
PSYCKES

Polypharmacy Indicators

Updated: October 2009

Technical Specifications

Polypharmacy Summary Indicator

Description:

The percentage of Medicaid enrollees of all ages currently identified as meeting one of the following psychotropic polypharmacy indicators (Antipsychotic polypharmacy of 2 or more and 3 or more; antidepressant polypharmacy: 2 or more in same subclass or 3 or more; psychotropic polypharmacy: 3 or more in children/adolescent or 4 or more in adults) among enrollees currently on any psychotropic medication for longer than 90 days.

Eligible Population:

Age: All ages.

Inclusion Criteria: Medicaid enrollee who is prescribed any psychotropic medication for longer than 90 days.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

For a list of psychotropic medications by drug class, please consult the Psychotropic Medication Reference Table.

Polypharmacy Indicators - Antipsychotic polypharmacy of two or more agents (2AP)

Description: The percentage of enrollees of all ages who were prescribed two or more antipsychotic medications among enrollees prescribed any antipsychotic medication.

Eligible Population

Age: All ages.

Inclusion Criteria: Medicaid enrollee who is prescribed an antipsychotic medication for greater than 90 days.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed an antipsychotic medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the eligible population) prescribed two or more concurrent antipsychotic medications during the previous 90 days or longer as of the report date.

Denominator: Eligible Population

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Polypharmacy Indicators - Antipsychotic polypharmacy of three or more agents (3AP)

Description: The percentage of enrollees of all ages who were prescribed three or more antipsychotic medications among enrollees prescribed any antipsychotic medication.

Eligible Population

Age: All ages.

Inclusion Criteria: Medicaid enrollee who is prescribed an antipsychotic medication.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed an antipsychotic medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the eligible population) prescribed three or more concurrent antipsychotic medications during the previous 90 days or longer as of the report date.

Denominator: Eligible Population

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polytrials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polytrial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Polypharmacy Indicators - Antidepressant polypharmacy of two or more agents in the same subclass (2AD)

Description: The percentage of enrollees of all ages who were prescribed two or more antidepressant medications in the same subclass among enrollees prescribed any antidepressant medication.

Eligible Population

Age: All ages.

Inclusion Criteria: Medicaid enrollee who is prescribed an antidepressant medication.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed an antidepressant medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the eligible population) prescribed two or more concurrent antidepressant medications in the same subclass for longer than 90 days as of the report date.

Denominator: Eligible Population

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Antidepressants by Subclass

Subclass	Generic name	Brand name
TCA	Amitriptyline	Elavil
	Amoxapine	Ascendin
	Clomipramine	Anafranil
	Desipramine	Norpramin
	Doxepin	Sinequan
	Imipramine	Tofranil
	Nortriptyline	Pamelor
	Trimipramine	Surmontil
SSRI	Citalopram	Celexa
	Escitalopram	Lexapro
	Fluoxetine	Prozac
	Fluvoxamine	Luvox
	Paroxetine	Paxil
	Paroxetine controlled release	Paxil CR
	Sertraline	Zoloft
	SNRI	Duloxetine
Desvenlafaxine		Pristiq
Venlafaxine		Effexor
Milnacipran		Savella
MAOI	Isocarboxazid	Marplan
	Phenelzine	Nardil
	Selegiline	Emsam transdermal patch
	Tranylcypamine	Parnate
Other	Bupropion	Wellbutrin SR
	Bupropion	Wellbutrin, Wellbutrin XL
	Bupropion	Aplenzin
	Bupropion	Zyban
	Maprotiline	Ludiomil
	Mirtazapine	Remeron
	Nefazodone	Serzone
	Trazodone*	Desyrel

*Not counted as an antidepressant for antidepressant polypharmacy indicators, but included for psychotropic polypharmacy.

Polypharmacy Indicators—Antidepressant polypharmacy of three or more agents (3AD)

Description: The percentage of enrollees of all ages who were prescribed three or more antidepressant medications among enrollees prescribed any antidepressant medication.

Eligible Population

Age: All ages.

Inclusion Criteria: Medicaid enrollee who is prescribed an antidepressant medication.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed an antidepressant medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the eligible population) prescribed three or more concurrent antidepressant medications in the same subclass for longer than 90 days* as of the report date.

Denominator: $\frac{\text{Eligible Population}}{\text{Eligible Population}}$

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Polypharmacy Indicators— Psychotropic polypharmacy in adults (four or more) (4PP(A))

Description: The percentage of enrollees 18 years and older currently on four or more psychotropic medications among enrollees 18 years old and older currently on any psychotropic medication

Eligible Population

Age: 18 years old and older.

Inclusion Criteria: Medicaid enrollee who is prescribed a psychotropic medication.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed a Psychotropic medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the denominator) currently on four or more concurrent psychotropic medications for longer than 90 days as of the report date.

Denominator: Eligible Population

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Polypharmacy Indicators— Psychotropic polypharmacy in youth (three or more) (3PP(Y))

Description: The percentage of enrollees younger than 18 years old currently on three or more psychotropic medications among youth currently on any psychotropic medication

Eligible Population

Age: Younger than 18 years old.

Inclusion Criteria: Medicaid enrollee who is prescribed at least 1 psychotropic medication.

Exclusion Criteria: Current Medicare enrollee (dual eligibility).

Event/Diagnosis: An enrollee is included in the eligible population if the enrollee has been prescribed a Psychotropic medication for longer than 90 days* as of the report date.

Specification:

Numerator: Enrollees (from the denominator) currently on three or more concurrent psychotropic medications for longer than 90 days (as of the report date).

Denominator: Eligible Population

* Note: The algorithm measures time exposed to multiple agents and not the specific regimens. Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the next pick-up date of the same agent (assuming less than perfect adherence and possible short inpatient stays). Polypharmacy trials are created by counting the number of agents available each day (constructed via the agent trials) and assigning corresponding start and end dates. A built-in allowance for polypharmacy trial gap of 15 days is permitted to allow for short periods of fewer medications, if enrollee returns to the same or higher status.

Revisions and Enhancements

This section of the PPI technical specifications summarizes the revisions made to the PSYCKES PPI algorithm since the original release of the indicator results in August 2008. The information below lists the date the revision was made, the component(s) affected by the change, a short summary of the changes that were made, and an analysis of the impact of the definitions changes from the older version to the newer one. This information is current as of the November 2009.

Changes implemented in June 2009:

The initial algorithm included medications that had been picked up within 133 days of the report date and the trial had to be active on the report date. The revised algorithm includes all psychotropics that are active within the 133 days by including medications that the date of pick-up plus the days supply is within the 133 day window. Furthermore, all medications that the days supply ran out within 35 days of the report date are included as well.

