)	1 (0.1)		
##	15224	1 (0.1)	0 (0.0)		
##	18508	0 (0.0)	1 (0.1)		
##	19001	0 (0.0)	1 (0.1)		
##	19047	0 (0.0)	1 (0.1)		
##	19518	0 (0.0)	1 (0.1)		
##	20002	0 (0.0)	1 (0.1)		
##	20782	0 (0.0)	1 (0.1)		
##	20912	1 (0.1)	0 (0.0)		
##	21146	0 (0.0)	1 (0.1)		
##	22015	0 (0.0)	1 (0.1)		

##	22046	0 (0.0)	2 (0.1)
##	22101	1 (0.1)	0 (0.0)
##	22203	1 (0.1)	2 (0.1)
##	22556	0 (0.0)	1 (0.1)
##	27518	0 (0.0)	1 (0.1)
##	27707	1 (0.1)	0 (0.0)
##	28394	0 (0.0)	1 (0.1)
##	29707	0 (0.0)	1 (0.1)
##	30005	0 (0.0)	1 (0.1)
##	30011	1 (0.1)	0 (0.0)
##	30107	0 (0.0)	1 (0.1)
##	30215	0 (0.0)	1 (0.1)
##	30528	1 (0.1)	0 (0.0)
##	30720	0 (0.0)	1 (0.1)
##	31401	3 (0.2)	1 (0.1)
##	32065	3 (0.2)	0 (0.0)
##	32128	0 (0.0)	1 (0.1)
##	32168	1 (0.1)	0 (0.0)
##	32218	1 (0.1)	0 (0.0)
##	32547	2 (0.1)	0 (0.0)
##	32754	5 (0.3)	0 (0.0)
##	32779	0 (0.0)	1 (0.1)
##	32780	7 (0.4)	1 (0.1)
##	32796	2 (0.1)	0 (0.0)
##	32832	0 (0.0)	1 (0.1)
##	32901	2 (0.1)	1 (0.1)
##	32909	2 (0.1)	0 (0.0)
##	32920	1 (0.1)	0 (0.0)
##	32922	1 (0.1)	0 (0.0)
##	32926	3 (0.2)	0 (0.0)
##	32927	15 (0.9)	0 (0.0)
##	32931	3 (0.2)	1 (0.1)
##	32934	6 (0.4)	0 (0.0)
##	32935	4 (0.2)	0 (0.0)
##	32940	0 (0.0)	1 (0.1)
##	32952	7 (0.4)	3 (0.2)
##	32953	13 (0.8)	0 (0.0)
##	32955	1 (0.1)	2 (0.1)
##	32960	1 (0.1)	0 (0.0)
##	32976	1 (0.1)	0 (0.0)
##	33186	0 (0.0)	1 (0.1)
##	33433	0 (0.0)	1 (0.1)
##	33710	0 (0.0)	1 (0.1)
##	33950	0 (0.0)	1 (0.1)
##	34771	2 (0.1)	0 (0.0)
##	34772	0 (0.0)	1 (0.1)
##	35215	0 (0.0)	1 (0.1)
##	37135	0 (0.0)	1 (0.1)
##	37167	8 (0.5)	0 (0.0)
##	37207	0 (0.0)	1 (0.1)
##	40509	2 (0.1)	0 (0.0)
##	42759	0 (0.0)	1 (0.1)
##	43560	0 (0.0)	1 (0.1)
##	44094	0 (0.0)	1 (0.1)

##	45040	0 (0.0)	2 (0.1)
##	45069	0 (0.0)	1 (0.1)
##	45157	0 (0.0)	1 (0.1)
##	46037	0 (0.0)	1 (0.1)
##	46580	0 (0.0)	1 (0.1)
##	46845	0 (0.0)	1 (0.1)
##	47906	0 (0.0)	1 (0.1)
##	48044	0 (0.0)	1 (0.1)
##	48098	0 (0.0)	1 (0.1)
##	48642	0 (0.0)	2 (0.1)
##	49684	2 (0.1)	2 (0.1)
##	49770	0 (0.0)	1 (0.1)
##	52246	0 (0.0)	2 (0.1)
##	53186	0 (0.0)	1 (0.1)
##	53527	0 (0.0)	1 (0.1)
##	53711	0 (0.0)	1 (0.1)
##	55126	0 (0.0)	1 (0.1)
##	55410	0 (0.0)	1 (0.1)
##	57104	0 (0.0)	1 (0.1)
##	60047	0 (0.0)	1 (0.1)
##	60048	1 (0.1)	2 (0.1)
##	60062	0 (0.0)	1 (0.1)
##	60148	0 (0.0)	1 (0.1)
##	60555	0 (0.0)	1 (0.1)
##	60565	0 (0.0)	1 (0.1)
##	66227	0 (0.0)	1 (0.1)
##	68118	0 (0.0)	1 (0.1)
##	73012	0 (0.0)	1 (0.1)
##	75006	0 (0.0)	1 (0.1)
##	75010	0 (0.0)	3 (0.2)
##	75149	7 (0.4)	0 (0.0)
##	76034	0 (0.0)	1 (0.1)
##	76502	7 (0.4)	1 (0.1)
##	76513	8 (0.5)	0 (0.0)
##	76522	2 (0.1)	0 (0.0)
##	76528	2 (0.1)	0 (0.0)
##	76537	1 (0.1)	0 (0.0)
##	76542	3 (0.2)	0 (0.0)
##	76557	2 (0.1)	0 (0.0)
##	76561	2 (0.1)	0 (0.0)
##	76566	2 (0.1)	0 (0.0)
##	76638	3 (0.2)	0 (0.0)
##	76643	11 (0.7)	2 (0.1)
##	76655	1 (0.1)	0 (0.0)
##	76657	5 (0.3)	0 (0.0)
##	76702	1 (0.1)	2 (0.1)
##	76706	8 (0.5)	0 (0.0)
##	76708	2 (0.1)	0 (0.0)
##	76710	1 (0.1)	0 (0.0)
##	76712	13 (0.8)	0 (0.0)
##	77005	0 (0.0)	1 (0.1)
##	77024	2 (0.1)	0 (0.0)
##	77088	0 (0.0)	1 (0.1)
##	77089	0 (0.0)	2 (0.1)

