# Documentation for Statistical Data Analysis and Programming Specifications for Trends in Antipsychotics and Trends in Antidepressants, 2013 and 2018

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## Purpose

The purpose of this subtask was to conduct analyses for a Statistical Brief assessing the cost of antipsychotics (therapeutic class 1-subclass 1 [TC1s1]=249) and antidepressants (TC1s1=251) in 2013 and 2018. The first step was to determine how the MULTUM classification scheme had changed from 2013 to 2018 and resolve changes. The second step was to calculate costs and use statistics for antipsychotics and antidepressants.

Specific analyses/results requested:

1. For the years 2013 and 2018 (separate listing for each year), using the internal, non PUF non disguised PMED LINKRX year files, produced frequencies (unweighted and weighted) for:
2. TC1 by TC2 by TC3 (Output Table 1)
3. TC1 = 242
4. by subclasses: TC1S1, TC1S2, TC1S3 (Output Table 2)
5. by 1st subclass and sub-sub classes: TC1S1, TC1S1\_1, TC1S1\_2 (Output Table 3)
6. by 2nd subclass and sub-sub classes: TC1S2, TC1S2\_1, TC1S2\_2 (Output Table 4)
7. by 3rd subclass and sub-sub classes: TC1S3, TC1S3\_1, TC1S3\_2 (Output Table 5)
8. by all subclasses and sub-sub classes (Output Table 5all)
9. Repeat b.i-v for TC2 and TC3 (where applicable): Output Table 6 – Table 9
10. After the sub therapeutic classes were finalized, AHRQ requested estimates, both unweighted and weighted, of:
11. Total dollars and total use,
12. Total number of persons (having one or more fill) for TC1s1=249 and TC1s1=251,
13. Mean and median expenses for out of pocket and third party expenses, and
14. Breakouts by age, race/ethnicity, sex, socio-economic status (SES), insurance coverage, and region.

## Programs

The following table provides a high-level description of the programs used to analyze the 2013 and 2018 LNKRX data.

Table 1: Program Descriptions

| Program Name | Description |
| --- | --- |
| 234M\_AP\_AD\_Formats.sas | Formats for TC variables – assigns TC drug names to TC drug numeric codes. |
| 010\_ReadIn\_LINKRX\_MEPS\_CFs.sas | Read in and review contents, varnames and values, etc. for the non-PUF, non-disguised PMED LINKRX files, the TC\_CAT data, and the MEPS Consolidated Files; Combine the TC code data from 2013 and 2018 and generate TC-code/TC-name xwalk files. Note: these results were for internal use to gain familiarity with the data. |
| 020\_ListFreqs\_TCs\_2013\_2018.sas | Generate listwise xtabs for psychotherapeutic drugs of TC subclasses and TC sub-subclasses to check for MULTUM classification changes between 2013 and 2018. |
| 030\_CostAndUse\_2013\_2018\_final\_v9.sas | For psychotherapeutics overall, and broken out by subclass (anti-psychotics and antidepressants), and sub-subclass, calculate total dollars, total use/fills, total persons with at least 1 fill, mean/median total cost, mean/median out-of-pocket (OOP) costs, and mean/median 3rd party costs. |
| 031\_CostAndUse\_2013\_2018\_TC\_Xtabs.sas | Output xtabs where TC2 or TC3 = 242, with drug names, with all applicable subclasses and sub-subclasses, to check if there are AP/AD subclasses under TC2 or TC3. |
| 040\_CostAndUse\_2013\_2018\_v5.sas | For psychotherapeutics overall, and broken out by subclass (anti-psychotics and antidepressants), and sub-subclass, calculate total dollars, total use/fills, total persons with at least 1 fill, mean/median total cost, mean/median OOP costs, and mean/median 3rd party costs; broken down by select socio-demographic characteristics. |

