This is an overview of do files used to construct analytic files, and run analyses, for “Association of combination statin and antihypertensive therapy with reduced Alzheimer’s disease 1and related dementia risk,” by Douglas Barthold, Geoffrey Joyce, Roberta Diaz Brinton, Whitney Wharton, Patrick Gavin Kehoe, and Julie Zissimopoulos.

**Main analyses**

reg\_saht1a4\_adrdv\_ci.do – main regressions (Table 2, Figure 1)

sum\_saht2a1\_adrdv.do – descriptive statistics (Table 1)

sum\_saht2a1\_adrdv\_bene.do – descriptive statistics, beneficiary counts (Table 1)

stataht\_use\_stats.sas – drug use prevalence by year (Figure 2)

**Supplementary analyses**

reg\_saht1a3\_ci.do – AD verified (etable 1)

reg\_saht1a4\_adrdv\_ci1802.do – 180 day threshold (etable 2)

reg\_saht1a4\_adrdv\_ci2702.do – 270 day threshold (etable 3)

**Make analytic files**

1. Pull the claims for the drugs of interest from the Part D event level files, make individual level file for each class in each year:

* cp\_aceiso1.sas, cp\_aceiso1\_2014.sas – ACE inhibitors solo
* cp\_aceicchb1.sas, cp\_aceicchb1\_2014.sas – ACE inhibitors and CCBs combined
* cp\_aceithia1.sas, cp\_aceithia1\_2014.sas – ACE inhibitors and thiazide-like diuretics combined
* cp\_a2rbso1.sas, cp\_a2rbso1\_2014.sas – ARB solo
* cp\_a2rbthia1.sas, cp\_a2rbthia1\_2014.sas – ARB and thiazide-like diuretics combined
* cp\_bbloso1.sas, cp\_bbloso1\_2014.sas – Beta blockers solo
* cp\_bblothia1.sas, cp\_bblothia1\_2014.sas – Beta blockers and thiazide-like diuretics combined
* cp\_cchbso1.sas, cp\_cchbso1\_2014.sas – CCB solo
* cp\_loopso1.sas, cp\_loopso1\_2014.sas – Loop diuretics solo
* cp\_thiaso1.sas, cp\_thiaso1\_2014.sas – Thiazide-like diuretics solo
* cp\_atorcchb2.sas – Atorvastatin and CCBs combined
* cp\_atorso2.sas – Atorvastatin solo
* cp\_praso2.sas – Pravastatin solo
* cp\_rosuso2.sas – Rosuvastatin solo
* cp\_simso2.sas – Simvastatin solo
* cp\_donep1.sas – donepezil solo
* cp\_galan1.sas – galantamine solo
* cp\_meman1.sas – memantine solo
* cp\_rivas1.sas – rivastigmine solo

2. Combine the yearly individual level files for each class into one individual-year level file for multiple classes:

* ahtco\_long0714.sas – Anti-hypertensives
* statins\_long0714.sas – Statins
* adrx\_long0714.sas – donepezil, galantamine, memantine, rivastigmine

3. Harmonize Medicare Part A, B and D claims and MBSF files

* partABlib.mac - sets up raw data file libnames for Parts A and B claims
* partDlib.mac - sets up raw data file libnames for Part D claims
* setup.inc - sets up directories for Medicare claims data project work
* sascontents.mac - Macro that runs contents on data set and outputs to specified folder
* renvars.mac - Macro that renames variables in list
* pdeplan\_dts.sas - Get all Part D plan information by bene\_id and plan
* bene\_pdeplan\_dts.sas - Summarize Part D plan information on beneficiary level
* claim\_dates.sas - Extract claim dates from claim segment for all claim types
* clmids.sas - Creates a beneficiary level file that flags whether the beneficiary has a type of claim
* claimfile\_set\_nseg.inc - Sets number segments for claim types and years that have been broken up into smaller segment files
* extractfrom1.mac, extprocs1.mac, extprocs1\_xwseg.mac - macros to loop through years of claims files and extract and rename variables
* xwalk0205.mac - crosswalk 2002-2005 EHIC ids to beneficiary ids
* diag\_pta.sas - Extracts diagnoses information form Part A claims
* diag\_ptb.sas - Extracts diagnoses information from Part B claims
* provider\_id.sas - Extracts provider information from Part A and B claims
* p2egwp.sas - Creates a format of Part D plan information
* bsf\_allyrs.sas - merges bsfab and bsfd files together after 2006
* bene\_demog2014.sas, verold.fmt - creates a file of beneficiary non-time-varying demographics across all years of available data
* bene\_status.fmt, bene\_status\_year.sas - summarizes enrollment data.sas, HMO status.sas, dual eligibility.sas, Part D plan by year
* bene\_geo.sas, ssa2fips\_state.fmt, ssa\_statenm.fmt, fips\_statenm.fmt, ssa2fips\_county.fmt, ssa\_countynm.fmt, fips\_countynm.fmt - extracts geographic identifiers from bsf files and crosswalks other geographic identifiers

4. Pull Dementia Diagnoses

* dementia\_dx - pull dementia diagnoses from Part A and B files
* dementia\_dxdt\_typ - build beneficiary, date-level files from dementia diagnoses
* dementia\_dxdate - combines all Part A and B dementia date files
* bene\_demadd\_dt – makes a file with the earliest dementia date using the augmented set of diagnosis codes
* bene\_cond – uses earliest diagnosis date to set incident year for AD and non-AD dementia
* bene\_cond\_verify – indicates whether second dementia diagnosis found after earliest
* bene\_demAD\_samp – limits verified dementia data set to sample cases

5. Make covariate files

* statussamp0614.sas – Medicare enrollment variables
* ADRDv\_timing4.sas – Diagnosis information on Alzheimer’s disease and related dementias
* hcc.sas – comorbidity index variables
* ccw.sas – comorbidity diagnosis variables
* geoses.sas – geography and income variables
* ndcbygname.sas – NDCs associated with drugs by generic name
* ndcbyclass.sas – NDCs associated with drugs by class
* phy0614.sas – physician utilization variables

6. Combine the drug utilization files with covariate files to make analytic files

* statinsaht\_prepreg902.do – makes final analytic file for main analyses
* statinsaht\_prepreg1802.do – makes final analytic file for analyses with 180 day threshold
* statinsaht\_prepreg2702.do – makes final analytic file for analyses with 270 day threshold