- The impact of this change was modest, with a small increase in the observed performance proportions

Production SAS/SQL syntax

```
/* *****
** Copyright (c) 2007-2008, PSYCKES and NYS OMH, all rights reserved.
** Final SAS Code\Medicaid Final Code for all Indicators.sas,v 1.5 2004/14/01
***** */

/*****/
/*ANNOTATED SYNTAX TO IDENTIFY POLYPHARMACY*/
/*Written By Psyckes Data Analysis Workgroup: Qingxian Chen, Nitin Gupta & Emily Leckman-Westin*/
/*DATE: Jan. 14 2007 */

/*Macro: Prevalence creates
   Psychotropic status variable:
       3- on 3 or more Psychotropics for longer than 90 days (kids)
       4- on 4 or more Psychotropics for longer than 90 days (adults)
       see Appendix A for all Psychotropic Medications included

   Antipsychotic status variable, excluding Promethazine:
       2- on 2 antipsychotics
       3- on 3 or more antipsychotics
       see Appendix A for all Antipsychotic Medications included

   Antidepressant status variable:
       2- on 2 or more within same subclass
       3- on 3 or more, excluding Trazadone
       see Appendix A for all Antidepressant Medications included

/*NOTES:
/*Individual agent trials are created, allowing for a possible 32 day gap between the last day with medication and the
next pick-up date of the same agent*/
/*The algorithm attempts to measure time exposed to multiple agents and not the specific regimens therefore,
polytrials are created by counting the number of agents available each day (constructed via the agent trials) and
assigning corresponding start and end dates. A built-in allowance for polytrial gap of 15 days is permitted to allow for
short periods of fewer medications, if recipient returns to the same or higher status.*/

/*Anyone on psychotropic is linked to clinic services, using a 9 mos window*/
/*****/
/*****/

* kill job if error occurs;
options errorabend;

/*Use Following Libnames*/
Libname Medispan /*Link To Drug Table With Drug Info: Identifier Ndc*/
Libname Medicaid /*Link To Medicaid Claims Data Table*/

%Global Reportdate;
%Let Reportdate = '01Nov10'd; /*Setting Report Date: Prevalence Reflects*/

/** Step 1: Extracting Drug Information From Medispan And Psyckes Psychotropics Tables *****/
Proc Sql;
   Create Table Omhtcspi_Detail As
   Select Distinct
```

```

                Drug_Class,
                Drug_Name,
                Drug_Name_Name_Rtype4,
                Drug_Name_Code_Rtype4,
                Drug_Subclass_Name_Rtype3,
                Drug_Subclass_Code_Rtype3
    From    Medispan.Cnf_Dim_Drug
    Where (Drug_Class In ('antidepressant','antidepressants','antipsychotics','antipsychotic','atypical',
                        'stimulant','mood Stabilizer','anxiolytic')
           And Drug_Name_Name_Rtype4 Not Like 'promethazine%')

    Order by Drug_Name
           ;

Quit
;

Proc Sql;
    Create Table Omhtcgpi_Detail As
    Select Distinct
                A.*,
                B.Ndc_Upc_Hri,
                B.Drug_Name_Strgth_Code_Rtype5,
                B.Strength,
                B.Strength_Unit_Of_Measure

    From Omhtcgpi_Detail As A, Medispan.Omhtcgpi_Detail As B
    Where A.Drug_Name_Code_Rtype4 = B.Drug_Name_Code_Rtype4
           ;

Quit
;

Data Omhtcgpi_Detail; Set Omhtcgpi_Detail;
    Moleculename = Drug_Name_Name_Rtype4; /*Calculating Molecule Would Help In Summing Oral And
    Depot Medication**/
    Space = Index(Drug_Name_Name_Rtype4,' ');
    If (Space > 0) Then Do;
        Moleculename = Substr(Drug_Name_Name_Rtype4,1,Space-1);
        Drop Space;
    End;

Run;

/* macro to mixcase capitalize a name */
%Macro Mixcase ( Var , Dlim=' &-*+,.' , Target= ) ;
    Drop __l ;
    %If %Quote(&Target) ^= %Then
    %Do ;
        &Target = &Var ;
        %Let Var = &Target ;
    %End ;
    &Var = Lowercase ( &Var ) ;
    Substr (&Var,1,1) = Uppcase(Substr(&Var,1,1)) ;
    Do __l = 1 To Length ( &Var ) - 1 ;
        If Index ( &Dlim , Substr(&Var,__l,1) ) Then
            Substr(&Var,__l+1,1) = Uppcase(Substr(&Var,__l+1,1)) ;
    End ;
%Mend Mixcase;

```

/** STEP 2.1: EXTRACTING AND NETTING THE RAW MEDICAID ORDERS ***/

%Macro Nettingmedicaidclaims;

Proc Sql;

```
Create Table Netted_Medicaid_Claims As
Select Distinct
    A11.Recipient_Id_1010,
    Datepart(A11.Date_Ordered_3247) As Orderdate ,
    Datepart(A11.Date_Of_Service_3013) As Cleansedstartdate,
    A13.Drug_Class As Drugclass,
    A13.Drug_Name_Name_Rtype4,
    A13.Drug_Name_Code_Rtype4,
    A13.Ndc_Upc_Hri ,
    Sum ( A11.Days_Supply_3232 ) As Days_Supply,
    Sum ( A11.Amt_Quantity_Dispensed_3251 ) As Total_Quantity_Dispensed,
    Sum ( A11.Amt_Paid_Claim_3157 ) As Order_Amount,
    Sum(A11.Claim_Counter_W032) As Claim_Ct, /*To Create One Record Per Claim*/
    A13.Strength,
    A11.Pres_Prov_Lic_Num_3005,
    A11.Pres_Prov_Mmis_Id_W048,
    A11.Pres_Prov_Prof_Code_2165_2,
    A11.Provider_Id_2001,
    A11.Record_Code_H002
```

From Medicaid.Emedny_Claim_Enct A11, Omhtcgpj_Detail A13

Where

A11.National_Drug_Code_E1856 = A13.Ndc_Upc_Hri

And A11.Invoice_Type_3301 In ('10', '09')

And A11.Date_Of_Service_3013 >= '01Nov09:00:00:00'dt

And A11.Load_Audit_Date <= '08Nov10:00:00:00'dt

Group By

A11.Original_Claim_Number_W026

;

Quit

;

Data Netted_Medicaid_Claims ; Set Netted_Medicaid_Claims;

Format Orderdate Cleansedstartdate Mmddy10.;

Where (Cleansedstartdate + Days_Supply) >= '21Jun10'd /*Must Hard-Code Date 133 Days Prior To Reportdate*/

And Days_Supply <= 180 ;

Run;

Proc Sql;

Create Table Recipients As

Select Distinct

Recipient_Id_1010

From Netted_Medicaid_Claims

;

Quit

;

* Find If An Individual Has Part D Status;

Proc Sql;