##	77494	0 (0.0)	1 (0.1)
##	77573	0 (0.0)	1 (0.1)
##	78520	0 (0.0)	1 (0.1)
##	78521	3 (0.2)	2 (0.1)
##	78566	2 (0.1)	0 (0.0)
##	78626	0 (0.0)	1 (0.1)
##	78660	2 (0.1)	0 (0.0)
##	78665	2 (0.1)	0 (0.0)
##	78681	1 (0.1)	1 (0.1)
##	78729	0 (0.0)	1 (0.1)
##	78737	1 (0.1)	0 (0.0)
##	78746	1 (0.1)	0 (0.0)
##	78749	0 (0.0)	1 (0.1)
##	80111	0 (0.0)	1 (0.1)
##	80202	0 (0.0)	2 (0.1)
##	80301	0 (0.0)	1 (0.1)
##	80303	0 (0.0)	1 (0.1)
##	80305	0 (0.0)	1 (0.1)
##	80829	0 (0.0)	1 (0.1)
##	80917	0 (0.0)	1 (0.1)
##	81023	0 (0.0)	1 (0.1)
##	84014	0 (0.0)	1 (0.1)
##	84015	0 (0.0)	1 (0.1)
##	85006	0 (0.0)	1 (0.1)
##	85132	0 (0.0)	1 (0.1)
##	85202	0 (0.0)	1 (0.1)
##	85226	0 (0.0)	1 (0.1)
##	85251	2 (0.1)	1 (0.1)
##	85296	0 (0.0)	1 (0.1)
##	85303	0 (0.0)	1 (0.1)
##	85323	0 (0.0)	1 (0.1)
##	85338	1 (0.1)	4 (0.2)
##	85353	0 (0.0)	1 (0.1)
##	88201	1 (0.1)	0 (0.0)
##	89108	0 (0.0)	1 (0.1)
##	89451	1 (0.1)	0 (0.0)
##	90001	0 (0.0)	4 (0.2)
##	90002	3 (0.2)	1 (0.1)
##	90003	0 (0.0)	1 (0.1)
##	90004	1 (0.1)	0 (0.0)
##	90005	0 (0.0)	7 (0.4)
##	90006	0 (0.0)	2 (0.1)
##	90007	0 (0.0)	1 (0.1)
##	90008	3 (0.2)	2 (0.1)
##	90011	1 (0.1)	1 (0.1)
##	90012	1 (0.1)	3 (0.2)
##	90013	1 (0.1)	12 (0.7)
##	90014	0 (0.0)	5 (0.3)
##	90015	1 (0.1)	11 (0.7)
##	90016	1 (0.1)	3 (0.2)
##	90017	0 (0.0)	7 (0.4)
##	90018	1 (0.1)	2 (0.1)
##	90019	18 (1.1)	5 (0.3)
##	90020	0 (0.0)	1 (0.1)

##	90022	1 (0.1)	1 (0.1)
##	90023	1 (0.1)	0 (0.0)
##	90024	0 (0.0)	5 (0.3)
##	90025	5 (0.3)	16 (1.0)
##	90026	2 (0.1)	5 (0.3)
##	90027	0 (0.0)	3 (0.2)
##	90028	2 (0.1)	3 (0.2)
##	90029	7 (0.4)	0 (0.0)
##	90032	0 (0.0)	1 (0.1)
##	90033	0 (0.0)	1 (0.1)
##	90034	2 (0.1)	19 (1.1)
##	90035	0 (0.0)	3 (0.2)
##	90036	0 (0.0)	3 (0.2)
##	90037	0 (0.0)	3 (0.2)
##	90039	14 (0.8)	7 (0.4)
##	90040	1 (0.1)	0 (0.0)
##	90041	3 (0.2)	2 (0.1)
##	90042	0 (0.0)	4 (0.2)
##	90043	1 (0.1)	2 (0.1)
##	90044	1 (0.1)	3 (0.2)
##	90045	8 (0.5)	24 (1.4)
##	90046	0 (0.0)	2 (0.1)
##	90047	2 (0.1)	5 (0.3)
##	90048	0 (0.0)	2 (0.1)
##	90049	41 (2.4)	4 (0.2)
##	90056	0 (0.0)	1 (0.1)
##	90057	0 (0.0)	1 (0.1)
##	90059	0 (0.0)	2 (0.1)
##	90061	0 (0.0)	2 (0.1)
##	90062	1 (0.1)	0 (0.0)
##	90064	0 (0.0)	6 (0.4)
##	90065	2 (0.1)	3 (0.2)
##	90066	1 (0.1)	23 (1.4)
##	90069	12 (0.7)	0 (0.0)
##	90094	0 (0.0)	7 (0.4)
##	90201	10 (0.6)	2 (0.1)
##	90210	2 (0.1)	0 (0.0)
##	90220	3 (0.2)	9 (0.5)
##	90221	0 (0.0)	2 (0.1)
##	90222	1 (0.1)	1 (0.1)
##	90230	2 (0.1)	17 (1.0)
##	90232	2 (0.1)	9 (0.5)
##	90240	5 (0.3)	3 (0.2)
##	90241	2 (0.1)	3 (0.2)
##	90242	2 (0.1)	2 (0.1)
##	90245	13 (0.8)	42 (2.5)
##	90247	6 (0.4)	18 (1.1)
##	90248	0 (0.0)	1 (0.1)
##	90249	9 (0.5)	11 (0.7)
##	90250	33 (2.0)	86 (5.1)
##	90254	18 (1.1)	70 (4.2)
##	90260	10 (0.6)	30 (1.8)
##	90262	5 (0.3)	11 (0.7)
##	90266	5 (0.3)	34 (2.0)

##	90270	10 (0.6)	2 (0.1)
##	90272	1 (0.1)	0 (0.0)
##	90274	4 (0.2)	6 (0.4)
##	90275	2 (0.1)	12 (0.7)
##	90277	7 (0.4)	47 (2.8)
##	90278	13 (0.8)	78 (4.6)
##	90280	5 (0.3)	7 (0.4)
##	90291	0 (0.0)	14 (0.8)
##	90292	2 (0.1)	25 (1.5)
##	90293	1 (0.1)	13 (0.8)
##	90301	0 (0.0)	6 (0.4)
##	90302	1 (0.1)	5 (0.3)
##	90303	0 (0.0)	6 (0.4)
##	90304	3 (0.2)	4 (0.2)
##	90305	0 (0.0)	2 (0.1)
##	90401	0 (0.0)	5 (0.3)
##	90403	2 (0.1)	11 (0.7)
##	90404	0 (0.0)	8 (0.5)
##	90405	0 (0.0)	11 (0.7)
##	90501	6 (0.4)	21 (1.3)
##	90502	1 (0.1)	5 (0.3)
##	90503	8 (0.5)	30 (1.8)
##	90504	7 (0.4)	29 (1.7)
##	90505	5 (0.3)	11 (0.7)
##	90601	3 (0.2)	5 (0.3)
##	90602	4 (0.2)	0 (0.0)
##	90604	1 (0.1)	0 (0.0)
##	90605	0 (0.0)	3 (0.2)
##	90620	2 (0.1)	3 (0.2)
##	90621	4 (0.2)	3 (0.2)
##	90623	2 (0.1)	0 (0.0)
##	90630	2 (0.1)	4 (0.2)
##	90631	5 (0.3)	6 (0.4)
##	90638	1 (0.1)	0 (0.0)
##	90640	1 (0.1)	5 (0.3)
##	90650	3 (0.2)	9 (0.5)
##	90660	7 (0.4)	4 (0.2)
##	90670	1 (0.1)	6 (0.4)
##	90680	10 (0.6)	0 (0.0)
##	90701	0 (0.0)	2 (0.1)
##	90703	0 (0.0)	3 (0.2)
##	90706	5 (0.3)	15 (0.9)
##	90710	3 (0.2)	2 (0.1)
##	90712	4 (0.2)	10 (0.6)
##	90713	7 (0.4)	5 (0.3)
##	90715	2 (0.1)	6 (0.4)
##	90717	11 (0.7)	5 (0.3)
##	90720	1 (0.1)	1 (0.1)
##	90723	2 (0.1)	4 (0.2)
##	90731	6 (0.4)	14 (0.8)
##	90732	1 (0.1)	4 (0.2)
##	90744	5 (0.3)	5 (0.3)
##	90745	4 (0.2)	14 (0.8)
##	90746	1 (0.1)	6 (0.4)

