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# **PSYCKES Behavioral Health Care Coordination Indicators**

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May 2013

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Technical Specifications

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## Adherence to Antipsychotic Medications for Individuals with Schizophrenia (Adherence – Antipsychotic (Schz))

### Description:

The percentage of Medicaid enrollees/members younger than 65 years with a diagnosis of schizophrenia or schizoaffective disorder (see Table 1 for the list of diagnoses) who remained on an antipsychotic for less than 80 percent of the treatment period.

### Eligible Population:

Age: 0 – 64 years as of PSYCKES report date.

Inclusion Criteria: Medicaid enrollees/members with diagnosis of schizophrenia or schizoaffective disorder in the year prior to the PSYCKES report date and had picked up at least one antipsychotic during the intake period (first 9 months of the 12 months prior to the PSYCKES report date).  
Enrollees/members with continuous Medicaid eligibility the year prior to the PSYCKES report date (No more than one gap of 45 days).  
Enrollees/members had at least two antipsychotic medication dispensing events in the year prior to the PSYCKES report date.

Exclusion Criteria: Medicare enrollees/members (dual eligibility) during the year prior to the PSYCKES report date.  
Enrollees/members with a primary diagnosis of dementia in the year prior to the PSYCKES report date.

### Definitions:

IPSD: Index prescription start date (IPSD) is the earliest prescription dispensing date for any antipsychotic medication during the first 9 months of the 12 months prior to the PSYCKES report date.

Treatment Period: The period of time beginning on the IPSD through the PSYCKES report date.

PDC: Proportion of days covered (PDC) is the total days covered by at least one antipsychotic medication prescription (or inpatient days), divided by total days in treatment period.

Calculation: Days covered for any antipsychotic prescriptions:  
1. When antipsychotic medications are dispensed on the same day, use the prescription with longest days of supply.  
2. If multiple prescriptions for different medications are dispensed on different days, only count each day once.  
3. If multiple prescriptions for the same medications are dispensed on different days, for oral medication, sum the total days supply for this medication; for injection, only count once for each day.

Inpatient Days:\*                      Inpatient stays occurring during the treatment period are treated as days with antipsychotic medication.

**Specification:**

Numerator:                              Number of enrollees/members (from the eligible population) whose PDC (total days covered with an antipsychotic divided by total days in treatment period) is less than 80 percent.

Denominator:                              Eligible Population

\* This indicator is based on the “Adherence to Antipsychotic Medications for Individuals with Schizophrenia”, HEDIS 2013, Volume 2. We invert the indicator by reporting the percent of enrollees with a PDC of less than 80%. We also treat inpatient days as days covered with antipsychotic medication.

**Table 1: Codes to Identify Schizophrenia**

| DIAG_CD | DIAG_LABEL   | CMHS_DIAG_GRP_SEQ            |
|---------|--|------------------------------|
| 295     | SCHIZOPHRENIC DISORDERS [295]  | 15 Schizophrenia             |
| 2950    | SIMPLE TYPE SCHIZOPHRENIA [295.0]  | 15 Schizophrenia             |
| 29500   | SIMPLE TYPE SCHIZOPHRENIA, UNSPECIFIED STATE [295.00]                                  | 15 Schizophrenia             |
| 29501   | SIMPLE TYPE SCHIZOPHRENIA, SUBCHRONIC STATE [295.01]                                   | 15 Schizophrenia             |
| 29502   | SIMPLE TYPE SCHIZOPHRENIA, CHRONIC STATE [295.02]                                      | 15 Schizophrenia             |
| 29503   | SIMPLE TYPE SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.03]           | 15 Schizophrenia             |
| 29504   | SIMPLE TYPE SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.04]              | 15 Schizophrenia             |
| 29505   | SIMPLE TYPE SCHIZOPHRENIA, IN REMISSION [295.05]                                       | 15 Schizophrenia             |
| 2951    | DISORGANIZED TYPE SCHIZOPHRENIA [295.1]  | 15 Schizophrenia             |
| 29510   | DISORGANIZED TYPE SCHIZOPHRENIA, UNSPECIFIED STATE [295.10]                            | 15 Schizophrenia             |
| 29511   | DISORGANIZED TYPE SCHIZOPHRENIA, SUBCHRONIC STATE [295.11]                             | 15 Schizophrenia             |
| 29512   | DISORGANIZED TYPE SCHIZOPHRENIA, CHRONIC STATE [295.12]                                | 15 Schizophrenia             |
| 29513   | DISORGANIZED TYPE SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.13]     | 15 Schizophrenia             |
| 29514   | DISORGANIZED TYPE SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.14]        | 15 Schizophrenia             |
| 29515   | DISORGANIZED TYPE SCHIZOPHRENIA, IN REMISSION [295.15]                                 | 15 Schizophrenia             |
| 2952    | CATATONIC TYPE SCHIZOPHRENIA [295.2]   | 15 Schizophrenia             |
| 29520   | CATATONIC TYPE SCHIZOPHRENIA, UNSPECIFIED STATE [295.20]                               | 15 Schizophrenia             |
| 29521   | CATATONIC TYPE SCHIZOPHRENIA, SUBCHRONIC STATE [295.21]                                | 15 Schizophrenia             |
| 29522   | CATATONIC TYPE SCHIZOPHRENIA, CHRONIC STATE [295.22]                                   | 15 Schizophrenia             |
| 29523   | CATATONIC TYPE SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.23]        | 15 Schizophrenia             |
| 29524   | CATATONIC TYPE SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.24]           | 15 Schizophrenia             |
| 29525   | CATATONIC TYPE SCHIZOPHRENIA, IN REMISSION [295.25]                                    | 15 Schizophrenia             |
| 2953    | PARANOID TYPE SCHIZOPHRENIA [295.3]  | 15 Schizophrenia             |
| 29530   | PARANOID TYPE SCHIZOPHRENIA, UNSPECIFIED STATE [295.30]                                | 15 Schizophrenia             |
| 29531   | PARANOID TYPE SCHIZOPHRENIA, SUBCHRONIC STATE [295.31]                                 | 15 Schizophrenia             |
| 29532   | PARANOID TYPE SCHIZOPHRENIA, CHRONIC STATE [295.32]                                    | 15 Schizophrenia             |
| 29533   | PARANOID TYPE SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.33]         | 15 Schizophrenia             |
| 29534   | PARANOID TYPE SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.34]            | 15 Schizophrenia             |
| 29535   | PARANOID TYPE SCHIZOPHRENIA, IN REMISSION [295.35]                                     | 15 Schizophrenia             |
| 2954    | SCHIZOPHRENIFORM DISORDER [295.4]  | 16 Schizophreniform Disorder |
| 29540   | ACUTE SCHIZOPHRENIC EPISODE, UNSPECIFIED STATE [295.40]                                | 16 Schizophreniform Disorder |
| 29541   | ACUTE SCHIZOPHRENIC EPISODE, SUBCHRONIC STATE [295.41]                                 | 16 Schizophreniform Disorder |
| 29542   | ACUTE SCHIZOPHRENIC EPISODE, CHRONIC STATE [295.42]                                    | 16 Schizophreniform Disorder |
| 29543   | ACUTE SCHIZOPHRENIC EPISODE, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.43]         | 16 Schizophreniform Disorder |
| 29544   | ACUTE SCHIZOPHRENIC EPISODE, CHRONIC STATE WITH ACUTE EXACERBATION [295.44]            | 16 Schizophreniform Disorder |
| 29545   | ACUTE SCHIZOPHRENIC EPISODE, IN REMISSION [295.45]                                     | 16 Schizophreniform Disorder |
| 2955    | LATENT SCHIZOPHRENIA [295.5]   | 15 Schizophrenia             |
| 29550   | LATENT SCHIZOPHRENIA, UNSPECIFIED STATE [295.50]                                       | 15 Schizophrenia             |
| 29551   | LATENT SCHIZOPHRENIA, SUBCHRONIC STATE [295.51]  | 15 Schizophrenia             |
| 29552   | LATENT SCHIZOPHRENIA, CHRONIC STATE [295.52]   | 15 Schizophrenia             |
| 29553   | LATENT SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.53]                | 15 Schizophrenia             |
| 29554   | LATENT SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.54]                   | 15 Schizophrenia             |
| 29555   | LATENT SCHIZOPHRENIA, IN REMISSION [295.55]  | 15 Schizophrenia             |
| 2956    | RESIDUAL TYPE SCHIZOPHRENIC DISORDERS [295.6]  | 15 Schizophrenia             |
| 29560   | RESIDUAL SCHIZOPHRENIA, UNSPECIFIED STATE [295.60]                                     | 15 Schizophrenia             |
| 29561   | RESIDUAL SCHIZOPHRENIA, SUBCHRONIC STATE [295.61]                                      | 15 Schizophrenia             |
| 29562   | RESIDUAL SCHIZOPHRENIA, CHRONIC STATE [295.62]   | 15 Schizophrenia             |
| 29563   | RESIDUAL SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.63]              | 15 Schizophrenia             |
| 29564   | RESIDUAL SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.64]                 | 15 Schizophrenia             |
| 29565   | RESIDUAL SCHIZOPHRENIA, IN REMISSION [295.65]  | 15 Schizophrenia             |
| 2957    | SCHIZOAFFECTIVE DISORDER [295.7]   | 17 Schizoaffective Disorder  |
| 29570   | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, UNSPECIFIED STATE [295.70]                        | 17 Schizoaffective Disorder  |
| 29571   | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, SUBCHRONIC STATE [295.71]                         | 17 Schizoaffective Disorder  |
| 29572   | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, CHRONIC STATE [295.72]                            | 17 Schizoaffective Disorder  |
| 29573   | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.73] | 17 Schizoaffective Disorder  |
| 29574   | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.74]    | 17 Schizoaffective Disorder  |

|       |   |                             |
|-------|---|-----------------------------|
| 29575 | SCHIZO-AFFECTIVE TYPE SCHIZOPHRENIA, IN REMISSION [295.75]                                | 17 Schizoaffective Disorder |
| 2958  | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA [295.8]  | 15 Schizophrenia            |
| 29580 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, UNSPECIFIED STATE [295.80]                        | 15 Schizophrenia            |
| 29581 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, SUBCHRONIC STATE [295.81]                         | 15 Schizophrenia            |
| 29582 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, CHRONIC STATE [295.82]                            | 15 Schizophrenia            |
| 29583 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.83] | 15 Schizophrenia            |
| 29584 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.84]    | 15 Schizophrenia            |
| 29585 | OTHER SPECIFIED TYPES OF SCHIZOPHRENIA, IN REMISSION [295.85]                             | 15 Schizophrenia            |
| 2959  | UNSPECIFIED SCHIZOPHRENIA [295.9]   | 15 Schizophrenia            |
| 29590 | UNSPECIFIED SCHIZOPHRENIA, UNSPECIFIED STATE [295.90]                                     | 15 Schizophrenia            |
| 29591 | UNSPECIFIED SCHIZOPHRENIA, SUBCHRONIC STATE [295.91]                                      | 15 Schizophrenia            |
| 29592 | UNSPECIFIED SCHIZOPHRENIA, CHRONIC STATE [295.92]   | 15 Schizophrenia            |
| 29593 | UNSPECIFIED SCHIZOPHRENIA, SUBCHRONIC STATE WITH ACUTE EXACERBATION [295.93]              | 15 Schizophrenia            |
| 29594 | UNSPECIFIED SCHIZOPHRENIA, CHRONIC STATE WITH ACUTE EXACERBATION [295.94]                 | 15 Schizophrenia            |
| 29595 | UNSPECIFIED SCHIZOPHRENIA, IN REMISSION [295.95]  | 15 Schizophrenia            |
| 29599 | SCHIZOPHRENIA, OTHER AND UNSPECIFIED TYPES  |                             |

## Adherence to Mood Stabilizer Medications for Individuals with Bipolar Disorder (Adherence – Mood Stabilizer (Bipolar))

### Description:

The percentage of Medicaid enrollees/members younger than 65 years with diagnosis of bipolar disorder (see Table 2 for the list of diagnoses) who remained on an antipsychotic / mood stabilizer for less than 80 percent of the treatment period.

### Eligible Population:

Age: 0 – 64 years as of the PSYCKES report date.

Inclusion Criteria: Medicaid enrollees/members with a diagnosis of bipolar disorder in the year prior to the PSYCKES report date and had picked up at least one antipsychotic/mood stabilizer during the intake period (first 9 months of the 12 months prior to the PSYCKES report date).  
Enrollees/members with continuous Medicaid eligibility the year prior to the PSYCKES report date (no more than one gap of 45 days).  
Enrollees/members had at least two antipsychotic/mood stabilizer medication dispensing events the year prior to the PSYCKES report date.

Exclusion Criteria: Medicare enrollees/members (dual eligibility) during the year prior to the PSYCKES report date.  
Enrollees/members with a primary diagnosis of dementia in the year prior to the PSYCKES report date.

### Definitions:

IPSD: Index prescription start date (IPSD) is the earliest prescription dispensing date for any antipsychotic/mood stabilizer medication during the first 9 months of the 12 months prior to the PSYCKES report date.

Treatment Period: The period of time beginning on the IPSD through the PSYCKES report date.

PDC: Proportion of days covered (PDC) is the total days covered by at least one antipsychotic medication prescription (and/or inpatient day), divided by total days in treatment period.

Calculation PDC: Days covered for any antipsychotic prescriptions:

4. When antipsychotic medications are dispensed on the same day, use the prescription with longest days of supply.
5. If multiple prescriptions for different medications are dispensed on different days, only count each day once.
6. If multiple prescriptions for the same medications are dispensed on different days, for oral medication, sum the total days supply for this medication; for injection, only count once for each day

Inpatient Days\*: Inpatient stays occurred during the treatment period are treated as days with antipsychotic/mood stabilizer medication.

**Specification:**

Numerator: Number of enrollees/members (from the eligible population) with a PDC (total days covered with an antipsychotic/mood stabilizer divided by total days in treatment period) is less than 80 percent.

Denominator: Eligible Population

\* This indicator is based on the “Adherence to Antipsychotic Medications for Individuals with Schizophrenia”, HEDIS 2013, Volume 2. We adapted the measure to include individuals with a bipolar diagnosis and observed with either antipsychotic or mood stabilizer medications. We invert the indicator by reporting the percent of enrollees with a PDC of less than 80%. We also treat inpatient days as days covered with antipsychotic medication.