Create Table Recipient_Partd As

Select Distinct

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                A.Recipient_Id_1010
    From Recipients A, Medicaid.Omh_Medicare B
    Where A.Recipient_Id_1010=B.Recipient_Id_1010
    And B.Recipient_Medicare_Code_1340='d'
    And Datepart(B.Date_Begin_Third_Party_3013_2)<= &Reportdate
    And Datepart(B.Date_End_Third_Party_3015_2) > (&Reportdate-133)
;
Quit;

* Exclude Individuals With Part D Status;
Proc Sql;
    Create Table Netted_Medicaid_Claims_1 As
    Select Distinct *
    From Netted_Medicaid_Claims
    Where Recipient_Id_1010 Not In (Select Distinct Recipient_Id_1010 From Recipient_Partd);
Quit;

* Decision: Delete Claims With Days Supply And/Or Quantity Dispensed =0***;
/** STEP 2.2: DATA CLEANING ***/

Data Netted_Medicaid_Claims; Set Netted_Medicaid_Claims_1;
    Format Cleansedstartdate Orderdate Mmddy9. ;
    Format Drug_Strength Pillsperday 8.2;
    If Days_Supply <= 0 Then Delete;
    If Total_Quantity_Dispensed <= 0 Then Delete;
    If Total_Quantity_Dispensed <=0 Then Delete;
        Pillsperday = Total_Quantity_Dispensed/Days_Supply; _Error_=0;
        If Pillsperday = 0 Then Pillsperday = 1;
        Drug_Strength = Input(Strength,8.2);
        Dose = Input(Strength,8.)*(Pillsperday);
        Costperday = Round(Order_Amount/Days_Supply,.01);
Run;

/** STEP 2.4: SUMMING UP THE TOTAL DAILY DOSE IF THE ORDERS WERE PICKED UP ON THE SAME
DATE ***/
/*ASSUMPTION: if two scripts for same agent picked up on the same day then it is due to MD prescribing a dose not
available in a single pill size */

Proc Sql;
    Create Table Medicaid_Claims As
    Select Distinct
                Pres_Prov_Lic_Num_3005,
                Pres_Prov_Prof_Code_2165_2,
                Pres_Prov_Mmis_Id_W048,
                Provider_Id_2001,
                Recipient_Id_1010,
                Drug_Name_Code_Rtype4,
                Drug_Name_Name_Rtype4,
                Drugclass,
                Cleansedstartdate,
                Max(Days_Supply) As Days_Supply,
                Round(Sum(Order_Amount),.2) As Totalcostperconcurrentorder,
                Sum(Dose) As Totaldailydose Format 8.2,
                Count(Dose) As Numconcurrentorders
    From Netted_Medicaid_Claims
    Group By Recipient_Id_1010 ,Drug_Name_Code_Rtype4 ,Cleansedstartdate
    Order By Recipient_Id_1010 ,Drug_Name_Code_Rtype4,Cleansedstartdate ;
Quit;
```

```

Proc Sql;
    Create Table Medicaid_Claims As
    Select Distinct
        Pres_Prov_Lic_Num_3005,
        Pres_Prov_Prof_Code_2165_2,
        Provider_Id_2001,
        Recipient_Id_1010,
        Drug_Name_Code_Rtype4,
        Drug_Name_Name_Rtype4,
        Drugclass,
        Cleansedstartdate,
        Days_Supply,
        Totalcostperconcurrentorder,
        Round(Sum(Totalcostperconcurrentorder)/Sum(Days_Supply),.2) As
            Avgdrugcostperdayperorder,
        Totaldailydose Format 8.2,
        Numconcurrentorders
    From Medicaid_Claims
    Group By Recipient_Id_1010 ,Drug_Name_Code_Rtype4
    Order By Recipient_Id_1010 ,Drug_Name_Code_Rtype4,Cleansedstartdate ;

Quit;

/** STEP 2.5: DATA PREPARATION FOR CREATING TRIALS ****
Assign standard days supply for the decanoate antipsychotics
*****/

Data Medicaid_Claims; Set Medicaid_Claims;
    If Drug_Name_Name_Rtype4 = 'fluphenazine Decanoate' Then Is_Flu_Depot = 1;
    If Drug_Name_Name_Rtype4 = 'haloperidol Decanoate' Then Is_Hal_Depot = 1;
        Else Isdepot = 0;
    If Drug_Name_Name_Rtype4 = 'fluphenazine Decanoate' Then Days_Supply = 21;
    If Drug_Name_Name_Rtype4 = 'haloperidol Decanoate' Then Days_Supply = 28;

    Moleculename = Drug_Name_Name_Rtype4; /*Identifying Molecule To Help In Summing Oral And Depot
Medication**/
    Space = Index(Drug_Name_Name_Rtype4,' ');
    If (Space > 0) Then Do;
        Moleculename = Substr(Drug_Name_Name_Rtype4,1,Space-1);
        Drop Space;
    End;

Run;

Data Medicaid_Claims; Set Medicaid_Claims;
    Format Cleansedstopdate Mmddy8.;
    Format Avgdrugcostperdayperorder 8.2;
        If Oversupply = . Then Oversupply = 0;
        Cleansedstopdate = Cleansedstartdate + Days_Supply;

Run;

Proc Sort Data = Medicaid_Claims Nodup;
    By Recipient_Id_1010 Drug_Name_Code_Rtype4 Cleansedstartdate Cleansedstopdate;
Run;