##	90802	7 (0.4)	14 (0.8)
##	90803	0 (0.0)	6 (0.4)
##	90804	6 (0.4)	8 (0.5)
##	90805	10 (0.6)	16 (1.0)
##	90806	2 (0.1)	6 (0.4)
##	90807	0 (0.0)	7 (0.4)
##	90808	4 (0.2)	4 (0.2)
##	90810	1 (0.1)	3 (0.2)
##	90813	2 (0.1)	4 (0.2)
##	90814	0 (0.0)	6 (0.4)
##	90815	2 (0.1)	4 (0.2)
##	91001	0 (0.0)	2 (0.1)
##	91006	0 (0.0)	1 (0.1)
##	91007	1 (0.1)	3 (0.2)
##	91011	0 (0.0)	2 (0.1)
##	91016	0 (0.0)	1 (0.1)
##	91030	1 (0.1)	4 (0.2)
##	91042	0 (0.0)	2 (0.1)
##	91104	0 (0.0)	1 (0.1)
##	91107	0 (0.0)	2 (0.1)
##	91202	0 (0.0)	1 (0.1)
##	91205	3 (0.2)	1 (0.1)
##	91208	0 (0.0)	2 (0.1)
##	91302	0 (0.0)	1 (0.1)
##	91304	0 (0.0)	1 (0.1)
##	91306	1 (0.1)	0 (0.0)
##	91307	0 (0.0)	1 (0.1)
##	91316	0 (0.0)	1 (0.1)
##	91320	2 (0.1)	1 (0.1)
##	91321	0 (0.0)	1 (0.1)
##	91325	0 (0.0)	2 (0.1)
##	91331	0 (0.0)	2 (0.1)
##	91335	1 (0.1)	0 (0.0)
##	91340	0 (0.0)	1 (0.1)
##	91342	3 (0.2)	0 (0.0)
##	91343	2 (0.1)	7 (0.4)
##	91344	0 (0.0)	2 (0.1)
##	91345	0 (0.0)	1 (0.1)
##	91350	0 (0.0)	1 (0.1)
##	91351	1 (0.1)	2 (0.1)
##	91360	0 (0.0)	2 (0.1)
##	91362	3 (0.2)	4 (0.2)
##	91364	2 (0.1)	2 (0.1)
##	91367	3 (0.2)	1 (0.1)
##	91384	0 (0.0)	1 (0.1)
##	91390	0 (0.0)	1 (0.1)
##	91401	0 (0.0)	1 (0.1)
##	91402	0 (0.0)	1 (0.1)
##	91405	0 (0.0)	1 (0.1)
##	91406	0 (0.0)	2 (0.1)
##	91423	0 (0.0)	4 (0.2)
##	91436	0 (0.0)	2 (0.1)
##	91501	1 (0.1)	1 (0.1)
##	91505	2 (0.1)	1 (0.1)

##	91510	0 (0.0)	1 (0.1)
##	91604	0 (0.0)	2 (0.1)
##	91606	0 (0.0)	1 (0.1)
##	91607	0 (0.0)	2 (0.1)
##	91701	0 (0.0)	2 (0.1)
##	91706	3 (0.2)	1 (0.1)
##	91709	10 (0.6)	2 (0.1)
##	91710	0 (0.0)	1 (0.1)
##	91722	0 (0.0)	1 (0.1)
##	91730	8 (0.5)	0 (0.0)
##	91732	5 (0.3)	1 (0.1)
##	91733	1 (0.1)	0 (0.0)
##	91740	0 (0.0)	2 (0.1)
##	91745	0 (0.0)	8 (0.5)
##	91746	2 (0.1)	1 (0.1)
##	91748	0 (0.0)	1 (0.1)
##	91750	0 (0.0)	1 (0.1)
##	91752	1 (0.1)	0 (0.0)
##	91754	5 (0.3)	3 (0.2)
##	91761	7 (0.4)	1 (0.1)
##	91762	2 (0.1)	0 (0.0)
##	91763	1 (0.1)	0 (0.0)
##	91764	2 (0.1)	2 (0.1)
##	91765	0 (0.0)	8 (0.5)
##	91766	3 (0.2)	0 (0.0)
##	91767	0 (0.0)	1 (0.1)
##	91768	0 (0.0)	3 (0.2)
##	91770	0 (0.0)	2 (0.1)
##	91773	0 (0.0)	1 (0.1)
##	91776	0 (0.0)	1 (0.1)
##	91780	1 (0.1)	1 (0.1)
##	91789	9 (0.5)	0 (0.0)
##	91790	1 (0.1)	2 (0.1)
##	91791	0 (0.0)	1 (0.1)
##	91801	0 (0.0)	2 (0.1)
##	91802	2 (0.1)	0 (0.0)
##	91803	0 (0.0)	2 (0.1)
##	91902	6 (0.4)	0 (0.0)
##	91942	1 (0.1)	1 (0.1)
##	91945	0 (0.0)	1 (0.1)
##	92007	0 (0.0)	1 (0.1)
##	92009	31 (1.8)	1 (0.1)
##	92019	7 (0.4)	0 (0.0)
##	92025	0 (0.0)	1 (0.1)
##	92029	2 (0.1)	0 (0.0)
##	92037	0 (0.0)	1 (0.1)
##	92058	1 (0.1)	0 (0.0)
##	92069	10 (0.6)	0 (0.0)
##	92083	0 (0.0)	1 (0.1)
##	92106	0 (0.0)	1 (0.1)
##	92109	11 (0.7)	2 (0.1)
##	92119	8 (0.5)	1 (0.1)
##	92122	0 (0.0)	1 (0.1)
##	92127	0 (0.0)	1 (0.1)

##	92129	27 (1.6)	1 (0.1)
##	92139	6 (0.4)	0 (0.0)
##	92307	1 (0.1)	2 (0.1)
##	92320	0 (0.0)	1 (0.1)
##	92335	2 (0.1)	1 (0.1)
##	92336	0 (0.0)	1 (0.1)
##	92345	0 (0.0)	2 (0.1)
##	92346	0 (0.0)	1 (0.1)
##	92359	1 (0.1)	0 (0.0)
##	92376	1 (0.1)	0 (0.0)
##	92382	0 (0.0)	1 (0.1)
##	92385	0 (0.0)	1 (0.1)
##	92394	1 (0.1)	0 (0.0)
##	92395	1 (0.1)	0 (0.0)
##	92505	1 (0.1)	1 (0.1)
##	92507	2 (0.1)	0 (0.0)
##	92509	5 (0.3)	0 (0.0)
##	92530	0 (0.0)	2 (0.1)
##	92532	5 (0.3)	4 (0.2)
##	92545	2 (0.1)	0 (0.0)
##	92553	0 (0.0)	1 (0.1)
##	92555	0 (0.0)	2 (0.1)
##	92557	0 (0.0)	1 (0.1)
##	92562	3 (0.2)	3 (0.2)
##	92563	2 (0.1)	0 (0.0)
##	92570	0 (0.0)	2 (0.1)
##	92571	1 (0.1)	0 (0.0)
##	92584	0 (0.0)	2 (0.1)
##	92586	0 (0.0)	1 (0.1)
##	92591	0 (0.0)	1 (0.1)
##	92604	0 (0.0)	1 (0.1)
##	92612	0 (0.0)	1 (0.1)
##	92614	0 (0.0)	2 (0.1)
##	92618	5 (0.3)	1 (0.1)
##	92619	3 (0.2)	0 (0.0)
##	92620	2 (0.1)	3 (0.2)
##	92625	1 (0.1)	3 (0.2)
##	92626	0 (0.0)	1 (0.1)
##	92629	8 (0.5)	0 (0.0)
##	92630	0 (0.0)	1 (0.1)
##	92646	3 (0.2)	3 (0.2)
##	92647	3 (0.2)	4 (0.2)
##	92648	1 (0.1)	2 (0.1)
##	92649	12 (0.7)	7 (0.4)
##	92651	0 (0.0)	1 (0.1)
##	92656	0 (0.0)	2 (0.1)
##	92660	2 (0.1)	0 (0.0)
##	92673	0 (0.0)	1 (0.1)
##	92675	0 (0.0)	1 (0.1)
##	92677	3 (0.2)	3 (0.2)
##	92679	50 (3.0)	0 (0.0)
##	92683	15 (0.9)	4 (0.2)
##	92691	0 (0.0)	1 (0.1)
##	92692	0 (0.0)	2 (0.1)