**Table 2: Codes to Identify Bipolar Disorder**

| DIAG_CD | DIAG_LABEL   | CMHS_DIAG_GRP_SEQ   |
|---------|--|---------------------|
| 296     | EPISODIC MOOD DISORDERS [296]  | 20 Bipolar Disorder |
| 2960    | BIPOLAR I DISORDER, SINGLE MANIC EPISODE [296.0]   | 20 Bipolar Disorder |
| 29600   | MANIC DISORDER, SINGLE EPISODE, UNSPECIFIED DEGREE [296.00]  | 20 Bipolar Disorder |
| 29601   | MANIC DISORDER, SINGLE EPISODE, MILD DEGREE [296.01]   | 20 Bipolar Disorder |
| 29602   | MANIC DISORDER, SINGLE EPISODE, MODERATE DEGREE [296.02]   | 20 Bipolar Disorder |
| 29603   | MANIC DISORDER, SINGLE EPISODE, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.03]        | 20 Bipolar Disorder |
| 29604   | MANIC DISORDER, SINGLE EPISODE, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.04]         | 20 Bipolar Disorder |
| 29605   | MANIC DISORDER, SINGLE EPISODE, IN PARTIAL OR UNSPECIFIED REMISSION [296.05]                         | 20 Bipolar Disorder |
| 29606   | MANIC DISORDER, SINGLE EPISODE, IN FULL REMISSION [296.06]   | 20 Bipolar Disorder |
| 2961    | MANIC DISORDER, RECURRENT EPISODE [296.1]  | 20 Bipolar Disorder |
| 29610   | MANIC DISORDER, RECURRENT EPISODE, UNSPECIFIED DEGREE [296.10]                                       | 20 Bipolar Disorder |
| 29611   | MANIC DISORDER, RECURRENT EPISODE, MILD DEGREE [296.11]  | 20 Bipolar Disorder |
| 29612   | MANIC DISORDER, RECURRENT EPISODE, MODERATE DEGREE [296.12]  | 20 Bipolar Disorder |
| 29613   | MANIC DISORDER, RECURRENT EPISODE, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.13]     | 20 Bipolar Disorder |
| 29614   | MANIC DISORDER, RECURRENT EPISODE, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.14]      | 20 Bipolar Disorder |
| 29615   | MANIC DISORDER, RECURRENT EPISODE, IN PARTIAL OR UNSPECIFIED REMISSION [296.15]                      | 20 Bipolar Disorder |
| 29616   | MANIC DISORDER, RECURRENT EPISODE, IN FULL REMISSION [296.16]  | 20 Bipolar Disorder |
| 2964    | BIPOLAR I DISORDER, MOST RECENT EPISODE (OR CURRENT) MANIC [296.4]                                   | 20 Bipolar Disorder |
| 29640   | BIPOLAR AFFECTIVE DISORDER, MANIC, UNSPECIFIED DEGREE [296.40]                                       | 20 Bipolar Disorder |
| 29641   | BIPOLAR AFFECTIVE DISORDER, MANIC, MILD DEGREE [296.41]  | 20 Bipolar Disorder |
| 29642   | BIPOLAR AFFECTIVE DISORDER, MANIC, MODERATE DEGREE [296.42]  | 20 Bipolar Disorder |
| 29643   | BIPOLAR AFFECTIVE DISORDER, MANIC, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.43]     | 20 Bipolar Disorder |
| 29644   | BIPOLAR AFFECTIVE DISORDER, MANIC, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.44]      | 20 Bipolar Disorder |
| 29645   | BIPOLAR AFFECTIVE DISORDER, MANIC, IN PARTIAL OR UNSPECIFIED REMISSION [296.45]                      | 20 Bipolar Disorder |
| 29646   | BIPOLAR AFFECTIVE DISORDER, MANIC, IN FULL REMISSION [296.46]  | 20 Bipolar Disorder |
| 29647   | BIPOLAR DISORDER, MANIC, WITH MOOD INCONGRUENT PSYCHOTIC FEATURES (296.44)                           |                     |
| 2965    | BIPOLAR I DISORDER, MOST RECENT EPISODE (OR CURRENT) DEPRESSED [296.5]                               | 20 Bipolar Disorder |
| 29650   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, UNSPECIFIED DEGREE [296.50]                                   | 20 Bipolar Disorder |
| 29651   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, MILD DEGREE [296.51]  | 20 Bipolar Disorder |
| 29652   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, MODERATE DEGREE [296.52]                                      | 20 Bipolar Disorder |
| 29653   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.53] | 20 Bipolar Disorder |
| 29654   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.54]  | 20 Bipolar Disorder |
| 29655   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, IN PARTIAL OR UNSPECIFIED REMISSION [296.55]                  | 20 Bipolar Disorder |
| 29656   | BIPOLAR AFFECTIVE DISORDER, DEPRESSED, IN FULL REMISSION [296.56]                                    | 20 Bipolar Disorder |
| 29657   | BIPOLAR DISORDER, DEPRESSED, WITH MOOD INCONGRUENT PSYCHOTIC FEATURES (296.54)                       |                     |
| 2966    | BIPOLAR I DISORDER, MOST RECENT EPISODE (OR CURRENT) MIXED [296.6]                                   | 20 Bipolar Disorder |
| 29660   | BIPOLAR AFFECTIVE DISORDER, MIXED, UNSPECIFIED DEGREE [296.60]                                       | 20 Bipolar Disorder |
| 29661   | BIPOLAR AFFECTIVE DISORDER, MIXED, MILD DEGREE [296.61]  | 20 Bipolar Disorder |
| 29662   | BIPOLAR AFFECTIVE DISORDER, MIXED, MODERATE DEGREE [296.62]  | 20 Bipolar Disorder |
| 29663   | BIPOLAR AFFECTIVE DISORDER, MIXED, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.63]     | 20 Bipolar Disorder |
| 29664   | BIPOLAR AFFECTIVE DISORDER, MIXED, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.64]      | 20 Bipolar Disorder |
| 29665   | BIPOLAR AFFECTIVE DISORDER, MIXED, IN PARTIAL OR UNSPECIFIED REMISSION [296.65]                      | 20 Bipolar Disorder |
| 29666   | BIPOLAR AFFECTIVE DISORDER, MIXED, IN FULL REMISSION [296.66]  | 20 Bipolar Disorder |
| 29667   | BIPOLAR DISORDER, MIXED, MAJOR DEPRESSIVE EPISODE, WITH MOOD INCONGRUENT PSYCHOTIC FEATURES (296.64) |                     |
| 2967    | BIPOLAR I DISORDER, MOST RECENT EPISODE (OR CURRENT) UNSPECIFIED [296.7]                             | 20 Bipolar Disorder |
| 29670   | Clinical Syndromes and V Codes   |                     |

## Antidepressant Trial of less than 12 weeks for Individuals with Depression (Antidepressant < 12 weeks (Depression))

### Description:

The percentage of Medicaid enrollees/members younger than 65 years with a primary or secondary diagnosis of depression (see Table 3 for the list of diagnoses) who were newly started on an antidepressant medication but did not remain on any antidepressant for a minimum of 12 weeks (84 days) in the year prior to PSYCKES report date.

### Eligible Population:

Age: 0 – 64 years as of the PSYCKES report date.

Inclusion Criteria: Medicaid enrollees/members with a primary or secondary diagnosis of major depression in the year prior to the PSYCKES report date and have no evidence of antidepressant medication in the 90 days prior to the first antidepressant pick up in the measurement period.  
Enrollees/members are continuously enrolled during the year prior to PSYCKES report date.

Exclusion Criteria: Medicare enrollees/members (dual eligibility) during the year prior to report date.  
Enrollees/members with antidepressant treatment 90 days prior to the IPSD.

### Definitions:

IESD: Index Episode Start Date (IESD) is the earliest encounter during the year prior to the PSYCKES report date with any diagnosis of major depression and a 90-day Negative Medication History. For inpatient, the IESD is the date of discharge.

IPSD: Index prescription start date (IPSD) is the earliest prescription dispensing date for an antidepressant medication during the period of 30 days prior to the IESD (inclusive) through 14 days after the IESD (inclusive).

Negative Medication History: A period of 90 days prior to the IPSD when the member had no pharmacy claims for either new or refill prescriptions for an antidepressant medication.

### Specification:

Numerator\*: Number of enrollees/members (from the eligible population) who had less than 12 weeks (84 days) of continuous treatment with antidepressant medication during the 114 day period following the IPSD <sup>(2)</sup>.

Denominator:

Eligible Population

\* If an enrollee's/member's IPSD is within 114 days of the report date and there is no gap in antidepressant medication longer than 30 days, we consider the enrollee/member to have continuous treatment with antidepressant medication.

Note: This indicator is based on Antidepressant Medication Management (AMM) from HEDIS 2013, volume 2. We inverted the indicator to report the percent of enrollees who had less than 12 weeks of antidepressant medication.

**Table 3: Codes to Identify Depression**

| DIAG_CD | DIAG_LABEL  | CMHS_DIAG_GRP_SEQ                     |
|---------|---|---------------------------------------|
| 29620   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, UNSPECIFIED DEGREE [296.20]                                      | 21 Major Depressive Disorder          |
| 29621   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, MILD DEGREE [296.21]   | 21 Major Depressive Disorder          |
| 29622   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, MODERATE DEGREE [296.22]   | 21 Major Depressive Disorder          |
| 29623   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.23]    | 21 Major Depressive Disorder          |
| 29624   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.24]     | 21 Major Depressive Disorder          |
| 29625   | MAJOR DEPRESSIVE DISORDER, SINGLE EPISODE, IN PARTIAL OR UNSPECIFIED REMISSION [296.25]                     | 21 Major Depressive Disorder          |
| 29630   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, UNSPECIFIED DEGREE [296.30]                                   | 21 Major Depressive Disorder          |
| 29631   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, MILD DEGREE [296.31]  | 21 Major Depressive Disorder          |
| 29632   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, MODERATE DEGREE [296.32]                                      | 21 Major Depressive Disorder          |
| 29633   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, SEVERE DEGREE, WITHOUT MENTION OF PSYCHOTIC BEHAVIOR [296.33] | 21 Major Depressive Disorder          |
| 29634   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, SEVERE DEGREE, SPECIFIED AS WITH PSYCHOTIC BEHAVIOR [296.34]  | 21 Major Depressive Disorder          |
| 29635   | MAJOR DEPRESSIVE DISORDER, RECURRENT EPISODE, IN PARTIAL OR UNSPECIFIED REMISSION [296.35]                  | 21 Major Depressive Disorder          |
| 2980    | DEPRESSIVE TYPE PSYCHOSIS [298.0]   | 19 Other Psychotic Disorder           |
| 29800   | PSYCHOTIC DEPRESSIVE REACTION   |                                       |
| 2981    | EXCITATIVE TYPE PSYCHOSIS [298.1]   | 19 Other Psychotic Disorder           |
| 29810   | REACTIVE EXCITATION   |                                       |
| 2982    | REACTIVE CONFUSION [298.2]  | 19 Other Psychotic Disorder           |
| 29820   | REACTIVE CONFUSION  |                                       |
| 2983    | ACUTE PARANOID REACTION [298.3]   | 19 Other Psychotic Disorder           |
| 29830   | ACUTE PARANOID REACTION   |                                       |
| 2984    | PSYCHOGENIC PARANOID PSYCHOSIS [298.4]  | 19 Other Psychotic Disorder           |
| 2985    | ACUTE PSYCHOSIS ASS W BRAIN TRAUMA  |                                       |
| 2988    | OTHER AND UNSPECIFIED REACTIVE PSYCHOSIS [298.8]  | 19 Other Psychotic Disorder           |
| 29880   | Clinical Syndromes and V Codes  |                                       |
| 2989    | UNSPECIFIED PSYCHOSIS [298.9]   | 19 Other Psychotic Disorder           |
| 29890   | REACTIVE PSYCHOSIS  |                                       |
| 311     | DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED [311]   | 29 Other Nonpsychotic Mental Disorder |

## Behavioral Health Rehospitalization within 45 days (Readmission - All BH 45 days)

### Description:

The percentage of Medicaid enrollees/members of all ages currently identified as having one or more behavioral health (BH) hospitalization in the 45 days following a BH hospitalization among enrollees discharged from a behavioral health inpatient service in the past 12 months. Specifically, this indicator is intended to identify mental health, substance use detoxification and/or substance use rehabilitation readmissions following an inpatient episode of the same type.

### Eligible Population:

Age: All Ages

Inclusion Criteria: Medicaid enrollees/members who have received one or more services from a BH provider in the 9 months prior to the report date.

Exclusion Criteria: Transfers from another facility

Numerator: Number of Medicaid enrollees/members of all ages currently identified as having one or more BH hospitalization in the 45 days following a BH hospitalization among enrollees discharged from a behavioral health inpatient service in the past 12 months.

Denominator: Eligible Population

## High Utilization of Behavioral Health Inpatient/Emergency Room (4+ Inpatient/ER – BH)

### Description:

The percentage of Medicaid enrollees/members of all ages currently identified as having 4 or more behavioral health inpatient and/or emergency room (ER) stays in the past 12 months among enrollees currently receiving services from a BH provider.

### Eligible Population:

|                     |  |
|---------------------|--|
| Age:                | All ages.  |
| Inclusion Criteria: | Medicaid enrollee/member who has received one or more services from a BH provider in the 9 months prior to the PSYCKES report date.                          |
| Exclusion Criteria: | Transfers from another facility  |
| Numerator:          | Number of Medicaid enrollees/members of all ages currently identified as having 4 or more behavioral health inpatient and/or ER stays in the past 12 months. |
| <hr/> Denominator:  | <hr/> Eligible Population  |

## High Utilization of Behavioral Health Inpatient Services (3+ Inpatient – BH)

### Description:

The percentage of Medicaid enrollees/members of all ages currently identified as having 3 or more behavioral health inpatient stays in the past 12 months among enrollees currently receiving services from a BH provider.

### Eligible Population:

Age: All ages.

Inclusion Criteria: Medicaid enrollees/members who have received one or more services from a BH provider in the 9 months prior to the PSYCKES report date.

Exclusion Criteria: Transfers from another facility

Numerator: Number of Medicaid enrollees/members of all ages currently identified as having 3 or more behavioral health inpatient stays in the past 12 months.

Denominator:

Eligible Population

## High Utilization of Behavioral Health Emergency Room (3+ ER – BH)

**Description:**

The percentage of Medicaid enrollees/members of all ages currently identified as having 3 or more behavioral health ER visits in the past 12 months among enrollees currently receiving services from licensed BH provider.

**Eligible Population:**

Age: All ages.

Inclusion Criteria: Medicaid enrollees/members who have received one or more services from an BH provider in the 9 months prior to the PSYCKES report date.

Exclusion Criteria: Transfers from another facility

Numerator: Number of Medicaid enrollees/members of all ages currently identified as having 3 or more behavioral health ER visits in the past 12 months.