%Mend Nettingmedicaidclaims;
%Nettingmedicaidclaims;

```

* Create Medication Trials On Raw/Cleansed Order ;

%Macro Createdrugrials;

Data Trials_Claims_Status; Set Medicaid_Claims;

By Recipient_Id_1010 Drug_Name_Code_Rtype4 Cleansedstartdate Cleansedstopdate;

Retain B E; /* Lets These Variables (Begin/End) Carry-Over Across Cases */

Retain Seqn; /* Ditto - This Is The Number Of Unique Trials Of The Same Medication Within An Admission */

Retain Allowed_Gap;

Format B E Mmddy10.;

Format Cleansedstopdate Mmddy10.;

/* If This Is The First Time That A New Medication Has Been Detected, Then Set New Begin/End */

/* Seqn Is The Number Of Contiguous Pick-Ups Of A Medication Within A Given Trial (Allowing For Gap). */

If First.Drug_Name_Code_Rtype4 Then Do;

B = Cleansedstartdate;

E = Cleansedstopdate;

Seqn = 1;

If (Is_Flu_Depot = 1) Then Allowed_Gap = 42; /*Based On Discussions With M. Olfson, Md*/

If (Is_Hal_Depot = 1) Then Allowed_Gap = 56;

Else Allowed_Gap = 32;

End;

/* Startdt Must Be Number Of Days Since Some Standard Time, So Next Line Means: If Next

Start Date Is Within &Max_Oral_Gap Days Of Previous End Date, Than Reset End Date To The Later Of Current Or New Stop Date */

If (Cleansedstartdate <= E + Allowed_Gap) Then Do;

E = Max(E,Cleansedstopdate);

End;

/* Otherwise Set New Begin And End Dates -- This Is A Discontinuous Record */

Else Do;

Seqn = Seqn + 1;

B = Cleansedstartdate;

E = Cleansedstopdate;

End;

Run;

/* This Further Sorts Medication Trials

Trialstartdate => Start Of A Med Trial (First Start Date)

Trialenddate => Stop Of A Trial (Lastest (Which Is Not Necessarily The Last) Stop Date)*/

Proc Sort Data=Trials_Claims_Status Nodup;

By Recipient_Id_1010 Drug_Name_Code_Rtype4 Seqn Cleansedstartdate Cleansedstopdate;

Run;

Data Trials_Claims_Status; Set Trials_Claims_Status;

By Recipient_Id_1010 Drug_Name_Code_Rtype4 Seqn B E;

Format Trialstartdate Trialenddate Mmddy8.;

Keep Recipient_Id_1010 Drug_Name_Code_Rtype4 Drug_Name_Name_Rtype4 Moleculename Isdepot

Provider_Id_2001 Pres_Prov_Prof_Code_2165_2 Drugclass

Pres_Prov_Lic_Num_3005 Trialenddate Trialstartdate;

Drop B E Seqn Allowed_Gap;

If Last.Seqn Then Do;

Trialstartdate = B;

Trialenddate = E;

Output; /* Write A Single Record Containing Best Trialstartdate And End Records To File. */

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```
End;
Run;

Data Trials_Claims_Status; Set Trials_Claims_Status;
    Triallength = (Trialenddate - Trialstartdate);
    If (Triallength = 0) Then Triallength = 1;
Run;

%Mend Createdrugrials;
%Createdrugrials;

Data Trials_Claims_Status; Set Trials_Claims_Status;
    If (Trialenddate > (&Reportdate - 35) And Trialenddate < &Reportdate) Then Trialenddate = &Reportdate;
    Triallength = (Trialenddate - Trialstartdate);
    If (Triallength = 0) Then Triallength = 1;
Run;

** Add Code Below To Accommodate Comb Drugs;
%Macro Combdrugs;
Data Combs;
    Set Trials_Claims_Status;
    If Moleculename In ('chlordiazepoxide-Amitriptyline', 'perphenazine-Amitriptyline',
                                                                'olanzapine-Fluoxetine');

    Dash = Index(Moleculename,'-');
    Len=Length(Moleculename);
    If (Dash > 0) Then Do;
        Moleculename_1 = Substr(Moleculename,1,Dash-1);
        Moleculename_2= Substr(Moleculename,Dash+1, Len-Dash+1);
    End;
    Drop Dash Len;
Run;

Proc Sort Data=Combs;
    By Pres_Prov_Lic_Num_3005 Pres_Prov_Prof_Code_2165_2 Provider_Id_2001 Recipient_Id_1010
        Drug_Name_Code_Rtype4 Drug_Name_Name_Rtype4 Drugclass Isdepot Trialstartdate Trialenddate
        Triallength;
Run;
Proc Transpose Data=Combs Out=T1 (Drop=_Name_) Prefix=Moleculename_New;
By Pres_Prov_Lic_Num_3005 Pres_Prov_Prof_Code_2165_2 Provider_Id_2001 Recipient_Id_1010
    Drug_Name_Code_Rtype4 Drug_Name_Name_Rtype4 Drugclass Isdepot Trialstartdate Trialenddate
    Triallength;
Var Moleculename Moleculename_1 Moleculename_2;
Run;

Data Trials_Claims_Status_Comb;
    Set T1;
    If Moleculename_New1 = 'fluoxetine' Then Do;
        Drugclass='antidepressant';
        Drug_Name_Code_Rtype4='5816004000'; End;
    If Moleculename_New1 = 'amitriptyline' Then Do;
        Drugclass='antidepressant';
        Drug_Name_Code_Rtype4='5820001010'; End;

    Moleculename=Moleculename_New1;
    Comb=1;
    Drop Moleculename_New1;

    If Moleculename Not In ('chlordiazepoxide-Amitriptyline', 'perphenazine-Amitriptyline',
```

```
'olanzapine-Fluoxetine');  
Run;
```

```
Data Trials_Claims_Status_Nocomb;  
Set Trials_Claims_Status;  
If Moleculename Not In ('chlordiazepoxide-Amitriptyline', 'perphenazine-Amitriptyline',  
  'olanzapine-Fluoxetine');  
Run;
```

```
Data Trials_Claims_Status;  
Set Trials_Claims_Status_Nocomb Trials_Claims_Status_Comb;  
Run;
```

```
%Mend Combdrugs;  
%Combdrugs;
```

```
%Macro Recipientdemographic;
```

```
Proc Sql;  
  Create Table Recipients As  
  Select Distinct  
    Recipient_Id_1010,  
    Count(Distinct Moleculename) As Drugcount  
  From Trials_Claims_Status  
  Group By Recipient_Id_1010;  
Quit;
```