##	92694	1 (0.1)	2 (0.1)
##	92703	2 (0.1)	1 (0.1)
##	92704	3 (0.2)	0 (0.0)
##	92706	1 (0.1)	1 (0.1)
##	92708	9 (0.5)	3 (0.2)
##	92782	1 (0.1)	0 (0.0)
##	92801	3 (0.2)	3 (0.2)
##	92802	0 (0.0)	1 (0.1)
##	92804	4 (0.2)	11 (0.7)
##	92805	3 (0.2)	3 (0.2)
##	92806	0 (0.0)	5 (0.3)
##	92807	5 (0.3)	1 (0.1)
##	92821	7 (0.4)	0 (0.0)
##	92823	0 (0.0)	1 (0.1)
##	92831	0 (0.0)	2 (0.1)
##	92832	1 (0.1)	0 (0.0)
##	92833	5 (0.3)	13 (0.8)
##	92834	0 (0.0)	1 (0.1)
##	92835	0 (0.0)	4 (0.2)
##	92840	6 (0.4)	2 (0.1)
##	92841	3 (0.2)	0 (0.0)
##	92843	3 (0.2)	0 (0.0)
##	92844	12 (0.7)	4 (0.2)
##	92860	2 (0.1)	1 (0.1)
##	92867	0 (0.0)	3 (0.2)
##	92869	17 (1.0)	0 (0.0)
##	92870	0 (0.0)	4 (0.2)
##	92879	4 (0.2)	1 (0.1)
##	92880	1 (0.1)	2 (0.1)
##	92881	0 (0.0)	1 (0.1)
##	92882	4 (0.2)	2 (0.1)
##	92883	2 (0.1)	3 (0.2)
##	93010	3 (0.2)	1 (0.1)
##	93021	0 (0.0)	2 (0.1)
##	93063	1 (0.1)	0 (0.0)
##	93065	8 (0.5)	2 (0.1)
##	93105	0 (0.0)	1 (0.1)
##	93109	1 (0.1)	0 (0.0)
##	93111	0 (0.0)	1 (0.1)
##	93309	1 (0.1)	4 (0.2)
##	93436	7 (0.4)	2 (0.1)
##	93444	2 (0.1)	0 (0.0)
##	93449	1 (0.1)	0 (0.0)
##	93454	0 (0.0)	1 (0.1)
##	93455	2 (0.1)	0 (0.0)
##	93456	1 (0.1)	0 (0.0)
##	93535	1 (0.1)	0 (0.0)
##	93536	2 (0.1)	3 (0.2)
##	93550	0 (0.0)	1 (0.1)
##	93552	1 (0.1)	1 (0.1)
##	93555	0 (0.0)	1 (0.1)
##	93591	0 (0.0)	1 (0.1)
##	93612	1 (0.1)	0 (0.0)
##	93619	1 (0.1)	0 (0.0)

##	94010	0 (0.0)	1 (0.1)
##	94019	6 (0.4)	0 (0.0)
##	94025	0 (0.0)	1 (0.1)
##	94039	1 (0.1)	0 (0.0)
##	94043	0 (0.0)	1 (0.1)
##	94063	0 (0.0)	4 (0.2)
##	94089	25 (1.5)	2 (0.1)
##	94103	0 (0.0)	1 (0.1)
##	94109	151 (9.0)	0 (0.0)
##	94110	0 (0.0)	2 (0.1)
##	94115	0 (0.0)	2 (0.1)
##	94117	1 (0.1)	2 (0.1)
##	94119	1 (0.1)	0 (0.0)
##	94127	0 (0.0)	1 (0.1)
##	94129	10 (0.6)	0 (0.0)
##	94401	0 (0.0)	1 (0.1)
##	94509	7 (0.4)	0 (0.0)
##	94519	1 (0.1)	0 (0.0)
##	94539	104 (6.2)	0 (0.0)
##	94542	0 (0.0)	1 (0.1)
##	94549	35 (2.1)	0 (0.0)
##	94559	6 (0.4)	0 (0.0)
##	94563	0 (0.0)	1 (0.1)
##	94566	0 (0.0)	1 (0.1)
##	94579	5 (0.3)	2 (0.1)
##	94589	2 (0.1)	0 (0.0)
##	94591	1 (0.1)	0 (0.0)
##	94609	16 (1.0)	0 (0.0)
##	94611	0 (0.0)	1 (0.1)
##	94619	24 (1.4)	0 (0.0)
##	94709	2 (0.1)	0 (0.0)
##	94806	0 (0.0)	1 (0.1)
##	94903	0 (0.0)	1 (0.1)
##	94939	6 (0.4)	0 (0.0)
##	94949	16 (1.0)	1 (0.1)
##	95014	0 (0.0)	1 (0.1)
##	95019	3 (0.2)	0 (0.0)
##	95051	0 (0.0)	1 (0.1)
##	95060	0 (0.0)	2 (0.1)
##	95119	5 (0.3)	0 (0.0)
##	95120	2 (0.1)	0 (0.0)
##	95129	59 (3.5)	1 (0.1)
##	95138	0 (0.0)	1 (0.1)
##	95139	12 (0.7)	0 (0.0)
##	95206	1 (0.1)	0 (0.0)
##	95219	3 (0.2)	0 (0.0)
##	95361	0 (0.0)	1 (0.1)
##	95369	1 (0.1)	0 (0.0)
##	95377	0 (0.0)	1 (0.1)
##	95401	0 (0.0)	1 (0.1)
##	95409	1 (0.1)	1 (0.1)
##	95667	0 (0.0)	1 (0.1)
##	95669	1 (0.1)	0 (0.0)
##	95746	0 (0.0)	1 (0.1)

##	95812	0 (0.0)	1 (0.1)
##	95819	2 (0.1)	0 (0.0)
##	96094	0 (0.0)	2 (0.1)
##	97045	0 (0.0)	1 (0.1)
##	97086	0 (0.0)	2 (0.1)
##	97223	0 (0.0)	1 (0.1)
##	97303	1 (0.1)	0 (0.0)
##	98004	0 (0.0)	1 (0.1)
##	98007	0 (0.0)	1 (0.1)
##	98012	0 (0.0)	1 (0.1)
##	98019	1 (0.1)	0 (0.0)
##	98020	0 (0.0)	1 (0.1)
##	98027	2 (0.1)	0 (0.0)
##	98037	0 (0.0)	1 (0.1)
##	98052	2 (0.1)	0 (0.0)
##	98053	0 (0.0)	1 (0.1)
##	98057	0 (0.0)	1 (0.1)
##	98073	1 (0.1)	0 (0.0)
##	98077	2 (0.1)	0 (0.0)
##	98102	1 (0.1)	0 (0.0)
##	98112	0 (0.0)	1 (0.1)
##	98115	1 (0.1)	0 (0.0)
##	98122	2 (0.1)	0 (0.0)
##	98272	2 (0.1)	0 (0.0)
##	98349	1 (0.1)	0 (0.0)
##	98406	0 (0.0)	3 (0.2)
##	99352	0 (0.0)	1 (0.1)

```

dta_run2 = dta_m2 %>%
  mutate(logcost_md = log(cost_md+1),
         logcost_er = log(cost_er+1),
         logcost_hosp = log(cost_hosp+1),
         logcost_pcp = log(cost_pcp+1),
         logcost_spec = log(cost_spec+1),
         logcost_mh = log(cost_mh+1),
         logcost_pt = log(cost_pt+1),
         logcost_rx = log(cost_rx+1),
         logcost_drugadmin = log(cost_drugadmin + 1),
         logcost_surg = log(cost_surg+1),
         logcost_maternity = log(cost_maternity+1),
         logcost_labs = log(cost_labs+1),
         logcost_rads = log(cost_rads +1),
         logcount_er = log(count_er+1),
         logcount_hosp = log(count_hosp+1),
         logcount_pcp = log(count_pcp+1),
         logcount_spec = log(count_spec+1),
         logcount_mh = log(count_mh+1),
         logcount_pt = log(count_pt+1),
         logcount_drugadmin = log(count_drugadmin+1),
         logcount_surg = log(count_surg+1),
         logcount_maternity = log(count_maternity+1),
         logcount_labs = log(count_labs+1),
         logcount_rads = log(count_rads+1),
         logcost_per_er = log(cost_per_er+1),