---

Denominator: Eligible Population

## Behavioral Health Care Coordination Summary

### Description:

The percentage of Medicaid enrollees/members who meet criteria for 1 or more of the following indicators:

- Low adherence to antipsychotic medications for treatment of schizophrenia/schizoaffective disorder.
- Low adherence to antipsychotic/mood stabilizer for treatment of bipolar disorder.
- Insufficient duration of antidepressant medication for enrollees/members diagnosed with depression and newly treated with antidepressant medication.
- Having one or more behavioral health (BH) hospitalizations in the 45 days following a BH hospitalization among enrollees/members discharged from a behavioral health inpatient service in the past 12 months.
- Having 4 or more behavioral health inpatient and/or ER stays in the past 12 months.
- Having 3 or more behavioral health inpatient stays in the past 12 months.
- Having 3 or more behavioral health ER stays in the past 12 months.

### Eligible Population:

|                     |  |
|---------------------|--|
| Age:                | All.   |
| Inclusion Criteria: | Medicaid enrollee/member who has received one or more services from an OMH licensed provider in the 9 months prior to the report date. |
| Numerator:          | Number of Medicaid enrollees/members who meet criteria for 1 or more of the indicators in the list above.                              |
| Denominator:        | Eligible Population  |

## Production SAS/SQL syntax

```

/*****
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-----

```

```

SAS Program Name:      ID_Care Coordination Indicator Set V2
  Written By:          Qingxian Chen (coevqcc)
Input Data Source:     PRDM.Medicaid
Output Data Source:    Temp SAS FILES, Excel, others.
  Location of Code:    'S:\Restricted\Medicaid Utilization\e-
Medicaid_PSYCKES\DAWG\code\id_Clinical_summary_MPR'
  Business Owner:     Molly Finnerty / NYS OMH
  Requested By:       Emily Leckman-Westin

```

```

-----
Purpose:              The intent of this code was to summerize the following
indicators:

```

```

Medication Adherence of Antipsychotics for Schizophrenia,
Medication Adherence of antipsychotic/mood stablizer for
bipolar,
Antidepressant Medication Management,
BH IP and ER 4+/BH inpatient 3+/BH ER 3+
Readmission within 45 days;

```

Special Notes:

Research Question:

Usage/Instructions:

```

-----Modifications:-----
Modified/Date by:
Purpose/Where:

```

```

/*****

```

```

%let pw=XX;
%let pw2=XX;
libname medicaid oracle user=coevqcc orapw=&pw path="prdm" schema=medicaid;
libname shared oracle user=coevqcc orapw=&pw path="prdm" schema=shared_tables;
LIBNAME psyckes oracle user = coevqcc password=&pw2 path='psyckes'
schema='psyckes_medicaid_dm';
libname newind "T:\Data Analysis Workgroup Medicaid\Qingxian\Indicator Development";

```

```

%let prdm=user=coevqcc orapw=&pw path="prdm";
%let reportdate='01oct2012'd;
%let Load_Start = '1oct2011:00:00:00'Dt;
%let Load_End = '30sep2012:00:00:00'Dt;

```

```

/*****

```

```

/*****

```

```

Part I: Code to create medication adherence indicator for recipients with
schizophrenia/bipolar;

```

```

/*****

```

```

/*****

```

```

* define recipients with schizophrenia/Bipolar one year prior to the report date
(7/1/2012);

```

```

/* STEP 1- Identify members with principal diagnosis of schizophrenia/Bipolar
during the measurement year. */
PROC SQL;
  create table S_DETAIL as
  select b.RECIPIENT_ID_1010, a.DATE_OF_BIRTH_RECIPIENT_1180,
        DATE_ADMISSION_3011,
        DATE_OF_SERVICE_3013,
        DATE_DISCHARGE_3108,
        PROVIDER_ID_2001, PROVIDER_NPI_E6477,
        SURS_COS_H001, OMM_SURS_COS_H001_10,
        PRIMARY_DIAG_CODE_3006, SEC_DIAG_CODE_3007,
OMM_DIAG_CODE_W655_1,
        OMM_DIAG_CODE_W655_2, OMM_DIAG_CODE_W655_3,
OMM_DIAG_CODE_W655_4,
        OMM_DIAG_CODE_W655_5, OMM_DIAG_CODE_W655_6,
        OMM_PROC_CODE_W660_1, OMM_PROC_CODE_W660_2,
OMM_PROC_CODE_W660_3,
        OMM_PROC_CODE_W660_4, OMM_PROC_CODE_W660_5,
OMM_PROC_CODE_W660_6,
        REVENUE_CODE_E0442, REVENUE_CODE_E0442_1,
REVENUE_CODE_E0442_2,
        REVENUE_CODE_E0442_3, REVENUE_CODE_E0442_4,
REVENUE_CODE_E0442_5,
        REVENUE_CODE_E0442_6, REVENUE_CODE_E0442_7, REVENUE_CODE_E0442_8,
        REVENUE_CODE_E0442_9, REVENUE_CODE_E0442_10,
REVENUE_CODE_E0442_11,
        REVENUE_CODE_E0442_12,
        Invoice_Type_3301,
        BILL_TYPE_1_2_e0394, BILL_TYPE_3_E0395,
        rate_code_2078,
        SPECIALTY_CODE_2048,
        CATGY_OF_SERV_2019,
        PLACE_OF_SERVICE_3016,
        PROVIDER_FACILITY_CONTROL_2055,
        CLAIM_TYPE_E0141,
        PLAN_ID_H056,
        NATIONAL_DRUG_CODE_E1856, DRG_CONTROL_CODE_3336,
        DRG_MDC_CODE_E2365, DRG_MED_SURG_CODE_E2372, DRG_TYPE_CODE_E2370,
        AMT_PAID_CLAIM_3157,
        RECORD_CODE_H002,
        ENCOUNTER_TYPE_H054,
        patient_status_3291
  FROM MEDICAID.Emedny_claim_enct b, MEDICAID.Omh_recipient_base a
  where a.recipient_id_1010=b.recipient_id_1010
  and b.DATE_OF_SERVICE_3013 between &load_start
  and &load_end
  and
        /* -- Dx code criteria*/
        (PRIMARY_DIAG_CODE_3006 between '295' and '2968'
  or SEC_DIAG_CODE_3007 between '295' and '2968'
  or OMM_DIAG_CODE_W655_1 between '295' and '2968'
  or OMM_DIAG_CODE_W655_2 between '295' and '2968'
  or OMM_DIAG_CODE_W655_3 between '295' and '2968'
  or OMM_DIAG_CODE_W655_4 between '295' and '2968'
  or OMM_DIAG_CODE_W655_5 between '295' and '2968'
  or OMM_DIAG_CODE_W655_6 between '295' and '2968');

quit;

data add_cin;
  format admit_date service_date mmdyy8.;
  set S_DETAIL (where=(Invoice_Type_3301 <> '21')); *manage care;

```

```
AGE_YEARS=int((&reportdate - datepart(DATE_OF_BIRTH_RECIPIENT_1180))/365.25);

admit_date=datepart(DATE_ADMISSION_3011);
service_date=datepart(DATE_OF_SERVICE_3013);

if 0<=age_years<65;

run;

data add_cin_schiz add_cin_bipolar;
set add_cin;

*output only schizophrenia to a file;
if '295'<=PRIMARY_DIAG_CODE_3006<='29599'
    or '295'<=SEC_DIAG_CODE_3007<='29599'
    or '295'<=OMM_DIAG_CODE_W655_1<='29599'
    or '295'<=OMM_DIAG_CODE_W655_2 <= '29599'
    or '295'<=OMM_DIAG_CODE_W655_3 <= '29599'
    or '295'<=OMM_DIAG_CODE_W655_4 <='29599'
    or '295'<=OMM_DIAG_CODE_W655_5 <= '29599'
    or '295'<=OMM_DIAG_CODE_W655_6 <='29599'
then output add_cin_schiz;

* output only bipolar to another file;
else if (substr(PRIMARY_DIAG_CODE_3006, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(SEC_DIAG_CODE_3007, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_1, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_2, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_3, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_4, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_5, 1, 4) in
('2960','2961','2964','2965','2966','2967')
    or substr(OMM_DIAG_CODE_W655_6, 1, 4) in
('2960','2961','2964','2965','2966','2967')

    or PRIMARY_DIAG_CODE_3006 = '296' or SEC_DIAG_CODE_3007 = '296'
    or OMM_DIAG_CODE_W655_1 = '296' or OMM_DIAG_CODE_W655_2 =
'296'
    or OMM_DIAG_CODE_W655_3 = '296' or OMM_DIAG_CODE_W655_4 =
'296'
    or OMM_DIAG_CODE_W655_5 = '296' or OMM_DIAG_CODE_W655_6 =
'296')
then output add_cin_bipolar;
run;

/*****/
/**CPT/REV code to find qualifying Acute IP visit***/
/*****/
%let
cpt1=('90801','90802','90816','90817','90818','90819','90821','90822','90823','90824',
'90826',
'90827','90828','90829','90845','90847','90849','90853','90857','90862','90870','90875',
',90876',
'99221','99222','99223','99231','99232','99233','99238','99239','99251','99252','99253',
',99254',
'99255','99291');
```

```
%let rev1=('0100', '0101','0102', '0103',
'0104','0105','0106','0107','0108','0109','0110','0111',
'0112','0113','0114','0119','0120','0121','0123','0124','0129','0130','0131','0132','0
133','0134',
'0139','0140','0141','0142','0143','0144','0149','0150','0151','0152','0153','0154','0
159','0160',
'0161','0162', '0163', '0164','0165','0166','0167','0168','0169','0200',
'0201','0202','0203', '0204',
'0205','0206','0207','0208','0209','0210', '0211','0212', '0213',
'0214','0215','0216','0217',
'0218','0219','0720', '0721', '0722', '0723',
'0724','0725','0726','0727','0728','0729','0987');

/*****/
/**CPT/REV code to find qualifying Outpatient/ intensive outpatient and partial
hospitalization visit***/
/*****/
%let
cpt2=('90804','90805','90806','90807','90808','90809','90810','90811','90812','90813',
'90814',
'90815','98960','98961','98962','99078','99201','99202','99203','99204','99205','99211
','99212','99213',
'99214','99215','99217','99218','99219','99220','99241','99242','99243','99244','99245
','99341','99342',
'99343','99344','99345','99347','99348','99349','99350','99384','99385','99386','99387
','99394',
'99395','99396','99397','99401','99402','99403','99404','99411','99412','99510','G0155
','G0176',
'G0177','G0409','G0410','G0411','H0002','H0004','H0031','H0034','H0035','H0036','H0037
','H0039',
'H0040','H2000','H2001','H2010','H2011','H2012','H2013','H2014','H2015','H2016','H2017
',
'H2018','H2019','H2020','M0064','S0201','S9480','S9484','S9485');

%let
rev2=('0510','0513','0516','0517','0519','0520','0521','0522','0523','0526','0527',
'0528','0529','0900','0901','0902','0903','0904','0905','0907','0911','0912','0913','0
914',
'0915','0916','0917','0919','0982','0983');

%let
pos=('03','05','07','09','11','12','13','14','15','20','22','24','33','49','50','52','
53','71','72');

/*****/
/**CPT/REV to find qualifying ED visit***/
/*****/
%let cpt3=('99281','99282','99283','99284','99285');
%let
rev3=('0450','0451','0452','0453','0454','0455','0456','0457','0458','0459','0981');
%let
cpt3p=('90801','90802','90845','90847','90849','90853','90857','90862','90870','90875'
,'90876',
'99291');

/*****/
/**CPT/REV to find qualifying Non-Acute IP visit***/
/*****/
%let
cpt4=('90304','90305','90306','90307','90308','90309','90310','90315','90316','90318',
'90324',
'90325','90326','90327','90328','90334','90335','90336','90337','H0017', 'H0018',
'H0019','T2048');
```

```

%let
rev4=('0118','0128','0138','0148','0158','0190','0191','0192','0193','0194','0195','01
96','0197',
'0198','0198','0524','0525','0550','0551','0552','0553','0554','0555','0556','0557','0
558','0559','0660',
'0661','0662','0663','0664','0665','0666','0667','0668','0669','1000','1001','1003','1
004','1005');

%let
cpt4p=('90801','90802','90816','90817','90818','90819','90821','90822','90823','90824'
,'90826',
'90827','90828','90829','90845','90847','90849','90853','90857','90862','90870','90875
','90876','99291');

* exclude recipients with a primary diagnosis of dementia;
%let
dementia=('2912','29120','29121','29122','29123','29124','29125','29126','29127','2912
8','29129',

'29282','2940','29400','29401','29402','29403','29404','29405','29406','29407','29408'
,
'29409','2941','29410','29411','29412','29413','29414','29415','29416','29417','29418'
,
'29419','2948','29480','29481','29482','29483','29484','29485','29486','29487','29488'
,
'29489','3310','33100','33101','33102','33103','33104','33105','33106','33107','33108'
,
'33109','3311','33110','33111','33112','33113','33114','33115','33116','33117','33118'
,
'33119','33182');

%macro med_adher(diag=, drug=, indtype=);

/*****/
/**Macro to find qualifying Acute IP visit***/
/*****/
proc sql;
  create table inpatient as
  select recipient_id_1010, count(distinct DATE_OF_SERVICE_3013) as visits
  from add_cin_&diag
  where ((OMM_PROC_CODE_W660_1 in &cpt1
          or OMM_PROC_CODE_W660_2 in &cpt1
          or OMM_PROC_CODE_W660_3 in &cpt1
          or OMM_PROC_CODE_W660_4 in &cpt1
          or OMM_PROC_CODE_W660_5 in &cpt1
          or OMM_PROC_CODE_W660_6 in &cpt1) and PLACE_OF_SERVICE_3016 in
('21', '51')
  or (REVENUE_CODE_E0442 in &rev1
      or REVENUE_CODE_E0442_1 in &rev1
      or REVENUE_CODE_E0442_2 in &rev1
      or REVENUE_CODE_E0442_3 in &rev1
      or REVENUE_CODE_E0442_4 in &rev1
      or REVENUE_CODE_E0442_5 in &rev1
      or REVENUE_CODE_E0442_6 in &rev1
      or REVENUE_CODE_E0442_7 in &rev1
      or REVENUE_CODE_E0442_8 in &rev1
      or REVENUE_CODE_E0442_9 in &rev1
      or REVENUE_CODE_E0442_10 in &rev1