*Updated Optimize Here: Split Trials_Claims_Status_Gap Into Kid/Adult Cohorts And Write Macro;

```
Proc Sql;  
  Create Table Recipient_Demographic As  
  Select Distinct  
    A12.Recipient_Id_1010,  
    Datepart(A11.Date_Of_Birth_Recipient_1180) As Dob Format Mmddy10.,  
    A11.Recipient_Race_Code_1190 As Race,  
    A11.Recipient_Sex_1210 As Gender,  
    A12.Drugcount
```

```
From Medicaid.Omh_Recipient_Base A11, Recipients A12  
Where (A11.Recipient_Id_1010=A12.Recipient_Id_1010 )  
Order By A12.Recipient_Id_1010;  
Quit;
```

```
Proc Sql;  
  Create Table Trials_Claims_Status As  
  Select Distinct A.*, B.Race, B.Gender,B.Dob  
  From Trials_Claims_Status As A Left Join Recipient_Demographic As B  
  On A.Recipient_Id_1010=B.Recipient_Id_1010  
Order By Recipient_Id_1010 ;  
Quit;
```

```
%Mend Recipientdemographic;  
%Recipientdemographic;
```

```
%Macro Creattingdatagroups; /* Creating Cohort For Day Level Analysis */
```

```
Data Trials_Claims_Status; Set Trials_Claims_Status;  
Age=Floor((&Reportdate-Dob)/3.6525)/100;  
Run;
```

```
Proc Sql;
/* Kids >= 3 Psychotropics > 90 Days */
Create Table Kidsonpsychotropics As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Age < 18 And Age Ne . ;

/* Adults >= 4 Psychotropics > 90 Days */
Create Table Adultsonpsychotropics As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Age >= 18 And Age Ne . And
  Drug_Name_Name_Rtype4 Not In ('clonidine Hcl','guanfacine Hcl');

/* All Recipient >=2 And >=3 Antipsychotics > 90 Days */
Create Table Antipsychotics As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Drugclass In ('antipsychotics','antipsychotic','atypical');

/* All Recipient >=3 Antidepressants Excluding Trazadone > 90 Days */
Create Table Antidepressants As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Drugclass = ('antidepressant') And Moleculename Ne 'trazodone';

/* All Recipient >=2 Within Same Subclass > 90 Days */
Create Table Antidepsamesubclass As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Drugclass = ('antidepressant') And Moleculename Ne 'trazodone';

Create Table Missingdob As
  Select Distinct
    *
    From Trials_Claims_Status
  Where Age = .;

Quit;

Proc Sort Data = Antidepsamesubclass; By Drug_Name_Code_Rtype4;
Run;

Proc Sort Data = Omhtcgpi_Detail Out = Omhtcgpi_Detail_Antidep (Keep = Drug_Name_Code_Rtype4
Drug_Subclass_Name_Rtype3 Drug_Subclass_Code_Rtype3);
  Where Drug_Subclass_Code_Rtype3 In ('589985', '581600', '581800','582000','581000');
  By Drug_Name_Code_Rtype4;
Run;

Data Antidepsamesubclass; Merge Antidepsamesubclass(In=A) Omhtcgpi_Detail_Antidep(In=B);
By Drug_Name_Code_Rtype4;
If B;
Run;

Data Antidepsamesubclass; Set Antidepsamesubclass;
```

```

Length Drug_Class $20.;
If Drug_Subclass_Code_Rtype3 In ('581600','589985','581800') Then Drug_Class = 'ssri';
Else If Drug_Subclass_Code_Rtype3='582000' Then Drug_Class = 'tricyclis';
*Else If Drug_Subclass_Code_Rtype3='581200' Then Drug_Class = 'modified_Cyclics';
Else If Drug_Subclass_Code_Rtype3='581000' Then Drug_Class = 'maois';
Run;

%Mend Creattingdatagroups;
%Creattngdatagroups;

%Macro Daylevelprep(Cohort);
/*Step 3.1: Data Prep */
Proc Sort Data=&Cohort; /**/
    By Moleculename Recipient_Id_1010;
Run;

Proc Transpose Data=&Cohort
    Out=Filldt (Drop=_Name_) Prefix = Filldt;
    By Moleculename Recipient_Id_1010;
    Var Trialstartdate;
Run;

Proc Transpose Data=&Cohort
    Out=Dsupply (Drop=_Name_) Prefix = Dsupply;
    By Moleculename Recipient_Id_1010;
    Var Triallength;
Run;

Data Filldt_Dsupply; Merge Filldt Dsupply;
    By Moleculename Recipient_Id_1010;
    Format Start_Dt End_Dt Mmddy10.;
    Start_Dt= &Reportdate - 133; /*First Day Pulled From Data: Trial Started On Or Before This Date */
    End_Dt=Filldt1 + 200;
Run;

/*Step 3.2: Calculate Day Level Use*/

Data Filldt_Dsupply1; Set Filldt_Dsupply;
    Array Daydummy (200) Day1-Day200;
    Array Filldates (*) Filldt1-Filldt20;
    Array Triallength (*) Dsupply1-Dsupply20;

    Do li=1 To 200; Daydummy(li)=0; End;
    Do li=1 To 200;
        Do l=1 To Dim(Filldates) While (Filldates(l) Ne .);
            If Filldates(l)<=Start_Dt + li-1<=Filldates(l)+Triallength(l)-1 Then Daydummy(li)=1;
        End;
    End;

    Drop l li Moleculename;
Run;

/*Step 3.3: Concomitant Therapy*/
/*Create Summery Dataset (Sum/Mean) For Each Day By Recipient*/

Proc Means Data=Filldt_Dsupply1 Noprint;/** */
    Class Recipient_Id_1010;
    Var Day1-Day200;

```

```
Output Out=Ctdaysum Sum(Day1-Day200)= Day1-Day200;
Run; /*Creating Number Of Agents Each Day*/

Data Ctday_All;
  Set Ctdaysum;
  Drop _Type_ _Freq_;
  Where Recipient_Id_1010 Ne ' ';
Run;

Proc Transpose Data=Ctday_All Out=Day_Level_&Cohort (Rename=( _Name_ =Day Col1=Number_Medication));
  By Recipient_Id_1010;
Run;

/* Deleting Files To Improve Performance ***/
Proc Sql;
  Drop Table Ctday_All , Ctdaysum,Filldt,Filldt_Dsupply1,Filldt_Dsupply, Recipients;
Quit;

%Mend Daylevelprep;
%Daylevelprep(Kidsonpsychotropics);
%Daylevelprep(Adultsonpsychotropics);
%Daylevelprep(Antipsychotics);
%Daylevelprep(Antidepressants);

%Macro Daylevelprep(Cohort);
/*Step 3.1: Data Prep */
Proc Sort Data=&Cohort;
  By Drug_Class Moleculename Recipient_Id_1010;
Run;

Proc Transpose Data=&Cohort
  Out=Filldt (Drop=_Name_) Prefix = Filldt;
  By Drug_Class Moleculename Recipient_Id_1010;
  Var Trialstartdate;
Run;

Proc Transpose Data=&Cohort
  Out=Dsupply (Drop=_Name_) Prefix = Dsupply;
  By Drug_Class Moleculename Recipient_Id_1010;
  Var Triallength;
Run;

Data Filldt_Dsupply; Merge Filldt Dsupply;
  By Drug_Class Moleculename Recipient_Id_1010;
  Format Start_Dt End_Dt Mmddy10.;
  Start_Dt= &Reportdate - 133; /*First Day Pulled From Data: Trial Started On Or Before This Date */
  End_Dt=Filldt1 + 200;
Run;

/*Step 3.2: Calculate Day Level Use*/

Data Filldt_Dsupply1; Set Filldt_Dsupply;
  Array Daydummy (200) Day1-Day200;
  Array Filldates (*) Filldt1-Filldt20;
  Array Triallength (*) Dsupply1-Dsupply20;

  Do li=1 To 200; Daydummy(li)=0; End;
  Do li=1 To 200;
    Do l=1 To Dim(Filldates) While (Filldates(l) Ne .);
```

```

        If Filldates(l)<=Start_Dt + li-1<=Filldates(l)+Triallength(l)-1 Then Daydummy(li)=1;
        End;
    End;

    Drop l li;

Run;

/*Step 3.3: Concomitant Therapy*/
/*Create Summery Dataset (Sum/Mean) For Each Day By Recipient*/

Proc Sort Data=Filldt_Dsupply1;
By Drug_Class Recipient_Id_1010;
Run;

Proc Means Data=Filldt_Dsupply1 Noprint;
    By Drug_Class Recipient_Id_1010;
    Var Day1-Day200;
    Output Out=Ctdaysum Sum(Day1-Day200)= Day1-Day200;
Run; /*Creating Number Of Agents Each Day*/

Data Ctday_All;
    Set Ctdaysum;
    Drop _Type_ _Freq_;
    Where Recipient_Id_1010 Ne ' ';
Run;

Proc Transpose Data=Ctday_All Out=Day_Level_&Cohort /*Day_Level_&Cohort*/ (Rename=( _Name_ =Day
Col1=Number_Medication));
    By Drug_Class Recipient_Id_1010;
Run;

/* Deleting Files To Improve Performance ***/
Proc Sql;
    Drop Table Ctday_All, Ctdaysum, Filldt, Filldt_Dsupply1, Filldt_Dsupply, Recipients;
Quit;

%Mend Daylevelprep;
%Daylevelprep(Antidepsamesubclass);

* Find The Monotherapy Trials;
%Macro Createmonotherapy(Datafile);
Data T2; Set Day_Level_&Datafile;
    Days=Input(Compress(Day,'day'),3.);
    If Number_Medication >= 1 Then Poly=1;
    Else Poly=Number_Medication;
Run;

Proc Sort Data=T2;
    By Recipient_Id_1010 Days;
Run;

Data T3; Set T2;
    By Recipient_Id_1010 Days;
    If Recipient_Id_1010=Lag(Recipient_Id_1010) And
        Poly=Lag(Poly) Then Cnt+1;
        Else Cnt=1;
Run;

Proc Sort Data=T3 Out=T4;