```

```

logcost_per_hosp = log(cost_per_hosp+1),
logcost_per_pcp = log(cost_per_pcp+1),
logcost_per_spec = log(cost_per_spec+1),
logcost_per_mh = log(cost_per_mh+1),
logcost_per_pt = log(cost_per_pt+1),
logcost_per_drugadmin = log(cost_per_drugadmin+1),
logcost_per_surg = log(cost_per_surg+1),
logcost_per_maternity = log(cost_per_maternity+1),
logcost_per_labs = log(cost_per_labs+1),
logcost_per_rads = log(cost_per_rads+1)
)

```

```

prem2 = spacex_dat_ana2 %>%
  mutate(count_er = 1000*count_er,
         count_hosp = 1000*count_hosp,
         count_pcp = 1000*count_pcp,
         count_spec = 1000*count_spec,
         count_mh = 1000*count_mh,
         count_pt = 1000*count_pt,
         count_drugadmin = 1000*count_drugadmin,
         count_surg = 1000*count_surg,
         count_maternity = 1000*count_maternity,
         count_labs = 1000*count_labs,
         count_rads = 1000*count_rads
  )
pretable2 = CreateTableOne(data =prem2, vars = c("age", "female", "hcc", "mm", "cost_md", "cost_rx", "c
pretab2 = print(pretable2, smd = TRUE, contDigits=3, catDigits=3, noSpaces = TRUE, quote = T)

```

```

##                                     "Stratified by om_flag"
## ""                                "0"
## "n"                               "31497"
## "age (mean (SD))"                 "27.736 (15.611)"
## "female = TRUE (%)"               "13294 (42.207)"
## "hcc (mean (SD))"                 "0.086 (0.329)"
## "mm (mean (SD))"                  "25.639 (15.481)"
## "cost_md (mean (SD))"              "251.350 (1764.406)"
## "cost_rx (mean (SD))"              "61.846 (678.494)"
## "cost_er (mean (SD))"              "10.192 (104.917)"
## "cost_hosp (mean (SD))"            "8.689 (388.379)"
## "cost_pcp (mean (SD))"             "8.853 (42.134)"
## "cost_spec (mean (SD))"            "4.242 (32.635)"
## "cost_mh (mean (SD))"              "2.552 (43.986)"
## "cost_pt (mean (SD))"              "4.003 (44.228)"
## "cost_drugadmin (mean (SD))"       "3.836 (81.724)"
## "cost_surg (mean (SD))"            "26.907 (374.411)"
## "cost_maternity (mean (SD))"       "4.685 (145.639)"
## "cost_labs (mean (SD))"            "6.350 (58.141)"
## "cost_rads (mean (SD))"            "8.612 (184.241)"
## "count_er (mean (SD))"             "29.818 (371.512)"
## "count_hosp (mean (SD))"           "3.561 (72.628)"
## "count_pcp (mean (SD))"            "61.557 (337.013)"
## "count_spec (mean (SD))"           "34.907 (263.193)"
## "count_mh (mean (SD))"             "13.808 (210.871)"