```

```
                or REVENUE_CODE_E0442_11 in &rev1
                or REVENUE_CODE_E0442_12 in &rev1)
        )
    group by recipient_id_1010;
quit;

/*****/
/**Macro to find qualifying Outpatient/ intensive outpatient and partial
hospitalization visit***/
/*****/

proc sql;
    create table outpatient as
    select distinct recipient_id_1010, DATE_OF_SERVICE_3013
        from add_cin_&diag
    where (((OMM_PROC_CODE_W660_1 in &cpt1
            or OMM_PROC_CODE_W660_2 in &cpt1
            or OMM_PROC_CODE_W660_3 in &cpt1
            or OMM_PROC_CODE_W660_4 in &cpt1
            or OMM_PROC_CODE_W660_5 in &cpt1
            or OMM_PROC_CODE_W660_6 in &cpt1) and PLACE_OF_SERVICE_3016 in
&pos)
        or (OMM_PROC_CODE_W660_1 in &cpt2
            or OMM_PROC_CODE_W660_2 in &cpt2
            or OMM_PROC_CODE_W660_3 in &cpt2
            or OMM_PROC_CODE_W660_4 in &cpt2
            or OMM_PROC_CODE_W660_5 in &cpt2
            or OMM_PROC_CODE_W660_6 in &cpt2)
        or (REVENUE_CODE_E0442 in &rev2
            or REVENUE_CODE_E0442_1 in &rev2
            or REVENUE_CODE_E0442_2 in &rev2
            or REVENUE_CODE_E0442_3 in &rev2
            or REVENUE_CODE_E0442_4 in &rev2
            or REVENUE_CODE_E0442_5 in &rev2
            or REVENUE_CODE_E0442_6 in &rev2
            or REVENUE_CODE_E0442_7 in &rev2
            or REVENUE_CODE_E0442_8 in &rev2
            or REVENUE_CODE_E0442_9 in &rev2
            or REVENUE_CODE_E0442_10 in &rev2
            or REVENUE_CODE_E0442_11 in &rev2
            or REVENUE_CODE_E0442_12 in &rev2)
        );
quit;

/*****/
/**Macro to find qualifying ED visit***/
/*****/

proc sql;
    create table ed as
    select distinct recipient_id_1010, DATE_OF_SERVICE_3013
        from add_cin_&diag
    where (((OMM_PROC_CODE_W660_1 in &cpt3
            or OMM_PROC_CODE_W660_2 in &cpt3
            or OMM_PROC_CODE_W660_3 in &cpt3
            or OMM_PROC_CODE_W660_4 in &cpt3
            or OMM_PROC_CODE_W660_5 in &cpt3
            or OMM_PROC_CODE_W660_6 in &cpt3)
        or REVENUE_CODE_E0442 in &rev3
            or REVENUE_CODE_E0442_1 in &rev3
            or REVENUE_CODE_E0442_2 in &rev3
            or REVENUE_CODE_E0442_3 in &rev3
            or REVENUE_CODE_E0442_4 in &rev3
            or REVENUE_CODE_E0442_5 in &rev3
```

```

        or REVENUE_CODE_E0442_6 in &rev3
        or REVENUE_CODE_E0442_7 in &rev3
        or REVENUE_CODE_E0442_8 in &rev3
        or REVENUE_CODE_E0442_9 in &rev3
        or REVENUE_CODE_E0442_10 in &rev3
        or REVENUE_CODE_E0442_11 in &rev3
        or REVENUE_CODE_E0442_12 in &rev3)
    OR
    ((OMM_PROC_CODE_W660_1 in &cpt3p
    or OMM_PROC_CODE_W660_2 in &cpt3p
    or OMM_PROC_CODE_W660_3 in &cpt3p
    or OMM_PROC_CODE_W660_4 in &cpt3p
    or OMM_PROC_CODE_W660_5 in &cpt3p
    or OMM_PROC_CODE_W660_6 in &cpt3p) and
    PLACE_OF_SERVICE_3016='23')
    );
quit;

/*****
**Macro to find qualifying Non-Acute IP visit**
*****/

proc sql;
    create table nonacute_IP as
    select distinct recipient_id_1010, DATE_OF_SERVICE_3013
    from add_cin_diag
    where ((OMM_PROC_CODE_W660_1 in &cpt4
    or OMM_PROC_CODE_W660_2 in &cpt4
    or OMM_PROC_CODE_W660_3 in &cpt4
    or OMM_PROC_CODE_W660_4 in &cpt4
    or OMM_PROC_CODE_W660_5 in &cpt4
    or OMM_PROC_CODE_W660_6 in &cpt4
    or REVENUE_CODE_E0442 in &rev4
    or REVENUE_CODE_E0442_1 in &rev4
    or REVENUE_CODE_E0442_2 in &rev4
    or REVENUE_CODE_E0442_3 in &rev4
    or REVENUE_CODE_E0442_4 in &rev4
    or REVENUE_CODE_E0442_5 in &rev4
    or REVENUE_CODE_E0442_6 in &rev4
    or REVENUE_CODE_E0442_7 in &rev4
    or REVENUE_CODE_E0442_8 in &rev4
    or REVENUE_CODE_E0442_9 in &rev4
    or REVENUE_CODE_E0442_10 in &rev4
    or REVENUE_CODE_E0442_11 in &rev4
    or REVENUE_CODE_E0442_12 in &rev4)
    OR
    ((OMM_PROC_CODE_W660_1 in &cpt4p
    or OMM_PROC_CODE_W660_2 in &cpt4p
    or OMM_PROC_CODE_W660_3 in &cpt4p
    or OMM_PROC_CODE_W660_4 in &cpt4p
    or OMM_PROC_CODE_W660_5 in &cpt4p
    or OMM_PROC_CODE_W660_6 in &cpt4p) and PLACE_OF_SERVICE_3016 in
    ('31', '32', '56'))
    );
quit;

proc sql;
    create table outpatient_all as
    select recipient_id_1010, count(distinct DATE_OF_SERVICE_3013) as visits
    from (select distinct recipient_id_1010, DATE_OF_SERVICE_3013 from outpatient
    union select distinct recipient_id_1010, DATE_OF_SERVICE_3013 from ed
    union select distinct recipient_id_1010, DATE_OF_SERVICE_3013 from
    nonacute_IP)