```

```
By Recipient_Id_1010 Descending Days ;
Run;

Data T5;
Set T4;
By Recipient_Id_1010 Descending Days ;
If First.Recipient_Id_1010 Or Lag(Cnt)=1;
Run;

Proc Sort Data=T5;
By Recipient_Id_1010 Days;
Run;

Proc Sql;
Create Table Extreme_1 As
Select * From T5
Where Recipient_Id_1010 In (Select Distinct Recipient_Id_1010
From T5
Where Poly=1)
Order By Recipient_Id_1010, Days;
Quit;

Data T1;
Set Extreme_1;
End_Dt=(&Reportdate-133)+Days;
Start_Dt=End_Dt-Cnt; /* */
Format Start_Dt End_Dt Mmddy10.;
Run;

Proc Sql;
Create Table T2 As
Select Recipient_Id_1010, Number_Medication,
Case When Start_Dt<(&Reportdate -133) Then &Reportdate-133
Else Start_Dt End As Poly_Startdt Format Mmddy10.,
End_Dt As Poly_Enddt,
(Min(End_Dt,&Reportdate)- Start_Dt) As Days_In_Poly
From T1
Where Poly=1 And &Reportdate<=End_Dt /* For Point Prevalence*/
/*Where Poly=&Num And (&Reportdate-30)<=End_Dt /* For 30 Days Prevalence*/
Order By Recipient_Id_1010, Poly_Startdt;
Quit;
Proc Sql;
Create Table Mono_&Datafile As
Select * , 1 As Status
From T2
Where Days_In_Poly Gt 90 /*Exclude Those Who Activate After Report Date*/
Order By Recipient_Id_1010, Poly_Startdt;
Quit;

Proc Sql;
Drop Table T1, T2, T3,T2,T4,T5,Extreme_1;
Quit;

%Mend Createmonotherapy;
%Createmonotherapy(Kidsonpsychotropics);
%Createmonotherapy(Adultsonpsychotropics);
%Createmonotherapy(Antipsychotics);
%Createmonotherapy(Antidepressants);
```

```
%Macro Createpolytherapy(Source, Num);
Data T1; Set Day_Level_&Source;
  Days=Input(Compress(Day,'day'),3.);
  If Number_Medication >= &Num Then Poly=&Num;
  Else Poly=Number_Medication;
Run;

Proc Sort Data=T1;
  By Recipient_Id_1010 Days;
Run;

Data T2; Set T1;
  By Recipient_Id_1010 Days;
  If Recipient_Id_1010=Lag(Recipient_Id_1010) And
  Poly=Lag(Poly) Then Cnt+1;
  Else Cnt=1;
Run;

Proc Sort Data=T2 Out=T3;
  By Recipient_Id_1010 Descending Days;
Run;

Data T4; Set T3;
  By Recipient_Id_1010 Descending Days;
  If First.Recipient_Id_1010 Or Lag(Cnt)=1;
Run;

Proc Sort Data=T4;
  By Recipient_Id_1010 Days;
Run;

Proc Sql;
  Create Table &Source._&Num As
  Select * From T4
  Where Recipient_Id_1010 In (Select Distinct Recipient_Id_1010
  From T4
  Where Poly=&Num)
  Order By Recipient_Id_1010, Days;
Quit;

Data T1; Set &Source._&Num;
  End_Dt=(&Reportdate-133)+Days;/**/
  Start_Dt=End_Dt-Cnt; /* */
  Format Start_Dt End_Dt Mmddy10.;
Run;

Proc Sql;
  Create Table T2 As
  Select * From T1
  Where Poly=&Num
  Order By Recipient_Id_1010, Start_Dt;
Quit;

Data T3;
  Set T2;
  By Recipient_Id_1010 Start_Dt;
  Gap=Start_Dt-Lag(End_Dt);
  If First.Recipient_Id_1010 Then Gap=0;
Run;
```

```
Data T4;
  Set T3;
  By Recipient_Id_1010 Start_Dt;
  Start_Dt_New=Lag(Start_Dt);
  If First.Recipient_Id_1010 Or Gap>15 Then Start_Dt_New=Start_Dt;
  Format Start_Dt_New Mmddy10.;
Run;
```

```
Proc Sort Data=T4;
  By Recipient_Id_1010 Start_Dt_New Start_Dt;
Run;
```

```
Data T5;
  Set T4;
  By Recipient_Id_1010 Start_Dt_New Start_Dt;
  If Last.Start_Dt_New;
  Cnt_New=End_Dt-Start_Dt_New;
  Cnt=Cnt_New;
  Start_Dt=Start_Dt_New;
  Drop Cnt_New Start_Dt_New;
Run;
```

```
Proc Sql;
  Create Table T6 As
  Select Recipient_Id_1010, Number_Medication,
  Case When Start_Dt<(&Reportdate -133) Then &Reportdate-133
  Else Start_Dt End As Poly_Startdt Format Mmddy10.,
  End_Dt As Poly_Enddt,
  (Min(End_Dt,&Reportdate )- Start_Dt) As Days_In_Poly
  From T5
  Where Poly=&Num And &Reportdate<=End_Dt /* For Point Prevalence*/
  /*Where Poly=&Num And (&Reportdate-30)<=End_Dt /* For 30 Days Prevalence*/
  Order By Recipient_Id_1010, Poly_Startdt;
Quit;
```

```
Proc Sql;
  Create Table &Source._&Num As
  Select * , &Num As Status
  From T6
  Where Days_In_Poly Gt 90 /*Required Overlap Here*/
  Order By Recipient_Id_1010, Poly_Startdt;
Quit;
```

```
Proc Sql;
  Drop Table T1, T2, T3,T2,T4,T6;
Quit;
```