```

##	"count_pt (mean (SD))"	"96.059 (993.261)"		
##	"count_drugadmin (mean (SD))"	"29.807 (218.979)"		
##	"count_surg (mean (SD))"	"33.286 (306.302)"		
##	"count_maternity (mean (SD))"	"0.374 (9.480)"		
##	"count_labs (mean (SD))"	"155.823 (1062.029)"		
##	"count_rads (mean (SD))"	"28.100 (228.548)"		
##	"cost_per_er (mean (SD))"	"399.880 (282.575)"		
##	"cost_per_hosp (mean (SD))"	"2523.146 (4728.429)"		
##	"cost_per_pcp (mean (SD))"	"162.064 (83.700)"		
##	"cost_per_spec (mean (SD))"	"133.117 (77.266)"		
##	"cost_per_mh (mean (SD))"	"218.756 (416.636)"		
##	"cost_per_pt (mean (SD))"	"49.183 (59.171)"		
##	"cost_per_drugadmin (mean (SD))"	"93.073 (272.002)"		
##	"cost_per_surg (mean (SD))"	"543.536 (1815.610)"		
##	"cost_per_maternity (mean (SD))"	"14136.647 (11650.884)"		
##	"cost_per_labs (mean (SD))"	"42.195 (98.518)"		
##	"cost_per_rads (mean (SD))"	"227.633 (317.877)"		
##		"Stratified by om_flag"		
##	"n"	"1"	"p"	"test"
##	"age (mean (SD))"	"2133"	"<0.001"	"<0.001"
##	"female = TRUE (%)"	"30.534 (8.507)"	"<0.001"	"<0.001"
##	"hcc (mean (SD))"	"313 (14.674)"	"0.081"	"0.081"
##	"mm (mean (SD))"	"0.073 (0.181)"	"<0.001"	"<0.001"
##	"cost_md (mean (SD))"	"32.576 (14.190)"	"0.813"	"0.813"
##	"cost_rx (mean (SD))"	"242.266 (544.820)"	"0.112"	"0.112"
##	"cost_er (mean (SD))"	"38.379 (236.644)"	"<0.001"	"<0.001"
##	"cost_hosp (mean (SD))"	"18.781 (100.556)"	"0.704"	"0.704"
##	"cost_pcp (mean (SD))"	"5.490 (89.540)"	"<0.001"	"<0.001"
##	"cost_spec (mean (SD))"	"30.497 (44.041)"	"0.056"	"0.056"
##	"cost_mh (mean (SD))"	"2.890 (6.686)"	"<0.001"	"<0.001"
##	"cost_pt (mean (SD))"	"7.513 (44.421)"	"<0.001"	"<0.001"
##	"cost_drugadmin (mean (SD))"	"11.972 (57.973)"	"0.033"	"0.033"
##	"cost_surg (mean (SD))"	"7.739 (81.941)"	"0.126"	"0.126"
##	"cost_maternity (mean (SD))"	"14.490 (92.592)"	"0.187"	"0.187"
##	"cost_labs (mean (SD))"	"0.521 (14.587)"	"0.916"	"0.916"
##	"cost_rads (mean (SD))"	"6.483 (15.508)"	"0.355"	"0.355"
##	"count_er (mean (SD))"	"4.918 (29.424)"	"0.005"	"0.005"
##	"count_hosp (mean (SD))"	"52.485 (224.617)"	"0.508"	"0.508"
##	"count_pcp (mean (SD))"	"2.515 (30.045)"	"<0.001"	"<0.001"
##	"count_spec (mean (SD))"	"183.048 (260.268)"	"0.036"	"0.036"
##	"count_mh (mean (SD))"	"22.928 (48.243)"	"<0.001"	"<0.001"
##	"count_pt (mean (SD))"	"44.754 (255.000)"	"<0.001"	"<0.001"
##	"count_drugadmin (mean (SD))"	"196.768 (880.441)"	"<0.001"	"<0.001"
##	"count_surg (mean (SD))"	"81.018 (221.249)"	"0.544"	"0.544"
##	"count_maternity (mean (SD))"	"29.243 (98.395)"	"0.105"	"0.105"
##	"count_labs (mean (SD))"	"0.041 (0.959)"	"<0.001"	"<0.001"
##	"count_rads (mean (SD))"	"313.709 (529.158)"	"0.308"	"0.308"
##	"cost_per_er (mean (SD))"	"33.176 (98.687)"	"0.666"	"0.666"
##	"cost_per_hosp (mean (SD))"	"391.429 (340.019)"	"0.735"	"0.735"
##	"cost_per_pcp (mean (SD))"	"2790.994 (6504.487)"	"<0.001"	"<0.001"
##	"cost_per_spec (mean (SD))"	"170.488 (39.527)"	"0.014"	"0.014"
##	"cost_per_mh (mean (SD))"	"125.749 (53.577)"	"0.361"	"0.361"
##	"cost_per_pt (mean (SD))"	"195.408 (322.048)"	"<0.001"	"<0.001"
##		"66.927 (40.084)"		

```
## "cost_per_drugadmin (mean (SD))" "73.396 (107.004)" "0.023" ""
## "cost_per_surg (mean (SD))" "350.858 (1548.267)" "0.019" ""
## "cost_per_maternity (mean (SD))" "13319.250 (10574.622)" "0.890" ""
## "cost_per_labs (mean (SD))" "25.527 (28.741)" "<0.001" ""
## "cost_per_rads (mean (SD))" "129.231 (190.687)" "<0.001" ""
## "Stratified by om_flag"
## "" "SMD"
## "n" ""
## "age (mean (SD))" "0.223"
## "female = TRUE (%)" "0.641"
## "hcc (mean (SD))" "0.047"
## "mm (mean (SD))" "0.467"
## "cost_md (mean (SD))" "0.007"
## "cost_rx (mean (SD))" "0.046"
## "cost_er (mean (SD))" "0.084"
## "cost_hosp (mean (SD))" "0.011"
## "cost_pcp (mean (SD))" "0.502"
## "cost_spec (mean (SD))" "0.057"
## "cost_mh (mean (SD))" "0.112"
## "cost_pt (mean (SD))" "0.155"
## "cost_drugadmin (mean (SD))" "0.048"
## "cost_surg (mean (SD))" "0.046"
## "cost_maternity (mean (SD))" "0.040"
## "cost_labs (mean (SD))" "0.003"
## "cost_rads (mean (SD))" "0.028"
## "count_er (mean (SD))" "0.074"
## "count_hosp (mean (SD))" "0.019"
## "count_pcp (mean (SD))" "0.403"
## "count_spec (mean (SD))" "0.063"
## "count_mh (mean (SD))" "0.132"
## "count_pt (mean (SD))" "0.107"
## "count_drugadmin (mean (SD))" "0.233"
## "count_surg (mean (SD))" "0.018"
## "count_maternity (mean (SD))" "0.049"
## "count_labs (mean (SD))" "0.188"
## "count_rads (mean (SD))" "0.029"
## "cost_per_er (mean (SD))" "0.027"
## "cost_per_hosp (mean (SD))" "0.047"
## "cost_per_pcp (mean (SD))" "0.129"
## "cost_per_spec (mean (SD))" "0.111"
## "cost_per_mh (mean (SD))" "0.063"
## "cost_per_pt (mean (SD))" "0.351"
## "cost_per_drugadmin (mean (SD))" "0.095"
## "cost_per_surg (mean (SD))" "0.114"
## "cost_per_maternity (mean (SD))" "0.073"
## "cost_per_labs (mean (SD))" "0.230"
## "cost_per_rads (mean (SD))" "0.375"
```

```
postm2 = dta_run2 %>%
  mutate(count_er = 1000*count_er,
         count_hosp = 1000*count_hosp,
         count_pcp = 1000*count_pcp,
         count_spec = 1000*count_spec,
         count_mh = 1000*count_mh,
```

```

        count_pt = 1000*count_pt,
        count_drugadmin = 1000*count_drugadmin,
        count_surg = 1000*count_surg,
        count_maternity = 1000*count_maternity,
        count_labs = 1000*count_labs,
        count_rads = 1000*count_rads
    )
posttable2 = CreateTableOne(data =postm2, vars = c("age", "female", "hcc", "mm", "cost_md", "cost_rx",
posttab2 = print(posttable2, smd = TRUE, contDigits=1, catDigits=1, noSpaces = TRUE, quote = T)

```

```

##                                     "Stratified by om_flag"
##      ""                                "0"                                "1"
##      "n"                                "1679"                                "1679"
##      "age (mean (SD))"                  "30.1 (14.5)"                  "30.5 (8.7)"
##      "female = TRUE (%)"                "298 (17.7)"                  "305 (18.2)"
##      "hcc (mean (SD))"                  "0.1 (0.2)"                   "0.1 (0.2)"
##      "mm (mean (SD))"                   "31.3 (14.6)"                  "31.4 (14.4)"
##      "cost_md (mean (SD))"               "565.7 (1812.7)"              "249.8 (569.7)"
##      "cost_rx (mean (SD))"               "68.8 (411.8)"                "37.0 (240.2)"
##      "cost_er (mean (SD))"               "34.6 (149.3)"                "22.2 (112.2)"
##      "cost_hosp (mean (SD))"             "22.8 (200.4)"                "4.2 (61.9)"
##      "cost_pcp (mean (SD))"              "28.8 (59.8)"                 "30.8 (37.6)"
##      "cost_spec (mean (SD))"             "13.6 (51.2)"                 "3.1 (7.1)"
##      "cost_mh (mean (SD))"               "10.4 (83.9)"                 "7.5 (39.6)"
##      "cost_pt (mean (SD))"               "10.6 (66.7)"                 "11.6 (57.9)"
##      "cost_drugadmin (mean (SD))"         "9.0 (73.2)"                  "7.5 (91.3)"
##      "cost_surg (mean (SD))"              "62.2 (389.0)"                "16.2 (101.4)"
##      "cost_maternity (mean (SD))"         "9.0 (250.5)"                 "0.4 (12.1)"
##      "cost_labs (mean (SD))"              "16.2 (76.4)"                 "6.8 (16.3)"
##      "cost_rads (mean (SD))"              "17.1 (73.5)"                 "5.6 (32.8)"
##      "count_er (mean (SD))"               "93.6 (320.6)"                "61.4 (248.7)"
##      "count_hosp (mean (SD))"             "11.5 (101.2)"                "2.9 (33.5)"
##      "count_pcp (mean (SD))"              "194.1 (495.2)"               "184.2 (219.7)"
##      "count_spec (mean (SD))"             "109.6 (418.1)"               "24.3 (50.3)"
##      "count_mh (mean (SD))"               "48.8 (370.7)"                "43.5 (207.1)"
##      "count_pt (mean (SD))"               "263.2 (1598.9)"              "199.3 (901.5)"
##      "count_drugadmin (mean (SD))"         "107.9 (290.2)"               "72.5 (162.0)"
##      "count_surg (mean (SD))"              "84.4 (333.2)"                "30.2 (100.0)"
##      "count_maternity (mean (SD))"         "0.4 (7.3)"                   "0.0 (1.0)"
##      "count_labs (mean (SD))"              "449.5 (1451.4)"              "329.0 (531.9)"
##      "count_rads (mean (SD))"              "69.3 (173.8)"                "35.5 (99.4)"
##      "cost_per_er (mean (SD))"             "284.3 (102.4)"                "281.3 (118.7)"
##      "cost_per_hosp (mean (SD))"           "271.4 (1027.2)"              "201.8 (335.1)"
##      "cost_per_pcp (mean (SD))"            "147.8 (92.8)"                 "170.9 (40.9)"
##      "cost_per_spec (mean (SD))"           "86.3 (93.8)"                  "43.6 (68.0)"
##      "cost_per_mh (mean (SD))"             "29.8 (127.3)"                "35.2 (226.3)"
##      "cost_per_pt (mean (SD))"             "10.3 (25.7)"                 "19.8 (37.1)"
##      "cost_per_drugadmin (mean (SD))"       "34.2 (113.5)"                 "36.9 (89.6)"
##      "cost_per_surg (mean (SD))"           "224.6 (1353.3)"              "141.2 (903.7)"
##      "cost_per_maternity (mean (SD))"       "8890.9 (7059.8)"              "7891.5 (6485.0)"
##      "cost_per_labs (mean (SD))"            "29.2 (60.0)"                  "21.5 (26.2)"
##      "cost_per_rads (mean (SD))"           "98.9 (224.8)"                 "46.4 (122.7)"
##                                     "Stratified by om_flag"