```

```
    group by recipient_id_1010;
quit;

/*Members with at least one acute IP or atleast two outpatient or ED Visit or
nonacute ip visits*/

proc sql;
    create table step_1 as
    select recipient_id_1010, min(claim_type) as claim_type
    from (select 1 as claim_type, recipient_id_1010 from inpatient union all
    select 2 as claim_type, recipient_id_1010 from outpatient_all where
visits ge 2
    )
    group by recipient_id_1010;
quit;

* Step 2 Calculate continuous enrollment, compare with/without continuous enrollment
later;
proc sql;
    create table eligibility as
    select distinct a.recipient_id_1010,
    case when b.DATE_BEGIN_ELIGIBILITY_1260_1 le &load_start
    then datepart(&load_start)
    else datepart(b.DATE_BEGIN_ELIGIBILITY_1260_1)
    end as eligibility_begin_dt format mmddyy10.,
    case when b.DATE_END_ELIGIBILITY_1260_2 ge &load_end
    then datepart(&load_end)
    else datepart(b.DATE_END_ELIGIBILITY_1260_2)
    end as eligibility_end_dt format mmddyy10.
    from step_1 a, medicaid.omh_recipient_date b
    where a.recipient_id_1010=b.recipient_id_1010
    and b.DATE_BEGIN_ELIGIBILITY_1260_1 le &load_end
    and b.DATE_END_ELIGIBILITY_1260_2 ge &load_start
    order by a.recipient_id_1010, eligibility_begin_dt, eligibility_end_dt;
quit;

data m1;
    set eligibility;
    by recipient_id_1010 eligibility_begin_dt eligibility_end_dt;
    retain b e seqn;
    format b e mmddyy10.;

    if first.recipient_id_1010 then do;
        b=eligibility_begin_dt;
        e=eligibility_end_dt;
        seqn=1;
    end;

    if (eligibility_begin_dt <= e+1) then do;
        e=max(e, eligibility_end_dt);
    end;

    /* otherwise set new begin and end dates -- this is a discontinuous record */
    else do;
        seqn = seqn + 1;
        b = eligibility_begin_dt;
        e=eligibility_end_dt;
    end;
end;
Run;

proc sort data=m1;
    by recipient_id_1010 seqn eligibility_begin_dt eligibility_end_dt;
run;
```

```
data m2;
  set m1;
  by recipient_id_1010 seqn  eligibility_begin_dt  eligibility_end_dt;
  if last.seqn;

  eligibility_begin_dt=b;
  eligibility_end_dt=e;

  drop b e;
run;

data m3;
  set m2;
  by recipient_id_1010  eligibility_begin_dt  eligibility_end_dt;

  retain prior_e;
  format prior_e mmddyy10.;

  prior_e=lag(eligibility_end_dt);
  if first.recipient_id_1010=1 and last.recipient_id_1010=1 then
  do;
    prior_e=eligibility_end_dt;
    gap=(datepart(&load_end)-eligibility_end_dt)+(eligibility_begin_dt-
datepart(&load_start));
    end;

  else if first.recipient_id_1010=1 and last.recipient_id_1010=0 then
  do;
    gap=(eligibility_begin_dt-datepart(&load_start));
    end;
  else if first.recipient_id_1010=0 and last.recipient_id_1010=0 then
  do;
    gap=eligibility_begin_dt-prior_e;
    end;
  else if first.recipient_id_1010=0 and last.recipient_id_1010=1 then
  do;
    gap=(eligibility_begin_dt-prior_e)+(datepart(&load_end)-
eligibility_end_dt);
    end;
run;

data m4;
  set m3;
  by recipient_id_1010  eligibility_begin_dt  eligibility_end_dt;
  if first.recipient_id_1010 then gap_sum=gap;
  else gap_sum+gap;

* if more than one gap or any gap is more than 45 days then is not continuous
eligible;
  if gap_sum>45 or seqn>2
  or (gap ne gap_sum and gap_sum<=45 and seqn<=2) then medicaid_elig=0;
  else medicaid_elig=1;
run;

* if any records show a recipient is not eligible, then the recipient is not
continuous eligible;
proc sql;
  create table m5 as
  select distinct recipient_id_1010, min(medicaid_elig) as medicaid_elig
  from m4
  group by recipient_id_1010
  order by recipient_id_1010;
quit;
```

```
* find if an individual has part D status;
proc sql;
  create table recipient_PartD as
  select distinct a.recipient_id_1010, 1 as partD
  from step_1 a, medicaid.omh_medicare b
  where a.recipient_id_1010=b.recipient_id_1010
  and b.recipient_medicare_code_1340='D'
  and b.date_begin_third_party_3013_2<=&LOAD_END
  and b.date_end_third_party_3015_2 > &LOAD_START;
quit;

PROC SQL;
  create table dementia as
  select distinct a.RECIPIENT_ID_1010, 1 as dementia
  FROM MEDICAID.Emedny_claim_enct b, step_1 a
  where a.recipient_id_1010=b.recipient_id_1010
  and b.DATE_OF_SERVICE_3013 between &load_start and &load_end
  and
    /* -- Dx code criteria*/
    (PRIMARY_DIAG_CODE_3006 between '290' and '29099'
    or PRIMARY_DIAG_CODE_3006 in
('2912','29120','29121','29122','29123','29124','29125',
'29126','29127','29128','29129','29282','2940','29400','29401','29402','29403',
'29404','29405','29406','29407','29408','29409','2941','29410','29411','29412',
'29413','29414','29415','29416','29417','29418','29419','2948','29480','29481',
'29482','29483','29484','29485','29486','29487','29488','29489','3310','33100',
'33101','33102','33103','33104','33105','33106','33107','33108','33109','3311',
'33110','33111','33112','33113','33114','33115','33116','33117','33118',
'33119','33182')
    )
  order by recipient_id_1010;
quit;

data step1_eligpop;
  merge step_1 m5 recipient_PartD dementia;
  by recipient_id_1010;

  if medicaid_elig eq . then medicaid_elig=0;
  if partD eq . then partD=0;
  if dementia eq . then dementia=0;

  keep recipient_id_1010 medicaid_elig partD dementia;
run;

* Step 3 Identify members as having been prescribed an antipsychotic medication (using
allmedsndc)
  during the Intake Period;
/*Pull all scripts for this population*/
PROC SQL;

  Create table SCRIPTS as
  SELECT distinct
    AL1.RECIPIENT_ID_1010, AL1.original_claim_number_W026,
    AL1.DATE_OF_SERVICE_3013,
    AL3.DRUGCLASS,
    AL3.DRUG_NAME_NAME_RTYPE4,
    AL3.DRUG_NAME_CODE_RTYPE4,
```

```
        AL3.NDC_UPC_HRI ,
AL3.ISDEPOT,
AL3.ROUTE_OF_ADMINISTRATION,
        AL1.DAYS_SUPPLY_3232,
        AL1.AMT_QUANTITY_DISPENSED_3251,
        AL1.AMT_PAID_CLAIM_3157,
        AL1.CLAIM_COUNTER_W032, /*to create one record per claim*/
        AL1.record_code_h002,
        OMM_PROC_CODE_W660_1, PROCEDURE_CODE_MOD1_3227_1
FROM MEDICAID.EMEDNY_CLAIM_ENCT AL1, step1_eligpop AL2,
psyckes.allmedswithndc AL3
WHERE AL1.recipient_id_1010=AL2.recipient_id_1010
AND AL2.MEDICAID_ELIG=1
AND AL2.PARTD=0
AND AL2.dementia=0
AND AL1.NATIONAL_DRUG_CODE_E1856 = AL3.NDC_UPC_HRI
AND (AL1.INVOICE_TYPE_3301 in ('10', '09')
     or AL1.OMM_SURS_COS_H001_10='1400000000')
AND AL3.drugclass in &drug
AND AL1.DATE_OF_SERVICE_3013 between &LOAD_START
                                and &LOAD_END;

QUIT;

proc sql;
create table SCRIPTS as
select distinct RECIPIENT_ID_1010,
                DATE_OF_SERVICE_3013,
                DRUGCLASS,
                DRUG_NAME_NAME_RTYPE4,
                DRUG_NAME_CODE_RTYPE4,
                NDC_UPC_HRI ,
                ISDEPOT,
                ROUTE_OF_ADMINISTRATION,
                sum(DAYS_SUPPLY_3232) as days_supply,
                sum(AMT_PAID_CLAIM_3157) as AMT_PAID_CLAIM_3157,
                sum(AMT_QUANTITY_DISPENSED_3251) as
AMT_QUANTITY_DISPENSED_3251,
                sum(CLAIM_COUNTER_W032) as claim_ct, /*to create one
record per claim*/
                record_code_h002
        from SCRIPTS
        group by original_claim_number_W026;
quit;

data netted_SCRIPTS;
set SCRIPTS;
format Cleansedstartdate mmdyy10.;

        drug_name_name_rtype4=lowercase(drug_name_name_rtype4);

        IF ISDEPOT = 1 or ROUTE_OF_ADMINISTRATION in ('IM', 'IJ')
then do;
                IF drug_name_name_rtype4 in ('fluphenazine decanoate',
'haloperidol decanoate',
                'paliperidone palmitate', 'olanzapine pamoate')
                THEN Days_Supply = 28;

                if drug_name_name_rtype4 = 'risperidone microspheres' then
Days_Supply = 21;
                end;

        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;

Cleansedstartdate=datepart(DATE_OF_SERVICE_3013);

if Days_Supply >180 then days_supply=30; * reassign unreasonable days supply to 30
days;
if claim_ct>0;
run;

* add jcodes;
proc sql;
create table script_jcodes as
select AL1.recipient_id_1010, AL1.original_claim_number_W026,
    AL1.CLAIM_COUNTER_W032, AL1.DATE_OF_SERVICE_3013,
    OMM_PROC_CODE_W660_1, OMM_PROC_CODE_W660_2, OMM_PROC_CODE_W660_3,
    OMM_PROC_CODE_W660_4, OMM_PROC_CODE_W660_5, OMM_PROC_CODE_W660_6
from medicaid.Emedny_claim_enct AL1, step1_eligpop AL2
where AL1.recipient_id_1010=AL2.recipient_id_1010
and (OMM_PROC_CODE_W660_1 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    or OMM_PROC_CODE_W660_2 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    or OMM_PROC_CODE_W660_3 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    or OMM_PROC_CODE_W660_4 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    or OMM_PROC_CODE_W660_5 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    or OMM_PROC_CODE_W660_6 in ('J1631', 'J2358', 'J2426', 'J2680', '2794')
    )
and DATE_OF_SERVICE_3013 between &load_start and &load_end
;
quit;

proc sql;
create table netted_script_jcodes as
select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013, OMM_PROC_CODE_W660_1,
OMM_PROC_CODE_W660_2,
    OMM_PROC_CODE_W660_3, OMM_PROC_CODE_W660_4, OMM_PROC_CODE_W660_5,
OMM_PROC_CODE_W660_6,
    sum(CLAIM_COUNTER_W032) as claim_count
from script_jcodes
group by original_claim_number_W026;
quit;

proc sql;
create table netted_script_jcodes as
select distinct RECIPIENT_ID_1010,
    datepart(DATE_OF_SERVICE_3013) as CleansedStartDate format mmddyy10.,
    case when procd='J1631' then 'haloperidol'
    when procd='J2358' then 'olanzapine'
    when procd='J2426' then 'paliperidone'
    when procd='J2680' then 'fluphenazine'
    else 'risperidone'
    end as MoleculeName,
    case when procd in ('J1631', 'J2358', 'J2426','J2680') then 28
    else 14 end as days_supply, 1 as ISDEPOT
from
    (select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_1 as procd
    from netted_script_jcodes where claim_count>0
    union select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_2 as procd
    from netted_script_jcodes where claim_count>0
```

```
        union select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_3 as procd
            from netted_script_jcodes where claim_count>0
        union select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_4 as procd
            from netted_script_jcodes where claim_count>0
        union select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_5 as procd
            from netted_script_jcodes where claim_count>0
        union select distinct RECIPIENT_ID_1010, DATE_OF_SERVICE_3013,
OMM_PROC_CODE_W660_6 as procd
            from netted_script_jcodes where claim_count>0)
where procd in ('J1631', 'J2358', 'J2426', 'J2680', '2794');
quit;

* combine script from oral and jcodes;
data combined_scripts;
    set netted_SCRIPTS
        netted_script_jcodes;
        keep RECIPIENT_ID_1010 moleculeName Cleansedstartdate days_supply ISDEPOT;
run;

*** Calculate dispensing event*****;
* seperate the file to prescription and injection, because there were treated
differently for
different medications picked up on the same day;
data prescription injection;
    set combined_scripts;
    if ISDEPOT=1 then output injection;
    else output prescription;
run;

* Use the longest days of supply for same medication dispensed on same day for oral
medication;
PROC SQL;
    Create table prescription as
    Select    RECIPIENT_ID_1010,
            moleculeName, 0 as ISDEPOT,
            CleansedStartDate,
            max(Days_Supply) as Days_supply
            FROM prescription
            GROUP BY RECIPIENT_ID_1010, moleculeName, CleansedStartDate
            ORDER BY RECIPIENT_ID_1010, moleculeName, CleansedStartDate;
QUIT;

* use the medication with longest days of supply for multiple medications dispensed on
same
day for injections;
proc sort data=injection;
by recipient_id_1010 Cleansedstartdate days_supply;
data injection;
    set injection;
    by recipient_id_1010 Cleansedstartdate days_supply;
    if last.Cleansedstartdate;
run;

data combined_scripts;
    set prescription
        injection;

    dispense_event=1;
    if days_supply>30 then dispense_event=round(days_supply/30, 1.0);
run;
```

```
* For same medications dispensed on same day in both oral and injection form, keep the
one
  with longest days supply;
proc sort data=combined_scripts;
  by recipient_id_1010 moleculeName Cleansedstartdate Days_supply;
data combined_scripts;
  set combined_scripts;
  by recipient_id_1010 moleculeName Cleansedstartdate Days_supply;
  if last.Cleansedstartdate;
run;

proc sql;
  create table dispense_event as
  select recipient_id_1010, sum(dispense_event) as dispense_event
  from combined_scripts
  group by recipient_id_1010;
quit;
*** end of calculating the dispense events*****;

* exclude recipients who did not have at least two antipsychotic medication dispensing
event
  during the year;
proc sql;
  create table netted_SCRIPTS_1 as
  select distinct *, (CleansedStartDate + Days_Supply) as Cleansedstopdate format
mmdyy10.
  from combined_scripts
  where recipient_id_1010 not in (select distinct recipient_id_1010 from
dispense_event
                                where dispense_event lt 2)

  order by recipient_id_1010, moleculeName, Cleansedstartdate;
quit;

proc sql;
  /*Identify Index Prescription Start Date*/
  create table IPSD as
  select distinct recipient_id_1010,
                min(Cleansedstartdate) as Index_date format=mmdyy8.,
                DATEPART(&LOAD_END) as END_date format=mmdyy8.
  from netted_SCRIPTS_1
  group by recipient_id_1010;

  create table step_2 as
  select *, (END_date-Index_date) as Total_days
  from IPSD
  where Index_date le intnx('month', datepart(&load_end), - 3, 'end');

  create table step_3a as
  select a.*, Total_days, Index_date, END_date
  from netted_SCRIPTS_1 a left join step_2 b
  on a.recipient_id_1010=b.recipient_id_1010
  where Index_date ne .
  order by recipient_id_1010, moleculeName, CleansedStartDate, CleansedStopDate;
quit;
/*****
/* STEP 4 - Identify all inpatient (IP) days between index date and end dates */
*****/
* treat inpatient days as prescription days;
proc sql;
  create table inpt as
  select distinct a.recipient_id_1010, a.total_days, a.index_date, a.end_date,
```

```
                datepart(b.DATE_OF_SERVICE_3013) as date_of_service format
mmddyy10.,
                datepart(b.DATE_ADMISSION_3011) as BEGINNING_DATE_OF_SERVICE format
mmddyy10.,
                datepart(b.DATE_SERVICE_END_3015) as ENDING_DATE_OF_SERVICE
format mmddyy10.
    from step_3a a, medicaid.Emedny_claim_enct b
    where a.recipient_id_1010=b.recipient_id_1010
          and b.INVOICE_TYPE_3301 in ('11', '12')
          and (b.DATE_OF_SERVICE_3013 between &load_start and &load_end
               or b.DATE_SERVICE_END_3015 between &load_start and &load_end
               or b.DATE_ADMISSION_3011 between &load_start and &load_end)
    order by a.recipient_id_1010, BEGINNING_DATE_OF_SERVICE, ENDING_DATE_OF_SERVICE;
quit;

* create inpatient episode;
DATA inpt1;
SET inpt;
  by RECIPIENT_ID_1010 BEGINNING_DATE_OF_SERVICE ENDING_DATE_OF_SERVICE;
  retain b e;
  retain seqn;
  IF ENDING_DATE_OF_SERVICE > end_date THEN ENDING_DATE_OF_SERVICE = end_date;
  if BEGINNING_DATE_OF_SERVICE<index_date then BEGINNING_DATE_OF_SERVICE=index_date;

  format b e mmddyy10.;

if first.RECIPIENT_ID_1010 then do;
  b = BEGINNING_DATE_OF_SERVICE;
  e = ENDING_DATE_OF_SERVICE;
  seqn = 1;
end;
if (BEGINNING_DATE_OF_SERVICE <= e + 1) then do;
  e = max(e,ENDING_DATE_OF_SERVICE);
end;
/* otherwise set new begin and end dates -- this is a discontinuous record */
else do;
  seqn = seqn + 1;
  b = BEGINNING_DATE_OF_SERVICE;
  e = ENDING_DATE_OF_SERVICE;
end;

  if ENDING_DATE_OF_SERVICE >= index_date;
Run;

Proc sort data=inpt1 nodup;
  by RECIPIENT_ID_1010 seqn BEGINNING_DATE_OF_SERVICE ENDING_DATE_OF_SERVICE;
run;

Data inpt2; set inpt1;
  by RECIPIENT_ID_1010 seqn b e;

  format BEGINNING_DATE_OF_SERVICE ENDING_DATE_OF_SERVICE mmddyy8.;
  KEEP RECIPIENT_ID_1010 BEGINNING_DATE_OF_SERVICE ENDING_DATE_OF_SERVICE total_days
  index_date end_date;

  drop b e seqn;

if last.seqn then do;
  BEGINNING_DATE_OF_SERVICE = b;
  ENDING_DATE_OF_SERVICE = e;
  output; /* write a single record containing best start and end records to file. */
end;
run;
```

```
* for oral, same meds on different day, sum the days covered -- create trial for same
medication,
  modify the cleansedstartdate from previous days supply;
* for injection, keep the same start and end date;

data TRIALS_CLAIMS_STATUS; set step_3a;
  by RECIPIENT_ID_1010 moleculeName CleansedStartDate CleansedStopDate;
  retain b e;          /* lets these variables (begin/end) carry-over across cases */

  format b e mmddyy10.;
  format CleansedStopDate mmddyy10.;

  /* if this is the first time that a new medication has been detected, then set new
begin/end */
  /* seqn is the number of pick-ups of a medication */
  if first.moleculeName then do;
    b = CleansedStartDate;
    e = CleansedStopDate;
  end;

  /* if next startdt is prior to previous stopdt, than reset startdt to prior stopdt,
and adjust new stopdt
  by adding days supply to new startdt*/

  else if (CleansedStartDate < e) and ISDEPOT ne 1 then do;
    b = e + 1;
    e = b + days_supply;
  end;

  /* otherwise set new begin and end dates -- this is a discontinuous record */
  else do;
    b = CleansedStartDate;
    e = CleansedStopDate;
  end;

    CleansedStartDate=b;
    CleansedStopDate=e;
  drop b e;
Run;

* for medication that picked up before or one day after stopdt, clapsed the segments
into one;
* create the trial for each recipient;
* add inpatient episode to medication trials and treat inpatient as having a
medication;
proc sql;
  create table TRIALS_CLAIMS_STATUS_winnt as
  select distinct RECIPIENT_ID_1010, moleculeName, Cleansedstartdate,
Cleansedstopdate,
                Total_days, Index_date, END_date
  from TRIALS_CLAIMS_STATUS
union
  select distinct RECIPIENT_ID_1010, 'inpt' as moleculeName,
                BEGINNING_DATE_OF_SERVICE as Cleansedstartdate,
                ENDING_DATE_OF_SERVICE as Cleansedstopdate,
                Total_days, Index_date, END_date
  from inpt2
  order by RECIPIENT_ID_1010, Cleansedstartdate, Cleansedstopdate;
quit;

proc sort data=TRIALS_CLAIMS_STATUS_winnt;
  by RECIPIENT_ID_1010 CleansedStartDate CleansedStopDate;
data step_3b;
```

```
set TRIALS_CLAIMS_STATUS_wintpt;
  by RECIPIENT_ID_1010 CleansedStartDate CleansedStopDate;
  retain b e ;
  format b e mmddyy10.;

  if first.recipient_id_1010 then do;
    b = CleansedStartDate;
    e = CleansedStopDate;
  end;

  else if (CleansedStartDate <= e+1)then do;
    e=max(e, Cleansedstopdate);
  end;

  /* otherwise set new begin and end dates -- this is a discontinuous record */
  else do;
    b = CleansedStartDate;
    e = CleansedStopDate;
  end;
Run;

proc sort data=step_3b;
  by recipient_id_1010 b e;
run;
data step_3c;
  set step_3b;
  by recipient_id_1010 b e;
  if last.b;

  CleansedStartDate=b;
  CleansedStopDate=e;

drop b e;
run;

proc sql;
/*Make sure days supply does not extend past end of measurement period*/
  create table step_3d as
  select distinct RECIPIENT_ID_1010, moleculeName, Cleansedstartdate,
    case when Cleansedstopdate > end_date
      then end_date
      else Cleansedstopdate
    end as Cleansedstopdate format mmddyy10.,
    Total_days, Index_date, END_date
  from step_3c
  order by RECIPIENT_ID_1010,Cleansedstartdate,Cleansedstopdate;
quit;

* calculate days without medication;
data step_3e;
  set step_3d;
  by recipient_id_1010 Cleansedstartdate Cleansedstopdate;

  retain prior_e;
  format prior_e mmddyy10.;

  prior_e=lag(Cleansedstopdate);
  if first.recipient_id_1010=1 then
  do;
    prior_e=Cleansedstopdate;
    gap=0;
    gap_sum=gap;
  end;
end;
```

```
else do;
    gap=Cleansedstartdate-prior_e;
    gap_sum+gap;
end;

if last.recipient_id_1010;

p_dayscovered=(total_days-gap_sum-(end_date-Cleansedstopdate))/total_days;

format p_dayscovered 6.2;
run;

/*Final rates*/
proc sql;
    create table step_3f as
    select *, 1 as denominator,
           (case when p_dayscovered lt .80 then 1 else 0 end) as numerator
    from step_3e;
quit;

proc freq data=step_3f;
table numerator;
run;

Data mediadher_&diag;
    set step_3f;
    Format Ind_Type Ind_Set $35.;
    Format Report_Date mmddyy10.;
    Keep Recipient_Id_1010 Report_date Ind_Type Ind_Set High_Risk_Ind Ind;
           Ind_Type = &indtype;
           Report_Date = &Reportdate;
           Ind_Set = 'BH CARE COORDINATION';

    High_Risk_Ind=numerator;
    if numerator eq . then High_Risk_Ind=0;

    Ind=denominator;
    if denominator =1;

Run;
%mend;

* create indicator table for low adherence of antipsychotic for recipients with
schizophrenia;
%med_adher(diag=schiz, drug=('Antipsychotic','Antipsychotics - Misc.', 'Atypical'),
indtype='LOW ADHERENCE ANTIPSYCHOTIC');

* create indicator table for low adherence of antipsychotic/Mood stablizer for
recipients with bipolar;
%med_adher(diag=bipolar, drug=('Antipsychotic','Antipsychotics - Misc.', 'Atypical',
'Mood Stabilizer'), indtype='LOW ADHERENCE MOOD STABLIZER');

/*****
*****
*****
*** Part II: Code to create indicator: Inadequate duration of antidepressant for
recipients ***
***** with major depression
*****
*****
*****
*****/
```

```

*****
*****/
PROC SQL;
  create table intake_rev as
    select distinct b.RECIPIENT_ID_1010, a.DATE_OF_BIRTH_RECIPIENT_1180,
      RECIPIENT_MEDICAID_COV_1380, RECIPIENT_MEDICARE_CODE_1340,
      RECIPIENT_AID_CATGY_1240,
      DATE_ADMISSION_3011,
      DATE_OF_SERVICE_3013, DATE_SERVICE_END_3015,
      DATE_DISCHARGE_3108,
      PROVIDER_ID_2001, PROVIDER_NPI_E6477,
      SURS_COS_H001, OMM_SURS_COS_H001_10,
      PRIMARY_DIAG_CODE_3006,
      SEC_DIAG_CODE_3007,
      OMM_PROC_CODE_W660_1, OMM_PROC_CODE_W660_2,
      OMM_PROC_CODE_W660_3,
      OMM_PROC_CODE_W660_4, OMM_PROC_CODE_W660_5,
      OMM_PROC_CODE_W660_6,
      REVENUE_CODE_E0442, REVENUE_CODE_E0442_1,
      REVENUE_CODE_E0442_2,
      REVENUE_CODE_E0442_3, REVENUE_CODE_E0442_4,
      REVENUE_CODE_E0442_5,
      REVENUE_CODE_E0442_6, REVENUE_CODE_E0442_7, REVENUE_CODE_E0442_8,
      REVENUE_CODE_E0442_9, REVENUE_CODE_E0442_10,
      REVENUE_CODE_E0442_11,
      REVENUE_CODE_E0442_12,
      Invoice_Type_3301,
      BILL_TYPE_1_2_e0394, BILL_TYPE_3_E0395,
      rate_code_2078,
      SPECIALTY_CODE_2048,
      CATGY_OF_SERV_2019,
      PLACE_OF_SERVICE_3016,
      PROVIDER_FACILITY_CONTROL_2055,
      CLAIM_TYPE_E0141,
      PLAN_ID_H056,
      NATIONAL_DRUG_CODE_E1856, DRG_CONTROL_CODE_3336,
      DRG_MDC_CODE_E2365, DRG_MED_SURG_CODE_E2372,
      DRG_TYPE_CODE_E2370, /*drg_code,*/
      AMT_PAID_CLAIM_3157,
      RECORD_CODE_H002,
      ENCOUNTER_TYPE_H054,
      patient_status_3291
    FROM MEDICAID.Emedny_claim_enct b, MEDICAID.Omh_recipient_base a
    where a.recipient_id_1010=b.recipient_id_1010
    and b.DATE_OF_SERVICE_3013 between dhms(intnx('month',
datepart(&load_start), - 3, 'begin'), 0, 0, 0)
      and &load_end
      and /* -- Dx code criteria*/
      ((PRIMARY_DIAG_CODE_3006 between '29620' and '29625')
or (PRIMARY_DIAG_CODE_3006 between '29630' and '29635')
or (PRIMARY_DIAG_CODE_3006 between '2980' and '29899')
or (PRIMARY_DIAG_CODE_3006 between '311' and '31199')
or (SEC_DIAG_CODE_3007 between '29620' and '29625')
or (SEC_DIAG_CODE_3007 between '29630' and '29635')
or (SEC_DIAG_CODE_3007 between '2980' and '29899')
or (SEC_DIAG_CODE_3007 between '311' and '31199'))
      and Claim_Status_Type_C188='1';
quit;

data intake_rev2; set intake_rev;
  AGE=int((&reportdate - datepart(DATE_OF_BIRTH_RECIPIENT_1180))/365.25);;

  if 0<=age <65;