%Mend Createpolytherapy;

```
/** Calculating For >=4 Psychotropics In Adults**/
%Createpolytherapy(Adultsonpsychotropics,4);
/** Calculating For >=3 Psychotropics In Kids**/
%Createpolytherapy(Kidsonpsychotropics,3);
/** Calculating For >=2 Antipsychotics **/
%Createpolytherapy(Antipsychotics,2);
/** Calculating For >=3 Antipsychotics **/
%Createpolytherapy(Antipsychotics,3);
/** Calculating For >=3 Antidepressants Excluding Trazadone **/
```

```
%Createpolytherapy(Antidepressants,3);
```

```
%Macro Createpolytherapy(Source, Num);  
Data T1; Set Day_Level_&Source;  
Days=Input(Compress(Day,'day'),3.);  
If Number_Medication >= &Num Then Poly=&Num;  
Else Poly=Number_Medication;  
Run;
```

```
Proc Sort Data=T1;  
By Drug_Class Recipient_Id_1010 Days;  
Run;
```

```
Data T2; Set T1;  
By Drug_Class Recipient_Id_1010 Days;  
If Drug_Class=Lag(Drug_Class) And Recipient_Id_1010=Lag(Recipient_Id_1010) And  
Poly=Lag(Poly) Then Cnt+1;  
Else Cnt=1;  
Run;
```

```
Proc Sort Data=T2 Out=T3;  
By Drug_Class Recipient_Id_1010 Descending Days;  
Run;
```

```
Data T4; Set T3;  
By Drug_Class Recipient_Id_1010 Descending Days;  
If First.Recipient_Id_1010 Or Lag(Cnt)=1;  
Run;
```

```
Proc Sort Data=T4;  
By Drug_Class Recipient_Id_1010 Days;  
Run;
```

```
Proc Sql;  
Create Table &Source_&Num As  
Select * From T4  
Where Recipient_Id_1010 In (Select Distinct Recipient_Id_1010  
From T4  
Where Poly=&Num)  
Order By Recipient_Id_1010, Days;  
Quit;
```

```
Data T1; Set &Source_&Num;  
End_Dt=(&Reportdate-133)+Days;  
Start_Dt=End_Dt-Cnt;  
Format Start_Dt End_Dt Mmddy10.;  
Run;
```

```
Proc Sql;  
Create Table T2 As  
Select * From T1  
Where Poly=&Num  
Order By Drug_Class,Recipient_Id_1010, Start_Dt;  
Quit;
```

```
Data T3;  
Set T2;  
By Drug_Class Recipient_Id_1010 Start_Dt;
```

```
Gap=Start_Dt-Lag(End_Dt);
If First.Recipient_Id_1010 Then Gap=0;
Run;
```

```
Data T4;
  Set T3;
  By Drug_Class Recipient_Id_1010 Start_Dt;
  Start_Dt_New=Lag(Start_Dt);
  If First.Recipient_Id_1010 Or Gap>15 Then Start_Dt_New=Start_Dt;
  Format Start_Dt_New Mmddy10.;
Run;
```

```
Proc Sort Data=T4;
  By Drug_Class Recipient_Id_1010 Start_Dt_New Start_Dt;
Run;
```

```
Data T5;
  Set T4;
  By Drug_Class Recipient_Id_1010 Start_Dt_New Start_Dt;
  If Last.Start_Dt_New;
  Cnt_New=End_Dt-Start_Dt_New;
  Cnt=Cnt_New;
  Start_Dt=Start_Dt_New;
  Drop Cnt_New Start_Dt_New;
Run;
```

```
Proc Sql;
  Create Table T6 As
  Select Drug_Class, Recipient_Id_1010, Number_Medication,
  Case When Start_Dt<(&Reportdate -133) Then &Reportdate-133
  Else Start_Dt End As Poly_Startdt Format Mmddy10.,
  End_Dt As Poly_Enddt,
  (Min(End_Dt,&Reportdate )- Start_Dt) As Days_In_Poly
  From T5
  Where Poly=&Num And &Reportdate<=End_Dt /* For Point Prevalence*/
  /*Where Poly=&Num And (&Reportdate-30)<=End_Dt /* For 30 Days Prevalence*/
  Order By Drug_Class, Recipient_Id_1010, Poly_Startdt;
```

```
Quit;
Proc Sql;
  Create Table &Source_&Num As
  Select * , &Num As Status
  From T6
  Where Days_In_Poly Gt 90 /*Required Overlap Here*/
  Order By Drug_Class, Recipient_Id_1010, Poly_Startdt;
```

Quit;

```
Proc Sql;
  Drop Table T1, T2, T3,T2,T4,T6;
```

Quit;

```
%Mend Createpolytherapy;
/** Calculating For >=2 Antidepressants In The Same Subclass **/
%Createpolytherapy(Antidepsamesubclass,2);
```

```
Data Polyantipsychotics ; Set Antipsychotics_2 Antipsychotics_3;
Run;
```

%Macro Remergingstatuswithtrials(Datafile,Output);

```
Proc Sql;
    Create Table &Output As
        Select Distinct
            A.*,
            B.Status,
            B.Poly_Startdt,
            B.Poly_Enddt,
            B.Days_In_Poly
        From Trials_Claims_Status As A , &Datafile As B
        Where A.Recipient_Id_1010 = B.Recipient_Id_1010
        Order By A.Recipient_Id_1010
    ;
```

Quit;

%Mend Remergingstatuswithtrials;

%Remergingstatuswithtrials(Antidepsamesubclass_2,Ge2Antidepsamesubclassgt90Days);

%Remergingstatuswithtrials(Polyantipsychotics,Ge_3_2_Antipsychoticsgt90Days);

%Remergingstatuswithtrials(Antidepressants_3,Ge3Antidepressantsgt90Days);

%Remergingstatuswithtrials(Kidsonpsychotropics_3,Ge3Psychotropicskidsgt90Days);

%Remergingstatuswithtrials(Adultsonpsychotropics_4,Ge4Psychotropicsadultsgt90Days);

Data Ge_3_2_Antipsychoticsgt90Days; Set Ge_3_2_Antipsychoticsgt90Days;

Format Reportdate Mmddy10.;