```

##	"	"p"	"test"	"SMD"
##	"n"	"	"	"
##	"age (mean (SD))"	"0.337"	"	"0.033"
##	"female = TRUE (%)"	"0.787"	"	"0.011"
##	"hcc (mean (SD))"	"0.443"	"	"0.027"
##	"mm (mean (SD))"	"0.806"	"	"0.008"
##	"cost_md (mean (SD))"	"<0.001"	"	"0.235"
##	"cost_rx (mean (SD))"	"0.006"	"	"0.095"
##	"cost_er (mean (SD))"	"0.007"	"	"0.094"
##	"cost_hosp (mean (SD))"	"<0.001"	"	"0.125"
##	"cost_pcp (mean (SD))"	"0.267"	"	"0.038"
##	"cost_spec (mean (SD))"	"<0.001"	"	"0.287"
##	"cost_mh (mean (SD))"	"0.209"	"	"0.043"
##	"cost_pt (mean (SD))"	"0.623"	"	"0.017"
##	"cost_drugadmin (mean (SD))"	"0.584"	"	"0.019"
##	"cost_surg (mean (SD))"	"<0.001"	"	"0.162"
##	"cost_maternity (mean (SD))"	"0.158"	"	"0.049"
##	"cost_labs (mean (SD))"	"<0.001"	"	"0.170"
##	"cost_rads (mean (SD))"	"<0.001"	"	"0.201"
##	"count_er (mean (SD))"	"0.001"	"	"0.112"
##	"count_hosp (mean (SD))"	"0.001"	"	"0.114"
##	"count_pcp (mean (SD))"	"0.454"	"	"0.026"
##	"count_spec (mean (SD))"	"<0.001"	"	"0.286"
##	"count_mh (mean (SD))"	"0.609"	"	"0.018"
##	"count_pt (mean (SD))"	"0.154"	"	"0.049"
##	"count_drugadmin (mean (SD))"	"<0.001"	"	"0.151"
##	"count_surg (mean (SD))"	"<0.001"	"	"0.220"
##	"count_maternity (mean (SD))"	"0.032"	"	"0.074"
##	"count_labs (mean (SD))"	"0.001"	"	"0.110"
##	"count_rads (mean (SD))"	"<0.001"	"	"0.239"
##	"cost_per_er (mean (SD))"	"0.439"	"	"0.027"
##	"cost_per_hosp (mean (SD))"	"0.008"	"	"0.091"
##	"cost_per_pcp (mean (SD))"	"<0.001"	"	"0.323"
##	"cost_per_spec (mean (SD))"	"<0.001"	"	"0.521"
##	"cost_per_mh (mean (SD))"	"0.395"	"	"0.029"
##	"cost_per_pt (mean (SD))"	"<0.001"	"	"0.298"
##	"cost_per_drugadmin (mean (SD))"	"0.433"	"	"0.027"
##	"cost_per_surg (mean (SD))"	"0.036"	"	"0.072"
##	"cost_per_maternity (mean (SD))"	"<0.001"	"	"0.147"
##	"cost_per_labs (mean (SD))"	"<0.001"	"	"0.166"
##	"cost_per_rads (mean (SD))"	"<0.001"	"	"0.290"

regs

```

glmMatched1_c <- glm(formula = logcost_md ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = dta_run2)

glmMatched2_c <- glm(formula = logcost_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
  data = dta_run2)

glmMatched3_c <- glm(formula = logcost_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,

```

```

        data      = dta_run2)

glmMatched4_c <- glm(formula = logcost_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched5_c <- glm(formula = logcost_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched5a_c <- glm(formula = logcost_mh ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                      data      = dta_run2)

glmMatched5b_c <- glm(formula = logcost_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data      = dta_run2)

glmMatched6_c <- glm(formula = logcost_rx ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched6a_c <- glm(formula = logcost_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data      = dta_run2)
glmMatched6b_c <- glm(formula = logcost_surg ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                      data      = dta_run2)
glmMatched6c_c <- glm(formula = logcost_maternity ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                      data      = dta_run2)
glmMatched6d_c <- glm(formula = logcost_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data      = dta_run2)
glmMatched6e_c <- glm(formula = logcost_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data      = dta_run2)

glmMatched7_c <- glm(formula = logcount_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched8_c <- glm(formula = logcount_hosp ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched9_c <- glm(formula = logcount_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
                     data      = dta_run2)

glmMatched10_c <- glm(formula = logcount_spec ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                      data      = dta_run2)

glmMatched10a_c <- glm(formula = logcount_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data      = dta_run2)

```

```

glmMatched10b_c <- glm(formula = logcount_pt ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                        data     = dta_run2)

glmMatched10c_c <- glm(formula = logcount_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip ,
                        data     = dta_run2)
glmMatched10d_c <- glm(formula = logcount_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
                        data     = dta_run2)
glmMatched10e_c <- glm(formula = logcount_maternity ~ om_flag + age + female + mm + hcc + ccs + zip ,
                        data     = dta_run2)
glmMatched10f_c <- glm(formula = logcount_labs ~ om_flag + age + female + mm + hcc + ccs + zip ,
                        data     = dta_run2)
glmMatched10g_c <- glm(formula = logcount_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
                        data     = dta_run2)

glmMatched11_c <- glm(formula = logcost_per_er ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data     = dta_run2)

glmMatched11b_c <- glm(formula = logcost_per_hosp ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                       data     = dta_run2)

glmMatched11c_c <- glm(formula = logcost_per_pcp ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data     = dta_run2)

glmMatched5c_c <- glm(formula = logcost_per_spec ~ om_flag + age + female + mm + hcc + ccs + zip ,
                      data     = dta_run2)

glmMatched5ca_c <- glm(formula = logcost_per_mh ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data     = dta_run2)

glmMatched5cb_c <- glm(formula = logcost_per_pt ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data     = dta_run2)

glmMatched5cc_c <- glm(formula = logcost_per_drugadmin ~ om_flag + age + female + mm + hcc + ccs + zip
                       data     = dta_run2)

glmMatched5cd_c <- glm(formula = logcost_per_surg ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data     = dta_run2)

glmMatched5ce_c <- glm(formula = logcost_per_maternity ~ om_flag + age + female + mm + hcc + ccs + zip
                       data     = dta_run2)

glmMatched5cf_c <- glm(formula = logcost_per_labs ~ om_flag + age + female + mm + hcc + ccs+ zip ,
                       data     = dta_run2)

glmMatched5cg_c <- glm(formula = logcost_per_rads ~ om_flag + age + female + mm + hcc + ccs + zip ,
                       data     = dta_run2)