```

```
run;

%let cpt=('99281','99282','99283','99284','99285',/*ED*/
'90804','90805','90806','90807','90808','90809',
'90810','90811','90812','90813','90814','90815','98960','98961','98962','99078','99201',
'99202',
'99203','99204','99205','99211','99212','99213','99214','99215','99217','99218','99219',
'99220',
'99241','99242','99243','99244','99245','99341','99342','99343','99344','99345','99347',
'99348',
'99349','99350','99384','99385','99386','99387','99394','99395','99396','99397','99401',
'99402',
'99403','99404','99411','99412','99510','G0155','G0176','G0177','G0409','G0410','G0411',
'H0002',
'H0004','H0031','H0034','H0035','H0036','H0037','H0039','H0040','H2000','H2001','H2010',
'H2011',
'H2012','H2013','H2014','H2015','H2016','H2017','H2018','H2019','H2020','M0064','S0201',
'S9480',
'S9484','S9485');

%let
rev=('0450','0451','0452','0453','0454','0455','0456','0457','0458','0459','0981',/*ED*/
'0510','0513','0515','0516','0517','0519','0520','0521','0522','0523','0526','0527',
'0528','0529','0900','0901','0902','0903','0904','0905','0907','0911','0912','0913','0914',
'0915','0916','0917','0919','0982','0983');

%let
cpt2=('90801','90802','90816','90817','90818','90819','90821','90822','90823','90824',
'90826',
'90827','90828','90829','90845','90847','90849','90853','90857','90862','90870','90875',
'90876',
'99221','99222','99223','99231','99232','99233','99238','99239','99251','99252','99253',
'99254',
'99255');

%let
pos=('03','05','07','09','11','12','13','14','15','20','22','24','33','49','50','52','53',
'71','72');

/*at least one prim dx of major depression in the defined setting*/
proc sql;
    create table prim_dx as
    select distinct recipient_id_1010, DATE_OF_SERVICE_3013, 1 as dx_type
    from intake_rev2
    where DATE_OF_SERVICE_3013 ge &load_start
    and ((PRIMARY_DIAG_CODE_3006 between '29620' and '29625')
        or (PRIMARY_DIAG_CODE_3006 between '29630' and '29635')
        or (PRIMARY_DIAG_CODE_3006 between '2980' and '29899')
        or (PRIMARY_DIAG_CODE_3006 between '311' and '31199'))
    and
        ((OMM_PROC_CODE_W660_1 in &cpt
        or OMM_PROC_CODE_W660_2 in &cpt
        or OMM_PROC_CODE_W660_3 in &cpt
        or OMM_PROC_CODE_W660_4 in &cpt
        or OMM_PROC_CODE_W660_5 in &cpt
        or OMM_PROC_CODE_W660_6 in &cpt
        or REVENUE_CODE_E0442 in &rev
        or REVENUE_CODE_E0442_1 in &rev
        or REVENUE_CODE_E0442_2 in &rev
        or REVENUE_CODE_E0442_3 in &rev
        or REVENUE_CODE_E0442_4 in &rev
```

```
or REVENUE_CODE_E0442_5 in &rev
or REVENUE_CODE_E0442_6 in &rev
or REVENUE_CODE_E0442_7 in &rev
or REVENUE_CODE_E0442_8 in &rev
or REVENUE_CODE_E0442_9 in &rev
or REVENUE_CODE_E0442_10 in &rev
or REVENUE_CODE_E0442_11 in &rev
or REVENUE_CODE_E0442_12 in &rev)
OR
      ((OMM_PROC_CODE_W660_1 in &cpt2
        or OMM_PROC_CODE_W660_2 in &cpt2
        or OMM_PROC_CODE_W660_3 in &cpt2
        or OMM_PROC_CODE_W660_4 in &cpt2
        or OMM_PROC_CODE_W660_5 in &cpt2
        or OMM_PROC_CODE_W660_6 in &cpt2)
and PLACE_OF_SERVICE_3016 in &pos));
quit;

/*to calculate at least 2 secondary dx on diff dates of major depression in any
setting */
proc sql;
  create table secon_dx as
  select distinct recipient_id_1010,DATE_OF_SERVICE_3013 from intake_rev2
  where DATE_OF_SERVICE_3013 ge &load_start
  and ((SEC_DIAG_CODE_3007 between '29620' and '29625')
    or (SEC_DIAG_CODE_3007 between '29630' and '29635')
    or (SEC_DIAG_CODE_3007 between '2980' and '29899')
    or (SEC_DIAG_CODE_3007 between '311' and '31199'))
  and
    ((OMM_PROC_CODE_W660_1 in &cpt
    or OMM_PROC_CODE_W660_2 in &cpt
    or OMM_PROC_CODE_W660_3 in &cpt
    or OMM_PROC_CODE_W660_4 in &cpt
    or OMM_PROC_CODE_W660_5 in &cpt
    or OMM_PROC_CODE_W660_6 in &cpt
    or REVENUE_CODE_E0442 in &rev
    or REVENUE_CODE_E0442_1 in &rev
    or REVENUE_CODE_E0442_2 in &rev
    or REVENUE_CODE_E0442_3 in &rev
    or REVENUE_CODE_E0442_4 in &rev
    or REVENUE_CODE_E0442_5 in &rev
    or REVENUE_CODE_E0442_6 in &rev
    or REVENUE_CODE_E0442_7 in &rev
    or REVENUE_CODE_E0442_8 in &rev
    or REVENUE_CODE_E0442_9 in &rev
    or REVENUE_CODE_E0442_10 in &rev
    or REVENUE_CODE_E0442_11 in &rev
    or REVENUE_CODE_E0442_12 in &rev)
    OR
      ((OMM_PROC_CODE_W660_1 in &cpt2
        or OMM_PROC_CODE_W660_2 in &cpt2
        or OMM_PROC_CODE_W660_3 in &cpt2
        or OMM_PROC_CODE_W660_4 in &cpt2
        or OMM_PROC_CODE_W660_5 in &cpt2
        or OMM_PROC_CODE_W660_6 in &cpt2)
and PLACE_OF_SERVICE_3016 in &pos))
  ;
quit;

proc sql;
  create table secon_dx2 as
  select recipient_id_1010, count(distinct DATE_OF_SERVICE_3013) as num_dos
  from secon_dx
```

```
        group by recipient_id_1010;
quit;

proc sql;
    create table secon_dx3 as
        select a.recipient_id_1010, a.DATE_OF_SERVICE_3013, 2 as dx_type
            from secon_dx a, secon_dx2 b
            where a.recipient_id_1010=b.recipient_id_1010
                and b.num_dos ge 2
            order by a.recipient_id_1010, a.DATE_OF_SERVICE_3013;
quit;

data secon_dx3;
    set secon_dx3;
    by recipient_id_1010 DATE_OF_SERVICE_3013 ;
    if first.recipient_id_1010;
run;

/*take out people with any dx of major depression with IP discharge*/
proc sql;
    create table dx_ip as
        select recipient_id_1010, DATE_ADMISSION_3011, DATE_DISCHARGE_3108,
            DATE_OF_SERVICE_3013, DATE_SERVICE_END_3015
            from intake_rev2
            where INVOICE_TYPE_3301 in ('11','12')
                and (DATE_OF_SERVICE_3013 ge &load_start
                    or DATE_ADMISSION_3011 le &load_end
                    and (DATE_DISCHARGE_3108 ge &load_start or DATE_DISCHARGE_3108 eq . )
                )
            order by recipient_id_1010,DATE_ADMISSION_3011, DATE_OF_SERVICE_3013,
DATE_DISCHARGE_3108
            ;
quit;

proc sql;
    create table dx_ip2 as
        select distinct recipient_id_1010, DATE_OF_SERVICE_3013, DATE_DISCHARGE_3108, 3
as dx_type
        from dx_ip
        where DATE_DISCHARGE_3108 ne . and DATE_DISCHARGE_3108 le &load_end
            order by recipient_id_1010, DATE_OF_SERVICE_3013;
quit;

data dx_ip3;
    set dx_ip2;
    by recipient_id_1010 DATE_OF_SERVICE_3013;
    if first.recipient_id_1010;
run;

data dx_depress;
    set prim_dx secon_dx3 dx_ip3;
run;
proc sort data=dx_depress;
    by recipient_id_1010 DATE_OF_SERVICE_3013;
run;

data dx_depress2;
    set dx_depress;
    by recipient_id_1010 DATE_OF_SERVICE_3013;

    IESD=DATE_OF_SERVICE_3013;
    if first.recipient_id_1010 and dx_type=3 then IESD=DATE_DISCHARGE_3108;
    format IESD datetime20.;
```

```
label IESD='IESD';
run;

proc sort data=dx_depress2;
by recipient_id_1010 IESD;
run;

/*to get the index episode start date*/
data firstdt;
set dx_depress2;
by recipient_id_1010 IESD;
if first.recipient_id_1010;
keep recipient_id_1010 IESD dx_type;
run;

/*for eligibility 90 days prior and 245 days after start date*/
data dx_ad;
set firstdt;
after245=intnx('day', datepart(IESD), 245);
prior90=intnx('day', datepart(IESD), -90);
format after245 mmddyy10. prior90 mmddyy10.;
run;

proc sql;
create table eligibility as
select distinct a.recipient_id_1010, a.IESD, a.prior90, a.after245,
case when b.DATE_BEGIN_ELIGIBILITY_1260_1 le &load_start
then datepart(&load_start)
else datepart(b.DATE_BEGIN_ELIGIBILITY_1260_1)
end as eligibility_begin_dt format mmddyy10.,
case when b.DATE_END_ELIGIBILITY_1260_2 ge &load_end
then datepart(&load_end)
else datepart(b.DATE_END_ELIGIBILITY_1260_2)
end as eligibility_end_dt format mmddyy10.
from dx_ad a, medicaid.omh_recipient_date b
where a.recipient_id_1010=b.recipient_id_1010
and b.DATE_BEGIN_ELIGIBILITY_1260_1 le &load_end
and b.DATE_END_ELIGIBILITY_1260_2 ge &load_start
order by a.recipient_id_1010, eligibility_begin_dt, eligibility_end_dt;
quit;

data m1;
set eligibility;
by recipient_id_1010 eligibility_begin_dt eligibility_end_dt;
retain b e seqn;
format b e mmddyy10.;

if first.recipient_id_1010 then do;
b=eligibility_begin_dt;
e=eligibility_end_dt;
seqn=1;
end;

if (eligibility_begin_dt <= e+1) then do;
e=max(e, eligibility_end_dt);
end;

/* otherwise set new begin and end dates -- this is a discontinuous record */
else do;
seqn = seqn + 1;
b = eligibility_begin_dt;
e=eligibility_end_dt;
end;
end;
```

```
Run;

proc sort data=m1;
  by recipient_id_1010 seqn  eligibility_begin_dt  eligibility_end_dt;
run;
data m2;
  set m1;
  by recipient_id_1010 seqn  eligibility_begin_dt  eligibility_end_dt;
  if last.seqn;

  eligibility_begin_dt=b;
  eligibility_end_dt=e;

  drop b e;
run;

data m3;
  set m2;
  by recipient_id_1010  eligibility_begin_dt  eligibility_end_dt;

  retain prior_e;
  format prior_e mmddyy10.;

  prior_e=lag(eligibility_end_dt);
  if first.recipient_id_1010=1 and last.recipient_id_1010=1 then
  do;
    prior_e=eligibility_end_dt;
    gap=(datepart(&load_end)-eligibility_end_dt)+(eligibility_begin_dt-
datepart(&load_start));
  end;

  else if first.recipient_id_1010=1 and last.recipient_id_1010=0 then
  do;
    gap=(eligibility_begin_dt-datepart(&load_start));
  end;
  else if first.recipient_id_1010=0 and last.recipient_id_1010=0 then
  do;
    gap=eligibility_begin_dt-prior_e;
  end;
  else if first.recipient_id_1010=0 and last.recipient_id_1010=1 then
  do;
    gap=(eligibility_begin_dt-prior_e)+(datepart(&load_end)-
eligibility_end_dt);
  end;

run;

data m4;
  set m3;
  by recipient_id_1010  eligibility_begin_dt  eligibility_end_dt;
  if first.recipient_id_1010 then gap_sum=gap;
  else gap_sum+gap;

* if more than one gap or any gap is more than 45 days then is not continuous
eligible;
  if gap_sum>45 or seqn>2
  or (gap ne gap_sum and gap_sum<=45 and seqn<=2) then medicaid_elig=0;
  else medicaid_elig=1;
run;

* if any records show a recipient is not eligible, then the recipient is not
continuous eligible;
proc sql;
```

```
create table m5 as
select distinct recipient_id_1010, min(medicaid_elig) as medicaid_elig
from m4
group by recipient_id_1010
order by recipient_id_1010;
quit;

* find if an individual has part D status;
proc sql;
create table recipient_PartD as
select distinct a.recipient_id_1010, 1 as partD
from dx_ad a, medicaid.omh_medicare b
where a.recipient_id_1010=b.recipient_id_1010
and b.recipient_medicare_code_1340='D'
and b.date_begin_third_party_3013_2<=&load_end
and b.date_end_third_party_3015_2 > &load_start
order by a.recipient_id_1010;
quit;
proc sort data=dx_ad;
by recipient_id_1010;
data dx_ad3;
merge dx_ad m5 recipient_PartD;
by recipient_id_1010;

if medicaid_elig eq . then medicaid_elig=0;
if partD eq . then partD=0;

run;

/*extract drug info*/
proc sql;
create table drugs as
SELECT distinct
A.RECIPIENT_ID_1010,
A.DATE_OF_SERVICE_3013,
a.days_supply_3232,
B.DRUG_NAME_NAME_RTYPE4
FROM MEDICAID.EMEDNY_CLAIM_ENCT A, PSYCKES.ALLMEDSWITHNDC B, dx_ad3 c
WHERE A.DATE_OF_SERVICE_3013 between dhms(intnx('month',
datepart(&load_start), - 3, 'begin'), 0, 0, 0)
and &load_end
and A.RECIPIENT_ID_1010 =c.RECIPIENT_ID_1010
AND A.INVOICE_TYPE_3301 = '10'
AND A.NATIONAL_DRUG_CODE_E1856 IN (SELECT DISTINCT NDC_UPC_HRI
FROM PSYCKES.ALLMEDSWITHNDC
WHERE DRUGCLASS IN
('Antidepressant','Antidepressants - Misc.')
or DRUG_NAME_NAME_RTYPE4='Vilazodone
HCl' )
AND A.NATIONAL_DRUG_CODE_E1856 = B.NDC_UPC_HRI;
quit;

proc sql;
create table drugs2 as
SELECT distinct RECIPIENT_ID_1010,
DATE_OF_SERVICE_3013,
sum(days_supply_3232) as days_supply,
DRUG_NAME_NAME_RTYPE4
FROM drugs
group by RECIPIENT_ID_1010,DATE_OF_SERVICE_3013,DRUG_NAME_NAME_RTYPE4
order by RECIPIENT_ID_1010,DATE_OF_SERVICE_3013,DRUG_NAME_NAME_RTYPE4;
quit;
```

```
data drugs3;
  set drugs2;
  if days_supply=0 then delete;
run;

data dx_ad3;
  set dx_ad3 ;
      prior30=intnx('day', datepart(IESD), -30);
      after14=intnx('day', datepart(IESD), 14);
  format prior30 mmddyy10. after14 mmddyy10.;
run;

proc sql;
  create table first_pres as
  select b.* from dx_ad3 a, drugs3 b
  where a.recipient_id_1010=b.recipient_id_1010
        and datepart(b.DATE_OF_SERVICE_3013) ge a.prior30
        and datepart(b.DATE_OF_SERVICE_3013) le a.after14
  order by recipient_id_1010,DATE_OF_SERVICE_3013;
quit;

data first_pres2;
  set first_pres;
  by recipient_id_1010 DATE_OF_SERVICE_3013;
  if first.recipient_id_1010;
  drop days_supply DRUG_NAME_NAME_RTYPE4;
run;

proc sql;/*RH=revised hedis*/
  create table dx_ad_RH4 as
  select a.*, b.DATE_OF_SERVICE_3013 as ipsd label='IPSD'
  from dx_ad3 a left join first_pres2 b
  on a.recipient_id_1010=b.recipient_id_1010;
quit;

data dx_ad_rh4;
  set dx_ad_rh4;
  prior90IPSD=intnx('day', datepart(ipsd), -90);
  format prior90ipsd mmddyy10.;
run;

proc sql;
  create table neg_med as
  select distinct a.recipient_id_1010,1 as neg_med
  from dx_ad_RH4 a, drugs3 b
  where a.recipient_id_1010=b.recipient_id_1010
        and ((datepart(b.DATE_OF_SERVICE_3013) + days_supply) between prior90ipsd
and datepart(ipsd)
        or (datepart(b.DATE_OF_SERVICE_3013) lt datepart(ipsd)
        and datepart(b.DATE_OF_SERVICE_3013) gt prior90ipsd)
        );
quit;

data dx_ad_rh5;
  merge dx_ad_rh4 neg_med;
  by recipient_id_1010;
run;

/*take out recips that may be in numerator*/
proc sql;
  create table numer as
  select a.* , (datepart(a.DATE_OF_SERVICE_3013) + days_supply) as trial_end
  format= mmddyy10.,
```

```
        b.ipsd
    from drugs3 a, dx_ad_rh5 b
    where a.recipient_id_1010=b.recipient_id_1010
        and a.days_supply<=180
        and a.recipient_id_1010 in (select distinct recipient_id_1010 from dx_ad_rh5
                                    where neg_med ne 1 and ipsd ne .
                                    and (medicaid_elig=1 and partD=0 ))
    order by recipient_id_1010,DATE_OF_SERVICE_3013, ipsd ;
quit;

data numer2;
    set numer;
    by recipient_id_1010 DATE_OF_SERVICE_3013 ipsd;
    if trial_end lt datepart(ipsd) then delete;
    trial_dur=trial_end - datepart(ipsd);
run;

proc sort data =numer2;
    by recipient_id_1010 DATE_OF_SERVICE_3013 trial_end;run;

data numer3;
    set numer2;
    by recipient_id_1010 DATE_OF_SERVICE_3013 trial_end;
    if recipient_id_1010=lag(recipient_id_1010)
        and (datepart(DATE_OF_SERVICE_3013)-1)>lag(trial_end)
    then cnt+1;
    if first.recipient_id_1010 then cnt=1;
    gap=(datepart(DATE_OF_SERVICE_3013))-lag(trial_end);
    if cnt=1 then gap=.;
run;

data numer4;
    set numer3;
    by recipient_id_1010 DATE_OF_SERVICE_3013 cnt;
    retain gap_sum;
    if first.recipient_id_1010 then gap_sum=gap;
    if gap > 0 then gap_sum+gap;
run;

data numer5;
    set numer4;
    by recipient_id_1010 DATE_OF_SERVICE_3013 cnt ;
    if gap_sum=. then gap_sum2=0; else gap_sum2=gap_sum;

    dur=trial_dur-gap_sum2;
    if dur ge 84 and gap_sum le 30 then numer10=1;
run;

proc sql;
    create table numer6 as
    select distinct recipient_id_1010,numer10
    from numer5
    where numer10=1;
quit;

* for recipients not having enough days to follow up yet and have less then 30 days
gap,
we want to assume them as having continuous medication until data become available;
proc sql;
    create table numer6a as
    select distinct *
    from numer5
    where recipient_id_1010 not in (select distinct recipient_id_1010 from numer6)
```

```
        and datepart(IPSD) > (&reportdate-114)
        order by recipient_id_1010, DATE_OF_SERVICE_3013, cnt;
quit;

data numer6b;
  set numer6a;
  by recipient_id_1010 DATE_OF_SERVICE_3013 cnt ;

  numer10=1;
  if gap_sum>30 then numer10=0;
run;
* exclude the recipients already had a gap greater than 30 days;
proc sql;
  create table numer6c as
  select distinct recipient_id_1010, numer10
  from numer6b
  where recipient_id_1010 not in (select distinct recipient_id_1010 from numer6b
                                where numer10=0);
quit;

data numer6;
  set numer6 numer6c;
run;
proc sort data=numer6;
  by recipient_id_1010;
run;

data dx_ad_rh5;
  set dx_ad_rh5;
  if (medicaid_elig=1 and partD=0) and neg_med ne 1 and ipsd ne . then denom10=1;
run;

data dx_ad_rh6;
  merge dx_ad_rh5 numer6;
  by recipient_id_1010;
run;

Data mediadher_depression;
  set dx_ad_rh6;
  Format Ind_Type Ind_Set $35.;
  Format Report_Date mmddyy10.;
  Keep Recipient_Id_1010 Report_date Ind_Type Ind_Set High_Risk_Ind Ind;
  Ind_Type = 'INADEQUATE DURATION ANTIDEPRESSANT';
  Report_Date = &Reportdate;
  Ind_Set = 'BH CARE COORDINATION';

  if numer10 eq . then numer10=0;

  High_Risk_Ind=1-numer10;

  Ind=denom10;
  if denom10 =1;
Run;

proc freq data=mediadher_depression;
table high_risk_ind;
run;

/*****
*****
*****
*****
*****/
```

```

***** Part III: Code to create Behavioral Health IP/ER indicator
*****
*****
*****
*****/