Where Drugclass In ('atypical','antipsychotics','antipsychotic');

Reportdate = &Reportdate;

Run;

Data Ge3Antidepressantsgt90Days; Set Ge3Antidepressantsgt90Days;

Format Reportdate Mmddy10.;

Where Drugclass = ('antidepressant');

Reportdate = &Reportdate;

Run;

Data Ge2Antidepsamesubclassgt90Days; Set Ge2Antidepsamesubclassgt90Days;

Format Reportdate Mmddy10.;

Where Drugclass = ('antidepressant') ;

Reportdate = &Reportdate;

Run;

*/*Summary Indicator: Polypharmacy. Written By Elw. 5/7/08*/*

Data Mono_Allpsychotropics; Set Mono_Adultsonpsychotropics Mono_Kidsonpsychotropics;

Drugclass='psychotropics';

Population='all';/*Denominator-Full Population On Psychotropics, Across Ages*/

Run;

Proc Sql;

Create Table Ap_Ind As

Select Distinct

Recipient_Id_1010,

Status

From Ge_3_2_Antipsychoticsgt90Days;

Quit;

Data Ap_Ind; Set Ap_Ind;

Ap_Ind=1;

If Status Gt 1 Then Ap2_Ind=1;/*Polypharm2+*/

```
If Status = 3 Then Ap3_Ind=1;/*Polypharm3+*/  
Run;
```

```
Proc Sql;  
    Create Table Ad2_Ind As  
    Select Distinct  
        Recipient_Id_1010,  
        Status  
    From Ge2Antidepsamesubclassgt90Days;  
Quit;
```

```
Data Ad2_Ind; Set Ad2_Ind;  
Ge2Ad_Ind=1;  
Run;
```

```
Proc Sql;  
    Create Table Ad3_Ind As  
    Select Distinct  
        Recipient_Id_1010,  
        Status  
    From Ge3Antidepressantsgt90Days;  
Quit;
```

```
Data Ad3_Ind; Set Ad3_Ind;  
Ge3Ad_Ind=1;
```

```
Run;  
Proc Sql;  
    Create Table Kids_Ind As  
    Select Distinct  
        Recipient_Id_1010,  
        Status  
    From Ge3Psychotropicskidsgt90Days
```

```
;  
Quit;
```

```
Data Kids_Ind; Set Kids_Ind;  
Kids_Ind=1;  
Run;
```

```
Proc Sql;  
    Create Table Adu_Ind As  
    Select Distinct  
        Recipient_Id_1010,  
        Status  
    From Ge4Psychotropicsadultsgt90Days;
```

```
Quit;
```

```
Data Adu_Ind; Set Adu_Ind;  
Adu_Ind=1;  
Run;
```

```
Data O1; Merge Ap_Ind Ad2_Ind;  
By Recipient_Id_1010; Run;
```

```
Data O2; Merge O1 Ad3_Ind;  
By Recipient_Id_1010; Run;
```

```
Data O3; Merge O2 Kids_Ind;
```

By Recipient_Id_1010; **Run**;

Data Outlier; Merge O3 Adu_Ind;
By Recipient_Id_1010; **Run**;

Data Outlier; Set Outlier;
Tot=Sum(Adu_Ind, Kids_Ind, Ge3Ad_Ind, Ge2Ad_Ind, Ap_Ind);
Run;

Data Outlier; Set Outlier;/*Indicator File*/
If Tot Gt 0 Then Tot2=1; /*Count This For Distinct Across All Indicators*/
Drugclass='Psychotropics';
Population='All';
Outlier='summary';
Run;

* Realign the data to merge Numerator and Denominator ;

%Macro Createindicatorstable(Onany);
Proc Sql;
Create Table &Onany As
Select Distinct
Recipient_Id_1010,
1 As &Onany._Any
From Mono_&Onany

%Mend Createindicatorstable;
%Createindicatorstable(Antipsychotics);
%Createindicatorstable(Antidepressants);
%Createindicatorstable(Kidsonpsychotropics);
%Createindicatorstable(Adultsonpsychotropics);

%Macro Createindicatortable(Onany,Out,Stat);
Proc Sql;
Create Table &Out As
Select Distinct
Recipient_Id_1010,
1 As &Out._Ind
From &Onany Where Status = &Stat;

%Mend Createindicatortable;
%Createindicatortable(Ge3Psychotropickidsgt90Days, Kidsonpsychotropics_Ge3,3);
%Createindicatortable(Ge4Psychotropicsadultsgt90Days, Adultsonpsychotropics_Ge4,4);
%Createindicatortable(Ge3Antidepressantsgt90Days, Antidepressant_Ge3,3);
%Createindicatortable(Ge2Antidepressantssubclasssgt90Days, Antidepressant_Ge2,2);
%Createindicatortable(Ge_3_2_Antipsychoticsgt90Days, Antipsychotics_Ge3,3);
%Createindicatortable(Ge_3_2_Antipsychoticsgt90Days, Antipsychotics_Ge2,2);

Data Polypharmacy_Indicator;
Merge Adultsonpsychotropics Antipsychotics Antidepressants Kidsonpsychotropics
Kidsonpsychotropics_Ge3 Adultsonpsychotropics_Ge4 Antidepressant_Ge3 Antidepressant_Ge2
Antipsychotics_Ge3 Antipsychotics_Ge2;
By Recipient_Id_1010;
Any_Ind = 1;
If (Kidsonpsychotropics_Ge3_Ind = 1 Or Adultsonpsychotropics_Ge4_Ind = 1 Or
Antidepressant_Ge3_Ind = 1 Or Antidepressant_Ge2_Ind = 1 Or
Antipsychotics_Ge3_Ind = 1 Or Antipsychotics_Ge2_Ind = 1)
Then Summary_N = 1; Else Summary_N = 0;

```
If Antipsychotics_Any = . Then Antipsychotics_Any = 0;  
If Antidepressants_Any = . Then Antidepressants_Any = 0;  
If Kidsonpsychotropics_Any = . Then Kidsonpsychotropics_Any = 0;  
If Adultsonpsychotropics_Any = . Then Adultsonpsychotropics_Any = 0;  
If Kidsonpsychotropics_Ge3_Ind = . Then Kidsonpsychotropics_Ge3_Ind = 0;  
If Adultsonpsychotropics_Ge4_Ind = . Then Adultsonpsychotropics_Ge4_Ind = 0;  
If Antidepressant_Ge3_Ind = . Then Antidepressant_Ge3_Ind = 0;  
If Antidepressant_Ge2_Ind = . Then Antidepressant_Ge2_Ind = 0;  
If Antipsychotics_Ge3_Ind = . Then Antipsychotics_Ge3_Ind = 0;  
If Antipsychotics_Ge2_Ind = . Then Antipsychotics_Ge2_Ind = 0;
```

Run;