```



```

exponentiate_c <- function(x) ((exp(x)-1)*100)

stargazer::stargazer(glmMatched1_c, glmMatched2_c, glmMatched3_c, glmMatched4_c, glmMatched5_c, glmMatched6_c,
  title="Spending",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Total Spend", "Emergency", "Hospital", "Primary Care", "Specialist Care", "Mental Health"),
  out = "table1c.htm")

```

```

##
## <table style="text-align:center"><caption><strong>Spending</strong></caption>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"></td></tr><tr><td colspan="13" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_md</td><td>logcost_er</td><td>logcost_hosp</td><td></td></tr>
## <tr><td style="text-align:left"></td><td>Total Spend</td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Specialist Care</td><td>Mental Health</td></tr>
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>(-42.9, -17.5)</td><td>(-38.2, -6.3)</td><td>(-24.3, -7.5)</td><td>(-10.1, 1.2)</td><td>(-1.1, 1.1)</td><td>(-0.1, 0.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">age</td><td>0.6<sup>*</sup></td><td>-0.01</td><td>0.03</td><td>-0.4</td><td>-0.1</td></tr>
## <tr><td style="text-align:left"></td><td>(0.2, 0.9)</td><td>(-0.5, 0.5)</td><td>(-0.2, 0.3)</td><td>(-0.2, 0.3)</td><td>(-0.1, 0.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">female</td><td>-4.7</td><td>-3.0</td><td>-1.1</td><td>-3.7</td><td>-1.1</td></tr>
## <tr><td style="text-align:left"></td><td>(-17.0, 7.7)</td><td>(-18.4, 12.5)</td><td>(-9.3, 7.0)</td><td>(-10.1, 1.1)</td><td>(-1.1, 1.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">mm</td><td>-2.8<sup>***</sup></td><td>-0.6<sup>***</sup></td><td>-0.3<sup>***</sup></td><td>-0.3<sup>***</sup></td><td>-0.3<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(-3.1, -2.4)</td><td>(-1.0, -0.2)</td><td>(-0.6, -0.1)</td><td>(-0.6, -0.1)</td><td>(-0.1, 0.1)</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left">hcc</td><td>255.2<sup>***</sup></td><td>173.4<sup>***</sup></td><td>173.4<sup>***</sup></td><td>173.4<sup>***</sup></td><td>173.4<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(229.4, 281.0)</td><td>(140.6, 206.1)</td><td>(90.8, 124.8)</td><td>(90.8, 124.8)</td><td>(90.8, 124.8)</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"></td></tr>
## <tr><td style="text-align:left">Log Likelihood</td><td>-4,758.2</td><td>-5,506.3</td><td>-3,426.3</td><td>-3,426.3</td><td>-3,426.3</td></tr>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>10,946.4</td><td>12,442.7</td><td>8,282.7</td><td>8,282.7</td><td>8,282.7</td></tr>
## <tr><td colspan="14" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"></td></tr>
## </table>

```

```

stargazer::stargazer(glmMatched7_c, glmMatched8_c, glmMatched9_c, glmMatched10_c, glmMatched10a_c, glmMatched10b_c,
  title="Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental Health"),
  out = "table2c.htm")

```

```
##
```

```
## <table style="text-align:center"><caption><strong>Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcount_er</td><td>logcount_hosp</td><td>logcount_pcp</td>
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Spe
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td style="text-align:left"></td><td>(-4.6, -1.5)</td><td>(-2.1, -1.1)</td><td>(-3.9, -0.8)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">age</td><td>-0.01</td><td>-0.003</td><td>-0.02</td><td>0.05<sup>*</sup></td>
## <tr><td style="text-align:left"></td><td>(-0.1, 0.04)</td><td>(-0.02, 0.01)</td><td>(-0.1, 0.03)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">female</td><td>-0.9</td><td>-0.4</td><td>-1.4</td><td>-1.3<sup>*</sup></td>
## <tr><td style="text-align:left"></td><td>(-2.4, 0.6)</td><td>(-0.9, 0.1)</td><td>(-3.0, 0.1)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">mm</td><td>-0.2<sup>***</sup></td><td>-0.04<sup>***</sup></td><td>-0.
## <tr><td style="text-align:left"></td><td>(-0.2, -0.1)</td><td>(-0.1, -0.03)</td><td>(-0.6, -0.5)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">hcc</td><td>6.4<sup>***</sup></td><td>2.3<sup>***</sup></td><td>9.6<
## <tr><td style="text-align:left"></td><td>(3.3, 9.4)</td><td>(1.3, 3.3)</td><td>(6.5, 12.7)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td style="text-align:left">Log Likelihood</td><td>2,210.2</td><td>5,880.5</td><td>2,160.3</td><td>
## <tr><td style="text-align:left">Akaike Inf. Crit.</td><td>-2,990.4</td><td>-10,331.0</td><td>-2,890.
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## </table>
```

```
stargazer::stargazer(glmMatched11_c, glmMatched11b_c, glmMatched11c_c, glmMatched5c_c, glmMatched5ca_c,
  title="Cost per Utilization",
  type = "html",
  keep=c("om_flag", "age", "female", "mm", "hcc"),
  ci=TRUE, ci.level=0.95,
  apply.coef=exponentiate, apply.se = exponentiate,
  digits = 1,
  star.cutoffs = c(0.05, 0.01, 0.001),
  column.labels = c("Emergency", "Hospital", "Primary Care", "Specialist", "Mental H
  out = "table3c.htm")
```

```
##
## <table style="text-align:center"><caption><strong>Cost per Utilization</strong></caption>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td></td><td colspan="11" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>logcost_per_er</td><td>logcost_per_hosp</td><td>logcost_per
## <tr><td style="text-align:left"></td><td>Emergency</td><td>Hospital</td><td>Primary Care</td><td>Spe
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>
## <tr><td colspan="12" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left
## <tr><td style="text-align:left"></td><td>(-2.5, 4.0)</td><td>(-21.2, 13.2)</td><td>(89.9, 115.1)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">age</td><td>-0.1</td><td>-0.3</td><td>-0.4</td><td>0.9<sup>*</sup></td>
## <tr><td style="text-align:left"></td><td>(-0.2, 0.03)</td><td>(-0.9, 0.2)</td><td>(-0.7, 0.04)</td><td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
## <tr><td style="text-align:left">female</td><td>1.5</td><td>-3.5</td><td>2.3</td><td>-17.0</td><td>-3
## <tr><td style="text-align:left"></td><td>(-1.6, 4.7)</td><td>(-20.3, 13.2)</td><td>(-10.0, 14.6)</td>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>
```