```

```

Proc Sql;
  Create Table Recipient_AllIP As
  Select Distinct
        Al10.Recipient_Id_1010,
        Al10.Provider_Id_2001,
        Al30.Provider_Entity_Id_E2135, /*Eliminates Some Duplicates Produced
By Provider_Id*/
        Datepart(Al10.Date_Admission_3011) as Date_Admission format MMDDYY10.,
        Datepart(Al10.Date_Discharge_3108) as Date_Discharge format
MMDDYY10.,
        Datepart(Al10.Date_Of_Service_3013) as Date_of_Service format
MMDDYY10.,
        Datepart(Al10.Date_Service_End_3015) as Date_of_Service_End format
MMDDYY10.,
        Datepart(load_Audit_Date) As Load_Date format mmddy10.,
        Al10.Primary_Diag_Code_3006,
        Admission_Source_Cd_E0138,
        Drg_Control_Code_3336 ,
        Al10.Rate_Code_2078,
        Datepart( Al10.Date_Payment_3150) as Date_of_Payment format
MMDDYY10.,
        Al10.Record_Code_H002,
        'IP' As Service_Type

  From
        Medicaid.Emedny_Claim_Enct Al10 Inner Join
        Medicaid.Provider_Current Al30

  On
        Al10.Provider_ID_2001 = Al30.Provider_ID_2001

  Where Invoice_Type_3301 IN ('11', '12')
  And Claim_Status_Type_C188='1'
  /*And Admission_Source_Cd_E0138 Not In ('4','5','6')*/
  And Date_Admission_3011 <= &Load_End
  And Date_Service_End_3015 >= &Load_Start
  /*And Load_Audit_Date <= &Load_Date*/
;
Quit
;

```

```

* The Period of Evaluation (12 Months) where recipient(s)visited ER;
/*EXTRACTION OF ALL COMPLETE EMERGENCY ROOM RECORDS FOR THE NOTIFICATION COHORT*/

```

```

Proc Sql;
  Create Table Recipient_AllER As
  Select Distinct
        All.Recipient_Id_1010,
        C.Provider_Entity_Id_E2135,
        All.Provider_Id_2001,
        All.Location_Of_Service_3017,
        Datepart(Date_Of_Service_3013) as Date_of_Service format MMDDYY10.,
        All.Primary_Diag_Code_3006,
        All.Rate_Code_2078,
        All.Catgy_Of_Serv_2019,
        All.Omm_Proc_Code_W660_1,

```

```

                DRG_CONTROL_CODE_3336,
                All.Specialty_Code_2048,
                All.Record_Code_H002,
                Datepart(Date_Payment_3150) as Date_of_Payment format MMDDYY10.
    From      Medicaid.Emedny_Claim_Enct All Inner Join
            Medicaid.Provider_Current C
    On      All.Provider_Id_2001 = C.Provider_Id_2001
    Where   Date_Of_Service_3013 Between &Load_Start And &Load_End
    And ( (All.Specialty_Code_2048 = '901')
    Or Trim(Rate_Code_2078) In ('4007', '4008', '4009', '4010', '2879', '1402',
'1419'))
    And All.Claim_Status_Type_C188 = '1'
        /*And      Load_Audit_Date <= &Load_Date*/
;
Quit
;

*****
*
*****   Engagement MENTAL HEALTH + OASAS Intensive Service for all recipients who
have had services
            in the Past 12 Months of the Clinic Service window *****
*****
*
* The Period of Evaluation (12 Months) where recipient(s) visited IP;
Proc Sql;
    Create Table Recipient_Mhip As
    Select Distinct
            All10.Recipient_Id_1010,
            All30.Provider_Entity_Id_E2135, /*Eliminates Some Duplicates Produced
By Provider_Id*/
            Date_Admission Format Mmddyy10.,
            Date_Discharge Format Mmddyy10.,
            Date_Of_Service Format Mmddyy10.,
            Date_Of_Service_End Format Mmddyy10.,
            Load_Date Format Mmddyy10.,
            All10.Primary_Diag_Code_3006,
            Admission_Source_Cd_E0138,
            All10.Rate_Code_2078,
            Date_Of_Payment Format Mmddyy10.,
            All10.Record_Code_H002,
            'ip' As Service_Type

    From

            Recipient_Allip All10 Inner Join
            Medicaid.Provider_Current All30

    On      All10.Provider_Id_2001 = All30.Provider_Id_2001

    Where   (( Trim(Rate_Code_2078) In ('2852', '2858', '2962', '2963',
'4001', '4002', '4003',
                                                    '4004', '4005',
'4006'))/*Mh*/
        /*Omh Res*/
            Or Trim(Rate_Code_2078) = '1212'
        /*Oasas Res*/
            Or Trim(Rate_Code_2078) = '4210'

        /*Oasas:Ipr*/
            Or ( Trim(Rate_Code_2078) In
('2957', '2966', '2967', '2993', '3118', '3119', '4202', '4204', '4213'))