### Datasets Used (all .sas7bdat)

Table 2: Datasets

| Program Name |  |  |
| --- | --- | --- |
| 010\_ReadIn\_LINKRX\_MEPS\_CFs.sas |  |  |
| 020\_ListFreqs\_TCs\_2013\_2018.sas |  | Lrx13  Lrx18 |
| 030\_CostAndUse\_2013\_2018\_final\_v9.sas |  | Unwtd\_13  Meantab\_all\_13  Medtab\_all\_13  Mean\_med\_all\_13  Unwtd\_18  Meantab\_all\_18  Medtab\_all\_18  Mean\_med\_all\_18 |
| 031\_CostAndUse\_2013\_2018\_TC\_Xtabs.sas |  | Unwtd\_13  Meantab\_all\_13  Medtab\_all\_13  Mean\_med\_all\_13  Unwtd\_18  Meantab\_all\_18  Medtab\_all\_18  Mean\_med\_all\_18 |
| 040\_CostAndUse\_2013\_2018\_v5.sas |  | <prefix>\_unwtd\_13  <prefix>\_meantab\_all\_13  <prefix>\_medtab\_all\_13  <prefix>\_mean\_med\_all\_13  <prefix>\_unwtd\_18  <prefix>\_meantab\_all\_18  <prefix>\_medtab\_all\_18  <prefix>\_mean\_med\_all\_18  Where prefix is: Age, RE (race/ ethnicity), Sex, POV (poverty), INS (insurance), or REG (region) |

### Project Input Datasets Required

* **H163v2x.sas7bdat**: 2013 MEPS Consolidated File, PUF
* **H209.sas7bdat**: 2018 MEPS Consolidated File, Non-PUF, Non-disguised
* **LNKRX2013.sas7bdat**: PMED data for 2013
* **LNKRX2018.sas7bdat:** PMED data for 2018
* **LNKRX2013\_v2.sas7bdat**: PMED data for 2013, revised to unmask some TCs
* **LNKRX2018\_v2.sas7bdat:** PMED data for 2018, revised to unmask some TCs
* **TC\_CAT.sas7bdat:** therapeutic class categories from 2013 & 2018. These are 2 different data files, same name, stored in separate, year-specific folders, and copied into the task-specific data folder with the appropriate year appended to each filename

### Project Output data sets produced

* **TC\_AP\_AD\_1318.sas7bdat:** Therapeutic class information for psychotherapeutic drugs for 2013 and 2018 combined
* **LINKRX\_CF\_2013.sas7bdat:** File combining LNKRX data and consolidated full-year (CF) data
* **LINKRX\_CF\_2018.sas7bdat:** File combining LNKRX data and CF data
* **Unwtd\_13:** File includes unweighted estimates (counts, means, variances) of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses, for 2013.
* **Meantab\_all\_13:** File includes weighted estimates (counts, means, variances), from proc surveymeans, of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses (with domain stacking), for 2013.
* **Medtab\_all\_13:** File includes weighted medians, from proc surveymeans, of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses, for 2013.
* **Mean\_med\_all\_13:** File is the result of merging all three data files above (unweighted, means, and medians) into one data set, for 2013
* **Unwtd\_18:** File includes unweighted estimates (counts, means, variances) of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses, for 2018
* **Meantab\_all\_18:** File includes weighted estimates (counts, means, variances), from proc surveymeans, of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses (with domain stacking), for 2018
* **Medtab\_all\_18:** File includes weighted medians, from proc surveymeans, of total cost and use (number of persons with at least one fill and number of fills), for TCs, TC Subclasses, and TC Sub-subclasses, for 2018
* **Mean\_med\_all\_18:** File is the result of merging all three data files above (unweighted, means, and medians) into one data set, for 2018
* Each data file below includes the same content as the corresponding files described above, but with a socio-demographic (SD) variable included as a domain. The specific SD variable is identified by the prefix in the data set name. Prefixes include: Age, RE (race/ethnicity), Sex, POV (poverty), INS (insurance), or REG (region).
  + **<prefix>\_unwtd\_13**
  + **<prefix>\_meantab\_all\_13**
  + **<prefix>\_medtab\_all\_13**
  + **<prefix>\_mean\_med\_all\_13**
  + **<prefix>\_unwtd\_18**
  + **<prefix>\_meantab\_all\_18**
  + **<prefix>\_medtab\_all\_18**
  + **<prefix>\_mean\_med\_all\_18**

## Key Definitions

* CF = consolidated full-year files
* TC = therapeutic class (e.g., 242 PSYCHOTHERAPEUTIC AGENTS)
* SUB = subclass (e.g., 249 ANTIDEPRESSANTS). Of note, there are only 2 subclasses: antidepressants and antipsychotics. There are a number of sub-subclasses under each of these 2 subclasses.
* SS = sub-subclass (e.g., 308 SSNRI ANTIDEPRESSANTS). Of note, SS is nested within SUB, and SUB is nested within TC.
* *yy* = as a filename suffix indicates that the file referenced will have both a 2013 and 2018 version