```

```
        /*Oasas:Ip Detox*/
            Or ( Trim(Rate_Code_2078) In ('4203', '4212',
'4220','4800','4801','4802','4803', '4804'))
            Or (Record_Code_H002='4' And Primary_Diag_Code_3006 Between '290' And
'31999')

            Or (((Drg_Control_Code_3336 Between '0772' And '0776') Or
(Drg_Control_Code_3336 = '0770'))
/*Oasas:Ip Detox,Current*/
            And Date_Admission > '21Dec2009'd And Rate_Code_2078 <> '3130')
            Or ((Drg_Control_Code_3336 Between '0743' And '0751')
/*Oasas:Ip Detox, Outdated*/
            And Date_Admission < '21Dec2009'd And Rate_Code_2078 <> '3130'))))
;
Quit
;

Proc Sort Data = Recipient_MHIP Nodup;
    By Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Admission Date_Of_Service
Date_Discharge;
Run;

* Extracting a Single Ip Admission Record Per Recipient ! ;
Data Inpta Inptb;
    Set Recipient_MHIP;
    By Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Admission;
    If First.Date_Admission Then Output Inpta;
    If Last.Date_Admission Then Output Inptb;
Run;

* Retaining only One admission per Provider Per Date Of Service ;
Proc Sql;
    Create Table Inpt_Block As

        Select
            B.Recipient_Id_1010,
            A.Date_Admission,
            A.Date_Of_Service,
            B.Date_Of_Service_End,
            B.Date_Discharge,
            B.Provider_Entity_Id_E2135,
            B.Record_Code_H002,
            B.Primary_Diag_Code_3006
        From
            Inpta A ,
            Inptb B
        Where
            A.Recipient_Id_1010 = B.Recipient_Id_1010
            And A.Provider_Entity_Id_E2135 = B.Provider_Entity_Id_E2135
            And A.Date_Admission = B.Date_Admission
;
Quit
;

Proc Sort Data = Inpt_Block Nodup;
    By Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Of_Service Date_Discharge;
Run;

Data T1;
    Set Inpt_Block;
    If      (Recipient_Id_1010 = Lag1(Recipient_Id_1010)
            And Provider_Entity_Id_E2135 = Lag(Provider_Entity_Id_E2135)
```

```
        And Date_Admission-1 <= Lag1(Date_Of_Service_End))
    Then  Cnt+1;
    Else  Cnt=1;
Run;

Proc Sort Data = T1;
  By Recipient_Id_1010 Provider_Entity_Id_E2135
     Descending Date_Of_Service
     Descending Date_Discharge
     Descending Cnt;
Run;

Data T2;
  Set T1;
  N = Lag1(Cnt);
  If _N_ = 1 Then N = 1;
Run;

Proc Sort Data = T2;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Of_Service Date_Discharge;
Run;

Data T3 T4;
  Set T2;
  If Cnt = 1 And N = 1 Then Output T3;
  Else If Cnt = 1 Or N = 1 Then Output T4;
Run;

Proc Sort Data = T4;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Of_Service Date_Discharge Cnt;
Run;

Data T5;
  Set T4;
  Format Admis_New Sev_New Mmddy8.;
  Admis_New = Lag1(Date_Admission);
  Sev_New = Lag1(Date_Of_Service);
  If N = 1 And Recipient_Id_1010 = Lag1(Recipient_Id_1010)
     Then Date_Admission = Admis_New;
  If N = 1 And Recipient_Id_1010 = Lag1(Recipient_Id_1010)
     Then Date_Of_Service = Sev_New;
  If N = 1 Then Output;
Run;

Data Inpt_Block;
  Set T3 T5;
  Drop Cnt N Admis_New Sev_New;
Run;

Proc Sort Data=Inpt_Block;
  By Recipient_Id_1010 Date_Of_Service Date_Discharge;
Run;

Data Ip;
  Set Inpt_Block;
  If Date_Discharge = . Or Date_Of_Service_End > Date_Discharge
     Then Date_Discharge = Date_Of_Service_End;
  Service_Type='Ip';

Keep Recipient_Id_1010 Provider_Entity_Id_E2135 Date_Admission Date_Discharge
     Service_Type Record_Code_H002 Primary_Diag_Code_3006 ;
Run;
```

```
***REMOVING MED OOS HOSPITAL RECORDS FROM THOSE INDIVIDUALS WITH DUPLICATE
ADMISSIONS***;
```

```
Proc Sql;
  Create Table AS_counts As
    Select Distinct
      Recipient_id_1010,
      Date_Admission as Admis_Date,
      Count(*) as IDCCount
    From Ip
  Group by Recipient_id_1010, Date_Admission;

  Select IDCCount,
         Count(*) as N
    from AS_counts
  Group by IDCCount
;

Quit
;

Proc Sql;
  Create Table AS_IP_Dup As
    Select Distinct
      T.*
    From Ip T, AS_counts C
  where T.recipient_id_1010 = C.recipient_id_1010
        And T.Date_Admission = C.admis_date
        And C.IDCCount > 1
;

Quit
;

Proc Sort Data = AS_ip_Dup;
  By Recipient_id_1010 Date_Admission Date_Discharge ;
Run;

Data As_Ip_Dup2;
Set As_Ip_Dup;
  By Recipient_Id_1010 Date_Admission Date_Discharge;
Where Provider_Entity_Id_E2135 In ('E0133404', 'E0133405', 'E0133408');
Run;

Proc Sql;
Create Table As_Ip1 As
  Select Distinct A.Recipient_Id_1010,
                 A.Provider_Entity_Id_E2135,
                 A.Date_Admission as Admission_Date,
                 A.Date_Discharge as Discharge_Date,
                 A.Primary_Diag_Code_3006,
                 A.Service_Type,
                 A.Record_Code_H002
  From Ip A
Left Join As_Ip_Dup2 B
  On A.Recipient_Id_1010 = B.Recipient_Id_1010
  And A.Provider_Entity_Id_E2135 = B.Provider_Entity_Id_E2135
  And A.Date_Admission = B.Date_Admission
  And A.Date_Discharge = B.Date_Discharge
Where B.Recipient_Id_1010 Is Null
  And B.Provider_Entity_Id_E2135 Is Null
  And B.Date_Admission Is Null
  And B.Date_Discharge Is Null
;

Quit
```

```
;

/*Eliminating duplicate records for individuals on a specific admission date at a
specific provider with
  - (1) duplicate admission dates and discharge dates because one record is a
claim and the other record is an encounter.
  - (2) duplicate admission dates w/ different discharge dates and diff diagnosis
codes.
  - (3) duplicate admission dates w/ diff discharge dates.
  - (4) duplicate admission dates and discharge dates w/ diff provider.
  - (5) duplicate admission dates w/ diff provider and diff discharge dates.
*/
/* Formatted on 7/18/2011 4:19:27 PM (QP5 v5.163.1008.3004) */
Proc Sort Data = As_Ip1;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Admission_Date Discharge_Date;
Run;

Data As_Ip2;
Set As_Ip1;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Admission_Date;
  If Last.Admission_Date=1;
Run;

/*Removing same provider and same admission date, diff discharge date*/

Proc Sort Data = As_Ip2;
  By Recipient_Id_1010 Admission_Date Discharge_Date;
Run;

Data As_Ip3;
Set As_Ip2;
  By Recipient_Id_1010 Admission_Date Discharge_Date;
  If Last.Discharge_Date=1;
Run;

  /*removing diff provider and same admission date, same discharge date*/

Proc Sort Data = As_Ip3;
  By Recipient_Id_1010 Admission_Date Discharge_Date;
Run;

Data As_Ip4;
Set As_Ip3;
  By Recipient_Id_1010 Admission_Date;
  If Last.Admission_Date=1;
Run;

  /*removing diff provider and same admission date, diff discharge date*/

Proc Sort Data = As_Ip4;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Admission_Date Descending
Record_Code_H002;
Run;

Data As_Ip5;
Set As_Ip4;
  By Recipient_Id_1010 Provider_Entity_Id_E2135 Admission_Date;
  If Last.Admission_Date=1;
Run;

Proc Sql;
  Create Table Ip_Notice2 As
  Select Distinct
```

```
                Recipient_Id_1010,
                Provider_Entity_Id_E2135,
                Primary_Diag_Code_3006,
                Admission_Date As Date_Admission,
                Discharge_Date As Date_Discharge,
                Service_Type
From    As_Ip5
order by Recipient_Id_1010, Admission_Date, Discharge_Date
;
Quit
;

/*new Indicator: 3+ BH Inpatient*/

Proc sql;
    create table recipient_bhINPT as
    select distinct
        recipient_id_1010,
        count(*) as Num_BH_ip_svr
    from Ip_Notice2
    group by recipient_id_1010
    having Num_BH_ip_svr >=3;
quit;

Proc Sql;
    Create Table Recipient_MhER As
    Select Distinct
        Recipient_Id_1010,
        Provider_Entity_Id_E2135,
        Provider_Id_2001,
        Location_Of_Service_3017,
        Date_of_Service Format mmddyy10.,
        Primary_Diag_Code_3006,
        Rate_Code_2078,
        Catgy_Of_Serv_2019,
        Specialty_Code_2048,
        Record_Code_H002,
        'Er' As Service_Type,
        (Case
            When Provider_Entity_Id_E2135 In
            ('E0133404','E0133405','E0133408')
                Then '1'
            Else '0'
        End) As Medsoos,
        (Case
            When Omm_Proc_Code_W660_1 In
            ('99281','99282','99283','99284','99285')
                Then '1'
            Else '0'
        End) As Er_Proc

    From    Recipient_AllER
    Where    (Rate_Code_2078 In ('4007', '4008', '4009', '4010')
            Or ((Specialty_Code_2048='901' And Catgy_Of_Serv_2019 = '0287')
            And Primary_Diag_Code_3006 Between '290' And '31999'));
Quit;

/*Eliminating Meds00s records that do not have ER procedure codes 99281-99285*/

Proc Sql;
    Create Table Er_Notice1 As
    Select Distinct
        Recipient_Id_1010,
```

```

        Provider_Entity_Id_E2135,
        Date_of_Service,
        Service_Type

    From Recipient_MhER
    Where Medsoos||Er_Proc <> '10';

Quit;

/*New Indicator: 3+ BH ER*/

Proc sql;
    create table recipient_bhER as
    select distinct
        recipient_id_1010,
        count(*) as Num_BH_ER_svr
    from ER_Notice1
    group by recipient_id_1010
    having Num_BH_ER_svr >=3;

quit;

Data Ip_Er_MH;
    Set Ip_Notice2 Er_Notice1;

Run;

Proc Sql;
    Create Table Recipient_MH As
    Select Distinct
        Recipient_Id_1010,
        Count(*) As Num_Er_Ip_Svc
    From Ip_Er_MH
    Group By Recipient_Id_1010
    Having Num_Er_Ip_Svc >= 4;

Quit;

* Drop Extra Tables ;
Proc Sql;
    Drop Table Recipient_IP, Ip_Notice2,
        Ip_Notice1, Inpt_block, Inptb, Inpta,
        Er, Er_Notice1, t1, t2, t3, t4, t5, IP,
        As_ip5, As_ip4, As_ip3, As_ip2, As_ip1, As_ip_dup2,
        As_ip_dup1,
        As_ip_dup, As_counts;

Quit;

*****
    ** Preparing data for Summarization Process;
*****

Data Recipient_MH;
    Set Recipient_MH;
    Format Ind_Type Ind_Set $35.;
    Format Report_Date mmddyy10.;
    Keep Recipient_Id_1010 Report_date Ind_Type Ind_Set High_Risk_Ind Ind;
        Ind_Type = 'PSYCHIATRIC ER/INPT 4+';
        High_Risk_Ind = 1;
        Ind = 1;
        Report_Date = &Reportdate;
        Ind_Set = 'BH CARE COORDINATION';

Run;

Data Recipient_bhintp;
    set recipient_bhintp;
    Format Ind_Type Ind_Set $35.;
    Format Report_Date mmddyy10.;
```

```
        Keep Recipient_Id_1010 Report_date Ind_Type Ind_Set High_Risk_Ind Ind;
            Ind_Type = 'PSYCHIATRIC INPT 3+';
            High_Risk_Ind = 1;
            Ind = 1;
            Report_Date = &Reportdate;
            Ind_Set = 'BH CARE COORDINATION';

Run;

Data Recipient_bhER;
    set recipient_bhER;
    Format Ind_Type Ind_Set $35.;
    Format Report_Date mmddyy10.;
    Keep Recipient_Id_1010 Report_date Ind_Type Ind_Set High_Risk_Ind Ind;
        Ind_Type = 'PSYCHIATRIC ER 3+';
        High_Risk_Ind = 1;
        Ind = 1;
        Report_Date = &Reportdate;
        Ind_Set = 'BH CARE COORDINATION';

Run;

Data BH_Care_Coordination_IPER;
    Set Recipient_mh recipient_bhinpt recipient_bhER;
run;

Proc Sort Data = BH_Care_Coordination_IPER NoDups;
    By Recipient_Id_1010 Report_date;
Run;

/*****
*****
*****
***** Part IV: Code to extract readmission 45 Days indicator to add to the
*****
***** summary care coordination indicator
*****
*****
*****
*****/

data readmission;
    set psyckes.readmission_indicator;
    if ind_type = 'Within 45 days (MH)';
    IND_SET='BH CARE COORDINATION';
    drop ROW_CREATED_DTM ROW_CREATED_USERID;
run;

proc sql;
    create table summary_indicator as
    select RECIPIENT_ID_1010, 'BH Care Coordination Summary' as ind_type,
        'BH CARE COORDINATION' as IND_SET, &reportdate as report_date format
mmddyy10.,
        max(High_Risk_Ind) as High_Risk_Ind, max(ind) as ind
    from (select distinct RECIPIENT_ID_1010, High_Risk_Ind, ind from
BH_Care_Coordination_IPER union
        select distinct RECIPIENT_ID_1010, High_Risk_Ind, ind from Mediadher_schiz
union
        select distinct RECIPIENT_ID_1010, High_Risk_Ind, ind from Mediadher_bipolar
union
        select distinct RECIPIENT_ID_1010, High_Risk_Ind, ind from
Mediadher_depression union
        select distinct RECIPIENT_ID_1010, High_Risk_Ind, ind from readmission)
```

```
group by RECIPIENT_ID_1010;
quit;

*****
*****
***** Part V: Merge all the indicators into care coordination set *****
*****
*****;

data care_coordination;
length ind_set $50.;
length ind_type $50.;
  set summary_indicator
    BH_Care_Coordination_IPER
    Mediadher_bipolar
    Mediadher_depression
    Mediadher_schiz
    readmission;

run;
```